Plant Species Compliance Statement

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

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

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Terrestrial Plant Species Compliance Statement Report for a 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 David Hoare (Pr.Sci.Nat.)	• PhD Botany • SACNASP Reg. no. 400221/05 (Ecology, Botany)

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.

Dr David Hoare

02 May 2023
Date

TERMS OF REFERENCE

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

The specialist study is required to follow the published Protocols, provided in full below for the assessment of impacts on Terrestrial 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 Plant 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 plant species, must submit a Terrestrial Plant 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 plant species, must submit either a Terrestrial Plant Species Specialist Assessment Report or a Terrestrial Plant 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 plant species, must submit a Terrestrial Plant 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 plant species sensitivity on the screening tool, and it is found to be of a "low" sensitivity, then a Terrestrial Plant 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 plant species sensitivity and it is found to be of a "very high" or "high" terrestrial plant species sensitivity, a Terrestrial Plant 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 Plant Species Specialist Assessment and the Terrestrial Plant 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 Plant 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 within the study area.

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

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

2.3.2 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);

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

2.3.4 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;

2.3.5 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, Red List of South African Plants, and/or other relevant databases;

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

2.3.7 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;

2.3.8 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;

2.3.9 identify any potential impact on ecological connectivity within the broader landscape, and resulting impacts on the identified SCC and its long term viability;

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

2.3.11 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; and

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

2.4 The findings of the assessment must be written up in a Terrestrial Plant Species Specialist Assessment Report.

Terrestrial Plant 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 assumptions made and any uncertainties or gaps in knowledge or data;

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

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 2.3.12 above that were identified as having "low" or "medium" terrestrial plant 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.

Terrestrial plant species compliance statement

Where the sensitivity in the Screening Report from the web-based Online Screening Tool has been confirmed to be LOW, a Plant Species Compliance Statement is required, either (1) for areas where no natural habitat remains, or (2) in natural areas where there is no suspected occurrence of SCC.

The compliance statement must be prepared by a SACNASP registered specialist under one of the two fields of practice (Botanical Science or Ecological Science).

The compliance statement must:
1. be applicable within the study area
2. confirm that the study area is of "low" sensitivity for terrestrial plant species; and
3. indicate whether or not the proposed development will have any impact on SCC.

The compliance statement must contain, as a minimum, the following information:
1. contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;
2. a signed statement of independence by the specialist;
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;
4. a baseline profile description of biodiversity and ecosystems of the site;
5. the methodology used to verify the sensitivities of the terrestrial biodiversity and plant species features on the site including the equipment and modelling used where relevant;
6. in the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase;
7. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;
8. a description of the assumptions made as well as any uncertainties or gaps in knowledge or data; and
9. any conditions to which this statement is subjected.

A signed copy of the compliance statement 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 3.45 ha is proposed for development (Figure 2).

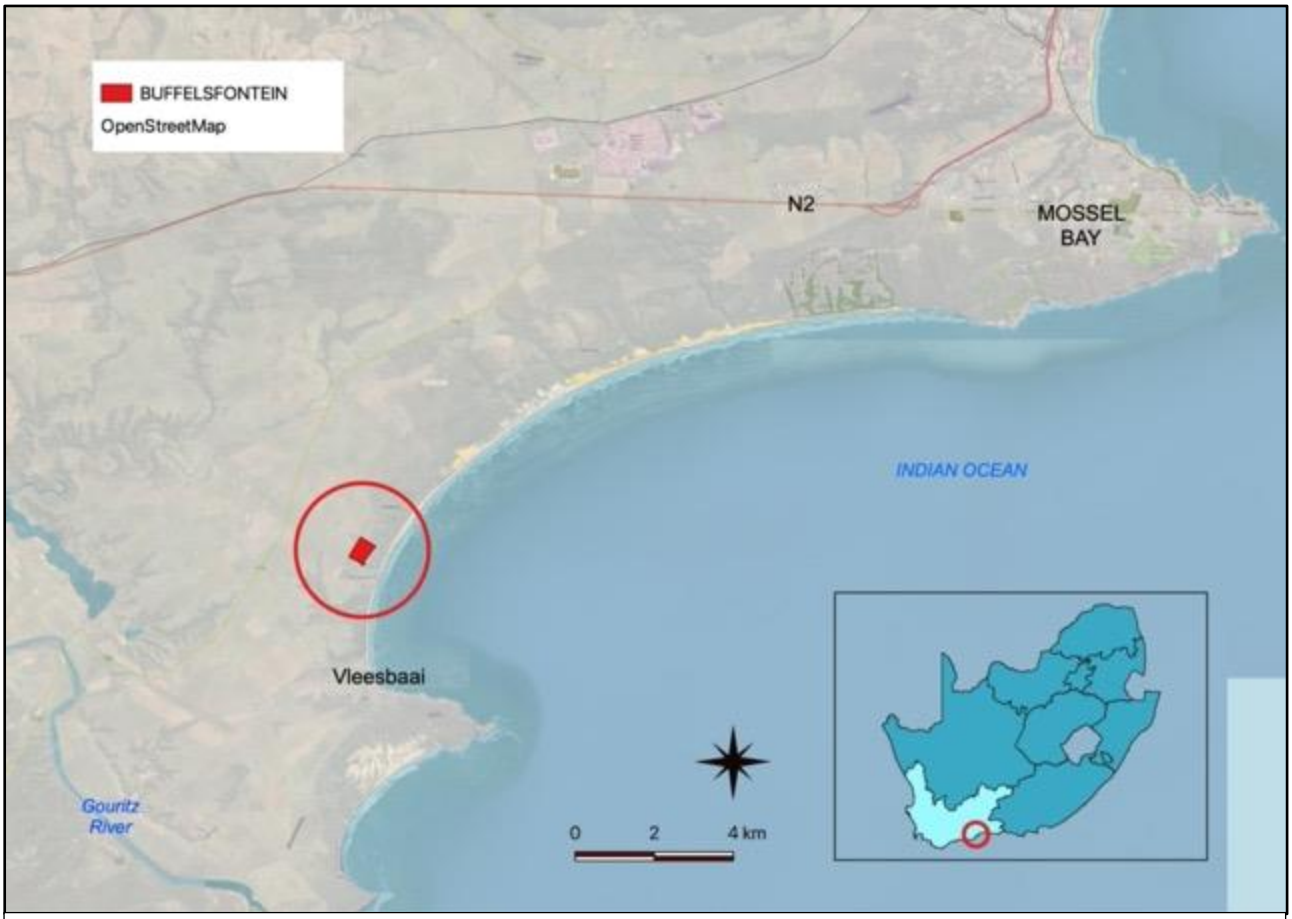

Figure 1: Location of the site.

