KOKERBOOM 1 WIND FARM NEAR LOERIESFONTEIN:

FAUNA & FLORA SPECIALIST SCOPING REPORT

PRODUCED FOR AURECON

ON BEHALF OF BUSINESS VENTURE INVESTMENTS NO. 1788 (Pty) Ltd

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NEMA 2014 CHECKLIST

Section		*NEMA 2014 Regulations for Specialist Studies*	Position in report (pg.)	check
1	1	A specialist report prepared in terms of these Regulations must contain—		
	(a)	details of-		
		(i) the specialist who prepared the report; and	4-5	✓
		(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;		✓
	(b)	a declaration that the person is independent in a form as may be specified by the competent authority;		✓
	(c)	an indication of the scope of, and the purpose for which, the report was prepared;	6	✓
	(d)	a description of the methodology adopted in preparing the report or carrying out the specialised process;	8-10	✓
	(e)	a description of any assumptions made and any uncertainties or gaps in knowledge;	8	✓
	(f)	a description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment;	10-17	✓
	(g)	recommendations in respect of any mitigation measures that should be considered by the applicant and the competent authority;	20-23	✓
	(h)	a description of any consultation process that was undertaken during the course of carrying out the specialist report;	See main EIA report	✓
	(i)	a summary and copies of any comments that were received during any consultation process; and	See main EIA report	✓
	(j)	any other information requested by the competent authority.		
	2	Where a proposed development and the geographical area within which it is located has been subjected to a pre-assessment using a spatial development tool, and the output of the pre-assessment in the form of a site specific development protocol has been adopted in the prescribed manner, the content of a specialist report may be determined by the adopted site specific development protocol applicable to the specific proposed development in the specific geographical area it is proposed in.	N/A	✓

PROFESSIONAL PROFILE OF CONSULTANT:

Simon Todd Consulting has extensive experience in the assessment of renewable energy developments, having provided ecological assessments for more than 80 different renewable energy developments. This includes a large number of developments in the immediate vicinity of the current site as well as in the broader Northern Cape Province. Simon Todd is a recognised ecological expert and is a past chairman of the Arid-Zone Ecology Forum and has 18 years' experience working throughout the country. Simon Todd is registered with the South African Council for Natural Scientific Professions (No. 400425/11).

Recent experience and relevant projects in the immediate vicinity of the current site include the following:

- Mainstream South Africa Dwarsrug Wind Energy Facility: Fauna & Flora Specialist Impact Assessment Report. Sivest 2014.
- Basic Assessment Process for the Proposed Construction of the Transnet 15km 50 kV Power Line from Eskom Helios Substation to the proposed new Transnet Helios Traction Feeder Substation. Nsovo Environmental Consulting. 2014.
- Loeriesfontein Wind Energy Facility – Substation & Grid Connection. Fauna & Flora Specialist Report for Basic Assessment. Specialist Report for Savannah Environmental. 2012.
- Proposed Re-Alignment of the Authorised Power Line for The Loeriesfontein 2 Wind Energy Facility.: Fauna & Flora Specialist Report for Basic Assessment. Savannah Environmental 2014.
- Mainstream Loeriesfontein 2 Wind Energy Facility: Fauna and Flora Preconstruction Walk-Through Report. Savannah Environmental 2014.
- Mainstream Khobab Wind Energy Facility: Fauna And Flora Preconstruction Walk-Through Report. Savannah Environmental 2014.

1 INTRODUCTION

Business Venture Investments No. 1788 (Pty) Ltd (herein after referred to as the Proponent) has appointed Aurecon South Africa (Pty) Ltd (Aurecon) to undertake the required environmental authorisation process for the proposed Kokerboom Wind Energy Facility (WEF) located north of Loeriesfontein in the Northern Cape Province. The Kokerboom WEF would comprise two wind farms ("Kokerboom 1" Wind Farm and "Kokerboom 2" Wind Farm) and as such would require two environmental authorisations, as well as a Basic Assessment for the required grid connection infrastructure. It is anticipated that entire the Kokerboom WEF will have an output capacity of up to 480 MW, consisting of two 140-240 MW wind farms. It is anticipated that there will be up to 60 turbines per wind farm. Aurecon has appointed Simon Todd Consulting to provide a specialist terrestrial biodiversity Scoping Study of the development site as part of the EIA process.

The purpose of the Terrestrial Biodiversity Scoping Report is to describe and detail the ecological features of the proposed site; provide a preliminary assessment of the ecological sensitivity of the site and identify the likely impacts that may be associated with the development of the site as a wind energy facility. A desktop review of the available ecological information for the area is conducted in order to identify and characterise the ecological features of the site. This information and satellite imagery of the site is used to derive a draft ecological sensitivity map that presents the likely ecological constraints and opportunities for development at the site, which can then be verified and refined during the EIA. The information and sensitivity map presented here provides an ecological baseline that can be used in the planning phase of the development to ensure that the potential negative ecological impacts associated with the development can be minimised. Furthermore, the study defines the terms of reference for the EIA phase of the project and outlines a plan of study for the EIA which will follow the Scoping Study.

This report relates to the proposed Kokerboom 1 Wind Farm terrestrial biodiveristy assessment only.

The full scope of study is detailed below.

1.1 SCOPE OF STUDY

The scope of the study includes the following activities:

Conduct a desktop scoping study to broadly describe and characterise the study area in terms of:

- Vegetation types and/or habitats;
- National conservation status of major vegetation types;
- Red Data (threatened and endangered) flora and fauna species;
- The potential presence/absence of Red Data flora and fauna species;

- The potential presence of trees protected according to the National Forests Act and fauna and flora protected under the National Environmental Management: Biodiversity Act;
- The general status of vegetation on site; and
- Potential impacts on biodiversity, sensitive habitats and ecosystem functioning.

Compile a scoping level biodiversity report including (but not limited to) the following aspects:

- Introduction;
- High level description of the environmental baseline;
- Assumptions and limitations;
- Methodology;
- High level identification and mapping of biodiversity (fauna and flora) sensitive areas within the proposed application site;
- Potential anticipated impacts related to biodiversity (fauna and flora);
- Recommendations for further assessment; and
- Conclusion.

1.2 RELEVANT ASPECTS OF THE DEVELOPMENT

It is anticipated that entire the Kokerboom WEF, which includes the Kokerboom 1 Wind Farm, will have an output capacity of up to 480 MW, consisting of two 140-240 MW wind farms. It is anticipated that there will be up to 60 turbines per wind farm. Proposed associated infrastructure will include:

- Gravel surface access roads ~6 - 10 m wide;
- Hard standings of ~50 m x 25 m alongside turbines;
- Satellite substations (~120 x 120 m) one per wind farm to step up the current from medium voltage (e.g. 33kV) to 132kV;
- Workshop and administration buildings;
- Temporary lay down areas;
- Medium voltage (MV) overhead lines;
- Switching Station (~100 x 100 m); and
- 132kV lines which connects each wind farm to the centrally located Eskom Helios Subtation.

A Basic Assessment (BA) will be undertaken for the proposed switching station and the 132 kV overhead transmission lines (~20-25 km) between the proposed Switching Station and the existing Eskom Helios substation. The study area was demarcated based on the boundaries of the subject properties and the areas of good wind resource. The study area for the transmission

line corridors was created using a buffer of 500m (250m each side) and will be assessed uding the BA.

1.3 LIMITATIONS & ASSUMPTIONS

The current study consists of site visits as well as a desktop study, which serves to reduce the limitations and assumptions required for the study. However for many fauna, these are difficult to observe in the field and their potential presence at the site must be evaluated based on the literature and available databases. In many cases, these databases are not intended for fine-scale use and the reliability and adequacy of these data sources relies heavily on the extent to which the area has been sampled in the past. Many remote areas have not been well sampled with the result that the species lists derived for the area do not always adequately reflect the actual fauna and flora present at the site. This is acknowledged as a limitation of the study, however it is substantially reduced by the fact that the consultant has sampled the adjacent properties including Sous Farm on multiple occasions across different seasons. In order to further reduce this limitation, and ensure a conservative approach, the species lists derived for the site from the literature were obtained from an area significantly larger than the study site.

2 METHODOLOGY

2.1 DATA SOURCING AND REVIEW

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

Vegetation:

- Vegetation types and their conservation status were extracted from the South African National Vegetation Map (Mucina and Rutherford 2006) as well as the National List of Threatened Ecosystems (2011), where relevant.
- Information on plant and animal species recorded for Quarter Degree Squares (QDS) 3019AD, CB, BC and DA was extracted from the SABIF/SIBIS database hosted by SANBI. This is a considerably larger area than the study area, but this is necessary to ensure a conservative approach as well as counter the fact that the site itself has not been well sampled in the past.
- The IUCN conservation status (Table 1) 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 (2014).

- Freshwater and wetland information was extracted from the National Freshwater Ecosystem Priority Areas assessment, NFEPA (Nel et al. 2011).
- Important catchments and protected areas expansion areas were extracted from the National Protected Areas Expansion Strategy 2008 (NPAES).

Fauna

- Lists of mammals, reptiles and amphibians which are likely to occur at the site were derived based on distribution records from the literature and the ADU databases http://vmus.adu.org.za.
- Literature consulted includes Branch (1988) and Alexander and Marais (2007) for reptiles, Du Preez and Carruthers (2009) for amphibians, Friedmann and Daly (2004) and Skinner and Chimimba (2005) for mammals.
- The faunal species lists provided are based on species which are known to occur in the broad geographical area, as well as a preliminary assessment of the availability and quality of suitable habitat at the site.
- The conservation status of each species is also listed, based on the IUCN Red List Categories and Criteria version 3.1 (2014) (See Figure 1) and where species have not been assessed under these criteria, the CITES status is reported where possible. These lists are adequate for mammals and amphibians, the majority of which have been assessed, however the majority of reptiles have not been assessed and therefore, it is not adequate to assess the potential impact of the development on reptiles, based on those with a listed conservation status alone. In order to address this shortcoming, the distribution of reptiles was also taken into account such that any narrow endemics or species with highly specialised habitat requirements occurring at the site were noted.

