
PROPOSED RIVERBANK MAINTENANCE ON REMAINDER 1 of FARM 305 HANGLIP, PLETTENBERG BAY.

Terrestrial Animal Species – Compliance Statement



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- 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;
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- All the particulars furnished by me in this document are true and correct.



Monica Leitner (MSc)

April 2024

SUMMARY OF EXPERIENCE AND ABRIDGED CV - MONICA LEITNER

Core skills

- MSc. Zoology (University of Pretoria) and 5 years of work experience (project management and field work) for ecological research projects aimed at invertebrate diversity, ecological functioning, and large mammal ecology.
- Extensive ecological and field work experience (before, during and after postgraduate degrees) across a range of environments (mesic to arid savanna, grasslands and mountain terrain, sub-Antarctic) and taxa (invertebrates, avifauna, amphibians, reptiles, small mammals and large mammals).
- Two overwintering years on Marion Island, with extensive field work as Environmental Conservation Officer and seabird monitor (2018-2019), and a marine mammal ecologist (2022-2023).

Work experience

- 2022-2023: Marine mammal field assistant on sub-Antarctic Marion Island (Marion Island Marine Mammal Programme, University of Pretoria)
- 2016-2018; 2019-2022: Project Coordinator (University of Pretoria) for international Soil Fauna in Africa consortium (funded by the United Kingdom's Royal Society and Department for International Development).
- 2019-2022: Research assistant for Marion Island Marine Mammal Programme (University of Pretoria).
- 2018-2019: Environmental Conservation Officer on sub-Antarctic Marion Island (Department of Environmental Affairs).
- 2016-2018: Research assistant for Sani Pass (Drakensburg) long term invertebrate and ecosystem monitoring project (Centre for Invasion Biology, University of Pretoria).

Qualifications

- BSc. Environmental Sciences (2011, University of Pretoria)
- BSc. Honours Zoology (with distinction, 2012, University of Pretoria)
- MSc. Zoology (with distinction, 2015, University of Pretoria)

Publications

- Trisos MO, Parr CL, Davies AB, Leitner M & February EC. 2021. Mammalian herbivore movement into drought refugia has cascading effects on savanna insect communities. *Journal of Animal Ecology*, <https://doi.org/10.1111/1365-2656.13494>
- Leitner M, Davies AB, Robertson MP, Parr CL & Van Rensburg BJ. 2020. Termite mounds create heterogeneity in invertebrate communities across a savanna rainfall gradient. *Biodiversity and Conservation*, 29(4), pp.1427-1441
- Leitner M, Davies AB, Parr CL, Eggleton P & Robertson MP. 2018. Woody encroachment slows decomposition and termite activity in an African savanna. *Global change biology*, 24(6), pp.2597-2606

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References

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1. INTRODUCTION

1.1 Background

Confluent Environmental (Pty) Ltd was requested by the Plettenberg Bay Angling Club (PBAC) to conduct an animal species assessment for the proposed stabilisation of the banks of a section of the Keurbooms Estuary on the Remainder 1 of Farm 305 Hanglip, Plettenberg Bay. The bank is currently eroding and is placing existing infrastructure at risk.

1.2 Key Legislative Requirements

1.2.1 National Environmental Management Act (NEMA, 1998)

According to the protocols specified in GN 3 of 20 March 2020 (Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in Terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998, when Applying for Environmental Authorisation), assessment and reporting requirements for terrestrial animal species are associated with a level of environmental sensitivity identified by the national web-based environmental screening tool (screening tool). An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of:

- **Very High/High** sensitivity for terrestrial animal theme, must submit a Terrestrial Animal Species Specialist Assessment; or
- **Low** sensitivity for terrestrial animal theme, must submit a Terrestrial Animal Species Compliance Statement.

