Figure B.5: View east-south-east across the proposed Komas WEF development area showing a typical view of the low range of mountains / hills which dominate the eastern sector of the study area (Photo courtesy of SiVEST, 2020).

Figure B. 6: View south-west from the secondary main road, (some 5 km north of the proposed Komas WEF development area) showing the topography typical of much of the study area (Photo courtesy of SiVEST, 2020).

The topography and slope of the study area are illustrated in Figure B.7 and B.8 respectively (taken from Appendix D of the VIA which is included in Appendix D.5 of this BA report).

MAP 3: Topography

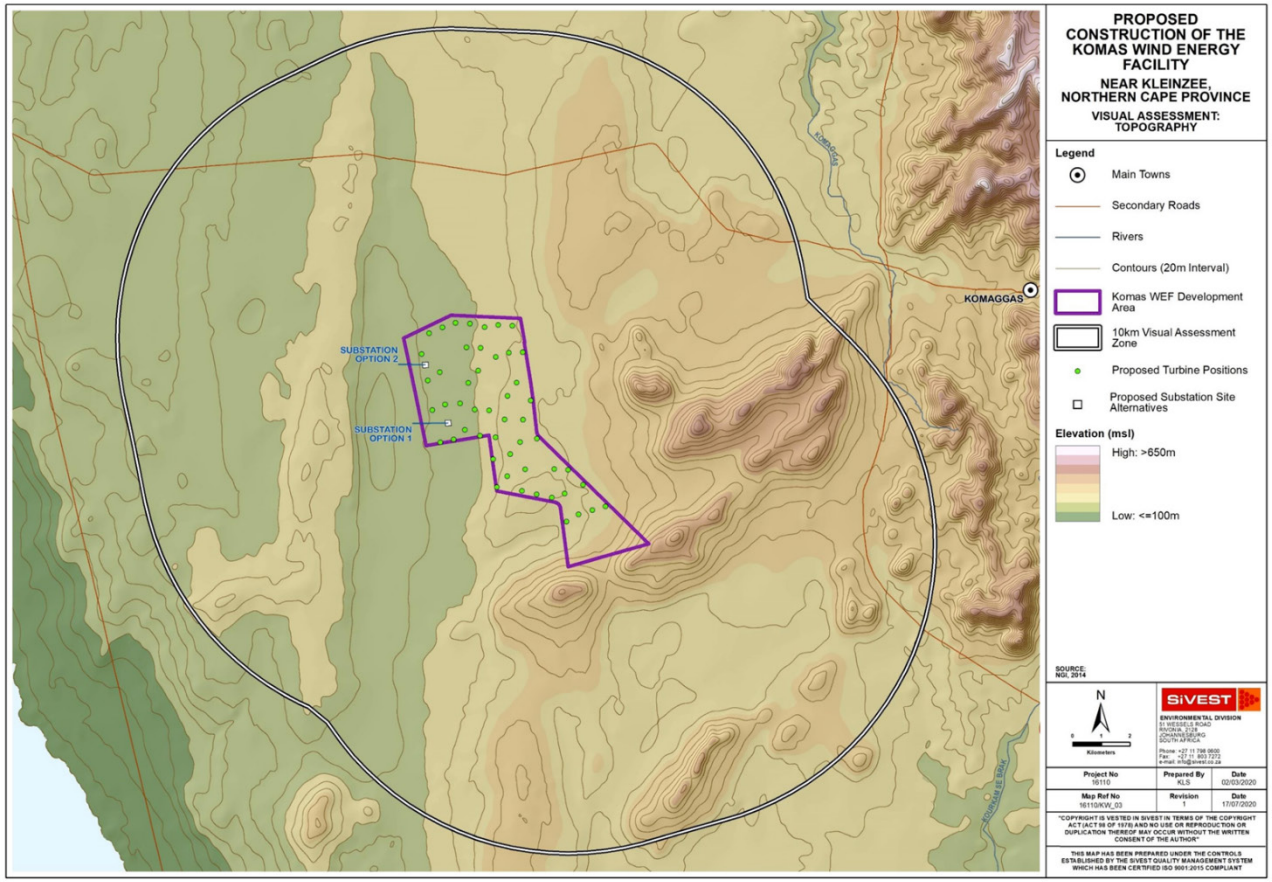

Figure B.7: Topography of the study area of the proposed Komas WEF (SiVEST, 2020)

MAP 4: Slope Classification

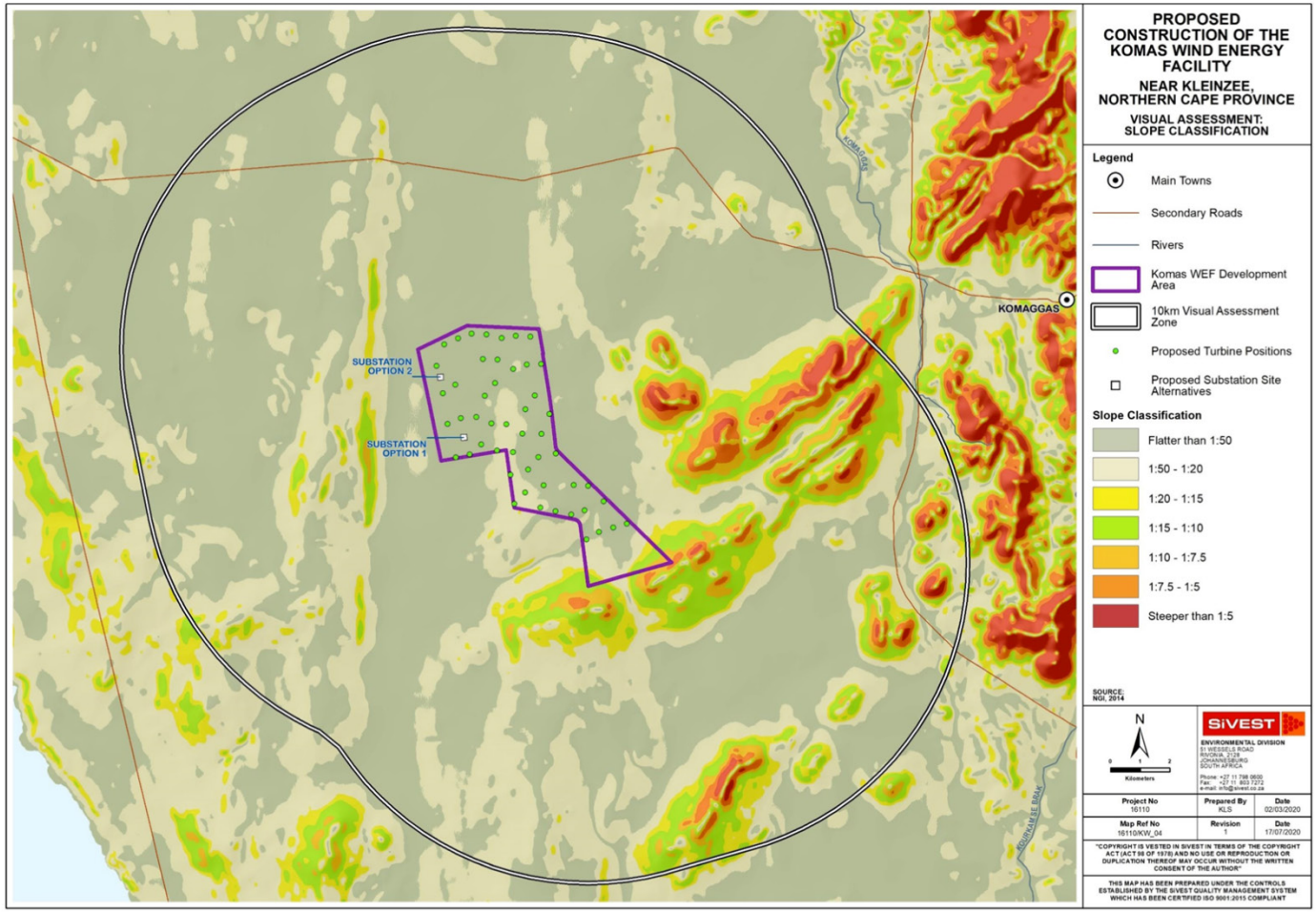

Figure B.8: Slope classification of the study area of the proposed Komas WEF (SiVEST, 2020)

Visual Implications in terms of topography

Areas of flat relief, including the flat plains and the higher-lying ridges, are characterised by wide ranging vistas, although the vistas eastwards will be somewhat constrained by the Komaggas Mountains (Figure B.9). Bearing in mind that wind turbines are very large structures (potentially up to 300 m in height including the rotor blades), these could be visible from an extensive area around the site. Although the low mountain range immediately east of the site would limit views of the WEF from some areas in the eastern-most sector of the study area (Figure B.10), across the remainder of the study area there would be very little topographic shielding to lessen the visual impact of the wind turbines from any locally-occurring receptor locations.

Figure B.9: View south-east towards the Komaggas Mountains from the secondary road that traverses the northern sector of the study area showing limited vistas eastwards (Photo courtesy of SiVEST, 2020).

Figure B.10: View south-west from the secondary road that traverses the eastern sector of the study area (approximately 9 km from the proposed Komas WEF Development Area) showing topographical screening provided by the low mountain range (Photo courtesy of SiVEST, 2020).

B.4 Land use

According to the South African National Land Cover dataset (GeoTerra Image 2018), much of the area is characterised by natural vegetation which is dominated by Karoo and Fynbos shrubland (Figure B.11).

Agricultural activity in the area is severely restricted by the arid nature of the local climate and livestock rearing (sheep and cattle) is the dominant activity (Figure B.12). There are no areas of cultivation present within the assessment zone and as such, the natural vegetation has been retained across much of the study area.

MAP 7: Land Cover Classification

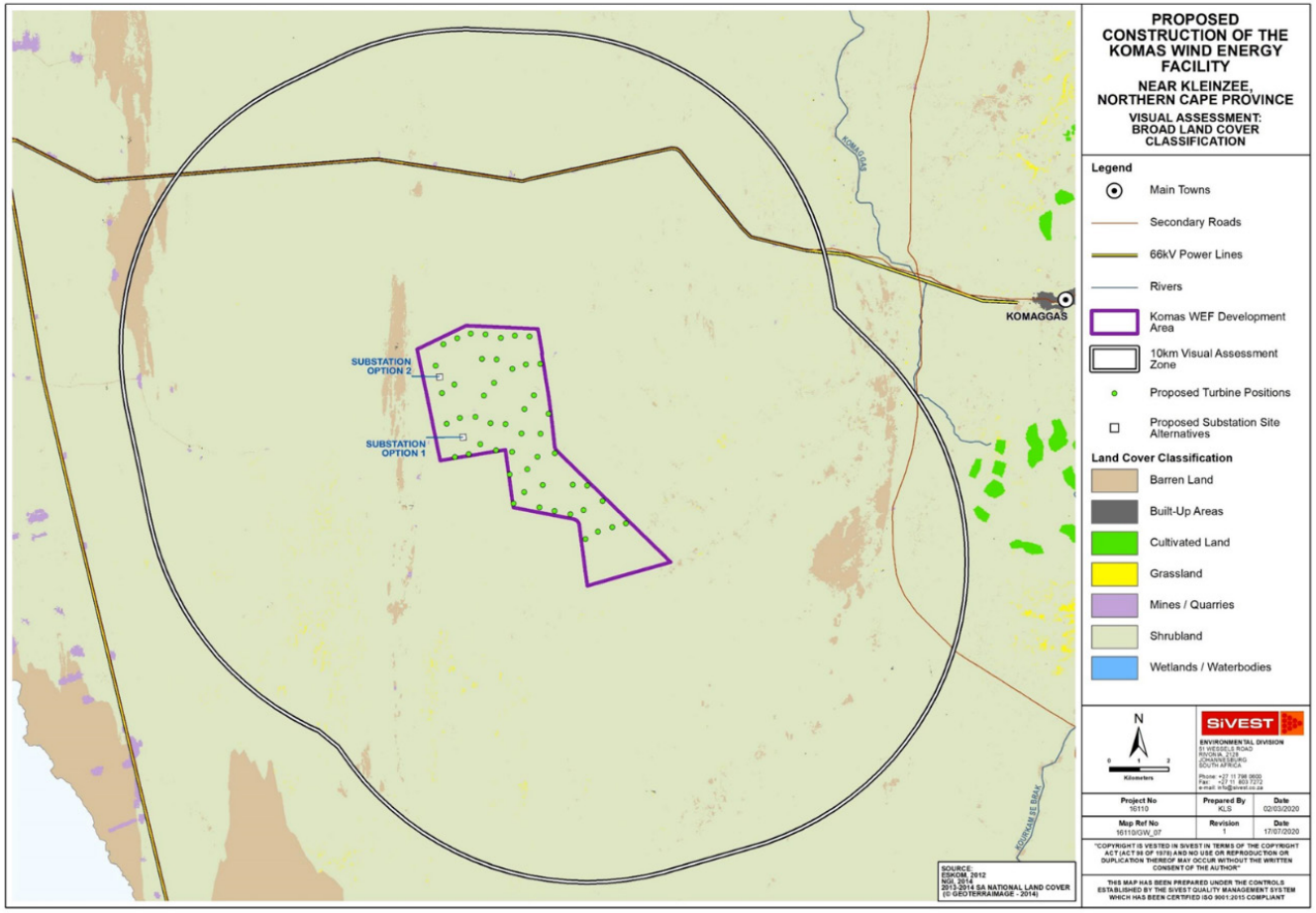

Figure B.11: Land use classification of the study area

Figure 3: Evidence of livestock rearing taking place within the proposed Komas WEF study area

The nature of the climate and the corresponding land use has resulted in low densities of livestock and relatively large farm properties across the area. Thus the area has a very low density of rural settlement, with relatively few farmsteads scattered across the area (Figure B.13). Built form in much of the proposed Komas WEF study area is limited to isolated farmsteads, including farm worker's dwellings and ancillary farm buildings, gravel access roads, telephone lines, fences (Figure B.14) and windmills (Figure B.15).

