ANIMAL SPECIES IMPACT ASSESSMENT

MIXED-USE DEVELOPMENT ON A PORTION OF PORTION 4 OF FARM NO. 560, YZERFONTEIN.

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SEPTEMBER 2025

EXECUTIVE SUMMARY

This report is to assess the impact of the proposed mix used development in Yzerfontein, which will be done in phases and consist of 749 Residential Zone 1 erven on ±50.4421ha, 3 General Residential Zone 1 (grouphouse) with a total of 168 units on ±6.8237ha, Open Space Zone 1 erven of ±85.6363ha, 2 Business Zone 2 erven on ±1.0071ha and roads impacting on ±14.0582ha on animal species.

A desktop assessment was undertaken prior to the site visit to determine whether there are any Species of Conservation Concern and habitat features within the site that are considered sensitive. This was followed by field surveys on 8 December 2021, 11 January 2023, 10 September 2025, and at least visited once a month for the last 3 years which also informed the findings in this report. These surveys were focus on identified habitats that may host SCC.

The Department of Environmental Affairs screening report from the national web based environmental screening tool reported a “high sensitivity for animal species. The site sensitivity verification and specialist assessment does not differ from the designation of “high” animal species as identified in the national web based environmental screening tool. The development of the site would have a **High Negative** impact on animal species.

Potential negative impacts that may arise from the proposed is:

- The roads that do link Atlantic Drive to the development nodes are problematic from a faunal perspective in that they break a small corridor of the north – south ecological linkage.
- Loss of habitat, Terrestrial Biodiversity and ecological functioning which will affect animal species.
- Disturbance
- Injury/mortality of species
- Disturbance
- Human/animal conflict

Mitigation measures, both best practise and essential, include the following:

- Consideration should be given to actually preventing access to these roads for tortoises and small reptiles and similar small fauna that is very likely to be run over. This could be done by simply having 20cm high vertical barriers either side of the roads.
- Speed restrictions for all vehicles (40km/h is recommended) should be in place to reduce the impact of faunal mortality as a result of road kill.
- Development must be designed to allow unencumbered movement of this species. e.g., trenches with sloped side to allow faunal species to exit.
- Should any faunal SCC be encountered during construction and operation, these must be recorded (i.e. be photographed, GPS co-ordinates taken) and photographs placed on iNaturalist
- Any faunal species that may die as a result of construction activities must be recorded (i.e. be photographed, GPS co-ordinates taken) and these records placed on iNaturalist.
- In addition to all mitigations listed above a clause must be included in contracts for ALL personnel working on site stating that: “no wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with

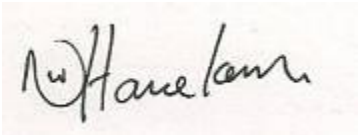
the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass." A clause relating to fines, possible dismissal and legal prosecution must be included should any of the above transgressions occur, especially for SCC.

Based on the impacts assessed in this report, it is recommended that the proposed development proceed with the implementation of strict environmentally responsible practices as outlined in the recommended mitigation measures.

DECLARATION OF THE SPECIALIST

I **Nicolaas Willem Hanekom**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that:

- In terms of the general requirement to be independent:
    - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
- In terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- I have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any Report, plan or document prepared or to be prepared as part of the application; and
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations.



Nicolaas Hanekom
Pri.Sci.Nat (Ecology) 004415 **9 September 2025**
Signature of the Specialist: Date:

Enviro-EAP (Pty) Ltd
Name of company (if applicable):

COMPLIANCE WITH THE DEPARTMENT OF ENVIRONMENTAL AFFAIRS SCREENING TOOL PROTOCOLS (GOVERNMENT NOTICE NO.1150, GOVERNMENT GAZETTE 43855: 30 OCTOBER 2020)

Department of Environmental Affairs screening Tool	**ADDRESSED IN SPECIALIST REPORT**
Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae	Page 1
A signed statement of independence by the specialist	Page 2 of report
Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	Section 1.8
A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant	Section 1.5
A description of the assumptions made and any uncertainties or gaps in knowledge or data as well as a statement of the timing and intensity of site inspection observations	Section 1.6
Details of all Species of Conservation Concern (SCC) found or suspected to occur on site, ensuring sensitive species are appropriately reported	Section 4.4
The online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area	Section 4.4
The location of areas not suitable for development and to be avoided during construction where relevant	Section 4.4
Areas not suitable for development, to be avoided during construction and operation (where relevant)	Section 4.4
Additional environmental impacts expected from the proposed development based on those already evident on the site and a discussion on the cumulative impacts	Section 5
A discussion on the cumulative impacts	Section 5
Impact management actions and impact management outcomes proposed by the specialist for inclusion in the EMPr	Section 5
A motivation where the development footprint was not considered stating reasons why these were not being considered	Section 1 and 6
A reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, and any conditions to which the statement is subjected	Section 6
A motivation must be provided if there were any development footprints identified as above that were identified as having "low" or "medium" animal species sensitivity and were not considered appropriate	Section 6

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1. INTRODUCTION AND METHODOLOGY

This report is to assess the impact of the proposed mix used development which will be done in phases and consist of 749 Residential Zone 1 erven on ±50.4421ha, 3 General Residential Zone 1 (grouphouse) with a total of 168 units on ±6.8237ha, Open Space Zone 1 erven of ±85.6363ha, 2 Business Zone 2 erven on ±1.0071ha and roads impacting on ±14.0582ha on animal species.

The Department of Environmental Affairs screening report from the national web based environmental screening tool reported a "high sensitivity for animal species. The site sensitivity verification and specialist assessment does not differ from the designation of "high" animal species as identified in the national web based environmental screening tool. Refer to the Terrestrial Biodiversity Assessment study (Appendix E) for more detail on the ecological conditions of the area. The development of the site would have a **High Negative** impact on animal species. This report presents the findings of the Animal Species Impact Assessment that was prepared by Nicolaas Hanekom as part of the EIA for the proposed development on the property.

1.1. Background & Competency

Nicolaas Hanekom is a registered Professional Natural Scientist in the ecological science with the South African Council for Natural Scientific Professions ("SACNASP"), and a qualified registered Environmental Assessment Practitioner ("EAP") who holds a Masters Technologiae, Nature Conservation ("Vegetation, Animal, Ecology and Biodiversity Assessment") degree from the Cape Peninsula University of Technology (Refer to Appendix A, CV). Nicolaas Hanekom is suitably qualified SACNASP registered specialist. The protocols required that the specialist is registered with the South African Council for Natural Scientific Professions (SACNASP) with a field of practice relevant to the taxonomic group ("taxa") for which the assessment is being undertaken. In this case the relevant taxa are Avi-Fauna, Herpetologist and invertebrates. The SACNASP does not have a specific registration field for Avi-fauna, Herpetologist and invertebrates and therefore the experience of Nicolaas Hanekom has become relevant. Nicolaas Hanekom has done fauna and biodiversity impact assessment (these fields cover both the Avi-Fauna, Herpetologist and invertebrates) since 2006 and the SACNASP registration under the ecology and conservation fields is a suitably qualified and registered field with the necessary experience in the animal species listed in the environmental screen tool report and knowledge of the field and area to conduct the specialist study.

1.2. Conditions Relating to this Report

The findings, results, observations, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information and knowledge of the area. Nicolaas Hanekom reserves the right to modify aspects of the report including the recommendations if and when new information may become available from on-going research or further work in this field, pertaining to this assessment.

This report may not be altered or added to without the prior written consent of the author. This restraint also refers to electronic copies of this report which are supplied as sub portion of other reports, including main reports. Similarly, any recommendations, statements, or

conclusions drawn from or based on this report must specifically refer to this report. If such comments form part of a main report for this investigation, the report must be included in its entirety as an appendix or separate section to the main report.

1.3. Scope and Objectives

The assessments entailed both a literature review of the region, as well as on site evaluations, during which specific primary data will be collected and evaluated. In addition, the identification of animal species features will be undertaken allowing for the interpretation of the prevailing habitat form and associated processes.

All data collected in the field and during the literature review will be evaluated and interpreted in order to provide an understanding of the nature of the prevailing environment at a landscape and habitat level. In addition, specific evaluation of data relating to habitat form and structure will be undertaken, aiding in the identification of bio-physical anomalies within the prevailing environment. Such variance may be considered to be indicative of differing habitat forms, which under consideration, may be of higher order ecological value in relation of the prevailing environment. The protocol[1] provides the criteria for the reporting of requirements for the assessment and reporting of impacts on animal species for activities requiring environmental authorisation.

General Information

An applicant intending to undertake an activity identified in the Scope of this Protocol, on a site identified as being of "high sensitivity" for animal species on the national web based environmental screening tool must submit an animal species impact assessment report. Where the information gathered from the Initial Site Sensitivity Verification and the specialist assessment differs from the designation of "very high, high or medium" animal species sensitivity from the national web based environmental screening tool and it is found to be of a "low" sensitivity, then an animal species impact assessment is not required. Should this apply, an animal species Compliance Statement is to be provided.

1.4. Terms of Reference

The assessment must be undertaken by a suitably qualified and SACNASP registered specialist **(The SACNASP does not have a specific registration field for Avi-Fauna, Herpetologist and invertebrates and therefore the experience of Nicolaas Hanekom becomes relevant. Nicolaas Hanekom has done fauna and biodiversity impact assessment (these fields cover both the Avi-Fauna and invertebrates) since 2006 and the SACNASP registration under the ecology and conservation fields is a suitably qualified and registered field with the necessary experience in the animal species listed in the environmental screen tool report and knowledge of the field and area to conduct the specialist study)**, within the preferred development site and on the preferred development footprint. The description of the preferred site must include the following aspects, as a minimum and must be considered in the baseline description:

[1] Published in Government Notice No. 1150. GOVERNMENT GAZETTE 43855 30 OCTOBER 2020.This gazette is also available free online at www.gpwonline.co.za

- The assessment must be undertaken in accordance with the *Species Environmental Assessment Guideline*[2]; and must; identify the SCC which were found, observed or are likely to occur within the study area;
- provide evidence (photographs or sound recordings) of each SCC found or observed within the study area, which must be disseminated by the specialist to a recognized online database facility[3], immediately after the site inspection has been performed (prior to preparing the report contemplated in paragraph 3);
- identify the distribution, location, viability[4] and provide a detailed description of population size of the SCC, identified within the study area;
- identify the nature and the extent of the potential impact of the proposed development on the population of the SCC located within the study area;
- determine the importance of the conservation of the population of the SCC identified within the study area, based on information available in national and international databases, including the IUCN Red List of Threatened Species, South African Red List of Species, and/or other relevant databases;
- determine the potential impact of the proposed development on the habitat of the SCC located within the study area;
- include a review of relevant literature on the population size of the SCC, the conservation interventions as well as any national or provincial species management plans for the SCC. This review must provide information on the need to conserve the SCC and indicate whether the development is compliant with the applicable species management plans and if not, include a motivation for the deviation;
- identify any dynamic ecological processes occurring within the broader landscape that might be disrupted by the development and result in negative impact on the identified SCC, for example, fires in fire-prone systems;
- identify any potential impact of ecological connectivity in relation to the broader landscape, resulting in impacts on the identified SCC and its long term viability;
- determine buffer distances as per the *Species Environmental Assessment Guidelines* used for the population of each SCC;
- discuss the presence or likelihood of additional SCC including threatened species not identified by the screening tool, *Data Deficient* or *Near Threatened Species*, as well as any undescribed species[5]; or roosting and breeding or foraging areas used by migratory species where these species show significant congregations, occurring in the vicinity; and
- identify any alternative development footprints within the preferred site which would be of "low" or "medium" sensitivity as identified by the screening tool and verified through the site sensitivity verification.

The findings of the Animal Species Impact Assessment must be written up in an Animal Species Impact Assessment Report. This report must include as a minimum the following information:

- Contact details and curriculum vitae of the specialist including SACNASP registration number and field of expertise and their curriculum vitae;
- A signed statement of independence by the specialist;

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[2] Available athttp**s**://bgis.sanbi.org/
[3] The preferred platform is iNaturalist.org but any other national or international virtual museum
[4] the ability to survive and reproduce in the long term
[5] Undescribed species are to be assessed as "High Sensitivity"

- Duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;
- A description of the methodology used to undertake the impact assessment and site inspection, including equipment and modelling used where relevant; a description of the mean density of observations/number of sample sites per unit area[6] and the site inspection observations;
- a description of the assumptions made and any uncertainties or gaps in knowledge or data;
- details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;
- the online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;
- the location of areas not suitable for development and to be avoided during construction where relevant;
- a discussion on the cumulative impacts;
- impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);
- a reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not of the development and if the development should receive approval or not, related to the specific theme being considered, and any conditions to which the opinion is subjected if relevant; and
- a motivation must be provided if there were any development footprints identified as above that were identified as having “low” or “medium” animal species sensitivity and were not considered appropriate.

