Portion 104/216 Uitzigt in Brenton-on-Sea, Knysna, Western Cape

Terrestrial Animal Species Specialist Assessment:

Site Sensitivity Verification Report and Impact Assessment

Prepared For:	EcoRoute
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SACNASP:	Professional Natural Scientist (Ecological Sciences), 162841 (Application status-Pending)
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Date:	July 2024
Version:	Draft Final

DECLARATION OF SPECIALIST INDEPENDENCE

- I consider myself bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP);
- At the time of conducting the study and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in a professional capacity;
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being members of the general public;
- I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse any proposed developments, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data;
- I do not have any influence over decisions made by the governing authorities;
- I undertake to disclose 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 a competent authority to such a relevant authority and the applicant;
- I have the necessary qualifications and guidance from professional experts in conducting specialist reports relevant to this application, including knowledge of the relevant Act, regulations and any guidelines that have relevance to the proposed activity;
- This document and all information contained herein is and will remain the intellectual property of Confluent Environmental. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigators.
- All the particulars furnished by me in this document are true and correct.

Kim Daniels (MSc)

July 2024

SUMMARY OF EXPERIENCE AND ABRIDGED CV
- KIM DANIELS

Core skills

- MSc. Biodiversity and Conservation Biology (University of Cape Town.) and 3 years of work experience (research assistance and education) for research projects aimed at investigating invertebrate diversity, plant diversity, insect ecology, disease ecology, invasive species, plant systematics, herpetology, and climate change impacts on a variety of taxa.
- Ecological and field work experience before, during, and after postgraduate degrees across a range of environments (mesic savanna, arid savanna, fynbos, succulent karoo, and Nama karoo) and taxa (plants, invertebrates, avifauna, amphibians, and small mammals).
- My postgraduate studies have been focused on vegetation change in the fynbos and parasitic plants as thermal refugia for savanna birds.

Work experience

- Teaching assistant at the Organization of Tropical Studies and Roots & Shoots
- Internships in Entomology, Horticulture, and Plant Conservation
- Research assistant at the Centre for Invasion Biology
- Field assistant at Valuing Orchard and Integrated Crop Ecosystem Services Project

Qualifications

- BSc. Biodiversity and Conservation Biology (2018, University of the Western Cape)
- BSc. Hons. Biodiversity and Conservation Biology (2021, University of the Western Cape)
- MSc. Conservation Biology (2023, University of Cape Town)

References

- Dr Timm Hoffman – Academic supervisor and previous employer

  Former Director of the Plant Conservation Unit; University of Cape Town

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- Ms. Paula Strauss – Previous employer

  Research co-ordinator; Grootbos Nature Reserve

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ABBREVIATIONS AND ACCRONYMS

CBA	Critical Biodiversity Area
CD:NGI	Chief Directorate: National Geo-spatial Information
DFFE	Department of Forestry, Fisheries, and the Environment
ESA	Ecological Support Area
EWT	Endangered Wildlife Trust
NEMA	National Environmental Management Act
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SDP	Site Development Plan
SSVR	Site Sensitivity Verification Report

WCBSP	Western Cape Biodiversity Spatial Plan

1. INTRODUCTION

Confluent Environmental Pty (Ltd) was appointed by EcoRoute to provide Terrestrial Animal Specialist inputs for the proposed development of concrete platforms, timber decks, and cooking and ablution blocks to be used as a camping site on Portion 104 of Uitzigt Farm 216 in Brenton on Sea, Knysna, Western Cape.

1.1 General Site Location

Portion 104 of Uitzigt Farm 216 is ca. 10 hectares in extent and located east of Brenton on Sea with the Knysna River estuary along its north-eastern boundary. The property currently has transformed areas concentrated in the north in the form for of a building which includes a kitchen and ablution facilities adjacent to large, maintained lawns. Portion 104/216 is situated within a largely natural area (minimal development on neighbouring properties) (Figure 1). The site is currently accessible via an existing gravel road and walking trail. The property falls within the larger Garden Route Biosphere Reserve. Other protected areas within 5km of the site include Skuilte Private Nature Reserve, Brenton Blue Nature Reserve and Garden Route National Park, encompassing the Knysna River estuary.

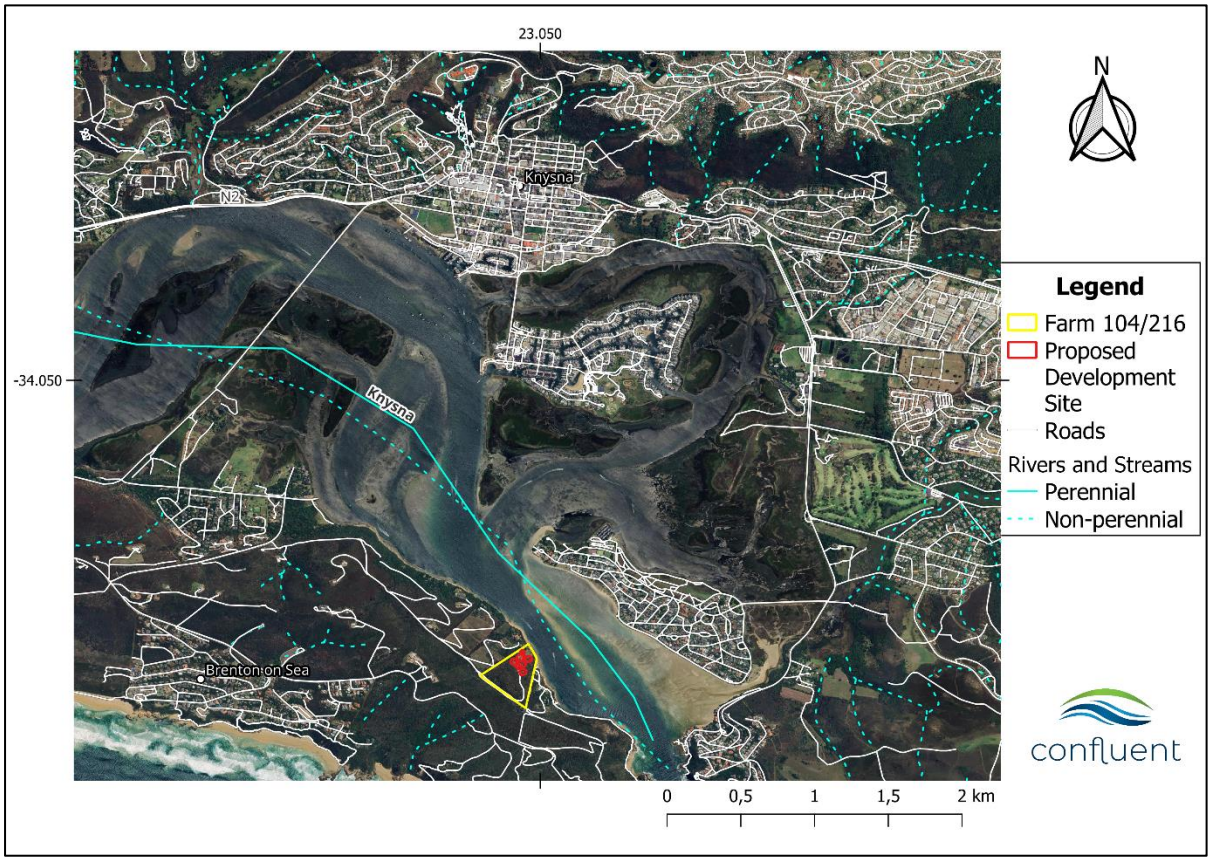

Figure 1. Portion 104 of Uitzigt Farm 216 in Knysna, Western Cape. The proposed development (concrete platforms, timber platforms, and ablutions blocks) on the property is illustrated in red.

1.2 Development Layout

At the time of writing this report the site development plan (SDP) (Figure 2) included 25 concrete platforms and timber decks (Figure 4), an expansion of the gravel road already on

the property and 5 ablution blocks (Figure 3), all in the north of the site. There is no indication of the proposed sewer system and electricity supply to the ablution blocks in the current SDP.

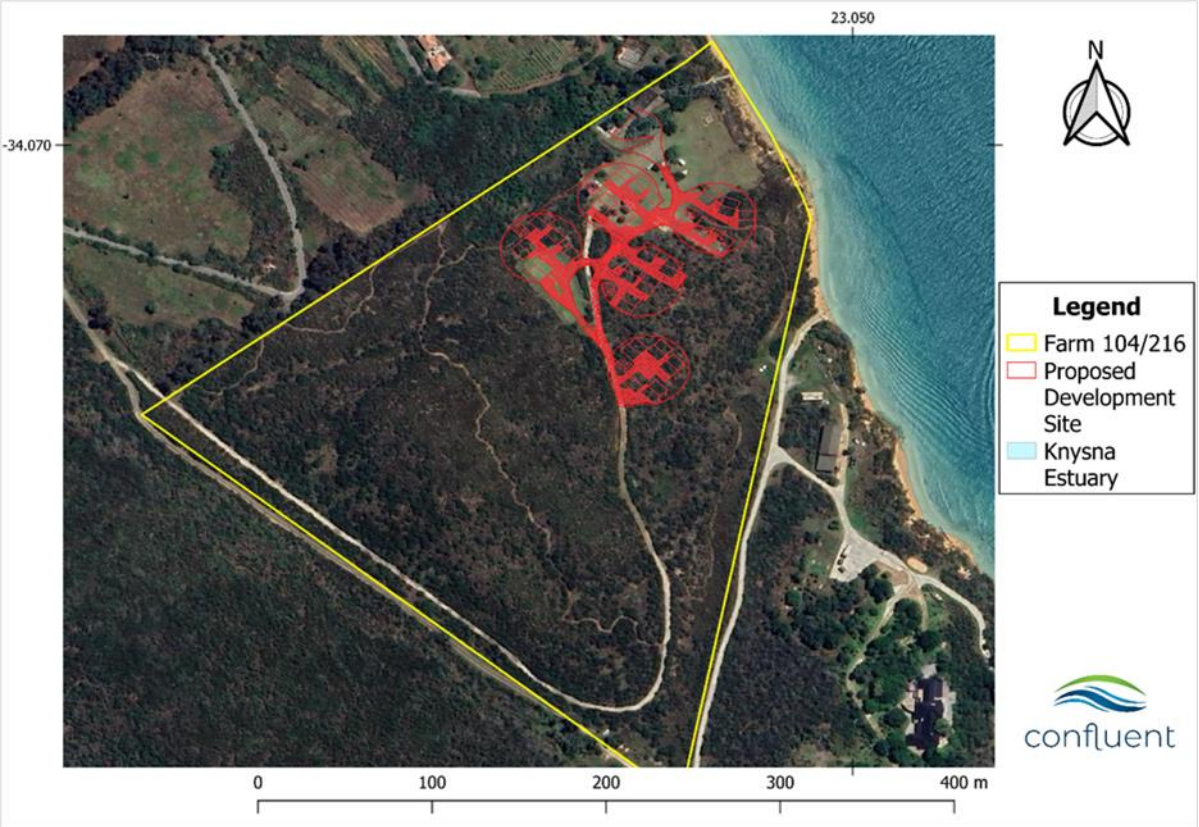

Figure 2. The Site Development Plans (SDP) for Portion 104 of Uitzigt Farm 216 showing 5 m contour lines, the gravel road expansion, 25 concrete platforms, their associated timber decks, and 5 ablution blocks proposed for the north of the property.

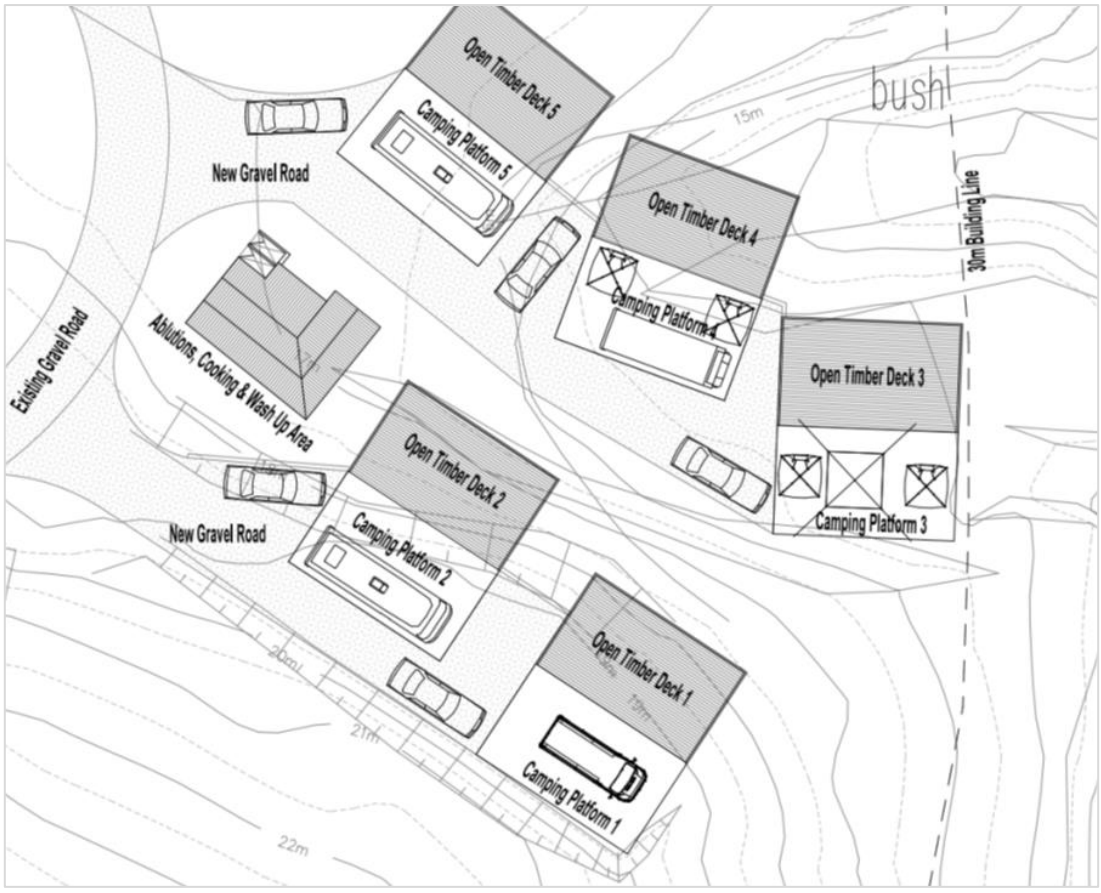

Figure 3. Proposed development layout of one camp area.

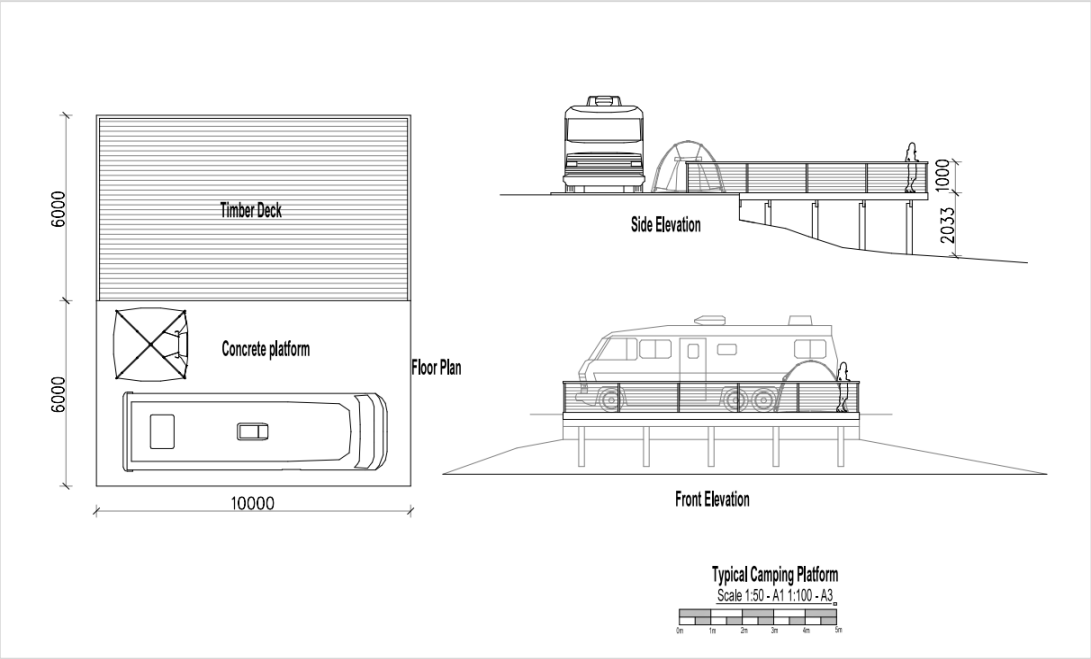

Figure 4. Proposed camping platform layout.

2. TERMS OF REFERENCE

2.1 Online Screening Tool

The scope of work for this report is guided by the legislative requirements of the National Environmental Management Act (NEMA; Act 107 of 1998).

The Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool determined a VERY HIGH, HIGH and MEDIUM sensitivity for the terrestrial animal species theme across Portion 104 of Uitzigt Farm 216 (Figure 5), with several animal Species of Conservation Concern (SCC) potentially present (Table 1).

As per Published Government Notice No. 1150 of the Government Gazette 43855 (30 October 2020):

A **VERY HIGH** sensitivity rating indicates:

1. Critical habitat for range-restricted species of conservation concern, that have a global range of less than 10 km2.
2. SCC listed on the IUCN Red List of Threatened Species or on South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally Rare.
3. Species aggregations that represent ≥1% of the global population size of a species, over a season, and during one or more key stages of its life cycle.
4. The number of mature individuals that ranks the site among the largest aggregations known for the species.

These areas are irreplaceable for SCC.

A **HIGH** sensitivity rating indicates:

1. Confirmed habitat for SCC.
2. SCC, listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered or Vulnerable, according to the IUCN Red List 3.1. Categories and Criteria and under the national category of Rare.

These areas are unsuitable for development due to a very likely impact on SCC.

A **MEDIUM** sensitivity rating indicates:

1. Suspected habitat for SCC based either on historical records (prior to 2002) or being a natural area included in a habitat suitability model for this species.