Figure B.13: Typical view of an isolated farmstead in the distance

Figure 5: Example of farm infrastructure found within the proposed Komas WEF study area

Figure 6: A wind mill in the proposed Komas WEF study area

Other human influence is visible in the area in the form of the two secondary roads which traverse the study area. One road runs in an east to west direction, across the northern sector of the study providing a local link between Komaggas and Kleinsee. The other road affects a small section of the eastern sector of the study area, running in a north-south direction. Both of these are gravel roads which are predominantly used by local farmers to access the nearby towns of Komaggas and Kleinsee. Existing 66 kV power lines directly adjacent to the Komaggas-Kleinsee link road form significant man-made features in an otherwise undeveloped landscape (Figure B.16).

The closest built-up areas are the small towns of Komaggas to the east and Kleinsee to the west. Both of these are situated well outside the visual assessment zone for the proposed Komas WEF and are thus not expected to have an impact on the visual character of the study area.

Figure B.16: View of a 66 kV power line along the Komaggas-Kleinsee link road

Visual Implications

As stated above, sparse human habitation and the predominance of natural vegetation cover across much of the study area would give the viewer the general impression of a largely natural setting with some pastoral elements. In addition, there are no towns or settlements in the visual assessment zone and thus, there are very low levels of human transformation and visual degradation across the major portion of the study area.

Significant elements of human transformation are however present in the northern and eastern sectors of the proposed Komas WEF study area, these being the gravel secondary roads and the existing 66 kV power lines (Figure B.16). These elements are considered to have degraded the visual character to some degree.

Thus, the proposed Komas WEF development would alter the visual character and contrast significantly with the typical land use and/or pattern and form of human elements present across the broader study area, although elements of human transformation in parts of the study area will reduce the level of contrast to a degree.

B.5 Visual character and Landscape

The above physical and land use-related characteristics of the study area contribute to its overall visual character. Visual character largely depends on the level of change or transformation from a natural baseline in which there is little evidence of human transformation of the landscape. Varying degrees of human transformation of a landscape would engender differing visual characteristics to that landscape, with a highly modified urban or industrial landscape being at the opposite end of the scale to a largely natural undisturbed landscape. Visual character is also influenced by the presence of built infrastructure such as buildings, roads and other objects such as telephone or electrical infrastructure.

As mentioned above, much of the study area is characterised by natural landscapes with some rural / pastoral elements and low densities of human settlement. Livestock grazing is the dominant land use, with no areas of cultivation in evidence. Grazing activities have not transformed the natural landscape to any significant degree and as such, a large portion of the study area has retained its natural character and is dominated by largely natural, scenic views. Along the coast to the west and northwest and along the Buffels River to the north mining for diamonds has occurred for nearly a century. The Komaggas Communal Reserve lies to the east of the study area.

As there are no towns or built-up areas in the visual assessment zone influencing the overall visual character, there are very low levels of human transformation and visual degradation across much of the study area. Prominent anthropogenic elements in the study area however include 66 kV power lines and the two gravel secondary roads in the study area. Other, less prominent elements present in the area include telephone poles, windmills, gravel farm access roads and farm boundary fences. The presence of this infrastructure is an important factor in this context, as the introduction of the proposed WEF would result in less visual contrast where other anthropogenic elements are already present, especially where the scale of those elements is similar to that of the proposed development.

The scenic quality of the landscape is also an important factor contributing to the visual character of an area or the inherent sense of place. The greater area surrounding the development site is an important component when assessing visual character. The area can be considered to be a typical Karoo or “platteland” landscape that would characteristically be encountered across the high-lying dry western and central interior of South Africa. Much of South Africa’s dry Karoo interior consists of wide-open, uninhabited spaces sparsely punctuated by widely scattered farmsteads and small towns. Over the last couple of decades, an increasing number of tourism routes have been established within the Karoo, and in a context of increasing urbanisation in South Africa’s major centres, the Karoo is being marketed as an undisturbed getaway or a stop on a longer journey from the northern parts of South Africa to the Western and Eastern Cape coasts. Examples of this may be found in the “Getaway Guide to Karoo, Namaqualand and Kalahari” (Moseley and Naude-Moseley, 2008).

The typical Karoo landscape can also be considered a valuable ‘cultural landscape’ in the South African context. Although the cultural landscape concept is relatively new, it is becoming an increasingly important concept in terms of the preservation and management of rural and urban settings across the

world (Breedlove, 2002). In 1992 the World Heritage Committee[6] adopted the following definition for cultural landscapes:

Cultural landscapes represent the combined worlds of nature and of man illustrative of the evolution of human society and settlement over time, under the influence of the physical constraints and/or opportunities presented by their natural environment and of successive social, economic and cultural forces, both external and internal.

Cultural Landscapes can fall into three categories (according to the World Heritage Committee's Operational Guidelines):

Cultural Landscapes can fall into three categories (according to the Committee's Operational Guidelines):

- "a landscape designed and created intentionally by man";
- an "organically evolved landscape" which may be a "relict (or fossil) landscape" or a "continuing landscape"; and
- an "associative cultural landscape" which may be valued because of the "religious, artistic or cultural associations of the natural element".

The typical Karoo landscape consisting of wide open plains, and isolated relief, interspersed with isolated farmsteads, windmills and stock holding pens, is an important part of the cultural matrix of the South African environment. The Karoo farmstead is also a representation of how the harsh arid nature of the environment in this part of the country has shaped the predominant land use and economic activity practiced in the area, as well as the patterns of human habitation and interaction. The presence of small towns, such as Kleinsee and Komaggas, engulfed by an otherwise rural environment, form an integral part of the wider Karoo landscape. As such, the Karoo landscape as it exists today has value as a cultural landscape in the South African context.

In terms of the types of cultural landscape listed above, the Karoo cultural landscape would fall into the second category, that of an organically evolved, “continuing” landscape.

In light of this, the study area, as visible to the viewer, represents a typical Karoo cultural landscape. This is important in the context of potential visual impacts associated with the development of a WEF as introducing this type of development could be considered to be a degrading factor in the context of the natural Karoo character of the study area. However, considering the fact that a number of WEFs have been developed or are likely to be developed across the Karoo, it is conceivable that WEFs may in the future become an integral part of the typical Karoo cultural landscape. In addition, the study area is located within the Springbok REDZ (REDZ 8) and thus the relevant authorities support the concentration of renewable energy developments and associated transformation in this area.

In this instance visual impacts on the cultural landscape would be reduced by the fact that the area is relatively remote and there are very few tourism or nature-based facilities in the study area. In addition, the nearest recognised or potential tourism routes (R355 and the Namaqua Coastal route) are some distance away.

Further descriptions of the topography, landscape, land use and visual character of the proposed Komas WEF site and surrounding regions are provided in the Specialist Assessments included in Appendix C of this BA Report.

[6] UNESCO, 2005. Operational Guidelines for the Implementation of the World Heritage Convention. UNESCO World Heritage Centre. Paris

B.6 Geology

The Aquatic Compliance Statement (Appendix C.2) notes that the majority of the study area is underlain by quaternary alluvium, sand and calcrete with an isolated area of quartzites and schists of the Bushmanland Group and Khurisberg Subgroup occurring in the south (Figure B.17). The soils associated with the study area are red and yellow, well drained, sandy soils (SA Soil Map, SANBI BGIS).

The following information was taken from the Geological desktop report which was compiled by WSP Environmental (Pty) Ltd (2020) which serves as background information for the proposed project (see Appendix J.2 for the full Geology report). The Geological Map (1:250 000, 2916 Springbok) indicates that the proposed development area is predominantly underlain directly by Quarternary deposits described as semi consolidated piedmont deposits and red sands. These are deposited on the wide (±30 km) coastal foreland that stretched from the west coast to the escarpment, east of the site. Due to the widespread nature of these recent deposits the distribution of geological units under the sediments is not well defined. The deposits are known to be underlain by the Bushmanland Terrane which consists of basement granitic gneisses, granulite grade supracrustal rocks and late granitoid intrusions.

The Steinkopf Gneiss of the Gladkop Suite is exposed in the north where the Buffels River has eroded into the underlying bedrock. This unit is part of the older basement of the Bushmanland Terrane. The next unit that is mapped in the area, and is mapped as outcrop on the proposed development site is the Khurisberg Subgroup which is part of the Bushmanland Group supracrustal rocks that were deposited on the basement and later metamorphosed to form gneiss, quartzite and schist. Younger units mapped in the area, but only significantly to the east of the development area include the Mesklip Gneiss (Little Namaqua Suite) and the Rietberg Granite (Spektakel Suite). These both represent late stage granitic intrusions, some of which were metamorphosed.

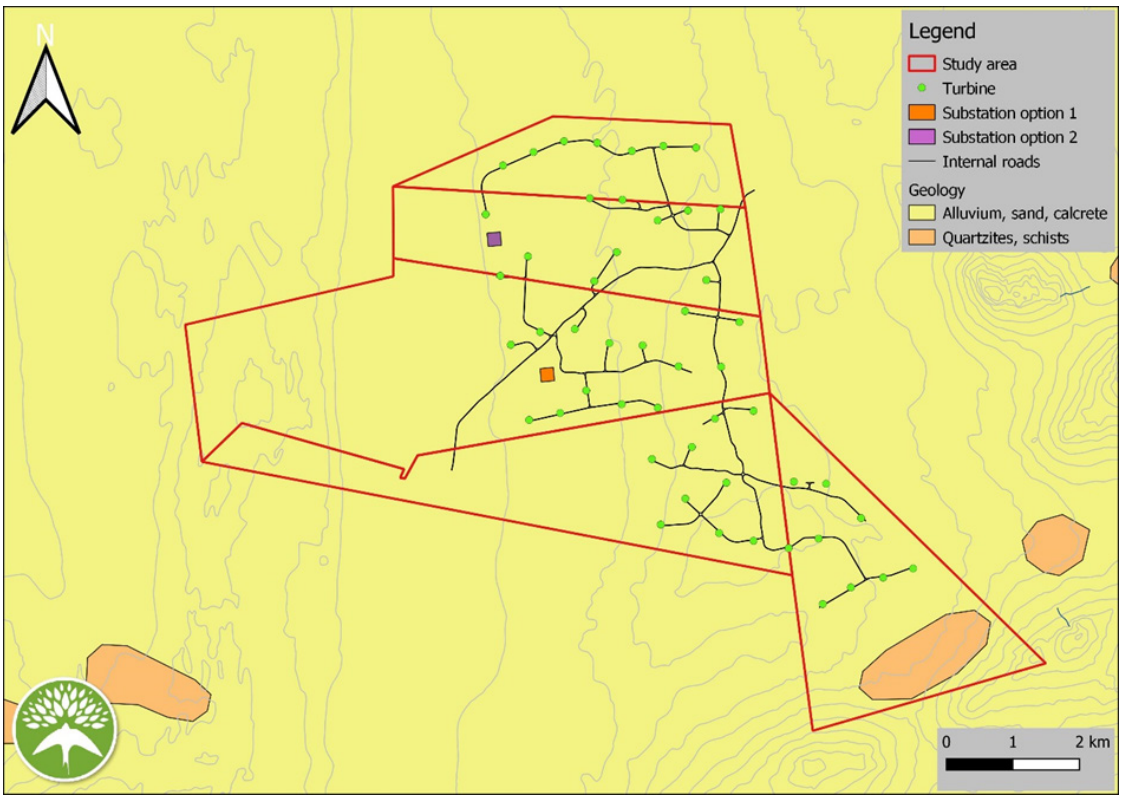

Figure B.17: Geology associated with the study area (Republic of South Africa Geology layer) (Map prepared by EnviroSwift, 2020).

Please note the indicated SS site alternatives (Option 1 and Option 2) will also house the BESS and are referred to as the BESS and SS complex site alternatives (Option 1 and Option 2)

Based on the geological setting and the well-known mining history in the surrounding areas, the likelihood of minable geological deposits occurring in the proposed development area is considered to be very low. The majority of the area and especially the Komas WEF area is therefore not considered to have any exploitable mineral deposits on it.

