TERRESTRIAL BIODIVERSITY THEME ASSESSMENT FOR THE LOXTON WIND ENERGY FACILITY 3

PRODUCED FOR ATLANTIC RENEWABLE ENERGY PARTNERS ON BEHALF OF LOXTON WIND FACILITY 3 (PTY) LTD

3Foxes Biodiversity Solutions

Simon.Todd@3foxes.co.za

First Draft – April 2023

NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998) AND ENVIRONMENTAL IMPACT REGULATIONS, 2014 (AS AMENDED) – REPORTING REQUIREMENTS FOR SPECIALIST THEMES

GN 1150 of 30 October 2020: Terrestrial Biodiversity Specialist Assessment Report (Very High or High Sensitivity)	Section of Report
3.1.1 contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;	P5
3.1.2 a signed statement of independence by thpecialist;	P7
3.1.3 a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 2
3.1.4 a description of the methodology used to undertake the site sensitivity verification, impact assessment and site inspection, including equipment and modelling used where relevant;	Section 2
3.1.5 a description of the mean density of observations/number of sample sites per unit area and the site inspection observations;	Section 2
3.1.6 a description of the assumptions made and any uncertainties or gaps in knowledge or data;	Section 2
3.1.7 details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;	Section 2
3.1.8 the online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;	Section 3.3
3.1.9 the location of areas not suitable for development and to be avoided during construction where relevant;	Section 3
3.1.10 a discussion on the cumulative impacts;	Section 3, Section 5
3.1.11 impact management actions and impact management outcomes proposed	Section 3, Section 5
3.1.12 a reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and	Section 6
3.1.13 a motivation must be provided if there were any development footprints identified as per paragraph 2.2.12 above [of GN 1150 of 30 October 2020] that were identified as having “low” or “medium” terrestrial animal species sensitivity and were not considered appropriate.	Section 2.4

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SHORT CV/SUMMARY OF EXPERTISE – SIMON TODD

Simon Todd Pr.Sci.Nat
Director & Principle Scientist
C: 082 3326502
Simon.Todd@3foxes.co.za

23 De Villiers Road
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.

Recent Specialist Ecological Studies in the Vicinity of the Current Site

- Nuweveld North, East and West WEFs. Fauna & Flora Specialist Study for EIA. Zutari 2021.
- Beaufort West PV Facility. Fauna & Flora Assessment. SiVest Environmental 2022.
- San Solar PV Facility, Kathu. Fauna & Flora Assessment. Savannah Environmental 2022.
- Soventix Phase 3 PV Facility, De Aar. Fauna & Flora Assessment. Ecologes Environmental Consultants, 2022.
- Sadawa PV Facilities, Tankwa Karoo. Fauna & Flora Assessment. Savannah Environmental 2021.
- Hoogland South & North, WEFs. Fauna & Flora Specialist Study for EIA. SLR 2022.

SPECIALIST DECLARATION

I, ..Simon Todd....., as the appointed independent specialist, in terms of the 2014 EIA Regulations, hereby declare that I:

- I act as the independent specialist in this application;
- I 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;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- 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 have no vested interest in the proposed activity proceeding;
- 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;
- I have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- I have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- all the particulars furnished by me in this specialist input/study 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: 

Name of Specialist: ____Simon Todd_____

Date: ____20 April 2023_____

1 INTRODUCTION

The applicant, Loxton Wind Facility 3 (Pty) Ltd is proposing the development of a commercial Wind Energy Facility (WEF) and associated infrastructure on a ca. 12 500 ha site located approximately 8-10 km east of Loxton within the Ubuntu Local Municipality and the Pixley Ka Seme District Municipality in the Northern Cape Province. Two additional WEF's are concurrently being considered on the surrounding properties and are assessed by way of separate impact assessment. These projects are known as Loxton WEF 3 and Loxton WEF 3. A preferred project site with an extent of approximately 58 000 ha has been identified as a technically suitable area for the development of the three WEF projects. Loxton WEF 3 will comprise of up to 39 turbines, with a contracted capacity of up to 240 MW with a permanent footprint of up to 65 ha.

3Foxes Biodiversity Solutions has been appointed to undertake a terrestrial biodiversity assessment of the proposed project in terms of the Environmental Impact Assessment Regulations, 2014, as amended, including the Gazetted specialist protocols (GN R 320 and GN R 1150 of 2020). The DFFE Screening Tool indicates that the Terrestrial Biodiversity Theme for parts of the affected area includes areas mapped as Very High sensitivity, with the result that a full terrestrial biodiversity assessment is required. To these ends, this Terrestrial Biodiversity Assessment for the Loxton WEF 3 and associated infrastructure, addresses the potential impacts of the development on Terrestrial Biodiversity 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 OF STUDY

In terms of GN 320 (20 March 2020) and GN 1150 (30 October 2020) of the NEMA EIA Regulations of 2014 (as amended), prior to the commencement of a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project areas as identified by the Screening Tool. In terms of the findings of the Screening Tool, the site contains areas of Very High sensitivity for the Terrestrial Biodiversity Theme due to the presence of areas of CBA 2, ESAs and FEPA Priority Subcatchments within the study area. In terms of the Assessment Criteria, this implies the following outcome:

1. An applicant intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of "very high sensitivity" for terrestrial biodiversity on the national web based environmental screening tool must submit a Terrestrial Biodiversity Impact Assessment.
2. The Terrestrial Biodiversity Impact Assessment should meet the following terms of reference:

2.1 The assessment must be undertaken by a SACNASP registered specialist, on the preferred development site.

2.2 Description of the preferred site - the following aspects, as a minimum, must be considered in the baseline description:

2.2.1 A description of the ecological drivers/processes of the system and how the proposed development will impact these;

2.2.2 Ecological functioning and ecological processes (e.g. fire, migration, pollination, etc.) that operate within the proposed development site;

2.2.3 The ecological corridors that the development would impede including migration and movement of flora and fauna;

2.2.4 The description of any significant landscape features (including rare or important flora/faunal associations, presence of Strategic Water Source Areas (SWSAs) or Freshwater Ecosystem Priority Areas (FEPA) sub catchments;

2.2.5 A description of terrestrial biodiversity and ecosystems on the proposed development site, including –

a) Main vegetation types;
b) Threatened ecosystems, including Listed Ecosystems as well as locally important habitat types identified;
c) Ecological connectivity, habitat fragmentation, ecological processes and fine-scale habitats; and
d) Species, distribution, important habitats (e.g. feeding grounds, nesting sites, etc.) and movement patterns identified.

2.3 Identify any alternative development footprints within the preferred development site which would be of a “low” sensitivity as identified by the national web based environmental screening tool and verified through the Initial Site Sensitivity Verification;

2.4 The Terrestrial Biodiversity Impact Assessment must be based on the results of a site inspection undertaken on the preferred development site and must identify:

2.5 Terrestrial Critical Biodiversity Areas (CBAs), including:

2.5.1 The reasons why an area has been identified as a CBA;
2.5.2 An indication of whether or not the development is consistent with maintaining the CBA in a natural or near natural state or in achieving the goal of rehabilitation;

2.5.3 The impact on species composition and structure of vegetation with an indication of the extent of clearing activities;
2.5.4 The impact on ecosystem threat status;
2.5.5 The impact on explicit subtypes in the vegetation;
2.5.6 The impact on overall species and ecosystem diversity of the site; and
2.5.7 The impact on populations of species of special concern in the CBA.

2.6 Terrestrial Ecological Support Areas, including;

2.6.1 The impact on the ecological processes that operate within or across the site;
2.6.2 The extent the development will impact on the functionality of the ESA; and
2.6.3 Loss of ecological connectivity (on site, and in relation to the broader landscape) due to the degradation and severing of ecological corridors or introducing barriers that impede migration and movement of flora and fauna.

2.7 Protected Areas as defined by the National Environmental Management: Protected Areas Act, 2004 including:

2.7.1 An opinion on whether the proposed development aligns with the objectives/purpose of the Protected Area and the zoning as per the Protected Area Management Plan;

2.8 Priority Areas for Protected Area Expansion, including:

2.8.1 The way in which in which the development will compromise or contribute to the expansion of the protected area network.

2.9 Strategic Water Source Areas (SWSA) including:

2.9.1 The impact(s) on the terrestrial habitat of a Strategic Water Source Area, and
2.9.2 The impacts of the development on the SWSA water quality and quantity (e.g. describing potential increased runoff leading to increased sediment load in water courses).

2.10 Freshwater Ecosystem Priority Area (FEPA) sub catchments, including:

2.10.1 The impacts of the development on habitat condition and/or species in the FEPA sub catchment.

2.11 Indigenous Forests, including:

2.11.1 Impact on the ecological integrity of the forest;

2.11.2 Extent of natural or near natural indigenous forest area lost.

3. The findings of the Terrestrial Biodiversity Impact Assessment must be written up in a Terrestrial Biodiversity Impact Assessment Report. This report must include as a minimum the following information:

   3.1 Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae;

   3.2 A signed statement of independence by the specialist;

   3.3 Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;

   3.4 A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant;

   3.5 A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations;

   3.6 Areas not suitable for development, to be avoided during construction and operation (where relevant);

   3.7 Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts;

   3.8 Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr; and

   3.9 A motivation where the development footprint identified as per section 2.3 were not considered stating reasons why these were not being not considered.

   3.10 A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, and any conditions to which the statement is subjected.

4. The findings of the Terrestrial Biodiversity Impact Assessment must be incorporated into the Basic Assessment Report or the Environmental Impact Assessment Report, including the mitigation and monitoring measures as identified, which must be incorporated into the EMPr. A signed copy of the Assessment must be appended to the Basic Assessment Report or Environmental Assessment Report.

The above Terms of Reference and reporting requirements are achieved in this study and report.

1.2 OUTPUTS OF THE DFFE SCREENING TOOL

The output of the DFFE Screening Tool for the Terrestrial Biodiversity Theme is illustrated below and indicates that virtually all of the Loxton Wind Energy Facility 3 site falls within areas classified as Very High Sensitivity. Features listed for the site include CBA 1, CBA 2 and NPAES Focus Areas.