According to the protocol, a site sensitivity verification must be undertaken to confirm the sensitivity of the site as indicated by the screening tool:

- Where the information gathered from the site sensitivity verification differs from the screening tool designation of **Very High/High** terrestrial animal theme sensitivity, and it is found to be of a **Low** sensitivity, a Terrestrial Animal Species Compliance Statement must be submitted.
- Similarly, where the information gathered from the site sensitivity verification differs from the screening tool designation of **Low** terrestrial animal theme sensitivity, and it is found to be of a **Very High** sensitivity, a Terrestrial Animal Species Specialist Assessment must be submitted.

The screening tool identified the site as having **High** and **Medium** sensitivity based on the possible presence of several animal species of conservation concern (*Table 1*). Definitions of the different sensitivity ratings are described in *Table 2*.

Table 1: Animal species of conservation concern highlighted by the Environmental Screening Tool.

Sensitivity	Species
High	<i>Circus ranivorus</i> (Aves)
High	<i>Hydroprogne caspia</i> (Aves)
High	<i>Neotis denhami</i> (Aves)
High	<i>Polemaetus bellicosus</i> (Aves)
Medium	<i>Chlorotalpa duthieae</i> (Mammalia)
Medium	Species 8 (Mammalia)
Medium	<i>Sarophorus punctatus</i> (Invertebraeta)

Table 2: Definitions for sensitivity ratings.

Sensitivity Rating	Definition
Very High	<ol style="list-style-type: none"> Critical habitat for range restricted species of conservation concern that have a global range of less than 10 km². Species of conservation concern listed on the IUCN Red List of Threatened Species¹ or South Africa's National Red List website² as Critically Endangered, Endangered or Vulnerable according to the IUCN Red List 3.1. Categories and Criteria or listed as Nationally
High	<ol style="list-style-type: none"> Confirmed habitat for species of conservation concern. Species of conservation concern 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
Medium	<ol style="list-style-type: none"> Suspected habitat for species of conservation concern based either on there being records for this species collected in the past prior to 2002 or being a natural area included in a habitat suitability model. Species of conservation concern 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.
Low	<ol style="list-style-type: none"> Areas where no natural habitat remains. Natural areas where there is no suspected occurrence of species of conservation concern.

1.3 Study Area

The PBAC is situated on the western bank of the Keurbooms Estuary, just east of Plettenberg Bay (Figure 1). The proposed stabilisation will take place along an approximately 50 m stretch of the riverbank and associated intertidal zone. The Keurbooms Estuary is prone to episodic flooding that has significant consequences for landowners and infrastructure. Floodwaters cause extensive erosion, particularly in the lower reaches of the estuary where extensive urbanisation and surface hardening has taken place and natural vegetation and riparian zones have been cleared to make way for residential developments and resorts (CAPE Estuaries Programme, 2010). In particular, the removal of riparian vegetation destabilises the bank, resulting in undercutting and ultimately collapse into the estuary. As such, various bank stabilisation interventions have been implemented along the banks of the estuary over time.

These range from vertical retaining walls to sloping banks constructed from a reno mattress over lying a stepped sandbag foundation.