Figure 2: Aerial image of Portion 31 of the Farm Buffelsfontein 250 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 19/10/2022, indicates the following sensitivities (see Figure 3):

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

Plant Species theme

Sensitivity features are indicates as follows:

Sensitivity	Feature(s)
Medium	Lampranthus ceriseus
Medium	Lampranthus diutinus
Medium	Lampranthus fergusoniae
Medium	Lampranthus foliosus
Medium	Lampranthus pauciflorus
Medium	Ruschia leptocalyx
Medium	Argyrolobium harmsianum
Medium	Aspalathus arenaria
Medium	Aspalathus obtusifolia
Medium	Aspalathus odontoloba

Medium	Lebeckia gracilis
Medium	Leucadendron galpinii
Medium	Leucospermum muirii
Medium	Leucospermum praecox
Medium	Wahlenbergia polyantha
Medium	Selago glandulosa
Medium	Selago villicaulis
Medium	Erica viscosissima
Medium	Erica unicolor subsp. mutica
Medium	Hermannia lavandulifolia
Medium	Sensitive species 153
Medium	Sensitive species 268
Medium	Thamnochortus muirii
Medium	Duvalia immaculata
Medium	Sensitive species 1024
Medium	Metalasia luteola
Medium	Athanasia cochlearifolia
Medium	Agathosma eriantha
Medium	Agathosma muirii
Medium	Agathosma riversdalensis
Medium	Euchaetis albertiniana
Medium	Polygala pubiflora
Medium	Drosanthemum lavisii
Medium	Sensitive species 800
Medium	Sensitive species 500
Medium	Sensitive species 654

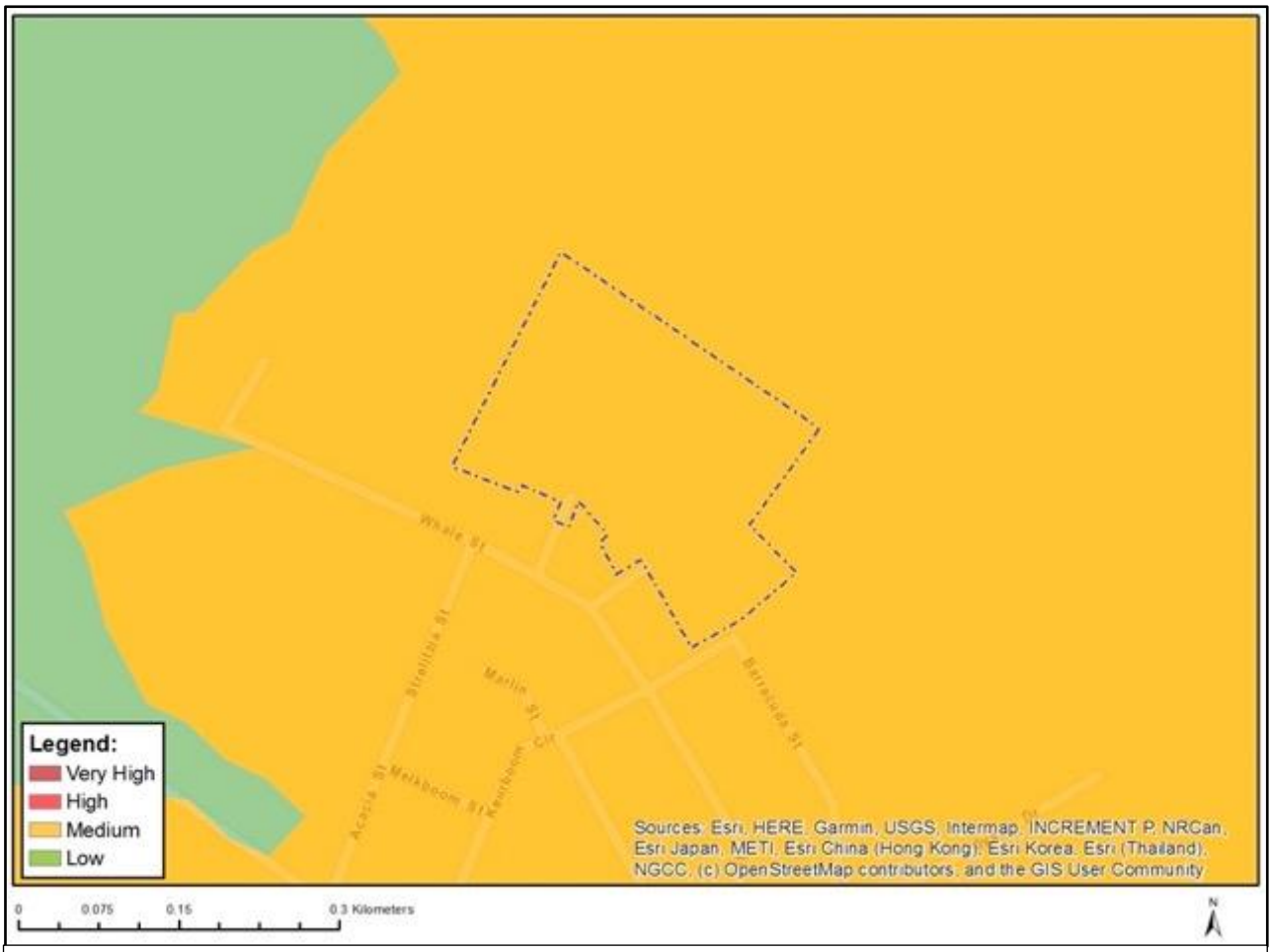

Figure 3: Map of relative plant species theme sensitivity.

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 & 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 & 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.