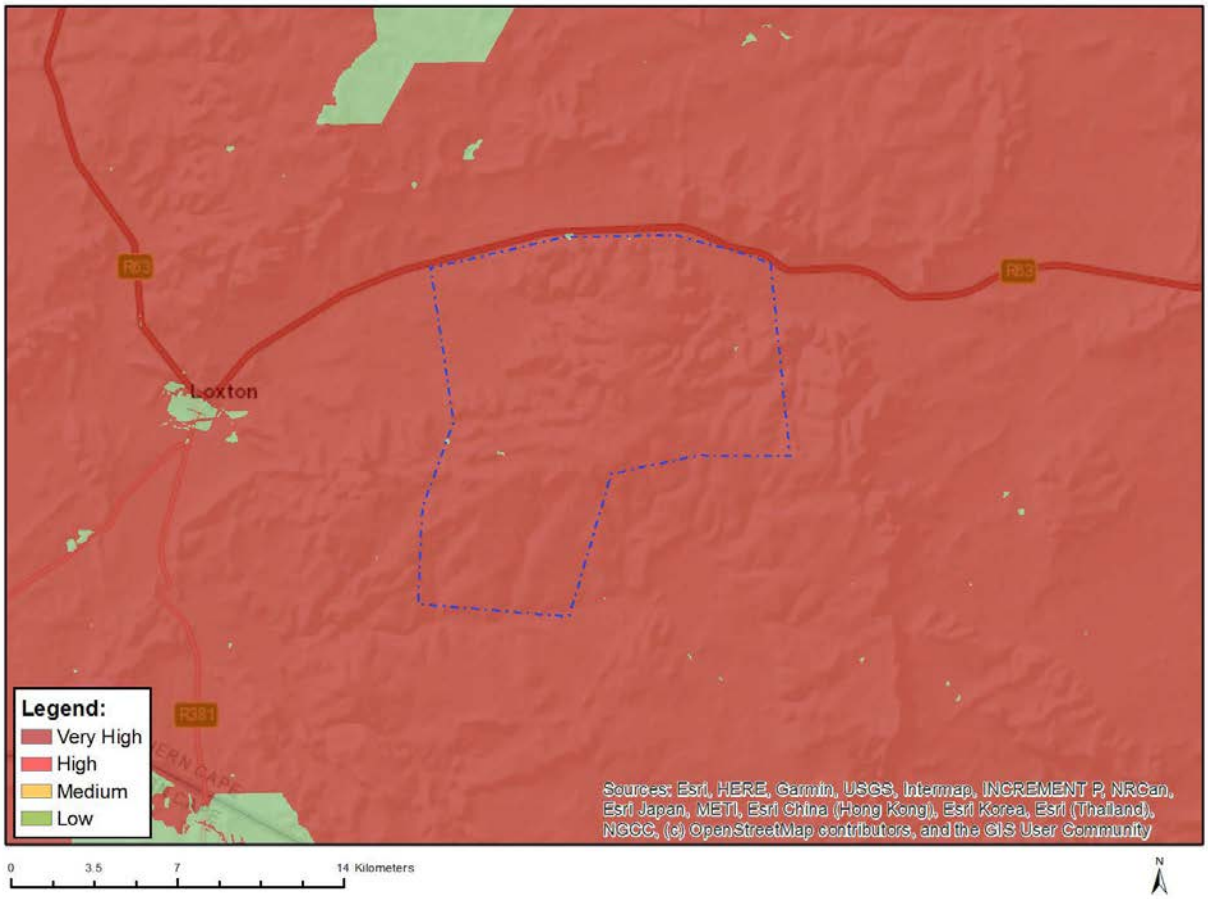

Figure 1. DFFE Screening Tool output for the Loxton Wind Energy Facility 3 site showing that tool indicates that the site falls almost entirely within Very High sensitivity areas for the Terrestrial Biodiversity Theme.

Table 1. Features listed by the DFFE Screening Tool for the Loxton Wind Energy Facility 3.

Sensitivity	Features (s)
Low	Low Sensitivity
Very High	Critical biodiversity area 1
Very High	Critical biodiversity area 2
Very High	Protected Areas Expansion Strategy

1.3 PROJECT DESCRIPTION

The Loxton Wind Energy Facility 3 is part of the Loxton Wind Energy Facilities cluster and is located south of the R63, approximately 8-10 km east of Loxton in the Northern Cape. The layout and location of the Loxton Wind Energy Facility 3 is illustrated below in Figure 1 and includes up to 39 potential turbine locations with a maximum output of 240 MW. The estimated total permanent footprint of the Loxton Wind Energy Facility 3 is estimated at 65 ha. 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. A full description of the project is contained within the main EIA report and is not repeated in full here.

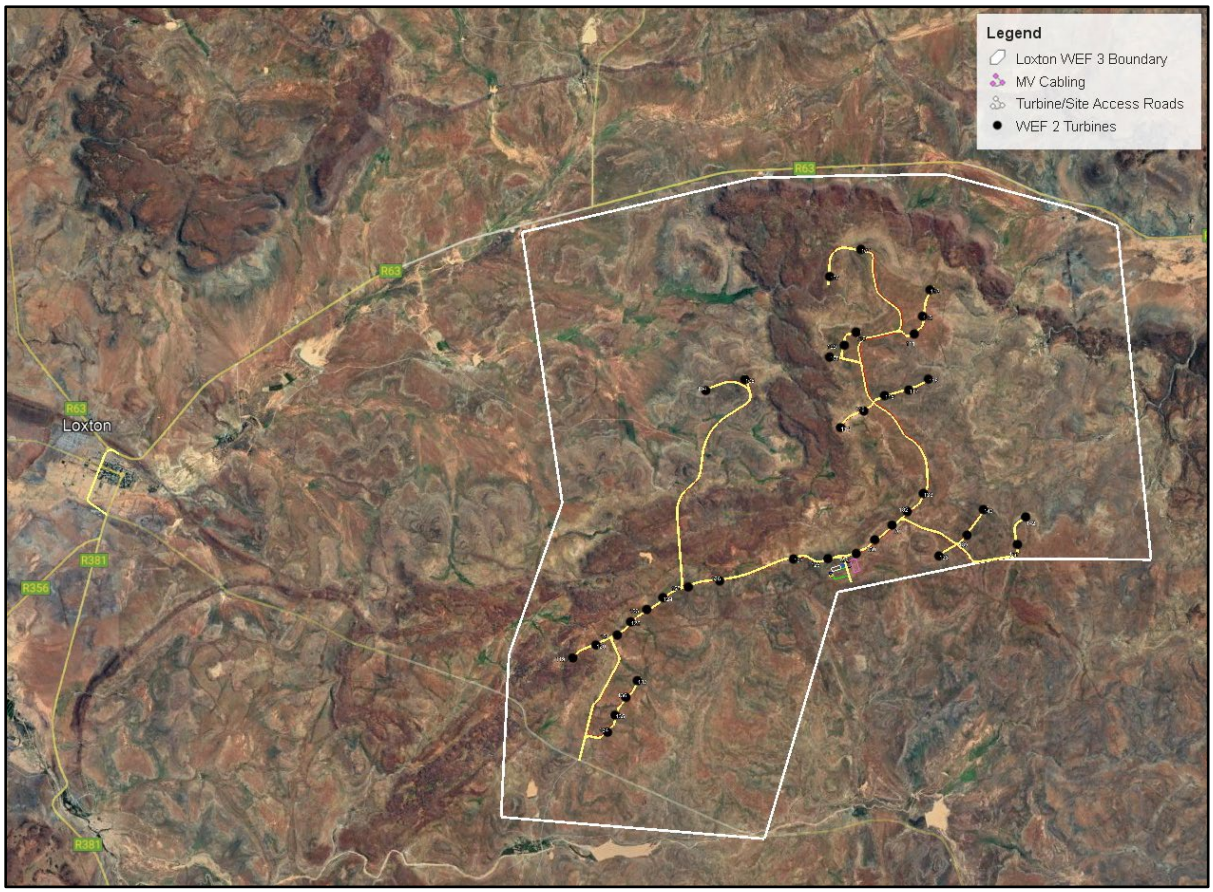

Figure 2. Satellite image showing the location and layout of the proposed Loxton Wind Energy Facility 3 northeast of Loxton, within the Northern Cape.

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 (2018 update).
- Information on plant and animal 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 as well as counter the fact that the site itself has not been well sampled in the past.
- 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 (2021).

Ecosystem:

- Freshwater and wetland information was extracted from the National Freshwater Ecosystem Priority Areas assessment, NFEPA (Nel *et al.* 2011) as well as the 2018 NBA.
- Critical Biodiversity Areas (CBAs) and ESAs in the study area were obtained from the Northern Cape CBA Map as available from the SANBI BGIS Portal.
- There are no threatened ecosystems within the site, which was verified through inspection of the ecosystem status maps as included in the 2018 NBA.
- Strategic Water Source Areas (SWSAs) for the site were extracted from the SWSAs map available on the SANBI BGIS data portal (Water Research Commission. 2017 Surface and Groundwater SWSA [Vector] 2017).

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 (ReptileMap, Frogmap and MammalMap) http://vmus.adu.org.za.
- Literature consulted includes Branch (1988) and Alexander and Marais (2007) for reptiles, Du Preez and Carruthers (2009) for amphibians, EWT & SANBI (2016) 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 an assessment of the availability and quality of suitable habitat at the site.
- The conservation status of mammals is based on the IUCN Red List Categories (EWT/SANBI 2016), while reptiles are based on the South African Reptile Conservation Assessment (Bates *et al*. 2013) and amphibians on Minter *et al.* (2004) as well as the IUCN (2020).

2.2 SITE VISITS & FIELD ASSESSMENT DATES

The site was visited on numerous occasions for the current study including the following dates:

- 23-24 May 2021
- 16-18 June 2022
- 01 July 2022
- 10-11 August 2022
- 07 September 2022
- 10 October 2022

During the site visits, the wind farm site was extensively investigated. 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.

2.3 FIELD SAMPLING APPROACH

In order to characterise the biodiversity of the site, a number of sampling techniques were used, these are summarized below and are also detailed in the Plant Species Compliance Statement for the site as well as the site verification report for the Loxton WEF 3. However, this includes direct sampling of the vegetation through vegetation surveys as well as the use of camera traps distributed across the Loxton WEF cluster study area.

Vegetation & Ecosystems

Sensitivity mapping of the site was conducted by the consultant based on the identification of important/sensitive habitats using satellite imagery of the site as well as the information collected on-site during the site verification and field assessment. The identification of potentially sensitive areas included the mapping of wetlands and drainage features, steep slopes, mountains, rocky hills and larger areas of rock pavements.

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. The information collected on-site was used to identify no-go areas and sensitive features that would need to be avoided in order to minimise the potential impact of the development on sensitive habitats and associated species of concern. As a result, the final layout of the development would in effect be a mitigated layout avoiding or minimising the impact on the sensitive features of the area.

In order to characterise the fauna of the site and especially the possible presence of fauna of conservation concern such as the Riverine Rabbit, camera traps were located across the greater Loxton Cluster site within riparian habitats associated with this species as well as more general habitats across the site and including the Loxton WEF 3 site. A total of 40 cameras were distributed across the Loxton cluster site and left in the field for 12 weeks, which is considered sufficient to characterise the fauna of the site and detect fauna of concern if present. A more detailed description of the camera trapping and the results as they pertain to the presence of the Riverine Rabbit at the is contained within the Riverine Rabbit species assessment for the Loxton WEF 3.

