Botanical Impact Assessment, Remainder Farm Paapekuilsfontein 218, Struisbaai, Agulhas Municipality, Western Cape Province

Botanical Surveys & Tours

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Report prepared for OPES

Client: Helmiki No. 1 (Pty) Ltd

December 2023

National Legislation and Regulations governing this report

This is a 'specialist report' and is compiled in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2010.

Appointment of Specialist

David J. McDonald of Bergwind Botanical Surveys & Tours CC was appointed by Helmika, to provide specialist botanical / terrestrial biodiversity consulting services for the Botanical Scoping Assessment for the proposed development on Remainder Farm Paapekuilsfontein 218, Struisbaai (Bredasdorp), Western Cape Province. The consulting services comprise an assessment of potential impacts on the flora, vegetation and terrestrial biodiversity in the designated study area by the proposed development project.

Details of Specialist

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Expertise

Dr David J. McDonald:

- Qualifications: BSc. Hons. (Botany), MSc (Botany) and PhD (Botany)
- Botanical ecologist with over 40 years' experience in the field of Vegetation Science.
- Founded Bergwind Botanical Surveys & Tours CC in 2006
- Has conducted over 600 specialist botanical / ecological studies.
- Has published numerous scientific papers and attended numerous conferences both nationally and internationally (details available on request)

Independence

The views expressed in the document are the objective, independent views of Dr McDonald and the survey was carried out under the aegis of, Bergwind Botanical Surveys and Tours CC. Neither Dr McDonald nor Bergwind Botanical Surveys and Tours CC have any business, personal, financial or other interest in the proposed development apart from fair remuneration for the work performed.

Conditions relating to this report

The content of this report is based on the author's best scientific and professional knowledge as well as available information. Bergwind Botanical Surveys & Tours CC, its staff and appointed associates, reserve the right to modify the report in any way deemed fit should new, relevant or previously unavailable or undisclosed information become known to the author from on-going research or further work in this field, or pertaining to this investigation.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of the report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must refer to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

Declaration of independence:

I David Jury McDonald, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
  - other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the development proposal or application and that there are no circumstances that may compromise my objectivity; or
  - ~~am not independent, but another specialist (the "Review Specialist") that meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);~~
- in terms of the remainder of the general requirements for a specialist, have throughout this EIA process met all of the requirements;
- have disclosed to the applicant, the EAP, the Review EAP (if applicable), the Department and I&APs all material information that has or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 (as amended).

Signature of the specialist:

Bergwind Botanical Surveys & Tours CC

Name of company:

12 December 2024

Date:

CONTENTS

1. Introduction

The proponents wish to pursue the application process to develop Remainder Farm Paapefuilsfontein 218, Struisbaai (Bredasdorp), further referred to as 'the site' or 'the property'. For that purpose, a scoping and environmental impact assessment is required. Bergwind Botanical Surveys & Tours CC was appointed by Helmiki No. 1 (Pty) Ltd, to conduct a botanical and terrestrial scoping assessment and impact assessment.

The main objective of the scoping assessment is to determine botanical and/or terrestrial biodiversity constraints that would influence the development of the property. The baseline study aims to determine areas of the property that are considered 'No Go' areas and areas that are developable. This scoping assessment would, if required, be followed by an environmental impact assessment.

The recommended guidelines for specialist biodiversity studies (Brownlie 2005, Cadman *et al.* 2016) and the requirements and recommendations of CapeNature and the Botanical Society of South Africa for proactive assessment of biodiversity of proposed development sites were taken into account in this study as were, the terrestrial biodiversity protocol gazetted in March 2020 and the terrestrial plant species protocol gazetted in October 2020 in the update. The *Species Environmental Assessment Guideline* (SANBI, 2020) have also been taken into consideration.

2. Terms of Reference

Baseline assessment:

- Describe the broad ecological characteristics of the site and its surrounds.

In terms of biodiversity patterns, identify or describe:

Community and ecosystem level

- The main vegetation type, its aerial extent and interaction with neighbouring types, soils or topography;
- The types of plant communities that occur in the vicinity of the site
- Threatened or vulnerable ecosystems

Species level

- Red Data Book species (give location if possible using GPS)
- The viability of and estimated population size of the RDB species that are present (include the degree of confidence in prediction based on availability of information and specialist knowledge, i.e. High=70-100% confident, Medium 40-70% confident, low 0-40% confident)
- The likelihood of other Red Data species, or species of conservation concern, occurring in the vicinity (include degree of confidence).

Other pattern issues:

- Any significant landscape features or rare or important vegetation associations such as seasonal wetlands, alluvium, seeps, quartz patches or salt marshes in the vicinity.
- The extent of alien plant cover on the site, and whether the infestation is the result of prior soil disturbance such as ploughing or quarrying (alien cover resulting from disturbance is generally more difficult to restore than infestation of undisturbed sites).
- The condition of the site in terms of current or previous land uses.