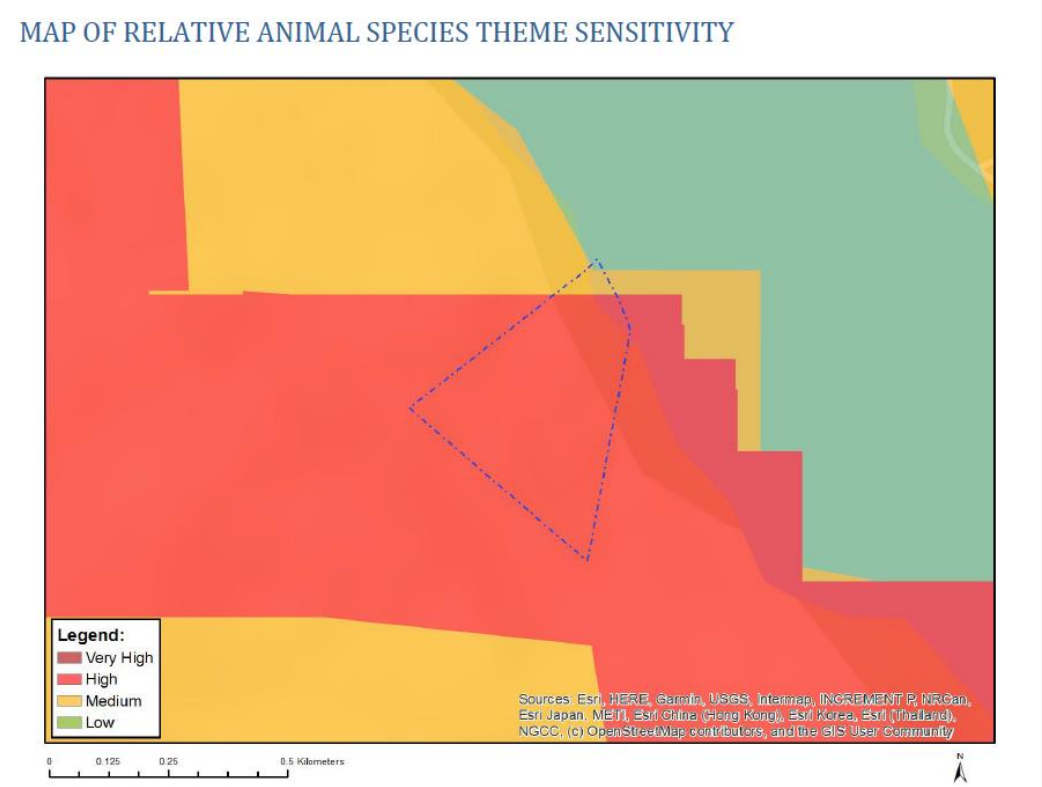

Figure 5. DFFE Online Screening Tool outcome for the terrestrial animal species theme Portion 104 of Uitzigt Farm 216. The property boundary is indicated by the blue dashed line.

Table 1. Species of Conservation Concern highlighted by the DFFE Online Screening Tool for Portion 104 of Uitzigt Farm 216.

Sensitivity	Classification	Scientific name	Common name	Red list status*
High	Avifauna	*Circus ranivorus*	Marsh Harrier	Endangered
High	Avifauna	*Circus maurus*	Black Harrier	Endangered
High	Avifauna	*Stephanoaetus coronatus*	Crowned Eagle	Vulnerable
High	Avifauna	*Bradypterus sylvaticus*	Knysna Warbler	Vulnerable
High	Avifauna	*Polemaetus bellicosus*	Martial Eagle	Endangered
High	Avifauna	*Hydrogrogne caspia*	Caspian Tern	Vulnerable
Medium	Amphibian	*Afrixalus knysnae*	Knysna Leaf-folding Frog	Endangered
Medium	Mammal	*Chlorotalpa duthieae*	Duthie's Golden Mole	Vulnerable
Medium	Mammal	*Sensitive species 8*	-	Vulnerable
Medium	Invertebrate	*Aneuryphymus montanus*	Yellow-winged Agile Grasshopper	Vulnerable
Medium	Invertebrate	*Aloeides thyra orientis*	Red Copper Butterfly	Endangered
Medium	Aves	*Podica senegalensis*	African finfoot	Vulnerable

* Red list status as per SANBI's Red List of South African Species http://speciesstatus.sanbi.org except *P. precursor* which is listed as endangered in the Checklist of the Spiders (Araneae) of South Africa (Dippenaar-Schoeman, et al. 2023).

2.2 Scope of Work

The purpose of this report is to verify the site sensitivity of Portion 104 of Uitzigt Farm 216 for the terrestrial animal species theme in accordance with the protocols specified in the Published Government Notice No. 1150, Government Gazette 43855 (30 October 2020).

The site sensitivity verification includes:

- A desktop assessment, to:
    - Characterize the vegetation, climate, general habitat features and topography of the property.
    - Assess the property's location within the context of the Western Cape Biodiversity Spatial Plan (WCBSP).
    - Conduct a historical assessment of the property and immediate surroundings for any disturbances, development and changes in land use or habitat characteristics over time.
    - Provide information on the habitat requirements for Species of Conservation concern highlighted by the DFFE online screening tool, in addition to other SCC indicated through online resources (e.g. Virtual Museum, iNaturalist) for the property and surrounding areas.
- On-site inspection(s) and field assessments to:
    - Verify the current land use and identify current impacts or disturbances on the property.
    - Characterize faunal habitats, determine the habitat suitability and the likelihood of SCC occurring on the property.
    - Conduct taxa-specific sampling for SCC in suitable habitats.
- Any other available and relevant information from
    - Discussions with landowners/neighbours.
    - Previous report findings for the property or surrounding areas.

Should the site sensitivity verification indicate a **LOW** sensitivity, then a Terrestrial Animal Species Compliance Statement will be issued.

Should the site sensitivity verification indicate a **HIGH** sensitivity, then a Terrestrial Animal Species Specialist Assessment will be compiled.

3. DESKTOP ASSESSMENT

3.1 Vegetation, Climate and General Habitat

Brenton on Sea near Knysna, Western Cape falls within the Fynbos biome and experiences a temperate climate year-round (Mucina and Rutherford 2006, Rebelo, *et al.* 2006). The mapped vegetation type at the site includes Knysna Sand Fynbos (FFd 10; Critically Endangered). Average temperatures range between 28℃ and 8℃, with the hottest days experienced from December to March peaking around 38℃ and the coldest days experienced

from June-August not falling below 1°C. Rain occurs throughout the year in a bimodal pattern with peaks in autumn (April) and spring (October-November) (Figure 6).

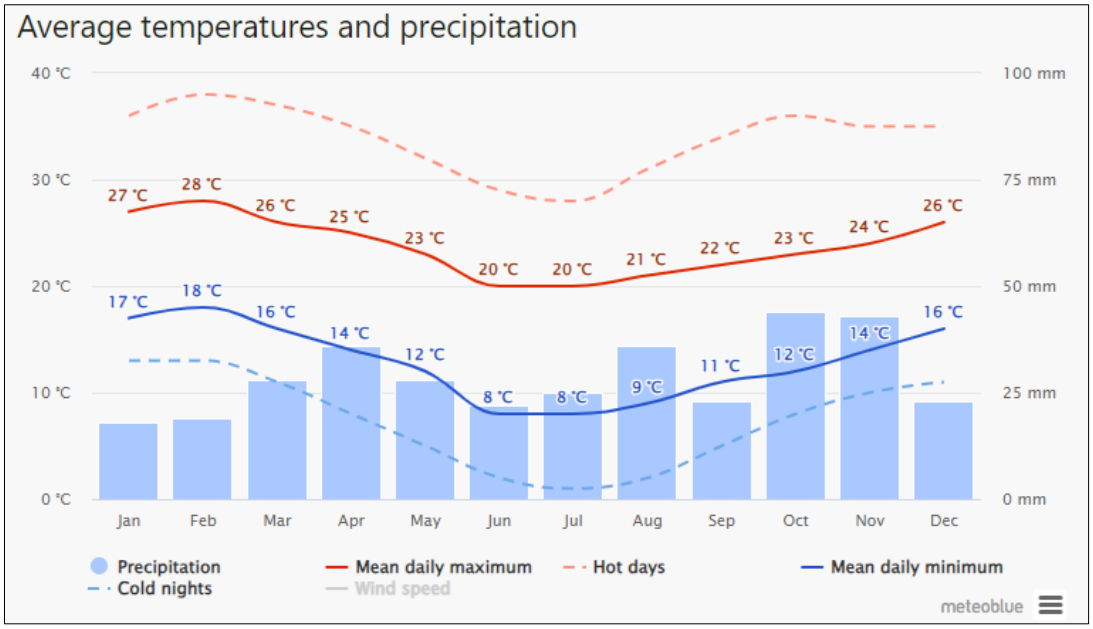

Figure 6. Summary of historical climate (modelled) for Brenton on Sea (www.meteoblue.com).

Satellite imagery from Google Earth and Cape Farm Mapper was used to assess general vegetation structure, elevational gradients and water bodies within the project area (Figure 7). The site mainly comprises of fynbos vegetation in the southern section of the site, and large lawns in the north of the site. Walking trails are present in the intact vegetation of the property. The main gravel road used to access the proposed site divides this section in two. Elevation is highest in the southwest and the site slopes in a northeasterly direction towards the Knysna lagoon. A mapping layer was also applied to the site to assess for wetlands and watercourses but this revealed that none were present on the property (Figure 7).

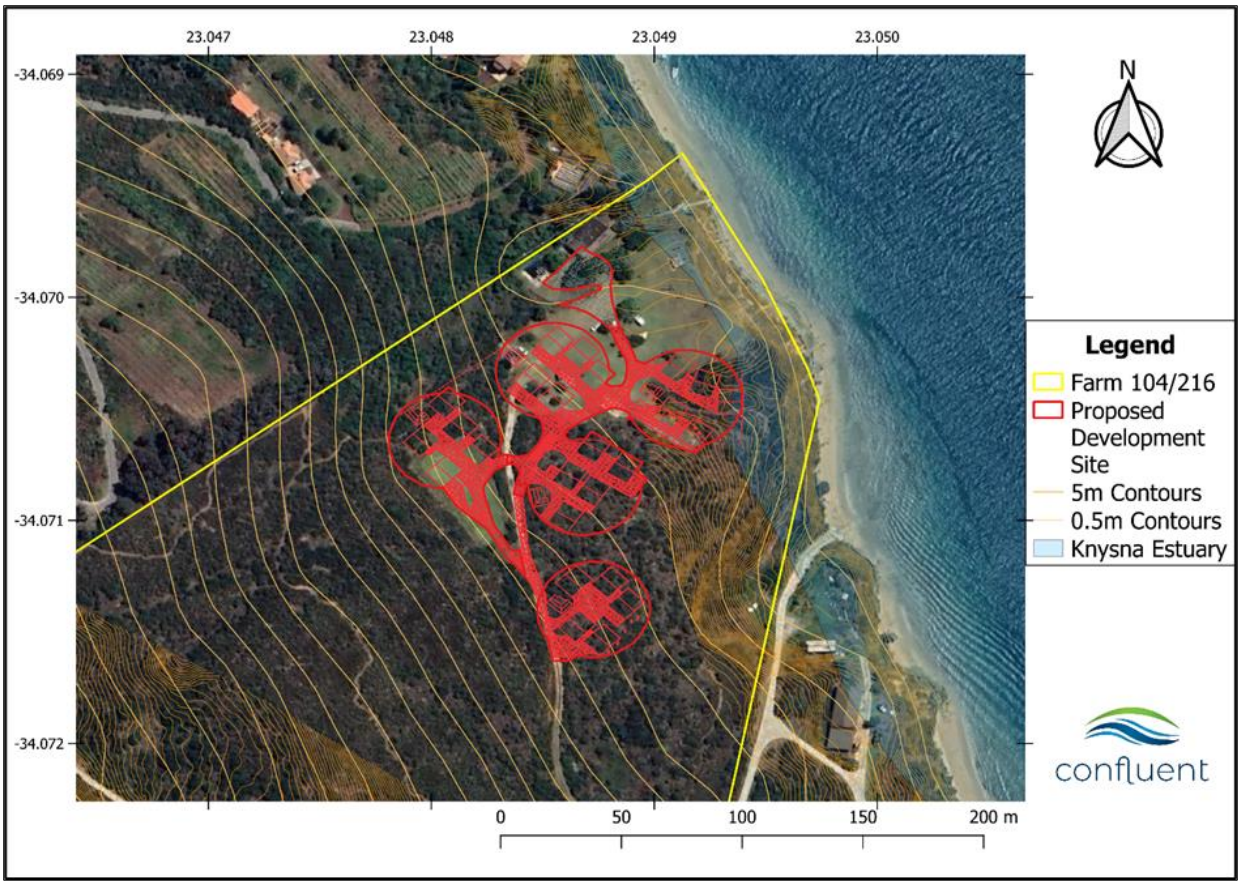

Figure 7. The proposed development sites with contour lines and in relation to mapped watercourses.

3.2 Western Cape Biodiversity Spatial Plan

Additional mapping layers were applied to Portion 104 of Uitzigt Farm 216 to include the Western Cape Biodiversity Spatial Plan (CapeNature 2017), with Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) assessed in Figure 8 and Table 2. The site falls within a CBA 1, CBA 2 and ESA 2 zone, with the rest of the property being mainly a CBA 2 zone (Figure 8). The reasons for the biodiversity spatial plan layers CBA 1 and 2 assignments are mapped here are (grey entries either do not apply to the site or are outside of the scope of this report to provide comment on):

- Coastal Resource Protection- Eden: This theme is not addressed by this report
- Indigenous Forest Type: No indigenous forests were present on the site. The northern edge of the property is populated with alien invasive tree species, relevant to the faunal theme since some animals prefer a taller vegetation structure for foraging, breeding, and habitat.
- Knysna Sand Fynbos (Critically Endangered vegetation type): Natural fynbos habitats are important for the conservation of fauna. This theme is, however, better addressed by a botanical specialist report since some animal species have plasticity in the environments they can colonise.
- Water source protection- Knysna: This theme is not addressed by this report.
- Watercourse protection- South Eastern Coastal Belt: This theme is not addressed by this report.

The site also contains ESA 2 layers (Figure 8), the reasons for which are the following (grey entries either do not apply to the site or are outside of the scope of this report to provide comment on):

- Coastal resource protection- Eden: This theme is not addressed by this report
- Eastern Fynbos Renosterveld Sand Fynbos Floodplain Wetland: This theme is not addressed by this report. See the Aquatic Specialist report (F. de Ridder- Confluent Environmental).
- Eastern Fynbos Renosterveld Sand Fynbos Seep Wetland: This theme is not addressed by this report. See the Aquatic Specialist report (F. de Ridder- Confluent Environmental).
- Knysna (Core) Estuary: This theme is not addressed by this report.
- Knysna Sand Fynbos (Critically Endangered vegetation type): Natural fynbos habitats are important for the conservation of fauna. This theme is, however, better addressed by a botanical specialist report since some animal species have plasticity in the environments they can colonise.
- Water source protection- Knysna: This theme is not addressed by this report.
- Watercourse protection- South Eastern Coastal Belt: This theme is not addressed by this report.

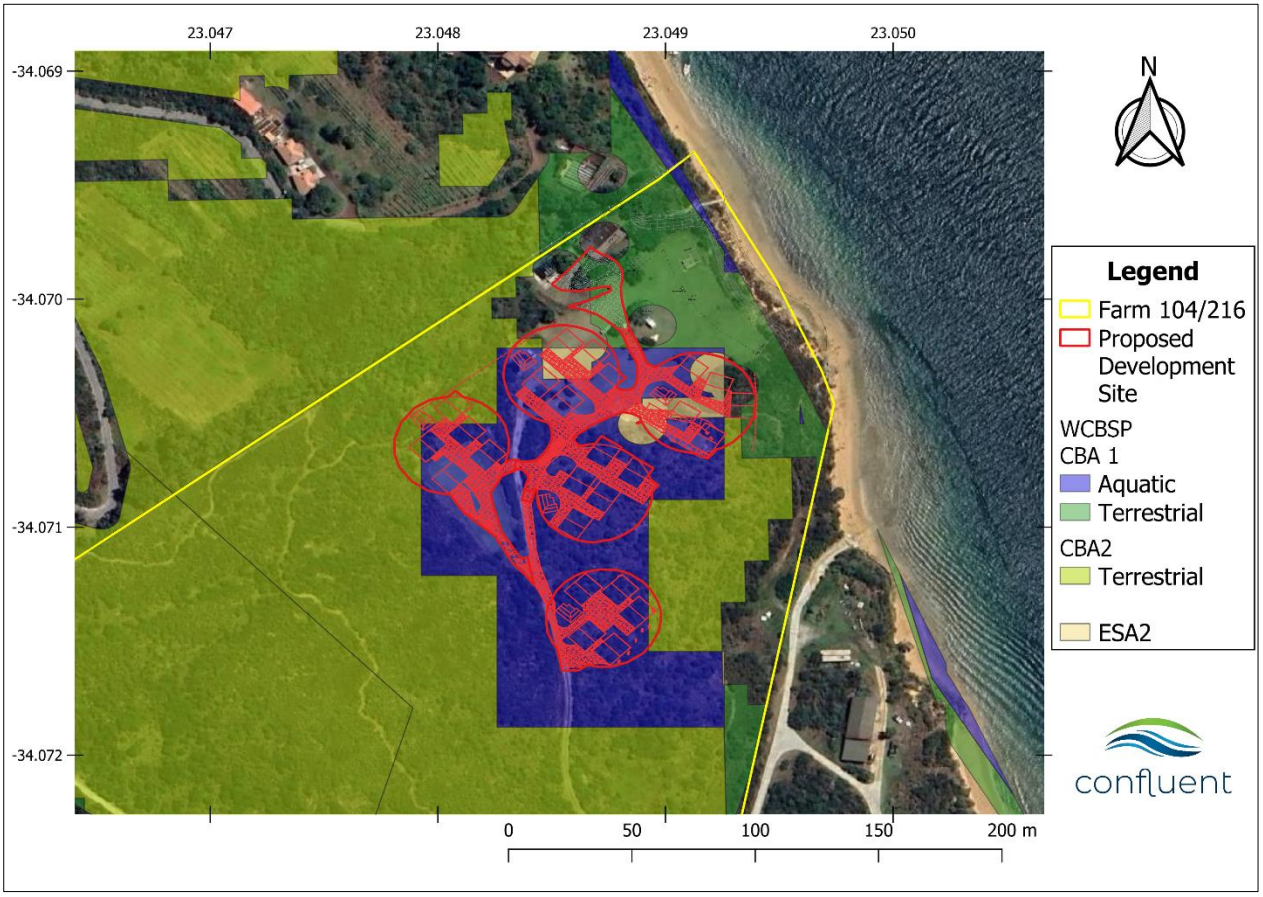

Figure 8. Site map of Portion 104 of Uitzigt Farm 216 with layers for the Western Cape Biodiversity Spatial Plan's Critical Biodiversity Areas (CBA1) and Ecological Support Areas (ESA2).