2.4 SAMPLING LIMITATIONS AND ASSUMPTIONS

Conditions at the time of the initial 2 field assessment dates were relatively poor as these took place during an extended drought the area and wider Karoo was experiencing. However, by July 2022 rains had begun and by October 2022 the area was exceptionally wet. As a result, the conditions during the extended field assessment are considered favourable and the abundance of annuals and geophytes as relatively high, with many species growing or in flower by the end of 2022. Although the wind farm area is large with the result that not all areas could be sampled in detail, the project footprint area is considered to have been well-covered and it is highly unlikely that there are any significant vegetation features present that would not have been observed during the study. Given the favourable conditions at the time of the site visits, there are few limitations and assumptions required with regards to the vegetation of the site and the presence of plant SCC within the wind farm development footprint. Given the amount of time spent on the site, the consultants' knowledge of the area and the favorable conditions at the time of the site visits, there are few limitations and assumptions required with regards to the vegetation of the site and the presence of plant SCC within the site.

A number of limitations and assumptions are also inherent in the study regarding the fauna of the site including the following:

- Camera trapping for fauna was conducted across the greater Loxton cluster site with 40 camera traps for a period of 12 weeks. This confirmed the presence of the Riverine Rabbit within the greater Loxton suite and within the orginal Loxton WEF 3 site which was then adjusted in response to this finding to reduce the potential impact of the development on the Riverine Rabbit and associated habitat. Although there were no camera trap observations of Riverine Rabbit from within the final boundaries of Loxton WEF 3 site, there is some potential habitat present within the site and it is assumed that the Riverine Rabbit is potentially present.
- It is assumed that since no other mammalian fauna of concern were camera trapped at the site, that there are indeed no such other species using the site on a regular basis.
- It is assumed that there are no Riverine Rabbits resident in areas outside of the riparian habitat which is typically associated with this species in the Upper Karoo. This is considered to be a reasonable assumption as this species is strongly associated with riparian vegetation within the study area. It is only in the southern population that Riverine Rabbits can usually be found outside of riparian areas.
- There is potentially suitable habitat for the Karoo Dwarf Tortoise within the site and the possible presence and impact on this species is dealt with in its own report.

3 LOXTON WEF 3 BASELINE DESCRIPTION

3.1 VEGETATION TYPES

According to the Veg Map, the Loxton Wind Energy Facility 3 footprint falls largely within the Eastern Upper Karoo vegetation type, with a small extent of Upper Karoo Hardeveld and Bushmanland Vloere present in the northeast of the site (***Figure 2***). However, the site verification and field assessment indicates that the extent of Upper Karoo Hardeveld is far greater than mapped and that the areas of Bushmanland Vloere are in fact more closely allied with the Southern Karoo Riviere vegetation type. These different vegetation types are illustrated and described below. A full plant species for the site was developed and is provided in the plant species compliance statement for the Loxton WEF 3. More than 250 plant species were encountered within the site during the field assessment, which indicates the relatively favourable conditions at the time of the sampling. Of relevance to the current study, is that none of the vegetation types present within the site are threatened and all of them are still largely intact and have not experienced a large degree of transformation to date. The Southern Karoo Riviere vegetation type has experienced the highest degree of transformation and as estimated 12% has been lost to transformation for crop production. This loss is however not evenly distributed and the areas of extensive floodplains have been particularly impacted and as this is also the habitat associated with Riverine Rabbit, there has a disproportionate influence on this species with the result that any further habitat loss in these areas is considered highly undesirable.

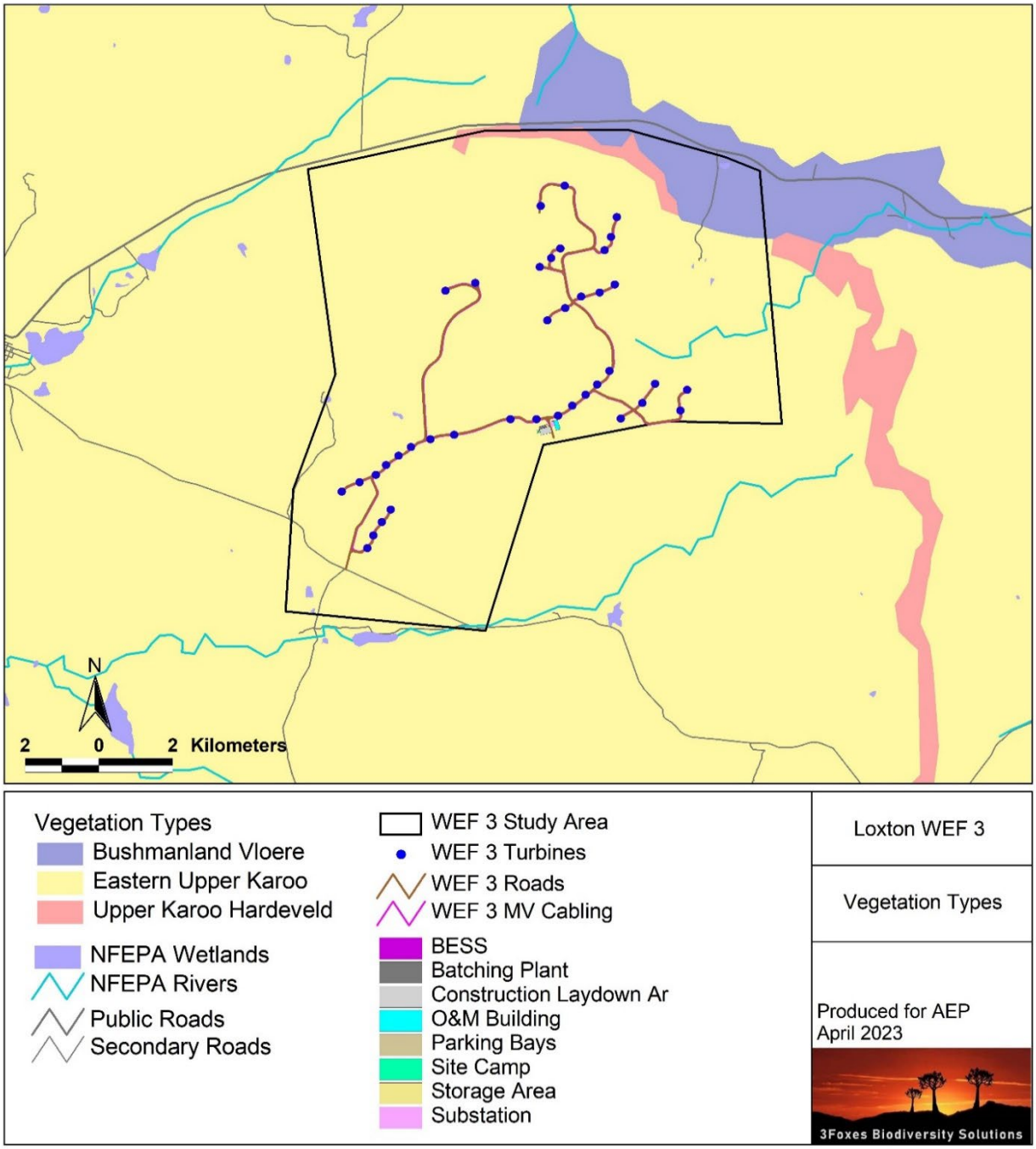

Figure 3. The national vegetation map (SANBI 2018 Update) for the Loxton WEF 3 and surrounding area.

Figure 4. Typical landscape present within the Loxton WEF 3 study area, corresponding with the Eastern Upper Karoo vegetation type.

Figure 5. Riparian area within the Loxton Wind Energy Facility 3 with vegetation that can be considered allied with the Southern Karoo Riviere vegetation type.

Figure 6. Typical example of a dolerite ridge from within the Loxton WEF 3 site, corresponding with the Upper Karoo Hardeveld vegetation type.

3.2 DFFE SENSITIVE PLANT SPECIES

According to the DFFE Screening Tool, there no sensitive species known from the site. The site verification and field assessment confirms that no plant SCC are present within the site and that it can be considered low sensitivity for the Plant Species Theme.

3.3 FAUNAL COMMUNITIES

As many as 70 mammals are listed for the wider study area in the MammalMap database, but many of these are introduced or conservation-dependent and approximately 48 can be considered to be free-roaming and potentially impacted by the development (Annex 2). This includes several red-listed species including the Riverine Rabbit *Bunolagus monticularis* (CR), Black-footed Cat *Felis nigripes* (VU) and Grey Rhebok *Pelea capreolus* (NT). Based on the camera trapping conducted on the site, only the Riverine Rabbit is considered likely present within the site. Species observed through the camera trapping include Steenbok, Kudu, Springbok, Aardvark, Bat-eared Fox, Black-backed Jackal, Grey Mongoose, Yellow Mongoose, Water Mongoose, Suricate, Springhare, Cape Hare, South African Ground Squirrel, Cape Porcupine, Rock Hyrax, African Wildcat, Caracal and Small-spotted Genet.

In terms of reptiles, there are as many as 60 reptiles known from the broader area, of which 14 are of confirmed occurrence, 45 of probable occurrence and four of possible occurrence. The only threatened (Red Listed) reptile species present in the area is the Karoo Dwarf Tortoise (EN). This small tortoise is seldom observed, even when specifically targeted during herpetofaunal surveys as it is active for only very short parts of the day and may also aestivate for extended periods during unfavourable environmental conditions. They are associated with dolerite ridges and rocky outcrops of the southern Succulent and Nama Karoo biomes. Threats to this species include habitat degradation due to agricultural activities and overgrazing, and predation by the Pied Crows which in recent decades have expanded in distribution range. Due to the possible presence of this species on the site, a species assessment for this species has been conducted.

The diversity of amphibians in the study area is relatively low with only 11 species having being recorded in the area. Species observed at the site include the Karoo Toad, Clawed Toad and Poynton's River Frog. There are no listed amphibian species known from the area although the Giant Bull Frog *Pyxicephalus adspersus* was previously listed as Near Threatened but has revised to Least Concern. This species is associated with temporary pans in the Karoo, Grassland and Savannah Biomes, but is not commonly recorded in the study area and its presence at the site is considered unlikely.

Table 2. Faunal species conservation concern known from the broad area, and their likely presence within the site.

Species	Wider area	Loxton WEF 3
Grey Rhebok (NT)	Present on higher ground, especially the Nuweveld mountains.	Not observed within the Loxton WEF 3 site, but confirmed present within the wider site. The Loxton WEF 3 site is considered low sensitivity for this species.
Black-footed Cat (VU)	Known from records from the area, but no recent records within either the Virtual Museum or iNaturalist.	No recent records from the area and the regular presence of this species within the site is considered unlikely. The site is considered low sensitivity for this species.
Riverine Rabbit (CR)	Confirmed present in the Loxton area.	Confirmed present through camera trapping in close vicinity to the Loxton WEF 3 and is considered potentially present within the site.
Karoo Dwarf Tortoise (NT)	Occasional records from the broad area. Associated with dolerite outcrops.	Potentially present as there is suitable habitat within the site and there are some records from similar habitat nearby.