The Palaeontology Impact Assessment (included as Appendix 4 of the HIA which comprises Appendix C.6 of the BA Report) notes that the geology of the study area is outlined in the 1:250 000 map, Sheet 2916 SPRINGBOK and the 1:50 000 topo-cadastral maps are 2917CC BRAZIL, 2917CD KOMAGGAS and 2916DB & 2917CA KLEINSEE. The assessment notes that affected surficial formations include Holocene dunes of the Hardevlei Formation and earlier late Quaternary coversands of the Koekenaap Formation. Beneath these unconsolidated sands are compact, pedogenically-altered aeolianites termed the Dorbank Formation which are fossil dune plumes of later mid-Quaternary age. Between the fossil dune plume ridges is a non-depositional area (Zonnekwa Valley) which is closely underlain by pale calcrete pedocrete which is likely to have formed within the upper part of an older aeolianite formation such as correlates of the Olifantsrivier or Graauw Duinen formations.

A detailed description of the geology of the region is provided in the Palaeontology Impact Assessment (included as Appendix 4 of the HIA which forms Appendix C.6 of the BA Report) as well as in the Geology study (Appendix J.2 of this BA report).

B.7 Terrestrial Biodiversity

B.7.1 General Context

The study area falls within the Succulent Karoo Biodiversity Hotspot (Northern Cape SDF, 2012). The Succulent Karoo is the only arid ecosystem to be recognised as a global biodiversity hotspot. Nearly one-third of the floral species of the region are unique to the hotspot and the region boasts the richest variety of succulent flora in the world. The Succulent Karoo hotspot is under extreme pressure from human activities, including overgrazing, mining, illegal collection of wild plants and animals and the impact of climate change (Critical Ecosystem Partnership Fund (CEPF), 2003)).

Details pertaining to the Terrestrial Biodiversity environment are provided in the Terrestrial Biodiversity Impact Assessment (Appendix C.1 of this BA Report). The information provided in this section is based on this assessment (Todd, 2020).

B.7.2 Vegetation Types

According to the national vegetation map (Mucina & Rutherford 2006 and 2018 SANBI Update), there are several vegetation types in the area, but the proposed Komas WEF site is restricted almost entirely to the Namaqualand Strandveld vegetation type with a small extent of Namaqualand Klipkoppe Shrubland in the southeast corner of the site (Figure B.18).

The Namaqualand Strandveld occurs in the Northern and Western Cape Provinces from the southern Richtersveld as far south as Donkins Bay. Especially in the north of this unit it penetrates up to 40 km inland and approaches the coast only near the river mouths of the Buffels, Swartlintjies, Spoeg, Bitter and Groen Rivers. In the south of the unit it is variably narrow and approaches the coast more closely. It consists of flat to undulating coastal peneplains with vegetation being a low species richness shrubland dominated by a plethora of erect and creeping succulent shrubs as well as woody shrubs and in wet years annuals are also abundant. It is associated with deep red or yellowish-red Aeolian dunes and deep sand overlying marine sediments and granite gneisses. Mucina and Rutherford (2006 and 2018) list eight endemic species for this vegetation type. About 10% of this vegetation type has been lost mainly to coastal mining for heavy metals and it is not currently listed.

A very small area in the far south east of the site is mapped as Namaqualand Klipkoppe Shrubland (Figure B.18). This vegetation unit occupies 10 936 km^2 of central Namaqualand from Steinkopf to Nuwerus in the south. Namaqualand Klipkoppe Shrubland is associated with the rocky hills, granite and gneiss domes of the mountains of central Namaqualand. Due to its' steep and rocky nature, Namaqualand Klipkoppe Shrubland has not been impacted by intensive agriculture. Approximately 6% is currently conserved, mainly within Goegap and the Namaqua National Park. As Namaqualand Klipkoppe Shrubland is still largely intact, it has been classified as Least Threatened. Mucina & Rutherford (2006 and 2018) list 15 endemic species for this vegetation type. At a coarse level, it is sensitive largely in terms of offering a diverse habitat for fauna such as reptiles but relatively speaking does not have a high abundance of listed plant species. The extent of this vegetation unit at the site is very low and it can be easily avoided and does not pose a significant constraint on development.

The vegetation units mapped within the VegMap are generally quite coarse and in many instances, it is possible to discern a variety of different plant communities present within a site. Komas is no exception and at least three different major plant communities can be recognised at the site. These

are described in detail below and are considered to represent a more realistic representation of the vegetation of the area.

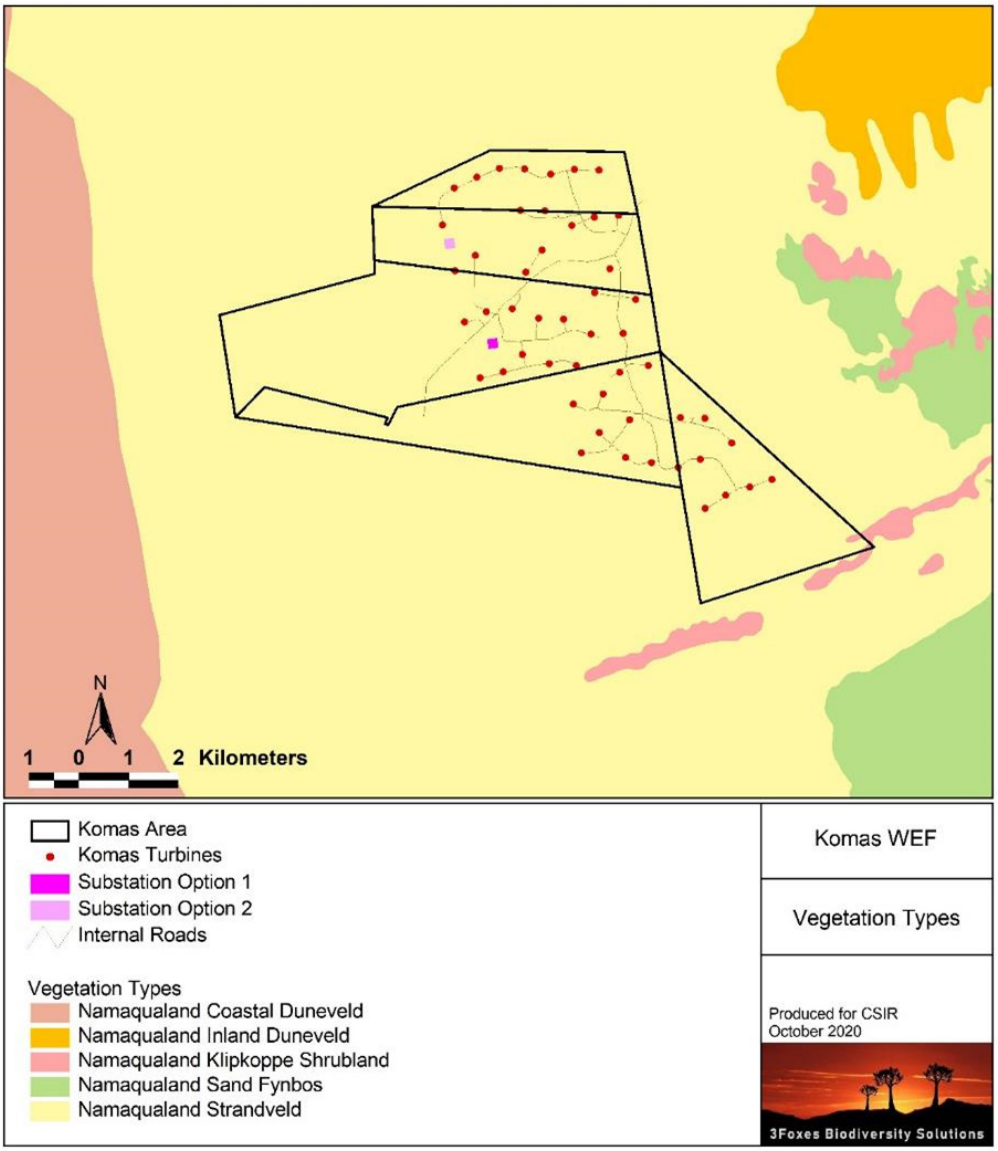

Figure B.18: Vegetation map (Mucina and Rutherford 2006 and 2018 Update) of the Komas study area and surrounding area.

B.7.3 Fine Scale Vegetation Description

The actual plant communities as observed at the site are detailed and described below. This information is considered to be of greater reliability and weight than the VegMap as it represents actual ground-truthed information from the site.

Community 1. Typical Namaqualand Strandveld

The majority of the site consists of typical Namaqualand Strandveld on flat to gently undulating plains. These areas are fairly homogenous but there are some shifts in the dominance of the different plant species present depending on soil texture, depth etc. Typical and dominant species include *Zygophyllum morgsana*, *Tripteris oppositifolia*, *Asparagus capensis*, *Othonna sedifolia*, *Hermannia sp.*, *Lebeckia spinescens*, *Eriocephalus racemosus*, *Searsia longispina*, *Leipoldtia sp.*, *Cladoraphis cyperoides*, *Salvia lanceolata*, *Anthospermum spathulatum*, *Tetragonia spicata*, *Ruschia sp.*, *Helichrysum hebelepis*, *Wahlenbergia asparagoides*, *Asparagus lignosus* and *Euphorbia burmannii*. This is the dominant habitat at the site and comprises more than half the study area. This is not considered to be a sensitive habitat and the majority of the development footprint should be accommodated within this habitat type.

Community 2. Namaqualand Dune Strandveld

There is a distinct plant community associated with the larger, more mobile dune fields of the site. These areas are more dynamic than the areas of flatter strandveld and have areas of alternating low cover associated with areas of greater sand movement and areas of taller vegetation occurring in the dune slacks and other more stable situations. Typical and dominant species include *Zygophyllum morgsana*, *Searsia longispina*, *Tripteris oppositifolia*, *Cladoraphis cyperoides*, *Othonna sedifolia*, *Conicosia pugioniformis*, *Asparagus lignosus*, *Hermannia sp.*, *Eriocephalus racemosus*, *Asparagus capensis*, *Lycium cinereum*, *Lebeckia spinescens*, *Tetragonia spicata* and *Diospyros ramulosa*. These areas are considered somewhat more sensitive than the typical surrounding Strandveld due to the large dunes which are vulnerable to disturbance. As this habitat is sensitive to disturbance, some avoidance of this habitat is recommended and additional mitigation to reduce wind erosion risk within these areas should be implemented.

Community 3. Low Strandveld on Calcareous Soils

The vegetation of the areas classified as Namaqualand Salt Pans under the 2012 VegMap have been reclassified as Namaqualand Strandveld under the 2018 VegMap. In reality, neither is correct and the vegetation of this area represents a short form of Strandveld that should be recognised as distinct from the typical surrounding Namaqualand Strandveld. Typical and dominant species include *Amphibolia rupis-arcuatae*, *Euphorbia brachiata*, *Othonna sedifolia*, *Asparagus capensis*, *Zygophyllum morgsana*, *Ruschia goodiae*, *Cheirodopsis denticulata*, *Aridaria nociflora*, *Othonna cylindrica* and *Ruschia sp.* As this is a habitat of limited extent and offers features that are not found elsewhere in the area, it is considered more sensitive than the surrounding Strandveld and the overall development footprint in this habitat should be kept low.

B.7.4 Terrestrial Plant Species: Listed and Protected Plant Species

More than 500 plant species have been recorded from the broader area from Komaggas in the east to Kleinsee in the west. This includes 25 SCC of which three can be confirmed present at the site. This includes, *Leucoptera nodosa* (NT), *Wahlenbergia asparagoides* (VU) and *Babiana hirsuta* (NT). However, the abundance of these species is low across most of the site and the local populations would not be compromised by the development. The site is not considered to hold locally or regionally important populations of these species. The low relative abundance of plant SCC at the site can be explained by the typical homogenous nature of the Strandveld on the site and the lack of habitats which usually have a high abundance of SCC such as Sand Fynbos or rocky ridges.

B.7.5 Faunal Communities

- ***Mammals***

Approximately 40 mammal species potentially occur in the area. Mammals captured by the camera traps include, in order of decreasing abundance, Steenbok, Cape Hare, Cape Fox, Bat-eared fox, Striped Polecat, Suricate, Cape Porcupine, Common Duiker, Honey Badger, Small Spotted Genet, Grey Mongoose, Caracal, Yellow Mongoose, African Wild Cat and Slender Mongoose (Figure B.19 and Figure B.20). More than half the observations are from Steenbok and Cape Hare, with Cape Fox, Bat-eared fox, Striped Polecat, Suricate and Cape Porcupine being moderately abundant and the remaining species uncommon. This represents a fairly typical mammalian community and is similar to that obtained at other sites along the West Coast. A notable absence is the Black-backed Jackal which occurs in the area but is likely absent as a result of persecution. Small mammals observed or caught in the area with Sherman traps include Hairy-footed Gerbil, Western Rock Elephant Shrew, Namaqua Rock Mouse, Four-striped Mouse, Karoo Bush Rats and Brants' Whistling Rat.