Table 2. Definitions and objectives for conservation categories identified in the Western Cape Biodiversity Spatial Plan (CapeNature 2017).

WCBSP Category	Definition	Management Objective
Critical Biodiversity Area 1 (CBA1)	Areas in a natural condition. Required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.
Critical Biodiversity Area 1 (CBA2)	Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.	Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land-uses are appropriate.
Ecological Support Area 2 (ESA 2)	Areas severely degraded or have no natural cover and ecological functioning severely impaired. Not essential for meeting biodiversity targets but support ecological functioning and delivering ecosystem services.	Restoration required to return ecological functioning. Some limited habitat loss may be acceptable. A greater range of land uses over wider areas is appropriate but ensures the underlying biodiversity objectives and ecological functioning are not compromised.

3.3 Historical Assessment of Project Area

Historically the property has undergone minimal changes over the past 25 years from 1998 to 2023. The properties seem to have been covered by alien vegetation from 1998 to 2003, with extensive alien clearing taking place between 2003 and in the years 2023. The most notable disturbances on the property were the clearance of a large portion of land in the northern corner of the property and the construction of structures in the cleared area. The Knysna fires in 2017 seem to have only affected the area where alien vegetation was still present (Figure 9). It is worth noting that the footprint of three of the camping areas was completely burnt in the 2017 fires, highlighting this factor as a significant risk that must be taken seriously and managed to reduce risks.

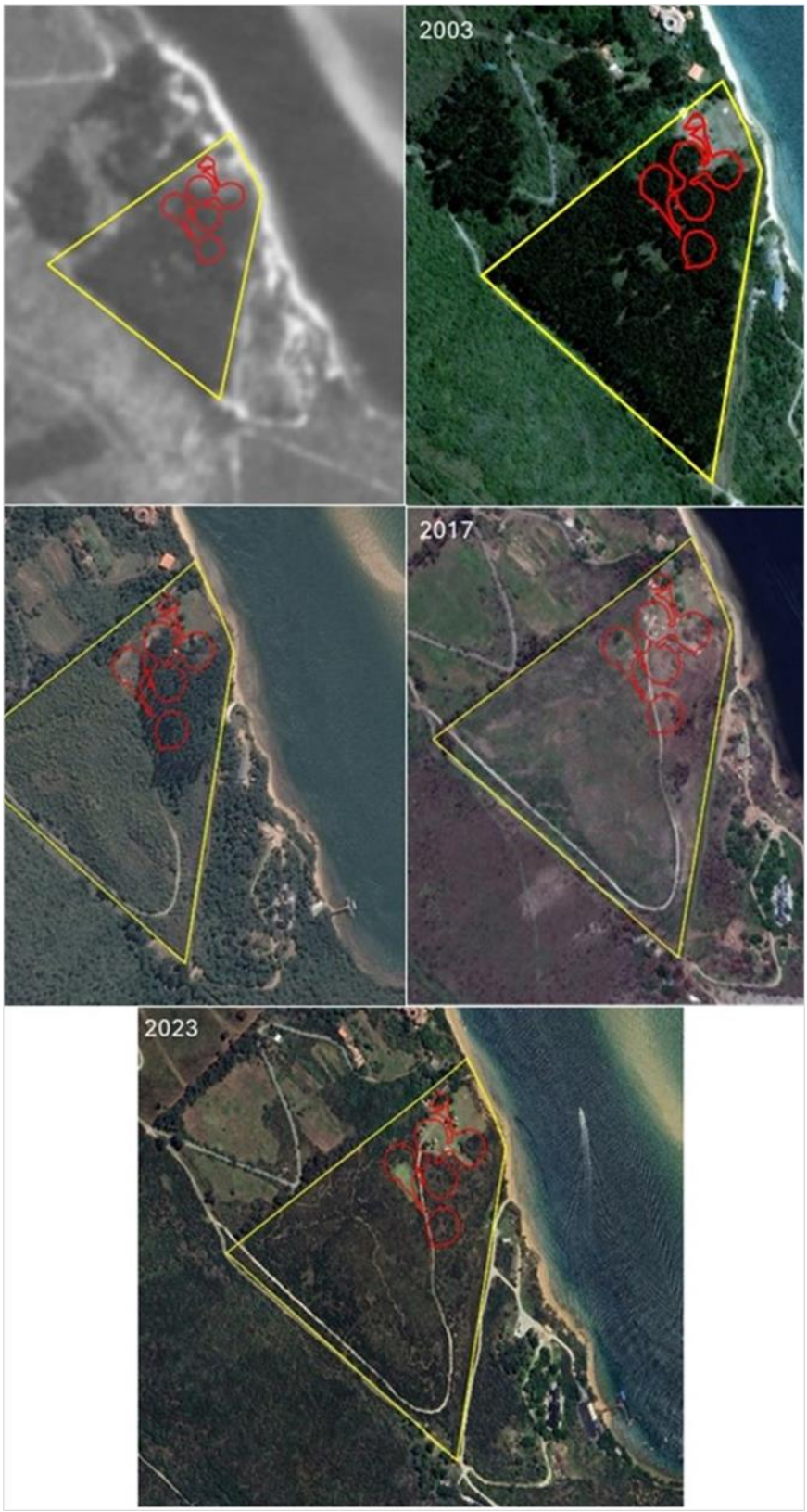

Figure 9. Historical imagery of Portion 104 of Uitzigt Farm 216 sourced from the CD: NGI geospatial portal and Google Earth. The property boundary is indicated by the yellow line.

3.4 Species of Conservation Concern

In addition to the SCC highlighted by the DFFE screening tool (Table 1), the following public resources were consulted to provide additional SCC for Portion 104 of Uitzigt Farm 216 and its immediate surroundings:

1. iNaturalist (all taxa) within 5 km x 2 km of the project area (URL for iNaturalist search area).
2. Virtual Museum for herpetofauna, mammals and invertebrate taxa within the Quarter Degree Squares (QDS) 3423AA: DungBeetleMAP, FrogMAP, LacewingMAP, LepiMAP, MammalMAP, OdonataMAP, ReptileMAP, ScorpionMAP, SpiderMAP.
3. South African Bird Atlas Project (SABAP2) for pentad 3400_2300.

Some SCC reported on the platforms were highly unlikely to occur at the site given either clearly unsuitable habitat or being deemed a vagrant/transient animal. For example, species that are fully adapted to marine environments would not occur at the site. For the purposes of this report these animals were excluded from further assessment (see also Section 4.2 and Appendix 1 for additional information).

The combined list of SCC (from DFFE Screening Tool and public resources) possibly occurring on Portion 104 of Uitzigt Farm 216, along with their habitat, breeding and feeding requirements are listed in Table 3. The information for each SCC presented in Table 3 stems largely from the online SANBI Red List of South African Species (http://speciesstatus.sanbi.org) in addition to a few key resources for each taxa:

4. Avifauna: Roberts Birds of Southern Africa VII (Roberts, et al. 2005)
5. Mammals: The Mammals of the Southern African Subregion (Skinner 2005)
6. Invertebrates:
    - Field guide to the insects of South Africa (Picker, Griffiths and Weaving 2019)
    - Field guide to the butterflies of South Africa (Woodhall 2005)
    - Field guide to the spiders of South Africa (Dippenaar-Schoeman 2023)
7. Amphibians: A complete guide to the frogs of Southern Africa (Du Preez and Carruthers 2015)

Any information presented from different sources is cited in the text.

Table 3. Summary of habitat, breeding and feeding requirements for animal SCC potentially occurring on Portion 104 of Uitzigt Farm 216.

Redlist status	Species	Habitat	Breeding	Feeding
AMPHIBIANS				
Endangered	*Afrixalus knysnae* Knysna Leaf-folding Frog	Typically inhabit endorheic (inward draining) wetlands with shallow water (< 50cm), high clarity, and sufficient vegetation suitable for breeding (De Lange & Du Preez, 2018). No streaming or running water recorded at any of the sites where they've been recorded. The frog is associated with vegetation it can use for breeding which includes indigenous and exotic species. For example, slender knotweed (*Persicaria decipiens*) and kikuyu grass (*Pennisetum clandestinum*). It requires a habitat with diverse plant species, including shrubs, grasses, and ferns, providing shelter and breeding sites (Lange and Preez, 2018).	Females lay eggs on leaves which are folded and sealed by males, creating a protected environment (Du Preez & Carruthers, 2017). Breeding occurs during warmer wetter months such as September to November (De Lange, 2019). Breeding takes place near deeper parts of the waterbody, but still close to the water's edge.	The Knysna Leaf-folding Frog is an insectivorous amphibian feeding on small invertebrates found in its habitat (e.g. insects and spiders). Foraging behaviour includes actively searching for prey on the forest/fynbos floor and in the leaf litter. The frog uses its sticky, projectile tongue to capture and quickly ingest prey. It is primarily active at night, relying on its vision to locate and capture prey in the darkness.
AVIFAUNA				
Endangered	*Circus maurus* Black Harrier	In Western Cape, mostly found in Fynbos, especially montane Fynbos and strandveld. Less common in dry restios and renosterveld. Elsewhere, occurs in dry grassland, Karoo scrub, crop fields (wheat) and grasslands (sometime >3000m elevation). Many move from Fynbos to Karoo and grasslands during the winter, likely to follow rodent numbers (e.g. capitalise on late summer litter of Sloggett's ice rats in Free State and Lesotho). Birds move away following fires and do not return for several years.	Mainly monogamous but some polygamy observed. Mate fidelity is low. Usually solitary nester and territorial, but in Western Cape some semi-colonial nesting observed with less territorial behaviour. Nest is a small structure of grass, stems and small twigs. Usually on or just above ground, in rank marsh grasses or near Fynbos bushes and sedges (Juncus spp.) Nests most often in marshes or next to small streams, but also on damp soil or dry ground. Nest areas reused in successive years (one observation of nest site used for 26 years).	Specialist predator of mice and birds. Predominantly rodents (vlei rats, mice) eaten by birds in Fynbos areas and small birds (Common Quail) dominate diet of birds in mountain areas. Also takes reptiles, frogs, insects too lesser extent. Sometimes caches prey. Forages most actively on blustery days (windy and rainy), hovers 1-3m above vegetation with buoyant flight. Flashes into vegetation, hits prey hard and eats on ground. Perch hunting rare.

Redlist status	Species	Habitat	Breeding	Feeding
Endangered	*Circus ranivorus* Marsh Harrier	Considered a waterbird. Roosts on taller trees around wetland edges from where it has a good vantage point. Can adapt to novel wetland habitats such as wastewater treatment works.	Breeding occurs between September and December. Egg-laying is from August to November in South Africa. Nests made of grass, reed stems or sticks in reedbeds, short sedge areas or in trees along the water's edge. The same nest is often reused by the same pair in following years.	Dietary assessment (Simmons et al., 1991) of pellets and prey deliveries to nests includes birds, frogs, fish, eggs and micromammals (*Rhabdomys*, *Otomys*, and Shrews). Hunts primarily in wetland habitats using various flight methods including soaring, hovering and low flight over wetlands and along the water's edge. May hunt in open grasslands or pastures near wetland areas.
Endangered	*Phalacrocorax capensis* Cape Cormorant	Restricted to inshore marine waters, estuaries and lagoons. Roosts at colonies and other coastal sites protected from predators (islands in wetlands) or open areas with good visibility (salt pans, broad beaches).	Monogamous. Colonial nester mostly in large colonies. In Namibia breeds on guano platforms. Breeding range extends from Ilha dos Tigres, southern Angola to Bird Island, Eastern Cape. Nest is loose pile of sticks, feathers, bones. In waves from Western Cape year-round, with peak in Sep-Feb.	Forages 10-20km offshore but also in coastal wetlands. Feeds in association with other species (in wetlands with grebes, terns, gulls, egrets). Diet includes mainly pelagic schooling fish (e.g. sardines, anchovies) and to a lesser extent other fish species and crustaceans.
Endangered	*Polemaetus bellicosus* Martial Eagle	Savanna, Karoo shrubland, semi desert. Can occur in open farmland with clumps of trees. Rare in mountainous and forest areas.	Monogamous, pair bond lasts several seasons. Solitary nester. Nest is a substantial platform of sticks (up to 1.5m long and 3cm thick) on tall trees or pylons. Nest tree usually tallest in vicinity, and nest placed in a large fork below the canopy. Rarely uses rocky outcrops.1 egg laid, incubation 48-53 days predominantly by female bird.	Mainly small mammals like hare, jackal, small antelope, mongoose, small baboons, but also small stock animals, birds (especially gamebirds) and reptiles (especially monitor lizards). Usually hunts on the wing by soaring high and attacking in long slanting stoop. Surprises prey by using available cover. Occasionally hunts from perch, especially at waterholes or along game trails. Prey killed by impact or strangulation and taken to high perch to eat.

Redlist status	Species	Habitat	Breeding	Feeding
Vulnerable	*Bradypterus sylvaticus* Knysna warbler	Inhabits dense understorey vegetation along riverbanks in fynbos forest patches, riverine woodland and afromontane forest and has even adapted to thickets of non-native brambles (e.g. Rubus). (BirdLife International, 2016).	Breeds from August and December coinciding with the greatest abundance of invertebrate species. (BirdLife International, 2016).	Mostly on ground, creeping through dense, matted vegetation and scratches in humus. Eats mostly grasshoppers, insect larvae, spiders, slugs, worms
Vulnerable	*Falco biarmicus* Lanner Falcon	Most frequently in open grassland or cleared woodlands and agricultural lands. Breeding pairs favour habitat close to cliffs but will also be found near alternative roosting sites like electricity pylons, buildings, large trees.	Monogamous, long-term pair bond, territorial. Nest is typically a simple scrape on cliffs, buildings or bird boxes, but will occasionally use stick nests from other species (including White-necked raven, Verreaux's eagle, Bateleur) in trees or electricity pylons.	Hunts from high perch or from air, using speed to surprise and catch prey but also adept at using cover. Prey taken in air and on ground. Pairs can hunt cooperatively. Prey mostly birds (>80%) but will also take reptiles and insects.
Vulnerable	*Hydroprogne caspia* Caspian Tern	Concentrated at estuaries and sheltered bays along the coastline and at large, permanent inland waterbodies (natural and artificial). The primary threats to this species are during the breeding period when it is highly susceptible to human disturbance, predation by domestic dogs and kelp gulls, and extreme weather events.	Coastal breeding habitat is primarily offshore islands but increasingly uses sandy beaches. Inland breeding habitat includes small islets in dams/pans. Monogamous, pair bonds lasting from year to year. Defends territory around nest site. Nest is shallow scrape on ground lined with dead vegetation. Laying dates in Western Cape are October - January. 1-3 eggs laid, incubation lasting 22-24 days.	Forages in clear, shallow water. Feeds throughout the day but most active the mornings. Diet almost entirely of fish, swallowed in flight.
Vulnerable	*Stephanoaetus coronatus* Crowned eagle	Forest (including gallery forest), dense woodlands and forested gorges in savannas and grasslands. Can be present in *Eucalyptus* and Pine plantations. Perches for long periods, resting in canopy. Sometimes soars high over territory, then descends vertically to perch. Manoeuvres agilely through thick forest, can take off vertically from forest floor.	Monogamous, possibly long-term pair bond. Territorial (at least 10 km^2), solitary nester. Tallest trees used to build large stick platform nest (sticks/branches up to 1.5m long, 3cm thick). Nest copiously lined with beachwood (*Faurea saligna*), Pine or *Eucalyptus* leaves/needles. Nest often reused and added to in consecutive years, can reach up 2-3m diameter, 3m	Predominantly feeds on mammals (96% diet) and mostly on hyrax, antelope, and primates. Will also take porcupine, hares, mongoose, sometimes domestic stock and domestic cats/dogs. Avian prey includes Hadeda Ibis, Egyptian geese and domestic chickens. Reptile prey mainly monitor lizards. Most prey taken on ground, but occasionally crashes into dense

Redlist status	Species	Habitat	Breeding	Feeding
			high. Nest trees often at the base of cliff/ravine or at the edge of plantation. Nest trees usually white stinkwood (*Celtis africana*), yellowwoods (*Podocarpus* spp.), Cabbage tree (*Cussonia spicata*) but also *Eucalyptus* and Pine species. Incubation 49-51 days.	foliage in pursuit. Frequently still-hunts (stalks prey) and hunts from concealed perches frequently above waterholes in evening waiting for antelope to drink. Pair sometimes hunt monkeys cooperatively. Prey struck with downward blow of open foot, massive hind claw penetrates the skull killing instantly. Large prey that cannot be lifted are partly eaten and dismembered on the ground and then cached in trees.
Near Threatened	*Alcedo semitorquata* Half-collared Kingfisher	Clear, well-vegetated, fast-flowing perineal streams in forested habitat. Stream habitat usually narrow and secluded with dense marginal vegetation, near rapids. Also occurs in estuaries and well-vegetated lake shores but generally avoids dams.	Monogamous, solitary nester, territorial. Territory is ca. 1km of river. Burrows into vertical river banks (usually 1m high) with overhanging vegetation and roots providing screening. Entrance usually 40 cm below top of embankment, and sometimes only 15cm above water. Burrow chamber lined with fish bones. Laying dates Sep-Mar. Eggs incubated for >16 days, and brooding limited to 5 days. Nestling period ca. 27 days, and fledgling dependence on adults limited.	Sits motionless on perch for long time before diving steeply into water. Rarely hovers above water. Diet mainly fish (3-7 cm in size), carried back to perch to eat. Also consumes crabs, aquatic insects and amphibians.
Near Threatened	*Campethera notata* Knysna Woodpecker	Territorial, occurring in thornveld, Euphorbia thickets, riparian and montane evergreen forests. Marginal occurrence in *Protea* communities, coastal white Milkwood (*Sideroxylon inerme*) thickets and alien trees	Monogamous, solitary nester Hole in trunk/branch of tree, usually in a dead stem 1.2-6m off the ground. Holes infrequently reused in successive years, but a new hole can be excavated in the same branch. Laying from August-November	Forages at all levels of trees, especially mid-canopy. Pecks and probes for ants and termites on dead branches, but occasionally forages on ground.