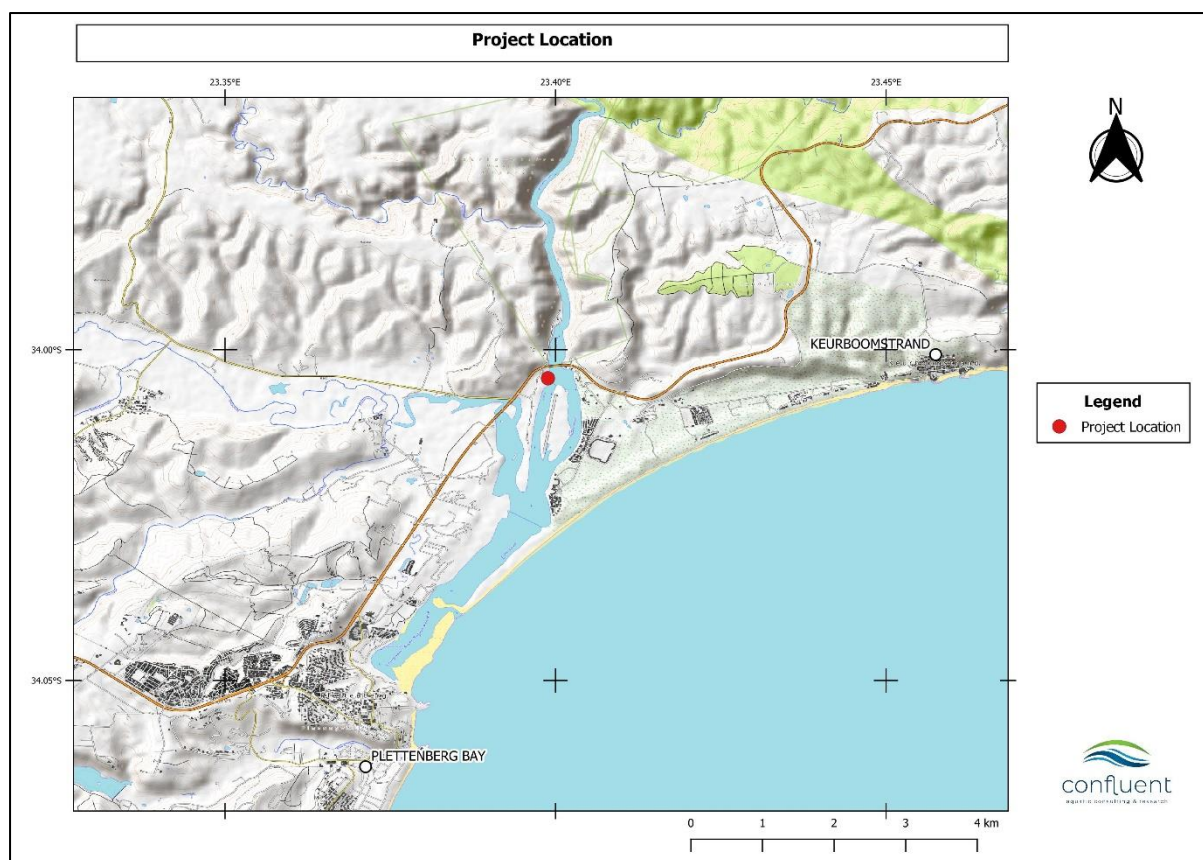


Figure 1: Map indicating the extent of the proposed bank stabilisation.

2. PROJECT DESIGN

Three alternative options have been proposed and will be assessed in this report. All three options require the construction of a 3 m reno mattress that will be placed approximately 1 m below the existing bed profile of the estuary and will extend approximately 3 m into the estuary. This will prevent undermining of the embankment.

- Option 1: Construction of stepped gabions over a geotextile layer (Figure 2).
- Option 2: Reprofilng the bank (1.3 m horizontal to 1 m vertical) using sandbags (800 mm x 500 mm x 170 mm).and covering these with a 0.3 m x 3.0 m reno mattress (Figure 3).
- Option 3: Reprofilng the bank (1.3 m horizontal to 1 m vertical) using larger, heavy duty geotextile sandbags (2 m x 1.9 m x 0.65m) which will remain uncovered (Figure 4).

For all options, the stabilisation will be restricted to the steeply eroded section of the embankment and will stop at the point where the gradient of the embankment flattens out and is not actively eroding (Figure 1 and Figure 5).