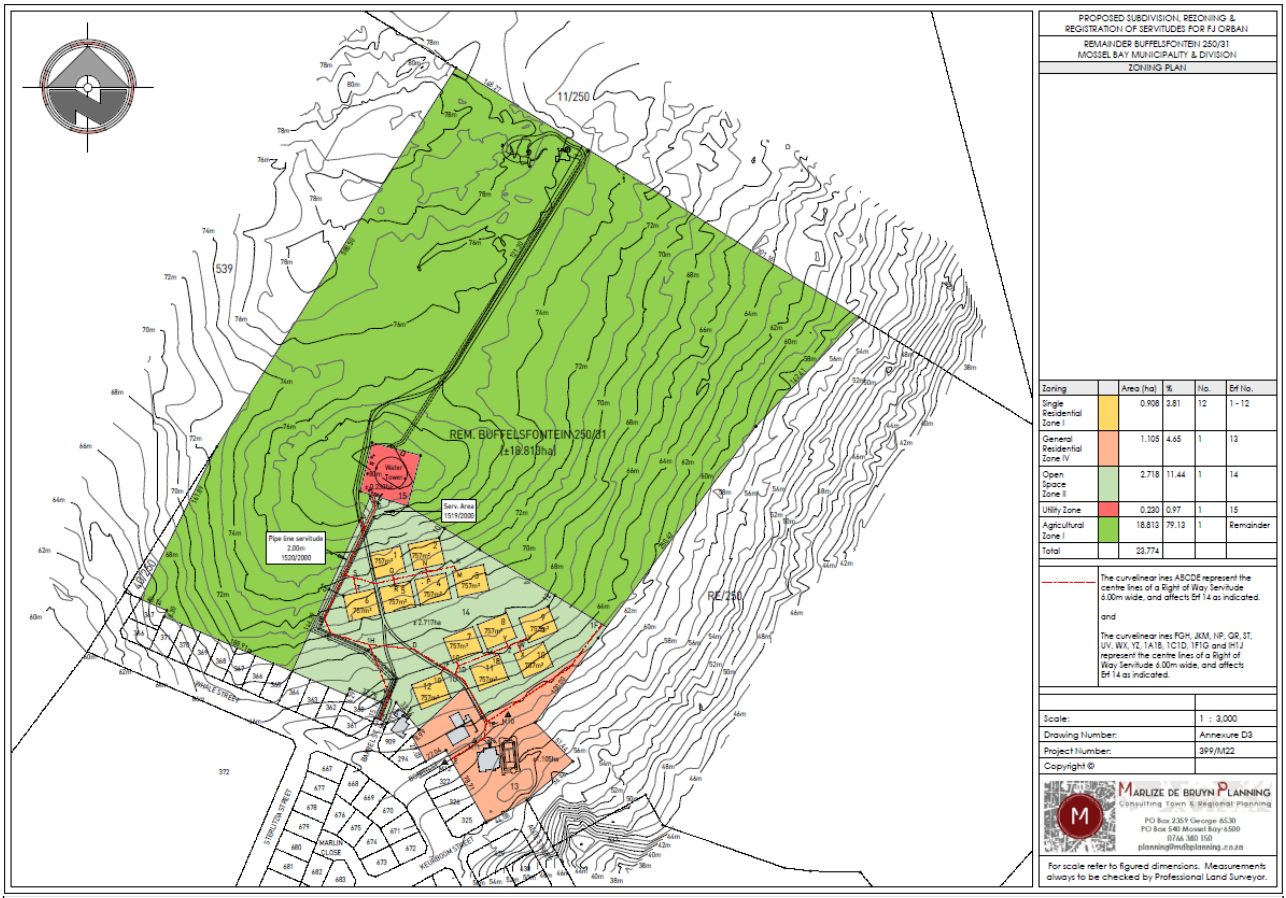

Figure 5: Proposed development within part of Portion 31 of the Farm Buffelsfontein 250 (Preferred Alternative – Version 2).

Since the initial layout of this preferred alternative (Figure 4) was deemed acceptable from a Flora 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 flora and vegetation of the site. The overall condition of the vegetation was possible to be determined with a high degree of confidence.

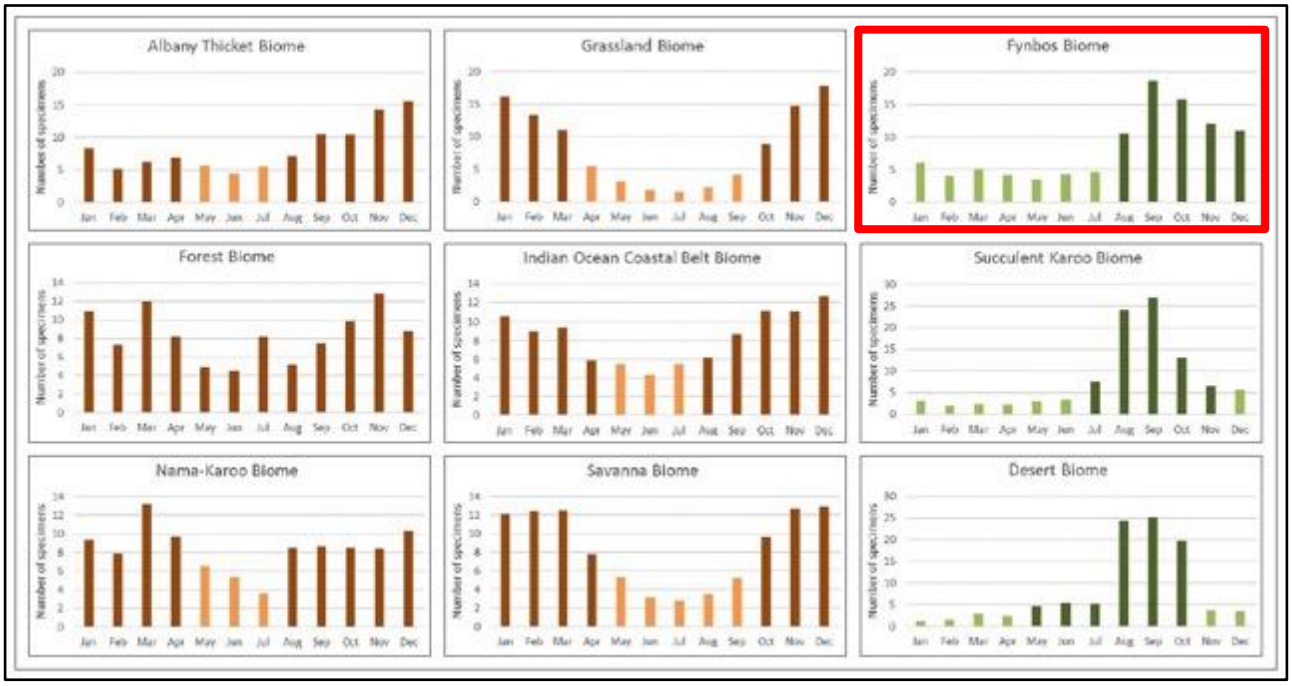

Figure 7: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines). The site is within the Fynbos Biome.

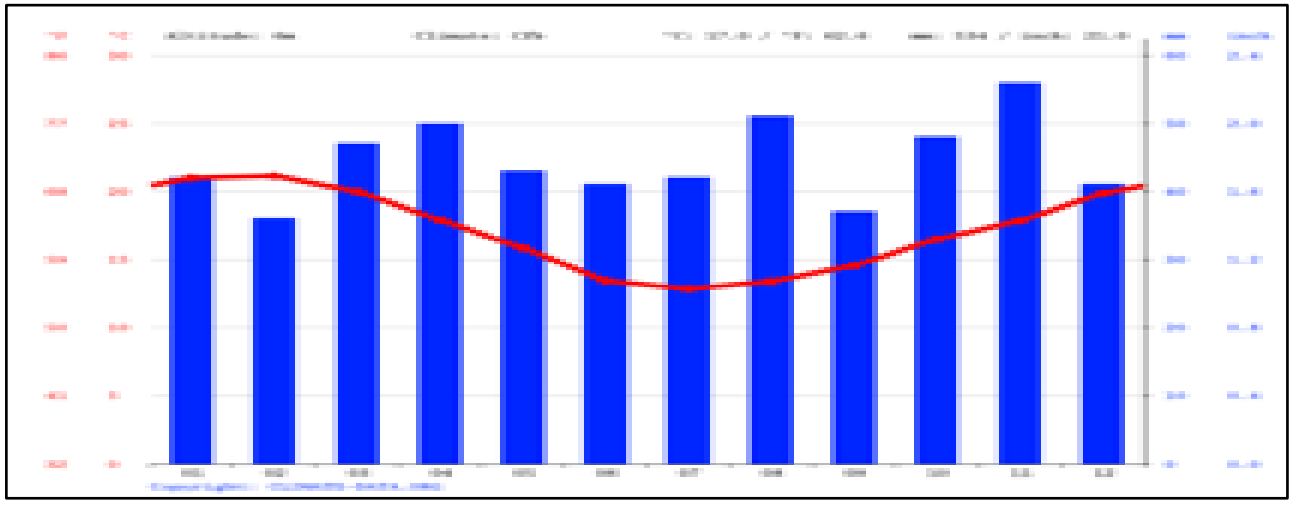

Figure 6: Climate diagram showing average monthly rainfall and temperature for Mossel Bay.