Redlist status	Species	Habitat	Breeding	Feeding
Near Threatened	*Numenius arquata* Eurasian Curlew	Coastal wetlands; forages on intertidal mud- and sandflats and roosts on adjoining saltmarshes, sand-dunes, mangroves or rocks.	Extralimital two adults with possible chick at Swartkops estuary, Eastern Cape is the only suggestion of breeding in South Africa.	Diet in non-breeding season is primarily aquatic invertebrates, including shellfish, mudprawns, small crabs, shrimps and polychaete worms. Inland eats insects, insect larvae, sometimes small vertebrates and vegetable matter.
Near Threatened	*Phoenicopterus roseus* Greater Flamingo	Favours shallow saline or brackish waterbodies i.e. salt pans, large dams, coastal mudflats. Most important sites: Lake St Lucia (KwaZulu-Natal), Leeupan/Barberspan (North West), Kamfers Dam (Northern Cape) and Langebaan Lagoon, Strandfontein Sewage Works and the Berg River Estuary (Western Cape).	Breeds at recently flooded saltpans, coastal mudflats, inland dams, sewerage treatment works, small ephemeral pans and river mouths. Monogamous, changing mates between year. Colonial nester. Laying dates Nov-Aug.	Wades in water to belly-depth. Filters small invertebrates in mud. Diet includes brine shrimp, and brine flies. Also eats molluscs and diatoms.
Least Concern (Regional), Near Threatened (Global)	*Buteo trizonatus* Forest Buzzard	Afromontane forests and plantations (mainly Pine, but also Eucalyptus). Generally unobtrusive, perching on large branches partially concealed under canopy, sometimes perching in open at the edge of forest edge.	Monogamous, territorial, solitary nester. Nest is platform of sticks, cup-lined with green leaves. Nests in plantations are smaller than in native forests. Laying dates from August-November. Breeding is confined to the Western Cape and Eastern Cape Provinces.	Forages along forest edges and within (also plantations). Hunts mainly from perch. Diet consists of small mammals (mice and moles), small birds, snakes, lizards, frogs and invertebrates.
Least Concern (Regional), Near Threatened (Global)	*Calidris ferruginea* Curlew Sandpiper	Estuaries, lagoons, sheltered coastlines and inland wetlands with muddy fringes.	Non-breeding migrant. Arrives in Aug and departs in Mar, with some juveniles overwintering in region.	Polychaete worms, molluscs, crustaceans, fly larvae
TERRESTRIAL INVERTEBRATES				
Critically Endangered	*Chrysoritis thysbe mithras* Brenton Sparkling Opal Butterfly	Endemic to the Western Cape Province in South Africa, only recorded from the Still Bay area in the west, Brenton on Sea near Knysna, and from Goesabos (Tsitsikamma) in the east. Declining due to dense stands of alien plant invasions (i.e. pines (*Pinus radiata*), Rooikrans (*Acacia cyclops*), Port Jackson (*Acacia saligna*), and Black Wattle (*Acacia mearnsii*))-At Brenton on Sea on both	Adults are on wing year-round with peaks in October and March.	Larvae feed on *Chrysanthemoides incana*, Osteospermum *monilifera*, *O. polygaloides*, *Lebeckia plukenetiana*, *Aspalathus*, *Zygophyllum* and *Thesium* species. Host ant species is *Crematogaster peringueyi* ants.

Redlist status	Species	Habitat	Breeding	Feeding
		north- and south-facing slopes at an altitude of 80 m to 120 m in disturbed areas of Knysna Sand Fynbos with a high abundance of *Osteospermum monilifera* (Bitou). Habitat at Stilbaai is by contrast on limestone fynbos-covered hillsides at altitudes up to 300 m.		
Critically Endangered	*Orachrysops niobe* Brenton Blue Butterfly	Highly range-restricted endemic to the Western Cape. Cool, moist south-facing slopes close to the sea at 90 m to 115 m altitude. Mosaic of open and dense vegetation consisting of dune thicket, fynbos and forest. Host plant grows most abundantly in the partial shade of mature candlewood trees (*Pterocelastrus tricuspidatus*).	Adults are on wing from October to November and from February to March. There are two generations per year	Larvae feed on the rootstock of *Indigofera erecta*. Host ant species *Camponotus baynei*
Critically Endangered	*Thestor brachycerus brachycerus* Knysna Skolly	Endemic, range-restricted, known only from the Knysna area in the Western Cape. Currently restricted to two small subpopulations on the coast east of Coney Glen just above sea level. Butterfly and its host ant both require patches of open vegetation with significant bare ground or rocks. Inland habitat is on north-, north-east- and north-west-facing slopes covered with Knysna Sand Fynbos, originally with a warm, dry, fire-prone microclimate promoting low fynbos vegetation and patches of open sandy soil and animal paths. Coastal habitat close to the sea to the east of Coney Glen at the Knysna Heads, with a completely different microclimate (south-facing, moist, sea spray) and vegetation type (Cape Seashore vegetation). General requirements are low vegetation and a sunny, warm microclimate in midsummer, promoting good host ant populations.	Adults are on the wing from December to January. There is one generation per year.	Larvae have been found in the nests of the pugnacious ant, *Anoplolepis custodiens*, but the larval food is unknown.
Endangered	*Aloeides thyra orientis* Red Copper Butterfly	Restricted range taxon endemic to the Western Cape from Witsand to Gouritsmond in the west, to the Brenton Peninsula near Knysna in the east. Declining because of alien plant encroachment and lack of regular burning of the fynbos. Coastal	Adults are on wing from July to April with peaks in October and February. Several generations per year through the warmer months (Woodhall, 2005)	Larvae feed on *Aspalathus acuminata, A. laricifolia* and *A. cymbiformis*. The larvae are attended to by *Lepisiota capensis* ants (Woodhall, 2005).

Redlist status	Species	Habitat	Breeding	Feeding
		fynbos on flat sandy ground (either naturally occurring or from anthropogenic disturbances such as footpaths or unsurfaced track) between 40m to 240m above sea level.		
Vulnerable	*Circellium bacchus* Flightless dung beetle	Endemic to South Africa, on the Southern coastline in the winter and bimodal rainfall regions. Habitat types include the Albany Thicket and Fynbos biome, including vegetation units in Shale Renosterveld (FRs), Limestone Fynbos (FFl), Sandstone Fynbos (FFs), Sand Fynbos (FFd), Strandveld (FS). No association known for particular soil type (Davis et al., 2020)-Abundant in dense shrub/woodland on sandy soils; most uncommon in adjacent disturbed open vegetation (Davis et al., 2020). Flightless, ectothermic and diurnal with maximal activity between 18–26°C, particularly after rainfall (Davis et al,. 2020).	In Addo Elephant National Park: Buffalo and cattle dung preferred for breeding, but also recorded on dung of monkey, human, rhinoceros, hare, ostrich (Davis et al., 2020).	Elephant dung preferred for feeding but also recorded on dung of monkey, human, rhinoceros, hare, ostrich (Davis et al., 2020).
Near Threatened	*Aloeides pallida littoralis* Knysna Pale Copper Butterfly	Endemic taxon to the Western Cape Province. Relatively flat terrain near the coast, coastal Fynbos	Little known, but *Lepisiota capensis* ants are hosts for subspecies *A. p. grandis.*	Little is known, but larval food for the subspecies *A. p. pallida* and A. *p. jonathani* feed on *Aspalathus* species. The larvae of subspecies *A. p. grandis* are fed by trophallaxis by *Lepisiota capensis* ants and feed on these ant eggs.
MAMMALS				
Endangered	*Myosorex longicaudatus* Long-tailed forest shrew	Typically associated with afromontane evergreen forest, mostly preserved along the deep valleys and cooler south-facing slopes- Also found in range of moist habitats in montane and temperate forests, forests edges, fynbos and boggy grassland. Depends on permanently moist microhabitats. Long tail suggests an arboreal lifestyle.	Not known	Little known, but predominantly seeds and some insects.
Vulnerable	*Chlorotalpa duthieae* Duthie's Golden Mole	Occur on alluvial sands and sandy loams in southern Cape Afrotemperate forests (Bronner, 2014). Preference for forest vegetation over	Little is known but a female was recorded with a litter of two young in November (Bronner, 2014).	Shallow subsurface foraging tunnels radiate outwards from beneath the roots of trees. Forages

Redlist status	Species	Habitat	Breeding	Feeding
		fynbos. Narrow coastal band 275 km long between Wilderness and Port Elizabeth with fairly disjunct populations. Can occur in gardens and pastures adjoining forests. Mainly active at night.		at night in tunnels and through the leaf litter. Diet includes earthworms.
Vulnerable	*Panthera pardus* Leopard	Wide habitat tolerance, but generally associated with rocky outcrops, hills, mountains and forests. Manage to persist in areas of development provided there is adjacent cover of rocky hills or forest (Skinner & Chimimba, 2005).	Solitary animals with males and females holding territories and defend against same sex. No specific breeding season but has been found to peak in unison with some ungulate prey species births in certain regions (i.e. impala in Kruger National Park). Oestrous lasts 7 days during which male and female copulate frequently. Gestation 106 days and cubs remain with mother for 12months after which siblings remain together for a further 2-3 months.(Skinner & Chimimba, 2005).	Nocturnal, solitary hunter. Small to medium animals, usually ungulates < 70kg (Impala, Klipspringer, Grey Rhebuck, Cape Grysbok, Duiker) but also take Baboons, Hyrax, hares, rodents, reptile, livestock or domestic cats/dogs. Usually drags larger prey items into cover (dense shrubs) or up trees (Skinner & Chimimba, 2005).
Vulnerable	Sensitive Species 8	Specialised habitat requirements within a home range of approximately 0.75 ha (Skinner & Chimimba, 2005). Strong habitat preference for dense vegetation with good undergrowth providing good cover in which to retreat. Forest, thicket, dense coastal bush, independent of water. Can inhabit forest edges and transitional zones. Requires diverse plant community with variety of tree and shrub species. Can adapt to fragmented habitat given sufficient cover and food availability. Actively avoids open grasslands, and areas with human disturbance.	This species can breed throughout the year. Males establish territories and exhibit aggressive behaviours towards other males and to attract females.	Highly selective feeders, often feeding on food below troops of monkeys or frugivorous birds which drop lots of material. Preference for fruit, but also fallen leaves, flowers and insects. Seldom actively browse. Active in the early morning and late afternoon, foraging for around 8 hours a day within their territory.
Near Threatened	*Amblysomus corriae* Fynbos Golden Mole	Sandy soils and soft loams in Mountain Fynbos, Grassy Fynbos and Renosterveld of South West Cape. Also Afromontane forest and southern African moist savanna along the southern Cape coast. Favours richer and wetter soils (Broom	Fynbos Golden Moles probably breed aseasonally because pregnant females have been captured in August, May, and December. Mean litter size is two;	Insectivorous, mainly feeding on earthworms and insects (Skinner & Chimimba 2005).

Redlist status	Species	Habitat	Breeding	Feeding
		1907) preferring forest fringes and associated fynbos. Thrives in gardens, cultivated lands, golf courses and livestock paddocks. Present also in exotic plantations, but apparently at lower densities (Bronner 2013).	young are altricial and hairless at birth	

4. FIELD ASSESSMENT

4.1 Methods

Following the Species Environmental Assessment Guidelines (SANBI 2020) and Table 3, taxa-specific sampling techniques were conducted in habitats where SCC were likely to occur. Taxa-specific sampling was interspersed with a meander across the project area to collect additional opportunistic data for all fauna and inspect all habitat types (Table 4).

Table 4. Sampling techniques conducted for potential SCC occurring Portion 104 of Uitzigt Farm 216.

Taxa	Field methods	Public platform where observations were reported
Avifauna	• Meander* across site for direct observations. • 5 point counts (5-minute bird counts).	Birdlasser (species lists), iNaturalist (photos)
Mammals	• Meander* across site for direct observations, tracks, scats and signs.	iNaturalist (photos)
Amphibia	• Meander* across site for direct observations. • Active searching.	iNaturalist (photos)
Invertebrates	• Meander* across site for direct observations. • Active searching. • Baited pitfall trapping. • Sweep netting.	iNaturalist (photos)

* Meandering involved over 2 km of slow walking across the site through various habitat types and key landscape features. Active observations took place for all fauna throughout this walk which was then supplemented by taxa specific sampling methods in habitats deemed most suitable for SCC.

4.2 Assumptions and Limitations

1. While the public platforms mentioned in Section 3.4 are excellent sources of additional information for animal species occurring within an area, these results require some expert interpretation to determine which of the SCC are relevant to include in the faunal assessment of the project area. For example, the coarse spatial scale of reporting within the Virtual Museum platforms (Quarter Degree Square level (27km x 27km) or SABAP2 pentad level (9km x 7 km)) can result in species records from habitats quite different to those present on site. Additionally, these platforms include sightings of vagrant or transient animals upon which an assessment cannot reasonably be based. Expert interpretation is therefore applied to the full list of SCC identified by the various public platforms (see Appendix 1) and some species are then excluded from further assessment due to the project area clearly lacking suitable habitat or the species clearly representing a vagrant or transient animal outside its normal range. The SCC assessed in this report therefore represent those which may reasonably occur on site. However, there is always the possibility that some SCC (although highly unlikely to occur on site) are overlooked in this process.
2. One field visit took place to the site for the faunal assessment. The detectability of animal species increases with more visits. This assessment therefore only represents a “snap-shot” in time and it is possible that SCC occurring on site were not observed

during the visit. These results should therefore be interpreted with this in mind and not be treated as an exhaustive list of species occurring on site.

3. Site visits took place during daylight hours so the likelihood of encountering nocturnal species was limited although no species of this description were highlighted as SCC.
4. The site visit coincided with late autumn. This may be of consequence for some species showing seasonal variation in breeding and activity patterns.
5. Evidence of animals in the form of tracks, scats and signs always brings with it a level of uncertainty, but best efforts were made in this regard and uncertainties are highlighted in the report.
6. Due to time constraints, pitfall trapping was done over a 3-hour period during daylight hours (12h00 to 15h00). Pitfall trapping was also conducted on an adjacent property (08h30 to 11h30) on the same and this is used to reinforce our knowledge on invertebrates in the area. This limited sampling period however still places constraints on the invertebrates caught by this method and these data should be interpreted as a minimum estimate.

4.3 Site Inspection Details

One site visit took place to Portion 104 of Uitzigt Farm 216 on 31 May 2024. The weather was partly cloudy and warm with little wind: suitable conditions for catching invertebrates using sweep netting. Vegetation type mapped for the site according to the National Vegetation Map is Knysna Sand Fynbos with a small section of Goukama Dune Thicket. Habitat types found on the site consist mainly of thicket, with some invasive trees (*Eucalyptus* sp.) along the northern boundary of the property. The site proposed for development consists primarily of lawns and thicket vegetation with sandy soils (Figure 10). Some pine invasions are also present. An effort was made to cover the project area with the meander and to conduct taxa specific sampling techniques across a range of suitable habitats for potential SCC (Figure 11).

Figure 10. Habitat types identified on Portion 104 of Uitzigt Farm 216 namely (1.) Maintained lawns covering parts of the northern extent of the property; (2.) Invasive trees (Eucalyptus sp.) along the northeastern edge of the property (orange) and thicket vegetation (green) with lawn in the foreground; (3.) Sandy flats dominated by thicket vegetation, minorly invaded by Pinus sp; (4.) Thicket vegetation.

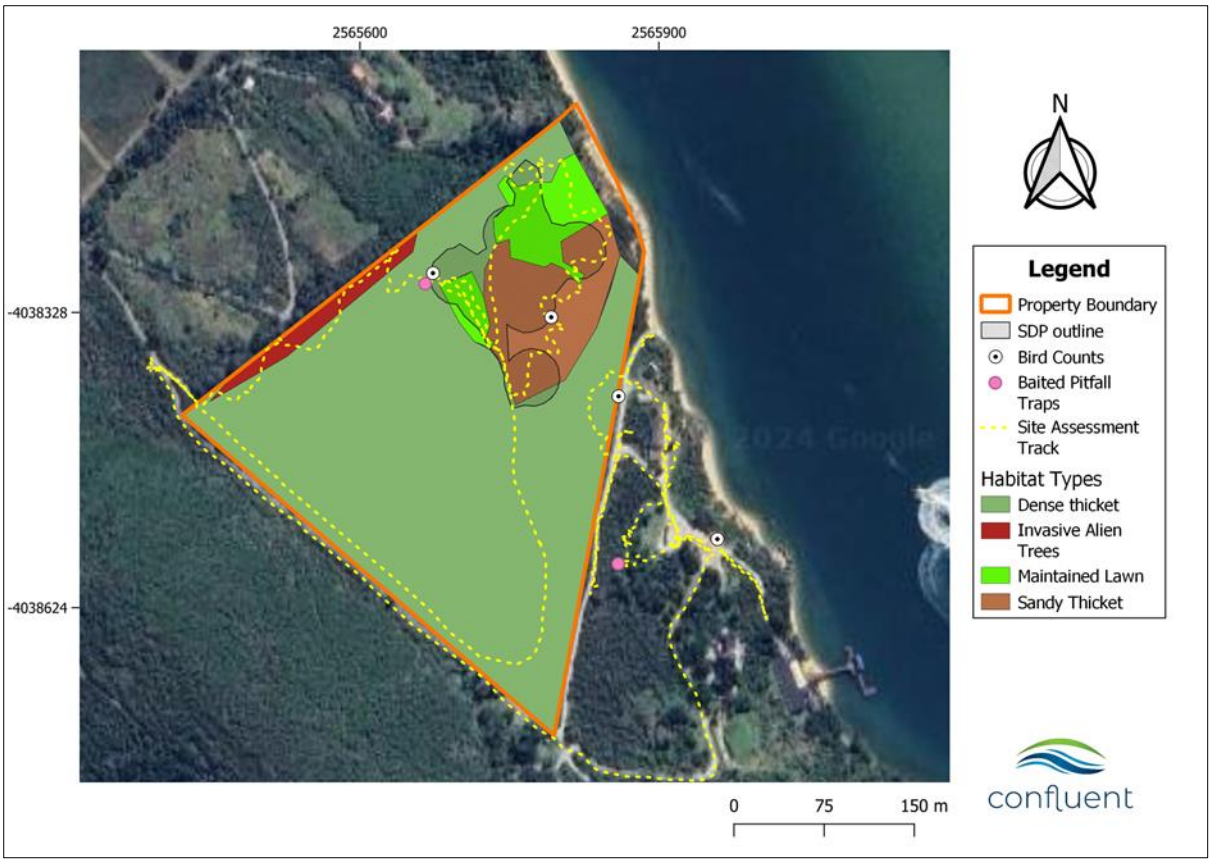

Figure 11. Habitats found on Portion104/216 Uitzigt Farm and GPS tracks of the site visits conducted in October and December 2023.