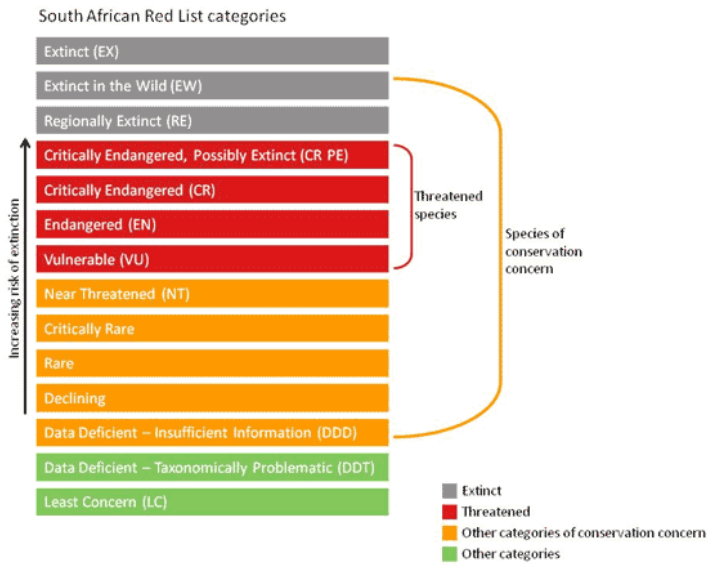

Figure 1. Schematic representation of the South African Red List categories. Taken from http://redlist.sanbi.org/redcat.php

2.2 SENSITIVITY MAPPING & ASSESSMENT

A draft ecological sensitivity map of the site was produced by integrating the available ecological and biodiversity information available in the literature and various spatial databases as described above. As a starting point, mapped sensitive features such as wetlands, drainage lines and water bodies were collated and buffered where appropriate to comply with legislative requirements or ecological considerations. Additional sensitive areas were then identified from the satellite imagery of the site and delineated. All the different layers created were then merged to create a single coverage. Features that were specifically captured in the sensitivity map include drainage features, wetlands and dams, as well as rocky outcrops and steep slopes. The ecological sensitivity of the different units identified in the mapping procedure was rated according to the following scale:

- **Low** – Units with a low sensitivity where there is likely to be a low impact on ecological processes and terrestrial biodiversity. This category represents transformed or natural areas where the impact of development is likely to be local in nature and of low significance with standard mitigation measures.
- **Medium** - Areas of natural or previously transformed land where the impacts are likely to be largely local and the risk of secondary impact such as erosion low. Development within these areas can proceed with relatively little ecological impact provided that appropriate mitigation measures are taken.
- **High** – Areas of natural or transformed land where a high impact is anticipated due to the high biodiversity value, sensitivity or important ecological role of the area. Development within these areas is undesirable and should only proceed with caution as it may not be possible to mitigate all impacts appropriately.

- **Very High** – Critical and unique habitats that serve as habitat for rare/endangered species or perform critical ecological roles. These areas are essentially no-go areas from a developmental perspective and should be avoided as much as possible.
- In some situations, areas where also categorised between the above categories, such as Medium-High, where an area appeared to be of intermediate sensitivity with respect to the two defining categories.

3 DESCRIPTION OF THE AFFECTED ENVIRONMENT- BASELINE

3.1 BROAD-SCALE VEGETATION PATTERNS

The national vegetation map (Mucina & Rutherford 2006) for the study area is depicted below in Figure 2. The entire site falls within the Bushmanland Basin Shrubland vegetation type. With an extent of 34 690 km^2 this is one of the most extensive vegetation types in South Africa. Bushmanland Basin Shrubland occurs on the extensive basin centered on Brandvlei and Van Wyksvlei, spanning Granaatboskolk in the west to Copperton in the east, and Kenhardt in the north to around Williston in the south. The area is characterised by slightly irregular plains dominated by a dwarf shrubland, with succulent shrubs or perennial grasses in places. The geology consists largely of mudstones and shales of the Ecca group and Dwyka tillites with occasional dolerite intrusions. Soils are largely shallow to non-existent, with calcrete present in most areas. Rainfall ranges from 100-200 mm and falls mostly during the summer months as thunder storms. As a result of the arid nature of the area, very little of this vegetation type has been affected by intensive agriculture and it is classified as Least Threatened. There are few endemic and biogeographically important species present at the site and only *Tridentea dwequensis* is listed by Mucina and Rutherford as biogeographically important while *Cromidon minimum*, *Ornithogalum bicornutum* and *O.ovatum* subsp *oliverorum* are listed as being endemic to the vegetation type.

Based on field surveys at the site, the vegetation is domianted by species such as *Pentzia incana*, *Zygophyllum lichtensteinianum*, *Eriocephalus spinescens*, *Aptosimum spinescens*, *Tripteris sinuata*, *Hermannia spinosa*, *Felicia clavipilosa*, *Osteospermum armatum*, *Pegolettia retrofracta*, *Pteronia mucronata*, *Pteronia sordida*, *Rosenia humilis* and *Salsola tuberculata*; forbs such as *Aptosimum indivisum*, *Hypertelis salsoloides*, *Gazania lichtensteinii* and *Fockea sinuata*; succulent shrubs such as *Aridaria noctiflora*, *Ruschia intricata* and *Sarcocaulon patersonii*; taller shrubs such as *Lycium pilifolium* and *Rhigozum trichotomum*. Overall diversity within this vegetation type at the site is low, which can be ascribed to the aridity of the area and the poorly developed soils. Areas of higher diversity include exposed calcrete soils which contain specialist species such as *Titanopsis calcarea*, while there are also some low shale-derived hills present

which have species such as *Aloinopsis luckhoffii*, *Cephalophyllum fulleri* which is listed as Rare and protected species such as *Aloe falcata*, *Aloe claviflora* and *Hoodia gordonii*. Due to the habitat diversity that these areas provide compared to the homogenous nature of the rest of the area, they are considered more sensitive than the surrounding plains which are typical of the Bushmanland Basin Shrubland vegetation type.

Other vegetation types which occur in the wider area include Hantam Karoo and Western Bushmanland Klipveld. However, neither of these vegetation types fall within the site and would not be affected by the Kokerboom WEF. There are also some small pans in the area which fall within the Bushmanland Vloere vegetation type. These are however outside of the current site and would not be affected by the Kokerboom 1 wind farm.

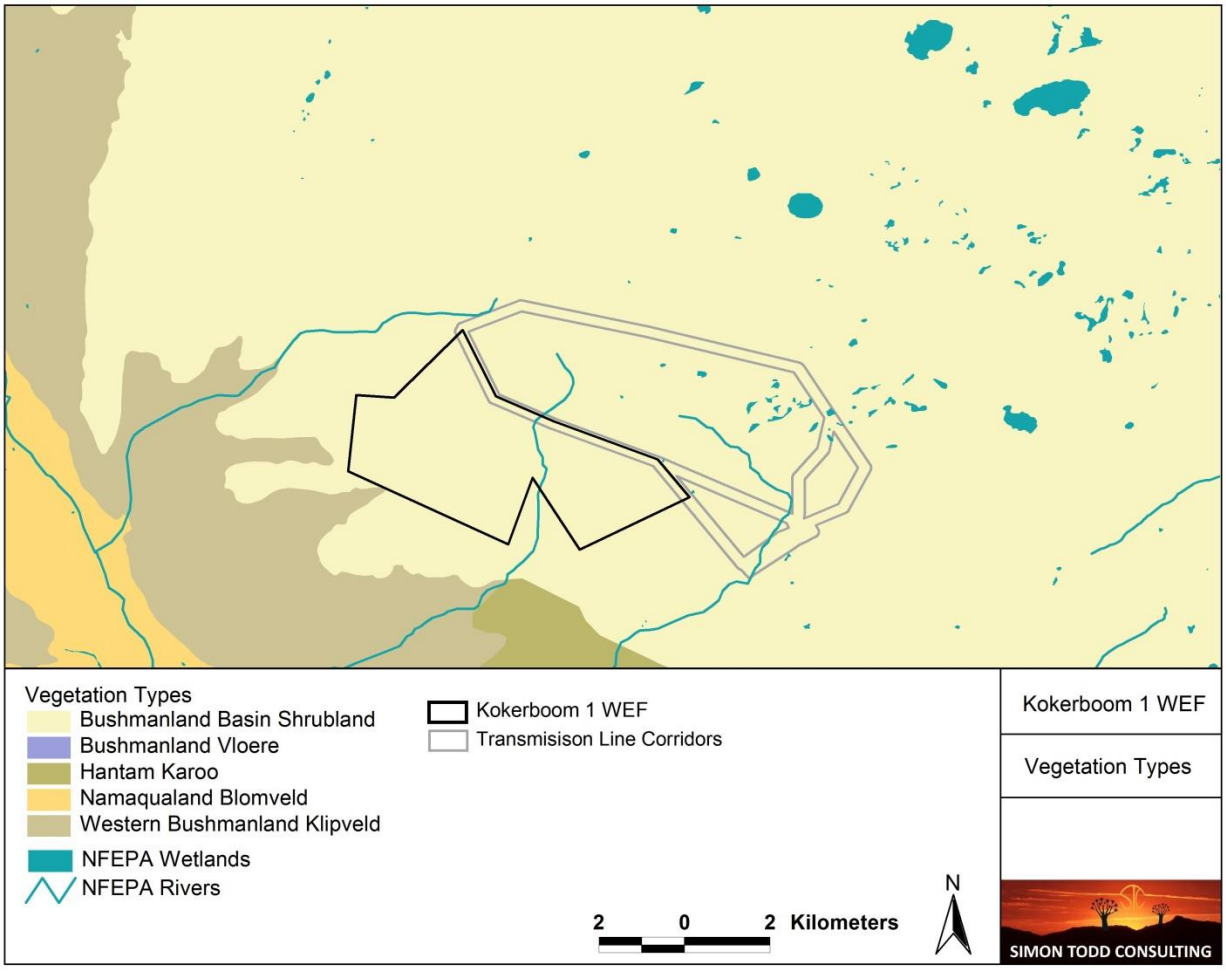

Figure 2. The national vegetation map (Mucina & Rutherford 2006) for the study area, showing the boundary of the Kokerboom 1 WEF study area, as well as the transmission line corridors (the latter to be assessed via a separate BA). Rivers and wetlands (pans) delineated by the National Freshwater Ecosystem Priority Areas Assessment (Nel et al. 2011) are also depicted.

3.2 LISTED PLANT SPECIES

The study area has been very poorly sampled in the past and many of the quarter degree squares in the area have no data available. According to the SIBIS database, a total of 135 indigenous species are known from the area, of which over 90 have been observed by the consultant on the site and the adjacent properties. Although the area is likely to contain more species than have been identified in previous studies, the area is not species-rich and even with more intensive sampling the area is not likely to demonstrate exceptional richness. Listed and protected species observed in the area include *Cephalophyllum fulleri* which is classified as Rare and *Lithops otzeniana* which is classified as Vulnerable as well as the provincially protected species *Aloe falcata*, *Hoodia gordonii* and *Aloinopsis luckhoffii* and *Euphorbia multiceps*. *Hoodia gordonii* is protected under NEMA and is listed as DDD (Data Deficient – insufficient information) while *Aloinopsis luckhoffii* is provincially protected is listed as taxonomically uncertain (DDT).

3.3 CRITICAL BIODIVERSITY AREAS & BROAD-SCALE PROCESSES

The site lies within the planning domain of the Namakwa Biodiversity Sector Plan (Desmet & Marsh 2007). This biodiversity assessment identifies Critical Biodiversity Areas (CBAs) which represent biodiversity priority areas which should be maintained in a natural to near natural state. The CBA maps indicate the most efficient selection and classification of land portions requiring safeguarding in order to maintain ecosystem functioning and meet national biodiversity objectives. The site does not fall within the CBA and the nearest CBA is more than 15km southwest of the site, suggesting that development is not likely to have an impact on the CBAs. As there are no CBAs in the vicinity of the site that might be affected by the development, a map of the CBAs is not provided here. In addition, the site does not lie within a National Protected Area Expansion Strategy (NPAES) focus area and has therefore not been identified as an important area for future conservation area expansion.

In terms of existing impacts in the area and the potential for Kokerboom 1 Wind Farm and associated Kokerboom WEF to contribute to cumulative impacts, the DEA-registered renewable energy projects for the area is depicted below in Figure 3. Although there is not a lot of development in the wider area, there are two preferred bidders adjacent to to the site that are currently under construction, as well as the Dwarsrug WEF to the west of these sites, which has authorisation but is not yet a preffered bidder. As such, there is a node of development around the Helios Substation which would potentially generate significant local impact. However, as the intensity of development in the wider area is very low and there are no specific features of the development area which would indicate that it is more important than the surrounding area for faunal movement or landscape connectivity, the contribution of the development to cumulative impact would be relatively low and would operate at a local scale only. In addition, the existing and proposed wind energy developments are not very extensive and even with the development

of up to two wind farms of the current development (Kokerboom 1 and Kokerboom 2), the overall intensity of development within a 20-30km radius would be very low. Taking a worst-case estimate of 200ha of direct habitat loss per development, even if all developments in the area were to go ahead, there would be 600ha of development from other developments and an additional 400ha from the proposed wind farms of the Kokerboom WEF, which is not significant given the overwhelmingly intact nature of the surrounding landscape.