3.4 CRITICAL BIODIVERSITY AREAS & BROAD-SCALE PROCESSES

The whole of the Loxton WEF 3 site consists of areas of CBA 1 and CBA 2 (Figure 7). According to the lookup layer associated with the CBA layer, the attributes underlying the affected CBAs include the following for each CBA category:

CBA 1

- Bushmanland Vloere
- Eastern Upper Karoo
- Upper Karoo Hardeveld
- Conservation Areas
- Natural Wetlands
- Rivers
- Threatened Species
- NPAES PA and Focus
- Landscape structural elements

CBA 2

- Eastern Upper Karoo
- Upper Karoo Hardeveld
- Conservation Areas (interpreted to mean EWT Riverine Rabbit stewardship sites)
- Natural wetlands
- Rivers
- Landscape structural elements

In terms of the layout and the potential impact on the above features, there are three turbines located within the areas of CBA 1, which would have a footprint of less than 5 ha within the CBA 1. The turbines within the CBA 1 are largely associated with areas of Upper Karoo Hardeveld or higher-lying ground associated with the dominant ridges of the site. The remainder of the development footprint is located within the area of CBA 2. Since the actual biodiversity features present in this area have been mapped at a fine scale and avoided by the layout, the impact would be within low sensitivity areas of the CBA 2. As a result, the presence of turbines in this area is not likely to significantly impact the underlying biodiversity features of the affected CBA 2 to a significant degree. The representation of the Eastern Upper Karoo vegetation type within the CBA 2 would not be a significant issue as this is an extensive vegetation type that has been little impacted by transformation. As a result, the areas within the CBA 2 are not considered of

especially high value and would have low irreplaceability. There are no FEPA priority subcatchments within the site.

The whole of the site is also a NPAES Focus Area and this represents a potentially greater concern than development within the CBA. The development would reduce the value of the affected NPAES FA for future conservation expansion. Although the development footprint of 65 ha wtihin the NPAES FA, would not be likely to compromise the ability to reach conservation targets in the area as the affected vegetation types are widespread, the development would have implications for the configuration of any future conservation expansion projects in the area as it is likely that the area affected by the wind farm would need to be avoided. In terms of actual impacts on biodiversity patterns and processes, there are no specific features of very high biodiversity value within the affected polygons and those features considered sensitive would be avoided. In addition, the site does not appear to fall on any significant gradients or corridors that are likely to be of high importance for biodiversity processes such as migration and faunal movement. As such, the overall impact of the development on CBAs and NAPES Focus Areas is considered acceptable.

While the current assessment is restricted to the Loxton WEF 3 project, and finds that impacts on CBAs and NPAES Focus Areas are acceptable, this fails to consider the potential for broader-scale cumulative impacts resulting from wind energy development in the greater Loxton area. This raises the potential for significant impacts on ecological processes such as connectivity in the area and also significant cumulative impacts on NPAES Focus Areas and the ability to meet conservation targets for the affected ecosystems and habitat types. Due to these issues, an offset may be required for the development as a result of cumulative impacts on NAPES Focus Areas in particular. This has specifically been dealt with in a seperate needs analysis study, which addresses the above concerns and provides a spatial and ecological analsysis of the development and potential impacts on biodiversity pattern and process features, singly and in combination with the other developments in the area. The findings of the offset needs analysis include the requirement to establish a development-free corridor through the site from east to west, so as to facilitate connectivity between the Brak-Sak River system west of the site and the Klin Brak-Ongers River system east of the site. With the implementation of this corridor, the overall impacts of the development on NPAES FAs and broad-scale ecological processes is considered acceptable.

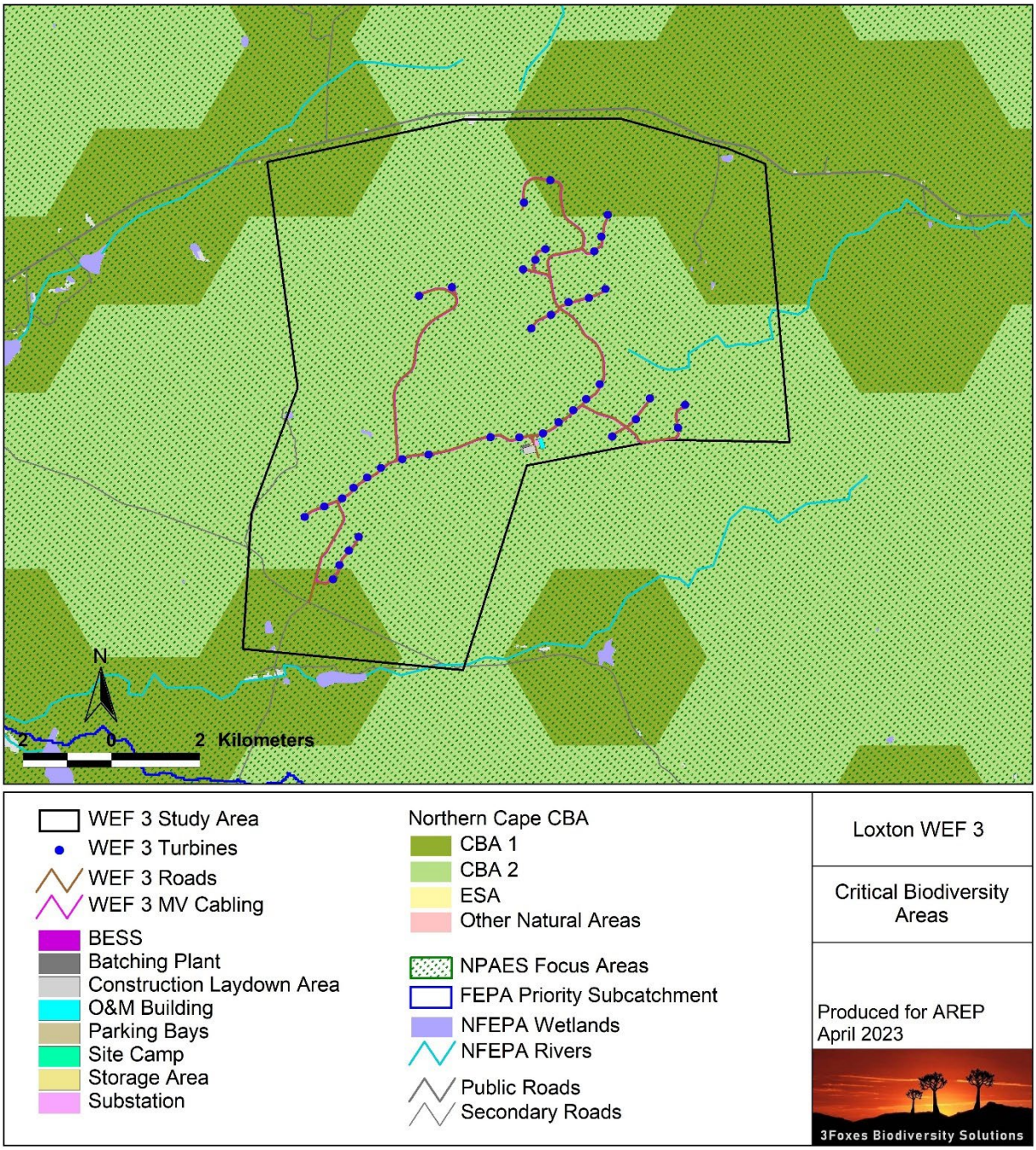

Figure 7. Extract of the Northern Cape CBA map for the Loxton WEF 3 and surrounds.

3.5 CUMULATIVE IMPACTS

In terms of cumulative impacts in and around the site, there are no built wind energy facilities within 30km of the site. The only planned facility within 30km of the site are the rest of the Loxton suite of projects adjacent to the site with an estimated direct footprint of 130 ha and then the Hoogland North WEF 1 and Hoogland North WEF 1 wind farm projects with an estimated

combined footprint of approximately 200 ha. While it is clear that the Loxton suite of projects would create a node of wind energy development north of Loxton, there are no other wind energy projects north of the R63, with the result that cumulative impacts, when considered at a broader scale are still relatively low when considered in the greater Loxton area and especially north of the R63.

In terms of specific cumulative impacts, impacts on the Riverine Rabbit and Karoo Dwarf Tortoise would be a potential concern. However, the habitats associated with these two species have been mapped at a fine scale and included into the no-go layer for the development, with the result that direct habitat loss for these two species as a result of the Loxton WEF 3 would be low. As the broader area is still largely intact, and most direct impacts are associated with the relatively short, transient, construction phase, cumulative impacts associated with the current project are considered low and acceptable. There do not appear to be any ecological processes or corridors that would be specifically disrupted by the Loxton WEF 3. In addition, should all the planned projects in the area be built, the overall extent of habitat loss would not be significant relative to the overall extent of the affected vegetation types. As such, the contribution of the Loxton WEF 3 to habitat loss would not change the overall threat status of any vegetation types or special habitats and the overall level of cumulative impact in the area is considered acceptable.

4 LOXTON WEF 3 CONSTRAINTS

In order to ensure the maintenance of ecological processes within the site and the minimisation of impacts on terrestrial biodiversity, a constraints map for the site was produced (Figure 8). This has been used to inform the wind farm layout and ensure that impacts on the sensitive features of the site are maintained within acceptable limits. There are numerous constraints operating across the site, associated firstly with the major drainage features of the site and secondly with the mountains, slopes and dolerite outcrops of the site which are ecologically significant in their own right, but also represent Karoo Dwarf Tortoise habitat. Although no Riverine Rabbits were observed within the site itself, it was confirmed present nearby and is therefore considered possibly present within the site. Due to the high conservation status of this species, a precautionary approach was taken and all suitable habitat within the the site buffered from turbines by 500m, which is considered sufficient to reduce impacts such as turbine noise to an acceptable level.

The areas mapped as Very High sensitivity are considered no-go areas for wind turbines but may be traversed by overhead cables or turbine access roads where required, subject to review. The areas mapped as High sensitivity represent other sensitive features such as minor drainage lines or slopes deemed to be sub-optimal as Karoo Dwarf Tortoise habitat. These areas should also be avoided by turbines as much as possible, but some habitat loss in these areas is considered acceptable. Under the layout provided for the assessment, there are no turbines in areas mapped

as Very High or in the High sensitivity areas. As a result, the development of the Loxton WEF 3 would avoid significant impact on the major ecological features of the site and as such, the development is considered acceptable and would generate an acceptable impact on fauna, flora and terrestrial biodiversity generally.