4.4 Results

4.4.1 Avifauna

No SCC was encountered during the site visit. Three bird counts were conducted across the property, in addition to opportunistic sightings noted throughout the meander and searching for nests/roosting sites in suspected habitat. A total of 16 bird species were identified during the site visit (See Appendix 2).

4.4.2 Mammals

There was evidence of sub-surface tunnelling by golden moles found on site especially in the lawn area (Figure 12). A bushbuck was seen on the site and more individuals are suspected based on tracks and droppings found. Caracal scat was also found at the site. There was substantial evidence of mole rat activity, particularly on the lawn area. Rodent paths were also observed. See Appendix 3 for the list of mammals observed on Portion 104 of Uitzigt Farm 216 during the site visits.

Figure 12. Mammal species identified during site visits to Portion 104 of Uitzigt Farm 216. (1.) Caracal scat; (2.) bushbuck track; (3.) golden mole sub-surface foraging tunnels (outlined in purple); (4.) rodent paths; and (5.) golden mole foraging tunnel shown to be 3cm wide.

4.4.3 Terrestrial invertebrates

No SCC were found during the site inspections. Cocktail ants (*Crematogaster* sp.) were found in nests. Spider webs (Araneae) were found on site as were zebra agate snails (*Cochlitoma zebra*) (Figure13). Pitfall traps did not attract the dung beetle SCC (*Circellium bacchus*) but many blowflies (Calliphoridae) were attracted to the bait. A pea blue butterfly (*Lampides boeticus*) (Figure13) as well as an unidentified white lepidopteran (suspected Pieridae) were found during a sweep of the site. Butterfly host plants and ant species were not found at the site.

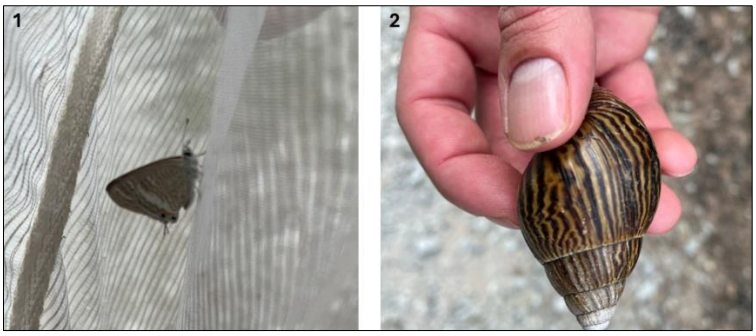

Figure 13. Some invertebrates photographed on Portion 104 of Uitzigt Farm 216 during the site inspections in October and December 2023. (1.) Pea Blue Butterfly Lampides boeticus and (2.) Zebra agate snail Cochlitoma zebra

4.4.4 Amphibians

No amphibians were found, which is not surprising given the lack of any waterbodies/watercourses present on site. Consequently, there was no suitable habitat for the SCC Knysna Leaf-folding Frog (*Afrixalus knysnae*).

4.4.5 Reptiles

No reptile SCC were highlighted for this site by the DFFE Screening Tool or any of the public platforms. As such, no targeted sampling took place for this group. However, a puffadder was found on the property during the meander (Figure. 14).

Figure 14. Puffadder (Bitis arietans) found on Portion 104 of Uitzigt Farm 216.

4.4.6 Likelihood of Occurrence for SCC

Following the terrestrial fauna surveys and site inspection, the possible SCC occurring on Portion 104 of Uitzigt Farm 216 were evaluated according to their likelihood of occurrence. It is always possible that a species assessed as having a low probability of occurrence can still occur on the site, especially species which are listed as having a low likelihood of detection, and therefore this table should only be used as a guideline.

Table 5: Likelihood table for faunal SCC suspected to occur on Portion 104 of Uitzigt Farm 216.

Redlist status	Species	Observed	Suitable habitat	Likelihood of occurrence	Reason
AMPHIBIAN					
Endangered	*Afrixalus knysnae* Knysna Leaf-folding Frog	No	No	Low	No suitable wetland habitat
AVIFAUNA					
Near Threatened	*Alcedo semitorquata* Half-collared Kingfisher	No	No	Low	Suitable habitat is not available at this site.
Vulnerable	*Bradypterus sylvaticus* Knysna warbler	No	Yes	Medium	Dense thicket is available at the site.
Least Concern (Regional), Near Threatened (Global)	*Buteo trizonatus* Forest Buzzard	No	No	Low	There are no forest habitats within the boundaries of this property.
Least Concern (Regional), Near Threatened (Global)	*Calidris ferruginea* Curlew Sandpiper	No	No	Low	Unsuitable habitat to support the life processes of this SCC.
Near Threatened	*Campethera notata* Knysna Woodpecker	No	No	Low	There are no forest habitats within the boundaries of this property.
Endangered	*Circus maurus* Black Harrier	No	No	Low	Forage is available but habitat is not suitable for breeding. Mountainous areas are preferred, of which there are plentiful options in the larger landscape.
Endangered	*Circus ranivorus* Marsh Harrier	No	No	Low	Considered a waterbird. No suitable wetland habitat

Redlist status	Species	Observed	Suitable habitat	Likelihood of occurrence	Reason
Vulnerable	*Falco biarmicus* Lanner Falcon	No	No	Low	Habitat units at the property are unsuitable for this species which favours a tall vegetation structure.
Vulnerable	*Hydroprogne caspia* Caspian Tern	No	No	Low	The habitat within the property is not suitable for this species but it may use the larger landscape.
Near Threatened	*Numenius arquata* Eurasian Curlew	No	No	Low	Unsuitable habitat to support the life processes of this SCC, mudflats not available.
Endangered	*Phalacrocorax capensis* Cape Cormorant	No	No	Low	Roosting unlikely to happen at this site (no open beaches and no wetland islands).
Near Threatened	*Phoenicopterus roseus* Greater Flamingo	No	No	Low	There are no suitable waterbodies at the site.
Endangered	*Polemaetus bellicosus* Martial Eagle	No	Maybe	Low	No cover for hunting and most frequently eaten species not found at this property. Invasive trees are the tallest in the landscape and may be suitable nesting sites but none were spotted (this time of year is suitable to spot a nest)
Vulnerable	*Stephanoaetus coronatus* Crowned eagle	No	No	Low	No forest habitats are available at the site.
TERRESTRIAL INVERTEBRATES					
Near Threatened	*Aloeides pallida littoralis* Knysna Pale Copper Butterfly	No	No	Low	Plant species needed for larval food have not been found on this property.
Endangered	*Aloeides thyra orientis* Red Copper Butterfly	No	No	Low	Vegetation within the topographical requirements of the species is unsuitable to sustain it (it is not well-maintained (by fire) fynbos)

Redlist status	Species	Observed	Suitable habitat	Likelihood of occurrence	Reason
Critically Endangered	*Chrysoritis thysbe mithras* Brenton Sparkling Opal Butterfly	No	Yes	Medium	Plants and insect species with close relationships to this SCC are present at the site. The location falls within the known distribution for the species.
Vulnerable	*Circellium bacchus* Flightless dung beetle	No	No	Low	No evidence of this species was found and preferred dung is not present.
Critically Endangered	*Orachrysops niobe* Brenton Blue Butterfly	No	No	Low	South-facing slopes are not present at the site.
Critically Endangered	*Thestor brachycerus brachycerus* Knysna Skolly	No	Maybe	Low	North-facing slopes are not present at the site. Known population is range restricted and could not traverse the landscape to disperse to this property, despite it having potentially suitable vegetation.
MAMMALS					
Near Threatened	*Amblysomus corriae* Fynbos Golden Mole	Yes	Yes	Very High-Confirmed	Evidence of golden moles has been found at the site but species is uncertain. Both golden mole SCC are therefore given a very high likelihood of occurrence per the precautionary principle.
Vulnerable	*Chlorotalpa duthieae* Duthie's Golden Mole	Yes	Yes	Very High-Confirmed	Evidence of golden moles has been found at the site but the habitat is not completely consistent with this SCC. Both golden mole SCC are therefore given a very high likelihood of occurrence per the precautionary principle
Endangered	*Myosorex longicaudatus* Long-tailed forest shrew	No	No	Low	No forests are present at this property, it therefore cannot support an arboreal species.
Vulnerable	*Panthera pardus* Leopard	No	No	No	No suitable habitat available.

Redlist status	Species	Observed	Suitable habitat	Likelihood of occurrence	Reason
Vulnerable	Sensitive Species 8	No	No	Low	No tracks or signs found at the property and most observations of the species are far from the property.

5. SITE SENSITIVITY VERIFICATION

After the site visit and fauna surveys, it is determined that the site sensitivity for the terrestrial animal theme of Portion 104 of Uitzigt Farm 216 is **VERY HIGH**. This agrees with the high sensitivity highlighted by the DFFE Screening tool for most of the property.

Based on the information in this report during the desktop and field assessment, the following reasons support this finding:

- The discovery of golden mole foraging tunnels confirms the presence of Near Threatened Fynbos Golden Mole (*Amblysomus corriae*) or Vulnerable Duthie's Golden Mole (*Chlorotalpa duthieae*) or both, thereby resulting in the VERY HIGH sensitivity rating across the site where golden mole tunnels were found.
- The medium likelihood of occurrence of Critically Endangered Brenton's Sparkling Opal Butterfly (*Chrysoritis thysbe mithras*) and vulnerable Knysna Warbler (*Bradypterus sylvaticus*) due to the dense thicket stands on the property.

As per the Published Government Notice No. 1150, Government Gazette 43855 (30 October 2020), the **VERY HIGH** sensitivity of the site requires a Terrestrial Animal Species Specialist Assessment to be conducted.

6. SITE ECOLOGICAL IMPORTANCE

The Site Ecological Importance (SEI) is determined for habitats within the property, taking associated fauna SCC into account (Table 6).

SEI is a function of biodiversity importance (BI) and receptor resilience (RR) such that: SEI = BI + RR. BI is further defined as a function of conservation importance (CI) and habitat functional integrity (FI), with BI = CI + FI, and is determined by means of a matrix. SEI can therefore be fully understood as SEI = (CI + FI) + RR, where:

- **Conservation Importance (CI):** The importance of a site for supporting biodiversity features of conservation concern present.
- **Functional Integrity (FI):** A measure of the ecological condition of the impact receptor (i.e., habitat type) as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.
- **Receptor Resilience (RR):** The intrinsic capacity of the receptor (i.e., habitat type or SCC) to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.

The SEI is derived for each habitat type or SCC within a project site by making use of two matrixes: first to calculate the BI and then the SEI. These matrices and further details can be found in Appendix 6.

Table 77 provides the SEI calculations for each habitat type and Figure 15 illustrates the SEI results for the property. It is important to note that the SEI reported here is specific to the proposed development and associated activities of this report and can only be used to compare multiple layouts and/or locations for the development.

Table 6. SCC likely or confirmed to occur on Portion 104 of Uitzigt Farm 216 and assessed for Site Ecological Importance.

Classification	Species	Red list status	Likelihood of occurrence on site based on habitat suitability
Mammal	*Amblysomus corriae* Fynbos Golden Mole	Near Threatened	Very High-Confirmed
Mammal	*Chlorotalpa duthieae* Duthie's Golden Mole	Vulnerable	Very High-Confirmed
Terrestrial Invertebrate	*Chrysoritis thysbe mithras* Brenton Sparkling Opal Butterfly	Critically Endangered	Medium
Avifauna	*Bradypterus sylvaticus* Knysna warbler	Vulnerable	Medium

Table 7. Site Ecological Importance assessment for Portion 104 of Uitzigt Farm 216. Conservation status for SCC is abbreviated to indicate Critically Rare/Endangered (CR), Endangered (EN), Vulnerable (VU) or Near Threatened (NT). When relevant, the extent of occurrence (EOO) is indicated as part of the justification for the conservation importance (CI) metric.

Habitat and associated SCC	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience (RR)	Site Ecological Importance (SEI)
Dense Thicket SCC: *Chrysoritis thysbe mithras* (CR) *Bradypterus sylvaticus* (VU)	**HIGH** Habitat is mapped as containing Knysna Sand Fynbos (CR), but the habitat designation of 'thicket' is assigned. Presence of Knysna Sand Fynbos must be confirmed by a Terrestrial Biodiversity report but does not impact the habitat structure as it currently stands or change its utility to animals. **HIGH** EOO for all three SCC highlighted exceeds 10km^2. *Circus maurus* highlighted only as this habitat type may provide forage.	**HIGH** Good habitat connectivity with potentially functional ecological corridors for all SCC. Minimal current negative ecological impacts with no signs of major past disturbance.	**HIGH**	**MEDIUM** Dense thicket will take a longer time to recover to the same dense state due to the extended length of time woody species take to grow.	**HIGH** BI: HIGH RR: MEDIUM
Invasive Alien Trees SCC: None	**LOW** No confirmed populations of SCC. Noted only as a perch that could possibly be used for nesting orf hunting by raptor species.	**MEDIUM** Established population of invasive plants with moderate rehabilitation potential.	**LOW**	**HIGH** Woody species take longer to grow than herbaceous species but establishment of invasive species is very likely should disturbance take place.	**VERY LOW** BI: LOW RR: HIGH
Maintained Lawns SCC: *Chlorotalpa duthieae* (VU) *Amblysomus corriae* (NT)	**HIGH** Evidence of golden mole species was found at the site, global EOO is > 10km^2.	**LOW** Small area <5ha, Poor habitat connectivity but migrations still possible.	**MEDIUM**	**VERY HIGH** Grass species are often the first species to colonise in most landscapes.	**VERY LOW** BI: MEDIUM RR: VERY HIGH
Sandy Thicket	**HIGH**	**HIGH**	**HIGH**	**HIGH**	**MEDIUM**

Habitat and associated SCC	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience (RR)	Site Ecological Importance (SEI)
SCC: *Chrysoritis thysbe mithras*	EOO for both SCC highlighted exceeds 10km^2.	Good habitat connectivity. Only minor impacts negative impacts such as the re-emergence of pine species.		The invasive species present in this habitat unit aids its recovery to the same invaded state. Slower growing native species, however, will take some time to re-establish.	BI: HIGH RR: HIGH

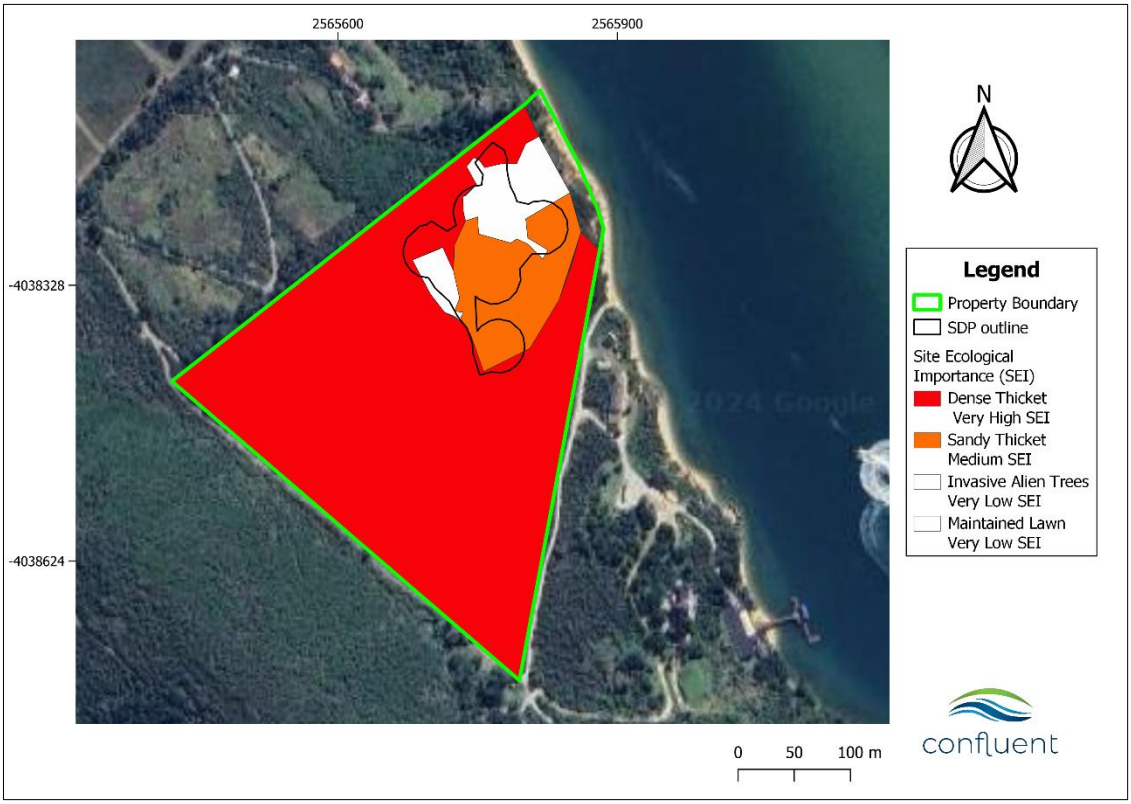

Figure 15. Site Ecological Importance map with regards to fauna for Portion 104 of Uitzigt Farm 216.