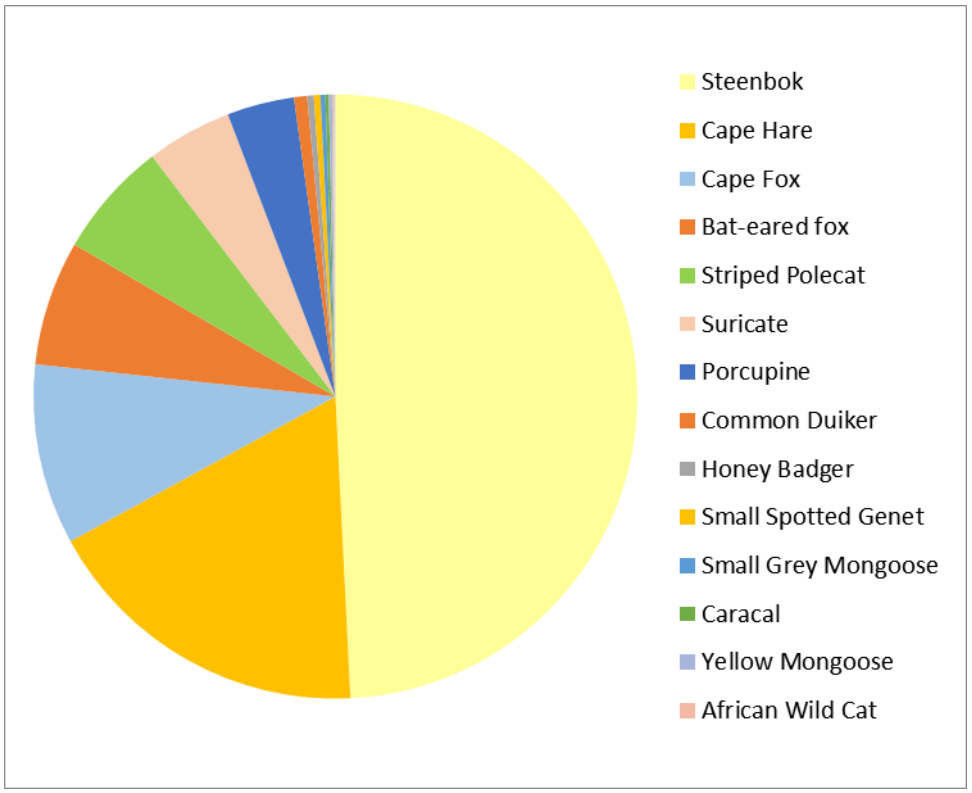

Figure B.19: Pie chart showing the relative abundance of mammals in the proposed Komas WEF site based on more than 1 100 camera trap observations.

Apart from the species that were observed and can be confirmed present at the site, four red-listed SCC are known from the wider area. This includes the Leopard *Panthera pardus* (Vulnerable), Littledale's Whistling Rat *Parotomys littledalei* (Near Threatened), African Clawless Otter *Aonyx capensis* (Near Threatened) and Grants' Golden Mole *Eremitalpa granti grant* (Vulnerable). It is not likely that either the Leopard or Otter are present at the site on account of human disturbance or lack of suitable habitat. Golden Moles are confirmed present at the site, but it is not clear if these are the more common Cape Golden Mole or Grants' Golden Mole. These subterranean animals 'swim' through the soft sand and hardened surfaces such as roads would pose a significant obstacle for movement. In addition, they also use subtle vibrations in the soil to detect their prey and it is possible that noise and vibration transferred from the turbines to the soil would have a negative impact on the local populations of golden moles. There have however been no studies to date on the impacts of vibration and noise on golden moles and so this remains an unknown.

The major impacts on mammals would occur during the construction phase when there would be significant noise and disturbance generated at the site. In the long-term, it is likely that the major impact of development on most mammals would be habitat loss equivalent to the footprint of the facility. Some species may however be wary of the turbines or negatively affected by the noise generated and may avoid them to the greater degree. It is however unlikely that the local or regional populations of any species would be compromised by the development and long-term impacts on mammals are likely to be of low to moderate significance after mitigation.

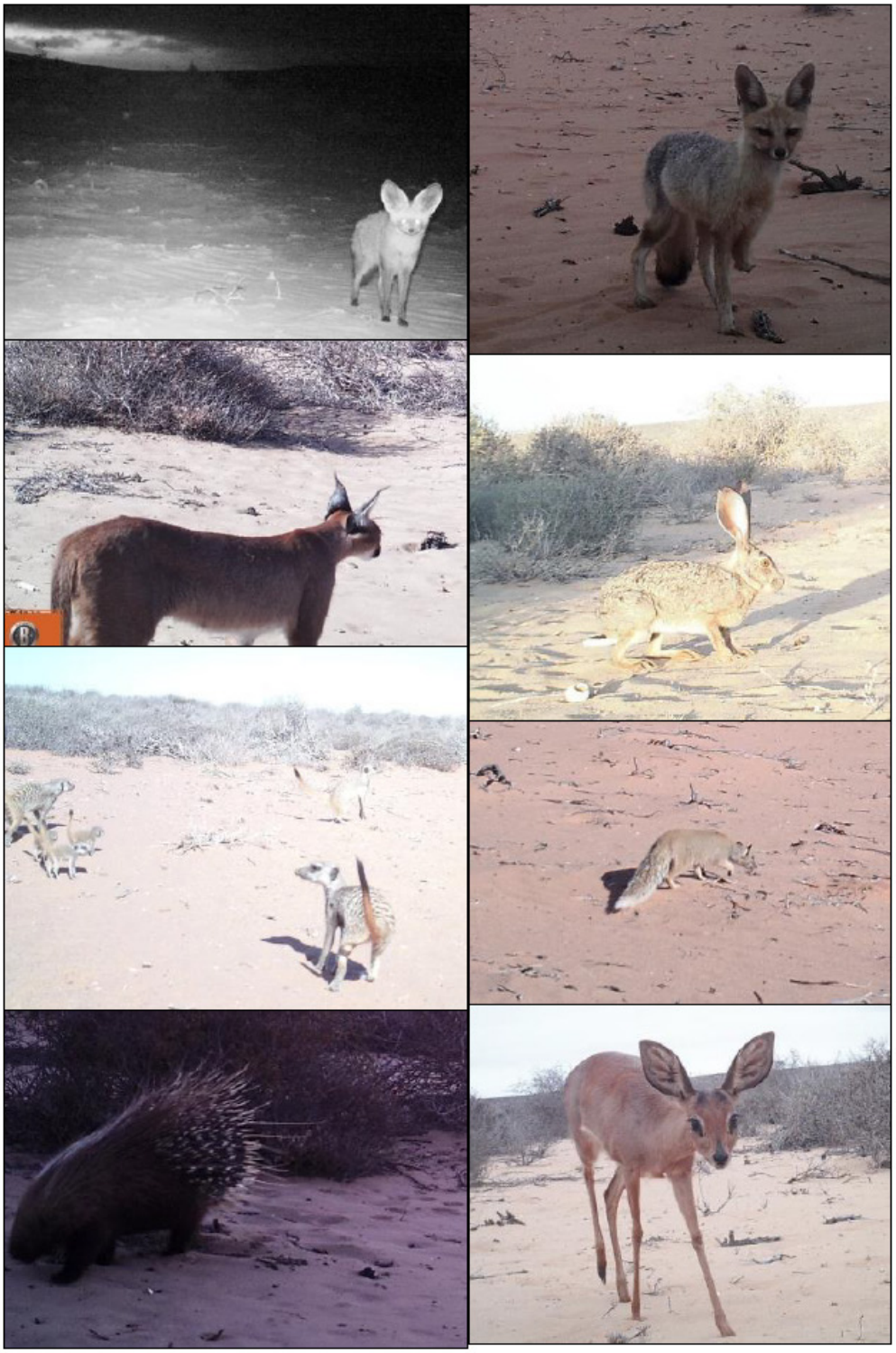

Figure B.20: Examples of camera trap images from the proposed Komas WEF site. Clockwise from bottom left, Cape Porcupine, Suricate, Caracal, Bat-eared Fox, Cape Fox, Cape Hare, Yellow Mongoose and Steenbok. The Cape Fox pictured top right has an amputated front leg, likely the result of being caught in a gin trap.

- ***Reptiles***

A list of Reptiles known from the vicinity of the Komas site, based on records from the ReptileMap database is provided in Appendix 3 of Terrestrial Biodiversity report and indicates that as many as 45 species are known to occur in the wider area. No SCC have however been recorded from the area although it is possible that the Speckled Padloper *Chersobius signatus* (Vulnerable) is present at the site as it is widespread in Namaqualand and the Namaqualand Klipkoppe Shrubland in the far southeast of the site potentially offers suitable habitat for this species. Namaqualand is known as a centre of endemism and diversity for reptiles and the wider area has a high diversity and abundance of local endemics. This appears to be generated at least partly through the high habitat diversity of the area, which includes rocky hills, heuweltjie veld on fine-textured firm soils, loose sands and dunes, stable and vegetated dunes, well vegetated drainage lines etc. Within the proposed Komas WEF site, habitat diversity is however low and restricted to various sandy substrates from firm sand lowlands to fairly loose dunes, with the result that species associated with rocky outcrops would be absent from the site.

Species observed at the site include Angulate Tortoise, Giant Desert Lizard, Common Giant Ground Gecko, Knox's Desert Lizard, Common Sand Lizard, Cape Skink, Coastal Dwarf Legless Skink, Namaqua Sand Lizard, Pink Blind Legless Skink, Dwarf Beaked Snake and Many-horned Adder. For most species, the major impact of the development would be loss of habitat equivalent to the footprint of the development. For most species this is not considered highly significant as there are large intact tracts of similar habitat available in the area. Subterranean species associated with sandy substrates may be vulnerable to habitat disruption due to the construction of roads which may fragment the continuity of the sandy substrate. However, overall, the impacts of the development on reptiles are likely to be of local significance only as there are no species with a very narrow distribution range or of high conservation concern present at the site which may be compromised by the development.

- ***Amphibians***

The site lies within the known distribution range of seven frog and toad species. However, as there is no perennial water in the area, many of these are not likely to occur at the site. A few species are however either largely independent of water (*Breviceps* spp) or well adapted to arid conditions (*Vandijkophrynus* spp.) and will occur at the site. The Desert Rain Frog *Breviceps macrops* occurs in Strandveld vegetation up to 10 km from the coastline and is listed as Vulnerable. As the proposed Komas WEF site is 16 km from the coast, it is unlikely that this species is present, but this cannot be entirely discounted as a possibility. The only species confirmed present in the area is the Namaqua Rain Frog, *Breviceps namaquensis* which is common on coastal sands along the whole West Coast. There are no areas within the site that appear to be of above-average significance for amphibians and it is not likely that the development of the site would have a significant long-term impact on local amphibian populations.

B.7.6 Namaqua National Park Expansion Footprint

Figure B.20(b) shows the overall administrative and biodiversity planning features relevant to the proposed development of the Komas WEF. The impacts on these planning frameworks were considered and assessed in the BA Report (especially within the Additional Biodiversity Offset Report (including proposed implementation (Botha, 2021, included in Appendix J.3(1) of this BA Report.

Analysis shows that around 32 ha of the NNP Expansion Footprint (>74 000 ha in this sector alone) will be lost to the proposed Komas WEF (Botha, 2021). There is a lack of clarity and guidance on the

interpretation of this feature and potential loss. The Park Expansion Footprint cannot enjoy the same legal protection as the Park itself otherwise this would have been included in statute (Botha, 2021). This was confirmed and accepted by SANParks in their letter dated 15 Febuary 2021 included in Appendix D of this BA Report.