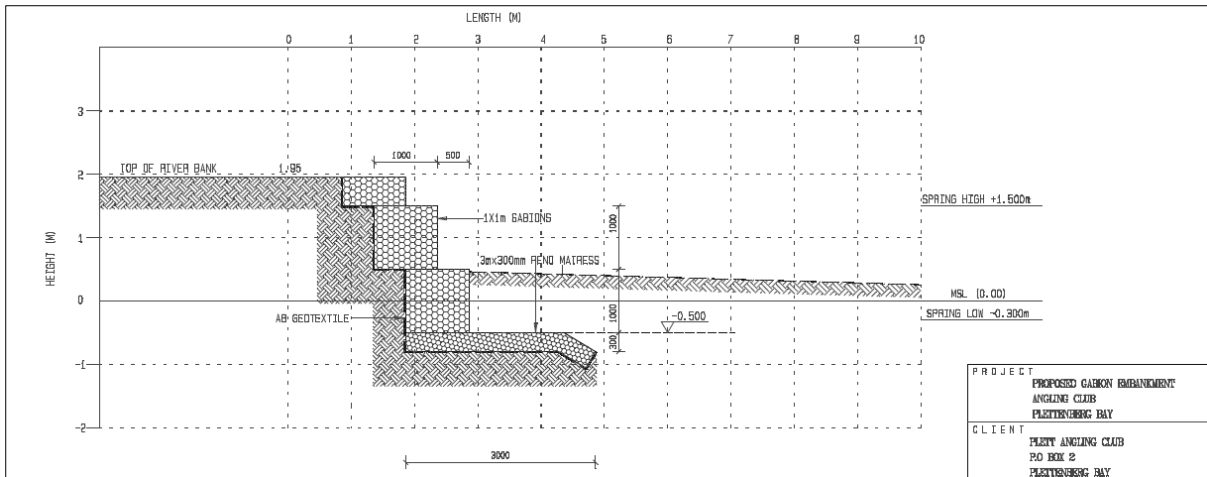


Figure 2: Section for Option 1.

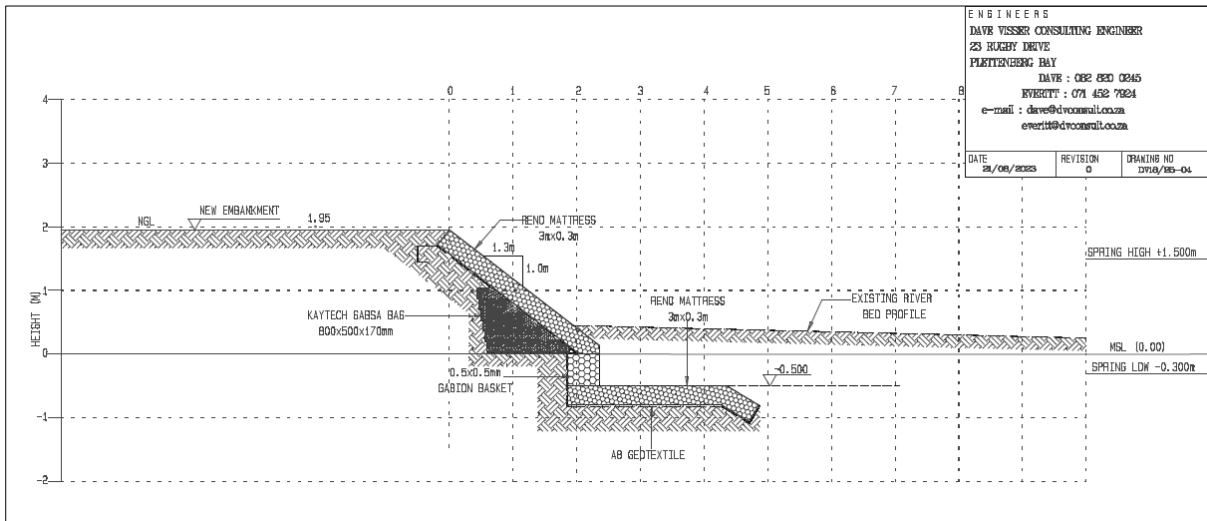


Figure 3: Section for Option 2.