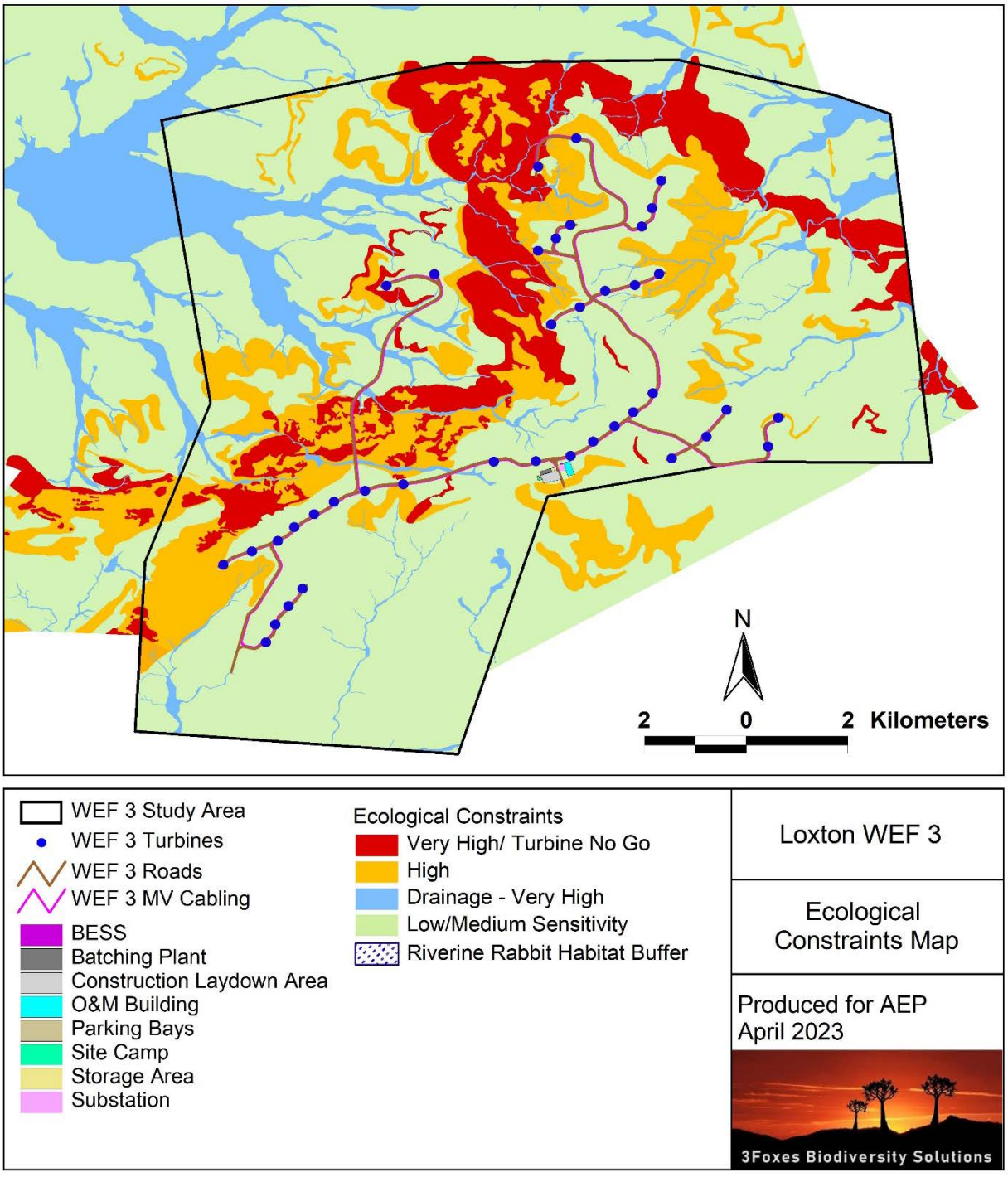

Figure 8. Ecological constraints map for the Loxton WEF 3 for turbines.

5 IMPACTS AND ISSUES IDENTIFICATION

An assessment of the impacts associated with the Loxton WEF 3 is provided below. It is however important to note that the layout assessed is already a mitigated layout since it has been produced in response to the mapped sensitivities observed at the site. As such, the pre-mitigation impacts are already significantly reduced as compared to what they would have been had the extensive avoidance measures not been implemented.

5.1 IDENTIFICATION OF POTENTIAL IMPACTS

The development of the Loxton WEF 3 would result in a number of potential impacts on Terrestrial Biodiversity during the construction and operational phases of the development. During construction, the major impact would likely be habitat loss and anthropogenic disturbance while during the operational phase, direct disturbance would be much reduced although there may be some potential impact from operational and maintenance activities. The following impacts are identified as the major impacts that are likely to be associated with the development of the Loxton WEF 3 on the Terrestrial Biodiversity Theme.

Impact 1. Impacts on CBAs

The development would impact on the CBAs within the site through habitat loss and disturbance. The noise generated by the turbines would generate disturbance for some fauna, which would decrease the value of the area for the affected fauna. In addition, the development would cause general habitat fragmentation and pose some impact on broad-scale ecological processes in the area. These impacts cannot be entirely mitigated and there is likely to be some residual impact on broad-scale ecological processes due to the presence and operation of the wind energy facility.

Impact 2. Impacts on NPAES Focus Areas

The development would have an impact on NPAES Focus areas within the development footprint. The estimated footprint within these areas is estimated at 65 ha and while the direct footprint of the development is unlikely to have a significant impact on the affected NPAES, this impact should be considered at a broader scale and consider noise and other edge affects associated with the development as well as the possible impacts on future configuration options for protected area expansion in the area.

Impact 4. Cumulative impacts on broad-scale ecological processes

The development of the Loxton WEF 3 infrastructure would result in habitat loss and an increase in overall cumulative impacts on fauna and flora in the area. The contribution of the Loxton WEF 3 to cumulative impact at 65 ha is not considered highly significant, given the avoidance of the sensitive features of the site. There are no observable corridors or gradients evident across the site that would be likely to be disrupted by the development. In addition, the wind farm would remain porous for most species and while some species would likely avoid the inner parts of the

wind farm, it is likely that most species would at least be able to move through the wind farm area for migration or movement purposes if required.

6 ASSESSMENT OF IMPACTS ON TERRESTRIAL BIODIVERSITY– LOXTON 2 WEF

An assessment of the likely significance of the impacts identified above is made below for the impacts of the Loxton WEF 3 on Terrestrial Biodiversity.

6.1 CONSTRUCTION PHASE IMPACT ON CBAS

Impact Phase: Construction Phase					
Nature of the impact: Construction Phase impact on CBAs					
Description of Impact: Impacts on CBAs and ESAs as a result of construction phase activities, including disturbance and habitat loss.					
Impact Status: Negative					
	E	**D**	**R**	**M**	**P**
Without Mitigation	Local	Long Term	Recoverable	Moderate	Highly Probable
Score	2	4	3	3	4
With Mitigation	Local	Long Term	Recoverable	Low	Low Probability
Score	2	4	3	2	2
Significance Calculation	**Without Mitigation**		**With Mitigation**		
S=(E+D+R+M)*P	Moderate Negative Impact (48)		Low Negative Impact (22)		
Was public comment received?	No				
Has public comment been included in mitigation measures?	No Coments Received to Date				

Mitigation measures to reduce residual risk or enhance opportunities:

1) The development footprint within the CBAs should be minimized as far as possible.
2) Should access roads, internal cables and overhead lines traverse drainage lines and riparian areas mapped as CBAs these should be microsited by a suitably qualified ecological and aquatic specialist before construction in that area starts to ensure any potential impacts are minimised
3) Minimise the development footprint as far as possible, which includes locating temporary-use areas such as construction camps and lay-down areas in low sensitivity or previously disturbed areas. The current layout depicts that the substations, camps and lay-down areas are in low sensitivity areas, and this is therefore acceptable.
4) Avoid impact to restricted and specialised habitats such as pans, wetlands and rock pavements. The final development footprint to be authorised should be checked for such sensitive features in the field, such that

	there is a high degree of confidence that the final layout avoids such features so that significant changes to turbines or roads are not required at the preconstruction phase.
Residual impact	Despite mitigation, there is likely to be some residual disturbance and habitat loss within the CBAs and ESAs.

6.2 CONSTRUCTION PHASE IMPACT ON NPAES FOCUS AREAS

Impact Phase: Construction Phase					
Nature of the impact: Construction Phase impact on NPAES Focus Areas					
Description of Impact: The construction of the development will impact on the value of the affected NPAES Focus Areas for long-term conservation expansion.					
Impact Status: Negative					
	E	**D**	**R**	**M**	**P**
Without Mitigation	Local	Long Term	Recoverable	Moderate	Probable
Score	2	4	3	3	3
With Mitigation	Local	Long Term	Recoverable	Low	Low Probability
Score	2	4	3	2	2
Significance Calculation	**Without Mitigation**		**With Mitigation**		
S=(E+D+R+M)*P	Moderate Negative Impact (36)		Low Negative Impact (22)		
Was public comment received?	No				
Has public comment been included in mitigation measures?	No Comments Received to Date				

Mitigation measures to reduce residual risk or enhance opportunities:

1) Minimise the development footprint as far as possible, which includes locating temporary-use areas such as construction camps and lay-down areas in low sensitivity or previously disturbed areas. The current layout depicts that the substations, camps and lay-down areas are in low sensitivity areas, and this is therefore acceptable.
2) Avoid impact to restricted and specialised habitats such as pans, wetlands and rock pavements. The final development footprint to be authorised should be checked for such sensitive features in the field, such that there is a high degree of confidence that the final layout avoids such features so that significant changes to turbines or roads are not required at the preconstruction phase.
3) Implementation of the development-free corridor through the site in accordance with the findings of the offset needs analysis.

Residual impact	Despite mitigation, there would be some residual impact on the NPAES Focus Areas due to the presence and operation of the facility.

6.3 OPERATIONAL PHASE IMPACT ON CBAS

Impact Phase: Operational Phase					
Nature of the impact: Operational Phase impact on CBAs					
Description of Impact: Impacts on CBAs as a result of operational phase activities, including disturbance and turbine noise					
Impact Status: Negative					
	E	**D**	**R**	**M**	**P**
Without Mitigation	Local	Long Term	Recoverable	Moderate	Probable
Score	2	4	3	3	3
With Mitigation	Local	Long Term	Reversible	Low	Probable
Score	1	4	1	2	3

Significance Calculation	**Without Mitigation**	**With Mitigation**
S=(E+D+R+M)*P	Medium Negative Impact (36)	Low Negative Impact (24)
Was public comment received?	No	
Has public comment been included in mitigation measures?	No Coments Received to Date	

Mitigation measures to reduce residual risk or enhance opportunities:

1) Adhere to the open space management plan which makes provision for the favourable management of the facility and the surrounding area for fauna.
2) A log should be kept detailing and fauna-related incidences or mortalities that occur on site, including roadkill, electrocutions etc. These should be reviewed annually and used to inform operational management and mitigation measures.
3) Ensure that maintenance staff remain within the operational footprint of the facility.
4) Ensure that vehicles remain within speed limits of 40km/h within the site.
5) Reduce night driving within the site as much as possible and ensure that only essential activities and driving within the site occur at night.
6) All night-lighting at the site should be of environmentally friendly types such as HPS and other bulb types that attract fewer insects.
7) All fauna such as snakes that are encountered or enter operational areas, are removed to safety by a suitably qualified person or allowed to move off naturally without persecution or disturbance.
8) An erosion monitoring programme should be put in place for at least 3 years after construction. Any problems observed should be rectified as soon as possible using the appropriate revegetation and erosion control works. ...