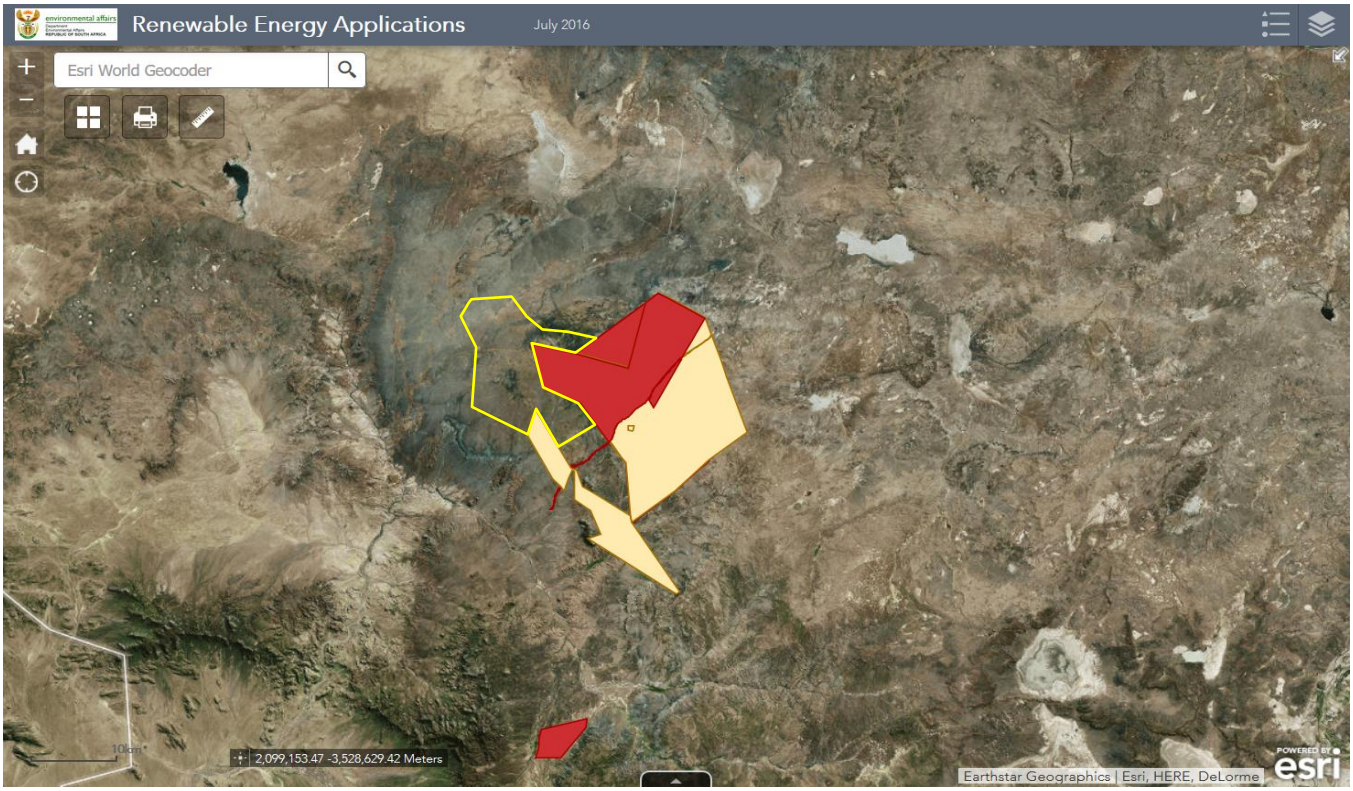

Figure 3. DEA-registered renewable energy projects in the vicinity of the wider Kokerboom WEF study area which is indicated in yellow.

3.4 FAUNAL COMMUNITIES

Mammals

The site falls within the distribution range of 40 terrestrial mammals suggesting that potential mammalian diversity at the site is quite low. Species observed in the area include Steenbok *Raphicerus campestris*, Cape Porcupine *Hystrix africaeaustralis*, Aardvark *Orycteropus afer*, Yellow Mongoose *Cynictis penicillata*, Cape Hare *Lepus capensis,* Cape Fox *Vulpes chama*, Bat-eared Fox *Otocyon megalotis* and Round-eared Elephant Shrew *Macroscelides proboscideus*. In

terms of specific habitats which are likely to be of above average significance, the low ridges and drainage lines are likely to contain the highest fauna abundance and diversity.

Listed mammal species which may occur at the site includes the Black-footed cat *Felis nigripes* (Vulnerable) and Honey Badger *Mellivora capensis* which is listed as Endangered in the South African Red Data Book of Mammals, but is listed as Least Concern by the IUCN. As these species have a broad distribution across South Africa, the relatively limited footprint of the development is not likely to compromise the local or regional populations of these species, especially given the aridity of the area and the associated very low density of such species in the area.

Reptiles

The site lies in or near the distribution range of at least 40 reptile species (Appendix 3), comprising 5 tortoises, 12 snakes, 15 lizards and skinks, 8 geckos and 1 chameleon. This is a comparatively low total, suggesting that reptile diversity at the site is likely to be low. There are no listed species which are likely to occur at the site. Species which were observed in the area include the Namaqua Sand Lizard *Pedioplanis namaquensis*, Spotted Desert Lizard *Meroles suborbitalis*, Western Sandveld Lizard *Nucras tessellata*, Southern Rock Agama *Agama atra*, Ground Agama *Agama aculeata* subsp. *aculeata* and Bushmanland Tent Tortoise *Psammobates tentorius verroxii*. In terms of the likely impacts of the development on reptiles, habitat loss is not likely to be highly significant as the direct footprint of the development is not likely to exceed a few hundred hectares and this would not be significant in context of the relatively homogenous and intact surrounding landscape. In some situations, the loss of vegetation cover associated with roads and other cleared areas can generate significant impact on reptiles as they may be vulnerable to predation while crossing such cleared areas, but as the site is arid, plant cover is already low and the reptiles species present are mostly well adapted to low-cover environments.

Amphibians

Given the aridity of the site and lack of surface water in the area, it is not surprising that only six frog species may occur in the area. Of these only those which are relatively independent of water such as the Karoo Toad *Vandijkophrynus gariepensis* and Tandy's Sand Frog *Tomopterna tandyi* are likely to occur within the site itself. Impacts on amphibians are likely to be low given the limited extent of the development as well as low likely density of amphibians in the area. Although there are some pans present in the area, these are not necessarily available to amphibians as many of the pans are saline and not suitable for amphibians.

3.5 KOKERBOOM 1 SENSITIVITY ASSESSMENT

The draft sensitivity map for the study area, including Kokerboom 1 Wind Farm, is depicted below in Figure 4. The majority of the site consists of low open shrubland on flat plains and gently sloping hills that are not considered highly sensitive. The low hill in the center of the site and

adjacent ridge areas and exposed gravelly slopes are considered moderate to high sensitivity based on the lack of other significant landscape features in the area and the presence of additional flora of concern within these areas. Although it is acceptable for roads and other linear infrastructure to pass through these areas, it is preferable to minimise the footprint within these areas and not locate turbines within these areas. Apart from the ridges and hilly areas, the only other significant feature of the site are the drainage lines which are not well developed, but considered high sensitivity on account of their vulnerability to disturbance as well as the ecological function that they perform.

The mapped sensitive features occupy a relatively small proportion of the landscape and with proper development planning and avoidance it is not likely that the presence of these features at the site would pose a significant obstacle for development. The majority of the site consists of low open shrubland considered to be medium-low sensitivity and suitable for development. As there are few species of concern associated with this habitat and it is widely available in the area, impacts of development within these areas are likely to be low.

The typical gravel plains prevalent in the eastern section of the Kokerboom 1 WEF, dominated by low shrubs with no trees present. These plains are homogenous and exhibit little variation and as there are few species of concern present, they are not considered highly sensitive and are generally considered suitable target areas for development.

In the east of the Kokerboom 1 site, there are some low gravel ridges which have higher diversity than the surrounding plains, including a higher density of protected species such as Hoodia gordonii. These areas are considered locally sensitive and not suitable for development, they are however of limited extent and it should be possible to avoid impact to these areas.

Grassy plains in the south west of the Kokerboom 1 site. The vegetation is dominated by *Stipagrostis* with scattered *Lycium* bushes. This area is not considered sensitive as the diversity is low and there are very few species of concern present.

There is a gravel hill in the centre of the Kokerboom 1 site. Although such hills can be sensitive no species of concern were observed in this area and it is considered Medium sensitivity.