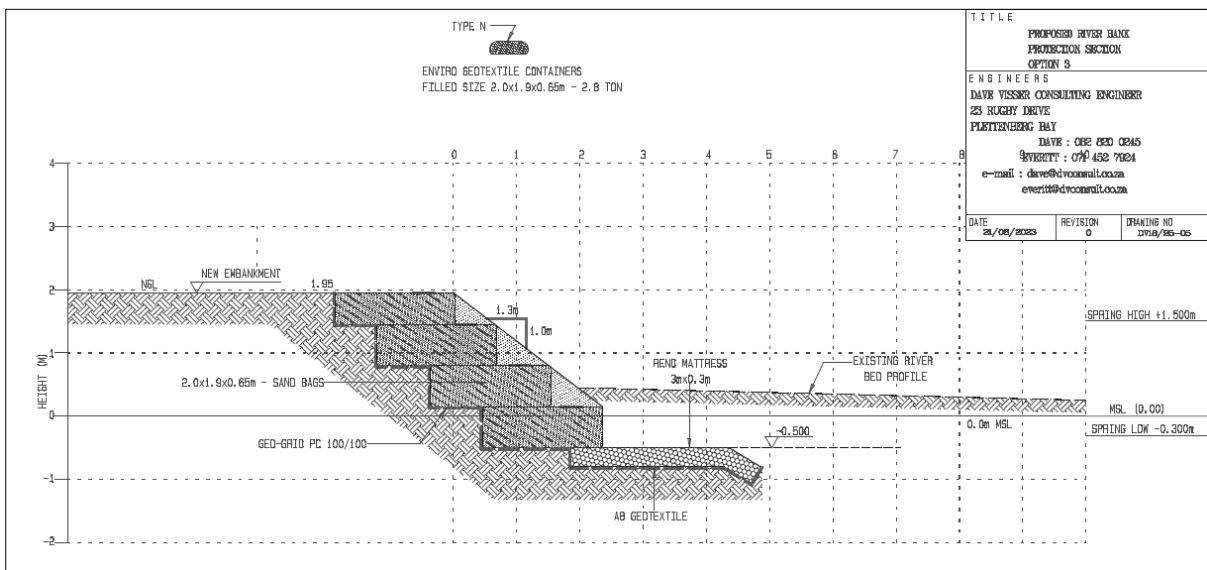


Figure 4: Section for Option 3.