1.5. Approach and Methodology

A literature review and desktop analysis were undertaken prior to the field investigation, utilizing various sources including the South African National Biodiversity Institute (SANBI) data and other relevant sources. Recent and historical aerial imagery of the site was reviewed in order to identify points for investigation during the field survey. Utilising the above information, a field investigation was undertaken whereby:

- Sites of geomorphological or topographic variance were identified and subjected to an evaluation of species present within line transects established across the selected site.
- Species were identified and collated.
- Additional random sample points were selected from other sites surrounding the proposed impacted areas for comparative purposes.
- Any additional species of significance, not identified within the sample sites were also noted.

The sampling and analysis of the site on 8 December 2021 and also 11 January 2023, as well as monthly observation for the last three years, provides suitable data and results to present an informed decision on the local ecology. It must also be noted that the area was at least visited once a month for the last 3 years, as well as knowledge of the area since 1999 which also informed the findings in this report.

[6] Species Environmental Assessment Guideline

All data was collated and subjected to evaluation using methods in order to:

- Give consideration to the overall structure of habitat within the subject site.
- Identify any habitat anomalies that may be identified in such analysis.
- Allow for the interpretation of such data in order to prioritise and evaluate habitat form and structure within the study area.

1.6. Assumptions and limitations

The presence of fauna must be evaluated based on the literature and available databases but in many cases, these databases are not intended for fine-scale use and the reliability and adequacy of these data sources relies heavily on the extent to which the area has been sampled in the past. Many areas have not been well sampled with the result that the species lists derived for the area do not always adequately reflect the actual fauna and flora present at the site. Cryptic/nocturnal animals might not have been sampled and encountered. This is acknowledged as a limitation of the study, however it is substantially reduced through extracting the species lists for a substantially larger area than the site and through the inclusion of information from previous experience in the wider area. The assessment was undertaken using sampling methods appropriate to the protocols, terms of reference and methodologies described above.

For the Avi-Fauna point counts, which involve standing at designated locations to record birds seen or heard, walking transects, walk along predefined lines, observations when in the area, historical recordings and history of visiting the area over years were used as sampling methods. Sampling was done throughout the year and within the months recommended in the Species Environmental Assessment Guidelines.

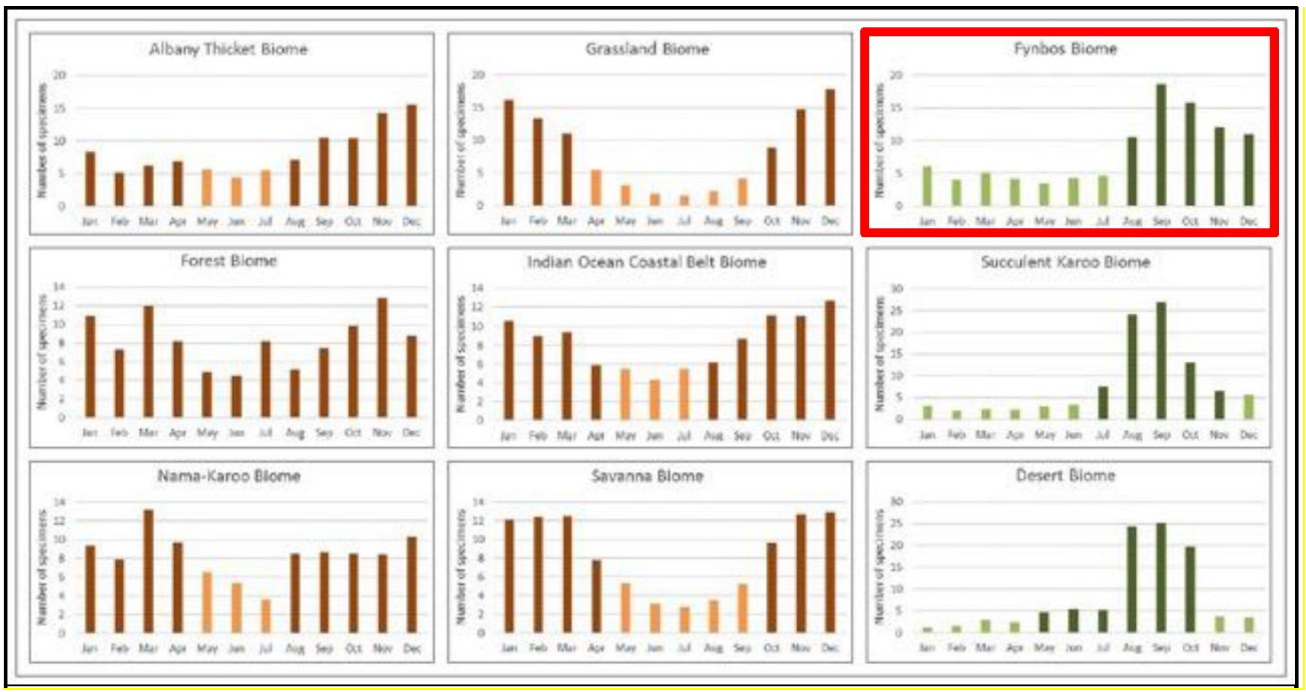

Figure 1: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines). The site is within the fynbos biome.

For *Bitis armata* surveys focused on rocky areas. However, this habitat is the limestone outcrops which was excluded from the development area. For *Bullacris obliqua* surveys was

focus on its host plant (*Eriocephalus africanus*), which was not recorded on site and further was observations focus on the known species during all surveys. For Gronovi's dwarf burrowskink *Scelotes gronovii*, surveys were focus under small calcrete rocks in coastal sand or under any kind of debris lying on sand.

The timing of the survey is therefore regarded as optimal in terms of accurately assessing the fauna of the site. The overall condition of the vegetation can still be determined with a high degree of confidence. An accurate idea of the priority conservation areas, animals and botanical species was gained, due to the use of a combined habitat and species-based approach, and confidence in the accuracy of the findings is high. The overall confidence in the completeness and accuracy of the animal species findings at this point in time is considered to be good. A follow-up survey is not considered essential for decision-making.

1.7. Source of Information

This assessment was undertaken utilising:

- 1:50 000 topographic mapping sourced from the Surveyor General's office;
- Aerial imagery sourced from Google Earth.
- Aerial imagery sourced from ESRI.
- Vegetation types and their conservation status was extracted from the South African National Vegetation Map (Mucina and Rutherford 2018).
- Information on plant and animal species recorded for the Quarter Degree Squares (QDS) was extracted from the SABIF/SIBIS database hosted by SANBI.
- The IUCN conservation status of the species in the list was also extracted from the database and is based on the Threatened Species Programme, Red List of South African Plants (2011).
- Threatened Ecosystem data was extracted from the National List of Threatened Ecosystems 2022.
- Important catchments and protected areas expansion areas were extracted from the National Protected Areas Expansion Strategy 2008 (NPAES).
- CapeNature. (2024). 2023 Western Cape Biodiversity Spatial Plan and Guidelines.

Three vegetation types were identified on the impact site, being Saldanha Limestone Strandveld (CR), Saldanha Flats Strandveld (EN) and Langebaan Dune Strandveld (EN). Of this three, only Saldanha Flats Strandveld (EN) and Langebaan Dune Strandveld (EN) will be impacted by the proposed development. Saldanha Granite Strandveld (CR) is also present on site, but not surveyed because this vegetation type is outside the proposed development areas and already protected by means of a conservation servitude.

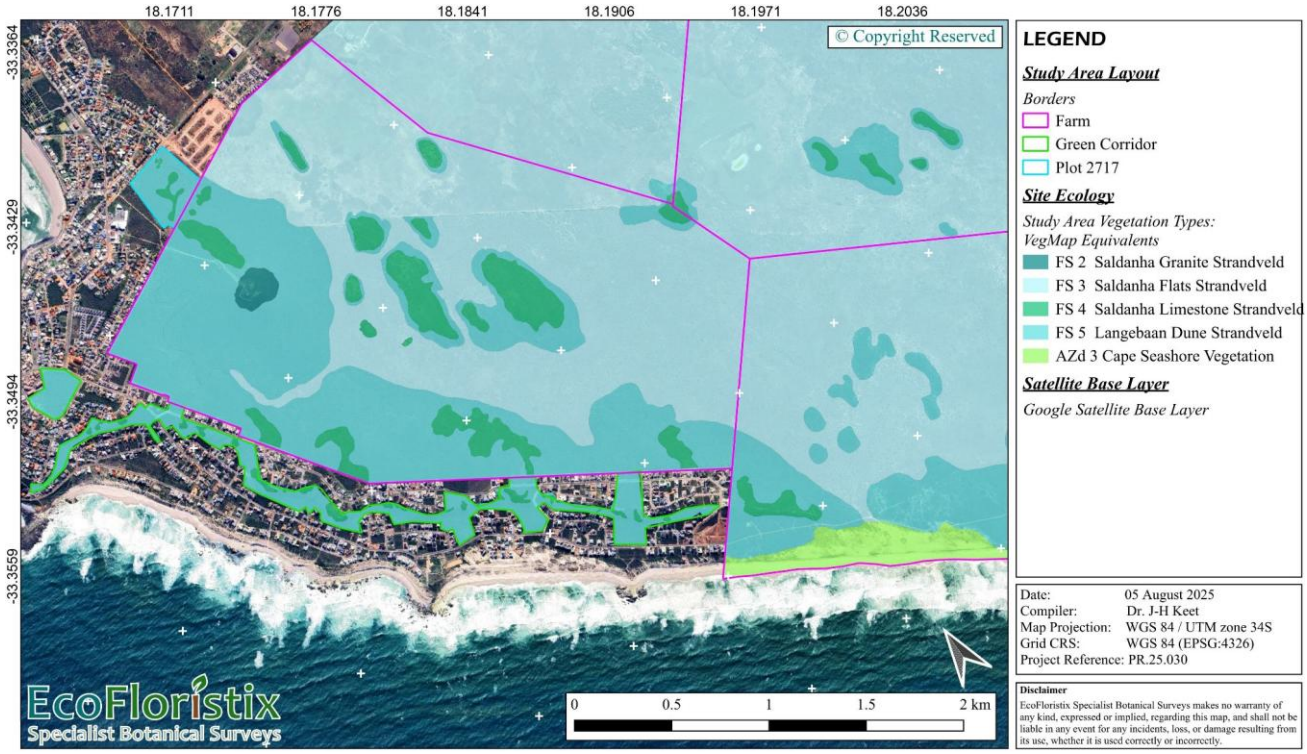

Figure 2: Study area vegetation types as they equate to units circumscribed by VegMap. Note that some of the vegetation on site does not conform well to VegMap definitions.

In addition, use was made of the following data:

- SANBI veld types data; and
- Literature as referenced

1.8. Site Visit

The sampling and analysis of the site during on 8 December 2021 and also 11 January 2023, provides suitable data and results to present an informed decision on the local ecology. It must also be noted that the area was at least visited once a month for the last 3 years which also informed the findings in this report. The sampling and analysis of the site provides suitable data and results to present an informed decision on the local terrestrial biodiversity and ecology. During the site visit, the different biodiversity features, habitat, vegetation and landscape units present were identified and recorded in the field. Walk-through-surveys were conducted of representative habitats and areas of interest. Searches for listed and protected animal species at the site were conducted and the location of all listed animal species observed was recorded (if present). Active searches for reptiles and amphibians were also conducted within habitats likely to harbour or be important for such species. For the Species of Conservation Concern (SCC) surveys and sampling the following techniques were used. For Avi-Fauna, surveys were focus on observations while walking, using elevated areas to do surveys over time using binoculars, observations while driving and knowledge of years visiting the area. For mammals surveys was focus on direct observations were made by walking through the project area and recording species seen. In addition, habitats that typically provide refuge for faunal species were targeted to search for specific species.

Reptiles and terrestrial amphibians were targeted in microhabitats by lifting rocks and logs, peeling away bark and scraping through leaf litter.