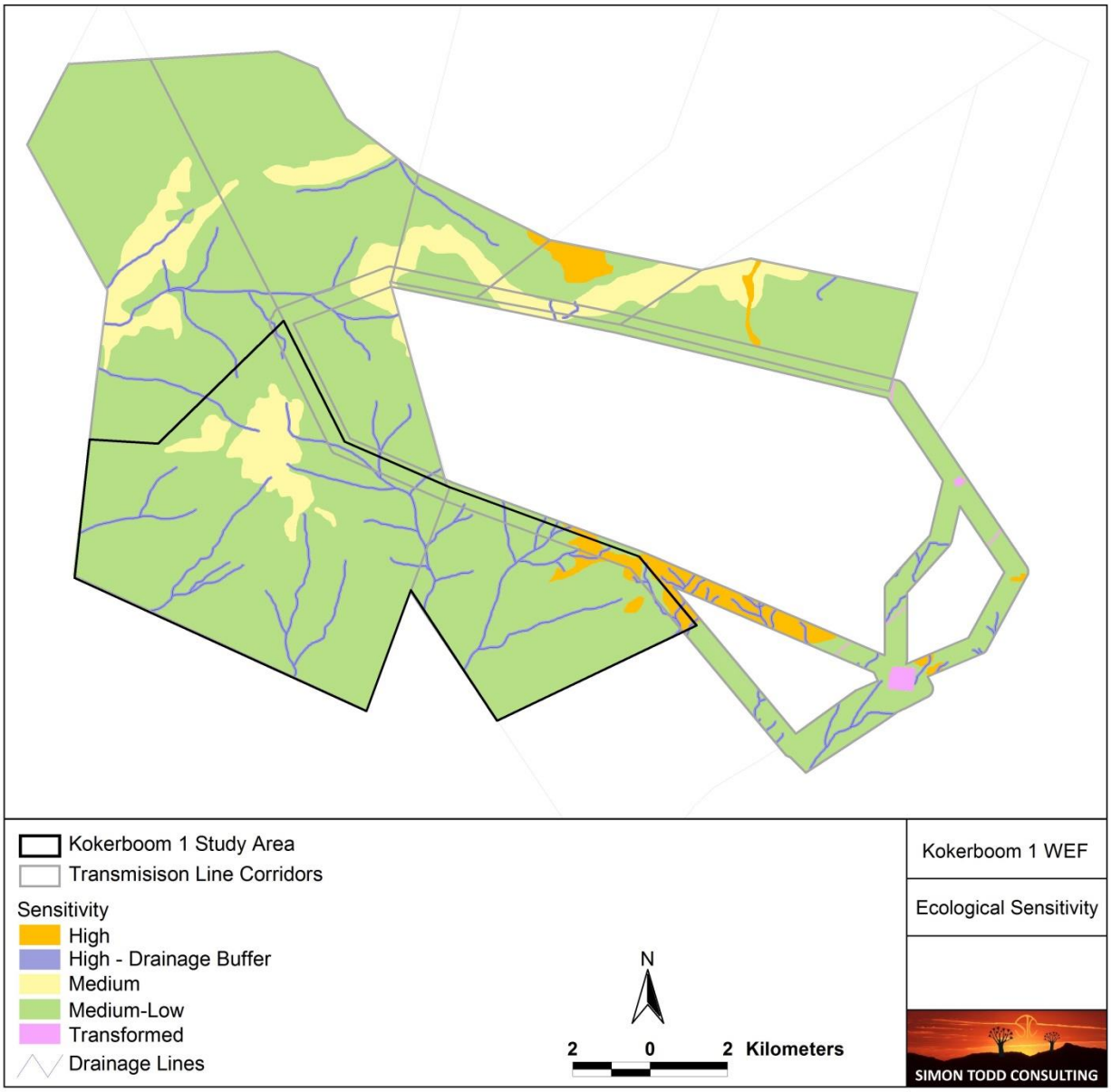

Figure 4. Draft sensitivity map for the Kokerboom 1 WEF study area. The majority of the site is low open shrubland of medium-low sensitivity. There are some restricted areas of exposed gravel slopes within Kokerboom 1 that are considered high sensitivity and should be avoided as much as possible.

4 *IMPACTS AND ISSUES IDENTIFICATION*

The development of the Kokerboom WEF, which consists of two wind farms, is likely to result in a variety of impacts, associated largely with the disturbance, loss and transformation of intact

vegetation and faunal habitat to hard infrastructure such as turbine foundations and service areas, roads, operations buildings etc. The following impacts are identified as the major impacts that are likely to be associated with the development and which will be assessed during the EIA phase of the two wind farms, for the preconstruction, construction, operational and decommissioning phases of the development.

4.1 IDENTIFICATION OF POTENTIAL IMPACTS

The likely impacts on the terrestrial ecology of the site resulting from the development of the Kokerboom 1 Wind Farm are identified and discussed below with reference to the characteristics and features of the site. The major risk factors and contributing activities associated with the development are identified and briefly outlined and summarised below before the impacts are assessed

Impact 1. Impacts on vegetation and listed or protected plant species

The development would require vegetation clearing for turbines, roads and other hard infrastructure. Apart from the direct loss of vegetation within the development footprint, listed and protected species would potentially be impacted. These impacts are likely to occur during the construction phase of the development, with additional vegetation impacts during operation likely to be relatively low. This impact will therefore be assessed for the facility for the construction phase only.

Impact 2. Direct Faunal Impacts

Increased levels of noise, pollution, disturbance and human presence during construction will be detrimental to fauna. Sensitive and shy fauna are likely to move away from the area during the construction phase as a result of the noise and human activities present, while some slow-moving species would not be able to avoid the construction activities and might be killed if proper management and monitoring is not in place. Traffic at the site during all phases of the project would pose a risk of collisions with fauna. Slower types such as tortoises, snakes and amphibians would be most susceptible and the impact would be largely concentrated to the construction phase when vehicle activity was high. Some mammals and reptiles would be vulnerable to illegal collection or poaching during the construction phase as a result of the large number of construction personnel that are likely to be present. During the operational phase, noise generated by the operation of the turbines is likely to negatively affect at least some fauna. Faunal impacts will therefore be assessed during the construction and operational phase of the facility.

Impact 3. Increased Erosion Risk

The large amount of disturbance created during construction would leave the site vulnerable to wind and water erosion. Soil disturbance associated with the development will render the impacted areas vulnerable to erosion and measures to limit erosion will need to be implemented.

This impact is likely to manifest during construction and would persist into the operational and decommissioning phases and should therefore be assessed for all phases.

Impact 4. Alien Plant Invasion

The disturbance associated with the construction phase of the project will render the disturbed areas vulnerable to alien plant invasion. Some alien plant invasion is inevitable and regular alien plant clearing activities would be required to limit the extent of this problem. Once the natural vegetation has returned to the disturbed areas, the site will be less vulnerable to alien plant invasion, however, the roadsides and turbine service areas are likely to remain foci of alien plant invasion for years. This impact would manifest during the operational and decommissioning phases, although some of the required measures to reduce this impact are required during construction.

Cumulative Impact 1. Impacts on broad-scale ecological processes and cumulative habitat loss

The development will contribute to cumulative impacts in the area and potentially the ability to meet future conservation targets. In addition, the presence of the wind turbines and daily operational activities at the site may deter certain species from the area, resulting in a loss in broad-scale landscape connectivity. In this regard it is important to note that while the development footprint is low in comparison with the total extent of the site some fauna may be affected across a much wider area than the footprint due to noise and other effects which extend beyond the direct footprint of the development.

5 SCOPING ASSESSMENT OF IMPACTS

A preliminary assessment of the likely extent and significance of each impact identified above is made below. It is however important to note that this a scoping assessment and represents the potential significance of impacts which may change substantially in the EIA depending on the mitigation and avoidance measures that are implemented by the proponent in response to the sensitivity maps and site attributes reported here.

Impact 1. *Impact on vegetation and listed plant species.*

Impact Phase: Construction							
Impact Description: Impact on vegetation and listed plant species due to transformation within the development footprint							
	Extent	**Duration**	**Magnitude**	**Status**	**Significance**	**Probability**	**Confidence**
Without Mitigation	Site Specific	Long Term	Medium	-'tve	Medium	Definite	Certain
With Mitigation	Site Specific	Long Term	Low	-'tve	Low	Definite	Certain
Can the impact be reversed?			No - transformation is a necessary outcome of the development				
Will impact cause irreplaceable loss of resources?			Not likely				
Can impact be avoided, managed or mitigated?			To some extent through avoidance, but some residual impact is likely				
Mitigation measures to reduce residual risk or enhance opportunities: 1) Minimise development footprint within sensitive areas and ensure that final development layout takes account of areas identified as sensitive. . 2) Ensure that lay-down and other temporary infrastructure is within low sensitivity areas, preferably previously transformed areas if possible.							
Impact to be addressed/ further investigated and assessed in Impact Assessment Phase?			Yes. Particular attention will be paid to the presence of listed species within the affected areas and the possibilities for avoidance and mitigation.				

Impact 2. Direct faunal impacts

Impact Phase: Construction							
Impact Description: Direct faunal impacts due to construction phase noise and physical disturbance.							
	Extent	**Duration**	**Magnitude**	**Status**	**Significance**	**Probability**	**Confidence**
Without Mitigation	Site Specific	Short Term	Medium	-'tve	Low	Definite	Certain
With Mitigation	Site Specific	Short Term	Low	-'tve	Low	Definite	Certain
Can the impact be reversed?			Construction phase disturbance will be transient, but some habitat loss would be long term.				
Will impact cause irreplaceable loss or resources?			Highly unlikely.				
Can impact be avoided, managed or mitigated?			Only partly as noise and construction phase disturbance cannot be entirely avoided or mitigated.				
Mitigation measures to reduce residual risk or enhance opportunities: 1) Avoid sensitive faunal habitats such as drainage lines.							

2) A variety of avoidance and mitigation measures to reduce impact on fauna will need to implemented during construction, including limiting impacts from construction staff and the operation of construction vehicles.	
Impact to be addressed/ further investigated and assessed in Impact Assessment Phase?	Yes, the fauna present at the site will be better characterised in the field and sensitive habitats identified and delineated where necessary.

Impact Phase: Operation							
Impact Description: Faunal impacts due to operational phase activities.							
	Extent	**Duration**	**Magnitude**	**Status**	**Significance**	**Probability**	**Confidence**
Without Mitigation	Site Specific	Long Term	Medium	-'tve	Medium	Probable	Sure
With Mitigation	Site Specific	Long Term	Low	-'tve	Low	Probable	Sure
Can the impact be reversed?			The impact will persist for the lifespan of the facility.				
Will impact cause irreplaceable loss or resources?			Unlikely				
Can impact be avoided, managed or mitigated?			Some management is possible, but residual impact from the wind turbines and general disturbance will persist.				
Mitigation measures to reduce residual risk or enhance opportunities: 1) Ensure than management and maintenance activities are favourable for fauna.							
Impact to be addressed/ further investigated and assessed in Impact Assessment Phase?			Yes, the potential for long-term impact on fauna is likely and will need to be assessed during the EIA.				

Impact 3. Soil Erosion Risk

Impact Phase: Construction, Operation and Decommisioning							
Impact Description: Following construction, the site will be vulnerable to soil erosion							
	Extent	**Duration**	**Magnitude**	**Status**	**Significance**	**Probability**	**Confidence**
Without Mitigation	Site Specific	Long Term	Medium	-'tve	Medium	Probable	Certain
With Mitigation	Site Specific	Long Term	Low	-'tve	Low	Unlikely	Sure
Can the impact be reversed?			With appropriate mitigation the impact can be ameliorated				
Will impact cause irreplaceable loss or resources?			The loss of large amounts to topsoil would potentially be an irreplaceable loss of resources.				

Can impact be avoided, managed or mitigated?	With appropriate control measures, erosion risk can be mitigated
Mitigation measures to reduce residual risk or enhance opportunities: 1) Runoff management and erosion control should be integrated into the project design 2) Development on slopes should be avoided as much as possible and specific additional mitigation may be required where this cannot be avoided.	
Impact to be addressed/ further investigated and assessed in Impact Assessment Phase?	Yes. As this a highly likely potential impact, it will be assessed in the EIA phase

Impact 4. Alien Plant Invasion

Impact Phase: Operation and Decomissioning							
Impact Description: Following construction, the site will be highly vulnerable to alien plant invasion							
	Extent	**Duration**	**Magnitude**	**Status**	**Significance**	**Probability**	**Confidence**
Without Mitigation	Site Specific	Long Term	Medium	-'tve	Medium	Probable	Sure
With Mitigation	Site Specific	Long Term	Low	-'tve	Low	Unlikely	Sure
Can the impact be reversed?			With appropriate mitigation the impact can be ameliorated				
Will impact cause irreplaceable loss or resources?			With mitigation there would not be loss of resources				
Can impact be avoided, managed or mitigated?			With appropriate control measures, alien plants can be controlled and reduced to very low impact				
Mitigation measures to reduce residual risk or enhance opportunities: 1) Alien management plan to be part of the EMP. 2) Regular alien clearing where invasion occurs.							
Impact to be addressed/ further investigated and assessed in Impact Assessment Phase?			Yes. As this a highly likely potential impact, it will be assessed in the EIA phase				

Impact 5. Impact on Cumulative effects and Broad-Scale Ecological Processes

Impact Phase: Operation							
Impact Description: Cumulative impact on broad scale ecological processes							
	Extent	**Duration**	**Magnitude**	**Status**	**Significance**	**Probability**	**Confidence**
Without Mitigation	Local	Long Term	Medium	-'tve	Medium	Probable	Sure
With Mitigation	Local	Long Term	Low	-'tve	Low	Unlikely	Sure

Can the impact be reversed?	The impact would last for the lifetime of the development
Will impact cause irreplaceable loss or resources?	Unlikely
Can impact be avoided, managed or mitigated?	To some extent, but the main impact results from the loss and transformation of habitat which cannot be avoided
Mitigation measures to reduce residual risk or enhance opportunities: 1) Minimise the development footprint within the high sensitivity areas. 2) There should be an integrated management plan for the development area during operation, which is beneficial to fauna and flora. 3) Specific avoidance and mitigation may be required to reduce the impact on certain habitats of limited extent and high ecological or conservation significance.	
Impact to be addressed/ further investigated and assessed in Impact Assessment Phase?	Yes. The habitats at the site will be characterised during the EIA and assessed based on the final layout.