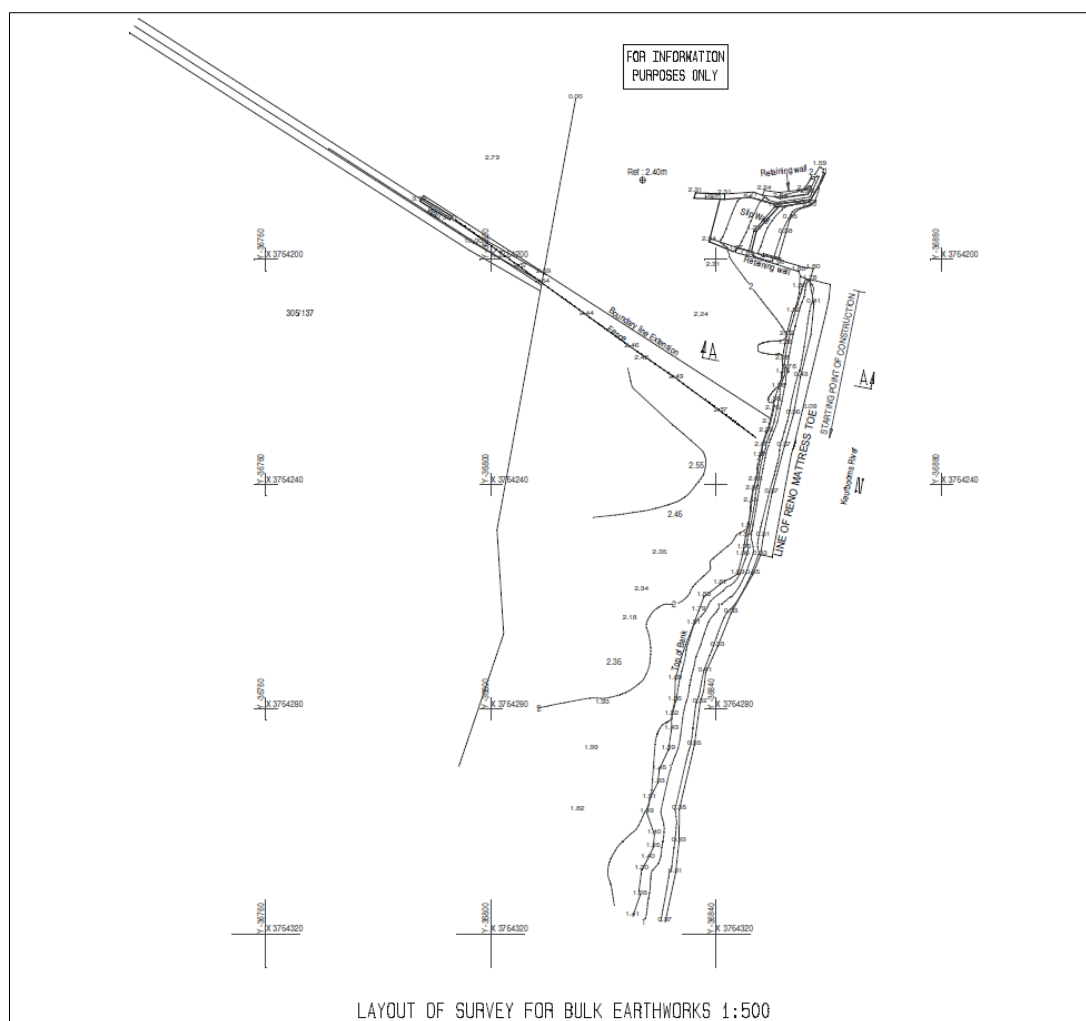


Figure 5: Proposed bank stabilisation layout.

3. METHODOLOGY

3.1 Desktop Assessment

- A summary of the desktop literature review of each species is presented in Table 3. This table provides a summary of the habitat, breeding and feeding preferences for each species and was used to guide the likelihood of each species of conservation concern highlighted by the online screening tool.

3.2 Site Visit

- The site was visited on the 22nd of March for a period of two hours, during which time searches for the presence of listed SCCs were conducted and the available habitat was assessed in terms of its suitability for the listed SCCs.
- The Project Area of Influence (PAOI) was determined based on the spatial location of the project (footprint) and the potential extent of the impacts of the anticipated activities of the project.

4. RESULTS

- The expectation of broader impacts occurring outside of the footprint of the streambank stabilisation structure is expected to be very low. Consequently, the PAOI is limited to an approximately 50 m length of the eroded bank of the estuary (where the bank stabilisation structure will be constructed) and a distance of approximately 10 m inland from the banks and 5 m into the inter-tidal zone of the estuary (where habitat may be disturbed due to the construction activities and vehicles). The total surface area of the footprint of the PAOI is less than 1 000 m² (Figure 6).
- Inland of the bank, the habitat consists of open grass lawn comprised predominantly of a mixture of low growing grass species (invasive *Clandestinus cenchrus* and indigenous *Cynodon dactylon*). No trees or shrubs are present (Figure 7).
- The inter-tidal zone habitat is very narrow (exposed sand banks at low tide are less than 3 m in width) and is used to moor boats along the shoreline. Vegetation is limited, consisting of *Zostera capensis* within the inundated subtidal zone of the estuary and isolated patches of salt marsh species along the outer edge of the inter-tidal zone (Figure 7).
- No SCCs were observed during the site visit.
- Based on the available habitat, no SCC are expected to occur in the PAOI or expected to be affected by construction and operational phase activities conducted in the PAOI (**Error! Reference source not found.**).