Most of the property has a **HIGH** SEI rating with regards to terrestrial fauna (Figure 15, Table 7). According to the guidelines for interpreting SEI ratings in terms of development (Table 88, (SANBI 2020)), changes to project area to limit impact of the development as well as other minimization should be implemented, and only low impact activities are acceptable. Most of the development, however, does not fall within the high SEI area, and rather falls on the very low SEI and medium SEI areas. High impact development is acceptable at very low SEI sites, whilst medium impact activities are allowed in medium SEI areas, providing minimisation and restoration is prioritised (Table. 8). This indicates that the development as currently proposed for Portion 104 of Uitzigt Farm 216 in the SDP provided, may present a suitable land use for this property. The land use as proposed is medium impact and only a small section of the high SEI dense thicket habitat is removed from the property. The SDP as proposed is also lower impact than other developments in the area. This habitat is not rare in the landscape for the faunal SCC highlighted. However, it is imperative that mitigation measures are strictly adhered to and that all measures are taken to reduce the developmental footprint wherever possible, especially in the high SEI area, to minimize negative impacts on the faunal community and reduce the amount of natural habitat lost.

Table 8. Guidelines for interpreting Site Ecological Importance for proposed developments (SANBI 2020).

Site ecological importance	Interpretation in relation to proposed development activities
Very high	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

7. IMPACT ASSESSMENT

This impact assessment is based on the SDP available at the time of writing this report and will need to be reassessed if this changes in the future. The impact assessment considers the construction of concrete platforms, timber decks, and cooking and ablution blocks to be used as a camping site on Portion 104 of Uitzigt Farm 216 in Brenton on Sea.

The impacts and associated mitigation measures for each development phase are discussed in the following sections. For ease of reference, an Environmental Compliance Officer (ECO) checklist is provided in Appendix 7 to ensure that all mitigation measures are easily monitored during the various construction-related phases of development.

Impacts (pre- and post-mitigation) are evaluated for the SDP with the methods explained in Appendix 8.

7.1 Mitigation Hierarchy

The principles of the mitigation hierarchy (Ekstrom *et al.*, 2015; Mitigation hierarchy guideline draft February 2023)) are applied during an impact assessment. Potential impacts on biodiversity are preferentially managed through preventative, rather than remediative, measures (Figure 166). This is achieved by suggesting avoidance or minimization methods wherever possible. Successive steps in the hierarchy should only be considered once the previous step has been exhausted. Avoidance of negative impacts is a priority. If the impacts of a development cannot be adequately managed through the preventative measures of avoidance and minimization, then restoration and, as a last resort, offsets or compensation are considered.

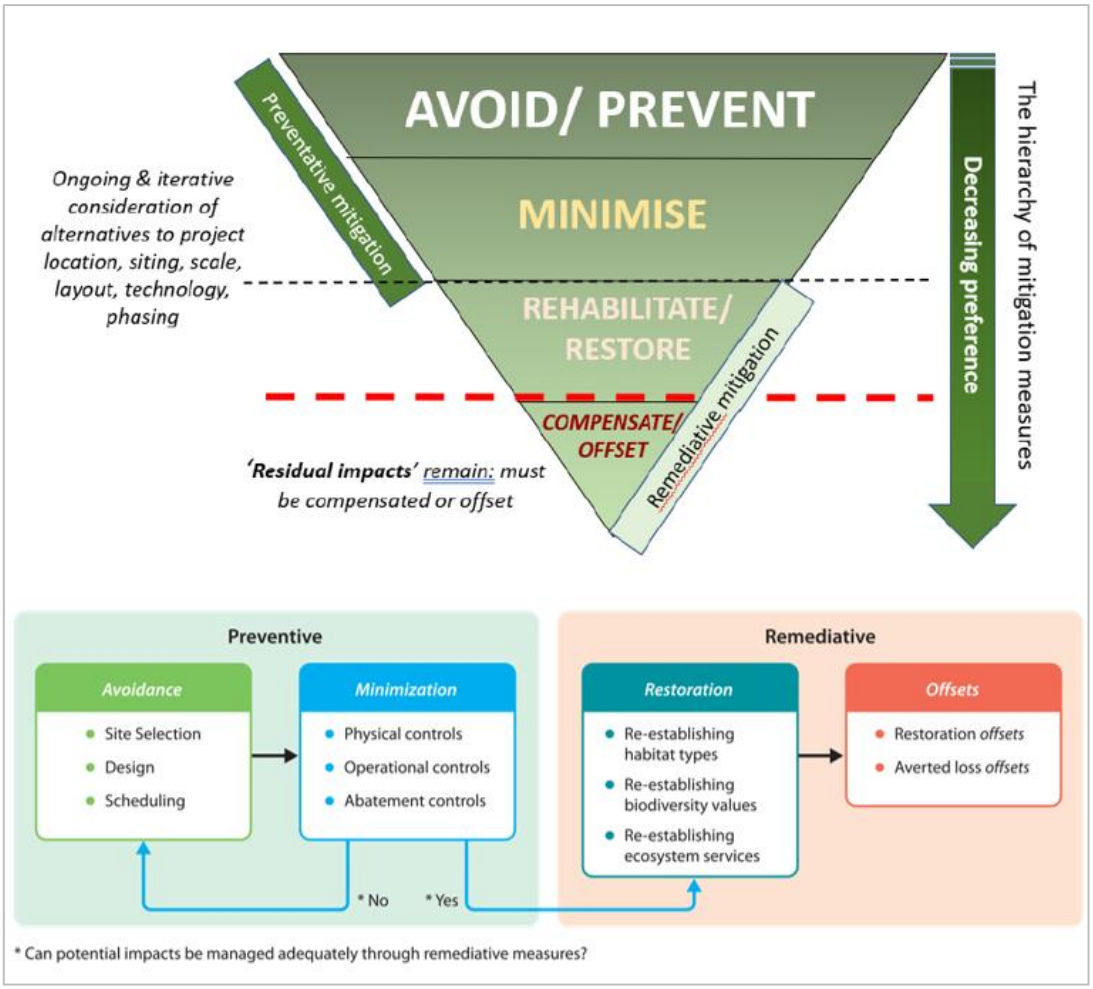

Figure 16. The iterative process of minimising predicted impacts on biodiversity and ecosystem services, as described in the mitigation hierarchy (Ekstrom et al., 2015; Mitigation hierarchy guideline draft, February 2023).

7.2 Project Area of Influence

The proposed development has a very low potential to have large impacts outside of the development footprint. Noise may be increased at the site during the construction and operation phases, but the geographical extent of this indirect disturbance is difficult to quantify. Given the nature of this development, effects of noise may be negligible in intensity and duration but are mitigated by the measures to be outlined in this impact assessment.

7.3 Current Impacts

Most of Portion 104 of Uitzigt Farm 216 has had many changes in vegetation since 2003, including the building of structures that still exist today in the north and the Knysna fires across the whole property. Some current impacts were observed on the site, which will continue if no mitigation and maintenance is considered for the property.

Current impacts observed on Portion 104/216 relevant to the faunal theme include:

1. Low levels of alien plant invasions: a small *Eucalyptus* sp. stand in the north of the site and short *Pinus* sp. plants in the sandy thicket area resulting in the transformation of natural habitat. Habitat transformation from its natural state can impact fauna through

altered fire regimes (increased frequency and intensity), loss of suitable habitat, and usually a reduction in food resources (plants, prey species). It can also benefit fauna by adding structural diversity to the landscape, providing high perches for raptors to nest in and hunt from. The negative effects of alien plant invasions on the faunal theme, however, far outweigh the positive.

It is highly recommended that the current impacts are addressed, and that an alien plant management plan be developed as part of this application. Removal of alien trees must happen and outside of the breeding season of Martial Eagles (April - August), an SCC that may breed in this landscape. This pre-construction mitigation measure will benefit habitat quality and aid in reducing fire risk on the property as well as in the greater landscape.

7.4 Layout and Design phase

There are some considerations within the layout and design phase of the project which can reduce the impact of the development on fauna and their habitat within the property.

1. Keep artificial lighting along roads and around infrastructure to a minimum and consider lighting colour, brightness and design options with minimal impact on biodiversity. This is particularly relevant to development within this largely natural area, where the potential for impacts on the native faunal diversity can be large. Light pollution is of global concern given that our night skies are getting lighter due to urban development and that many animals are specifically adapted to dark night skies for navigation, foraging and behavioural aspects (i.e. sleep, hunting). A common impact is that many insects are attracted to or disorientated by artificial lights, leading to aggregations at such point sources. This interferes with their natural behaviour (i.e. feeding), associated ecosystem services they provide (e.g. pollination) and often has fatal consequences for individuals unable to escape the ‘light trap’. There is also the cumulative impact of attracting predators to light sources (e.g. birds, frogs, small mammals) and exposing them to risks in these areas as well.
    a. Wherever possible in the designing phase consider ‘no lighting’ options to encourage dark areas and reduce light pollution.
    b. Where this is not possible, the impacts of lighting can be reduced through the selection of the colour/brightness (select yellow, dim lights which are less attractive to insects than bright white or blue lights) and design elements (lights facing down towards the ground rather than facing up towards the sky).
2. A strong emphasis should be placed on minimising the footprint of the development on this site and thereby limiting the loss of natural ecosystems, which benefits all SCC and biodiversity more widely. This is already achieved by placing the wooden platforms outlined in the SDP on stilts to promote the growth of natural vegetation below and allow fauna to use the landscape.
3. The concrete blocks could instead make use of open pavers that are planted with non-invasive grasses, like *Cynodon dactylon* (the Cape Royal variety), or *Stenotaphrum secundatum* (Buffalo grass) to encourage infiltration and prevent erosion which may affect species reliant on the persistence of the vegetation in its intact state (Figure 178).

Figure 17. Examples of open pavers to improve water infiltration and prevent soil erosion.

7.5 Construction Phase Impacts

The construction phase will have the highest impacts on fauna species due to increased moving vehicles, noise and habitat destruction associated with these activities. It is imperative that an Environmental Control Officer (ECO) be appointed for the duration of the construction phase and ensure compliance with mitigation measures that aim to minimize impacts on fauna. It is imperative that an ECO is present on site at the onset of a new construction phase (see Section 7.5.3, mitigation measure 1), at the start of construction, and twice a week thereafter during the construction phase.

7.5.1 Loss of habitat for fauna within the footprint of the proposed development.

Description: The proposed development will result in some loss of habitat space on the property.

Consequences of impact:

1. Loss of suitable habitat for fauna SCC to live, forage and breed.
2. Loss of species with which SCC have obligatory relationships (i.e. host plants and ants for butterfly larvae).

Impact Assessment:

	Current SDP	
	Without Mitigation	**With Mitigation**
Duration	Permanent	Permanent
Extent	Limited	Very limited
Intensity	High	Very low
Probability	Almost certain / Highly probable	Almost certain / Highly probable
Confidence	High	High
Reversibility	Low	Medium
Resource Irreplaceability	Low	Low
Significance	**Moderate - negative**	**Minor - negative**

Mitigation measures:

1. Prior to construction, the disturbance footprint of the development should be clearly defined and demarcated to prevent unnecessary additional damage to the surrounding environment:
    a. Construction netting or fencing must be used to clearly indicate construction areas (see example in Figure 18). Access roads must be clearly marked so there is no confusion as to where the tracks are or how wide the road is.
    b. Clear signs for “no-go” areas for vehicles and personnel should be placed strategically on the site and along access roads. No-go areas are anywhere outside of the direct area of influence of the construction phase.
    c. A turning area for construction vehicles should be demarcated within the existing footprint of proposed hard surfaces like the planned camping platform or the gravel road.

Figure 18. Example of construction fencing to be used to demarcate construction areas.

2. Prior to construction the footprint of the site needs to be assessed by a Botanical Specialist for the presence of butterfly larval host plants: *Aspalathus spp.* (especially *A. acuminata, A. laricifolia and A. cymbiformis*), *Chrysanthemoides incana*, *C. monilifera*, *Indigofera erecta*, *Lebeckia plukenetiana*, *Osteospermum polygaloides*, *Thesium* spp, *Zygophyllum* spp.
    a. If located, a botanical specialist needs to oversee the transplanting of these species from the development footprint into an appropriate natural environment (outside the development footprint) closest to where the plant was originally found. By limiting the distance that the plant is moved from its original location, impacts on associated faunal communities and changes to its growing conditions (microclimate, soil texture, soil moisture) are reduced.
    b. Transplanting should follow best practice guidelines and on-going monitoring and maintenance (i.e. watering, temporary shading, etc.) of each transplanted plant needs to occur to ensure the best chances of survival. The new location of each plant needs to be marked (GPS point and a physical marker next to the plant) to allow the plant to be revisited for monitoring and maintenance

purposes, which can cease once a Botanical Specialist considers the plant well established within its new environment.

3. Where vegetation will be cleared to make way for construction, filled sandbags, silt socks or a silt fence must be used to reduce the intensity of water runoff and flow over the site and thereby reduce erosion potential (Figure 190). This should be placed around the perimeter of the downslope disturbance footprint and needs regular inspection and adaptive management to ensure the integrity of the system for reducing erosion. All erosion control recommendations and conditions outlined by the Aquatic specialist report (F. de Ridder- Confluent Environmental) should also be implemented. This is especially important to maintain the integrity of sandy thicket habitat as a refuge for golden moles when construction starts on the lawn area they currently use.

Figure 19. Examples of silt socks (left) and a silt fence (right) placed perpendicular to the flow of water. These methods reduce the force of water flow, erosion and can prevent unwanted sedimentation a site.

4. Protection and reuse of topsoil can be critical for the success of rehabilitation of vegetation following construction processes as it contains valuable seedbank of indigenous plants that regenerate after the soil is replaced. Topsoil removed during construction should be treated with care for all the proposed developments on the property.
    a. Topsoil from vegetation on the site (excluding topsoil under stands of alien invasive plants) in new excavation areas must be stripped to a depth of 30cm, or in cases where the bedrock is shallower than this, then the entire soil layer is to be removed. Topsoil is to be kept in designated piles of maximum 1 m in height, to prevent anaerobic conditions from smothering seeds and rendering them inviable and must be suitably covered with shade cloth (or another breathable material with a fine mesh) to prevent any additional invasive species seeds from falling in and establishing in the soil.
    b. If the SDP of a proposed development does not have enough space for the storage and protection of topsoil within the disturbance footprint, then the ECO must identify an alternative temporary stockpile area that is already transformed and where it can easily be retrieved for post-construction rehabilitation.

c. The topsoil piles must be clearly labelled so that it does not mix with subsoils excavated or any other construction material for the site.

7.5.2 Habitat and fauna negatively affected by the management of the construction site (i.e., staff, stockpiles, and equipment).

Description: The management of materials and staff on the site is also an important impact of development. If managed properly, many accidents and unanticipated negative impacts on fauna and the surrounding environment can be avoided.

Consequences:

1. Loss of habitat or harm to fauna outside of designated construction areas.
2. Litter and pollution of natural environment.
3. Potential health and safety hazards (for staff and fauna) on the site and in the surrounding environment.

Impact Assessment:

	Current SDP	
	Without Mitigation	**With Mitigation**
Duration	Long term	Immediate
Extent	Limited	Very limited
Intensity	Very High	Negligible
Probability	Almost certain / Highly probable	Rare / improbable
Confidence	High	High
Reversibility	Medium	High
Resource Irreplaceability	Low	Low
Significance	**Moderate - negative**	**Negligible - negative**

Mitigation measures:

1. All new staff must be briefed about the layout of the construction site and must be made aware of the no-go areas as the surrounding environment is sensitive and must not be disturbed. Staff must be made aware what all SCC looks like and to report all fauna occurring on site to the ECO. Weekly site meetings should be held, during which the ECO should remind all staff of these requirements and any questions/concerns can be raised and addressed.
2. No littering, waste dumping or burning is allowed on the site or in the surrounding environment. All waste is to be collected in designated bins with lids that can be secured or stored in a secure area when construction is not taking place (evenings, weekends, holidays, etc.) to prevent interference by animals (i.e. baboons). All waste is to be transported to a registered waste disposal facility off site.
3. Concrete, cement, plastering, and painting:
    a. Mixing areas be clearly defined on the site and must be surrounded by an impermeable material (i.e. create a temporary coffer dam with sandbags and

thick plastic sheeting) to prevent any runoff and absorption into the surrounding soils.

b. The designated mixing areas should be limited to areas that will become future hard surfaces on the site. No concrete and cement mixing is allowed in areas outside of the proposed hardened surfaces of the camping block.

c. Cleaning of cement, plastering & paint equipment must be done into a designated, bunded & lined slurry sump or container to avoid contaminating the environment.

4. Any small items or building materials which can be carried away by medium-large animals (i.e. baboons) should be safely stored in containers or locked away in a designated area to prevent interference from animals, causing possible harm to them and preventing them from removing such items from site.
5. Construction should take place during daylight hours so that the site can be adequately monitored for fauna during work hours, and also to prevent the use of artificial lighting at night which attracts many animal species (predominantly insects and associated predators) and subjects them to the risks of construction.

7.5.3 Loss of fauna, particularly invertebrates and soil dwelling mammal SCC, due to construction related activities.

Description: Fauna may occur on site and be killed or seriously harmed during construction related activities. Cryptic and ground-dwelling species, like the golden mole SCC, are difficult to detect and are limited in their mobility rendering them vulnerable to earthmoving and construction activities. The golden mole SCC depends on the lawn habitat designated as very low SEI and could also depend on the sandy fynbos habitat (medium SEI) since this SCC requires sandier soil for its subterranean lifestyle. This SCC is highly adaptable to modified environments but impacts on individuals and the population must be kept to a minimum.

Consequences of impact:

1. Loss of threatened species.
2. Loss of genetic diversity from remaining fauna populations.
3. General loss of biodiversity.

Impact Assessment:

	Current SDP	
	Without Mitigation	**With Mitigation**
Duration	Brief	Immediate
Extent	Limited	Limited
Intensity	Very high	Very low
Probability	Almost certain / Highly probable	Probable
Confidence	High	High
Reversibility	Medium	High
Resource Irreplaceability	Medium	Medium
Significance	**Minor - negative**	**Negligible - negative**

Mitigation measures:

1. Construction should happen in phases, such that construction related activities are confined to one area at a time on the property and can be monitored for faunal impacts appropriately.
2. Prior to construction of a new phase/area:
    a. After the footprint of the development has been clearly demarcated, a Fauna Specialist should do a walk-through to look for signs of fauna with limited mobility and escape potential (i.e. tortoise, chameleon, etc.) with particular attention given to the Golden Mole SCC.
    b. Should signs of fauna with limited mobility or an SCC be found within the demarcated area, a search and rescue operation should be undertaken to relocate fauna to a suitable location on the property.
    c. No construction may commence until the Fauna Specialist is satisfied that all fauna with limited mobility and/or SCC have been successfully removed from the demarcated footprint area.
3. During construction:
    a. Before construction commences at the start of new phase, an ECO should do a walk-through of the demarcated area and access roads that will be used to look fauna with limited mobility. These animals should be removed from the demarcated area to an adjacent location, and where appropriate a Fauna Specialist contacted for assistance or guidance. Construction for this new phase can commence thereafter.
    b. At any point during the day (during construction), if an animal with limited mobility is observed on site, this should be reported to the ECO and construction temporarily halted. Procedures outlined in Box. 1 must be followed for all fauna encounters. Construction can commence once the ECO is satisfied that all such fauna are removed from the construction area.