Residual impact	Despite mitigation, there is likely to be some residual disturbance within the affected CBAs.

6.4 CUMULATIVE IMPACTS ON BROAD-SCALE ECOLOGICAL PROCESSES

Cumulative Impact: Cumulative impacts on broad-scale ecological processes					
Description of Impact: Impacts on broad-scale ecological processes such as connectivity, dispersal and movement of fauna about the landscape.					
Impact Status: Negative					
	E	**D**	**R**	**M**	**P**
Without Enhancement	Local	Long Term	Recoverable	Moderate	Probable
Score	2	4	3	3	3
With Enhancement	Local	Long Term	Reversible	Low	Probabile
Score	1	4	1	2	3
Significance Calculation	**Without Enhancement**		**With Enhancement**		
S=(E+D+R+M)*P	Moderate Negative Impact (36)		Low Negative Impact (24)		
Was public comment received?	No				
Has public comment been included in mitigation measures?	No Coments Received to Date				

Mitigation measures to reduce residual risk or enhance opportunities:

1) Locate temporary-use areas such as construction camps and lay-down areas in low sensitivity or previously disturbed areas.
2) Minimise the development footprint in areas mapped as high sensitivity (i.e. near watercourses and other ecologically significant features).
3) Clearly demarcate riparian areas near to the development footprint as No-Go areas with appropriate signage and barriers.
4) Appropriate design of roads and other infrastructure to minimise faunal impacts and allow fauna to pass over, through or underneath these features as appropriate.
5) The fencing around substations or other infrastructure should not have any electrified strands within 30cm of the ground as this may result in tortoises being electrocuted. Alternatively, guard wires or mesh can be placed outside of the fence to prevent tortoises from accessing the electrified fence.
6) Appropriate design of roads and other infrastructure to minimise faunal impacts and allow fauna to pass over, through or underneath these features as appropriate.
7) A log should be kept detailing and fauna-related incidences or mortalities that occur on site, including roadkill, electrocutions etc. These should be reviewed annually by the Environmental Officer and used to inform operational management
8) Erosion and alien vegetation management on site, with annual surveys and annual implementation of clearing and erosion remediation.
9) Establishment of the development-free corridor through the site in accordance with the recommendations of the offset needs analysis study.

Residual impact	Despite mitigation, there are likely to be some residual cumulative impacts on broad-scale ecological processes, but these are likely to be low after mitigation.

6.5 NO-GO ALTERNATIVE

Assuming that the project does not go ahead, the wind farm would not be built and the current land use would continue into the future. The area is currently used for extensive livestock which is considered to be largely compatible with long-term biodiversity maintenance. Many fauna species are to some degree negatively affected by farming including many predators which are targeted due to their negative impact on livestock, while some species may also be vulnerable to habitat loss or degradation and may experience depressed populations within the farming landscape. In terms of vegetation and plant species, extensive grazing may result in changes in composition towards less palatable species and a reduction in plant cover. It is however important to recognise that the development does not represent an alternative to extensive livestock farming, but rather an additional impact and stressor independent of the current land use. Overall, the no-go alternative is considered to result in a low negative impact on terrestrial biodiversity.

7 CONCLUSION & RECOMMENDATIONS

The Loxton Wind Energy Facility 3 site is mapped as falling largely within the Eastern Upper Karoo vegetation type, with a small extent of Upper Karoo Hardeveld and Bushmanland Vloere present in the northeast of the site. However, the site verification and field assessment indicate that the extent of Upper Karoo Hardeveld is far greater than mapped and that the areas of Bushmanland Vloere are in fact more closely allied with the Southern Karoo Riviere vegetation type. These vegetation types have been impacted to a limited extent by transformation to date, and are classified as Least Threatened. In terms of fauna, there are several listed fauna which occur in the area and which would potentially be impacted by the development. However, of these only the Karoo Dwarf Tortoise and Riverine Rabbit which are considered likely to be present. The habitats associated with these species have been mapped at a fine scale and included in the no-go layer for the development while the other sensitive features of the site including drainage lines, riparian areas and rocky hills habitat have been mapped as high or very high sensitivity and would not be impacted by turbine footprint areas. Some impact to these areas from limited amounts of overhead cabling or turbine access roads would occur and is considered acceptable.

The whole of the site is mapped as falling within areas of CBA 1 and CBA 2. Under the laout assessed, there are three turbines within the CBA 1, with the remainder within the CBA 2. This is considered unlikely to significantly impact the underlying biodiversity features as these have been mapped in detail in the sensitivity mapping provided to the project. As such, the impact of the Loxton WEF 3 development on the areas of CBA 1 and CBA 2 is considered acceptable

The areas of CBA 1 and CBA 2 within the site are also mapped as NPAES Focus Areas. However, as there are no specific features of very high biodiversity value within the affected polygons and the loss of these areas from the NPAES is considered to have low significance after the implementation of avoidance and mitigation, which includes the establishment of a development-free corridor through the site as detailed in the offset needs analysis study and illustrated below in Figure 9. As such, the overall impact of the development on NAPES Focus Areas is considered acceptable.

Impact Statement – Loxton WEF 3 Impact on Terrestrial Biodiversity

There are no impacts associated with the development of the Loxton WEF 3 on terrestrial biodiversity that cannot be mitigated to an acceptable level. As such, should all the proposed mitigation be implemented, the Loxton WEF 3 development is deemed acceptable from a terrestrial ecological impact perspective. In terms of cumulative impacts, the affected area has not been significantly impacted by renewable energy development to date and the contribution of the current wind farm development to cumulative impact is considered low and acceptable. It is thus the reasoned opinion of the specialist that the Loxton WEF 3 development should be authorised subject to the various mitigation and avoidance measures as indicated.

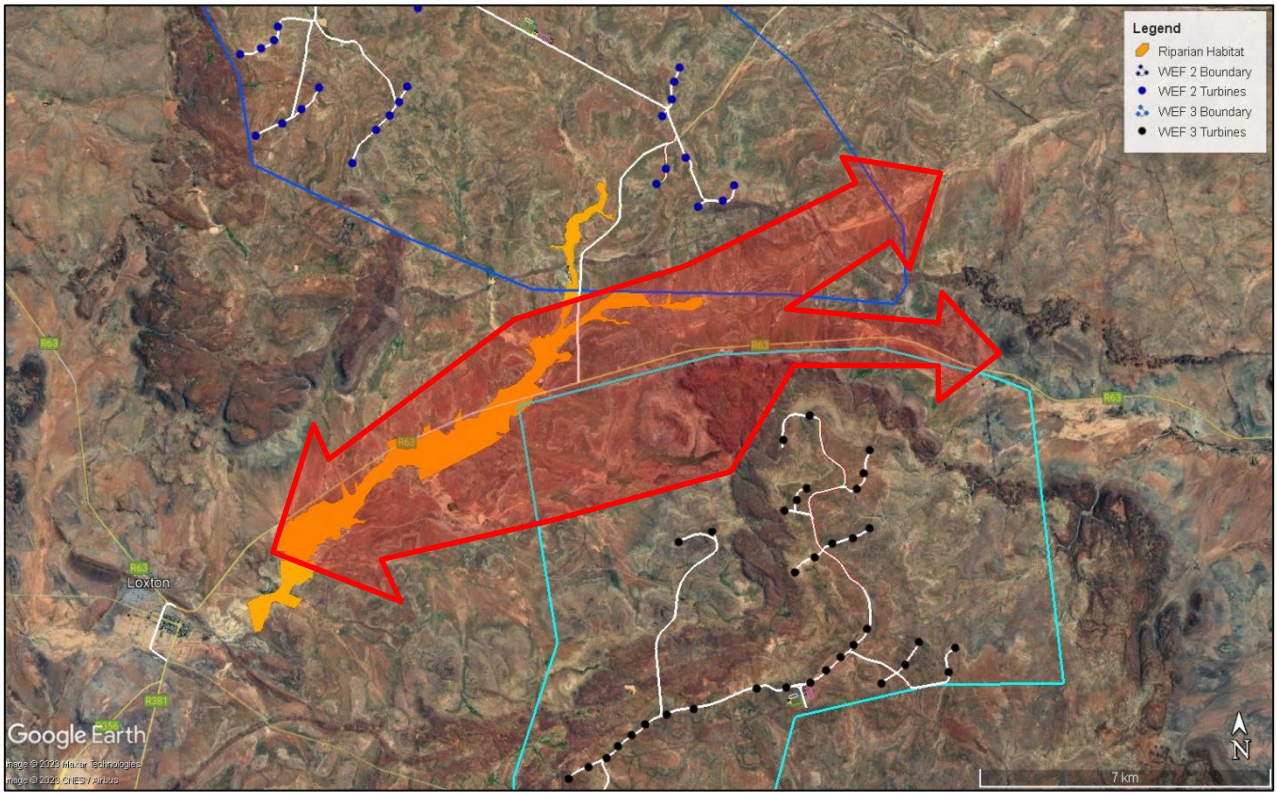

Figure 9. Recommended area within which a development-free zone should be established, showing the primary drainage feature in orange that should form the core feature of the set-aside development-free zone.

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LOXTON WIND ENERGY FACILITY 3

SITE SENSITIVITY VERIFICATION

PRODUCED FOR ATLANTIC RENEWABLE ENERGY PARTNERS

ON BEHALF OF LOXTON WIND ENERGY FACILITY 3 (PTY) LTD

3Foxes Biodiversity Solutions

Simon.Todd@3foxes.co.za

April 2023

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SHORT CV/SUMMARY OF EXPERTISE – SIMON TODD

Simon Todd Pr.Sci.Nat
Director & Principle Scientist
C: 082 3326502
Simon.Todd@3foxes.co.za

23 De Villiers Road
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.

Recent Specialist Ecological Studies in the Vicinity of the Current Site

Environmental Impact Assessment for the Proposed Komsberg East and Komsberg West Wind Farms and Associated Grid Connection Infrastructure: Fauna & Flora Specialist Impact Assessment. Arcus Consulting 2014.

Proposed Rietkloof & Brandvallei Wind Farms and Associated Grid Connection Infrastructure: Fauna & Flora Specialist Impact Assessment Report. EOH 2016.

Proposed Gunstfontein Wind Farm and Associated Grid Connection Infrastructure: Fauna & Flora Specialist Impact Assessment Report. Savannah Environmental 2016.

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

Phezukomoya and San Kraal Wind Energy Facilities and associated grid connection. Fauna and Flora specialist studies. Arcus Consulting 2018.

Kokerboom Wind Energy Facilities (1-4) and associated grid connections. Fauna and Flora specialist studies. Aurecon 2017.