Figure 6: Map illustrating the extent of the streambank stabilisation and the associated PAOI.



Figure 7: Photographs illustrating the eroded bank, narrow intertidal zone and moored boats (left) and grassed lawn area inland from the bank (right).

Table 3: Habitat, breeding and feeding preferences for SCC and their likelihood of occurrence within the PAOI.

Species	Habitat	Breeding	Feeding	Likelihood of occurrence in PAOI
AVIFAUNA				
<i>Circus ranivorus</i> Marsh Harrier (Endangered)	<ul style="list-style-type: none"> - 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 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - Dietary assessment (Simmons et al., 1991) of pellets and prey deliveries to nests includes birds, frogs, fish, eggs and micromammals (<i>Rhodomys</i>, <i>Otomys</i>, and Shrews). - Hunts primarily in well vegetated 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. 	<p>Low:</p> <ul style="list-style-type: none"> - Favours freshwater habitat and dense reedbeds which are absent from PAOI. - May periodically occur throughout broader estuary but habitat, breeding and feeding preferences will not be affected by the PAOI.
<i>Hydroprogne caspia</i> Caspian Tern (Vulnerable)	<ul style="list-style-type: none"> - Estuaries and sheltered bays along the coastline - Large, permanent inland waterbodies 	<ul style="list-style-type: none"> - Colonial breeders, typically on off-shore islands or protected sandy beaches. 	<ul style="list-style-type: none"> - Feed almost entirely on fish - Hunting is carried out 3-20 m above the water, parallel to, and within 100 m of the shoreline. - Capture fish by diving head-first into the water 	<p>Low:</p> <ul style="list-style-type: none"> -Species likely to make use of broader estuary for foraging, however habitat, breeding and feeding preferences will not be affected by the PAOI.
<i>Polemaetus bellicosus</i> Martial Eagle (Endangered)	<ul style="list-style-type: none"> -Savanna, Karoo shrubland, semi desert. -Can occur in open farmland with clumps of trees. -Rare in mountainous and forest areas. 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> -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. 	<p>Low:</p> <ul style="list-style-type: none"> - Unsuitable habitat for breeding and foraging.

Species	Habitat	Breeding	Feeding	Likelihood of occurrence in PAOI
<i>Neotis denhami</i> Denham's Bustard (Vulnerable)	<ul style="list-style-type: none"> - Inhabit a mosaic of cultivated pastures, agricultural crop-lands and natural vegetation, with seasonal variation in their preferences (Allan, 2003). - Cultivated pastures are favoured habitat during winter in the southern Cape (Allan, 2003). - Harvested cereal crop fields (stubble fields) are favoured, but ploughed fields and fields with growing cereal crops are avoided (Allan, 2003). - Denham's Bustard primarily inhabits open grasslands and African savannas (Allan, 2003). - Being large-bodied with low flight manoeuvrability also leads to preference for open habitat. - Preference for grasslands with a mix of short and tall grasses, and good visibility for foraging. - Proximity to water sources, such as rivers or wetlands, is important for drinking and potential foraging (Allan, 2003). - Avoids dense forests and habitats with high human disturbance. 	<ul style="list-style-type: none"> - Male courtship displays occur between August and January, but mainly in September and October (Allan, 2003) - Eggs are laid in September and October, with unfledged young present between September and January (Allan, 2003). - Preference for natural vegetation over pastures during summer breeding months (Allan, 2003). - Larger bird groupings occur in winter, while in summer smaller groupings or individual birds occur (Allan, 2003). - Nesting sites are concealed in open grasslands, often near vegetation or shrubs. - Females construct shallow ground nests lined with grass or plant materials (Allan, 2003). - Clutches consist of 1-3 eggs, incubated primarily by the female. Incubation lasts around 21-24 days. 	<ul style="list-style-type: none"> - Prey killed by impact or strangulation and taken to high perch to eat. - Ground-dwelling bird that forages in open grasslands and savannas (Tarboton, 1989) - Diet is omnivorous including insects, seeds, fruit, and vegetation (Tarboton, 1989). - Grasshoppers, beetles and termites are important insect prey, especially in the breeding season (Allan, 2003). - Feeding technique is probing and pecking the ground with their long bills (Tarboton, 1989) - Opportunistically feed on grasshopper swarms. 	<p>Low:</p> <p>Unsuitable habitat</p>
MAMMALS				
Sensitive Species 8 (Vulnerable)	<ul style="list-style-type: none"> - Specialised habitat requirements within a home range of approximately 0.75 ha (Skinner & Chimimba, 2005). - Strong habitat preference for dense vegetation with good 	<ul style="list-style-type: none"> - This species can breed throughout the year. - Males establish territories and exhibit aggressive behaviours towards other males and to attract females. 	<ul style="list-style-type: none"> - 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. 	<p>Low:</p> <p>Unsuitable habitat</p>