6 PROPOSED ACTIVITIES FOR THE EIA PHASE

The current study is based on a desktop study as well as preliminary site visit and additional refinement of the sensitivity map and understanding of the potential impacts of the Kokerboom 1 Wind Farm will be required based on the development layout to be provided by the proponent for the EIA phase. Additional activities and outputs for the EIA will include the following studies and activities:

- Refine the ecological sensitivity map of the Kokerboom 1 site. Particular attention will be paid to the higher sensitivity parts of the site which are of limited extent and are of highest potential significance in terms of the impact of the development.
- Characterise the vegetation and plant communities present at the site in greater detail. Further on-site surveys will need to be conducted to better characterise the plant communities at the site and inform cumulative impacts and the distribution of restricted plant communities or habitat types.
- Identify and map the presence of any unique and special habitats at the site such as gravel patches, rock fields and other localised habitats.
- Locate, identify and map the location of significant populations of species of conservation concern, so that the final development footprint can be adjusted so as to avoid and reduce the impact on such species. Some species of concern may be widespread and others localised and the distribution of such species will be established during the follow-up site visit.

- Evaluate the likely presence of listed faunal species at the site and identify associated habitats that should be avoided to prevent impact to such species.
- Evaluate, based on the site attributes, what the most applicable mitigation measures to reduce the impact of the development on the site would be and if there are any areas where specific precautions or mitigation measures should be implemented.
- Assess the impacts identified above in light of the site-specific findings and the final layout for assessment to be provided by the developer.

7 CONCLUSION & RECOMMENDATIONS

The majority of the Kokerboom 1 Wind Farm consists of low open shrubland or grassland on flat plains and gently sloping hills that are medium-low sensitivity and are considered potentially suitable for development. As there are few species of concern associated with these habitats and it is widely available in the area, impacts of development within these areas are likely to be low. There are also some gravel slopes present that are considered moderate to high sensitivity based on the lack of other significant landscape features in the area and the presence of additional flora of concern within these areas. Although it is acceptable for roads and other linear infrastructure to pass through these areas, it is preferable to minimise the footprint within the High sensitivity areas and not locate turbines within these areas. Apart from the ridges and hilly areas, the only other significant feature of the site are the drainage lines which are not well developed, but considered high sensitivity on account of their vulnerability to disturbance as well as the ecological function that they perform. The mapped sensitive features occupy a relatively small proportion of the landscape and with proper development planning and avoidance it is not likely that the presence of these features at the site would pose a significant obstacle for development.

Cumulative impacts in the area are not considered highly significant due to the low level of transformation in the broader area. The intensity of development in the wider area is very low and there are no specific features of the development area which would indicate that it is more important than the surrounding area for faunal movement or landscape connectivity. The contribution of the development to cumulative impact would be relatively low and would operate at a local scale only.

With the application of relatively simple mitigation and avoidance measures, the impact of the Kokerboom 1 Wind Farm can be reduced to a low overall level. There are no specific long-term impacts likely to be associated with the wind farm that cannot be reduced to an acceptable level through mitigation and avoidance. As such, there are no fatal flaws associated with the development and no apparent reasons that it should not proceed to the EIA phase.

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9 ANNEX 1. LIST OF PLANTS

List of plant species known from the vicinity of the Kokerboom study site, based on the SANBI SIBIS database. Conservation status is from the South African Red Data List of Plants 2016.

Family	Species	IUCN Status	Family	Species	IUCN Status
ACANTHACEAE	*Acanthopsis disperma*	LC	ACANTHACEAE	*Blepharis furcata*	LC
AIZOACEAE	*Aizoon canariense*	LC	AIZOACEAE	*Galenia africana*	LC
AIZOACEAE	*Galenia fruticosa*	LC	AIZOACEAE	*Galenia sarcophylla*	LC
AIZOACEAE	*Galenia squamulosa*	LC	AIZOACEAE	*Plinthus karooicus*	LC
AIZOACEAE	*Tetragonia arbuscula*	LC	AIZOACEAE	*Tetragonia fruticosa*	LC
AIZOACEAE	*Tetragonia microptera*	LC	AMARYLLIDACEAE	*Brunsvigia comptonii*	LC
APOCYNACEAE	*Gomphocarpus filiformis*	LC	APOCYNACEAE	*Fockea sinuata*	LC
APOCYNACEAE	*Hoodia gordonii*	DDD	APOCYNACEAE	*Quaqua incarnata*	LC
ASPARAGACEAE	*Asparagus africanus*	LC	ASPARAGACEAE	*Asparagus capensis var. capensis*	LC
ASPHODELACEAE	*Aloe claviflora*	LC	ASPHODELACEAE	*Aloe falcata*	LC
ASTERACEAE	*Amellus microglossus*	LC	ASTERACEAE	*Amellus strigosus subsp. pseudoscabridus*	LC
ASTERACEAE	*Arctotis fastuosa*	LC	ASTERACEAE	*Dicoma capensis*	LC
ASTERACEAE	*Didelta carnosa var. carnosa*	LC	ASTERACEAE	*Didelta spinosa*	LC
ASTERACEAE	*Dimorphotheca polyptera*	LC	ASTERACEAE	*Eriocephalus ericoides subsp. ericoides*	LC
ASTERACEAE	*Eriocephalus microphyllus var. pubescens*	LC	ASTERACEAE	*Eriocephalus spinescens*	LC
ASTERACEAE	*Felicia clavipilosa subsp. clavipilosa*	LC	ASTERACEAE	*Foveolina dichotoma*	LC
ASTERACEAE	*Gazania lichtensteinii*	LC	ASTERACEAE	*Gazania jurineifolia*	LC
ASTERACEAE	*Helichrysum herniarioides*	LC	ASTERACEAE	*Lasiopogon glomerulatus*	LC
ASTERACEAE	*Osteospermum pinnatum var. pinnatum*	LC	ASTERACEAE	*Osteospermum spinescens*	LC
ASTERACEAE	*Pegolettia retrofracta*	LC	ASTERACEAE	*Pentzia spinescens*	LC
ASTERACEAE	*Pteronia adenocarpa*	LC	ASTERACEAE	*Pteronia glauca*	LC
ASTERACEAE	*Pteronia glomerata*	LC	ASTERACEAE	*Pteronia leucoclada*	LC
ASTERACEAE	*Pteronia mucronata*	LC	ASTERACEAE	*Pteronia oblanceolata*	LC
ASTERACEAE	*Rosenia humilis*	LC	ASTERACEAE	*Senecio niveus*	LC
ASTERACEAE	*Senecio abbreviatus*	LC	ASTERACEAE	*Tripteris sinuata var. linearis*	LC
ASTERACEAE	*Tripteris sinuata var. sinuata*	LC	ASTERACEAE	*Ursinia nana subsp. nana*	LC
BIGNONIACEAE	*Rhigozum trichotomum*	LC	BRASSICACEAE	*Heliophila arenosa*	LC
BRASSICACEAE	*Lepidium desertorum*	LC	CARYOPHYLLACEAE	*Dianthus namaensis var. dinteri*	LC

CHENOPODIACEAE	*Atriplex vestita var. appendiculata*	LC	CHENOPODIACEAE	*Bassia salsoloides*	LC
CHENOPODIACEAE	*Exomis microphylla var. axyrioides*	LC	CHENOPODIACEAE	*Salsola aellenii*	LC
CHENOPODIACEAE	*Salsola aphylla*	LC	CHENOPODIACEAE	*Salsola henriciae*	LC
CHENOPODIACEAE	*Salsola procera*	LC	CHENOPODIACEAE	*Salsola tuberculata*	LC
CHENOPODIACEAE	*Suaeda fruticosa*	LC	CHENOPODIACEAE	*Suaeda merxmuelleri*	LC
CHENOPODIACEAE	*Sasola kali*	Alien	CHENOPODIACEAE	*Atriplex semibaccata*	Alien
CHENOPODIACEAE	*Atriplex lindleyi subsp inflata*	Alien	EUPHORBIACEAE	*Euphorbia aequoris*	LC
EUPHORBIACEAE	*Euphorbia multiceps*	LC	FABACEAE	*Lebeckia spinescens*	LC
FABACEAE	*Lessertia macrostachya var. macrostachya*	LC	FABACEAE	*Lotononis leptoloba*	LC
FABACEAE	*Melolobium candicans*	LC	FABACEAE	*Parkinsonia africana*	LC
FABACEAE	*Sutherlandia frutescens*	LC	FABACEAE	*Prosopis glandulosa*	Alien
FRANKENIACEAE	*Frankenia pulverulenta*	LC	GERANIACEAE	*Pelargonium minimum*	LC
GERANIACEAE	*Sarcocaulon patersonii*	LC	HYACINTHACEAE	*Drimia intricata*	LC
IRIDACEAE	*Moraea pallida*	LC	IRIDACEAE	*Tritonia karooica*	LC
LAMIACEAE	*Salvia disermas*	LC	LORANTHACEAE	*Septulina glauca*	LC
MALVACEAE	*Hermannia paucifolia*	LC	MALVACEAE	*Hermannia spinosa*	LC
MALVACEAE	*Radyera urens*	LC	MELIANTHACEAE	*Melianthus comosus*	LC
MESEMBRYANTHEMACEAE	*Aloinopsis luckhoffii*	DDT	MESEMBRYANTHEMACEAE	*Antimima evoluta*	LC
MESEMBRYANTHEMACEAE	*Aridaria noctiflora subsp. straminea*	LC	MESEMBRYANTHEMACEAE	*Cephalophyllum fulleri*	Rare
MESEMBRYANTHEMACEAE	*Conophytum uviforme subsp. uviforme*	LC	MESEMBRYANTHEMACEAE	*Drosanthemum lique*	LC
MESEMBRYANTHEMACEAE	*Lampranthus haworthii*	LC	MESEMBRYANTHEMACEAE	*Lampranthus uniflorus*	LC
MESEMBRYANTHEMACEAE	*Lithops otzeniana*	VU	MESEMBRYANTHEMACEAE	*Mesembryanthemum crystallinum*	LC
MESEMBRYANTHEMACEAE	*Mesembryanthemum stenandrum*	LC	MESEMBRYANTHEMACEAE	*Psilocaulon coriarium*	LC
MESEMBRYANTHEMACEAE	*Psilocaulon junceum*	LC	MESEMBRYANTHEMACEAE	*Ruschia abbreviata*	LC
MESEMBRYANTHEMACEAE	*Ruschia robusta*	LC	MESEMBRYANTHEMACEAE	*Stoeberia frutescens*	LC
MESEMBRYANTHEMACEAE	*Stomatium mustellinum*	LC	MOLLUGINACEAE	*Hypertelis salsoloides var. salsoloides*	LC
MOLLUGINACEAE	*Limeum aethiopicum*	LC	NEURADACEAE	*Grielum humifusum var. parviflorum*	LC
OXALIDACEAE	*Oxalis beneprotecta*	LC	PEDALIACEAE	*Sesamum capense*	LC
PLUMBAGINACEAE	*Dyerophytum africanum*	LC	POACEAE	*Aristida adscensionis*	LC
POACEAE	*Ehrharta calycina*	LC	POACEAE	*Enneapogon desvauxii*	LC
POACEAE	*Enneapogon scaber*	LC	POACEAE	*Fingerhuthia africana*	LC
POACEAE	*Schismus barbatus*	LC	POACEAE	*Stipagrostis anomala*	LC
POACEAE	*Stipagrostis brevifolia*	LC	POACEAE	*Stipagrostis ciliata var. capensis*	LC