SPECIALIST DECLARATION

I, ..Simon Todd....., as the appointed independent specialist, in terms of the 2014 EIA Regulations, hereby declare that I:

- I act as the independent specialist in this application;
- I 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;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- 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 have no vested interest in the proposed activity proceeding;
- 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;
- I have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- I have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- all the particulars furnished by me in this specialist input/study 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: 

Name of Specialist: ____Simon Todd_____

Date: ____20 April 2023_____

1 INTRODUCTION

The applicant, Loxton Wind Facility 3 (Pty) Ltd is proposing the development of a commercial Wind Energy Facility (WEF) and associated infrastructure on a ca. 12 500 ha site located approximately 8-10 km east of Loxton within the Ubuntu Local Municipality and the Pixley Ka Seme District Municipality in the Northern Cape Province. Two additional WEF's are concurrently being considered on the surrounding properties and are assessed by way of separate impact assessment. These projects are known as Loxton WEF 3 and Loxton WEF 3. A preferred project site with an extent of approximately 58 000 ha has been identified as a technically suitable area for the development of the three WEF projects. Loxton WEF 3 will comprise of up to 38 turbines, with a contracted capacity of up to 240 MW with a permanent footprint of up to 65 ha.

In terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (4 December 2014, Government Notice (GN) R982, R983, R984 and R985, as amended), various aspects of the proposed development may have an impact on the environment and are considered to be listed activities. These activities require authorisation from the National Competent Authority (CA), namely the Department of Forestry, Fisheries and the Environment (DFFE), prior to the commencement thereof. In accordance with GN 320 and GN 1150 (20 March 2020) [1] of the NEMA EIA Regulations of 2014, prior to commencing with a specialist assessment, a site sensitivity verification must be undertaken to confirm the current land use and environmental sensitivity of the proposed project area as identified by the National Web-Based Environmental Screening Tool (Screening Tool). 3Foxes Biodiversity Solutions has been commissioned to verify the sensitivity of the Loxton Wind Energy Facility 3 project site under these specialist protocols.

2 RELEVANT ASPECTS OF THE DEVELOPMENT

The Loxton Wind Energy Facility 3 is part of the Loxton Wind Energy Facilities cluster and is located south of the R63, approximately 8-10 km east of Loxton in the Northern Cape. The layout and location of the Loxton Wind Energy Facility 3 is illustrated below in Figure 1 and includes up to 38 potential turbine locations with a maximum output of 240 MW. The estimated total permanent footprint of the Loxton Wind Energy Facility 3 is estimated at 65 ha. 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. A full description of the project is contained within the main EIA report and is not repeated in full here.

[1] [1] GN 320 (20 March 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

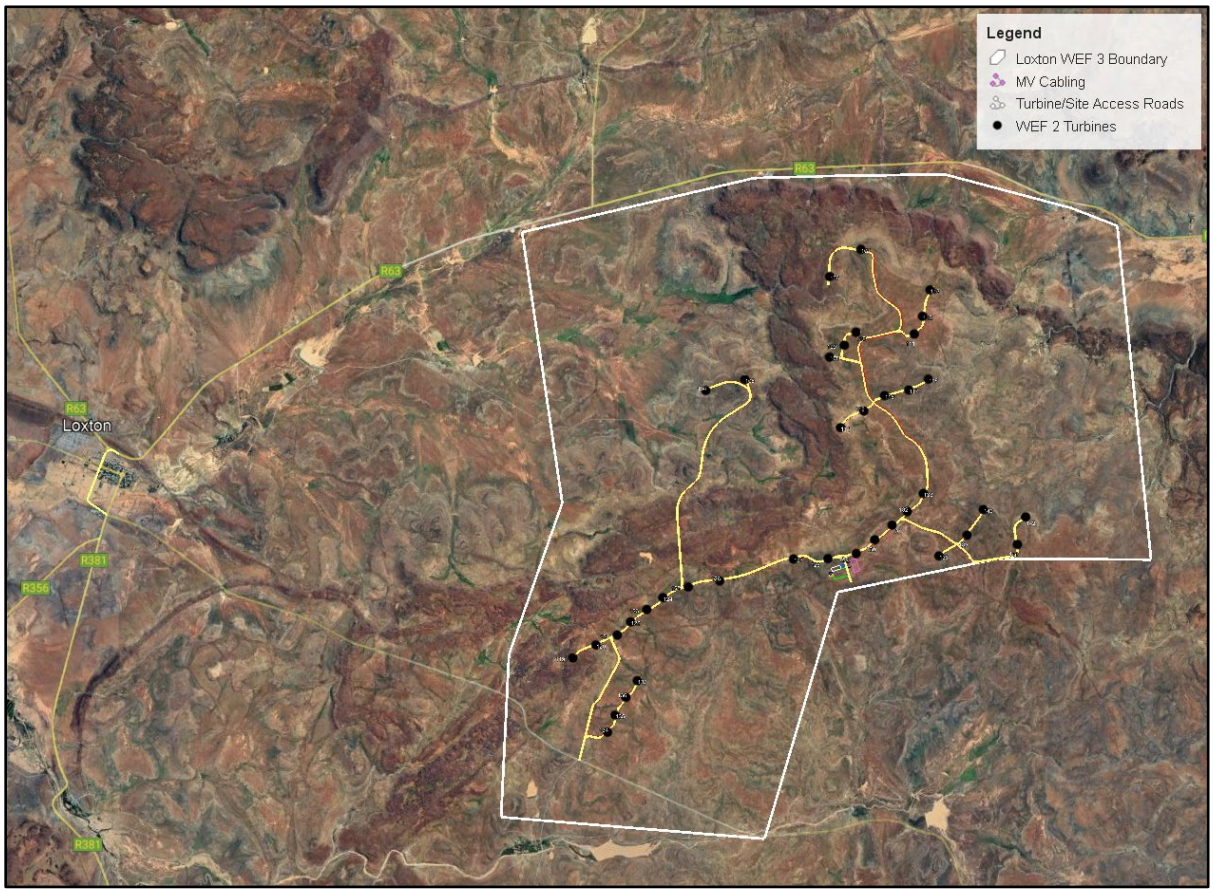

Figure 1. Satellite image showing the location of the proposed Loxton WEF 3, east of Loxton.

3 DFFE SITE VERIFICATION

Government Notice No. 320, dated 20 March 2020, includes the requirement that an Initial Site Sensitivity Verification Report must be produced for a development footprint. The outcomes of the Site Verification Report determine the level of assessment required for the site. The outputs of the Screening Tool are illustrated and briefly discussed below for each theme as relevant to the current study and related to the results of the field assessment and associated site verification.

4 ANIMAL SPECIES THEME

The DFFE Screening Tool identified parts of the site as having a medium animal sensitivity theme due to the modelled possible presence of the Riverine Rabbit and the Karoo Dwarf Tortoise. In addition, avifauna are included under the animal theme but would be covered under the avifaunal specialist study. Refer to Table 2 and Figure 2 below for the Animal Theme results.

In terms of the site verification, extensive camera trapping was conducted across the Loxton WEF 3 site as well as adjacent areas to check for the presence of mammalian fauna of concern.

Although there are some areas present within the Loxton WEF 3 area that are considered potentially suitable for the Riverine Rabbit, the camera trapping was not able to confirm the presence of this species within the site itself, but confirmed captures were obtained at two sites west of the project area. Given that this habitat extends into the site, the possible presence of the Riverine Rabbit within the site cannot be excluded and a full assessment for this species would need oto be conducted. The field verification confirmed that the site includes areas of suitable habitat for the Karoo Dwarf Tortoise associated with the dolerite hills of the site. While no specimens of this species were observed within the site despite searching, the presence of historical records from the area and the presence of suitable habitat are considered sufficient to confirm the potential presence of this species within the site. As such a full assessment for the Karoo Dwarf Tortoise is required.

In terms of fauna of concern that may be present on the site, but which are not listed under the DFFE Screening Tool, several different species are potentially present on the site including Mountain Reedbuck *Redunca fulvorufula* (EN), Grey Rhebok *Pelea capreolus* (NT) and Brown Hyena *Hyaena brunnea* (NT). The extensive camera trapping conducted across the site did not pick up any of these species or any other animal SCC.

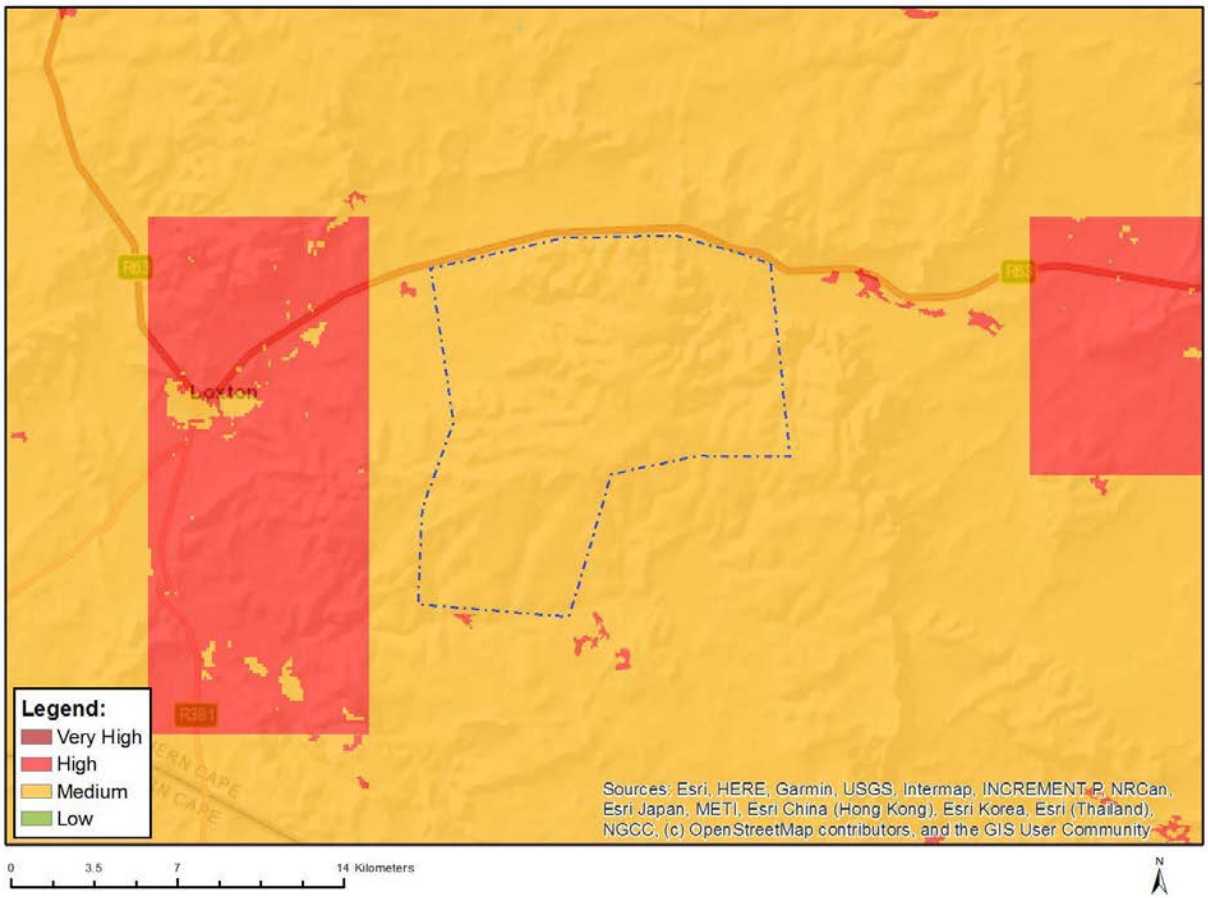

Figure 2. Animal Species Theme Sensitivity Map for the Loxton WEF 3 site and surrounds.