Box 1: Best practice principles for ALL fauna encounters during construction or operational phases of projects

If any animals are seen on site, a photo or a video should be taken if possible (to assists in identification) and all fauna encountered on site should be reported to the ECO immediately. This is particularly important when:

- An animal is harmed or compromised in any way during construction.
- Ground-dwelling animals their nests or eggs are unearthed during earthworks (e.g. moles, tortoise eggs, terrapins/frogs estivating).
- Any animal with limited mobility is found on site (e.g. tortoises, moles, chameleons).
- Any potentially dangerous animal is encountered. This includes any potentially venomous animal (e.g. snakes, scorpions) or any medium-large animal that has become cornered in an enclosed area such that it cannot escape (e.g. porcupines, monkeys, baboons, antelope). It is critical in the case of snakes/ scorpions o get pictures/videos to aid in identification and appropriate treatment of anyone needing medical assistance.
- Any animal that shows a reluctance to escape or move away from the construction site thereby increasing its exposure to harm or increasing the risk of injuring people on site.

The ECO should provide guidance or assistance to get all animals to safety, treating any injured animals, and issuing instructions on when to continue with construction (once they are satisfied that all animals have been removed from site) or put additional mitigation measures in place to protect animals on the site from harm.

For any injured animals or animals to be removed from site (domestic or wild):

A local SPCA or animal welfare society can collect and treat most animals and should be the first point of call for assistance. If they cannot directly assist, they will revert and notify the relevant authorities/vets.

For any assistance with snake removals/relocations, identifications, or bite treatment contact the African Snakebite Institute. The contact details of a suitably qualified snake handler are provided at the following link: https://snakeremoval.co.za/brenton-on-sea. Also available are the following emergency contacts.

SNAKEBITE EMERGENCIES:	
Poisons Information Helpline	+27 861 555 777
Dr Jenna Taylor	+27 83 631 4816
Dr Christoff Bell	+27 73 174 0199
Johan Marais	+27 82 494 2039
Jason Seale	+27 82 781 8498
Arno Naude	+27 83 739 9303
Dr PJC Buys	+26 481 127 5109 (Namibia)

GET THE FREE APP:

(Scan this code with your phone's camera.)

7.6 Conclusion of Construction Phase

The conclusion of any project is an essential, but often overlooked aspect of projects. This relates primarily to the cleaning up of the site once construction has concluded to reduce residual impacts at the site.

1. Construction sites must be cleared of all waste material, rubble, and debris associated with the construction phase at regular intervals during, and at the conclusion of the construction phase.
2. Revegetation of bare soil following construction is an essential part of concluding the construction phase of the project. This should be done with indigenous plant species that occur naturally in the surrounding environment on the property.
3. All drainage structures must be checked to ensure that there are no blockages or pollution that is blocking the free flow of water over the site; these checks will prevent erosion during and after the construction phase that could have potentially far-reaching implications beyond the footprint for the proposed development.

7.7 Operational Phase Impacts

7.7.1 Disturbance of fauna due to noise and lighting associated with camping units.

Description: The development on the site will alter the disturbance regime of the largely natural area on the property through changes in noise and artificial lighting levels. For the most part, these disturbances will be restricted to the immediate surroundings of the road (i.e. traffic noise) and camping units (i.e. people talking/shouting, music). However, this can have a significant impact on biodiversity and alter the way fauna use the landscape (i.e. the creation of a landscape of fear resulting in animals avoiding certain habitats/areas around human disturbances; insects attracted to lights decreases their survival, negatively impacts on the ecosystem services they provide and has negative knock-on consequences for their associated predators).

Consequences of impact:

1. The creation of a landscape of fear for fauna where areas of the property are avoided due to excessive anthropogenic activity, predominantly noise.
2. Light pollution, as discussed in Layout and Design Phase 7.4 above, acts as an attractant to many insects and associated predators, putting all at risk.

Impact Assessment:

	Current SDP	
	Without Mitigation	**With Mitigation**
Duration	On-going	On-going
Extent	Limited	Limited
Intensity	Very high	Very low
Probability	Certain / definite	Certain / definite
Confidence	High	High
Reversibility	Medium	Medium
Resource Irreplaceability	Low	Low
Significance	**Moderate - negative**	**Minor - negative**

Mitigation measures:

1. Light pollution must be reduced and avoided wherever possible during the operational phase of the project. White LED lights have the worst negative effects for the

environment, therefore dimmer lights with more natural warm light colours must be used. This must be outlined for guests making use of the camping facilities as well by means of visible signage.

2. Permanent lighting along roads must be avoided. Given the low traffic volumes expected for this development, road-side lighting along the access roads is unnecessary and will cause avoidable impacts on biodiversity, particularly increasing the risk of roadkill.
3. Noise should be minimised on the site and loud sirens/alarms must not be permitted. Guests are to be informed of this measure by signage.

7.7.2 Human-wildlife conflict

Description: Some wild animals are attracted to human developments, usually due to the presence of a resource that has become available within the footprint of the development (i.e. food attracting baboons, leftover scraps attracting wild animals if disposed in the surrounding environment). If any animal becomes habituated or loses their fear of humans, they risk becoming pests and problem animals (sometimes even posing a risk to humans) and often require control, in severe cases resulting in their harm or death. Keeping pets on the premises can also increase the potential for human-wildlife conflict as pets can fight or kill animals (i.e. cats are known to be devastating for indigenous wildlife, especially birds, small mammals and reptiles), or be attractive to some animals as prey (i.e. leopard are known to take domestic cats and dogs occasionally). Pets also run the risk of being harmed by wildlife (i.e. snake bites) which can lead to owners wanting to control or harm the natural fauna of the area.

Consequences of impact:

1. Intentional harm or death of problem or pest animals due to their negative effects on the people (or pets) living on the property.
2. Unintentional harm or death of animals due to them consuming waste/food products which are bad for their health.
3. Pets causing death/harm to indigenous wildlife.
4. Changes in natural foraging and movement patterns of fauna across habitats within the landscape due to the presence of a favourable resource (usually food) near the development. This can have knock-on effects for the ecosystem services they provide and their associated predators

Impact Assessment:

	Current SDP	
	Without Mitigation	**With Mitigation**
Duration	On-going	Immediate
Extent	Limited	Limited
Intensity	Very high	Negligible
Probability	Almost certain / Highly probable	Unlikely
Confidence	Medium	Medium
Reversibility	High	High
Resource Irreplaceability	Low	Low
Significance	**Moderate - negative**	**Negligible - negative**

Mitigation measures:

1. No feeding of wildlife is permitted, and no disposal/discarding of any food waste (bones, scraps, fruit pips/cores) within the surrounding environment is allowed. Relevant signage should be visible and reflect this restriction.
2. All food waste or general waste should be kept in a secure location which is not accessible to any wildlife. This should be provided to guests at the camping facility. Examples of wildlife-proof bins are suggested in Figure 205.
3. All waste should be stored in a double-container fashion, in such a way that it does not serve as an attractant to wildlife attempting to access the secure location (i.e. all waste products put into closed/sealed rubbish bags/containers and then placed within larger sealed containers/bins).
4. All waste, particularly food waste, should be regularly removed from the property and disposed of appropriately to prevent the scent of old products increasing the attractiveness to the disposal area and surrounding development for wildlife.
5. Guests on the property should not be allowed to have pets (especially cats and dogs) with them. It is highly recommended that no cats be allowed on the property as they are known to actively hunt small animals and can have detrimental effects on the wildlife of an area (see Figure 216).

Figure 20. Wildlife-proof garbage disposal container options. Large containers with a one-way shoot to dispose of garbage (left): the top lid is connected to a smaller container which swivels up when the lid is opened to block access to the larger bin and its contents below, but when the lid is closed this bin swivels down to drop the garbage into the larger container. Locking mechanisms and handles on bins (middle and right) can also be used to successfully keep wildlife out.

Figure 21. Animals killed by one house cat in one year. Article published in National Geographic (https://www.nationalgeographic.co.uk/animals/2020/09/the-232-animals-in-this-photo-were-killed-by-house-cats-in-just-one-year).

7.7.3 Harm/Death to wildlife due to collisions with vehicles.

Description: All fauna run the risk of being seriously harmed or killed due to collisions with vehicles on road infrastructure. The Endangered Wildlife Trust (EWT) has an entire

programme aimed at tracking the impacts of roadkill and monitoring the effectiveness of various mitigation measures (https://ewt.org.za/what-we-do/saving-species/wildlife-and-transport/), illustrating the severity of this impact on fauna. Roadkill can be particularly detrimental to populations of threatened species within an area (i.e. putting them at risk of local extinction) and to animals with limited mobility which are at a higher risk of injury or death due to their limited ability to escape moving vehicles.

Consequences of impact:

1. Death/Harm to any animal species (small insects to larger mammals) as a result of collisions with vehicles, particularly animals with limited mobility.
2. Decline in population size of local fauna populations, particularly that of threatened species (i.e. listed as vulnerable or endangered, etc.) which may increase their conservation status or risk of extinction.

Impact Assessment:

	Current SDP	
	Without Mitigation	**With Mitigation**
Duration	Permanent	Permanent
Extent	Local	Local
Intensity	Moderate	Very low
Probability	Almost certain / Highly probable	Almost certain / Highly probable
Confidence	High	High
Reversibility	Low	Medium
Resource Irreplaceability	Medium	Medium
Significance	**Moderate - negative**	**Minor - negative**

Mitigation measures:

1. Limit driving at night when driver visibility and vigilance is reduced. Some animals are also blinded by the lights of a car, which reduces their ability to escape from collisions.
2. The strict enforcement of speed limits along all roads on the property. This speed limit should be reduced in areas where road-side visibility is reduced (i.e. due to dense vegetation). Speedbumps or other speed reducing techniques can be incorporated into the road design to assist in keeping speeds to a minimum.

8. DISCUSSION AND CONCLUSION

Portion 104 of Uitzigt Farm 216 has historically seen minimal changes to the vegetation apart from alien clearing and the impacts of the 2017 Knysna fires. It also forms part of a larger natural area within the greater landscape and may be used by some fauna SCC. The site ecological importance (SEI) for most of the property was determined to be 'High', however the site upon which the development is proposed to take place is designated as mostly Very Low SEI or Medium SEI. As such, the proposed development of camping grounds and associated infrastructure could be considered a suitable land use for the property from a terrestrial fauna perspective, as the anticipated activities are expected to be limited and low impact provided the mitigation measures outlined in this report are strictly adhered to (See Impact Assessment Section for details).

A key feature guiding development in 'High' SEI areas, as per the Species Environmental Assessment Guidelines (SANBI 2020), is that the development should avoid additional habitat loss and limit the amount of habitat impacted wherever possible. The property falls largely within a CBA1 area, for which the WCBSP recommends only low-impact, biodiversity-sensitive land uses with limited to no habitat loss. This is achieved by the current layout as it is proposed; any changes to the layout of this SDP will be subject to a new faunal specialist assessment. Current impacts include the presence of invasive alien plant species (*Eucalyptus* sp.) on the property. Despite their potentially positive impact on raptor species seeking high perches from which to hunt or within which to breed, it is recommended that an alien management plan be developed as part of the environmental application.

It is highly recommended that if this development were approved, that the property limits any additional development and habitat loss in the future, in accordance with recommendations from both the High SEI rating as well as the CBA1 mapped area of the site. Protecting natural habitat is one of the best ways to protect indigenous fauna, particularly those with a high conservation status (i.e. at greater risk of extinction). Given its mostly natural state and high connectivity to a greater natural area in the surroundings, this property should make habitat conservation a priority.

It is the specialist's opinion that this development, provided that all mitigation measures are strictly adhered to, will cause minimal habitat loss and disturbance to fauna on the property. However, habitat loss can be further reduced on the site through additional minimizations of all footprints. This is considered a favourable land use for this property, which under the current SDP can maintain its landscape connectivity and large natural spaces, provided that limited to no additional developments take place in future. Having a presence on the property can also have a positive impact on the maintenance of the property, such that alien plants can be actively managed and fire management plans implemented. These positive maintenance activities can improve biodiversity on the property and have benefits at a landscape scale as well, particularly when they promote the existence of fauna SCC and their associated habitats.

9. REFERENCES

Alexander, G. 2013. *A Guide to the Reptiles of Southern Africa.* Penguin Random House South Africa.

Bronner, G. 2014. *Chloroptalpa duthieae.* In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

Bronner, G, and S Mynhardt. 2014. *Amblysomus corriae.* In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

CapeNature. 2017. *An overview of the Western Cape Biodiversity Spatial Plan.*

De Lange, F, and L Du Preez. 2018. "The tadpole of Afrixalus knysnae (Loveridge) (Anura: Hyperoliidae), with comments on reproductive biology." *Zootaxa* 4521: 121-124.

De Lange, F. 2019. *Breeding biology and ecological niche of the Knysna leaf-folding frog (Afrixalus knysnae).* North-West University (South Africa).

Dippenaar-Schoeman. 2023. *Field guide to the spiders of South Africa.* Stuik Nature.

Dippenaar-Schoeman, A S, C R Haddad, Lotz L N, R Booysen, R C Steenkamp, and S H Foord. 2023. "Checklist of the spiders (Araneae) of South Africa." *African Invertebrates* 64(3): 221–289. doi:https://doi.org/10.3897/AfrInvertebr.64.111047.

Du Preez, L, and V Carruthers. 2015. *A Complete Guide to the Frogs of Southern Africa.* Struik Nature.

Edge, D. 2018. *Aloeides pallida littoralis.* Southern African Lepidoptera Conservation Assessment (SALCA). Red List of South African Species. South African Biodiversity Institute. http://speciesstatus.sanbi.org/assessment/last-assessment/445/. Downloaded on 2024-01-08.

Edge, D. 2018. *Aloeides thyra orientis.* Southern African Lepidoptera Conservation Assessment (SALCA). Red List of South African Species. South African Biodiversity Institute. http://speciesstatus.sanbi.org/assessment/last-assessment/372/. Downloaded on 2024-01-08.

Edge, D. 2018. *Chrysoritis thysbe mithras.* Southern African Lepidoptera Conservation Assessment (SALCA). Red List of South African Species. South African Biodiversity Institute. http://speciesstatus.sanbi.org/assessment/last-assessment/393/. Downloaded on 2024-01-08.

Edge, D. 2018. *Orachrysops niobe.* Southern African Lepidoptera Conservation Assessment (SALCA). Red List of South African Species. South African Biodiversity Institute. http://speciesstatus.sanbi.org/assessment/last-assessment/250/. Downloaded on 2024-01-08.

Edge, D. 2018. *Thestor brachycerus brachycerus.* Southern African Lepidoptera Conservation Assessment (SALCA). Red List of South African Species. South African Biodiversity Institute. http://speciesstatus.sanbi.org/assessment/last-assessment/395/. Downloaded on 2024-01-08.

Hochkirch, A, C Bazelet, and A Danielczak. 2018. *Aneuryphymus montanus.* Red List of South African Species. South African Biodiversity Institute. http://speciesstatus.sanbi.org/assessment/last-assessment/4408/. Downloaded on 2024-01-08.

Mucina, L, and M C Rutherford. 2006. *The Vegetation of South Africa, Lesotho and Swaziland.* Strelitzia.

Picker, M, C Griffiths, and A Weaving. 2019. *Field Guide To The Insects Of South Africa.* Struik Publishers.

Rebelo, A G, C Boucher, N Helme, L Mucina, and M C Rutherford. 2006. *Fynbos biome 4. Vegetation of South Africa, Lesotho and Swaziland.*

Roberts, A, P A R Hockey, W R J Dean, and P Ryan. 2005. *Roberts Birds of Southern Africa VII.* Trustees of the J. Voelcker Bird Book Fund.

Samways, M J. 2007. *Ecchlorolestes nylephtha.* Red List of South African Species. South African Biodiversity Institute. http://speciesstatus.sanbi.org/assessment/last-assessment/1576/. Downloaded on 2024-01-08.

SANBI. 2020. *Species Environmental Assessment Guideline. Guidelines for the the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental in impact assessments in South Africa.* South African National Biodiversity Institute, Pretoria. Version 3.1. 2022.

Skinner, J.D. & Chimimba, C.T. 2005. *The Mammals of the Southern African Subregion.* Cambridge University Press.

Swanepoel, L, W Samuel, J Power, A Snyman, I Gaigher, C Senekal, and Q Martins. 2016. *Panthera pardus.* In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

Taylor, M R. 2015. *Bradypterus sylvaticus.* In: The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. Taylor, MR, Peacock F, Wanless RW (eds). BirdLife South Africa, Johannesburg, South Africa.

Taylor, M R. 2015. *Circus maurus.* In: The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. Taylor, MR, Peacock F, Wanless RW (eds). BirdLife South Africa, Johannesburg, South Africa.

Taylor, M R. 2015. *Circus ranivorus.* In: The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. Taylor, MR, Peacock F, Wanless RW (eds). BirdLife South Africa, Johannesburg, South Africa.

Taylor, M R. 2015. *Polemaetus bellicosus.* In: The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. Taylor, MR, Peacock F, Wanless RW (eds). BirdLife South Africa, Johannesburg, South Africa.

Taylor, M R. 2015. *Stephanoaetus coronatus.* In: The Eskom Red Data Book of Birds of South Africa, Lesotho and Swaziland. Taylor, MR, Peacock F, Wanless RW (eds). BirdLife South Africa, Johannesburg, South Africa.

Venter, J, A Seydack, and Y Ehlers-Smith. 2016. *Philantomba monticola.* In Child MF, Roxburgh L, Do Linh San E, Raimondo D, Davies-Mostert HT, editors. The Red List of Mammals of South Africa, Swaziland and Lesotho. South African National Biodiversity Institute and Endangered Wildlife Trust, South Africa.