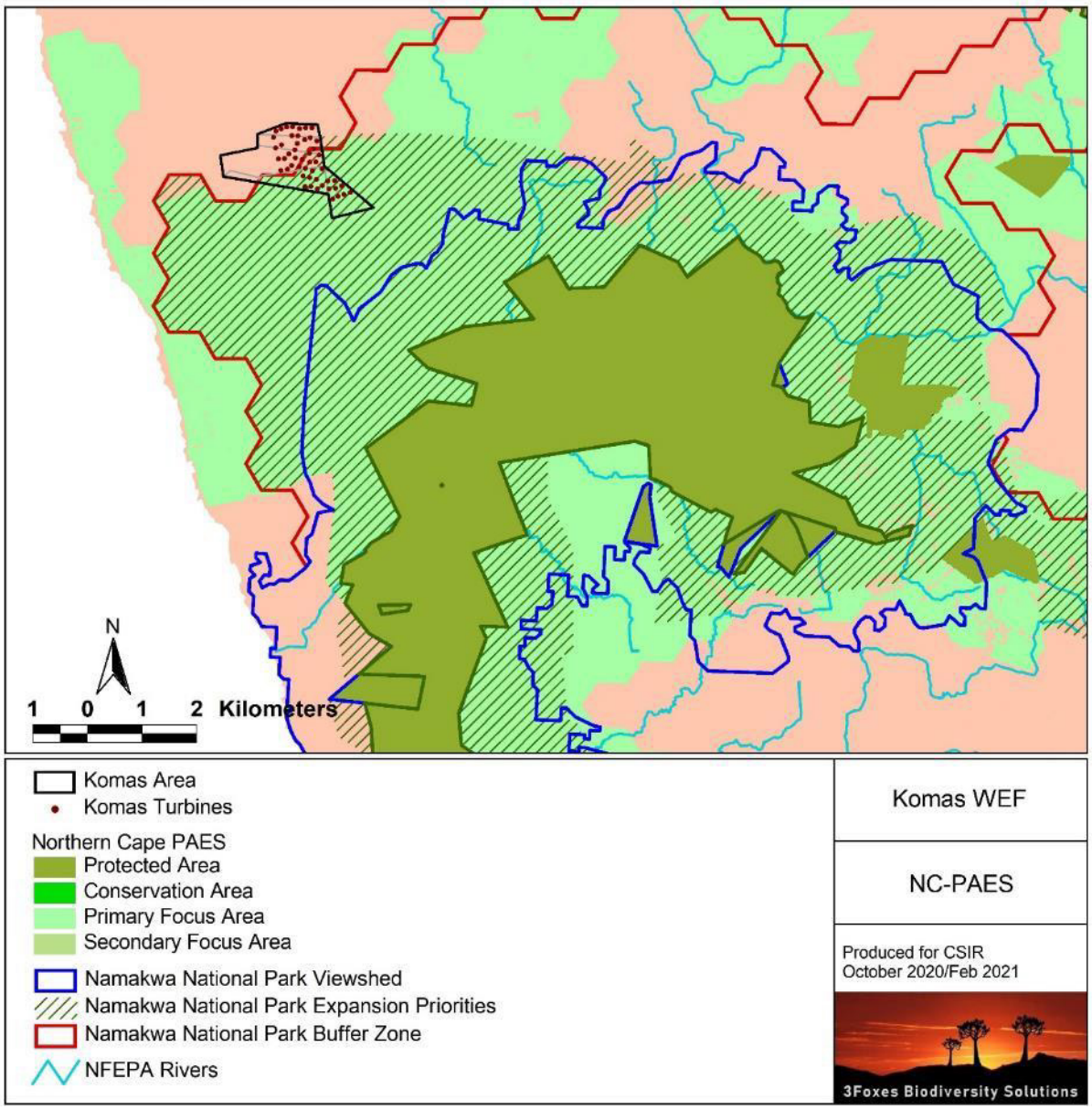

Figure B.20b: A map of the Komas WEF location in relation to Protected Area Expansion focus areas, National Park Buffer Zone, and the Namaqua National Park Expansion Footprint as approved by the Minister in the Park Management Plan (SANParks 2012). Reproduced from Todd (2021).

Not having access to the detailed rationale behind the designation of the Expansion Footprint areas, leads one to assume that it must have been selected to target the vegetation types found there (the numerous other objectives in the Park Management Plan are insufficiently spatially resolved to be of much help). The required additional area of Namaqualand Strandveld (<59 000 ha) and Namaqualand

Sand Fynbos (27 300 ha out of 110 000 ha remaining) to be protected to meet the vegetation target can be found in many other areas of the extent of those two vegetation types, including adjacent to the NNP further South (Botha, 2021).

It seems unlikely that the Expansion Footprint was designed to optimise park management efficiency or cater for new visitor infrastructure opportunities. As it was developed before (possibly as early as 2002 by Desmet et al (cited in SANParks (2012 p 23)) the other biodiversity planning features in this section (Holness & Oosthuysen 2016), it must also be assumed that it heavily influenced their selection and location (Botha, 2021).

The visual specialist (Ms Kerry Schwartz of SiVEST) indicated that although the future expansion of the NNP is acknowledged, it is very difficult to assess the potential visual impacts on receptors if the location of the planned tourism facilities is not known.

As the proposed Kap Vley WEF (closer to the NNP than the proposed Komas WEF) and adjacent proposed Namas WEF are already approved and Eskom will effectively bisect this region with the high voltage Kudu-Gromis-Juno power lines, it seems unlikely that any wilderness experience or tourism infrastructure will be located in this part of a future expanded park. Thus, the possible impacts on the sense-of-place, tourism and opportunity costs for the NNP from the proposed Komas WEF are very low (Botha, 2021).

Therefore, while it is trite to suggest that Park Expansion Footprint needs to be approached sensitively, it also cannot be treated at this stage as sacrosanct, or worthy of the same protection level (and thus offset ratio) as systematically and defensibly derived CBA1. Areas of Park Expansion Footprint that are not systematically and defensibly designated (in the approved Management Plan or in an accompanying PA expansion strategy adopted by regulators) can be lost, provided there are still readily available opportunities to conserve the biodiversity values and Park Management objectives elsewhere. This loss can be remedied through offset-type mitigation (Botha, 2021).

B.7.7 Namaqua National Park Buffer Zone

A Parks' buffer zone is the outermost boundary of the viewshed protection area and adjacent priority natural areas. The proposed Komas WEF falls partly within the NNP's buffer zone (Figure B.21). However, it falls outside of the Viewshed Protection component of the buffer zone. It therefore seems appropriate to treat this feature the same as the other PAES considerations.

It is also important to consider whether wind turbines generating clean energy should be automatically excluded from a vision of a National Park buffer zone, where the remaining biodiversity is protected and managed to the appropriate standard. Although this is common elsewhere in the world, it is less explored in South Africa. As no current policy exists on energy installations and Protected Areas (which the biodiversity specialist is aware of) it must be assumed that there is an exclusion of energy generation infrastructure from National Parks, but possibly not from their buffer zones - provided no explicit operational conflicts exist. These assumptions have not been tested sufficiently with authorities (Botha, 2021). It should be noted that five other WEFs have been approved in the immediate vicinity of the NNP.

B.7.8 Critical Biodiversity Areas

Based on the Northern Cape CBA map, the southern parts of the proposed Komas WEF site lie within a Tier 2 CBA with a small portion of Tier 1 CBA in the south-eastern corner of the site (Figure B.21). This indicates that the site occurs within an area of recognised biodiversity significance. Development within such areas can have negative impacts on biodiversity pattern and process and is generally considered undesirable. Although the total footprint (ca. 90 ha) of the development is not very large, it must be considered in context of the currently intact and relatively undisturbed receiving environment and the implications that the development may have for future land use options in the area.

As the primary purpose of CBAs is to try and secure the broad-scale ecological functioning and resilience of landscapes, it is important to consider the impact that the development may have on ecological processes. As the area is relatively homogenous, it is not likely that there are any specific directional movement corridors within the area that is classified as a CBA. At a broader level, there are also still extensive tracts of similar intact habitat east and west as well as north and south of the site with the result that it is not likely that the development would result in significant disruption of ecological processes. There are however several other WEFs in the immediate area including the approved Kap Vley WEF east of the site and the Namas and Zonnequa WEFs west and north of the site. This would increase cumulative impacts in the area and also cumulative impacts on CBAs since both the proposed Kap Vley and Namas WEFs have some or all of their approved turbines within CBAs. Due to the impact of the proposed Kap Vley WEF development on CBAs and plant SCC, a biodiversity conservation offset was implemented as part of that project. However, it is clear that the sensitivity of the proposed Kap Vley WEF site and the current Komas WEF project area are equivalent in this regard and the species and features of concern which characterise the Kap Vley WEF site are not present within the Komas WEF site, which is much more similar in nature to the proposed Namas and Zonnequa WEF development areas. As such, this represents typical Strandveld with a relatively low abundance of SCC and no specific features of high biodiversity or ecological value. The CBA 1 which clips the site, is a CBA based on the area being identified as being a Succulent Karoo Ecosystem Programme (SKEP) Expert Priority Area. The remainder of the CBA is earmarked for protected area expansion.

The major issue with development within the areas of CBA is the extent to which habitat loss would impact on ecological processes within the CBA and the potential irreplaceability of the affected area. As mentioned above, it is not likely that the affected area is irreplaceable as the site represents typical Strandveld that is relatively widely available in the area and is also fairly well represented within the Namaqua National Park. In terms of the footprint of the development, this is estimated as being approximately 27 ha within the ESA and 31 ha within the CBA 2. Under the final layout assessed, there are no turbines or other infrastructure within the CBA 1. The loss of 31 ha of habitat within the CBA 2 represents less than 2% of the area of CBA within the Komas study area only and significantly less of the whole affected CBA. As a result, this is highly unlikely to compromise the ecological functioning of the CBA, given that it has not been identified as being of particular significance for broad-scale ecological processes. Consequently, the overall impact of the development on CBAs and broader scale ecological processes is considered to be relatively low and no major impacts to dispersal ability or faunal movement patterns are likely to be generated by the development. As such, an offset to counter the potential impact of the development on the CBA 2 affected in the south of the site does not seem warranted as there is sufficient scope to reduce on-site impacts to an acceptable level and there are no features present in this area that are not widely available outside of the study area. However, it is important to note that this does not preclude the possibility of other impacts with high residual significance that may require offsetting. The additional Biodiversity Offset Report (including proposed implementation (Botha, 2021)) notes there are several other areas in which to meet the targets for which these CBAs on the proposed Komas WEF site were identified. It emphasises that the presence of CBAs is further confounded by the overlap of the REDZ with the CBAs delineated on the Komas sites. The Phase 1 REDZs, including the Springbok REDZ, were identified in 2015, before the Northern Cape CBA maps were updated and protected area

expansion focus areas were prepared in 2017. Ideally, the provincial CBA delineation could have taken the existence of the REDZ into account and identified other areas in the landscape to meet the required targets and protect the various features.

The “reasons layer” in the Northern Cape CBA map was interrogated to verify if features driving the designation as a CBA2 are indeed present on the Komas site, and if so, whether the proposed development actually compromises those features, and if the spatial layout is indeed optimal given other constraints and recent developments. It appears that one of the strongest features determining the designation as CBA is the presence of the NNP Expansion Footprint, which has subsequently influenced the Northern Cape PAES, National PAES Focus Areas and CBA maps. But it does not follow that this is indeed the best place to conserve Namaqualand Strandveld in PAs. There is still >257 000 ha of this type extant, and the total Protected Area target is 82 000 ha, of which >22 000 ha is already protected. The other features driving the designation as CBA2 (apart from the NC PAES Focus Areas) are highly unlikely to be impacted by the presence of wind turbines, especially at the density proposed for the Komas WEF.

However, given that there will be a loss of around 31 - 33 ha of this CBA2 and that it is partially in a Park Expansion footprint, there is an argument to suggest that this is of national consideration, and significant mitigation is required. In the Northern Cape, with several options for meeting targets, it is argued that this mitigation is possible through an offset that secures the features and values for which the CBA is designated.

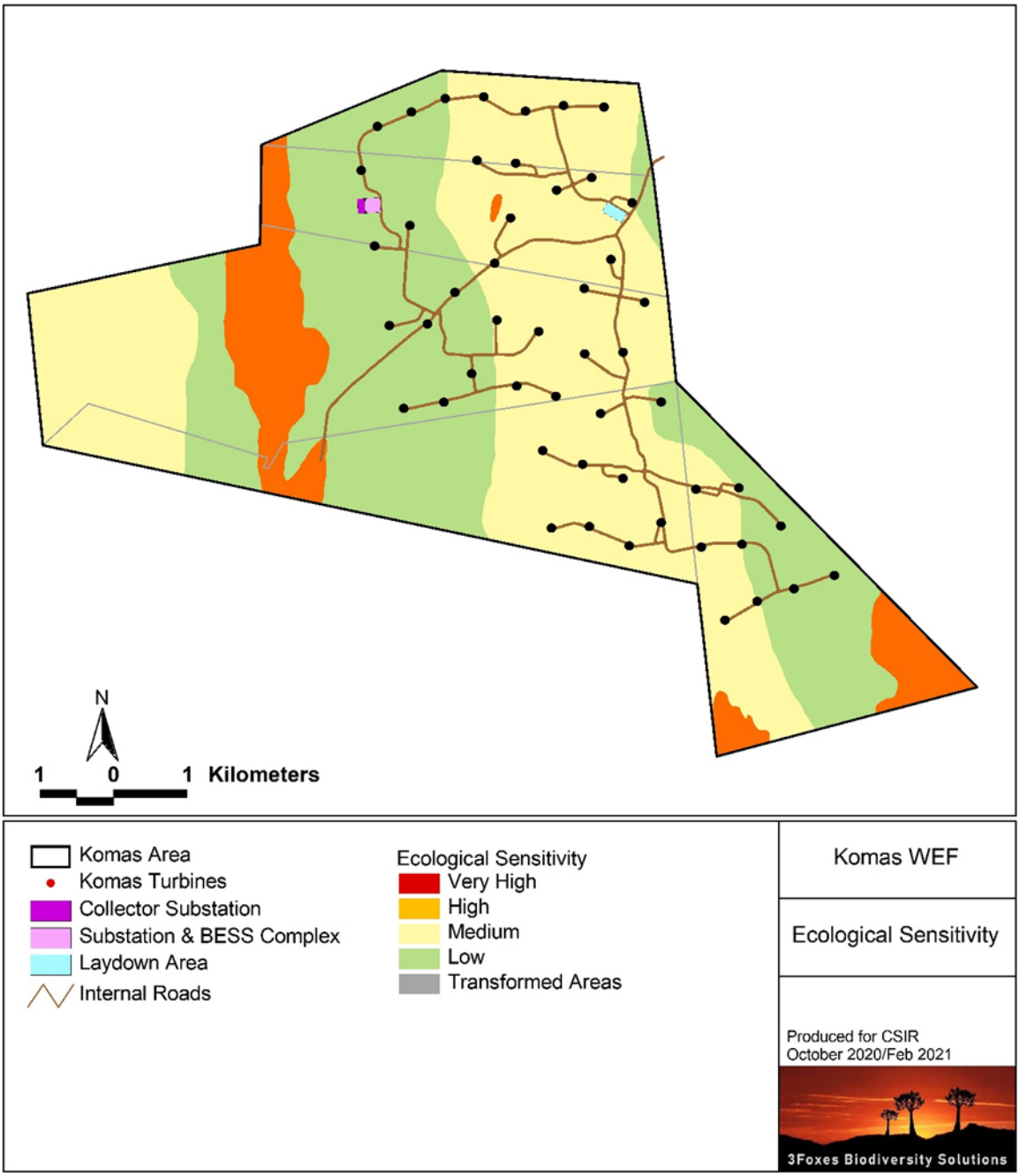

Figure B.21: Critical Biodiversity Areas map for the study area, showing that the site lies within a Tier 1 and Tier 2 CBA.