POACEAE	*Stipagrostis namaquensis*	LC	POACEAE	*Stipagrostis obtusa*	LC
POLYGALACEAE	*Polygala seminuda*	LC	RUTACEAE	*Agathosma virgata*	LC
SANTALACEAE	*Thesium hystricoides*	LC	SANTALACEAE	*Thesium hystrix*	LC
SANTALACEAE	*Thesium lineatum*	LC	SCROPHULARIACEAE	*Aptosimum indivisum*	LC
SCROPHULARIACEAE	*Aptosimum procumbens*	LC	SCROPHULARIACEAE	*Aptosimum spinescens*	LC
SCROPHULARIACEAE	*Jamesbrittenia atropurpurea subsp. atropurpurea*	LC	SCROPHULARIACEAE	*Nemesia calcarata*	LC
SCROPHULARIACEAE	*Peliostomum leucorrhizum*	LC	SCROPHULARIACEAE	*Selago albida*	LC
SCROPHULARIACEAE	*Selago pinguicula*	LC	SOLANACEAE	*Lycium cinereum*	LC
SOLANACEAE	*Lycium pilifolium*	LC	SOLANACEAE	*Lycium oxycarpum*	LC
SOLANACEAE	*Solanum burchellii*	LC	SOLANACEAE	*Solanum capense*	LC
URTICACEAE	*Forsskaolea candida*	LC	ZYGOPHYLLACEAE	*Tribulus terrestris*	LC
ZYGOPHYLLACEAE	*Tribulus zeyheri*	LC	ZYGOPHYLLACEAE	*Zygophyllum flexuosum*	LC
ZYGOPHYLLACEAE	*Zygophyllum lichtensteinianum*	LC	ZYGOPHYLLACEAE	*Zygophyllum retrofractum*	LC
ZYGOPHYLLACEAE	*Zygophyllum simplex*	LC			

10 ANNEX 2. LIST OF MAMMALS

List of mammals which are likely to occur in the broad vicinity of the Kokerboom study area. Habitat notes and distribution records are based on Skinner & Chimimba (2005), while conservation status is from the IUCN Red Lists 2013. Species observed on the adjacent wind farm property are assumed present on the current site as well.

Scientific Name	Common Name	Status	Habitat	Likelihood
Afrosoricida (Golden Moles):				
Chrysochloris asiatica	Cape Golden Mole	LC	Coastal parts of the Northern and Western Cape	High
Macroscledidea (Elephant Shrews):				
Macroscelides proboscideus	Round-eared Elephant Shrew	LC	Species of open country, with preference for shrub bush and sparse grass cover, also occur on hard gravel plains with sparse boulders for shelter, and on loose sandy soil provided there is some bush cover	Confirmed
Tubulentata:				
Orycteropus afer	Aardvark	LC	Wide habitat tolerance, being found in open woodland, scrub and grassland, especially associated with sandy soil	Confirmed
Hyracoidea (Hyraxes)				
Procavia capensis	Rock Hyrax	LC	Outcrops of rocks, especially granite formations and dolomite intrusions in the Karoo. Also erosion gullies	Low
Lagomorpha (Hares and Rabbits):				
Pronolagus rupestris	Smith's Red Rock Rabbit	LC	Confined to areas of krantzes, rocky hillsides, boulder-strewn koppies and rocky ravines	Low
Lepus capensis	Cape Hare	LC	Dry, open regions, with palatable bush and grass	High
Lepus saxatilis	Scrub Hare	LC	Common in agriculturally developed areas, especially in crop-growing areas or in fallow lands where there is some bush development.	Confirmed
Rodentia (Rodents):				
Cryptomys hottentotus	African Mole Rat	LC	Wide diversity of substrates, from sandy soils to heavier compact substrates such as decomposed schists and stony soils	High
Hystrix africaeaustralis	Cape Porcupine	LC	Catholic in habitat requirements.	Confirmed
Graphiurus ocularis	Spectacled Dormouse	LC	Associated with sandstones of Cape Fold mountains, which have many vertical and horizontal crevices.	Low
Rhabdomys pumilio	Four-striped Grass Mouse	LC	Essentially a grassland species, occurs in wide variety of habitats where there is good grass cover.	Confirmed
Mus minutoides	Pygmy Mouse	LC	Wide habitat tolerance	High
Aethomys namaquensis	Namaqua Rock Mouse	LC	Catholic in their habitat requirements, but where there are rocky koppies, outcrops or boulder-strewn hillsides they use these preferentially	High

Parotomys brantsii	Brants' Whistling Rat	LC	Associated with a dry sandy substrate in more arid parts of the Nama-karoo and Succulent Karoo. Species selects areas of low percentage of plant cover and areas with deep sands.	High
Parotomys littledalei	Littledale's Whistling Rat	LC	Riverine associations or associated with Lycium bushes or Psilocaulon absimile	High
Otomys unisulcatus	Bush Vlei Rat	LC	Shrub and fynbos associations in areas with rocky outcrops Tend to avoid damp situations but exploit the semi-arid Karoo through behavioural adaptation.	Confirmed
Desmodillus auricularis	Cape Short-tailed Gerbil	LC	Tend to occur on hard ground, unlike other gerbil species, with some cover of grass or karroid bush	High
Gerbillurus paeba	Hairy-footed Gerbil	LC	Gerbils associated with Nama and Succulent Karoo preferring sandy soil or sandy alluvium with a grass, scrub or light woodland cover	High
Malacothrix typica	Gerbil Mouse	LC	Found predominantly in Nama and Succulent Karoo biomes, in areas with a mean annual rainfall of 150-500 mm.	High
Petromyscus collinus	Pygmy Rock Mouse	LC	Arid areas on rocky outcrops or koppies with a high rock cover	Low
Primates:				
Papio ursinus	Chacma Baboon	LC	Can exploit fynbos, montane grasslands, riverine courses in deserts, and simply need water and access to refuges.	Low
Eulipotyphla (Shrews):				
Crocidura cyanea	Reddish-Grey Musk Shrew	LC	Occurs in relatively dry terrain, with a mean annual rainfall of less than 500 mm. Occur in karroid scrub and in fynbos often in association with rocks.	High
Carnivora:				
Proteles cristata	Aardwolf	LC	Common in the 100-600mm rainfall range of country, Nama-Karoo, Succulent Karoo Grassland and Savanna biomes	High
Caracal caracal	Caracal	LC	Caracals tolerate arid regions, occur in semi-desert and karroid conditions	High
Felis silvestris	African Wild Cat	LC	Wide habitat tolerance.	High
Felis nigripes	Black-footed cat	VU	Associated with arid country with MAR 100-500 mm, particularly areas with open habitat that provides some cover in the form of tall stands of grass or scrub.	High
Genetta genetta	Small-spotted genet	LC	Occur in open arid associations	High
Suricata suricatta	Meerkat	LC	Open arid country where substrate is hard and stony. Occur in Nama and Succulent Karoo but also fynbos	High
Cynictis penicillata	Yellow Mongoose	LC	Semi-arid country on a sandy substrate	Confirmed
Herpestes pulverulentus	Cape Grey Mongoose	LC	Wide habitat tolerance	High
Vulpes chama	Cape Fox	LC	Associated with open country, open grassland, grassland with scattered thickets and coastal or semi-desert scrub	Confirmed

Canis mesomelas	Black-backed Jackal	LC	Wide habitat tolerance, more common in drier areas.	High
Otocyon megalotis	Bat-eared Fox	LC	Open country with mean annual rainfall of 100-600 mm	Confirmed
Ictonyx striatus	Striped Polecat	LC	Widely distributed throughout the sub-region	High
Mellivora capensis	Ratel/Honey Badger	IUCN LC/SA RDB EN	Catholic habitat requirements	Low
Rumanantia (Antelope):				
Sylvicapra grimmia	Common Duiker	LC	Presence of bushes is essential	Moderate
Pelea capreolus	Grey Rhebok	LC	Associated with rocky hills, rocky mountainsides, mountain plateaux with good grass cover.	Low
Antidorcas marsupialis	Springbok	LC	Arid regions and open grassland.	Low
Raphicerus campestris	Steenbok	LC	Inhabits open country,	Confirmed
Oreotragus oreotragus	Klipspringer	LC	Closely confined to rocky habitat.	Low
Chiroptera (Bats)				
Sauromys petrophilus	Flat-headed free-tailed bat	LC	Rocky areas and the availability of narrow rock fissures essential requirements	Low
Neoromicia capensis	Cape Serotine Bat	LC	Wide habitat tolerances, but often found near open water	High
Tadarida aegyptiaca	Egyptian Free-tailed Bat	LC	In arid areas. often associated with water sources	High
Nycteris thebaica	Egyptian Slit-faced Bat	LC	Wide habitat tolerance	High
Rhinolophus clivosus	Geoffroy's horsehoe bat	LC	Wide habitat tolerance but Roost in caves	Low
Rhinolophus capensis	Cape horseshoe bat	LC	Many records from coastal caves	Low

11 ANNEX 3. LIST OF REPTILES

List of reptiles which are likely to occur in the broad vicinity of the Kokerboom site, based on records from the SARCA database, conservation status is from Bates et al. 2013.