Species	Habitat	Breeding	Feeding	Likelihood of occurrence in PAOI
	<ul style="list-style-type: none"> 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. 		<ul style="list-style-type: none"> - Active in the early morning and late afternoon, foraging for around 8 hours a day within their territory. 	
<p><i>Chlorotalpa duthieae</i> Duthie's Golden Mole (Vulnerable)</p>	<ul style="list-style-type: none"> - Occur on alluvial sands and sandy loams in southern Cape Afro-temperate forests (Bronner, 2014). - Preference for forest vegetation over 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. 	<ul style="list-style-type: none"> - Little is known but a female was recorded with a litter of two young in November (Bronner, 2014). 	<ul style="list-style-type: none"> - Shallow subsurface foraging tunnels radiate outwards from beneath the roots of trees. - Forages at night in tunnels and through the leaf litter. - Diet includes earthworms. 	<p>Low:</p> <ul style="list-style-type: none"> - No visible signs of shallow subsurface tunnels. - PAOI limited to banks of estuary which is unlikely habitat for SCC.
INSECTA				
<p><i>Sarophorus punctatus</i> (Endangered)</p>	<ul style="list-style-type: none"> -Known only from the type locality on the coastline of Keurboom Strand (Western Cape) -No adequate quantitative assessment; sampled using ground traps set from the edge into disturbed podocarp forest. - Sampled from Southern Afrotropical Forest (FOz 1) (Forest Biome) although grid reference coincides with adjoining South Outeniqua Sandstone 	<p>Not known</p>	<p>Not known</p>	<p>Low:</p> <ul style="list-style-type: none"> - Unsuitable habitat.

Species	Habitat	Breeding	Feeding	Likelihood of occurrence in PAOI
	Fynbos (FFs 19) (Fynbos Biome) (Davis et al. 2020).			

5. SITE SENSITIVITY VERIFICATION AND COMPLIANCE STATEMENT

- Due to the transformed nature of the habitat, the limited extent and unlikely habitat for the SCC, the PAOI is determined to have a **low** sensitivity for terrestrial animal species.
- The proposed streambank stabilisation will have no impact on terrestrial animal SCC and therefore a Compliance Statement is issued, with no additional conditions.

6. REFERENCES

- ALLAN, D.G. (2003). Abundance, sex ratio, group size, breeding and habitat of Stanley s Bustard *Neotis denhami stanleyi* (Gruiformes: Otididae) in western South Africa. *Durban Museum Novitates*, 28(1), 1-10.
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- SIMMONS, R. E., AVERY, D. M., & AVERY, G. (1991). BIASES IN DIETS DETERMINED FROM PELLETS AND REMAINS: CORRECTION FACTORS FOR A. *J. Raptor Res*, 25(3), 63-67.
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