B.7.9 The Northern Cape and National PAES Priority Focus Areas

The southern half of the proposed Komas WEF site, including an area containing 18 turbines, falls within a NC-PAES Focus Area (2017) (Figure B.22). Development of the site would place some limitations on the future expansion of traditional formalised conservation into the affected area. In addition, assuming effective mitigation and avoidance, the site would retain significant biodiversity value and the

development would not be likely to compromise the vast majority of biodiversity features and components represented by the site. The terrestrial footprint of the development would occupy a very small proportion of the landscape and the loss of 90 ha of direct habitat loss to the development and about 1 200 ha of indirect habitat loss (assuming a 500 m radius from each turbine has reduced biodiversity value for some but not all species) is not considered to represent significant loss to the affected NC-PAES Focus Area. The total area of the affected Focus Area is 377 266 ha and the loss of a maximum of 1 200 ha of this represents less than 0.32% of the Focus Area. As a result, this loss is, on its own not considered to represent a significant loss. There are however numerous other developments in the area and the impact of the current development on ecological processes as well as future conservation expansion should be considered in this context as well.

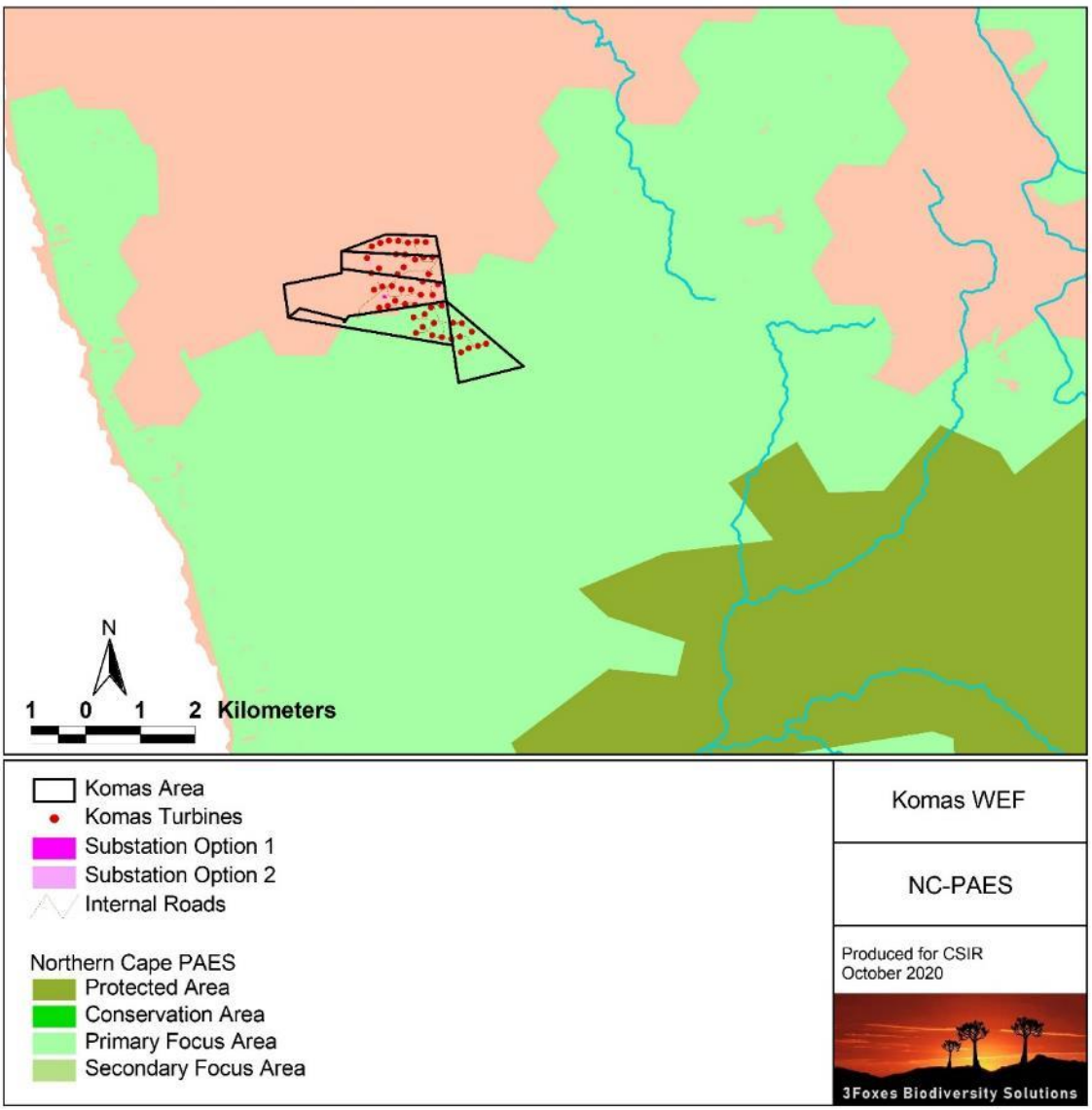

Figure B.22: Northern Cape Protected Area Expansion Strategy Focus Area map for the area around the proposed Komas WEF site, showing that the southern half of the Komas site falls within a Primary Focus Area.

The initial National PAES (DEAT 2008), and the subsequent Northern Cape Provincial PAES appear to have adopted substantially similar boundaries as the Namaqua National Park Expansion Footprint in this part of the region (although using slightly different planning units, so they do not fully align). These areas must be treated as rather notional due to the massive planning unit size, artificial boundaries, and obvious flexibility in the landscape in which to achieve their intended targets (Botha, 2021).

Concluding statement on the terrestrial biodiversity of the proposed Komas WEF site

Eighty-three (83) ha[7] of Namaqualand Strandveld will be lost, and there are few species of conservation concern in the impact areas. No unacceptable floral species impacts are likely (Todd 2020a). This vegetation type is extensive (>257 000 ha extant). It has around a quarter of its conservation target already met, (although is still listed as poorly protected in the National Biodiversity Assessment (Skowno et al 2018)). There are still significant opportunities to meet this conservation target elsewhere, outside of the REDZ and in areas not yet under Mining Right (Botha 2021).

Although the proposed Komas WEF impacts marginally on the NNP Buffer zone, the NNP Expansion Footprint, the National and Northern Cape PAES Focus Area, and a CBA2 in terms of the applicable provincial plan, these impacts have not been assessed to be of high or very high significance following mitigation. All these impacts have been assessed to be of **Moderate significance** before and after mitigation in the additional Biodiversity Offset Report, but prior to the implementation of a Biodiversity Offset. Should an offset be implemented, the impact has been assessed to be of low significance (Botha 2021).

The Additional Biodiversity Offset study (Botha, 2021), commissioned following SANParks comments received during the pre-application consultation, recommends that the implementation of a Biodiversity Offset is appropriate as the residual impact is **negative and of moderate significance**. This is based on the Draft Offset Policy (DEA, 2017). An offset of 810 ha, in Namaqualand Strandveld or an adjacent, related vegetation type in the PAES Focus Area is prudent (Botha, 2021). Please refer to Section D.2.1 for details on the proposed biodiversity offset (including the details on how the proposed offset was determined).

B.8 Aquatic Biodiversity

The information provided in this section on the aquatic environment is based on the Aquatic Biodiversity Compliance Statement (Appendix C.2 of this BA Report).

B.8.1 General Context

The study area is situated in the far western parts of the Northern Cape Province, within the NKLM, approximately 23 km to the south east of the coastal town of Kleinsee. The Northern Cape Province can be described as semi-arid in the east, to arid in the central region, to hyper-arid in the far western parts of Namaqualand (Northern Cape SDF, 2012).

[7] A footprint of approximately 90 ha has been considered as the worst case scenario to account for changes to the road layout and other infrastructure during the detailed design phase.

The study area falls within the Succulent Karoo Biodiversity Hotspot (Northern Cape SDF, 2012). The Succulent Karoo is the only arid ecosystem to be recognised as a global biodiversity hotspot. Nearly one-third of the floral species of the region are unique to the hotspot and the region boasts the richest variety of succulent flora in the world. The Succulent Karoo hotspot is under extreme pressure from human activities, including overgrazing, mining, illegal collection of wild plants and animals and the impact of climate change (Critical Ecosystem Partnership Fund (CEPF), 2003)).

The study area is located within the Western Coastal Belt Aquatic Ecoregion, within the Lower Orange Water Management Area (WMA) and within the Coastal Orange Sub-WMA. The quaternary catchment indicated for the study area is F40A, and the Wetland Bioregion associated with the area is the Namaqualand Sandveld (CSIR, 2018).

B.8.2 Freshwater Conservation context

According to the National Wetland Map 5 (CSIR, 2018), a large depression wetland is located within the western portion of the Komas WEF study area (Figure B.23). This depression has been indicated as an area of very high sensitivity in terms of Aquatic Biodiversity by the National Environmental Screening Tool (Figure B.24). However, upon investigation of this area during the field survey undertaken in January 2020 it was found that the area indicated as wetland habitat is in fact an extensive dune field. This dune field is a flat area located between two ridge lines and is characterised by fresh, wind-blown sand and dry terrestrial vegetation (Figure B.25). There is no indication that water accumulates within this area, and no wetland indicators as defined by the delineation guidelines (DWAF 2005, updated 2008) were encountered e.g. hydromorphic soils, wetland vegetation, signs of salt accumulation or hardened / cracked surface layers. Therefore, the site sensitivity verification disputes the rating of very high sensitivity assigned to this area in the National Web-Based Screening Tool in terms of Aquatic Biodiversity.

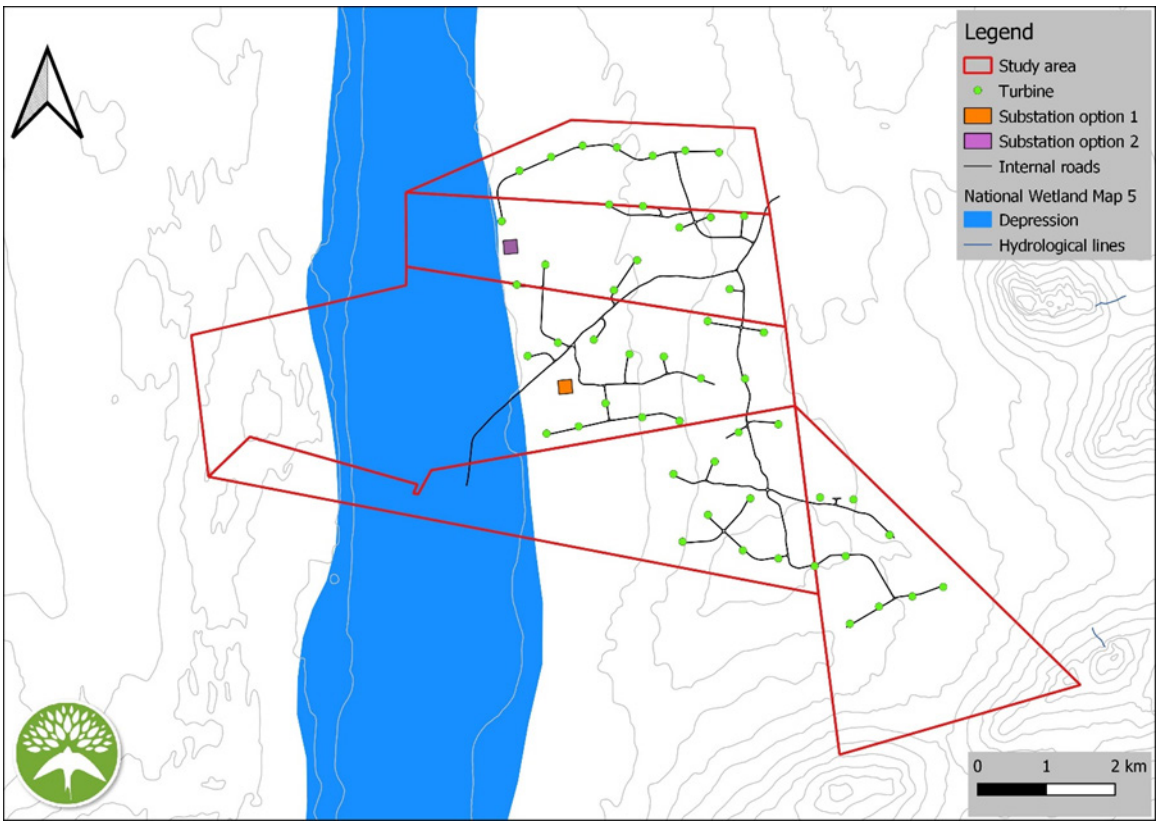

Figure B.23: Wetland indicated by the National Wetland Map 5 (CSIR, 2018)