Binoculars were used to view and record mammal and Avi-Fauna species from a distance without disturbing them. While walking the project area, mammals and Avi-Fauna are often flushed from hiding and were recorded.

Indirect observation is the searching for evidence of faunal presence and includes spoor, skat, roadkill, skulls, quills, dens, burrows, hairs, scrapings, and diggings.



Figure 3: Survey route map



Photograph 1: Taken on 8 December 2021. General ecological state of the site.



Photograph 2: Taken on 8 December 2021. General ecological state of the site.



Photograph 3: Taken on 8 December 2021. General ecological state of the site.



Photograph 4: Taken on 8 December 2021. General ecological state of the site.



Photograph 5: Taken on 10 September 2025. General ecological state of the site.

The Project Area of Influence (PAOI), which is the whole property, was map and included in the screen tool.

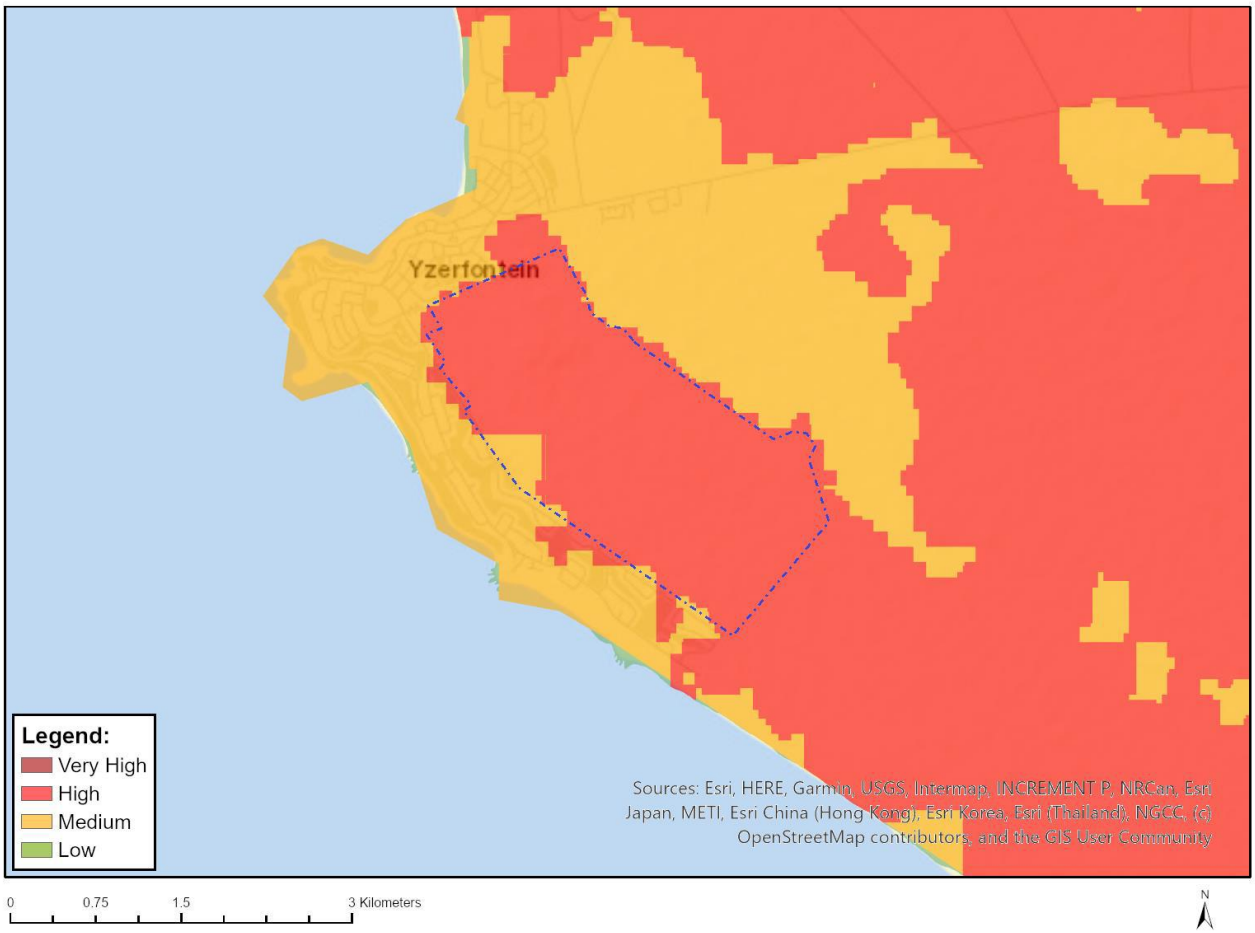

Figure 4: PAIO map relevant to animal species as per the environmental screen tool report.

1.9. Sensitivity Mapping and Assessment (Site Ecological Importance)[7]

The following sensitive species were list in the environmental screen report and special focus was placed on these species, their habitat, presence and signs of their existence on the site during the site survey:

- Aves-*Circus ranivorus* (EN) **High sensitivity**
- Aves-*Circus maurus* (EN) **High sensitivity**
- Aves-*Falco biarmicus* (NT) **High sensitivity**
- Aves - *Aquila verreauxii* (LC) **High sensitivity**
- Aves-*Afrotis afra* (VU) **High sensitivity**
- Invertebrate-*Bullacris obliqua* (VU) **Medium sensitivity**
- Reptilia- *Bitis armata* (VU) **Medium sensitivity**

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

Criteria for establishing Site Ecological Importance and description of criteria.

Criteria	Description
Conservation Importance (CI)	*The importance of a site for supporting biodiversity features of conservation concern present e.g. populations of Threatened and Near-Threatened species (CR, EN, VU & NT), Rare, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through*
Functional Integrity (FI)	*A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current*
Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor.	
Receptor Resilience (RR)	*The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no*
Site Ecological Importance (SEI) is a function of Biodiversity Importance (BI) and	

Species	Threat status	Habitat requirements	Likelihood of occurrence based on habitat and current records Probability of Occurance	Site Ecological Importance (SEI) Importance (CI) Biodiversity Importance (BI) Functional Integrity (FI) Receptor Resilience (RR)
Aquila verreauxii	VU	The regional population of Verreaux's Eagle *Aquila verreauxii* qualifies as regionally Vulnerable under the population-size criterion (less than 10 000 mature individuals with a continuing decline estimated to be greater than 10% in three generations). In addition, the species approaches the population-trend criterion for regionally Vulnerable (an observed, estimated, inferred or suspected population size reduction of 30% over three generations where the reduction or its causes may not have ceased or may not be understood or may not be reversible). Verreaux's Eagle has a wide distribution throughout Africa, stretching from Eritrea and Ethiopia in the north, southward to South Africa (Ferguson-Lees and Christie 2001). Within the region, the species is distributed across five different biomes: Fynbos,	Based on the fact that its habitat exists on site and that they were previously recorded in the area, the close proximity of the granite outcrop and the availability of prey items, the likelihood of occurrence of this species at the project site is rated as high. No recordings of nest and breeding on the site was recorded. The closest know breeding site is in the Rondeberg Klip quarry to the southeast close to Jakkalsfontein Private Nature Reserve. Urbanisation is a threat, particularly if it results in a decrease in the prey base, which is Rock Hyrax *Procavia capensis*. However, most of the prey base habitat will be protected in the no development and proposed conservation areas.	**SEI – High Sensitivity** **CI = Medium** **FI = High** **BI = Medium** **RR = Low.** **SEI – High (Correct sensitivity as reported in screen tool report.**

		Grassland, Savannah, Nama-Karoo and Succulent Karoo. Within these biomes, it is mainly restricted to mountainous terrain (Davies and Allan 1997) because of its hunting and breeding biology. The distribution is closely linked to the presence of Rock Hyrax *Procavia capensis* (Gargett and Mundy 1990). For example, in Giant's Castle Nature Reserve, KwaZulu-Natal, the amount of suitable habitat for Rock Hyrax was limited, and Verreaux's Eagles had larger home ranges (Brown 1988). Surprisingly, it is scarce to absent in apparently suitable habitat in much of Lesotho and the former Transkei (Davies and Allan 1997). The species is restricted to the Highveld of Swaziland, with nests recorded in Mlilwane Wildlife Sanctuary and suspected in Malolotja National Park (Monadjem et al. 2003). At the time of writing, the species had been recorded from 998 pentads during SABAP2. A comparison of the EoO between SABAP1 and		

		SABAP2 shows minimal change (-2%), but a decline of 42% in AoO. The species is still well represented in the IBA network throughout the region. The global population has not been quantified, but is thought to number in the tens of thousands (BirdLife International 2014). Few historical and no current regional population estimates exist. Tarboton and Allan (1984) estimated the population in north-eastern South Africa to be 500 mature individuals. Davies (1994) provides an estimate of 2 000 mature individuals for the former Cape Province. In Swaziland, Parker (1994) estimated there to be 10 mature individuals, with Monadjem and Rasmussen (2008) providing a slightly lower estimate of eight birds. Reported densities in the region range from a low of one pair/65 km^2 in the Drakensberg (Brown 1988) to one pair/24 km2 in the Karoo (Davies and Ferguson 2000). Allan (1988) calculated		

		average home ranges of 35 km^2 for birds in the Magaliesberg, based on 13 pairs spaced on average 9.5 km apart, while figures calculated for suitable habitat in other areas of the former Transvaal averaged 7-13 km between pairs (Tarboton and Allan 1984). Outside of the region, a maximum of one pair/10 km^2 was recorded in the Matobos, Zimbabwe (Gargett and Mundy 1990), an area of optimal habitat. An average density of one pair/41 km^2 was used to extrapolate a regional population of 3 505 mature individuals, based on the reported AoO of 71 856 km^2. This estimate is possibly an underestimate for two reasons. The density estimate may be higher than reported, with the average influenced by Brown's study in the Drakensberg (Brown 1988). In addition, large areas of Northern Cape and western portions of North West Province, where the species is up to seven times more abundant than other raptors		

		(Boshoff et al. 1983), have not been adequately atlased. The regional population is therefore estimated to be 3 500-3 750 mature individuals. Confidence in this estimate is low and this figure requires verification. The global population trend is thought to be stable in the absence of declines or substantial threats (BirdLife International 2014). Within the region, Verreaux's Eagle has apparently undergone a reduction of 42% in AoO since 1993, as well as a drop in reporting rates in KwaZulu-Natal, Eastern Cape, Free State, Gauteng, Limpopo and Mpumalanga. This suggests that the species has undergone a decline in population between the two atlas reporting periods. However, the relationship between AoO as calculated for SABAP1 and SABAP2 data, and populations of large, sparsely distributed birds, has not been verified. The regional population is suspected to be undergoing a decline, although the rate is unknown		

		and requires further investigation. While the exact rate of decline is not known it is thought to be greater than 10% over three generations. Confidence in this estimate is low. The primary threat faced by the species within the region is pressure from stock farmers (Davies 1994). Direct persecution by farmers is usually in retaliation to these eagles catching domestic livestock and poultry, or fouling drinking water (Anderson 2000). Ironically, the beneficial role that a pair of Verreaux's Eagles play on a farm, in terms of controlling hyrax numbers and distribution, outweighs the cost of occasional lamb predation by a factor of 155 times (Davies and Ferguson 2000). Fortunately, the species' low reliance on carrion, in contrast to the habits of Tawny Eagle *Aquila rapax* and Bateleur *Terathopius ecaudatus*, reduces the risk from poisoning events (Davies and Allan 1997).		