Walker, C. 1996. *Signs of the wild. A field guide to the spoor and signs of the mammals of southern Africa.* Struik Nature.

Woodhall, S. 2005. *Field guide to butterflies of South Africa.* New Holland Publishers (NZ) Limited.

APPENDIX 1: SCC IDENTIFIED FROM PUBLIC PLATFORMS FOR THE PROJECT AREA.

SCC were included or excluded from further analysis in this report based on expert interpretation for the presence/absence of key landscape and habitat features on site. See Section 4.2 Assumptions and Limitations for more information.

Species	Common name	Regional Assessment status	Source	Assessed in report
AMPHIBIANS				
Afrixalus knysnae	Knysna Leaf-folding Frog	EN	Virtual Museum	Y
AVIFAUNA				
Alcedo semitorquata	Half-collared Kingfisher	NT, LC	SABAP2	Y
Bradypterus sylvaticus	Knysna Warbler	VU, VU	SABAP2	Y
Buteo trizonatus	Forest Buzzard	LC, NT	SABAP2	Y
Calidris ferruginea	Curlew Sandpiper	LC, NT	SABAP2	Y
Campethera notata	Knysna Woodpecker	NT, NT	SABAP2	Y
Circus maurus	Black Harrier	EN, EN	SABAP2	Y
Circus ranivorus	African Marsh Harrier	EN, LC	SABAP2	Y
Coracias garrulus	European Roller	NT, LC	SABAP2	N
Falco biarmicus	Lanner Falcon	VU, LC	SABAP2	Y
Grus paradisea	Blue Crane	NT, VU	SABAP2	N
Hydroprogne caspia	Caspian Tern	VU, LC	SABAP2	Y
Leptoptilos crumenifer	Marabou Stork	NT, LC	SABAP2	N
Morus capensis	Cape Gannet	VU, EN	SABAP2	N
Mycteria ibis	Yellow-billed Stork	EN, LC	SABAP2	Y
Numenius arquata	Eurasian Curlew	NT, NT	SABAP2	Y
Oxyura maccoa	Maccoa Duck	NT, EN	SABAP2	N
Phalacrocorax capensis	Cape Cormorant	EN, EN	SABAP2	Y
Phoenicopterus roseus	Greater Flamingo	NT, LC	SABAP2	Y
Polemaetus bellicosus	Martial Eagle	EN, EN	SABAP2	Y
Procellaria aequinoctialis	White-chinned Petrel	VU, VU	SABAP2	N
Spheniscus demersus	African Penguin	EN, EN	SABAP2	N
Stephanoaetus coronatus	Crowned Eagle	VU, NT	SABAP2	Y
Stercorarius antarcticus	Brown Skua	EN, LC	SABAP2	N
TERRESTRIAL INVERTEBRATES				
Aloeides pallida littoralis	Giant russet	NT	Virtual Museum	Y
Aloeides thyra orientis	Red russet	EN	Virtual Museum	Y
Chrysoritis thysbe mithras	Brenton opal	CR	Virtual Museum	Y
Circellium bacchus	Flightless Dungbeetle	VU	Virtual Museum	Y

Species	Common name	Regional Assessment status	Source	Assessed in report
Ecchlorolestes nylephtha	Queen Malachite	NT	Virtual Museum	N
Orachrysops niobe	Brenton cupid	CR	Virtual Museum	Y
Thestor brachycerus brachycerus	Knysna skolly	CR	Virtual Museum	Y
MAMMALS				
Amblysomus corriae	Fynbos Golden Mole	NT	Virtual Museum	Y
Chlorotalpa duthieae	Duthie's Golden Mole	VU	Virtual Museum	Y
Kogia breviceps	Pygmy Sperm Whale	DD	Virtual Museum	N
Leptailurus serval	Serval	NT	Virtual Museum	N
Mesoplodon layardii	Strap-toothed Whale	DD	Virtual Museum	N
Myosorex longicaudatus	Long-tailed Forest Shrew	EN	Virtual Museum	Y
Panthera pardus	Leopard	VU	Virtual Museum	Y
Poecilogale albinucha	African Striped Weasel	NT	Virtual Museum	N
Sensitive species 8		VU	Virtual Museum	Y

APPENDIX 2: AVIFAUNA SPECIES OBSERVED DURING SITE VISIT TO PORTION 104 OF UITZIGT FARM 216

Common name	Species name
Speckled Mousebird	*Colius striatus*
Hadada Ibis	*Bostrychia hagedash*
Kelp Gull	*Larus dominicanus*
Pied Crow	*Corvus albus*
Cape White-eye	*Zosterops virens*
Fork-tailed Drongo	*Dicrurus adsimilis*
Bar-throated Apalis	*Apalis thoracica*
Egyptian Goose	*Alopochen aegyptiaca*
African Fish Eagle	*Icthyophaga vocifer*
Cape Bulbul	*Pycnonotus capensis*
Jackal Buzzard	*Buteo rufofuscus*
Southern Boubou	*Laniarius ferrugineus*
Sombre Greenbul	*Andropadus importunus*
Greater Double-collared Sunbird	*Cinnyris afer*
Prinia maculosa	*Karoo Prinia*
Camaroptera brachyura	*Green-backed Camaroptera*
Black Saw-wing	*Psalidoprocne pristoptera*
Cape Bulbul	*Pycnonotus capensis*
Cape Robin-Chat	*Cossypha caffra*
Cape Spurfowl	*Pternistis capensis*
Cape Turtle (Ring-necked) Dove	*Streptopelia capicola*

Common name	Species name
Cape White-eye	*Zosterops virens*
Grey Heron	*Ardea cinerea*
Jackal Buzzard	*Buteo rufofuscus*
Karoo Prinia	*Prinia maculosa*
Kelp Gull	*Larus dominicanus*
Malachite Sunbird	*Nectarinia famosa*
Neddicky	*Cisticola fulvicapilla*
Olive Thrush	*Turdus olivaceus*
Red-eyed Dove	*Streptopelia semitorquata*
Sombre Greenbul	*Andropadus importunus*
Southern Boubou	*Laniarius ferrugineus*
Southern Fiscal	*Lanius collaris*
Western Cattle Egret	*Bubulcus ibis*

APPENDIX 3: MAMMAL SPECIES OBSERVED DURING SITE VISITS TO PORTION 104 OF UITZIGT FARM 216

Species of Conservation Concern are indicated in red text.

Common name	Scientific name	Notes
Bovids	Bovidae	Identified from scat
Caracal	*Caracal caracal*	Identified from scat
Cape Bushbuck	*Tragelaphus sylvaticus sylvaticus*	Observed
Golden Moles	Chrysochloridae	Identified from subterranean tunnels
African Molerats	Bathyergidae	Identified from molehill
Baboons	*Papio* sp.	Identified from scat
Cape Porcupine	*Hystrix africaeaustralis*	Identified from scat

APPENDIX 4: INVERTEBRATE SPECIES OBSERVED DURING SITE VISITS TO PORTION 104 OF UITZIGT FARM 216

Order	Family	Common name	Scientific name
Hymenoptera	Formicidae	Acrobat Ants and Cocktail Ants	*Crematogaster* sp.
Stylommatophora	Achatinidae	Zebra Agate Snail	*Cochlitoma zebra*
Coleoptera	Lycaenidae	Pea Blue	*Lampides boeticus*
Lepidoptera	Pieridae (suspected)	Whites	Lepidoptera
Diptera	Calliphoridae	Blowflies	Diptera
Araneae		Spider	Araneae

APPENDIX 5: REPTILE SPECIES OBSERVED DURING SITE VISITS TO PORTION 104 OF UITZIGT FARM 216

Order	Family	Common name	Scientific name
Squamata	Viperidae	Puffadder	*Bitis arietans*

APPENDIX 6: SITE ECOLOGICAL IMPORTANCE METHODS

The site ecological importance (SEI) is defined and calculated as highlighted as per the Species Environmental Assessment Guideline (SANBI 2020), where SEI is a function of biodiversity importance (BI) and receptor resilience (RR) such that: SEI = BI + RR.

BI is further defined as a function of conservation importance (CI) and habitat functional integrity (FI), with BI = CI + FI, and is determined by means of a matrix (Table 90).

SEI can therefore be fully understood as SEI = (CI + FI) + RR, where:

Conservation Importance (CI): The importance of a site for supporting biodiversity features of conservation concern present, e.g., populations of IUCN threatened and Near Threatened species (CR, EN, VU and NT), Rare species, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes. *Most features included in CI are provided by the screening tool but are evaluated at a finer scale following field work at the site.

Functional Integrity (FI): A measure of the ecological condition of the impact receptor (i.e., habitat type) as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.

Receptor Resilience (RR): The intrinsic capacity of the receptor (i.e., habitat type or SCC) to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.

Table 9. Matrix to calculate the biodiversity importance (BI) of a given habitat type identified from desktop and field assessments.

Biodiversity Importance		Conservation Importance				
		Very High	High	Medium	Low	Very Low
Functional Integrity	Very High	Very High	Very High	High	Medium	Low
	High	Very High	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very Low
	Low	Medium	Medium	Low	Low	Very Low
	Very Low	Medium	Low	Very Low	Very Low	Very Low

The SEI is derived for each habitat type or SCC within a project site by making use of two matrixes: first to calculate the BI (using Table 9) and then the SEI (Table 10).

SEI is therefore specific to the proposed development and can only be compared between alternative layouts for the same proposed development, but not between different developments.

Table 10. Matrix to calculate site ecological importance (SEI) of a given habitat type identified from desktop and field assessments.

Site Ecological Importance		Biodiversity Importance				
		Very High	High	Medium	Low	Very Low
Receptor Resilience	Very High	Very High	Very High	High	Medium	Low
	High	Very High	Very High	High	Medium	Very Low
	Medium	Very High	High	Medium	Low	Very Low
	Low	High	Medium	Low	Very Low	Very Low
	Very Low	Medium	Low	Very Low	Very Low	Very Low

APPENDIX 7: ENVIRONMENTAL COMPLIANCE OFFICER (ECO) CHECKLIST FOR FAUNA MITIGATION MEASURES DURING PRECONSTRUCTION, CONSTRUCTION AND THE CONCLUSION OF CONSTRUCTION PHASES OF DEVELOPMENT.

While this checklist is designed to assist ECOs in compliance monitoring, it is a summary only and it is imperative that the details of each mitigation measure are read, fully understood and implemented as described in the text of this report. The relevant impact and full details of methods to be followed for each mitigation measure are listed in the table below.

Mitigation measure	Relevant impact; details of methods	Checklist √
Pre-construction phase:		
No construction activities to occur between 01 April – 1 September	See Section 7.5.1; Mitigation measure 1.	
The footprint of the development should be clearly defined and demarcated by means of netting and/or fencing.	See Section 7.5.2; Mitigation measure 1.	
Signage must be clearly visible on site to mark no-go areas (any area outside of the direct influence of the site) for vehicles and personnel.	See Section 7.5.2; Mitigation measure 1	
A turning area for construction vehicles must be clearly demarcated within the footprint of hard surfaces and planned or existing gravel roads.	See Section 7.5.2; Mitigation measure 1	
Botanical Specialist to assess the demarcated footprint of development to search for (and transplant) any butterfly host plant species before construction commences.	See Section 7.5.2; Mitigation measure 2.	
Transplanted plants are to be marked, monitored, and maintained until declared established by the Botanical Specialist.	See Section 7.5.2; Mitigation measure 2.	
Construction to happen in phases, such that all activities are confined to one area at a time on the property. A plan should be developed and communicated to all staff as to which construction phase is currently underway, and which areas are therefore off-limits until further notice.	See Section 7.5.4; Mitigation measure 1.	
Before a new construction phase commences, the ECO must do a walk-through of the demarcated development footprint. No construction may commence until they are satisfied that all fauna with limited mobility and/or SCC have been successfully removed from the demarcated footprint area.	See Section 7.5.4; Mitigation measure 3.	
Before the construction phase commences, a Fauna Specialist must do a walk-through of the demarcated development footprint. No construction may commence until the Fauna Specialist is satisfied that all fauna with limited mobility and/or SCC have been successfully removed from the demarcated footprint area.	See Section 7.5.4; Mitigation measure 2.	
The bulk of the woodwork must be handled off site.	See Section 7.5.1; Mitigation measure 2.	
Construction phase:		
No construction activities to occur between 01 April – 1 September.	See Section 7.5.1; Mitigation measure 1.	
Where vegetation will be cleared, filled sandbags, silt socks or a silt fence must be used to reduce erosion. This is to be regularly inspected and maintained.	See Section 7.5.2; Mitigation measure 3.	

Mitigation measure	Relevant impact; details of methods	Checklist √
Topsoil removed during construction, treated with care, labelled, and stored appropriately for future use and rehabilitation purposes.	See Section 7.5.2; Mitigation measure 4.	
Regular staff orientation and information sessions.	See Section 7.5.3; Mitigation measure 1.	
Implement appropriate waste management, storage and disposal to minimize pollution on site and in surrounding natural areas.	See Section 7.5.3; Mitigation measure 2.	
Manage concrete and cement to prevent pollution or contamination of surrounding environment.	See Section 7.5.3; Mitigation measure 3.	
Storage of all small items/building materials in containers or locked away in a designated area to prevent interference from animals.	See Section 7.5.3; Mitigation measure 4.	
All waste disposed into designated bins and removed from site or contained in a container that is inaccessible to animals until it may be removed from the site.	See Section 7.5.3; Mitigation measure 2.	
Construction only to take place during daylight hours to ensure adequate monitoring for fauna and to prevent the use of artificial lighting.	See Section 7.5.3; Mitigation measure 5.	
Before construction commences at the start of each day, ECO to do a walk-through of the demarcated footprint to check for (and remove if necessary) all animals with limited mobility. Contact the Fauna Specialist if necessary for assistance/guidance.	See Section 7.5.4; Mitigation measure 3a.	
If any fauna occur within the development footprint during construction, all activities must be halted, the incident reported to the ECO and the animal(s) removed by ECO before construction can continue.	See Section 7.5.4; Mitigation measure 3.	
Conclusion of construction phase:		
Site to cleared of all waste material, rubble, and debris associated with the construction phase at regular intervals during, and at the conclusion of the construction phase.	See Section 7.6; Mitigation measure 1.	
Revegetate bare soil areas with indigenous plants.	See Section 7.6; Mitigation measure 2.	
Check all drainage structures and remove blockages or pollutants.	See Section 7.6; Mitigation measure 3.	

APPENDIX 8: IMPACT ASSESSMENT METHODS

Criteria are ascribed for each predicted impact. These include the intensity (size or degree scale), which also includes the type of impact, being either a positive or negative impact; the duration (temporal scale); and the extent (spatial scale), as well as the probability (likelihood). The methodology is quantitative, whereby professional judgement is used to identify a rating for each criterion based on a seven-point scale (Table 11) and the significance is auto-generated using a spreadsheet through application of the calculations.

For each predicted impact, certain criteria are applied to establish the likely **significance** of the impact, firstly in the case of no mitigation being applied and then with the most effective mitigation measure(s) in place.

These criteria include the **intensity** (size or degree scale), which also includes the **nature** of impact, being either a positive or negative impact; the **duration** (temporal scale); and the **extent** (spatial scale). These numerical ratings are used in an equation whereby the **consequence** of the impact can be calculated. Consequence is calculated as follows:

Consequence = type x (intensity + duration + extent)

To calculate the significance of an impact, the **probability** (or likelihood) of that impact occurring is applied to the consequence.

Significance = consequence x probability

Depending on the numerical result, the impact would fall into a significance category as negligible, minor, moderate or major, and the type would be either positive or negative.

When assessing impacts, broader considerations are also considered. These include the level of confidence in the assessment rating; the reversibility of the impact; and the irreplaceability of the resource as set out in (Table 12, Table 13, and Table 14), respectively.

Table 11. Assessment criteria for the evaluation of impacts

Criteria	Numeric Rating	Category	Description
Duration	1	Immediate	Impact will self-remedy immediately
	2	Brief	Impact will not last longer than 1 year
	3	Short term	Impact will last between 1 and 5 years
	4	Medium term	Impact will last between 5 and 10 years
	5	Long term	Impact will last between 10 and 15 years
	6	On-going	Impact will last between 15 and 20 years
	7	Permanent	Impact may be permanent, or in excess of 20 years
Extent	1	Very limited	Limited to specific isolated parts of the site
	2	Limited	Limited to the site and its immediate surroundings
	3	Local	Extending across the site and to nearby settlements
	4	Municipal area	Impacts felt at a municipal level
	5	Regional	Impacts felt at a regional level
	6	National	Impacts felt at a national level

Criteria	Numeric Rating	Category	Description
	7	**International**	Impacts felt at an international level
Intensity	**1**	**Negligible**	Natural and/ or social functions and/ or processes are negligibly altered
	2	**Very low**	Natural and/ or social functions and/ or processes are slightly altered
	3	**Low**	Natural and/ or social functions and/ or processes are somewhat altered
	4	**Moderate**	Natural and/ or social functions and/ or processes are moderately altered
	5	**High**	Natural and/ or social functions and/ or processes are notably altered
	6	**Very high**	Natural and/ or social functions and/ or processes are majorly altered
	7	**Extremely high**	Natural and/ or social functions and/ or processes are severely altered
Probability	**1**	**Highly unlikely / None**	Expected never to happen
	2	**Rare / improbable**	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
	3	**Unlikely**	Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur
	4	**Probable**	Has occurred here or elsewhere and could therefore occur
	5	**Likely**	The impact may occur
	6	**Almost certain / Highly probable**	It is most likely that the impact will occur
	7	**Certain / Definite**	There are sound scientific reasons to expect that the impact will definitely occur

Table 12. Definition of confidence ratings.

Category	Description
Low	Judgement is based on intuition
Medium	Determination is based on common sense and general knowledge
High	Substantive supportive data exists to verify the assessment

Table 13. Definition of reversibility ratings.

Category	Description
Low	The affected environment will not be able to recover from the impact - permanently modified
Medium	The affected environment will only recover from the impact with significant intervention
High	The affected environmental will be able to recover from the impact

Table 14. Definition of irreplaceability ratings.

Category	Description
Low	The resource is not damaged irreparably or is not scarce
Medium	The resource is damaged irreparably but is represented elsewhere