Results of the Field Study

The low regional rainfall, semi-desert conditions and dominance of well drained, sandy soils within the study area is not conducive to the formation of wetland habitat. Furthermore, the relatively flat topography, the absence of ridges, and the lack of concentrated flow paths is not conducive to the formation of drainage lines. **No watercourses, as defined by the NWA, were therefore encountered within the study area, and no additional watercourses have been indicated within 500 m of the study area by desktop resources.**

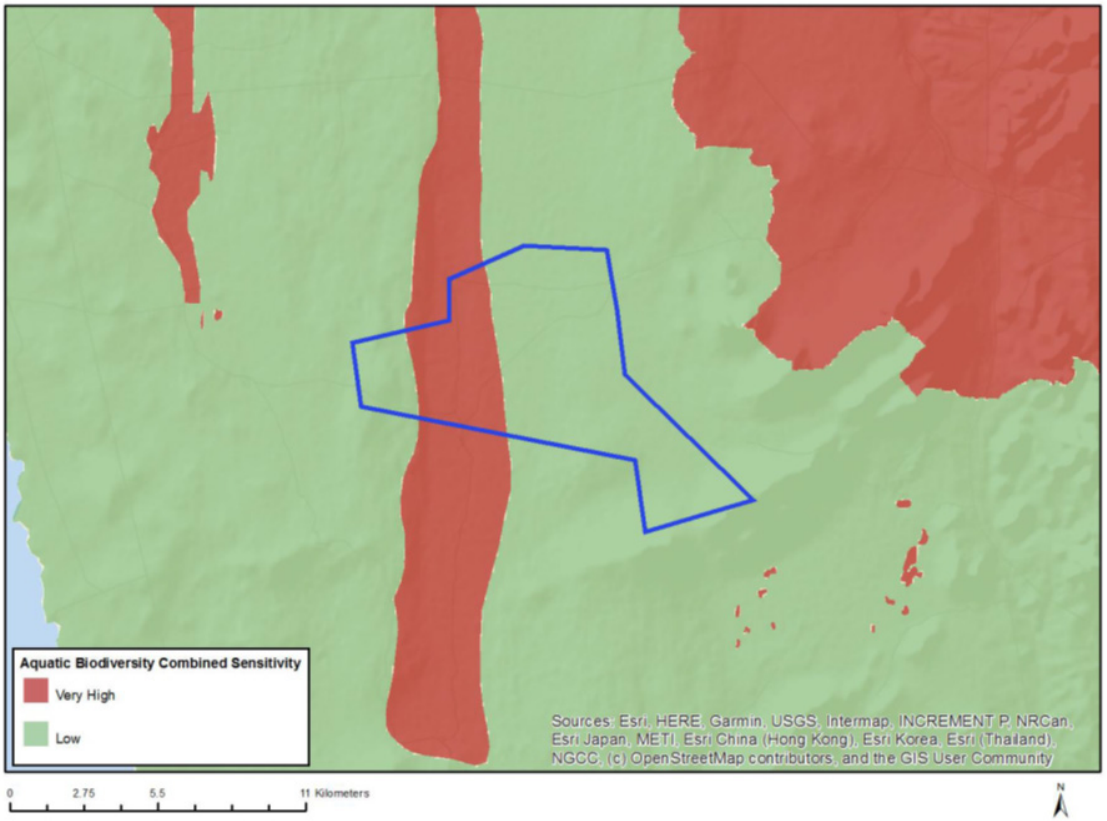

Figure B.24: Very high sensitivity aquatic biodiversity areas (as identified in the National Web-Based Screening Tool)

Figure B.25: Dry terrestrial vegetation dominating the area identified as a very high sensitivity aquatic biodiversity area

B.8.3 Screening Tool Description and Site Verification

No watercourses were encountered within the study area. It is therefore the opinion of the specialist that the study area is not considered to be important in terms of Aquatic Biodiversity and would fall within the low sensitivity category as defined by the National Web-Based Environmental Screening Tool. The proposed development will not have an impact on any aquatic features and a full Aquatic Biodiversity Specialist Assessment in terms of the Protocol gazetted in GN 320 on 20 March 2020 is therefore not required. A Compliance Statement has been prepared instead in accordance with the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity (GG 43110/ GN 320, dated 20 March 2020). It is the opinion of the Aquatic Biodiversity specialist that this Compliance Statement is sufficient as the aquatic sensitivity of the site was rated as very low and therefore the rating of very high significance as identified by the National Web-Based Environmental Screening Tool (Figure B.24) is disputed based on the evidence collected during the site visit and as motivated in the Aquatic Biodiversity Compliance Statement (Appendix C.2 of this BA Report).

B.9 Avifauna

The Avifauna Impact Assessment (Appendix C.3 of the BA Report) undertaken for the proposed project includes feedback on avifauna species encountered during the site monitoring. The information provided in this section is extracted from the Avifauna Impact Assessment (Appendix C.3 of the BA Report).

B.9.1 Species diversity

Over the course of 12 months the avifauna specialist on this project, Dr. Rob Simmons, recorded 58 avian species in the proposed Komas WEF site in four equally spaced site visits. More species (43 and 49 species) were present in spring and summer, following rains, and this brought in more priority (6 and 8 species) and more Red Data species (3 and 3 species) respectively. This is a typical total compared with other arid Karoo-like areas in the Northern and Western Cape that the specialist has sampled. Most were typical residents of the arid Karoo landscape including Chats, Prinias, Warblers, Flycatchers, Karoo Larks, long-billed Larks and sunbirds.

Small aerial species which may be affected by a new WEF included the occasional hirundines such as Rock Martin *Ptyonoprogne fuligula* and Namaqua Sandgrouse *Pteroclese namaqua* passing through the study site. Several collision-prone priority species were recorded and are discussed below.

B.9.2 Priority Collision-Prone Species

Eight collision-prone species were recorded from Vantage Point (VP) surveys within the proposed Komas WEF site, three of which were Red Data species classified as Vulnerable: Verreaux's Eagle *Aquila verreauxii*; Ludwig's Bustard *Neotis ludwigii* and Southern Black *Korhaan Afrotis afra*. The remaining five species recorded are of Least Concern and are shown in Table B.1.

Of these species, the Vulnerable Ludwig's Bustard (Taylor et al. 2015), ranked as the tenth-most collision-prone species in South Africa (Ralston-Paton et al. 2017), was recorded on every site visit except March 2019. This species was surprisingly the most frequently recorded of any species with a 70% likelihood of occurrence (Table B.1). At least four individual birds were regularly seen in the area

particularly following rains in October and December 2019 (Photo 1). The Ludwig's Bustards were never seen to fly within the BSA in 155 observations (for 39 minutes of observation). The maximum heights recorded were 40-m, with the majority at 10-20-m, well below the lower tip height of 100-m.

Photo 1. For the more numerous Ludwig's Bustard no flights of the 155 focal samples were above 40-m, and most were between 10 and 20-m in height in the Komas wind farm site.

The next most commonly recorded species were chanting goshawks (60% likelihood of occurrence), Black-chested Snake Eagle (55%) and Booted Eagle (45%) (Photo 2). The Booted eagles flew almost 56% of the time in the blade-swept "Danger Zone" of 100m–300m. Data comprised 95 minutes of observation.

Photo 2. Pale (and dark) morph Booted Eagle were frequently seen in October and December 2019 soaring and wheeling over the veld. These are probably European migrants given their appearance in spring and summer.

The priority collision-prone species which were recorded by the Avifauna specialist at the proposed Komas WEF site are listed in Table B.1 below.

Table B.1: All eight priority collision-prone species, including Red Data species, recorded on the proposed Komas WEF site from March to December 2019. Their likelihood of occurrence (Reporting Rate) and their susceptibility to collision (rank) are given along with their susceptibility to disturbance.

	Susceptibility to:

Common name	Scientific name	Red-list status	Reporting Rate*	Collision (Rank**)	Disturbance
Verreaux's Eagle	*Aquila verreauxii*	**Vulnerable**	**2/20 = 10%**	**2**	**High**
Ludwig's Bustard	*Neotis ludwigii*	**Vulnerable**	**14/20 = 70%**	**10**	**Medium**
Southern Black Korhaan	*Afrotis afra*	**Vulnerable**	**6/20 = 30%**	**89**	**Low**
Jackal Buzzard	*Buteo rufofuscus*	-	**3/20 = 15%**	**44**	**Low**
Booted Eagle	*Aquila pennatus*	-	**9/20 = 45%**	**55**	**Medium**
Black-chested Snake Eagle	*Circaetus cinerescens*	-	**11/20 = 55%**	**56**	**Low**
Pale Chanting Goshawk	*Melierax canorus*	-	**12/20 = 60%**	**73**	**Low**
Greater Kestrel	*Falco rupicoloides*	-	**2/20 = 10%**	**97**	**Low**

**Reporting rate is a measure of the likelihood of occurrence, based on the number of days recorded/number of days in the field through the year (combining March + July + October + December = 20 days)*

*** Collision rank derived from Ralston et al. (2017). Lower numbers denote higher collision-risk.*

B.9.3 Passage Rates of Collision-Prone Species

One measure of the risk to priority birds occurring in the proposed Komas WEF site is the frequency with which they fly through it. These Passage Rates were sampled from five VPs throughout the year to cover the entire proposed Komas WEF site (Figure B.26), and 118 flights of eight collision-prone species were recorded in 300 hours of observation. This gives a medium Passage Rate of 0.39 priority birds/hour (Table B.2). Most of these flights were undertaken by Ludwig's Bustards (33) or Black-chested Snake Eagles (26), giving relatively high passage rates of 0.11 bustards/hour and 0.09 snake eagles/hour across the proposed Komas WEF site.

Verreaux's Eagles were much less frequent here (0.01 eagles/hour) than in the adjacent proposed Gromis WEF site (subject to a separate BA process) in similar habitat in the south.

The most frequently used area was VP1, the north-western most area of the proposed Komas site, with a medium-high 0.53 flights per hour (of five species). The flights here were dominated by Red Data Ludwig's Bustards, Snake eagles and Chanting Goshawks.

VP3 in the centre of the proposed Komas WEF site was the next most-used area with a medium passage rate of 0.38 flights (of four species). This was dominated by Least Concern Black-chested Snake Eagles.

VP4, just south of VP3, had the lowest passage rates of 0.3 birds/hour of six species.

In the single Control VP, the specialist recorded only 15 flights (of 5 priority species) in 54 hours, giving a lower Passage Rate of 0.28 priority birds/hour. The flights of the priority birds at the different VPs at the proposed Komas WEF site are shown in Figures B.26 - B.29. All flight tracks in the proposed Komas WEF site and in the Control areas are shown in Figure B.30.

Table B.2: A Summary of all Passage Rates of all collision-prone species recorded in the proposed Komas WEF area from March 2019 to December 2019. The three Red Data species recorded, are shown in red and the passage rate of all priority species was medium-high at 0.39 birds/hour. The Passage Rate of Red Data species alone was 0.15 birds/h.

Passage Rates: Summary by Species		VP1 + VP2 + VP3 + VP4 + VP5	
Species	TOTAL HOURS	Total birds	Passage Rate (birds/h)
Pale Chanting Goshawk	300	27	0.09
Southern Black Korhaan	300	8	0.03
Ludwig's Bustard	300	33	0.11
Booted Eagle	300	18	0.06
Black-chested Snake Eagle	300	26	0.09
Verreaux's Eagle	300	4	0.01
Greater Kestrel	300	2	0.01
TOTALS	300	118	0.39 birds/h
RED DATA SPECIES	300	45	0.15 birds/h

Table B.3: Passage Rates of collision-prone birds in the Control area from March 2019 to December 2019. Fewer priority species (5) and fewer Red Data species (2) were recorded here as in at the proposed Komas WEF site, and the Passage Rates were lower here than in the proposed Komas WEF site, at 0.28 birds/hour.