Type	Family	Genus	Species	Subspecies	Common name	Red list category
Chameleon	*Chamaeleonidae*	*Chamaeleo*	*namaquensis*		Namaqua Chameleon	Least Concern
Geckos	*Gekkonidae*	*Chondrodactylus*	*angulifer*	*angulifer*	Common Giant Ground Gecko	Least Concern
Geckos	*Gekkonidae*	*Chondrodactylus*	*bibronii*		Bibron's Gecko	Least Concern
Geckos	*Gekkonidae*	*Goggia*	*lineata*		Striped Pygmy Gecko	Least Concern
Geckos	*Gekkonidae*	*Pachydactylus*	*capensis*		Cape Gecko	Least Concern
Geckos	*Gekkonidae*	*Pachydactylus*	*labialis*		Western Cape Gecko	Least Concern
Geckos	*Gekkonidae*	*Pachydactylus*	*latirostris*		Quartz Gecko	Least Concern
Geckos	*Gekkonidae*	*Pachydactylus*	*weberi*		Weber's Gecko	Least Concern
Geckos	*Gekkonidae*	*Ptenopus*	*garrulus*	*maculatus*	Spotted Barking Gecko	Least Concern
Lizards	*Agamidae*	*Agama*	*aculeata*	*aculeata*	Common Ground Agama	Least Concern
Lizards	*Agamidae*	*Agama*	*atra*		Southern Rock Agama	Least Concern
Lizards	*Cordylidae*	*Karusasaurus*	*polyzonus*		Karoo Girdled Lizard	Least Concern
Lizards	*Cordylidae*	*Namazonurus*	*peersi*		Peers' Girdled Lizard	Least Concern
Lizards	*Gerrhosauridae*	*Cordylosaurus*	*subtessellatus*		Dwarf Plated Lizard	Least Concern
Lizards	*Lacertidae*	*Meroles*	*suborbitalis*		Spotted Desert Lizard	Least Concern
Lizards	*Lacertidae*	*Nucras*	*tessellata*		Western Sandveld Lizard	Least Concern
Lizards	*Lacertidae*	*Pedioplanis*	*laticeps*		Karoo Sand Lizard	Least Concern
Lizards	*Lacertidae*	*Pedioplanis*	*lineoocellata*	*lineoocellata*	Spotted Sand Lizard	Least Concern
Lizards	*Lacertidae*	*Pedioplanis*	*lineoocellata*	*pulchella*	Common Sand Lizard	Least Concern
Lizards	*Lacertidae*	*Pedioplanis*	*namaquensis*		Namaqua Sand Lizard	Least Concern
Lizards	*Scincidae*	*Acontias*	*lineatus*		Striped Dwarf Legless Skink	Least Concern
Lizards	*Scincidae*	*Trachylepis*	*occidentalis*		Western Three-striped Skink	Least Concern
Lizards	*Scincidae*	*Trachylepis*	*sulcata*	*sulcata*	Western Rock Skink	Least Concern
Lizards	*Scincidae*	*Trachylepis*	*variegata*		Variegated Skink	Least Concern
Snakes	*Colubridae*	*Boaedon*	*capensis*		Brown House Snake	Least Concern
Snakes	*Colubridae*	*Dasypeltis*	*scabra*		Rhombic Egg-eater	Least Concern
Snakes	*Colubridae*	*Dipsina*	*multimaculata*		Dwarf Beaked Snake	Least Concern
Snakes	*Colubridae*	*Lamprophis*	*guttatus*		Spotted House Snake	Least Concern

Snakes	*Colubridae*	*Psammophis*	*crucifer*		Cross-marked Grass Snake	Least Concern
Snakes	*Colubridae*	*Psammophis*	*notostictus*		Karoo Sand Snake	Least Concern
Snakes	*Colubridae*	*Pseudaspis*	*cana*		Mole Snake	Least Concern
Snakes	*Colubridae*	*Telescopus*	*beetzii*		Beetz's Tiger Snake	Least Concern
Snakes	*Elapidae*	*Aspidelaps*	*lubricus*	*lubricus*	Coral Shield Cobra	Not listed
Snakes	*Elapidae*	*Naja*	*nivea*		Cape Cobra	Least Concern
Snakes	*Typhlopidae*	*Rhinotyphlops*	*lalandei*		Delalande's Beaked Blind Snake	Least Concern
Snakes	*Viperidae*	*Bitis*	*arietans*	*arietans*	Puff Adder	Least Concern
Tortoises	*Testudinidae*	*Chersina*	*angulata*		Angulate Tortoise	Least Concern
Tortoises	*Testudinidae*	*Homopus*	*signatus*	*signatus*	Namaqua Speckled Padloper	Not listed
Tortoises	*Testudinidae*	*Psammobates*	*tentorius*	*subsp. ?*	Tent Tortoise (subsp. ?)	Least Concern
Tortoises	*Testudinidae*	*Psammobates*	*tentorius*	*tentorius*	Karoo Tent Tortoise	Not listed
Tortoises	*Testudinidae*	*Psammobates*	*tentorius*	*verroxii*	Verrox's Tent Tortoise	Not listed

12 ANNEX 4. LIST OF AMPHIBIANS

List of amphibians which are likely to occur in in the broad vicinity of the Kokerboom site. Habitat notes and distribution records are based on Du Preez and Carruthers (2009), while conservation status is from the Minter et al. 2004.

Scientific Name	Common Name	Status	Habitat	Distribution	Likelihood
Vandijkophrynus gariepensis	Karoo Toad	Least Concern	Karoo Scrub	Widespread	High
Xenopus laevis	Common Platanna	Least Concern	Any more or less permanent water	Widespread	Very Low
Amietia fuscigula	Cape River Frog	Least Concern	Large still bodies of water or permanent streams and rivers.	Widespread	Very Low
Cacosternum namaquense	Namaqua Caco	Least Concern	Marshy areas, vleis and shallow pans	Widespread	Moderate
Cacosternum boettgeri	Common Caco	Least Concern	Marshy areas, vleis and shallow pans	Widespread	Moderate
Tomopterna tandyi	Tandy's Sand Frog	Least Concern	Nama karoo grassland and savanna	Widespread	High

Short CV/Summary of Expertise – Simon Todd

ECOLOGICAL SPECIALIST SERVICES

Assessment/Management/Research

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Ecological Solutions for People & the Environment

Professional Profile

Simon Todd Consulting has extensive experience in biodiversity management and ecological assessment, having provided assessments for more than 100 different developments. This includes a large number of renewable energy facilities and associated infrastructure, distributed widely across South Africa. In addition, Simon Todd was the contributing ecologist on the Strategic Environmental Assessment (SEA) for both the Eskom Grid Infrastructure, as well as the Renewable Energy Development Zones (REDZ). Simon Todd is a recognised ecological expert and is a past chairman of the Arid-Zone Ecology Forum and has 18 years' experience working throughout the country. Simon Todd is registered with the South African Council for Natural Scientific Professions (No. 400425/11).

Abbreviated CV

- Profession: Independent Ecological Consultant - Pr.Sci.Nat 400425/11
- Specialisation: Plant & Animal Ecology
- Years of Experience: 18 Years

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

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

General Experience & Expertise

- Conducted a large number of fauna and flora specialist assessments distributed widely across South Africa. Projects have ranged in extent from <50 ha to more than 50 000 ha.
- Widely-recognized ecology specialist. Published numerous peer-reviewed scientific publications based on various ecological studies across the country. Past chairman of the Arid Zone Ecology Forum and current executive committee member.
- Extensive experience in the field and exceptional level of technical expertise, particularly with regards to GIS capabilities which is essential with regards to producing high-quality sensitivity maps for use in the design of final project layouts.
- Strong research background which has proved invaluable when working on several ecologically sensitive and potentially controversial sites containing some of the most threatened fauna in South Africa.
- Published numerous research reports as well as two book chapters and a large number of papers in leading scientific journals dealing primarily with human impacts on the vegetation and ecology of the arid and semi-arid parts of South Africa.
- Maintain several long-term vegetation monitoring projects distributed across Namaqualand and the karoo.
- Guest lecturer at two universities and have also served as an external examiner.
- Reviewed papers for more than 10 international ecological journals.
- Past chairman and current committee member of the Arid Zone Ecological Forum.
- SACNASP registered as a Professional Natural Scientist, (Ecology) No. 400425/11.

A selection of recent work is as follows:

Specialist Assessments:

Solar Energy Developments:

Environmental Impact Assessment for the Proposed Wolmarransstad Solar Energy Facility North West Province. Fauna & Flora Specialist Report for EIA. Savannah Environmental 2015

Environmental Impact Assessment for the proposed Humansrus Solar PV Energy Facility 1 Near Copperton, Northern Cape: Fauna & Flora Specialist Report for EIA. CapeEAPrac 2015.

Environmental Impact Assessment for the proposed Humansrus Solar PV Energy Facility 2 Near Copperton, Northern Cape: Fauna & Flora Specialist Report for EIA. CapeEAPrac 2015.

Environmental Impact Assessment for the proposed Dyasonsklip Solar Energy Facility 1 Near Upington, Northern Cape: Fauna & Flora Specialist Report for EIA. CapeEAPrac 2015.

Environmental Impact Assessment for the proposed Postmasburg Solar PV Energy Facility 2 and Associated Grid Connection Infrastructure, Postmasburg, Northern Cape. Fauna & Flora Specialist Report for EIA. CapeEAPrac 2015.

Environmental Impact Assessment for the proposed Joram Solar Vryheid PV Project, Northern Cape. Fauna & Flora Specialist Report for EIA. CapeEAPrac 2015.

Environmental Impact Assessment for the proposed Richtersveld Solar Farm and Associated Grid Connection Infrastructure. Fauna & Flora Specialist Report for EIA. CapeEAPrac 2015.

Environmental Impact Assessment for the Proposed Re Capital 3 Solar Energy Facility and Associated Grid Connection Infrastructure, Dyason's Klip, Northern Cape. Fauna & Flora Specialist Report for EIA. CapeEAPrac 2013.

Environmental Impact Assessment for the Proposed Richtersveld Solar Farm and Associated Grid Connection Infrastructure. Fauna & Flora Specialist Report for EIA. CapeEAPrac 2014.

Environmental Impact Assessment for the Proposed Bosjesmansberg Solar Energy Facility East of Copperton, Northern Cape Province. Fauna & Flora Specialist Report for EIA. Savannah Environmental 2013.

Specialist Vegetation Assessment for EIA. The Proposed Commercial Concentrated Solar Power Tower Facility and Concentrated Photovoltaic Facility at Van Roois Vley Near Upington. WSP 2012.

Proposed Les Marais \ Buitenfontein 5MW Solar Energy Facility in the Free State: Terrestrial Fauna & Flora Specialist Study for Basic Assessment. Savannah Environmental 2013.

Proposed Stella Helpmekaar Solar Energy Facility in the North West Province: Terrestrial Fauna & Flora Specialist Study for Basic Assessment. Savannah Environmental 2013.

Proposed Wolmaransstad Municipality 5MW Solar Energy Facility in the North West Province: Terrestrial Fauna & Flora Specialist Study for Basic Assessment. Savannah Environmental 2013.

Proposed Heuningspruit PV1 and PV2 Solar Energy Facilities Near Koppies, Free State Province: Terrestrial Fauna & Flora Specialist Study for Basic Assessment. Savannah Environmental 2013.

Proposed Hibernia PV Solar Energy Facility near Lichtenburg: Terrestrial Fauna & Flora Specialist Study For Basic Assessment. Savannah Environmental 2013.

Proposed Steynsrus PV1 And PV2 Solar Energy Facilities: Terrestrial Fauna & Flora Specialist Study for Basic Assessment. Savannah Environmental 2013.

Proposed Photovoltaic Solar Energy Facility on Konkoonsies, Northern Cape: Fauna & Flora Specialist Report for Impact Assessment. EScience Associates 2012.

Proposed Padrooi 13 Photovoltaic Solar Energy Facility, Northern Cape: Fauna & Flora Specialist Report for Impact Assessment. EScience Associates 2012.

Adams Photovoltaic Solar Energy Facility, Northern Cape: Fauna & Flora Specialist Report for Impact Assessment. EScience Associates 2012.

Proposed Photovoltaic Solar Energy Facility on Klein Swart Bast, Northern Cape: Fauna & Flora Specialist Report for Impact Assessment. EScience Associates 2012.

Proposed Khoi-Sun Solar Facility. Fauna & Flora Specialist Report for Impact Assessment. Cape EAPrac 2012.

Suurwater 62, Boesmanland 75mw Solar Farm, Aggeneys. Fauna & Flora Specialist Report for Impact Assessment. Cape EAPrac 2012.

Karoshoek Solar Valley Development, Upington: Fauna & Flora Specialist Impact Assessment Report. Savannah Environmental. 2012.