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 all plant species that were seen. All plant and 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

Vegetation and plant species

- Plant species that could potentially occur on in the general area was extracted from the NewPosa database of the South African National biodiversity Institute (SANBI) for the quarter degree grid/s in which the site is located.
- The IUCN Red List Category for plant species, as well as supplementary information on habitats and distribution, was obtained from the SANBI Threatened Species Programme (Red List of South African Plants, http://redlist.sanbi.org).
- Lists were compiled specifically for any species at risk of extinction (Red List species) previously recorded in the area. Historical occurrences of threatened plant species were obtained from the South African National Biodiversity Institute (http://posa.sanbi.org) for the quarter degree square/s within which the study area is situated. Habitat information for each species was obtained from various published sources. The probability of finding any of these species was then assessed by comparing the habitat requirements with those habitats that were found, during the field survey of the site, to occur there.
- Regulations published for the National Forests Act (Act 84 of 1998) (NFA) as amended, provide a list of protected tree species for South Africa. The species on this list were assessed in order to determine which protected tree species have a geographical distribution that coincides with the study area and habitat requirements that may be met by available habitat in the study area. The distribution of species on this list were obtained from published sources (e.g. van Wyk & van Wyk 1997) and from the SANBI Biodiversity Information System website (http://sibis.sanbi.org/) for quarter degree grids in which species have been previously recorded. Species that have been recorded anywhere in proximity to the site (within 100 km), or where it is considered possible that they could occur there, were listed and were considered as being at risk of occurring there.

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 plant 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 plant species are, by their nature, usually very difficult to locate and can be easily missed.

OUTCOME OF THE ASSESSMENT

Regional vegetation patterns

There are two regional vegetation types mapped for the property within which the development is located (Portion 31 of the Farm Buffelsfontein 250), namely Canca Limestone Fynbos and Albertinia Sand Fynbos. Only Canca Limestone Fynbos is affected by the proposed development (Figure 9 & Figure 10). The national vegetation map is not mapped at a fine scale and the on-site patterns do not entirely match this description. The local topography includes river valleys that contain thicket vegetation. The larger valley systems in this area are mapped as having Hartenbos Dune Thicket. Smaller valley systems should also have been mapped within this vegetation unit, or at least as a mosaic. The original natural vegetation on the property (Portion 31 of the Farm Buffelsfontein 250) is therefore assumed to be some mosaic of these three vegetation types, although most of it has been lost to historical disturbances.

Figure 9: Regional vegetation types of the site and surrounding areas (Preferred Alternative – Version 1).

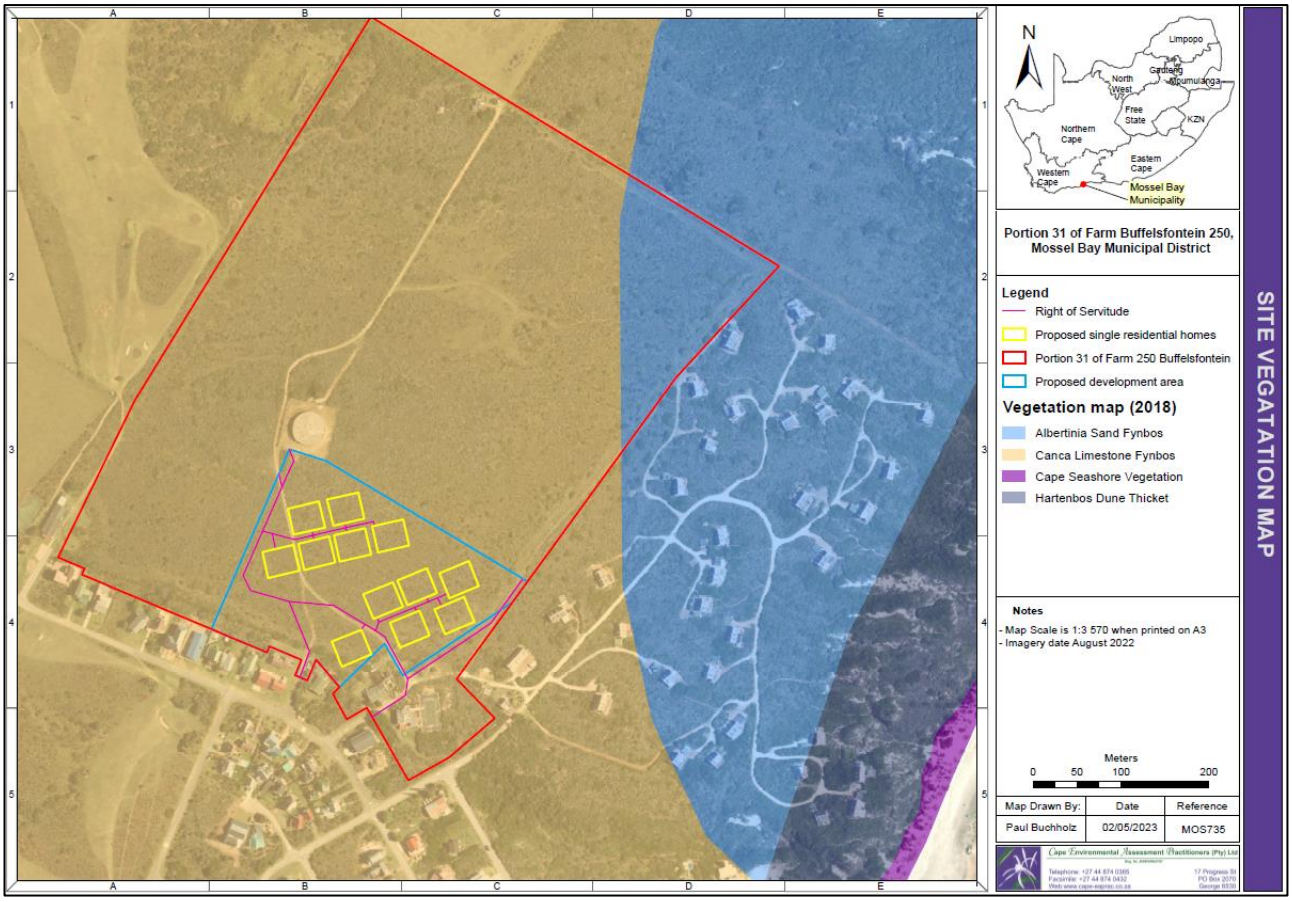

Figure 10: Regional vegetation types of the site and surrounding areas (Preferred Alternative – Version 2).

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 centre of the property (outlined in red in Figure 11). 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.