Table 1. Animal Species Theme Features for the Loxton WEF 3 site.

Sensitivity	Feature(s)
Medium	Aves-*Neotis ludwigii*
Medium	Aves-*Aquila verreauxii*
Medium	Mammalia-*Bunolagus monticularis*
Medium	Reptilia-*Chersobius boulengeri*

Figure 3. Riparian habitat within the Loxton WEF 3 site considered potentially suitable for the Riverine Rabbit.

Figure 4. Although it was not detected within the site itself, the Riverine Rabbit was confirmed present immediately west of the site.

Figure 5. The rocky hills of the Loxton WEF 3 site are considered potentially suitable habitat for the Karoo Dwarf Tortoise.

5 PLANT SPECIES THEME SENSITIVITY

The DFFE Screening Tool indicates that there no plant species of concern known from the Loxton WEF 3 study area (Figure 6, Table 2). Despite favourable conditions at the time of sampling, no plant SCC were picked up during vegetation surveys conducted across the site. As such, the Loxton WEF 3 site is considered to be low sensitivity for the Plant Species Theme.

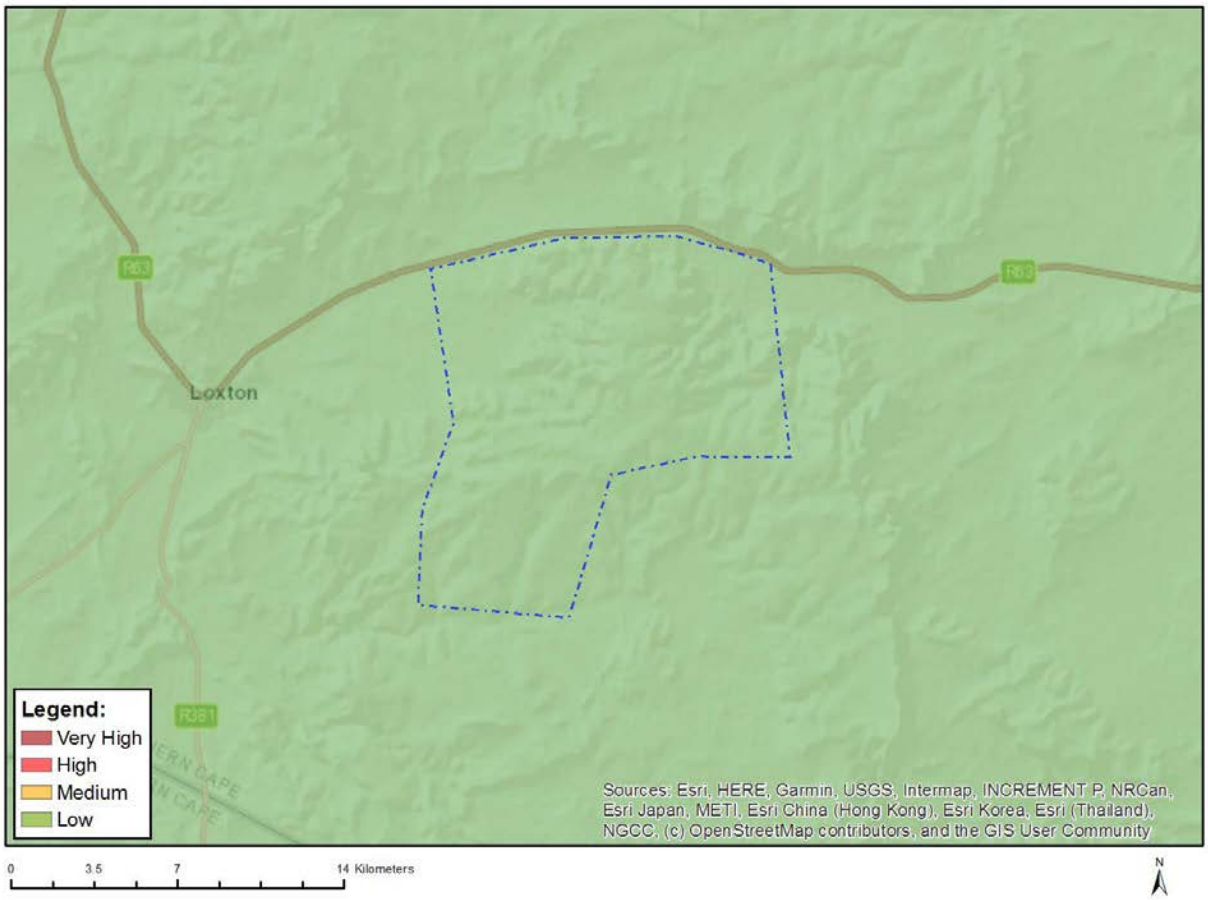

Figure 6. Plant Species Theme Sensitivity Map for the Loxton WEF 3 site and surrounds.

Table 2. Plant species theme sensitivities for the Loxton WEF 3 site.

Sensitivity	Feature(s)
Low	Low Sensitivity

Figure 7. Typical open plains vegetation of the Loxton WEF 3 site, corresponding with the Eastern Upper Karoo vegetation type. No species of concern were observed within this habitat type and it is considered low sensitivity.

6 TERRESTRIAL BIODIVERSITY THEME SENSITIVITY.

The overall combined Terrestrial Biodiversity theme indicates that the site consists almost entirely of Very High Sensitivity areas, associated with areas classified as CBA 1, CBA 2 and Protected Area Expansion Strategy Focus Areas (Figure 8 and Table 3). Since these are anthropogenic conservation planning-based features, it is not really possible to verify these features in the field, apart from an assessment of their condition and characteristics. Based on the presence of these features within the site, a full terrestrial biodiversity assessment is required.

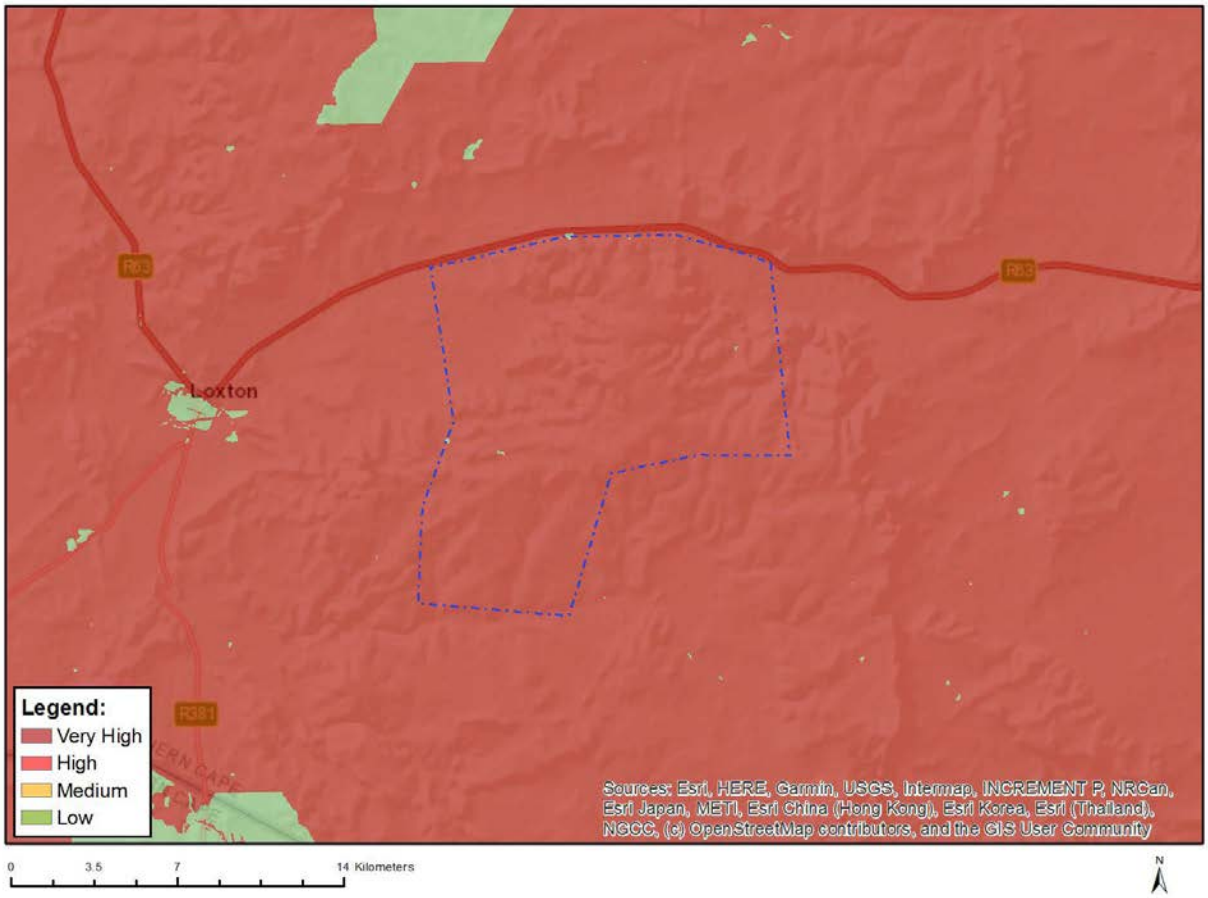

Figure 8. Terrestrial Biodiversity Theme Sensitivity Map of the Loxton WEF 3 site and surrounds.

Table 3. Terrestrial Biodiversity Theme Features for the Loxton WEF 3 study area.

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	Critical biodiveristy area 1
Very High	Critical biodiveristy area 2
Very High	Protected Areas Expansion Strategy

7 CONCLUSIONS & IMPLICATIONS OF THE SITE VERIFICATION

Based on the results of the site verification for the Loxton WEF 3, the following studies are required in the EIA process for terrestrial ecology:

- Karoo Dwarf Tortoise Species Assessment
- Riverine Rabbit Species Assessment
- Plant Species Compliance Statement

- Terrestrial Biodiversity Assessment