		Incidents of Verreauxs' Eagle being caught and killed/maimed in gin traps in Northern Cape have been reported (Anderson 2000). The depletion of the primary prey species, Rock Hyrax, through hunting is likely to have a negative impact on breeding success (Monadjem et al. 2003) and has been identified by several authors as a reason for localised declines (Osborne and Tigar 1990, Chiweshe 2007). Anderson at al. (1999) reported that Verreaux's Eagle is one of the four raptors most likely to drown in reservoirs. Urbanisation is a threat, particularly if it results in a decrease in the prey base. Allan (1984), in his study of Verreaux's Eagle in the Magaliesberg, reported that most breeding failures were human-induced. The species is somewhat susceptible to collisions with and resultant electrocution from power-lines and related infrastructure. Development of wind farms, especially in mountainous areas, poses a future threat to		

		this species, which may prove to be highly significant.[8]		
Afrotis afra	VU	The species is endemic to the region, being confined to the winter- and mixed winter-summer rainfall areas of the Albany Thicket, Fynbos and Succulent Karoo biomes, and the southern extreme of the Nama Karoo Biome, in South Africa's Western, Northern and Eastern Cape provinces (Crowe et al. 1994, Allan 2005). Records in Limpopo, Gauteng, Free State and northern extremities of Northern Cape are attributable to misidentifications of the Northern Black Korhaan. A comparison of SABAP1 and SABAP2 reporting rates indicates a decrease in 226 of the 284 QDSs in which the species was reported in either project (Hofmeyr 2012). The species has been recorded in 20 IBAs in the region. Population The global population size has not been quantified and requires urgent investigation. Population trend	Was recorded previously in close proximity to the site. Habitat in the project area is not appropriate for this species. Significant area mapped as high sensitivity will not be developed.	**SEI – High Sensitivity** **CI = Medium** **FI = High** **BI = Medium** **RR = Low.** **SEI – High (Correct sensitivity as reported in screen tool report.**

[8] https://speciesstatus.sanbi.org/assessment/last-assessment/2984/

		Historically described by Stark and Sclater (1906) as very common and certainly the most abundant of all game birds throughout the Cape Colony; by Uys and Macleod (1967) as one of the dominant species of Coastal Fynbos; by Clancey (1973) as locally common to common; and by Hockey et al. (1989) as a common resident. Although the Southern Black Korhaan still occurs at relatively high densities in small patches of optimal habitat, it is now generally scarce and localised, and the population is undergoing a decline. Comparing reporting rates from SABAP1 and SABAP2, populations in Western Cape showed the most widespread reduction in reporting rates (86% of QDSs), followed by Northern Cape (73%), and Eastern Cape (71%). It is unlikely that these declines were an artefact of the change in atlasing protocol (Hofmeyr 2012), as the species is conspicuous. Coordinated Avifaunal Roadcounts (CAR) data		

		suggest that the Overberg and Swartland populations declined between 1998 and 2010, while a small portion of the Eastern Cape population showed an increase in numbers after a period of initial decline during a similar period (Hofmeyr 2012). These data showed a higher density in Eastern Cape, which may be explained by the smaller extent of habitat transformation in the Karoo, or may be an artefact of greater detectability in Karoo vegetation compared to Fynbos. Overall, based on data from both SABAP and CAR, the population is thought to have declined by greater than 30% since SABAP1 (1987-1993). The confidence in this estimate is medium. Threats The primary threat to the species is probably habitat loss and degradation due to cultivation (Hofmeyr 2012). Further research is required to understand the reasons for the decline of this species; however, climate change, human disturbance and		

		increased nest predation by corvids may have also played a role (Hofmeyr 2012)[9].		
Black Harrier *Circus maurus*	EN	1,340,000km^2 251-999 individuals This species occurs in coastal and montane fynbos in the Western Cape particularly near vleis, marshes, streams or dams as well as dry grasslands, Karoo subdesert scrub, open plains with low shrubs and croplands. In renosterveld breeding restricted to intact patches exceeding 100ha. Breeds close to coastal and upland marshes with tall shrubs or reeds, damp sites, near vleis, marshes or streams, are preferred for breeding. Nests are shallow platform nests built on the ground, either dry or damp underfoot and not over water. Concealed by rank vegetation. This species breeds from Aug-Nov with nestlings departing approximately two months later.	Was recorded roaming inland, but is also likely to roam the area. *Rhabdomys pumilio* does occur in the project area suggesting that it could use the project area for foraging. Primary nesting habitat is not present. Harriers breed close to coastal and upland marshes, damp sites, near vleis or streams with tall shrubs or reeds. This habitat are present inland but not in close proximity to the impacted areas.	**SEI – High Sensitivty** **CI = Medium** **FI = High** **BI = Medium** **RR = Low.** **SEI – High (Correct sensitivity as reported in screen tool report.**

[9] https://speciesstatus.sanbi.org/assessment/last-assessment/2965/

		Prefers open ground with low vegetation for hunting, where it feeds on a diet comprising mainly of small mammals, especially *Otomys* and *Rhabdomys* species at coastal sites and birds in montane habitats. At inland sites the diet shifts between small mammals to birds depending on the season. (BirdLife Int., 2016; Taylor et al., 2015; Tarboton, 2014 and Chittenden, 2009)		
African Marsh Harrier *Circus ranivorus*	VU	The distribution of this species is from South Africa north to Democratic Republic of Congo and southern Sudan with a likely stronghold in the Okavango marshes (Botswana). It has an EOO 9,470,000km^2. South Africa hosts ±3,000-6,000 pairs. This species inhabits wetlands where it breeds and primarily forages over reeds and lake margins remain for small mammals, particularly striped mouse *Rhabdomys pumilio* (BirdLife Int., 2016).	Was not recorded on site and only likely to roam the area. *Rhabdomys pumilio* occur in the project area suggesting that it could use the project area for foraging. Primary nesting habitat is not present on the impacted areas. They will simply move into the bigger surrounding area during construction. The study site had an absence of suitable large wetland ecosystems for this species to inhabit, and the high level of human disturbance likely also prevents individuals of this species moving into or through the area. It is therefore unlikely that the proposed development will have an impact on the continued survival of this species.	**SEI – High Sensitivity** **CI = Medium** **FI = High** **BI = Medium** **RR = Low.** **SEI – High (Correct sensitivity as reported in screen tool report.**
Bullacris obliqua	VU	*Bullacris obliqua* is endemic to the south-western regions of	**Site Ecological Importance - Low**	**SEI – Low Sensitivity** **CI = Medium**

		South Africa, where it has an estimated area of occupancy (AOO) of between 100 and 3,000 km². This has likely resulted from habitat destruction due to extensive urban development and farming across the geographic range of the species. The number of subpopulations and individuals is also inferred to be declining based on the species being relatively uncommon in the field, and undetected in certain areas of the Western Cape where it was historically recorded. The population is severely fragmented. The AOO is here assumed to be higher than 500 km² and lower than 2,000 km² and, therefore, it is classified as Vulnerable (VU). Distribution *Bullacris obliqua* is endemic to the west coast of South Africa, where it occurs in both the Western Cape and Northern Cape Provinces. It has a more patchy distribution than other Pneumoridae species inhabiting these areas. Its extent of occurrence (EOO) is ca 33,500 km² and its area of	Was not recorded on site. Host plant *Eriocephalus africanus* were not recorded on site.	**FI = High** **BI = Medium** **RR = High. Habitat not on site or in close proximity.**

		occupancy (AOO) is estimated to be between 100 and 3,000 km². Habitat View more ecological information Terrestrial *Bullacris obliqua* inhabits the Fynbos biome. *Eriocephalus africanus* is currently the only confirmed host plant for this species[10].		
Britis armata	VU	Has a restricted range (extent of occurrence (EOO = 12,945 km^2) and area of occupancy (AOO = 830 km^2) are below the Vulnerable thresholds) which is severely fragmented [B1a+2a]. The Southern Adder is confined to a particular habitat type, which, outside of protected areas, is threatened by housing and other developments. It is also collected for the pet trade and has suffered extirpation in several areas near Cape Town (Branch 1999) [B1b(v)+2b(v)]. Because the range continues to decrease in size and quality [B1b(i,ii,iii)+2b(i,ii,iii)], and	The *Britis armata* may be located on site, but the development areas are small in comparison to the habitat available, and all of the limestone geology which provides shelters under limestone rock slabs between dense shrubs on coastal plains (Branch 1998) which is in habitat by this species will be located inside the offset and open space areas and not impacted by the development.	**SEI – Medium Sensitivity** **CI = Medium** **FI = High** **BI = Medium** **RR = medium.**

[10] https://speciesstatus.sanbi.org/assessment/last-assessment/4376/

		because the number of subpopulations is also decreasing [B1b(iv)+2b(iv)], this species is considered Vulnerable. Range Description: Endemic to the Western Cape, South Africa. Found in two disjunct coastal regions: around Langebaan Peninsula on the West Coast, and from the Bot River area to the Breede River mouth on the south coast. There may also be very small remnant subpopulations between Somerset West and Danger Point. Branch's (1999) Potberg record (3420BC) for *Bitis cornuta* is considered to be referable to *B. armata* as there are recent records of this species from that locality. Occurs mainly in coastal fynbos associated with limestone geology. Shelters under limestone rock slabs between dense shrubs on coastal plains (Branch 1998). Has pronounced arboreal habits and has been found in bushes 1.5–2 m above the ground (Phelps 2006).		

		Although typically a snake of low-lying fynbos, one individual near Gansbaai was found at an altitude of 300 m (Phelps 2009).[11]		
Falco biarmicus	VU A2bc; C1	Rationale (Changed due to Genuine (recent)) The regional population of Lanner Falcon *Falco biarmicus* appears to be decreasing at a rate that satisfies the population-trend criterion for regionally Vulnerable (greater than 30% decline over 10 years or three generations). In addition, the species qualifies for regionally Vulnerable under the population-size criterion (less than10 000 mature individuals, with a continuing decline estimated to be greater than 10% over three generations). Distribution The Lanner Falcon is widespread across Africa, the Arabian Peninsula and the Western Palearctic (Ferguson-Lees and Christie 2001). Within the region, the	Lanner Falcons favour open grassland, cleared woodlands and agricultural areas. Breeding pairs tend to favour cliffs as nesting and roosting sites; however, they will use alternative structures such as trees, pylons and buildings. This habitat is not present on site and the development of low structures will not affect or impact on them.	**SEI – Low Sensitivity** **CI = Medium** **FI = High** **BI = Medium** **RR = High. Habitat not on site or in close proximity.**

[11] Turner, A.A. 2017. Bitis armata. The IUCN Red List of Threatened Species 2017: e.T22473777A110343644. http://dx.doi.org/10.2305/IUCN.UK.2017-1.RLTS.T22473777A110343644.en

		species occurs widely but sparsely throughout South Africa, Lesotho and Swaziland, with the highest densities recorded in Western Cape and KwaZulu-Natal. The species is a partial seasonal migrant, and there is a post-breeding exodus from the core breeding range in the eastern sour grasslands (December-January), with apparent movements westwards in the non-breeding season into Fynbos, Nama Karoo and southern Kalahari, returning May-June (van Zyl et al. 1994). Movements may be more variable and nomadic in character, and are probably related to rainfall and consequently prey abundance. The species has been able to take advantage of existing corvid nests on transmission poles in the Karoo, enabling it to inhabit large expanses of otherwise treeless habitat (Jenkins 2000b). Comparison of SABAP1 and SABAP2 data between 1997 and 2015 indicates that the species has undergone a c. 40% decline in		

		AoO. While the relationship between a decline in AoO and sparsely distributed species has not been verified it does indicate that the Lanner Falcon may have undergone a decline. The species is well represented in the regional Important Bird Areas network. Population The global population has not been quantified (BirdLife International 2014bd) although Ferguson-Lees and Christie (2001) estimated at least 65 000 pairs. Cade and Digby (1982) estimated that 9 000-18 000 pairs occur in the region, while Tarboton and Allan (1984) estimated 1 400 pairs in the former Transvaal. These population estimates are now almost certainly out of date and overly optimistic. Barnes and Jenkins (2000) did not provide a population estimate in their 2000 assessment of the species. A preliminary estimate of less than5 000 mature individuals in the region is provided here, although confidence in this figure is low. Population trend		

		The global population has suffered local declines (BirdLife International 2014bd). Between 1997 and 2013, the species has apparently undergone a considerable (c. 40%) decline in AoO. As Lanner Falcons are territorial and relatively conspicuous, the species is unlikely to have been under-recorded in SABAP2. Assuming that the population in 1997, three generations ago, was in the region of 13 500 mature individuals, and that the decline was exponential, this would represent a decrease of 45% over three generations. This is a conservative estimate and is based upon the assumption that the population was stable between 1982 and 1997; this is unlikely to have been the case, particularly in agricultural landscapes (Kemp 1993). Confidence in the estimate is low. Threats The primary threat to the Lanner Falcon is the loss or transformation of habitat within the Grassland Biome,		

		through urbanisation, agriculture and afforestation, with corresponding reductions in preferred prey and foraging opportunities (Barnes and Jenkins 2000). To some extent, these processes may be offset in woodland and forested areas where the clearing of trees serves to enhance existing conditions or even create additional habitat. Secondary threats include poisoning by agrochemicals (Kemp 1993), collisions with power-lines, and persecution by pigeon fanciers and owners of domestic fowl (which in some areas make up 30-40% of their diet; Leonardi et al. 1992).[12]		
Scelotes gronovii	LC	There is moderate habitat loss within this species small range (extent of occurrence is ca 7,200 km2) but the overall distribution has large areas of intact habitat and several protected areas (Geo Terra 2015). The species is therefore considered Least Concern.	It is often found under small calcrete rocks in coastal sand or under any kind of debris lying on sand,	**SEI – Low Sensitivity** **CI = Low** **FI = High** **BI = Medium** **RR = High.**

The overall SEI on the PAOI is high.

[12] https://speciesstatus.sanbi.org/assessment/last-assessment/3052/

2. APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

The proposed development within the study site is considered to elicit a requirement for possible compliance with the following legislation applicable to this assessment:

- Constitution of the Republic of South Africa, 1996
- National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA] and relevant regulations
- Section 42 of Spatial Planning and Land Use Management Act (16 of 2013) ("SPLUMA")
- Western Cape Land Use Planning Act, 2014 ("LUPA")
- The National Environmental Management: Biodiversity Act (Act 10 of 2004)
- Western Cape Biodiversity Act 6 of 2021
- South Africa's National Environmental Management: Protected Areas Act 57 of 2003

The effective disturbance and removal of species identified above, as well as possible other species (i.e. Threatened or Protected Species (TOPS) species), will require specific permission from the applicable authorities. Threatened or Protected Species, such as *Britis armata* that may occur on site as well as other animal species that may be search and rescued, will requires a permit for disturbance or removal.

3. DESCRIPTION OF PROJECT ASPECTS RELEVANT TO ANIMAL SPECIES FEATURES

Project – PROPOSED ACTIVITY DESCRIPTION
The proposed development will be done in phases:

- 749 Residential Zone 1 erven - ±50.4421ha
- 3 General Residential Zone 1 (grouphouse). Total of 168 units - ±6.8237ha
- Open Space Zone 1 erven - ±85.6363ha
- 2 Business Zone 2 erven - ±1.0071ha
- Transport Zone 2: Roads - ±14.0582ha

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT.

4.1. Locality

Yzerfontein is approximately 80 kilometres from Cape Town along the west coast. This location advantage and accessibility contributes to the town's attractiveness and growth over the past years. Portion 4 of Farm No.560, Malmesbury RD is located south-east of the existing residential area of town.

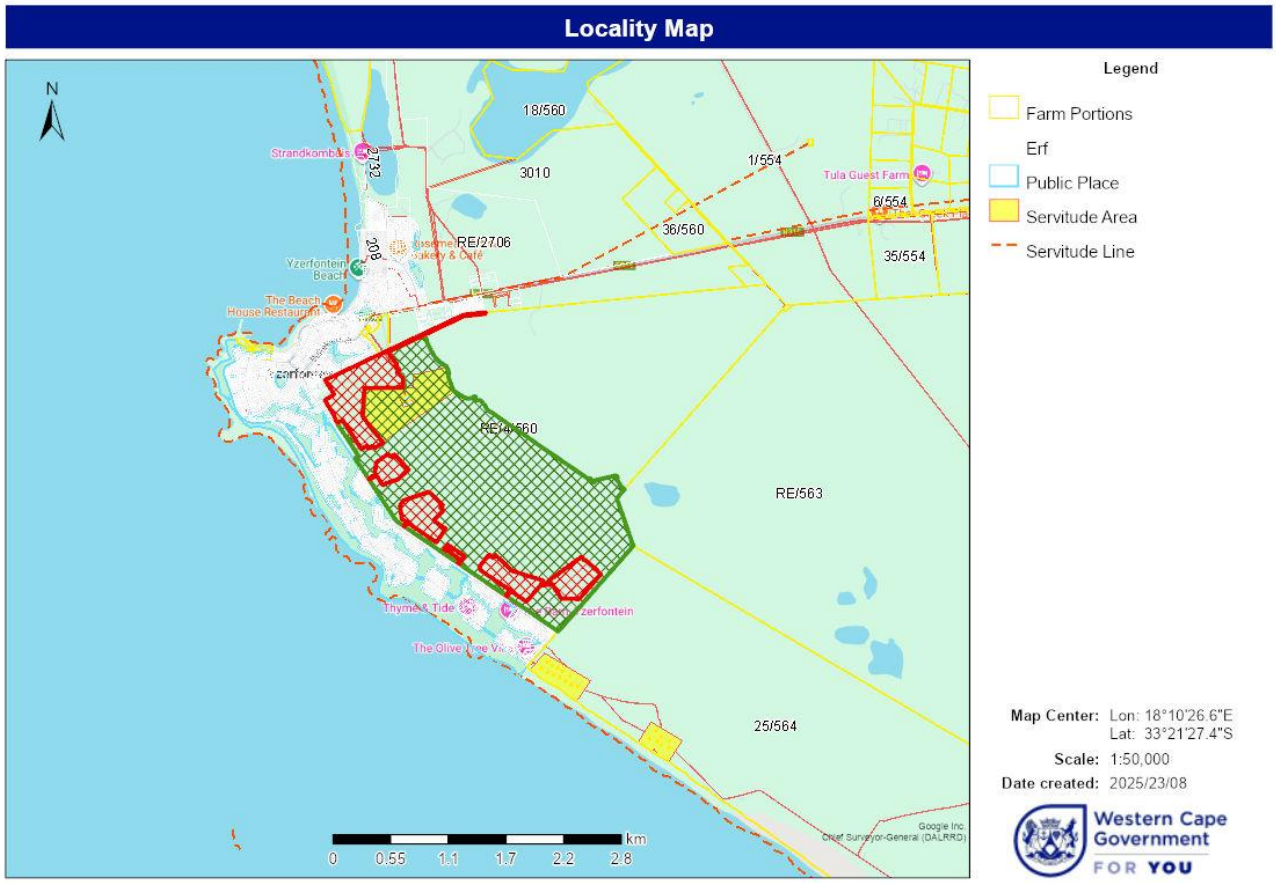

Figure 5: Locality Map. Red polygon development impacts areas and green proposed open spaces and conservation offset areas.

4.2. Topography

The site is between 25 and 74m above sea level. The area is characterised by a landscape with a moderate slope. The elevation profile is as follows: west to east along Atlantic drive and western border and South to north in the northern section of the development area. There are no unstable rocky slopes or steep slopes with loose soil. The site does not contain dispersive soils (soils that dissolve in water) and does not have a high clay content.

4.3. Geology and Soils

Soil and Geology
Soil: Glenrosa and/or Mispah forms (other soils may occur), lime generally present in the entire landscape
Geology: Mainly Quaternary limestone and calcrete of the Langebaan Formation and Quaternary quartz sand of the Springfontein Formation as well as diorite and gabbro of the Yzerfontein Suite.
Source: CapeFarmMapper, dated 11 April 2022

4.4. Description of the Animal (Fauna) Species

Fauna occurring on site include assemblages within the terrestrial ecosystem and these includes mammals, birds, reptiles, amphibians, fish and invertebrates.

4.4.1. Identify The SCC Which Were Found, Observed Or Are Likely To Occur Within The Study Area

It is important to note that although an area may be within a species distribution, the species may no longer inhabit the area or may not inhabit it permanently due to a lack of available habitat.

Faunal species of conservation concern are those listed as threatened, near-threatened and/or are endemic or range restricted. The Western Cape hosts several terrestrial vertebrate species of conservation concern (Turner & Villiers, 2017) of which two have a distribution range which includes the project area. This includes *Scelotes montispectus* and *Scelotes montispectus* (NT).

The likelihood of these species occurring in the project area was assessed in Table below.

Table 1: Faunal SCC that has a distribution which includes the project area.

Taxon	Common name	Species	Threat status	Likelihood of Occurrence	Importance of project area to SCC
Reptile	Gronovi's dwarf burrowskink	*Scelotes gronovii*	NT	High	Medium
Reptile	Bloubergstrand dwarf burrowing skink	*Scelotes montispectus*	NT	Low Recorded to the north of the site and known localities south of the site. However, habitat not on site. Inhabits sparsely vegetated coastal dunes near sea level (Bauer et al. 2003).	Medium

Below a list of some of the species recorded during the site survey (this is however not an indication of species present on the area and bigger area as more species not observed or recorded will inhabit the area:

- Pied crow *Corvus albus*
- Bokmakierie *Telophorus zeylonus*
- Termines *Trithemis sp*
- Angulate tortoise *Chersina angulate*
- Cape spurfowl *Pternistis capensis*

- Cape weaver *Ploceur capensis*
- Karoo scrub robin *Cercotrichas coryphoeus*
- Cape Robin-Chat *Dessonornis caffer*
- Rock Kestrel *Lalco rupicolus*
- Cape bunting *Emberiza capensis*
- Cape bulbul *Pycnonotus capensis*
- Pied starling *Lamprotornis bicolor*
- Cape wagtail *Motacilla capensis*
- Cape sparrow *Passer melanurus*
- Grey-backed cisticola *Cisticola subruficapilla*
- Southern double-collared sunbird *Cinnyris chalybeus*
- Black harrier *Circus maurus* (roaming in a distance inland)
- White pelican *Pelecanus erythrorhynchos* (flying high above the site when take off from Dassen Island to flight inland)
- Four-striped grass mouse *Rhabdomys pumilio* (activities)
- Cape gray mongoose *Galerella pulverulenta*
- Common duiker *Sylvicapra grimmia*
- Rock hyrax *Procavia capensis*
- Mole snake *Pseudaspis cana*

The proposed development of the areas, although it can possibly impact on animal species, will not result in the loss or significant impacts on the population size of any species and change the conservation status of these species nor lead to its extension. This is because the impacted area and habitat loss is very small in terms of the total available habitat for this species.

Invertebrates

Observations and Findings
The area will have a rich and diverse invertebrate life. The proposed development, if restricted to recommended development areas, will not have significant detrimental impact on invertebrate species. The following invertebrate species were recorded during surveys or are known to occur in the area: Termites - *Amitermes hastatus, Odontorrhina pubescens ssp. pubescens* and *Melyris viridis*. The focus of the assessment was on the listed species.

The following sensitive species were recorded in the environmental screen report:
The Yellow-winged Agile Grasshopper - *Bullacris obliqua*
According to (http://speciesstatus.sanbi.org/taxa/detail/4376/) *Bullacris obliqua* inhabits the Fynbos biome. *Eriocephalus africanus* is currently the only confirmed host plant for this species. No *Eriocephalus africanus* plants were recorded on site. This species was not recorded on site. The proposed development will also not impact on these species, nor result in significant losses and impacts that will result in the extension or deterioration of its conservation status of vulnerable. No sweep netting sampling was used since this species host plant is not present on site.

Birds (Avifauna)

212 species are known to occur in the bigger Yzerfontein area (Hockey et al 2006).

Observations and Findings:

No sensitive breeding or roosting sites were observed on site during the survey.

Afrotis afra and *Aquila verreauxii* were not recorded during the survey. *Aquila verreauxii* habitat exists on site. *Afrotis afra was* recorded previously in close proximity to the site.

It is expected that the proposed development will not impact on any listed bird species. Bird species known to occur on the property will be impacted upon by the proposed development, but they could simply fly away to adjacent indigenous vegetation areas and come back after construction. *Circus maurus* were observed roaming in a distance. This is evidence that the existing development, and therefore this proposed expansion of the urban areas next to the existing Yzerfontein will not negatively impact *Circus maurus* or any other of the Avi-Fauna species listed in the screen tool report. Damp sites, near vleis, marshes or streams, are preferred for breeding (Brown *et al.* 1982), while south-facing slopes are preferred in montane areas (R.E. Simmons *in litt*. 2007). None of these habitats are present on or close to the development areas. A large proportion of the population is found on private land and hence is susceptible to changes in land-use (Chadwick 1997). About 60% of the 150 breeding sites known are found in protected areas, suggesting that intact habitats and prey bases are essential for the wellbeing of this species. The population of the species appears to fluctuate, possibly with fluctuations in its prey-base, which is mainly small rodents (Barnes 2000, Simmons et al. 2005). Long-term impacts that depress the abundance of small mammals are likely to consequently affect Black Harrier numbers. Other long-term threats include climate change impacts such as decreasing rainfall and increasing temperature in their core breeding areas on the West Coast (B Hewitson pers comm.). A decrease in ground moisture is likely to reduce suitable nest sites (because damp areas are preferred) and decrease mouse populations that breed less prolifically in dry conditions (Retief 2011). The proposed non develop and conservation offset areas will however help with the protection of this species. Their breeding habitat is present in the low-lying areas to the east which is ecologically link to the offset and non-developed area.

Comments with concerns was raised in terms of the impact of the proposed development on *Pelecanus erythrorhynchos*. *Pelecanus erythrorhynchos* were observed from time to time flying high above the site when take-off from Dassen Island to fly inland. There is no habitat or food source for the *Pelecanus erythrorhynchos* on the proposed development site or in the bigger areas and therefore these birds will not be impacted by the proposed development. The existing Yzerfontein development is located between Dassen Island (where these birds breed and fly from) and the proposed development. No high structures will be built that can impact on their flight paths and therefore since there is no evidence or observations/ recordings of any dead or impacted *Pelecanus erythrorhynchos* in the existing Yzerfontein, the proposed development will also not have an impact on *Pelecanus erythrorhynchos*.

- **<u>Amphibians and Reptiles (Herpetofauna)</u>**

With respect to amphibians, Minter et al (2004) state that “habitat loss or modification as a result of agriculture and other forms of human activity remains the most important single threat to the survival of amphibian populations. The scale of these changes and their relative permanence being the major cause. At greatest risk are species that have limited distributions.” The increased possibility of interaction between *B. armata* and humans and/or pets would have a negative impact on the local population numbers.

As reported in Alexander *et al* (2007) 50 reptile species are likely to inhabit the area.

Findings:

The increased possibility of interaction between *B. armata* and humans and/or pets would have a negative impact on the local population numbers. The proposed development will not have significant impact on reptiles or amphibians. No amphibian SCC is known to occur at the site and occurrence of amphibian species will be limited since there are no wetlands or vlei areas present on site. The *Britis armata* may be located on site, but the development areas are small in comparison to the habitat available, and all of the limestone geology which provides shelters under limestone rock slabs between dense shrubs on coastal plains (Branch 1998) in habitat by this species will be located inside the offset and open space areas. Furthermore, protect populations that currently fall outside conservation areas may take the form of private conservation initiatives and will be most effective if corridors between protected areas are established and protected. The proposed development includes significant offset areas that will be zoned open space and conserved by means of a conservation servitude that will protect and establish the south north corridor between the West Coast National Park and the conservation area to the south.

Mammals:

As reported in Smithers (1983) small buck e.g. common duiker, steenbok and grysbok, rodents such as mole rats, field mice and hares, as well as carnivores such as genets and mongoose are likely to inhabit the area.

Some 62 species are known to occur in the bigger area (Smithers 1983).

Observations and Findings:

Sylvicapra grimmia, Georychus capensis, Rhabdomys pumilio (activities) and *Galerella pulverulenta* were recorded on the development site.

Red Data Listed or species listed under TOPS regulation (Mammals)

The following table lists the Red Data mammal species (including their status) which are predicted, or confirmed to occur in the general area and possibly within the study area (SANBI Red list of species):

RED DATA SPECIES			
COMMON NAME	**SCIENTIFIC NAME**	**RED DATA CATEGORY**	**PREDICTED OCCURRENCE**
Forest shrew	*Myosorex varius*	Least concern	Unlikely
Lesueur's Wing-gland Bat	*Cistugo lesueuri*	Least concern	Possible
Cape Serotine Bat	*Neoromicia capensis*	Least Concern	Possible
Egyptian Free-tailed Bat	*Tadarida aegyptiaca*	Least Concern	Possible
Cape Clawless Otter	*Aonyx capensis*	Near threatened	Unlikely

Geoffroy's horseshoe bat	*Rhinolophus clivosus*	Least Concern	Possible
Water Mongoose	*Atilax paludinosus*	Least Concern	Unlikely
Long-tailed Serotine Bat	*Eptesicus hottentotus*	Least Concern	Unlikely
Honey badger	*Mellivora capensis*	Least Threatened	Possible to definitely
African Weasel	*Poecilogale albinucha*	Least Threatened	Unlikely
Water Rat	*Dasymys incomtus*	Near Threatened	Unlikely
Grey Climbing Mouse	*Dendromus melanotis*	Least Concern	Possible
Cape Mole Rat	*Georychus capensis*	Not Evaluated	Definitive
Cape Dune Mole Rat	*Bathyergus suillus*	Least Concern	Likely
Common Mole Rat	*Cryptomys hottentotus*	Least Concern	Likely
Hairy Footed Gerbil	*Gerbillurus paeba*	Least Concern	Possible
Spectacled Dormouse	*Graphiurus ocularis*	Least Concern	Likely
Porcupine	*Hystrix africaeaustralis*	Least Concern	Likely to definitely
Pygmy Mouse	*Mus minutoides*	Least Concern	Unlikely
White-Tailed Rat	*Mystromys albicaudatus*	Vulnerable	Unlikely
Vlei Rat	*Otomys irroratus*	Least Concern	Unlikely
Saunders Vlei Rat	*Otomys saundersiae*	Least Concern	Unlikely
Pouched Mouse	*Saccostomus campestris*	Least Concern	Unlikely
Krebs Fat Mouse	*Steatomys krebsii*	Least Concern	Likely
Cape Rock Elephant-shrew	*Elephantulus edwardii*	Least Concern	Unlikely
Aardvark	*Orycteropus afer*	Least Concern	Unlikely
Scrub Hare	*Lepus saxatilis*	Least Concern	Possible
Reddish-grey Musk Shrew	*Crocidura cyanea*	Least Concern	Possible
Greater Musk Shrew	*Crocidura flavescens*	Least Concern	Possible
Lesser Dwarf Shrew	*Suncus varilla*	Least concern	Possible
Black-backed Jackal	*Canis mesomelas*	Least Concern	Unlikely
Yellow Mongoose	*Cynictis penicillata*	Least Concern	Possible
Striped Polecat	*Ictonyx striatus*	Least Concern	Possible
Laminate Vlei Rat	*Otomys laminatus*	Near threatened	Unlikely
Red Hartebeest	*Alcelaphus buselaphus*	Not evaluated	Not present
Cape Grey Mongoose	*Galerella pulverulenta*	Least Concern	Definitely

Observations and Findings:

(High 70-100% confident: No rare mammal species as listed were observed during the site survey.

4.4.2. Provide Evidence (Photographs Or Sound Recordings) Of Each SCC Found Or Observed Within The Study Area

No SCC could be photographed or sounds recorded at the time of the survey.

4.4.3. Identify The Distribution, Location, Viability And Provide A Detailed Description Of Population Size Of The SCC

No SCC were recorded or observed at the time of the survey. *Britis armata* and *Scelotes gronovii* are likely to occur on site.

Southern Adder *Bitis armata* [13](VU)

Justification:
Has a restricted range (extent of occurrence (EOO = 12,945 km2) and area of occupancy (AOO = 830 km2) are below the Vulnerable thresholds) which is severely fragmented [B1a+2a]. The Southern Adder is confined to a particular habitat type, which, outside of protected areas, is threatened by housing and other developments. It is also collected for the pet trade and has suffered extirpation in several areas near Cape Town (Branch 1999) [B1b(v)+2b(v)]. Because the range continues to decrease in size and quality [B1b(i,ii,iii)+2b(i,ii,iii)], and because the number of subpopulations is also decreasing [B1b(iv)+2b(iv)], this species is considered Vulnerable.

Gronovi's dwarf burrowskink *Scelotes gronovii* (LC)[14]

Rationale:
There is moderate habitat loss within this species small range (extent of occurrence is *ca* 7,200 km^2) but the overall distribution has large areas of intact habitat and several protected areas (Geo Terra 2015). The species is therefore considered Least Concern.

4.4.4. Identify The Nature And The Extent Of The Potential Impact Of The Proposed Development On The Population Of The SCC

The *Britis armata* may be located on site, but the development areas are small in comparison to the habitat available, and all of the limestone geology which provides shelters under limestone rock slabs between dense shrubs on coastal plains (Branch 1998) in habitat by this species will be located inside the offset and open space areas. Furthermore, protect populations that currently fall outside conservation areas may take the form of private conservation initiatives and will be most effective if corridors between protected areas are established and protected. The proposed development includes significant offset areas that will be zoned open space and conserved by means of a conservation servitude that will protect and establish the south north corridor between the West Coast National Park and the conservation area to the south.

Circus maurus were observed roaming in a distance. This is evidence that the existing development, and therefore this proposed expansion of the urban areas next to the existing Yzerfontein will not negatively impact *Circus maurus* or any other of the avi-fauna species listed in the screen tool report.

Comments with concerns was raised in terms of the impact of the proposed development on *Pelecanus erythrorhynchos*. *Pelecanus erythrorhynchos* were observed from time to time

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[13] Turner, A.A. 2017. Bitis armata. The IUCN Red List of Threatened Species 2017: e.T22473777A110343644.http://dx.doi.org/10.2305/IUCN.UK.2017- 1.RLTS.T22473777A110343644.en
[14] https://speciesstatus.sanbi.org/assessment/last-assessment/2429/

flying high above the site when take-off from Dassen Island to fly inland. There is no habitat or food source for the *Pelecanus erythrorhynchos* on the proposed development site or in the bigger areas and therefore these birds will not be impacted by the proposed development. The existing Yzerfontein development is located between Dassen Island (where these birds breed and fly from) and the proposed development. No high structures will be built that can impact on their flight paths and therefore since there is no evidence or observations/ recordings of any dead or impacted *Pelecanus erythrorhynchos* in the existing Yzerfontein, the proposed development will also not have an impact on *Pelecanus erythrorhynchos*.

4.4.5. Determine The Importance Of The Conservation Of The Population Of The SCC Identified Within The Study Area

The *Britis armata* may be located on site, but the development areas are small in comparison to the habitat available, and all of the limestone geology which provides shelters under limestone rock slabs between dense shrubs on coastal plains (Branch 1998) in habitat by this species will be located inside the offset and open space areas. Furthermore, protect populations that currently fall outside conservation areas may take the form of private conservation initiatives and will be most effective if corridors between protected areas are established and protected. The proposed development includes significant offset areas that will be zoned open space and conserved by means of a conservation servitude that will protect and establish the south north corridor between the West Coast National Park and the conservation area to the south.

Circus maurus were observed roaming in a distance. This is evidence that the existing development, and therefore this proposed expansion of the urban areas next to the existing Yzerfontein will not negatively impact *Circus maurus* or any other of the Avi-Fauna species listed in the screen tool report.

4.4.6. List of Species, and/or other relevant databases

This survey did not identify the study area as a regionally important specific site from an animal species point of view, as it does not lie within priority animal species corridors, habitat or home ranges.

4.4.7. Determine The Potential Impact Of The Proposed Development On The Habitat Of The SCC Located Within The Study Area

The *Britis armata* may be located on site, but the development areas are small in comparison to the habitat available, and all of the limestone geology which provides shelters under limestone rock slabs between dense shrubs on coastal plains (Branch 1998) in habitat by this species will be located inside the offset and open space areas. Furthermore, protect populations that currently fall outside conservation areas may take the form of private conservation initiatives and will be most effective if corridors between protected areas are established and protected. The proposed development includes significant offset areas that will be zoned open space and conserved by means of a conservation servitude that will protect and establish the south north corridor between the West Coast National Park and the conservation area to the south.

Circus maurus were observed roaming in a distance. This is evidence that the existing development, and therefore this proposed expansion of the urban areas next to the existing

Yzerfontein will not negatively impact *Circus maurus* or any other of the Avi-Fauna species listed in the screen tool report.

4.4.8. Include A Review Of Relevant Literature On The Population Size Of The SCC, The Conservation Interventions As Well As Any National Or Provincial Species Management Plans For The SCC

Refer to Section 4.4.3 above for more detail.

4.4.9. Identify Any Dynamic Ecological Processes Occurring Within The Broader Landscape That Might Be Disrupted By The Development And Result In Negative Impact On The Identified SCC

Development supports the protection of high value vegetation by ensuring that only 50% of the medium value conservation areas are developed, leaving the high value areas untouched. The identified Species of Conservation Concern identified in the screen tool report and possibly occurring in the area habitat will be protected in the proposed open spaces. This will ensure that significant corridors and habitats are conserved to ensure that the proposed development does not impact on these species nor result in the decline in numbers or change in conservation status of these species.

4.4.10. Identify Any Potential Impact Of Ecological Connectivity In Relation To The Broader Landscape

The property was included in CBA and ESA categories in the Western Cape Biodiversity Spatial Plan (CapeNature. (2024). 2023 Western Cape Biodiversity Spatial Plan and Guidelines).

Critical Biodiversity Areas Category 2: CBA: Terrestrial
Definition: Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.
Objective: Maintain in a natural or near-natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

Feature: Coastal Corridor, Critically Endangered or Endangered veg
Category 1: ESA: Terrestrial
Definition: Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services.
Objective: Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

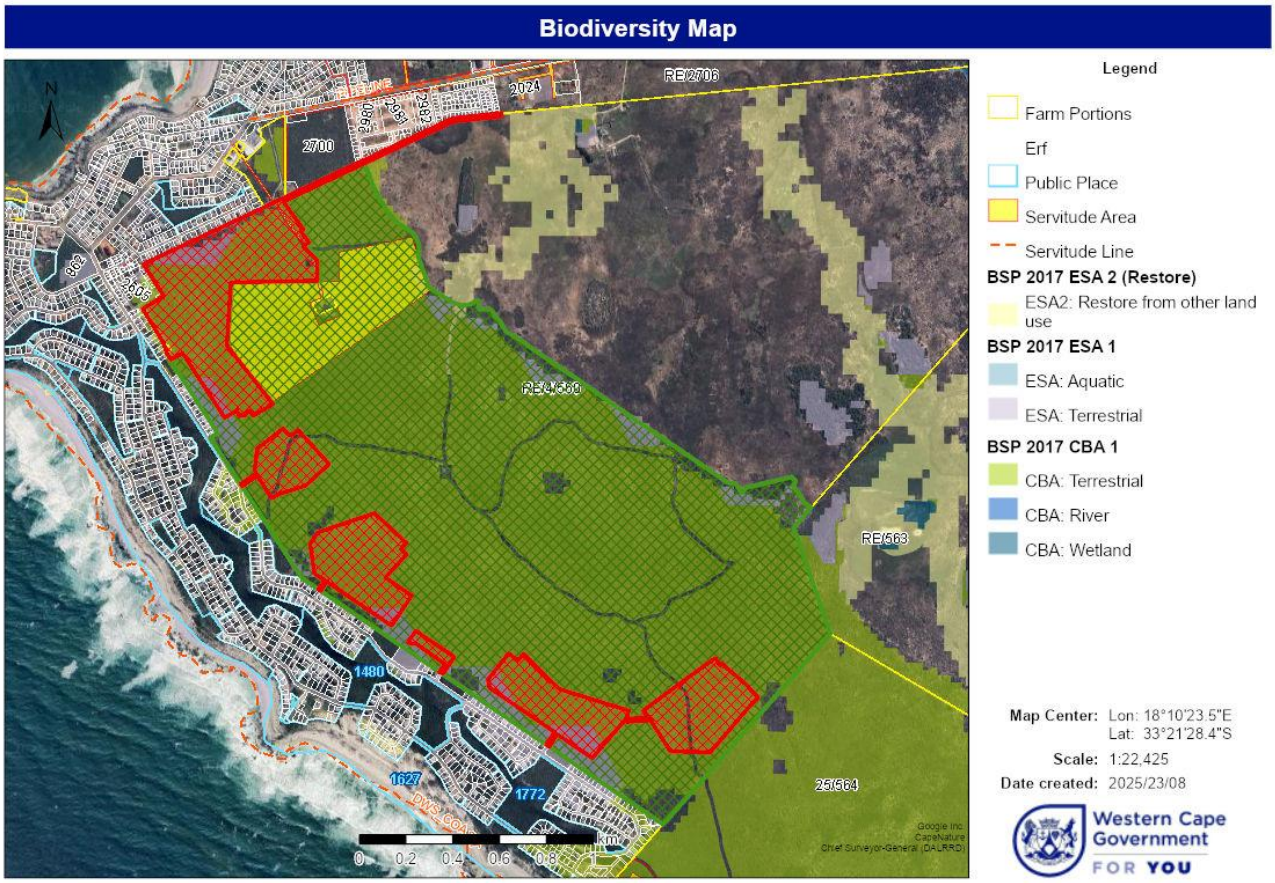

Figure 6: CBA Map

The proposed open space and conservation areas is located in the North South corridor that links the West Coast National Park with the new conservation areas (Atlantis State Land Area) to the South. No Freshwater Ecosystem Priority Area (FEPA) and Freshwater Ecological features are inside or close to the study area. No indigenous forests are inside or close to the study area.

4.4.11. Discuss The Presence Or Likelihood Of Additional SCC Including Threatened Species Not Identified By The Screening Tool

Gronovi's dwarf burrowskink *Scelotes gronovii*, Bloubergstrand dwarf burrowing skink *Scelotes montispectus*, Black Harrier *Circus ranivorus* and Southern adder *Britis armata* is likely to be present on site.

Comments with concerns were raised in terms of the impact of the proposed development on *Pelecanus erythrorhynchos*. *Pelecanus erythrorhynchos* were observed from time to time flying high above the site when take-off from Dassen Island to fly inland. There is no habitat or food source for the *Pelecanus erythrorhynchos* on the proposed development site or in the bigger areas and therefore these birds will not be impacted by the proposed development. The existing Yzerfontein development is located between Dassen Island (where these birds breed and fly from) and the proposed development. No high structures will be built that can impact on their flight paths and therefore since there is no evidence or observations/ recordings of any dead or impacted *Pelecanus erythrorhynchos* in the existing Yzerfontein, the proposed development will also not have an impact on *Pelecanus erythrorhynchos*.

4.4.12. Identify Any Alternative Development Footprints Within The Preferred Site Which Would Be Of "Low" Or "Medium" Sensitivity

Whole development areas PAOI as mapped above has a high sensitivity.

5. IMPACT ASSESSMENT

5.1. Assessment & Significance Criteria

The assessment criteria used in the assessment are drawn from the protocol for the specialist assessment and minimum report content requirements for environmental impacts (published in Government Notice **no. 1150 in** Government Gazette **43855** 30 October 2020) were used.

5.2. Assessment of Potential Impacts

The impacts identified are assessed below, before and after mitigation as well as during construction.

The impact assessment which follows is based on the site sensitivity and any deviations from the site sensitivity map as provided may invalidate the results of the assessment.

5.3. Risk Assessment Criteria

Step 1: Determine the **PROBABILITY** of the impact by calculating the average between the Frequency of the Aspect, the Availability of a pathway to the receptor and the availability of the receptor (thus: Sum of the three column scores below ÷ 3)

Frequency of Aspect / Unwanted Event	Score	Availability of pathway from the source to the receptor	Score	Availability of receptor	Score
Never known to have happened, but may happen	1	A pathway to allow for the impact to occur is never available	1	The receptor is never available	1
Known to happen in industry	2	A pathway to allow for the impact to occur is almost never available	2	The receptor is almost never available	2
< once a year	3	A pathway to allow for the impact to occur is sometimes available	3	The receptor is sometimes available	3
Once per year to up to once per month	4	A pathway to allow for the impact to occur is almost always available	4	The receptor is almost always available	4
Once a month - Continuous	5	A pathway to allow for the impact to occur is always available	5	The receptor is always available	5

Step 2: Determine the **MAGNITUDE** of the impact by calculating the average of the factors below (thus: Sum of all six column ratings below ÷ 6)

Source								Receptor			
Duration of impact	**Score**	**Extent**	**Score**	**Volume / Quantity / Intensity**	**Score**	**Toxicity / Destruction Effect**	**Score**	**Reversibility**	**Score**	**Sensitivity of environmental component**	**Score**
Lasting days to a month	1	Effect limited to the site. (metres);	1	Very small quantities / volumes / intensity (e.g. < 50L or < 1Ha)	1	Nontoxic (e.g. water) / Very low potential to create damage or destruction to the environment	1	Bio-physical and/or social functions and/or processes will remain unaltered.	1	Current environmental component(s) are largely disturbed from the natural state. Receptor of low significance / sensitivity	1
Lasting 1 month to 1 year	2	Effect limited to the activity and its immediate surroundings. (tens of metres)	2	Small quantities / volumes / intensity (e.g. 50L to 210L or 1Ha to 5Ha)	2	Slightly toxic / Harmful (e.g. diluted brine) / Low potential to create damage or destruction to the environment	2	Bio-physical and/or social functions and/or processes might be negligibly altered or enhanced / Still reversible	2	Current environmental component(s) are moderately disturbed from the natural state. No environmentally sensitive components.	2
Lasting 1 – 5 years	3	Impacts on extended area beyond site boundary (hundreds of metres)	3	Moderate quantities / volumes / intensity (e.g. > 210 L < 5000L or 5 – 8Ha)	3	Moderately toxic (e.g. slimes) Potential to create damage or destruction to the environment	3	Bio-physical and/or social functions and/or processes might be notably altered or enhanced / Partially reversible	3	Current environmental component(s) are a mix of disturbed and undisturbed areas. Area with some environmental sensitivity (scarce / valuable environment etc.).	3
Lasting 5 years to Life of Organisation	4	Impact on local scale / adjacent sites (km's)	4	Very large quantities / volumes / intensity (e.g. 5000 L – 10 000L or 8Ha– 12Ha)	4	Toxic (e.g. diesel & Sodium Hydroxide)	4	Bio-physical and/or social functions and/or processes might be considerably altered or enhanced / potentially irreversible	4	Current environmental component(s) are in a natural state. Environmentally sensitive environment / receptor (endangered species / habitats etc.).	4

Source								Receptor			
Duration of impact	**Score**	**Extent**	**Score**	**Volume / Quantity / Intensity**	**Score**	**Toxicity / Destruction Effect**	**Score**	**Reversibility**	**Score**	**Sensitivity of environmental component**	**Score**
Beyond life of Organization / Permanent impacts	5	Extends widely (nationally or globally)	5	Very large quantities / volumes / intensity (e.g. > 10 000 L or > 12Ha)	5	Highly toxic (e.g. arsenic or TCE)	5	Bio-physical and/or social functions and/or processes might be severely/substantially altered or enhanced / Irreversible	5	Current environmental component(s) are in a pristine natural state. Highly Sensitive area (endangered species, wetlands, protected habitats etc.)	5

Step 3: Determine the **SEVERITY** of the impact by plotting the averages that were obtained above for Probability and Magnitude in the table below.

ENVIRONMENTAL IMPACT RATING / PRIORITY					
	MAGNITUDE				
PROBABILITY	**1 Minor**	**2 Low**	**3 Medium**	**4 High**	**5 Major**
5 Almost Certain	Low	Medium	High	High	High
4 Likely	Low	Medium	High	High	High
3 Possible	Low	Medium	Medium	High	High
2 Unlikely	Low	Low	Medium	Medium	High
1 Rare	Low	Low	Low	Medium	Medium

ANIMAL SPECIES IMPACTS

Preferred Alternative as well as alternative layout

Proposed development of whole property **Construction or development impacts**	**Degradation / loss of naturally occurring / indigenous flora and habitats with impacts on animal species**
PLANNING, DESIGN, DEVELOPMENT AND CONSTRUCTION PHASE	
Potential impact and risk:	**Loss of Terrestrial Biodiversity and ecological functioning which will affect animal species. Potential impacts for construction include:** **Loss of habitat** **Disturbance** **Injury/mortality of species**
Nature of impact:	**Vegetation will be removed and impacts to animal species occur if the proposed development is approved. This survey did not identify the study area as a high sensitive area. The roads that do link Atlantic Drive to the development nodes are problematic from a faunal perspective in that they break a small corridor of the north – south ecological linkage. Consideration should be given to actually preventing access to these roads for tortoises and small reptiles and similar small fauna that is very likely to be run over. This could be done by simply having 20cm high vertical barriers either side of the roads.**
Extent and duration of impact:	**Extent 2 & Duration 5**
Consequence of impact or risk:	**Activities can disturb and impact on surrounding terrestrial biodiversity features and animal species.**
Magnitude	**3**
Probability of occurrence:	**5**
Degree to which the impact may cause irreplaceable loss of resources:	**Resource will be partly destroyed (PR)**
Degree to which the impact can be reversed:	**Not reversible**
Indirect impacts:	**Disturbance to surface area can result habitat and animal species impacts.**
Cumulative impact prior to mitigation:	**Loss of significantly impacted upon vegetation and habitat.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**2**

Proposed mitigation:	**Construction activities must be controlled to ensure that the adjacent vegetated areas are not negatively impacted.** **Undertake construction activities only in identified and specifically demarcated areas.** **The proposed offset areas must be conserved by means of a conservation servitude and regarded as no go areas.** **20cm high vertical barriers on either side of the roads must be installed to prevent tortoises and small animals from crossing the roads.** **Search and rescue of species must be undertaken before construction commence.** **Laydown areas must be rehabilitated with specific measures to create fauna habitat.** **Speed restrictions for all vehicles (40km/h is recommended) should be in place to reduce the impact of faunal mortality as a result of road kill.** **Development must be designed to allow unencumbered movement of this species. e.g., trenches with sloped side to allow faunal species to exit.** **Should any faunal SCC be encountered during construction and operation, these must be recorded (i.e. be photographed, GPS co-ordinates taken) and photographs placed on iNaturalist** **Any faunal species that may die as a result of construction activities must be recorded (i.e. be photographed, GPS co-ordinates taken) and these records placed on iNaturalist.** **In addition to all mitigations listed above a clause must be included in contracts for ALL personnel working on site stating that: "no wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass." A clause relating to fines, possible dismissal and legal prosecution must be included should any of the above transgressions occur, especially for SCC.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High**

OPERATIONAL PHASE	
Potential impact and risk:	**Not applicable to operational phase.**
Nature of impact:	**Loss of habitat** **Disturbance** **Human/animal conflict** **Loss of Terrestrial Biodiversity and ecological functioning which will affect animal species.**
Extent and duration of impact:	**Extent 2 & Duration 5**
Consequence of impact or risk:	**Activities can disturb and impact on surrounding terrestrial biodiversity features.**
Magnitude	**3**
Probability of occurrence:	**5**
Degree to which the impact may cause irreplaceable loss of resources:	**Resource will be partly destroyed (PR)**
Degree to which the impact can be reversed:	**Not reversable**
Indirect impacts:	**Disturbance to surface area can result in erosion and dust generation which may affect surrounding terrestrial biodiversity features.**
Cumulative impact prior to mitigation:	**Loss of significantly impacted upon vegetation and habitat.**
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**High**
Degree to which the impact can be avoided:	**High**
Degree to which the impact can be managed:	**High**
Degree to which the impact can be mitigated:	**2**
Proposed mitigation:	**Operational activities must be controlled to ensure that the adjacent vegetated areas are not negatively impacted. The main impacts that must be controlled is dust.** **Undertake operational activities only in identified and specifically demarcated areas.** **Invasive vegetation to be removed.** **The proposed offset areas must be protected and management as per the approved EMP for the conservation area must be adhered to.** **20cm high vertical barriers on either side of the roads must be installed to prevent tortoises and small animals from crossing the roads be maintained.**
Residual impacts:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**
Cumulative impact post mitigation:	**It is not anticipated that the impact will be high if the mitigation measures are adhered to.**

Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	**Medium**

Cumulative Impacts

Cumulative impacts arise from the combined presence of several similar developments within an area which affect animal species. There are other developments that also represent a source of disturbance and habitat loss, which when combined with the proposed development would result in cumulative impact. However, when taken in context of the broader landscape, the cumulative impacts are not likely to be highly significant given the animal species known to occur in the broader area.

6. CONCLUSION AND RECOMMENDATIONS

The site is located on the edge of Yzerfontein town on the west coast. The site assessed consist of three vegetation types in a good ecological condition with fauna habitat associated with these vegetation types. Five Avi-Fauna, one invertebrate and one reptilian were recorded in the screen tool report for the site. An additional two reptilian species were identified to possibly be present on site. The study recorded high sensitivity areas within the study area.

The proposed development will have an impact on animal species. SCC identified to be possibly impacted include Gronovi's dwarf burrowskink *Scelotes gronovii*, Bloubergstrand dwarf burrowing skink *Scelotes montispectus*, Black Harrier *Circus ranivorus* and Southern adder *Britis armata*. Of these four species, only Gronovi's dwarf burrowskink *Scelotes gronovii* is likely to be impacted. However, this species has a conservation status of least concern. Significant areas of its habitat will be protected in the no go proposed offset area.

Four potential environmental impacts were assessed for this report, ranging from habitat loss to operational effects. The development of the site would have a High Negative impact on animal species. It will however not lead to the loss of any species or change in their conservation status.

Based on the impacts assessed in this report, it is recommended that the proposed development proceed with the implementation of strict environmentally responsible practices as outlined in the recommended mitigation measures.

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APPENDIX A
SPECIALIST CV

CURRICULUM VITAE – NICOLAAS WILLEM HANEKOM

Profession: Environmental Scientist and Environmental Assessment Practitioner
Date of Birth: 01/02/1967

BIOGRAPHICAL SKETCH

Nicolaas Hanekom is a qualified Environmental Assessment Practitioner (”EAP”) who holds a Masters Technologiae, Nature Conservation (“Vegetation Ecology and Biodiversity Assessment”) degree from the Cape Peninsula University of Technology. Nicolaas is certified in terms of section 20(3)(a) of the Natural Scientific Professions Act, 2003 (Act 27 of 2003), as a Professional Natural Scientist Ecological Science (Pri.Sci.Nat); Aquatic Science & Conservation Science (Cand.Sci.Nat), Registration Number: 004415. He further qualified in Environmental Management Systems ISO 14001:2004, at the Centre for Environmental Management, North-West University, as well as Environmental Management Systems ISO 14001:2004 Audit: Internal Auditors Course to ISO 19011:2003 level, from the Centre for Environmental Management, North-West University qualifying him to execute audits to ISO/SANS environmental compliance and EMS standards.

He has also completed the suite of Greener Governance courses with certificates in;

- An Overview of Environmental Management at the Local Government Level, Centre for Environmental Management, North-West University;
- Greener Governance for Local Authorities, Centre for Environmental Management, North-West University;
- Tools for Integrated Environmental Management and Governance, Centre for Environmental Management, North-West University.

He further attended and obtained a certificate on Integrated Protected Area Planning at the Centre for Environmental Development, University of Kwa Zulu Natal and a certificate in Project Management (Theory and Practical), through CS Holdings. Nicolaas has lectured in two subjects at the Cape Peninsula University of Technology. He has 26 years of environmental planning experience, working for Free State and Western Cape departments of environmental affairs, where he reviewed and commented on development (EIA) applications, in the West Coast Region.

He has, as practising EAP been responsible for many environmental impact assessments and EIA applications, waste license and atmospheric emission license applications.

He has also been involved in the implementation of several environmental management systems. He has engaged successfully with various clients as set out below.

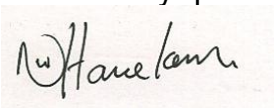
Areas of specialisation:	• Ecosystem (terrestrial and aquatic) monitoring and assessments • Design of monitoring programmes for ecosystems (terrestrial and aquatic) • Environmental Impact Assessments • River classification and environmental water requirements • Wetlands Delineation • River and Wetlands management • Water Use Authorization Applications • Water quality management • River Health Assessments
Countries of Work Experience:	South Africa (Northern Cape, Western Cape, Free State, Mpumalanga, Gauteng)
Employment Record	• Student at Bontebok National Park (1992) • Assistant Reserve Manager at Gariep Dam Nature Reserve, Free State (1993 - 1998) • Reserve Manager, Conservation Services Manager for Western Cape Nature Conservation Board (1998 - 2006) • External Lecturer at Cape Peninsula University of Technology (2003 - 2005) • Director: Environmental Management at Cape Lowlands Environmental Services (2006 – 2010) • Director, Environmental Management and lead Environmental Impact Assessment Practitioner at Eco Impact (Pty) Ltd (2010 – to August 2019) • Director, Environmental Management and lead Environmental Impact Assessment Practitioner at Enviro-EAP (Pty) Ltd (September 2019 – to date)
Professional membership, accreditations and courses	• South African Council for Natural Scientists Professions Pri.Sci.Nat (Ecological Science) • Riparian vegetation identification and health assessment. Internal Western Cape Nature Conservation short course presented by Dr C Boucher (Stellenbosch University) in 2000. • SASS5 Aquatic Biomonitoring Training Course. 2 to 5 September 2013. Ground Truth Water and Environmental Engineering consultancy in partnership with the Department of Water Affairs.

	• Workshop on "Section 21(c) and (i) Water Use Training: Understanding Watercourses and Managing Impacts to their Characteristics". 10 May 2017. Presented by Dr Wietsche Roets of the Department of Water and Sanitation (Sub-Directorate: Instream Water Use).
Summary of experience	1992: South African National Parks. Student at Bontebok National Park with management and monitoring actions related to the Breede River. 1993 -1998: Free State Nature Conservation. Ecological management and monitoring actions related to the Gariep Dam, Orange and Caledon Rivers. 1998 -2006: CapeNature. Ecological management and monitoring actions related to the Berg River Estuary, Verlorenvlei, Lamberts bay's Jackalsvlei, Wadrift Soutpanne, Oliphant's River mouth, Rocherpan Nature Reserve, etc. Review and assessment of EIA applications, inclusive of Freshwater ecology. Did some site visits with Department of Water Affairs and Forestry (Hester Lyons) to confirm the presence of aquatic ecological features during EIA water use registration applications. 2006 to date: Cape Lowland Environmental Services, Eco Impact Legal Consultant and Enviro-EAP. Ecological (Freshwater and aquatic) Specialist input, assessment, monitoring and reports.
Publications and assessment reports	Just to name a few. Was involved in many Ecological Assessments, monitoring and inputs in EIA applications. • Elandskloof Farm 475 Citrusdal Biodiversity Baseline Survey. August 2010. This Biodiversity Assessment Covering Terrestrial and Aquatic Aspects to Inform Decisions Regarding The Proposed Elandskloof Weir Flood Damage Project On Farm 475, In The Citrusdal Area. • Cape Solar Energy Electricity Generation Facility. Farm 187/3 & 187/13 Kenhardt. Biodiversity And Ecological Baseline Survey. January 2011. (Included Terrestrial, fauna and aquatic ecological assessments and water use authorization applications) • Prieska Photvoltaic Power Generation Project. Prieska Commonage Northern Cape. Biodiversity And Ecological Baseline Survey. July 2011. (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Witteklip Erf 123 Extension, Vredenburg. Biodiversity Baseline Survey. Updated - October 2012 (Included Terrestrial and aquatic ecological assessments and water use authorization applications) • Baseline Biodiversity Survey And Wetland Delineation for ECCA Holdings: Cape Bentonite Mine on Erf 1412 Near Heidelberg.

	Prepared for: Shangoni Management Services Pry (Ltd). October 2014. • Freshwater Impact Assessment Laingsburg Flood Damage Repairs & Storm Water Infrastructure. 18 February 2016. • Ecological Assessment for Swartland Municipality - Upgrades To Voortrekker/Bokomo Road And Voortrekker/Rozenburg Road Intersections and Upgrade to the Diep River Bridge, Malmesbury on A Portion Of Erf 327, Malmesbury (Road) Erf 1530, Diep River Bridge Crossing, and Erf 1528, Property South of Diep River where Road Widening and Turning Circle Will Be Constructed. March 2016. (Freshwater Ecology Inputs and Water Use Registration) • Freshwater Impact Assessment. McGregor Bridge, Robertson Bridge and Willem Nels River Maintenance Management Plan. 24 June 2016. (Freshwater Ecology assessment and input as well as Water Use Registration) • Water Use Authorization Application Risk Matrix. Orange Grove Trust Vegetation Clearing and Agricultural Development on Portion 4 of Farm Glen Heatlie No 316, Worcester. 12 June 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Water Use Authorization Application Risk Matrix Prepared For: Witzenberg Municipality Sand Mine Farm 1 Prince Alfred Hamlet. 28 March 2017. (Freshwater ecological inputs in EIA process and Water Use Registration). • Proposed Hartmanshoop Agri Vegetation Clearing Project and Irrigation on Erf 686, Laingsburg. 12 August 2017. (Freshwater ecological inputs in Water Use Registration). • County Fair: Hocraft Abattoir And Rendering Facility Waste Water Treatment Works “CF Hocraft WWTW” Mosselbank River Second Quarter 2018 Biomonitoring Report. June 2018. (Done quarterly biomonitoring for the last three years).

CERTIFICATION

I, the undersigned, certify that to the best of my knowledge and belief, these data correctly describe my qualifications, my experience, and me.



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Registration number 004415