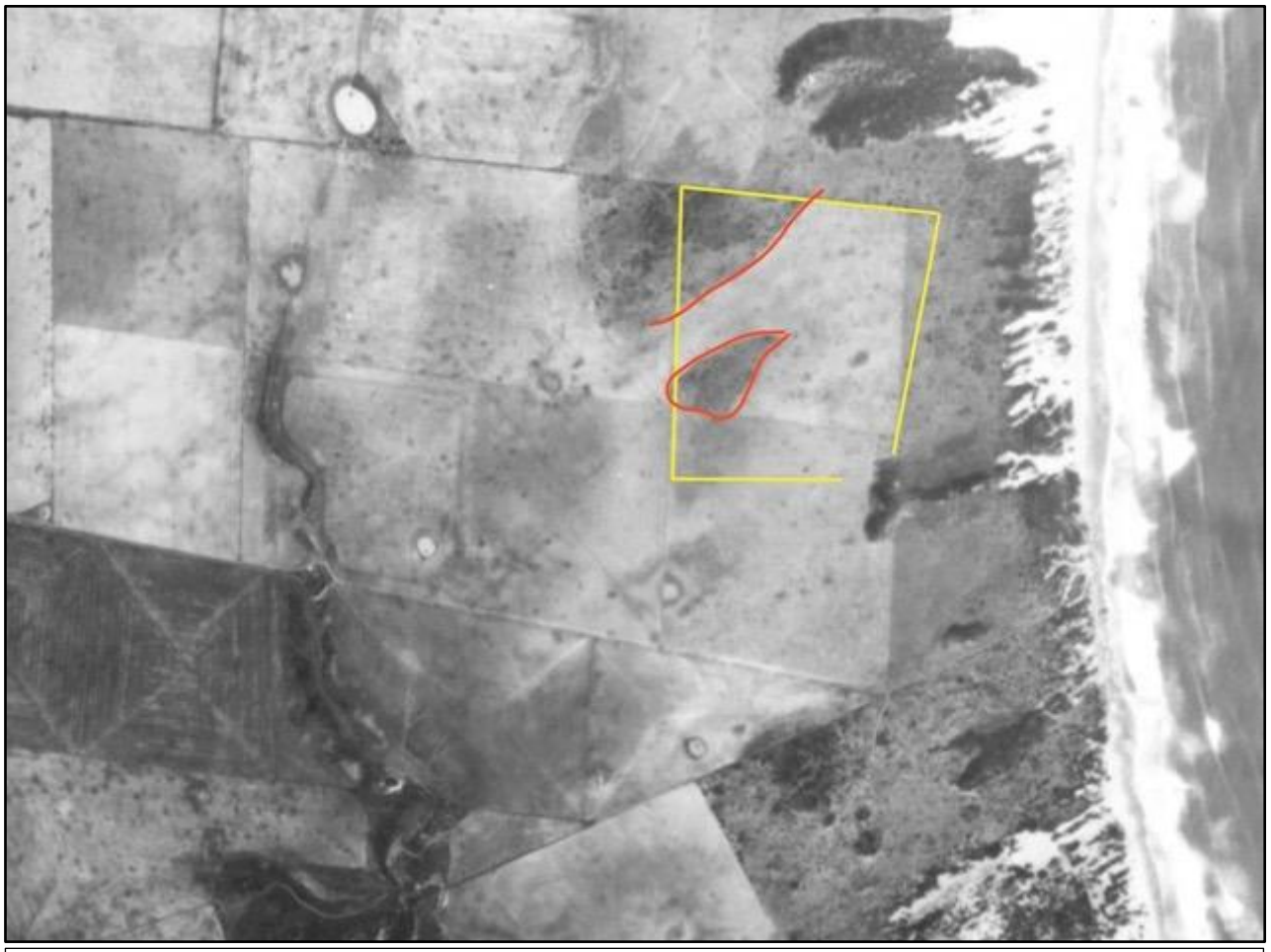

Figure 11: Historical aerial photo of the site, dated 6 June 1989.

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 the property (shown for the entire property in Figure 12 & 13). An aerial view of the site is shown in Figure 14 and a series of photographs are provided below that give various views of the vegetation on site (Figures 15 - 18). The habitat assessment is important for understanding the natural status of the vegetation on site (whether in a natural state or secondary, and whether degraded, disturbed or in good condition), which affects the sensitivity.

Thicket mosaic

There are two patches of thicket on the property, one of which is marginally within the defined development area. 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 12: Map of habitats on site (Preferred Alternative – Version 1).

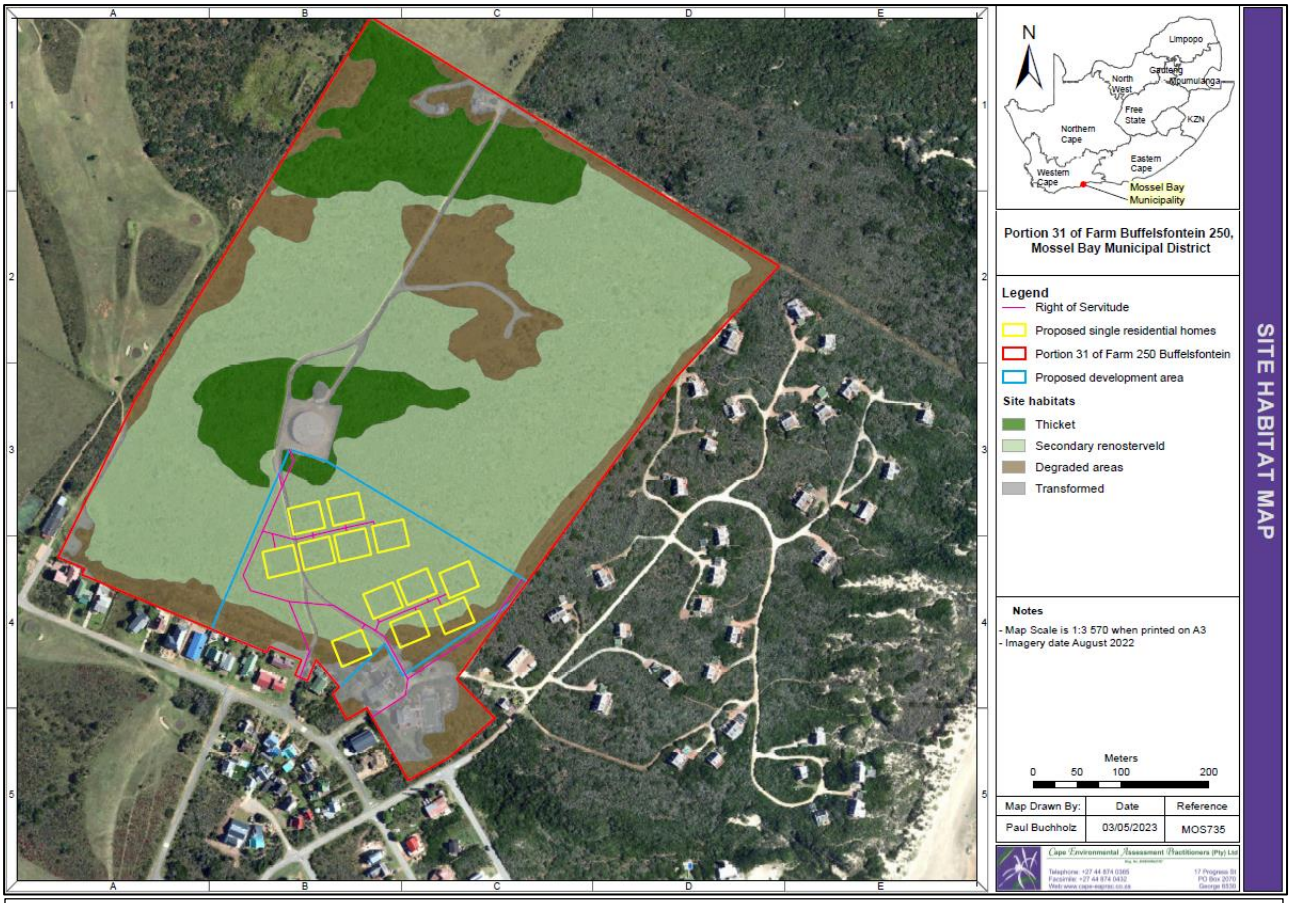

Figure 13: Map of habitats on site (Preferred Alternative – Version 2).

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 14: View from west to east over the site.