O'Kiep 3 PV Solar Energy Facility on a Site In O'kiep Near Springbok, Northern Cape Province. Fauna & Flora Specialist Report for Basic Assessment. Savannah Environmental 2012.

Photovoltaic Solar Energy Facility on Voëlklip, South of Springbok. Fauna & Flora Specialist Report for Basic Assessment. Savannah Environmental 2012.

Namaqua Photovoltaic Solar Energy Facility on a Site North of Kamieskroon. Fauna & Flora Specialist Report for Basic Assessment. Savannah Environmental 2012.

Inca Graafwater Photovoltaic Solar Energy Facility, Graafwater, Western Cape Province. Faunal Ecology Specialist Report for Impact Assessment. Savannah Environmental 2012.

Aberdeen Solar Facility. Fauna & Flora Specialist Report for Basic Assessment. Specialist Report for Savannah Environmental. 2012.

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Tutwa Solar Energy Facility: Portion 4 of Narries 7. Fauna & Flora Specialist Report for Basic Assessment. Specialist Report for Savannah Environmental. 2012.

Valleydora Photovolataic Solar Power Plant, Free State. Fauna & Flora Specialist Report. CSIR, 2012.

Reddersburg Solar Facility - Fauna & Flora Specialist Assessment. CSIR, 2012.

Melkvlei Photovolataic Solar Power Plant. Fauna & Flora Specialist Report for Basic Assessment. Specialist report for ERM. 2012.

Ruinte Photovolataic Solar Power Plant. Fauna & Flora Specialist Report for Basic Assessment. Specialist report for ERM. 2012.

Genoegsaam Solar Park. Fauna & Flora Specialist Report for Basic Assessment. Specialist report for ERM. 2012.

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Graspan Solar Facility. Fauna & Flora Specialist Report for Impact Assessment. Specialist report for ERM. 2012.

Olyven Kolk Solar Power Plant, Northern Cape: Botanical and Faunal Specialist Assessment. Specialist Report for Environmental Resources Management (ERM). 2011.

Skuitdrift Solar Facility. Fauna & Flora Specialist Report for Basic Assessment. Specialist Report for Cape EAPrac. 2012.

Beaufort West Solar Facility, Erf 7388 - Fauna & Flora Specialist Assessment. Specialist Report for Cape EAPrac. 2012.

Khoi-Sun Solar Facility. Fauna & Flora Specialist Scoping Report. Specialist Report for Cape EAPrac. 2012.

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Wind Farm Developments:

Mainstream South Africa Dwarsrug Wind Energy Facility: Fauna & Flora Specialist Impact Assessment Report. Sivest 2014.

Proposed Spitskop Wind Energy Facility near Cookhouse: Fauna & Flora Specialist Study for Impact Assessment. Savannah Environmental 2013.

Environmental Impact Assessment for the Proposed Roggeveld Wind Energy Facility and Associated Grid Connection Infrastructure: Fauna & Flora Specialist Report for EIA. Savannah Environmental 2013.

Proposed Mainstream South Africa Springfontein Wind Energy Facility: Terrestrial Fauna & Flora Specialist Study for EIA. Savannah Environmental 2012.

Environmental Impact Assessment for the Establishment of the Wolseley Wind Farm, Western Cape Province. Fauna & Flora Specialist Report. Arcus Gibb 2012.

Proposed Eskom 300MW Kleinsee Wind Energy Facility. Fauna Specialist Report For Impact Assessment. Savannah Environmental 2012.

Proposed Inca Energy Swellendam Wind Energy Facility: Fauna Specialist Report For Impact Assessment. Savannah Environmental 2012.

Proposed Moorreesburg Wind Energy Facility: Fauna & Flora Specialist EIA Report For Impact Assessment. Savannah Environmental 2014.

Terrestrial Ecology Specialist Study for the Proposed Establishment of a Renewable Energy Facility near Sutherland, Western and Northern Cape Provinces. Environmental Resources Management (ERM) 2011.

Roggeveld Wind Farm: Ecological and Biodiversity Assessment: Terrestrial Vertebrate Fauna & Botanical Specialist Study. Specialist Report for Environmental Resources Management (ERM). 2011.

Zen Wind Energy Facility. Fauna & Flora Specialist Impact Assessment Report. Savannah Environmental. 2012.

Proposed Project Blue Wind and Solar Energy Facility, Near Kleinsee. Fauna Specialist Report For Impact Assessment. Savannah Environmental 2012.

Garob Wind Farm: Fauna & Flora Specialist Report for Impact Assessment. Savannah Environmental 2012.

Loeriesfontein Wind Energy Facility – Substation & Grid Connection. Fauna & Flora Specialist Report for Basic Assessment. Savannah Environmental 2012.

Noblesfontein Wind Energy Facility, Victoria West. Ecological Walk-Through Report. Savannah Environmental 2012.

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Lambert's Bay Wind Farm: Ecological and Biodiversity Assessment: Terrestrial Vertebrate Fauna & Botanical Specialist Study. Specialist Report for Environmental Resources Management. 2011.

Richtersveld Wind Farm: Ecological and Biodiversity Assessment: Terrestrial Vertebrate Fauna & Botanical Specialist Study. Specialist Report for Environmental Resources Management (ERM). 2011.

Witberg Wind Farm: Ecological and Biodiversity Assessment: Terrestrial Vertebrate Fauna & Botanical Specialist Study. Specialist Report for Environmental Resources Management (ERM). 2011.

Power Lines/Grid Connections:

Proposed Juno-Aurora 765kV Power Line in the Western Cape: Fauna & Flora Specialist Report for Impact Assessment. Nzumbululo Heritage Solutions 2015.

The proposed Mookodi Integration Phase 2 132kV Power Lines and Ganyesa Substation near Vryburg, North West Province: Fauna & Flora Specialist Basic Assessment Report. Sivest 2014.

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Basic Assessment Process for the Proposed Construction of the Transnet 5km 50 kV Power Line from Eskom Aries Substation to the proposed new Transnet Aries Traction Feeder Substation. Nsovo Environmental Consulting. 2014.

Basic Assessment Process for the Proposed Construction of the Transnet 15km 50 kV Power Line from Eskom Helios Substation to the proposed new Transnet Helios Traction Feeder Substation. Nsovo Environmental Consulting. 2014.

Burchell-Caprum-Mooidraai 132kV Power Line - Fauna & Flora Specialist Report for Basic Assessment. Savannah Environmental 2014.

Proposed Re-Alignment Of The Koeberg – Ankerlig VPower Line: Fauna & Flora Specialist Report For Basic Assessment. Savannah Environmental 2014.

Grid Connection for Redstone Solar Thermal Energy Plant- Redstone Solar Thermal to Olien Mts: Fauna & Flora Specialist Basic Assessment Report. SiVest 2014.

Grid Connection for Mainstream South Africa Perdekraal Wind Energy Facility. Fauna & Flora Specialist Report for Basic Assessment. ERM 2014.

Karoshoek Grid Integration Infrastructure. Fauna & Flora Specialist Report for Basic Assessment. Specialist Report for Savannah Environmental. 2012.

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Loeriesfontein Wind Energy Facility – Substation & Grid Connection. Fauna & Flora Specialist Report for Basic Assessment. Specialist Report for Savannah Environmental. 2012.

Gouda Wind Energy Facility – Grid Connection. Walk-Through of Overhead Power Line - Gouda WEF to Eskom Windmill Substation. Specialist Report for Savannah Environmental. 2012.

Proposed Kappa-Omega 765 kV Transmission Line. Fauna, Flora & Ecology Walk-Through Report. Specialist Report for ACER Africa. 2013.

Strategy/Conceptual Documents:

Renewable Energy Sector Spatial Planning Tool for the Namakwa District: To Form Part of the NDM Green Economy Strategy. Conservation South Africa, 2013.

Terrestrial Environment: Characteristics and Categorization. Contribution to the development of standards for EIA processes on behalf of the DEA. Anchor Environmental 2012.

National Wind and Solar PV SEA Specialist Report - Terrestrial and Aquatic Biodiversity. Specialist Report produced for the CSIR on behalf of DEA for the Strategic Environmental Assessment of the Renewable Energy Development Zones (REDZs). CSIR 2014.

Eskom Grid Infrastructure Strategic Environmental Assessment (EGI-SEA) - Terrestrial and Aquatic Biodiversity – Specialist contribution to report. CSIR 2015.

Infrastructure & Mining Developments:

Environmental Impact Assessment for the Proposed Putsberg Open Cast Mine Near Pofadder, Northern Cape. Fauna & Flora Specialist Report for EIA. Ecopartners 2013.

Proposed Establishment of the Gamsberg Zinc Mine, Concentrator Plant and Associated Infrastructure near the Town of Aggeneys, Northern Cape. Fauna & Flora Specialist Report For ESIA. ERM 2013.

Pella Water Board – Infrastructure Upgrade. Fauna & Flora Specialist Report for Basic Assessment. Environmental Resources Management 2012.

Transnet Manganese Ore Line Upgrade. Fauna & Flora Specialist Report for Basic Assessment. Environmental Resources Management 2012.

Proposed Vryburg Wastewater Treatment Works: Terrestrial Fauna & Flora Specialist Study for Basic Assessment. Endemic Vision 2013.

Proposed Mamatwane Compilation Yard, Northern Cape: Fauna & Flora Specialist Report for Impact Assessment. Environmental Resources Management 2013.

Rare Earth Separation Plant Near Vredendal, Western Cape Province. Fauna & Flora Specialist Report for Basic Assessment. Savannah Environmental 2012.

Proposed Mocke Poultry Farm: Fauna & Flora Specialist Report for Basic Assessment. Enviroworks 2015.

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Basic Assessment for proposed Neotel Route 2 Fibre Optic Cables from Prince Albert Road to Oudtshoorn via the N12. Enviroworks 2015.

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Improvements to the Ou Kaapse Weg / Silvermine Road Intersection. Specialist Faunal Study For Basic Assessment. Khula Environmental Consultants, 2012.

Upgrading of Tourism Facilities at Goegap Nature Reserve. Specialist Ecological Assesment. Van Zyl Environmental Consultants. 2012.

Plant Sweeps on Portion 2 of the Farm Demaneng 546, Kuruman District, Northern Cape Province for SA Manganese. 2011.

environmental affairs
Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF SPECIALIST AND DECLARATION OF INTEREST

	(For official use only)
File Reference Number:	12/12/20/ or 12/9/11/L
NEAS Reference Number:	DEA/EIA
Date Received:	

Application for integrated environmental authorisation and waste management licence in terms of the-

(1) National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2014; and

(2) National Environmental Management Act: Waste Act, 2008 (Act No. 59 of 2008) and Government Notice 921, 2013

PROJECT TITLE

Kokerboom 1 & 2 Wind Energy Facility

Specialist:	Simon Todd		
Contact person:	Simon Todd		
Postal address:	60 Forrest Way, Glencairn		
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Professional affiliation(s) (if any)	Pr.Sci.Nat 400425/11		

Project Consultant:	Aurecon South Africa (Pty) Ltd		
Contact person:	Ms Mieke Barry		
Postal address:	PO Box 494, Cape Town		
Postal code:	8000	Cell:	N/A
Telephone:	021 526 6025	Fax:	021 526 9500
E-mail:	Mieke.Barry@aurecongroup.com		

4.2 The specialist appointed in terms of the Regulations_

I, Simon Todd , declare that --

General declaration:

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:

Simon Todd Consulting

Name of company (if applicable):

24/10/2016

Date: