Animal Species Compliance Statement

prepared in accordance with the
"Protocol for the Specialist Assessment and minimum report content requirements for environmental impacts on Terrestrial Biodiversity"

Part of Portion 31 of the Farm Buffelsfontein 250 near Boggomsbaai
in the Western Cape Province

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Terrestrial Animal Species Compliance Statement Report for part of Portion 31 of the Farm Buffelsfontein 250, Boggomsbaai near Mossel Bay in the Western Cape Province

02 May 2023

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SPECIALIST DETAILS & DECLARATION

This report has been prepared in accordance with the "Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity", as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020. It has been prepared independently of influence or prejudice by any parties.

The details of Specialists are as follows –

Table 1: Details of Specialist

Specialist	Qualification and accreditation
Dr Wynand Vlok (Pr.Sci.Nat.)	• PhD Zoology • SACNASP Reg. no. 400109/95 (Zoological Science, Botanical Science)

Areas of specialisation:

- Environmental Impact Assessments (EIA's)
- Environmental Management Plans (EMP's)
- Aquatic environment and its associated biodiversity
- Terrestrial biodiversity

Professional affiliation:

- South African Society of Aquatic Scientists (SASAqS)
- Registered at the "The South African Council for Natural Scientific Professions" (SACNASP – registered as a "Professional Natural Scientist: Registration number - 400109/95)
- SACNASP – as Chairperson for the Professional Advisory Committee (Aquatic)

Employment history:

- BioAssets (owner of Consultancy CC) - 1/01/2007 - current
- University of Limpopo (formerly University of the North)
    - Senior lecturer: Department of Zoology/Biology (1/10/1996 – 31/12/2006)
    - Lecturer: Department of Physiology (1/1/1994 - 30/9/1996)
- Manager of a citrus farm (1992 – 1993)
- Technikon RSA (1989 – 1991) - Lecturer: Nature Conservation

Declaration of independence:

David Hoare Consulting (Pty) Ltd in an independent consultant and hereby declare that it does not have any financial or other vested interest in the undertaking of the proposed activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998). In addition, remuneration for services provided by David Hoare Consulting (Pty) Ltd is not subjected to or based on approval of the proposed project by the relevant authorities responsible for authorising this proposed project.

Disclosure:

David Hoare Consulting (Pty) Ltd undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) and will provide the competent authority with access to all information at its disposal regarding the application, whether such information is favourable to the applicant or not.

Based on information provided to David Hoare Consulting (Pty) Ltd by the client and in addition to information obtained during the course of this study, David Hoare Consulting (Pty) Ltd present the results and conclusion within the associated document to the best of the author's professional judgement and in accordance with best practise.

02 May 2023

_____ _____

Wynand Vlok Date

TERMS OF REFERENCE

PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL ANIMAL SPECIES

The specialist study is required to follow the published Protocols, provided in full below for the assessment of impacts on Terrestrial Biodiversity, on Animal Species, and on Plant Species. Note that the Protocols require determination of the level of sensitivity, which then determines the level of assessment required, either a full assessment, or a Compliance Statement.

Protocol For the Specialist Assessment And Minimum Report Content Requirements For Environmental Impacts On Terrestrial Animal Species

This site sensitivity assessment follows the requirements of The Environmental Impact Assessment Regulations, as promulgated in terms of Section 24 (5) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), published in GN. No. 320 dated 20 March 2020.

General information

1.1 An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of "**very high**" or "**high**" sensitivity for terrestrial animal species, must submit a **Terrestrial Animal Species Specialist Assessment Report**.

1.2 An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of "**medium** sensitivity" for terrestrial animal species, must submit either a **Terrestrial Animal Species Specialist Assessment Report** or a **Terrestrial Animal Species Compliance Statement**, depending on the outcome of a site inspection undertaken in accordance with paragraph 4.

1.3 An applicant intending to undertake an activity identified in the scope of this protocol, on a site identified by the screening tool as being of "**low**" sensitivity for terrestrial animal species, must submit a **Terrestrial Animal Species Compliance Statement**.

1.4 Where the information gathered from the site sensitivity verification differs from the screening tool designation of "very high" or "high" for terrestrial animal species sensitivity on the screening tool, and it is found to be of a "low" sensitivity, then a **Terrestrial Animal Species Compliance Statement** must be submitted.

1.5 Where the information gathered from the site sensitivity verification differs from the screening tool designation of "low" terrestrial animal species sensitivity and it is found to be of a "very high" or "high" terrestrial animal species sensitivity, a **Terrestrial Animal Species Specialist Assessment** must be conducted.

1.6 If any part of the development falls within an area of confirmed "very high" or "high" sensitivity, the assessment and reporting requirements prescribed for the "very high" or "high" sensitivity, apply to the entire development footprint. Development footprint in the context of this protocol, means the area on which the proposed development will take place and includes the area that will be disturbed or impacted.

1.7 The **Terrestrial Animal Species Specialist Assessment** and the **Terrestrial Animal Species Compliance Statement** must be undertaken within the study area.

1.8 Where the nature of the activity is not expected to have an impact on species of conservation concern (SCC) beyond the boundary of the preferred site, the study area means the proposed development footprint within the preferred site.

1.9 Where the nature of the activity is expected to have an impact on SCC beyond boundary of the preferred site, the project areas of influence (PAOI) must be determined by the specialist in accordance with Species Environmental Assessment Guideline, and the study area must include the PAOI, as determined.

Terrestrial Animal Species Specialist Assessment

2.1 The assessment must be undertaken by a specialist registered with the South African Council for Natural Scientific Professions (SACNASP), within a field of practice relevant to the taxonomic groups ("taxa") for which the assessment is being undertaken.

2.2 The assessment must be undertaken in accordance with the Species Environmental Assessment Guideline and must:

2.2.1 Identify the SCC which were found, observed or are likely to occur within the study area;

2.2.2 provide evidence (photographs) of each SCC found or observed within the study area, which must be disseminated by the specialist to a recognized online database facility immediately after the site inspection has been performed (prior to preparing the report contemplated in paragraph 3);

2.2.3 identify the distribution, location, viability and detailed description of population size of the SCC identified within the study area;

2.2.4 identify the nature and the extent of the potential impact of the proposed development to the population of the SCC located within the study area;

2.2.5 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;

2.2.6 determine the potential impact of the proposed development on the habitat of the SCC located within the study area;

2.2.7 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, a motivation for the deviation;

2.2.8 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;

2.2.9 identify any potential impact on ecological connectivity in relation to the broader landscape, resulting in impacts on the identified SCC and its long term viability;

2.2.10 determine buffer distances as per the Species Environmental Assessment Guidelines used for the population of each SCC; and

2.2.11 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, or roosting and breeding or foraging areas used by migratory species where these species show significant congregations, occurring in the vicinity; and

2.2.12 identify any alternative development footprints within the preferred development site which would be of "low" or "medium" sensitivity as identified by the screening tool and verified through the site sensitivity verification.

2.3 The findings of the assessment must be written up in a **Terrestrial Animal Species Specialist Assessment Report**.

Terrestrial Animal Species Specialist Assessment Report

3.1 This report must include as a minimum the following information:

3.1.1 contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the assessment including a curriculum vitae;

3.1.2 a signed statement of independence by the specialist;

3.1.3 a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;

3.1.4 a description of the methodology used to undertake the site sensitivity verification and impact assessment and site inspection, including equipment and modelling used where relevant;

3.1.5 a description of the mean density of observations/number of samples sites per unit area of site inspection observations;

3.1.6 a description of the assumptions made and any uncertainties or gaps in knowledge or data;

3.1.7 details of all SCC found or suspected to occur on site, ensuring sensitive species are appropriately reported;

3.1.8 the online database name, hyperlink and record accession numbers for disseminated evidence of SCC found within the study area;

3.1.9 the location of areas not suitable for development and to be avoided during construction where relevant;

3.1.10 a discussion on the cumulative impacts;

3.1.11 impact management actions and impact management outcomes proposed by the specialist for inclusion in the Environmental Management Programme (EMPr);

3.1.12 a reasoned opinion, based on the findings of the specialist assessment, regarding the acceptability or not, of the development related to the specific theme considered, 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

3.1.13 a motivation must be provided if there were any development footprints identified as per paragraph 2.2.12 above that were identified as having "low" or "medium" terrestrial animal species sensitivity and were not considered appropriate.

3.2 A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

INTRODUCTION

Site location

The site, which is a part of Portion 31 of the Farm Buffelsfontein 250, is adjacent to Boggomsbaai near Mossel Bay to the south of the N2 national road near to Vleesbaai. Refer to Figure 1 below for the general location.

The property is on the northern edge of Boggomsbaai (Figure 2). The golf course is the north-western boundary of the property and cadastral boundaries the remaining property boundaries (Figure 2). The property is largely vacant land, but contains a reservoir on the highest point, buildings on the south-eastern corner, and a narrow gravel road to the reservoir and through the property. The proposed development site is to the south-east of the reservoir (Figure 2).

The scope of this report is the part of the property that is proposed for development. The majority of the property is planned to be omitted from the development. The entire site is 23.77 ha of which only approximately 3.45 ha is proposed for development (Figure 2).

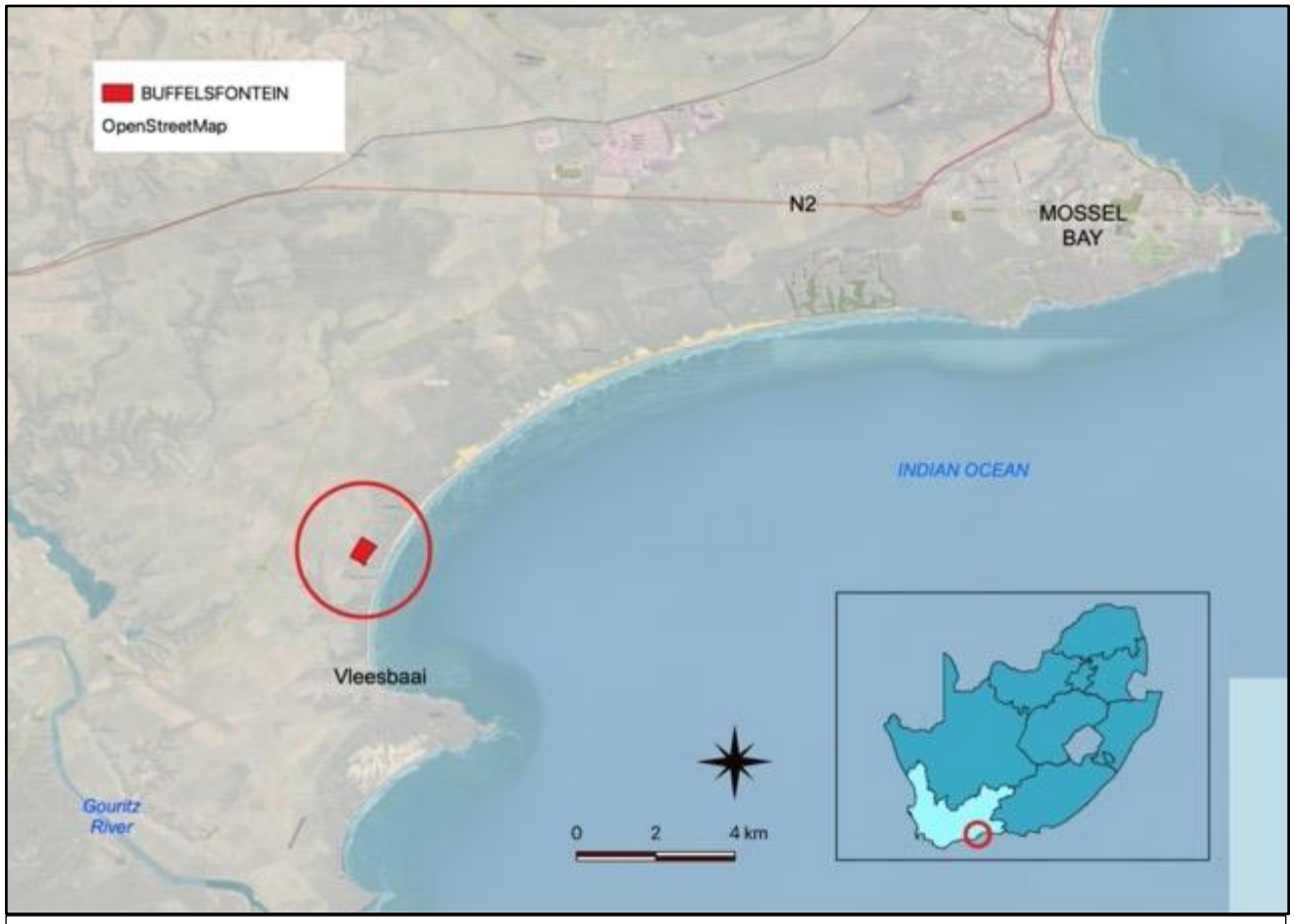

Figure 1: Location of the site.

Figure 2: Aerial image of the site and surrounding areas (schematic layout).

Identified Theme Sensitivities

A sensitivity screening report from the DEA Online Screening Tool was requested in the application category: Transformation of land | Indigenous vegetation. The DEA Screening Tool report for the area, dated 02/11/2021, indicates the following sensitivities (see Figure 3):

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Animal Species Theme			X	

Animal Species theme

Sensitivity features are indicates as follows:

Sensitivity	Feature(s)
Medium	Sensitive species 8
Medium	Invertebrate-Aneuryphymus montanus

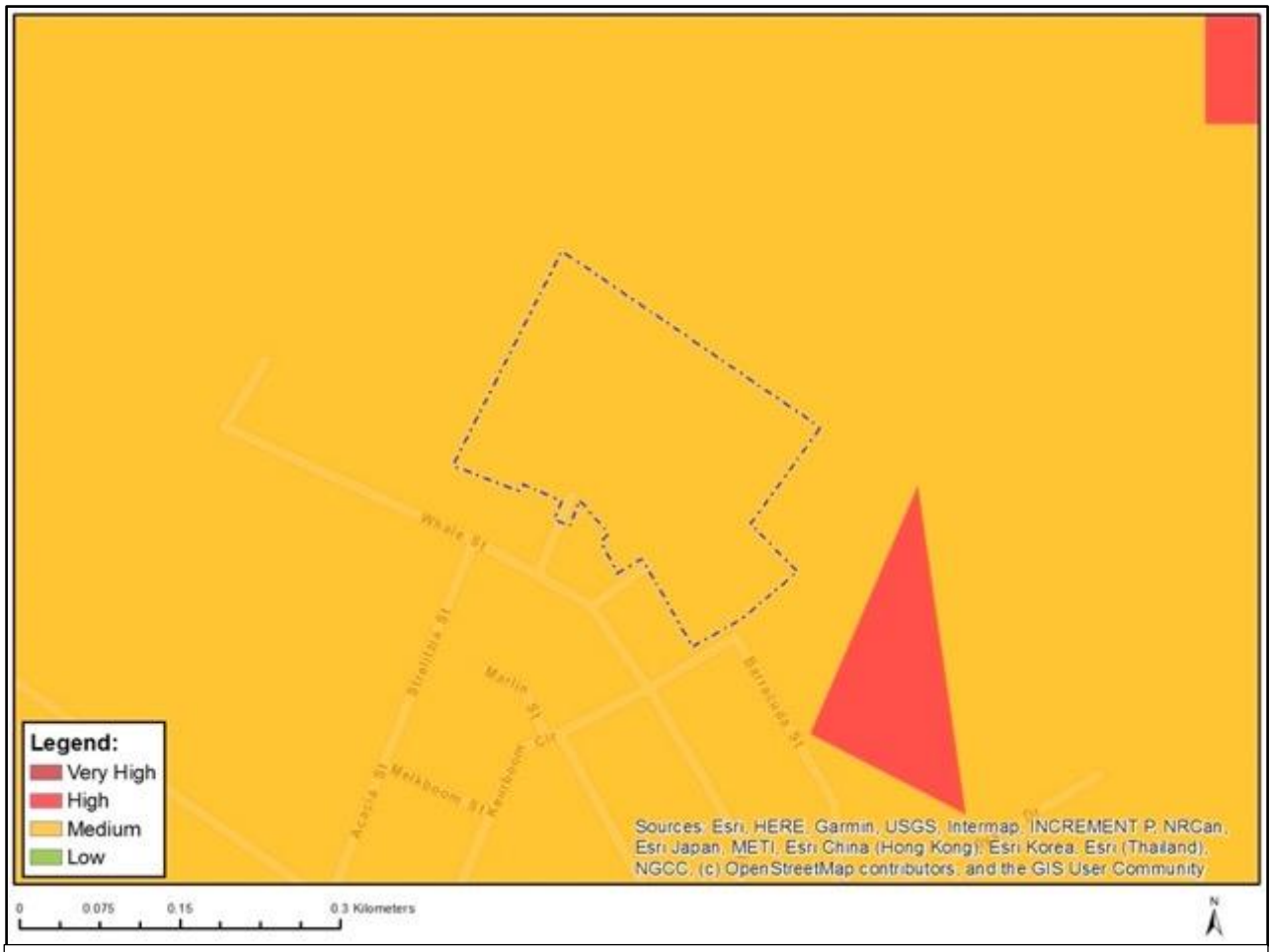

Figure 3: Map of relative animal species theme sensitivity.

ASSESSMENT METHODOLOGY

The detailed methodology followed as well as the sources of data and information used as part of this assessment is described below.

Project Area of Influence (PAOI)

The proposal is to develop the site for residential purposes. This will include stands for free-standing houses (Figure 4 and Figure 5). Anticipated impacts will mostly occur during the construction phase. These impacts are not expected to extend significantly beyond the boundaries of the study area, except for possible edge effects. The PAOI is therefore treated here as the development footprint within which direct impacts will occur (Figure 4 and Figure 5).

Preferred Alternative

The preferred alternative consists of 13 units scattered over the development area (Figure 4).

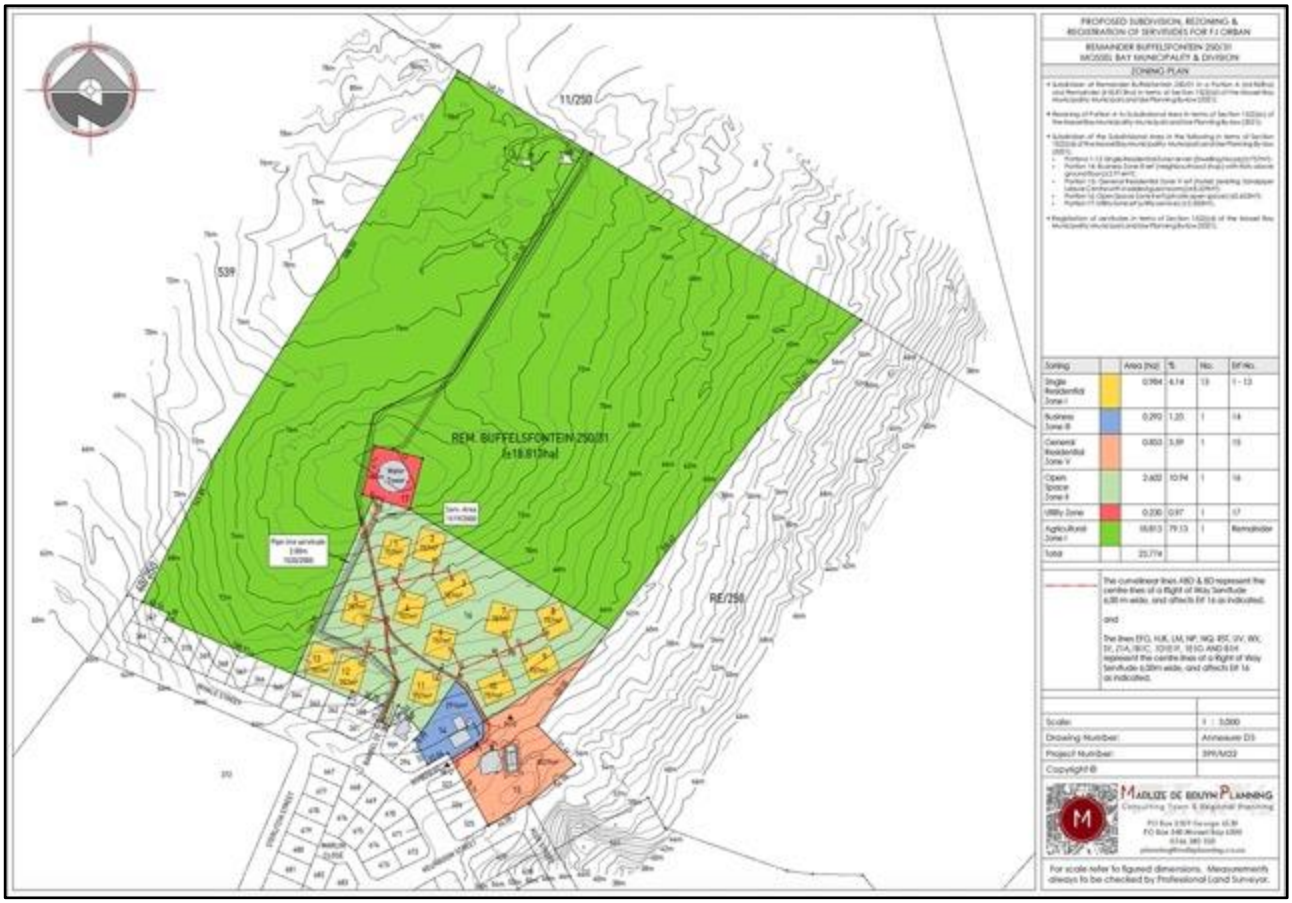

Figure 4: Proposed development within part of Portion 31 of the Farm Buffelsfontein 250 (Preferred Alternative – Version 1).

Following public participation this preferred alternative was further mitigated (Version 2):

- 13 units reduced to 12.
- Scattered units clustered into two nodes.
- The position of the access road to the water reservoir has been slightly changed.

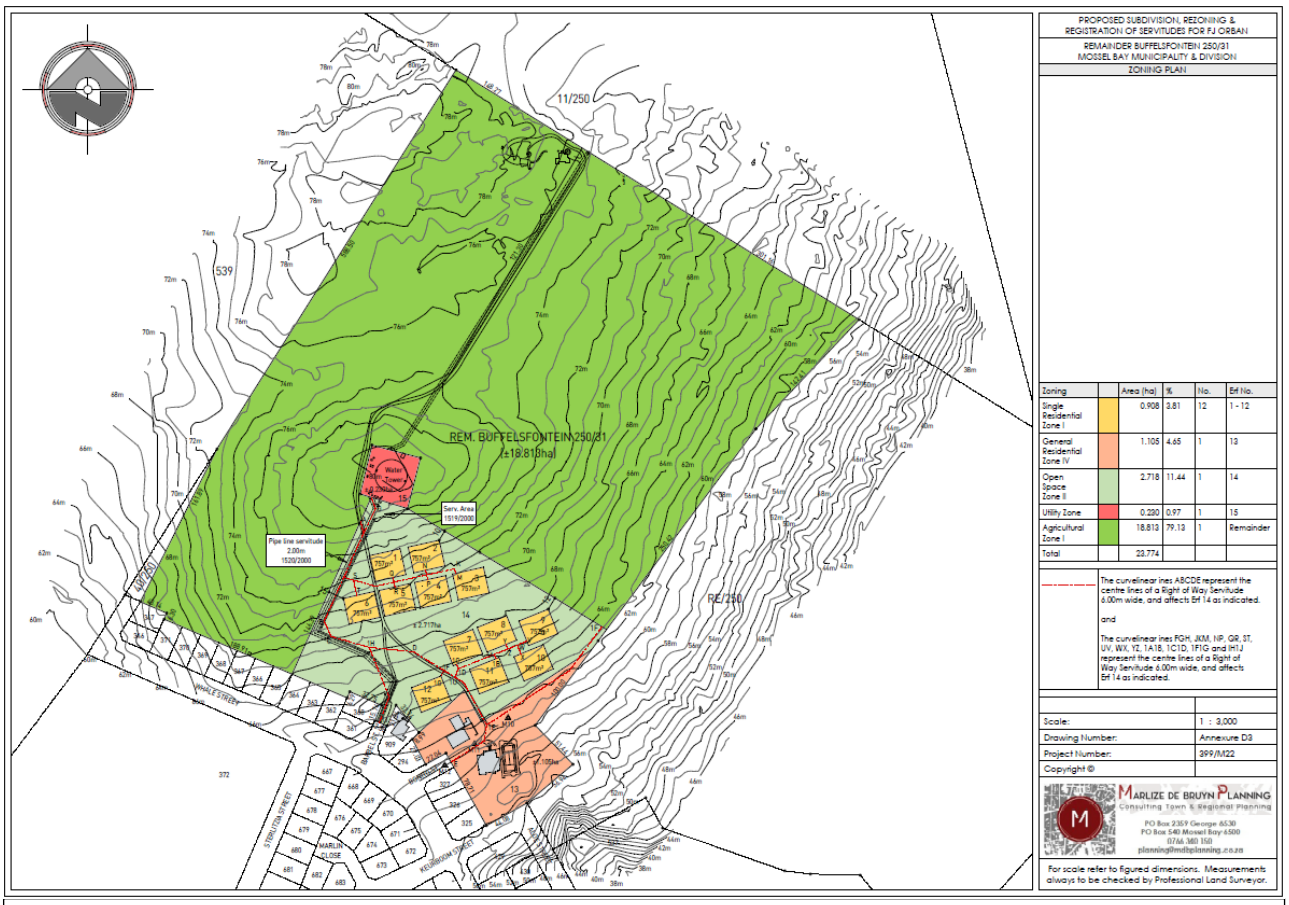

Figure 5: Proposed development within part of Portion 31 of the Farm Buffelsfontein 250 (Preferred Alternative – Version 2).

Since the initial layout of this preferred alternative (Figure 4) was deemed acceptable from a faunal perspective, this mitigated preferred alternative (Figure 5) is also considered acceptable with the same impact assessment outcomes.

Survey timing

The study commenced as a desktop-study followed by site-specific field study on 28 February 2022. The site is within the Fynbos Biome with an all-year rainfall season with a slight dip in early winter (Figure 6). A more accurate indication of rainfall seasonality, which drives most ecological processes, is shown in Figure 7, which shows that Mossel Bay has peak rainfall from August to November, with another smaller peak in March to April. The timing of the survey in February is therefore suitable in terms of assessing the habitat of the site. The overall condition of animal habitat was possible to be determined with a high degree of confidence.

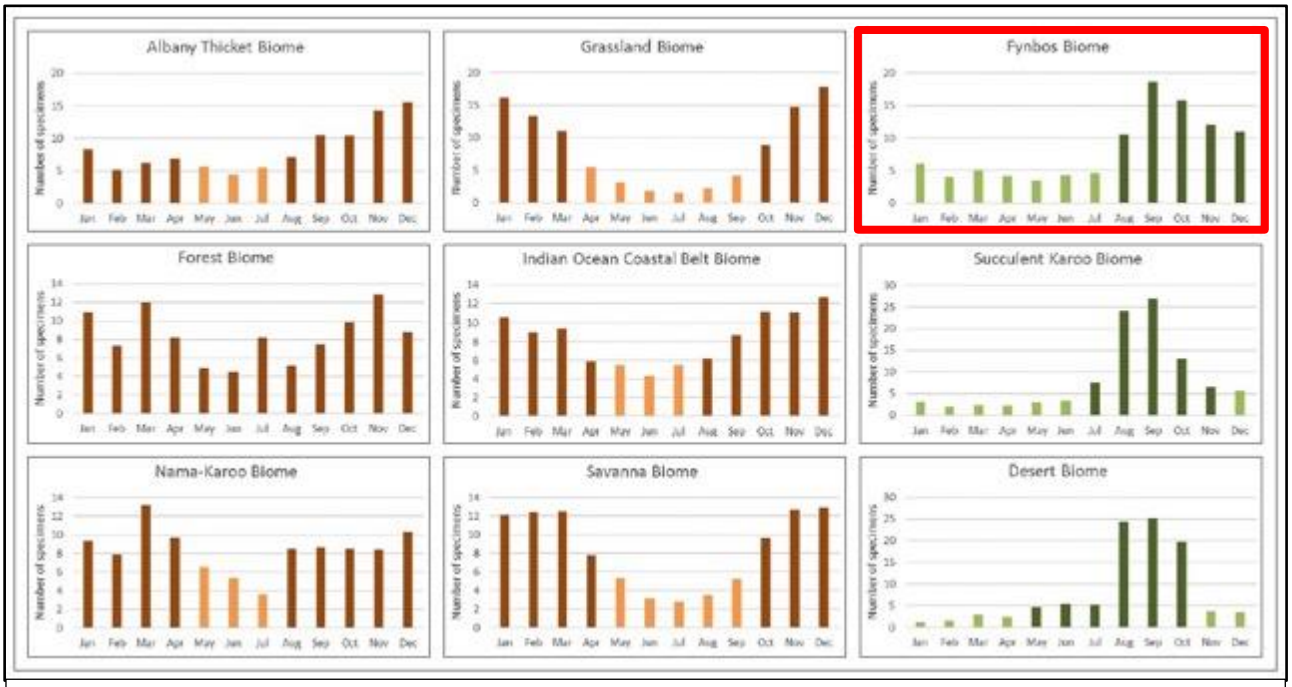

Figure 6: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines). The site is within the Fynbos Biome.

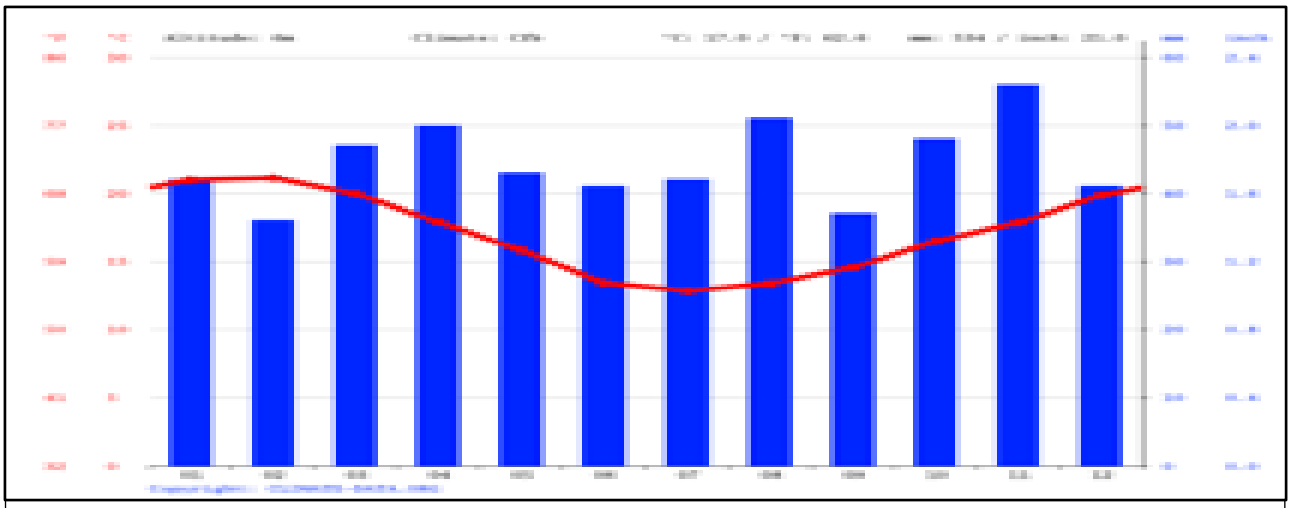

Figure 7: Climate diagram showing average monthly rainfall and temperature for Mossel Bay.

Field survey approach

The study commenced as a desktop-study followed by a site-specific field study. During the field survey of habitats on site, the entire site was assessed on foot. Field surveys included both meander searches of general areas, and active searching in habitats that were considered to be suitable for specific groups or species. Meander surveys were undertaken with no time restrictions - the objective was to comprehensively examine all natural areas. A hand-held Garmin GPSMap 64s was used to record a track within which observations were made (Figure 8). Digital photographs were taken of features and habitats on site, as well as of any animal species that were seen. Any animal species recorded were uploaded to the iNaturalist website (https://www.inaturalist.org) and are accessible by viewing the observations for the site (use the Explore menu, zoom and pan until the desired study area is within the browser window, click the button "Redo search in map", and all observations for that area will be shown and listed).

Aerial imagery from Google Earth was used to identify and assess habitats on site. This included historical imagery that may show information not visible in any single dated image. Patterns identified from satellite imagery were verified on the ground. Digital photographs were taken at locations where features of interest were observed. During the field survey, particular attention was paid to ensuring that all habitat variability was covered physically on the ground.

Figure 8: GPS track log of areas walked in the course of undertaking this assessment.

Sources of information

Fauna

- Lists of animal species that have a geographical range that includes the study area were obtained from literature sources (Bates et al., 2014 for reptiles, du Preez & Carruthers 2009 for frogs, Mills & Hes 1997 and Friedmann and Daly, 2004 for mammals). This was supplemented with information from the Animal Demography Unit website (adu.uct.ac.za) and literature searches for specific animals, where necessary.
- Appendix 2 is a summary (for the QDS3422AA) of amphibians, mammals and reptiles that may occur on the study site.

Limitations

The following assumptions, limitations, uncertainties are listed regarding the assessment of the site:

- The assessment is based on a single site visit. The current study is based on an extensive site visit as well as a desktop study of the available information. The time spent on site was adequate for understanding general patterns across affected areas.
- Compiling the list of species that could potentially occur on site is limited by the paucity of collection records for the area. The list of animal species that could potentially occur on site was therefore taken from a wider area and from literature sources that may include species that do not occur on site and may miss species that do occur on site. In order to compile a comprehensive site-specific list of the biota on site, studies would be required that would include different seasons, be undertaken over a number of years and include extensive sampling. Due to legislated time constraints for environmental authorisation processes, this is not possible.
- Rare and threatened animal species are, by their nature, usually very difficult to locate and can be easily missed.

OUTCOME OF THE ASSESSMENT

Historical disturbance on site

A 1964 aerial photograph shows that most of the property (Portion 31 of the Farm Buffelsfontein 250) had been ploughed by that date (1964), with the exception of the north-western corner, as well as the highest point in the center of the property (outlined in red in Figure 9). By 1974 the roads for the new township of Boggomsbaai had been laid out, and by 1999, most of the houses in Boggomsbaai were already built, as well as the water reservoir on the property, leaving the pattern that is currently in place for the area. The ploughed areas in 1964 therefore represent areas that currently contain secondary vegetation within previously ploughed areas (almost 60 years since ploughing), and the two unploughed areas were in a natural state, which persists to date. These patterns are consistent with the vegetation patterns found on site, as determined from the site visit. The proposed development footprint in the south-eastern corner is entirely within areas that were previously disturbed.

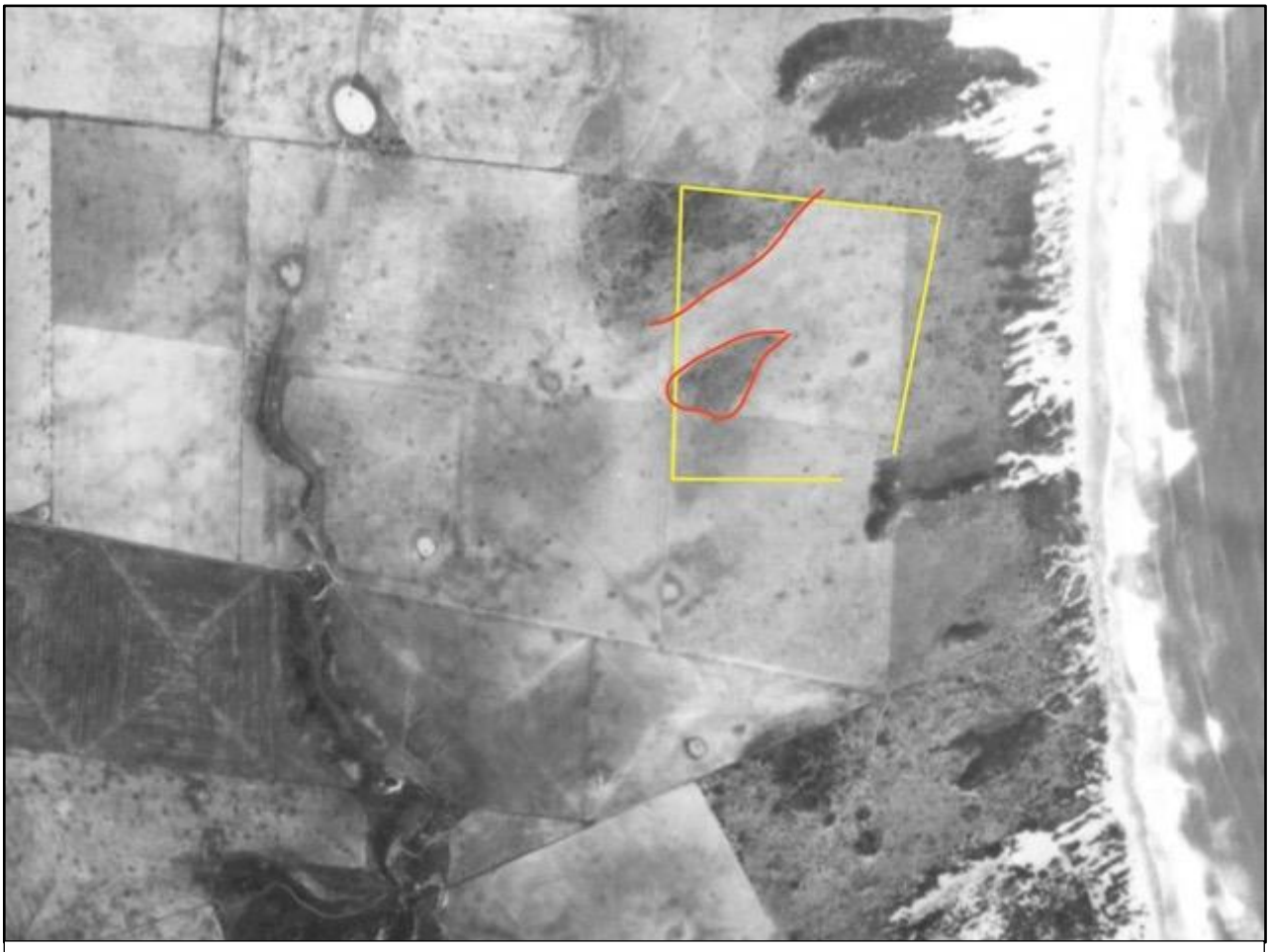

Figure 9: Historical aerial photo of the site, dated 6 June 1989.

Natural habitats on site

Based on a detailed field survey to verify conditions on site, it was determined that, with the exception of the two areas of natural thicket, only secondary habitat remains on site (Figure 10). An aerial view of the site is shown in Figure 11 and a series of photographs are provided below that give various views of the vegetation on site (Figures 12 - 15). The habitat assessment is important for understanding the suitability of habitat on site for various animal species of concern, which usually have very specific habitat requirements.

Thicket mosaic

There are two patches of thicket on site. Historical aerial photographs indicate that these are areas of original natural vegetation. It has a relatively short stature, usually around one-and-a-half metres tall, and is impenetrably dense. This is typical of thicket. The species composition includes a diversity of woody species, including *Pterocelastrus tricuspidatus, Schotia afra, Grewia occidentalis, Sideroxylon inerme, Osteospermum moniliferum, Searsia glauca, Searsia pterota, Searsia lucida, Diospyros dichrophylla, Gymnosporia buxifolia, Olea europaea ssp. cuspidata, Azima tetracantha, Lycium ferocissimum, Salvia aurea, Putterlickia pyracantha, Maytenus procumbens, Euclea undulata, Rhoicissus digitata, Aloe arborescens, Aloe ferox*, and *Tarchonanthus littoralis*. This species composition is typical of coastal thicket in the Garden Route area.

Figure 10: Map of habitats on site.

Secondary vegetation

Most of the vegetation on site is in previously disturbed areas, where there has also been localised disturbance in places. The vegetation is almost entirely dominated by *Eriocephalus africanus*, giving the vegetation a uniform grey appearance (see Figure 14). Other plant species occurring in these areas include *Dicerothamnus rhinocerotis*, *Nidorella ivifolia*, *Carpobrotus acinaciformis, Cynodon dactylon, Cynanchum viminale, Mesembryanthemum nodiflorum, Eragrostis curvula, Pelargonium peltatum,* and *Helichrysum teretifolium*, as well as the exotic species, *Acacia cyclops** (NEMBA Category 1b), *Myoporum insulare** (NEMBA Category 3) and *Solanum linnaeanum**.

This is a transformed habitat type, and no plant species of concern were found here or are likely to occur here.

Figure 11: View from west to east over the site.

Figure 12: Typical thicket on site.

Figure 13: Vegetation within proposed development footprint area.

Figure 15: Secondary vegetation on site in previously disturbed areas.

Figure 14: Reservoir in centre of site.

Animal species flagged for the study area

According to the National Web-Based Environmental Screening Tool (DFFE), a small number of animal species have been flagged as of concern for the current project (see previous section of this report). These are all species that require specific habitat conditions to inhabit the site.

Sensitive species 8 (small antelope)

Vulnerable

Found in a variety of forested and wooded habitats, including primary and secondary forests, gallery forests, dry forest patches, coastal scrub, farmland and regenerating forest (Venter et al. 2016). Within South Africa, they occur mainly within scarp and coastal forests, thickets or dense coastal bush (Skinner & Chimimba 2005), although they can occupy modified habitats. They frequent forest glades and open areas but need dense underbrush to rest or take cover. They are selective foragers which mainly feed on fruit, dicots and a small percentage of monocots (Venter et al. 2016). It is diurnal, but secretive and cautious. Home ranges are about 0.4 - 0.8 ha. Populations are declining due to loss of habitat, as well as hunting and poaching. In the Tsitsikamma National Park, animal numbers are lower than in other parts of its range, attributed to low frequency of occurrence of tree species palatable to the animal, which results in low food availability (Hanekom & Wilson 1991).

There are several records of the species in areas around George, and one from near Groot Brakrivier, all within thicket or forest areas, but not near to the current site. Fragmented and disconnected thicket occurs on site and it could concievably occur there, although this is unlikely. No evidence, such as droppings, were seen on site.

Aneuryphymus montanus (Yellow-winged Agile Grasshopper)

Vulnerable B2ab(iii,v)

Only known from six localities in the Cape region (Brown 1960). The species is associated almost exclusively with fynbos vegetation, although extending geographically towards East London, where it has been collected "amongst partly burnt stands of evergreen sclerophyll in rocky foothills" (Brown 1960). It prefers south-facing cool slopes (Kinvig 2005). It is a medium-sized, robust, active geophilous insect which readily flies off when disturbed and is easily distinguished in flight by the pale lemon base of the hind wing (Brown 1960).

Published descriptions suggest that it is not often seen but, when observed, occurs in obvious numbers. No grasshoppers were seen on site that matched the description of this species. If it occurred in the area it would be found within fynbos, which does not occur on site. It is therefore unlikely that it would occur on site.

It is therefore verified that the Animal Species Theme has <u>LOW</u> sensitivity for the site.

SITE ECOLOGICAL IMPORTANCE

The Species Environmental Assessment Guidelines require that a Site Ecological Importance (SEI) is calculated for each habitat on site, and provides methodology for making this calculation. The SEI is assessed separately for each biodiversity theme and is assessed below specifically for the Terrestrial Animal Species theme.

As per the Species Environmental Assessment Guidelines, Site Ecological Importance (SEI) is calculated as a function of the Biodiversity Importance (BI) of the receptor and its resilience to impacts (SEI = BI + RR). The Biodiversity Importance (BI) in turn is a function of Conservation Importance (CI) and Functional Integrity (FI), i.e. BI = CI + FI.

An assessment of habitats on site is provided below (Table 3) specifically for the Animal Species Theme.

Table 3: Site ecological importance for habitats found on site

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
Thicket mosaic	Low No confirmed or highly likely populations of SCC.	Medium Mostly minor current negative ecological impacts with some major impacts (e.g. established population of alien and invasive flora) and a few signs of minor past disturbance.	Low Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a low likelihood of returning to a site once the disturbance or impact has been removed.	Medium (BI = Low)
Secondary vegetation	Low < 50% of receptor contains natural habitat with limited potential to support SCC.	Medium Mostly minor current negative ecological impacts with some major impacts (e.g. established population of alien and invasive flora)	Medium Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor	Low (BI = Low)

		and a few signs of minor past disturbance.	functionality, or species that have a moderate likelihood of remaining at a site even when a disturbance or impact is occurring, or species that have a moderate likelihood of returning to a site once the disturbance or impact has been removed.	
Degraded & transformed	Very low No natural habitat remaining.	Very low Several major current negative ecological impacts.	Very high Habitat that can recover rapidly	Very low (BI = Very low)

Guidelines for development activities within different importance levels are given in the Table below (Table 4).

Table 42: Guidelines for interpreting SEI in the context of the proposed development activities

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

Summary of site sensitivity

The most valuable habitat on site is the remaining patches of thicket, as shown in the habitat map (Figure 10). There is also secondary renosterveld on site that is potential animal habitat. Based on the "Site Ecological Importance" assessment, all thicket areas on site are mapped as having MEDIUM sensitivity (Figure 16 & Figure 17) for the Terrestrial Animal Species Theme, secondary vegetation as having LOW sensitivity, and degraded and transformed areas as having VERY LOW sensitivity.

Figure 16: Animal species theme sensitivity for the site (Preferred Alternative – Version 1).

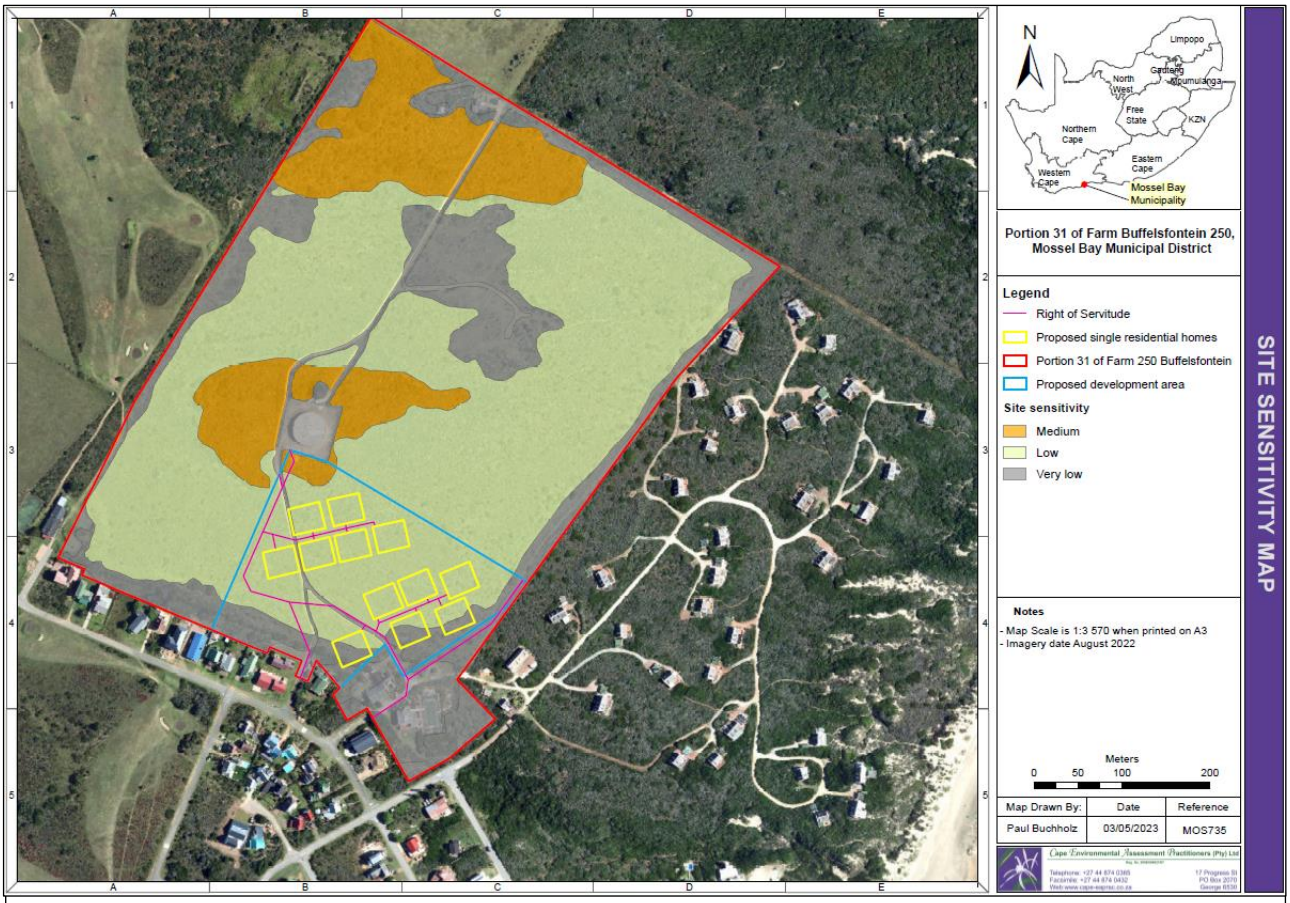

Figure 17: Animal species theme sensitivity for the site (Preferred Alternative – Version 2).

CONCLUSION

Desktop information, field data collection and mapping from aerial imagery provides the following verifications of patterns for various themes:

1. Most of the site consists of secondary and/ or degraded areas. There are patches of dune thicket in the centre and northern parts of the property, but these are outside the proposed development area.

2. The site is not considered to be good habitat for any of the animal species flagged for the site. The most valuable animal habitat on site is the dune thicket, but this is outside the direct development footprint.

3. The proposed development is entirely within areas mapped as degraded / secondary that have low biodiversity value and sensitivity. The development is therefore supported (both Version 1 & 2 of the preferred alternative).

RECOMMENDATIONS

- Sensitive habitats on the property but outside the development footprint must be protected from any development activities. No access must be permitted to these areas.

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APPENDICES:

Appendix 1: A summary list of animals (mammals, amphibians and reptiles) from the QDS 3421BD within which the study area is found. The marine mammals and reptiles were excluded from the assessment, as the habitat is not directly affected by this development.

Amphibians			
Bufonidae	*Sclerophrys capensis*	Raucous Toad	Least Concern
Bufonidae	*Vandijkophrynus angusticeps*	Sand Toad	Least Concern
Hyperoliidae	*Hyperolius marmoratus*	Painted Reed Frog	Least Concern
Hyperoliidae	*Hyperolius marmoratus verrucosus*	Painted Reed Frog (subsp. verrucosus)	Least Concern
Pipidae	*Xenopus laevis*	Common Platanna	Least Concern
Pyxicephalidae	*Amietia fuscigula*	Cape River Frog	Least Concern
Pyxicephalidae	*Cacosternum boettgeri*	Common Caco	Least Concern
Pyxicephalidae	*Cacosternum nanum*	Bronze Caco	Least Concern
Pyxicephalidae	*Strongylopus fasciatus*	Striped Stream Frog	Least Concern
Pyxicephalidae	*Strongylopus grayii*	Clicking Stream Frog	Least Concern
Pyxicephalidae	*Tomopterna delalandii*	Cape Sand Frog	Least Concern
Mammals			
Bathyergidae	*Bathyergus suillus*	Cape Dune Mole-rat	Least Concern
Bovidae	*Damaliscus pygargus pygargus*	Bontebok	Vulnerable
Bovidae	*Philantomba monticola*	Blue Duiker	Vulnerable
Bovidae	*Raphicerus melanotis*	Cape Grysbok	Least Concern
Bovidae	*Taurotragus oryx*	Common Eland	Least Concern
Bovidae	*Tragelaphus scriptus*	Bushbuck	Least Concern
Canidae	*Canis mesomelas*	Black-backed Jackal	Least Concern
Canidae	*Otocyon megalotis*	Bat-eared Fox	Least Concern
Canidae	*Vulpes chama*	Cape Fox	Least Concern
Cercopithecidae	*Papio ursinus*	Chacma Baboon	Least Concern
Delphinidae	*Delphinus delphis*	Short-beaked Common Dolphin	Least Concern
Elephantidae	*Loxodonta africana*	African Bush Elephant	Vulnerable
Felidae	*Caracal caracal*	Caracal	Least Concern
Felidae	*Felis silvestris*	Wildcat	Least Concern
Felidae	*Panthera pardus*	Leopard	Vulnerable
Herpestidae	*Atilax paludinosus*	Marsh Mongoose	Least Concern
Herpestidae	*Herpestes pulverulentus*	Cape Gray Mongoose	Least Concern
Herpestidae	*Herpestes sanguineus*	Slender Mongoose	Least Concern
Hyaenidae	*Proteles cristata*	Aardwolf	Least Concern
Hystricidae	*Hystrix africaeaustralis*	Cape Porcupine	Least Concern
Muridae	*Gerbilliscus afra*	Cape Gerbil	Least Concern
Muridae	*Otomys irroratus*	Southern African Vlei Rat	Least Concern
Muridae	*Rattus norvegicus*	Brown Rat	Least Concern
Muridae	*Rattus rattus*	Roof Rat	Least Concern
Muridae	*Rhabdomys pumilio*	Xeric Four-striped Grass Rat	Least Concern

Mustelidae	*Ictonyx striatus*	Striped Polecat	Least Concern
Mustelidae	*Mellivora capensis*	Honey Badger	Least Concern
Mustelidae	*Poecilogale albinucha*	African Striped Weasel	Near Threatened
Nesomyidae	*Dendromus melanotis*	Gray African Climbing Mouse	Least Concern
Nesomyidae	*Saccostomus campestris*	Southern African Pouched Mouse	Least Concern
Otariidae	*Arctocephalus pusillus*	Brown Fur Seal	Least Concern
Physeteridae	*Kogia breviceps*	Pygmy Sperm Whale	Data Deficient
Physeteridae	*Kogia sima*	Dwarf Sperm Whale	Data Deficient
Procaviidae	*Procavia capensis*	Cape Rock Hyrax	Least Concern
Soricidae	*Suncus infinitesimus*	Least Dwarf Shrew	Least Concern
Viverridae	*Genetta tigrina*	Cape Genet (Cape Large-spotted Genet)	Least Concern
Ziphiidae	*Mesoplodon densirostris*	Blainville's Beaked Whale	Data Deficient
Ziphiidae	*Mesoplodon grayi*	Gray's Beaked Whale	Data Deficient
Ziphiidae	*Mesoplodon mirus*	True's Beaked Whale	Data Deficient
Reptiles			
Agamidae	*Agama aculeata aculeata*	Common Ground Agama	Least Concern
Agamidae	*Agama atra*	Southern Rock Agama	Least Concern
Chamaeleonidae	*Chamaeleo namaquensis*	Namaqua Chameleon	Least Concern
Colubridae	*Crotaphopeltis hotamboeia*	Red-lipped Snake	Least Concern
Colubridae	*Dasypeltis scabra*	Rhombic Egg-eater	Least Concern
Colubridae	*Dipsina multimaculata*	Dwarf Beaked Snake	Least Concern
Colubridae	*Dispholidus typus typus*	Boomslang	Least Concern
Cordylidae	*Chamaesaura anguina anguina*	Cape Grass Lizard	Least Concern
Cordylidae	*Karusasaurus polyzonus*	Karoo Girdled Lizard	Least Concern
Elapidae	*Aspidelaps lubricus lubricus*	Coral Shield Cobra	Least Concern
Elapidae	*Naja nivea*	Cape Cobra	Least Concern
Gekkonidae	*Chondrodactylus angulifer*	Giant Ground Gecko	Least Concern
Gekkonidae	*Chondrodactylus bibronii*	Bibron's Gecko	Least Concern
Gekkonidae	*Goggia hewitti*	Hewitt's Pygmy Gecko	Least Concern
Gekkonidae	*Pachydactylus capensis*	Cape Gecko	Least Concern
Gekkonidae	*Pachydactylus geitje*	Ocellated Gecko	Least Concern
Gekkonidae	*Pachydactylus maculatus*	Spotted Gecko	Least Concern
Gekkonidae	*Pachydactylus mariquensis*	Marico Gecko	Least Concern
Gekkonidae	*Pachydactylus purcelli*	Purcell's Gecko	Least Concern
Lacertidae	*Nucras livida*	Karoo Sandveld Lizard	Least Concern
Lacertidae	*Pedioplanis laticeps*	Karoo Sand Lizard	Least Concern
Lacertidae	*Pedioplanis lineoocellata pulchella*	Common Sand Lizard	Least Concern
Lacertidae	*Pedioplanis namaquensis*	Namaqua Sand Lizard	Least Concern
Lamprophiidae	*Duberria lutrix lutrix*	South African Slug-eater	Least Concern
Lamprophiidae	*Homoroselaps lacteus*	Spotted Harlequin Snake	Least Concern
Lamprophiidae	*Lamprophis aurora*	Aurora House Snake	Least Concern
Lamprophiidae	*Lycodonomorphus rufulus*	Brown Water Snake	Least Concern
Lamprophiidae	*Psammophis notostictus*	Karoo Sand Snake	Least Concern
Lamprophiidae	*Psammophylax rhombeatus*	Spotted Grass Snake	Least Concern
Lamprophiidae	*Pseudaspis cana*	Mole Snake	Least Concern
Pelomedusidae	*Pelomedusa galeata*	South African Marsh Terrapin	Not evaluated

Scincidae	*Acontias meleagris*	Cape Legless Skink	Least Concern
Scincidae	*Trachylepis capensis*	Cape Skink	Least Concern
Scincidae	*Trachylepis homalocephala*	Red-sided Skink	Least Concern
Scincidae	*Trachylepis occidentalis*	Western Three-striped Skink	Least Concern
Scincidae	*Trachylepis sulcata sulcata*	Western Rock Skink	Least Concern
Testudinidae	*Chersina angulata*	Angulate Tortoise	Least Concern
Testudinidae	*Chersobius boulengeri*	Karoo Padloper	Least Concern
Testudinidae	*Psammobates tentorius*	Tent Tortoise	Least Concern
Testudinidae	*Psammobates tentorius verroxii*	Verrox's Tent Tortoise	Least Concern
Testudinidae	*Stigmochelys pardalis*	Leopard Tortoise	Least Concern
Typhlopidae	*Rhinotyphlops lalandei*	Delalande's Beaked Blind Snake	Least Concern
Varanidae	*Varanus albigularis albigularis*	Rock Monitor	Least Concern
Viperidae	*Bitis arietans arietans*	Puff Adder	Least Concern