Figure 15: Typical thicket on site.

Figure 16: Vegetation within proposed development footprint area.

Figure 17: Secondary vegetation on site in previously disturbed areas.

Figure 18: Reservoir in centre of property.

Red List plant species of the study area

According to the National Web-Based Environmental Screening Tool (DFFE), a number of plant species of concern are flagged for the site (see previous section of this report). These are mostly fynbos species, or are species found in intact natural habitat. One species, *Hermannia lavandulifolia*, was found in the northern corner in the intact thicket area. This is far outside the proposed development footprint area and will not be affected by the proposed development. None of the remainder were found on site and, based on the habitat assessment, it is not considered likely that any of them would occur there.

Agathosma eriantha
Vulnerable B1ab(ii,iii,iv,v)
Found from Bredasdorp to Stilbaai on sea level flats in dry, clay soil interspersed with limestone chips. The study area falls just outside the known distribution range and no suitable habitat occurs on site. It is therefore unlikely to occur there.

Agathosma muirii
Vulnerable A4abc
Found from Stilbaai to Mossel Bay on deep sands on coastal dunes associated with limestone. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Agathosma riversdalensis
Vulnerable B1ab(ii,iii,iv,v)
Found from Arniston to Albertinia on the arid transitions between limestone and sand plain fynbos. The site is just outside the known distribution and no suitable habitat occurs on site. It is therefore unlikely to occur there.

Argyrolobium harmsianum
Endangered B1ab(ii,iii)
Found from Agulhas to Mossel Bay on coastal limestone. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Aspalathus arenaria
Vulnerable B1ab(ii,iii,iv,v)
Found from Stilbaai to Gourits River mouth in fynbos-thicket mosaic on coastal marine sands. The known distribution is very slightly west of the current site. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Aspalathus obtusifolia
Vulnerable B1ab(ii,iii,v)+2ab(ii,iii,v)
Found from Riversdale to Mossel Bay in lowland fynbos in fine-grained, black soil, up to 130 m above sea level. The site is well within the known distribution range and there are numerous observations between Gouritz River mouth and Mossel Bay. However, no suitable habitat occurs on site. It is therefore unlikely to occur there.

Aspalathus odontoloba
Endangered B1ab(iii)+2ab(iii)
Found near Albertinia in lowland fynbos below 10 m. It has been recorded numerous times around Gouritz, which is nearby. However, no suitable habitat occurs on site. It is therefore unlikely to occur there.

Athanasia cochlearifolia
Endangered B1ab(ii,iii,v)

Found from Stilbaai to Mossel Bay in lowland fynbos, often associated with limestone outcrops. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Drosanthemum lavisii

Endangered B1ab(ii,iii,iv,v); C2a(i)
Found from Montagu and Bredasdorp to Albertinia on the ecotone between fynbos and renosterveld, at elevations of 150-200 m. The site is just outside the known distribution and no suitable habitat occurs on site. It is therefore unlikely to occur there.

Duvalia immaculata

Endangered B1ab(ii,iii,iv,v)
Found from Cape Infanta to Klein Brak River near Mossel Bay in the arid fynbos-renosterveld ecotone vegetation, on shale and limestone. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Erica unicolor subsp. mutica

Vulnerable A4abc
Found from Mossel Bay to Herbertsdale and George on lowlands and lower south and north-facing slopes in fynbos. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Hermannia lavandulifolia

Vulnerable A2c
Found from Worcester to the Overberg, and extends along the southern Cape coastal lowlands as far east as Plettenberg Bay. It is found on on clay slopes in renosterveld and valley thicket. Suitable

Figure 19: *Hermannia lavandulifolia* (VU) found on site.

habitat occurs on site within the northern thicket patch on site. One individual plant was found on site within this thicket area (https://www.inaturalist.org/observations/110518061). Although it occurs

on site, it is not affected by the proposed development. Personal observations of this species at various sites suggests that it is a relatively weedy species that prefers habitat that is burnt, mowed, or otherwise cleared (without soil disturbance), otherwise it gets outgrown. The status of this species is currently being re-assessed and it is likely to be listed as Least Concern. Nevertheless, it only occurs on site within untransformed habitats, not secondary vegetation.

Erica viscosissima

Vulnerable B1ab(ii,iii,v)+2ab(ii,iii,v)
Found from Duiwenhoks River to Albertinia in fynbos on sandy flats. It has been recorded several times at Boggomsbaai. Suitable habitat occurs on site but is historically transformed. It is therefore unlikely to occur there.

Euchaetis albertiniana

Endangered A2c
Found from De Hoop to George along the coast, inland to Albertinia on deep red sands over limestone in Canca Limestone Fynbos, Garden Route Granite Fynbos, Albertinia Sand Fynbos and Hartenbos Strandveld. It has been recorded multiple times around Mossel Bay, as well as at Klein Brakrivier and Tergniet. It could possibly occur on site, within open areas in the thicket. Suitable habitat occurs on site within the northern thicket patch on site, but no plants were seen there. The potentially suitable habitat on site is very limited in extent and is mostly closed thicket. This area was carefully searched for SCC. It is therefore possible for it to occur there, but assumed to be absent on the basis of not being seen.

Lampranthus ceriseus

Vulnerable B1ab(ii,iii,iv,v)
Found from Agulhas Plain to Riversdale in coastal limestone fynbos. Nearest recent observation is from Gouritz, which is relatively nearby. However, no suitable habitat occurs on site (only secondary vegetation and thicket remnants). It is therefore unlikely to occur there.

Lampranthus diutinus

Endangered B1ab(ii,iii,iv,v)
Found from Mossel Bay to Riversdale on coastal sands in Albertinia Sand Fynbos and Hartenbos Strandveld. Recorded recently from east of Gouritz mouth, which is relatively nearby. However, no suitable habitat occurs on site (only secondary vegetation and thicket remnants). It is therefore unlikely to occur there.

Lampranthus fergusoniae

Vulnerable B1ab(ii,iii,iv,v)
Found from Pearly Beach to Knysna on calcareous soils often associated with limestone dunes. The site is well within the distribution range, as well as within the ecological zone in which the species occurs. However, no suitable habitat occurs on site (only secondary vegetation and thicket remnants). It is therefore unlikely to occur there, although not impossible. It was not seen on site.

Lampranthus foliosus

Endangered B1ab(ii,iii,iv,v)
Found from Mossel Bay to Gansbaai on limestone pavements. No suitable habitat occurs on site (only secondary vegetation and thicket remnants). It is therefore unlikely to occur there.

Lampranthus pauciflorus

Vulnerable A4abc
Found from Cape Infanta to Plettenberg Bay. Four known locations remain after most of this species' habitat has been transformed for coastal development. Habitat loss continues, especially around Plettenberg Bay, Mossel Bay and Knysna. It is found on rocky coastal slopes and clay hills. Major habitats are Groot Brak Dune Strandveld, Blombos Strandveld, Overberg Dune Strandveld, Potberg Sandstone Fynbos, Garden Route Granite Fynbos, Albertinia Sand Fynbos, Knysna Sand Fynbos, Hartenbos Strandveld, and Goukamma Dune Thicket. Suitable habitat occurs on site within the

northern thicket patch on site, but no plants were seen there. The potentially suitable habitat on site is very limited in extent and was carefully searched. It is therefore possible for it to occur there, but assumed to be absent on the basis of not being seen.

Lebeckia gracilis

Endangered A2bc; B1ab(ii,iii,iv,v)
Found from Gqeberha to Bredasdorp in coastal fynbos in deep, sandy soil below 300 m. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Leucadendron galpinii

Vulnerable A4c
Found from De Hoop to Mossel Bay in low-lying areas between limestone hills on deeper, neutral soils. Suitable habitat occurs on site within the northern thicket patch on site, but no plants were seen there. The potentially suitable habitat on site is very limited in extent and was carefully searched. It is a relatively large and conspicuous plant that would have been seen if it occurred there. It is therefore assumed to be absent on the basis of not being seen.

Leucospermum muirii

Endangered A3c+4c (shown as Vulnerable on iNaturalist website)
Found from Stilbaai to Gouritz River mouth on deep sandy flats near the coast, 90-260 m. Suitable habitat occurs on site within the northern thicket patch on site, but no plants were seen there. The potentially suitable habitat on site is very limited in extent and was carefully searched. It is a relatively large and conspicuous plant that would have been seen if it occurred there. It is therefore assumed to be absent on the basis of not being seen.

Leucospermum praecox

Vulnerable A2c+3c+4c
Found from Gourits River Mouth to Mossel Bay on tertiary acid sands associated with limestone formations on the coastal forelands. Suitable habitat occurs on site within the northern thicket patch on site, but no plants were seen there. The potentially suitable habitat on site is very limited in extent and was carefully searched. It is a relatively large and conspicuous plant that would have been seen if it occurred there. It is therefore assumed to be absent on the basis of not being seen.

Metalasia luteola

Vulnerable B1ab(iii,v)+2ab(iii,v)
Found on the Riversdale coastal plain between Duiwenhoks and Gourits rivers in limestone hills. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Polygala pubiflora

Vulnerable B1ab(ii,iii,iv)+2ab(ii,iii,iv)
Found from Cape Infanta to Mossel Bay on limestone and shale rocky outcrops. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Ruschia leptocalyx

Endangered B1ab(ii,iii,iv,v)
Found from Potberg to Hartenbos on gravelly quartzitic and shale outcrops. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Selago glandulosa

Vulnerable B1ab(ii,iii,iv,v)
Found from Potberg to Mossel Bay on coastal dunes and on limestone hills and outcrops. Suitable habitat occurs on site within the northern thicket patch on site, but no plants were seen there. The potentially suitable habitat on site is very limited in extent and was carefully searched. It is therefore possible for it to occur there, but assumed to be absent on the basis of not being seen.

Selago villicaulis

Vulnerable B1ab(ii,iii,iv,v)

Found from Stilbaai to Knysna on fixed dunes up to 150 m. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Sensitive species 500 (orchid)

Endangered C2a(i)

Found from Cape Flats to Gqeberha on lowland sandy flats, stabilised dunes and coastal rock promontories. Observations include coastal and mountain habitats. Suitable habitat occurs on site within the northern thicket band on site, but no plants were seen there. The potentially suitable habitat on site is very limited in extent and was carefully searched. It is a relatively large and conspicuous plant that would have been seen if it occurred there. It is therefore assumed to be absent on the basis of not being seen.

Sensitive species 800 (bulb)

Vulnerable B1ab(iii)

Found from Cape Peninsula to Knysna on limestone and clay loam soil, fynbos and renosterveld on coastal lowlands. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Sensitive species 153 (small geophyte)

Endangered B1ab(ii,iii,v)+2ab(ii,iii,v)

Found in the area that includes the site (from near George to near Witsand) in Garden Route Shale Fynbos and Hartenbos Strandveld on lower slopes or flats, in sandy soil amongst low bushes. The distribution and habitat requirements appear to indicate that it could occur on site. The potentially suitable habitat on site is very limited in extent and was carefully searched. No plants were seen and it is therefore assumed that it does not occur there.

Sensitive species 268 (small succulent)

Endangered B1ab(iii,iv,v)

Found from Herbertsdale and the Gourits Valley to the Great Brak River in renosterveld-thicket mosaic, in gravely, clay soil on south-facing slopes. The dune substrates on site do not meet the habitat requirements for this species and it is unlikely to occur there.

Sensitive species 1024 (orchid)

Endangered B1ab(iii,v)+2ab(iii,v); C2a(ii)

Found from Riversdale to Knysna and on the northern slopes of the Langeberg Mountains in fynbos and renosterveld up to 200 m elevation. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Sensitive species 654 (orchid)

Vulnerable C2a(i)

This species has a wide distribution from the Cape Peninsula to Somerset East and Cathcart, where it is found in variable habitats, including in acidic and alkaline sands, on coastal lowlands and mountain slopes and plateaus. Near the coast it is often in association with restios. Habitat conditions on site are probably suitable for this species, given its wide habitat tolerance, but it appears to be associated with restios near the coast, which excludes and secondary vegetation on site. No plants were seen and it is therefore assumed that it does not occur there.

Thamnochortus muirii

Vulnerable B1ab(i,ii,iii,iv,v)

Found from Potberg to Mossel Bay on deep sandy habitats associated with limestone, 30-200 m. Potentially suitable habitat occurs on site. A *Thamnochortus* was found on site (https://www.inaturalist.org/observations/110547187) that is not as robust as the common *Thamnochortus insignis*. It is therefore possible that this species found on site is *Thamnochortus muirii*, although the identity is currently not confirmed. Nevertheless, it is located along the northern

boundary of the property far outside the proposed development footprint and will therefore not be affected by the proposed development.

Figure 20: *Thamnochortus muirii* (VU) found on the northern part of the property.

Wahlenbergia polyantha

Vulnerable B1ab(ii,iii,iv,v)
Found from Kleinmond to Knysna on sandy flats. No suitable habitat occurs on site. It is therefore unlikely to occur there.

Summary

Two sensitive plant species were found on the property, namely *Hermannia lavandulifolia* (Vulnerable) and (possibly, not confirmed) *Thamnochortus muirii* (Vulnerable). Both were found in the northern part of the site, far from the proposed development (> 250 m away). They will therefore not be affected by the proposed development. Neither species occurs within the secondary vegetation that occurs within the proposed development footprint.

There are another eight species for which suitable or marginally suitable habitat occurs on site, namely *Erica viscosissima* (Vulnerable), *Euchaetis albertiniana* (Endangered), *Lampranthus pauciflorus* (Vulnerable), *Leucadendron galpinii* (Vulnerable), *Leucospermum galpinii* (Endangered), *Leucospermum praecox* (Vulnerable), *Selago glandulosa* (Vulnerable) and Sensitive species 500 (Endangered). Suitable habitat is very limited in extent and restricted to the thicket patch in the northern part of the property. These areas were carefully searched for SCC and none were found.

There are therefore no threatened, near threatened or rare species that are likely to occur in or close to the proposed development area. It is therefore verified that the Plant Species Theme has <u>LOW</u> sensitivity for the development footprint.

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 Plant 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 Plant Species Theme.

Table 2: Site ecological importance for habitats found on site

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
Thicket mosaic	High Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km^2. IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A.	Medium Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types.	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.	High (BI = Medium)
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. Moderate rehabilitation potential..	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 8).