Passage Rates: Summary	Species: Control		
Species	TOTAL HOURS	Total birds	Passage Rate (Birds/h)
Pale Chanting Goshawk	54	5	0.09
Southern Black Korhaan	54	1	0.02
Ludwig's Bustard	54	3	0.06
Booted Eagle	54	3	0.06
Black-chest Snake Eagle	54	3	0.06
Verreaux's Eagle	54	0	0.00

Greater Kestrel	54	0	**0.00**
TOTALS	54	15	**0.28**
RED DATA SPECIES	54	4	**0.07**

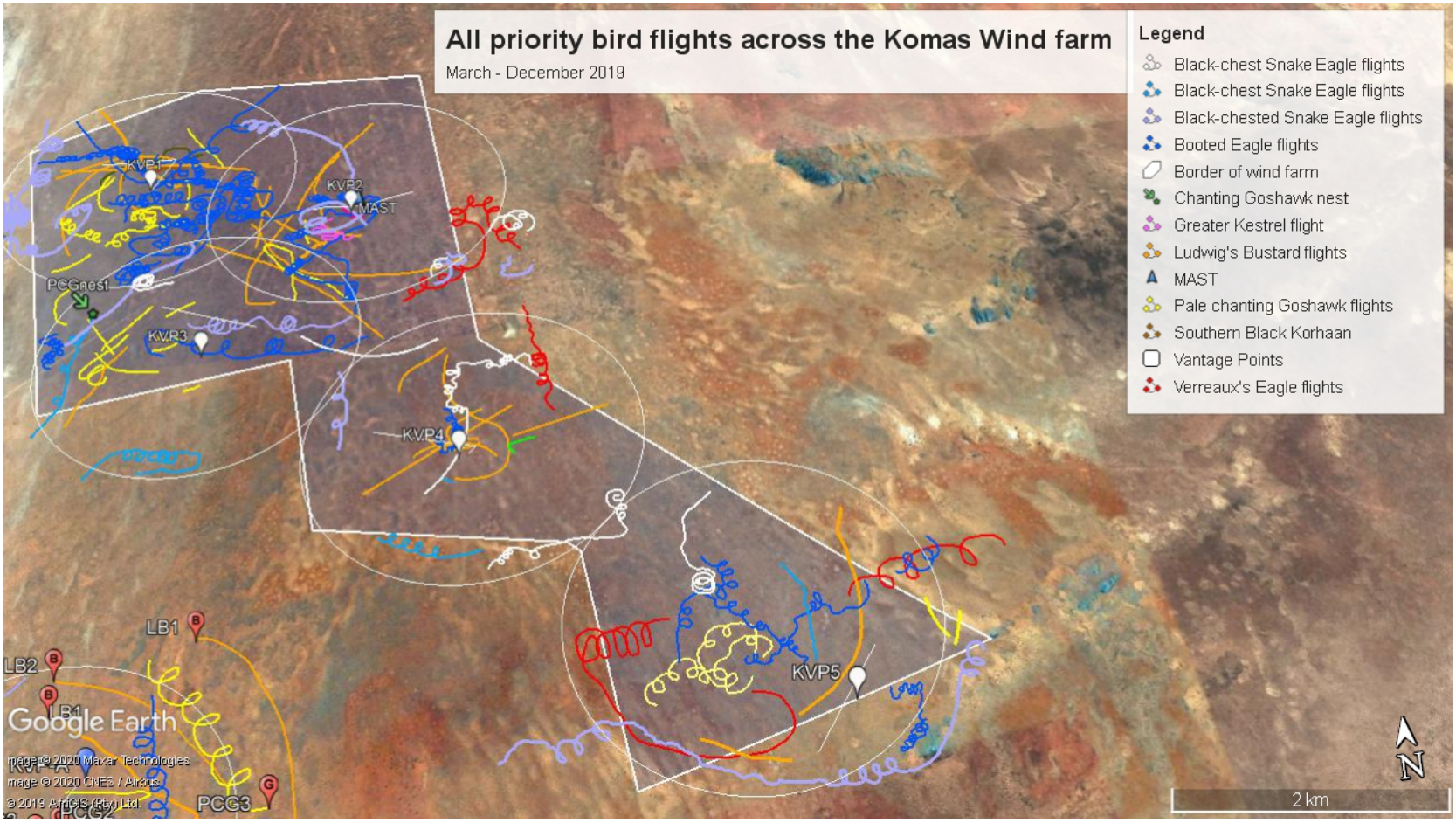

Figure B.26: The proposed Komas WEF site (white polygon) showing our VPs (KVP1-5 = white balloons). All Priority species flights are shown, and include Red Data Ludwig's Bustards (= orange lines), and *Least Concern* Pale chanting Goshawks (= yellow lines) as the most frequently recorded priority species, and snake eagles (= pale blue lines), Booted Eagle (= dark blue lines) and Red Data Verreaux's Eagles (= red lines) as the most frequently occurring additional priority species. The Control area (bottom left) is treated below.

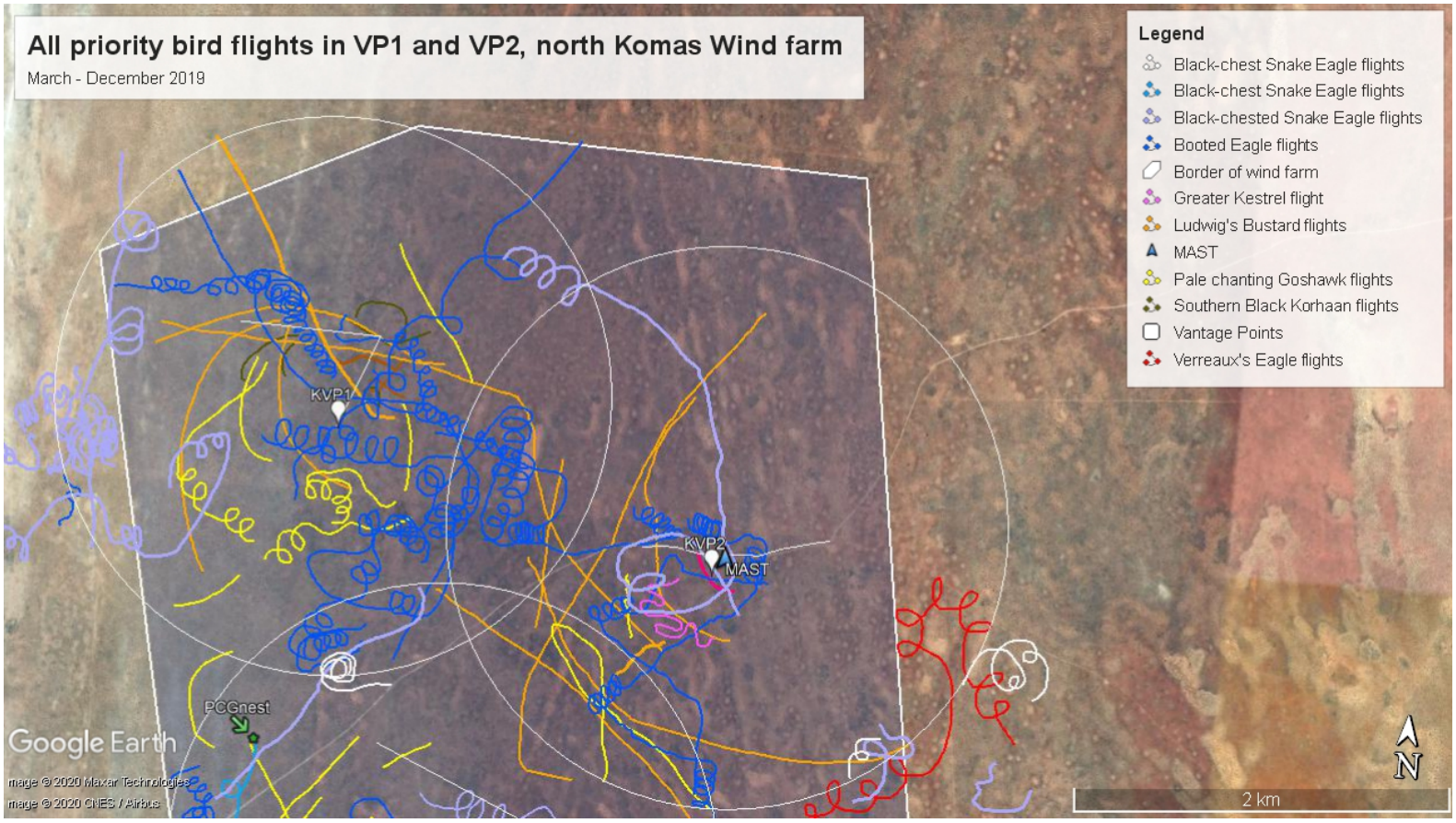

Figure B.27: All priority bird flights in VP1 and VP2 (white balloons) in the northern section of the proposed Komas WEF site. Priority species flights were dominated here by *Vulnerable* Ludwig's Bustards (= orange lines) and Least Concern snake eagles (= pale blue lines), Booted Eagles (= dark blue lines) and Pale Chanting Goshawks (= yellow lines). Red Data Southern Black Korhaans (= dark green lines) were additional priority species. Vulnerable Verreaux's Eagles (= red lines) ventured once into this area from the east. The overall Passage Rate of these species in VP1 was high at 0.72 birds per hour and in VP2 was medium-high at 0.35 birds/hour.

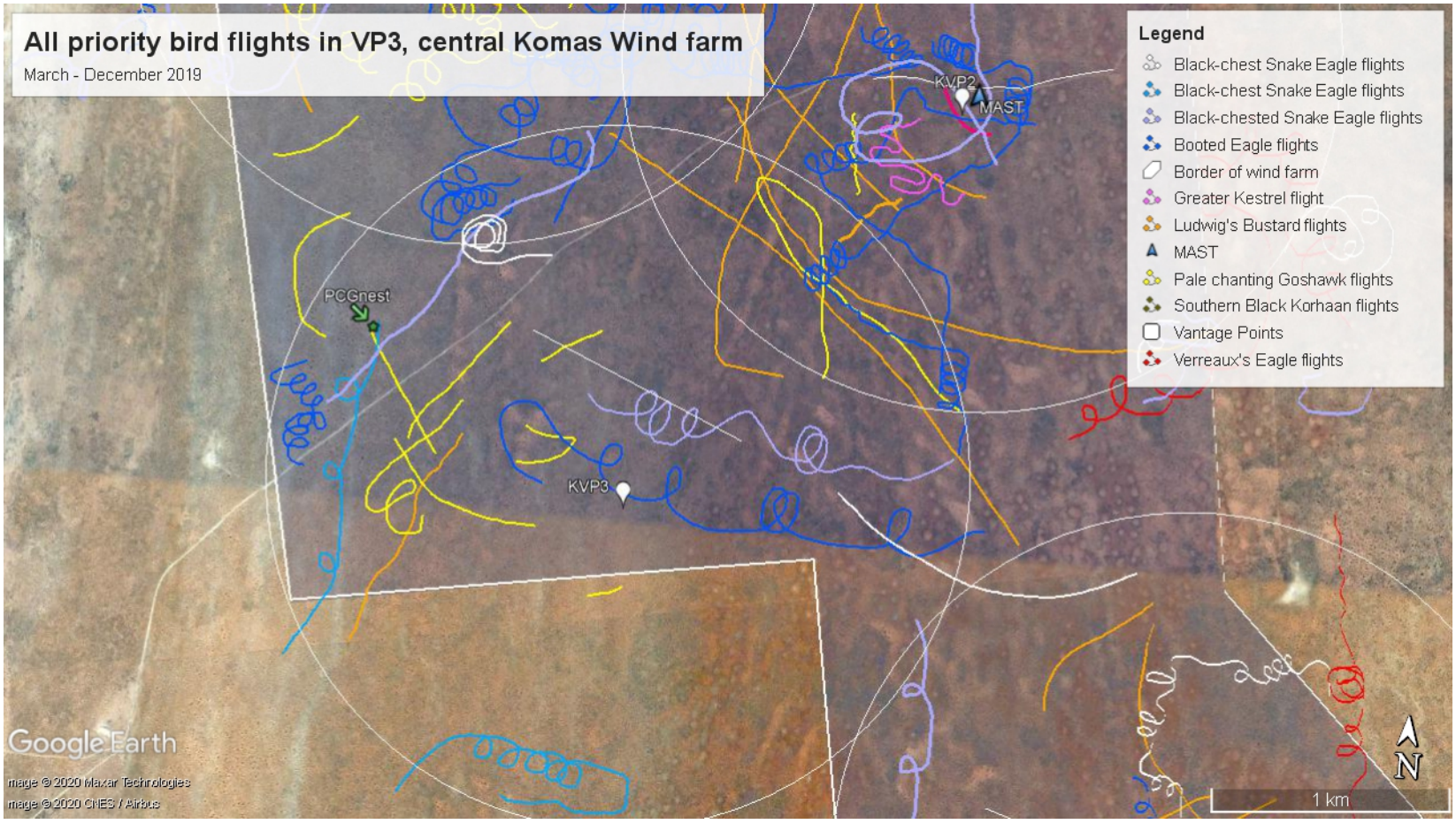

Figure B.28: All priority bird flights in VP3 (KVP3 = white balloon) in the central section of the proposed Komas WEF site. Priority species flights were dominated here by Vulnerable Ludwig's Bustards (= orange lines) and Least Concern snake eagles (= pale blue lines), Booted Eagles (= dark blue lines) and Pale Chanting Goshawks (= yellow lines), with an active Chanting Goshawk nest in the north-west of the 1.5 km view shed (= white circle). The overall Passage Rate of these species in VP3 was medium-high at 0.38 birds/hour.