Table 3: 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 remaining natural habitat on site is the patches of thicket in the northern and central parts of the property. All other vegetation on the property is secondary or disturbed and does not qualify as original natural vegetation. Based on the "Site Ecological Importance" assessment, the Thicket is mapped as having HIGH sensitivity, and other parts of the property as having LOW or VERY LOW sensitivity (Figure 21 and Figure 22) for the Terrestrial Plant Species Theme.

Figure 21: Plant species theme sensitivity for the site (Preferred Alternative – Version 1).

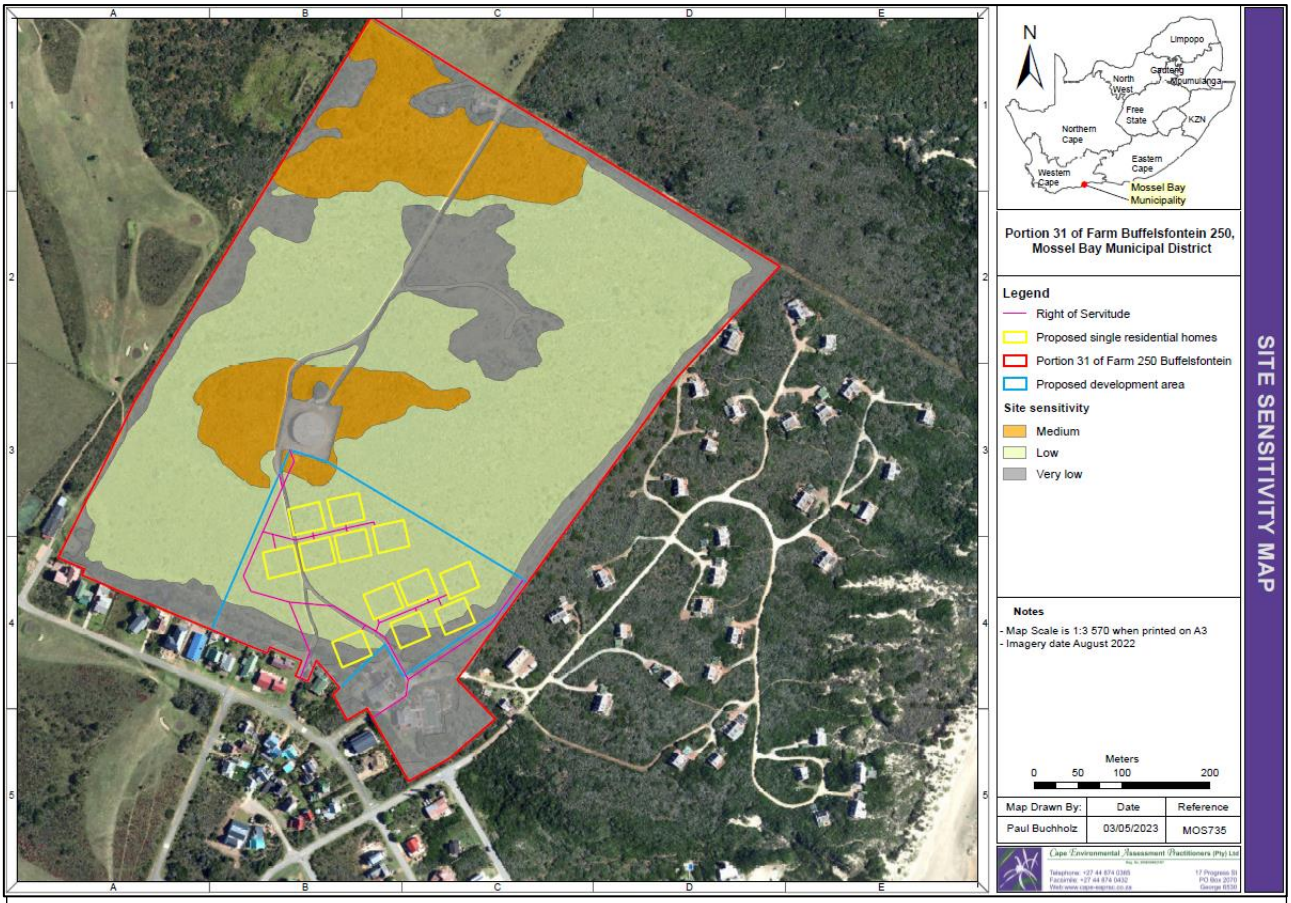

Figure 22: Plant species theme sensitivity for the site (Preferred Alternative – Version 2).

CONCLUSION

Desktop information, field data collection and mapping from aerial imagery provides the following verifications of patterns for the plant species theme:

1. Large parts of the site consist of secondary and/ or degraded areas within previously disturbed areas. There are patches of thicket on the property that are remnants of the original natural vegetation in the area. These thicket areas have been designated as having High sensitivity. The secondary vegetation is designated as having Low sensitivity and the remaining degraded areas as having Very Low sensitivity.

2. The areas of thicket contain a diversity of woody plant species, but also include a protected tree species, *Sideroxylon inerme*. These trees are protected under the National Forests Act.

3. Two plant species of concern were found on the property, both far outside the proposed development footprint where they will not be affected by the proposed development. For all other plant SCC flagged for the site, based on the available habitat, it is considered unlikely that any occur there.

4. 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

- If any milkwood trees are to be affected by the proposed development, it is a requirement that a permit be obtained, as per the National Forests Act. These were recorded within the thicket patch in the centre of the property but the proposed development footprint excludes these areas.

- 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.

REFERENCES

Germishuizen, G., Meyer, N.L., Steenkamp, Y And Keith, M. (eds.) (2006). A checklist of South African plants. Southern African Botanical Diversity Network Report No. 41, SABONET, Pretoria.

IUCN (2001). *IUCN Red Data List categories and criteria: Version 3.1*. IUCN Species Survival Commission: Gland, Switzerland.

APPENDICES:

Appendix 1: Plant species recorded on site.

Acacia cyclops* (NEMBA Category 1b)
Aloe arborescens
Aloe ferox
Aspalathus spinosa
Azima tetracantha
Casuarina equisetifolia*
Chironia baccifera
Crassula muscosa
Crassula tetragona
Crossyne guttata
Cynanchum obtusifolium
Cynanchum viminale
Cynodon dactylon
Dicerothamnus rhinocerotis
Digitaria eriantha
Diospyros dichrophylla
Drimia altissima
Eragrostis curvula
Eriocephalus africanus
Eriospermum breviscapum
Euclea undulata
Felicia muricata
Asparagus sp
Carpobrotus edulis
Senecio sp
Grewia occidentalis
Gymnosporia buxifolia
Helichrysum patulum
Helichrysum rosum
Helichrysum teretifolium
Hermannia lavandulifolia VU
Lycium ferocissimum
Maytenus procumbens
Mesembryanthemum nodiflorum
Myoporum insulare*
Nidorella ivifolia
Olea europaea ssp. cuspidata
Osteospermum moniliferum
Pelargonium odoratissimum
Pelargonium peltatum
Pollichia campestris
Pseudognaphalium oligandrum
Pterocelastrus tricuspidatus
Putterlickia pyracantha
Rhoicissus digitata
Ruschia tenella
Salvia aurea
Schotia afra
Searsia glauca
Searsia lucida

Searsia pterota
Setaria sphacelata
Sideroxylon inerme (PROTECTED National Forests Act)
Solanum linnaeanum
Tarchonanthus littoralis
Tephrosia capensis
Thamnochortus muirii VU
Themeda triandra