In terms of biodiversity process, identify or describe:

- The key ecological “drivers” of ecosystems on the site and in the vicinity, such as fire.
- Any mapped spatial component of an ecological process that may occur at the site or in its vicinity (i.e. corridors such as watercourses, upland-lowland gradients, migration routes, coastal linkages or inland-trending dunes, and vegetation boundaries such as edaphic interfaces, upland-lowland interfaces or biome boundaries)
- Any possible changes in key processes e.g. increased fire frequency or drainage/artificial recharge of aquatic systems.

3. Project Area

3.1 Locality and access

Remainder Farm Paapekuilsfontein 218, Struisbaai (Bredasdorp) is 0.71 ha and lies between Marine Drive, the main road of Struisbaai that connects it to Suiderstrand to the west and Bredasdorp inland to the north-east. The site is above the high-water mark and is inside the urban edge (Figure 1).

Access to the site is straightforward since it is currently used by the public for access to rocky plateau above the high-water mark where recreational activities take place (Figure 2).

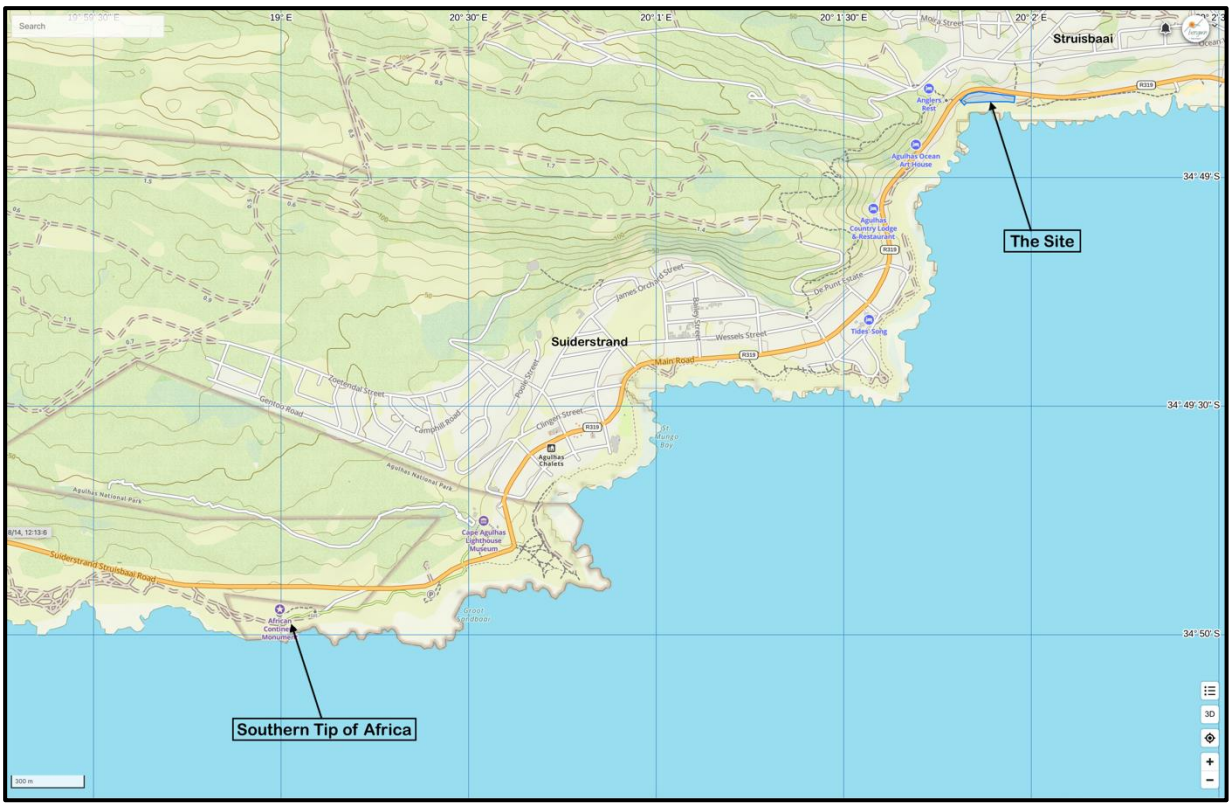


Figure 1. The location of Remainder Farm Paapefuilsfontein 218, Struisbaai (Bredasdorp) (The Site) in relation to Cape Agulhas and the Southern Tip of Africa.

Figure 2. A satellite aerial image from Google Earth Pro™ with Remainder Farm Paapekuilsfontein 218, Struisbaai (Bredasdorp) outlined in blue and the survey track shown as a red line.

3.2 Topography, Geology and Soils

The property is a narrow 'strip' along the coast that has a rocky shoreline consisting of sandstone of the Table Mountain Group. Along the coastline, unconsolidated dune sand of the Strandveld Formation of the Bredasdorp Group is found.

Figure 3. The site lies parallel to the coastline with a rocky shore and small beach, and strandveld vegetation on the landward side.

Figure 4. The aeolian sand has formed a deep deposit inland of the rock shore. The sand is exposed here by erosion.

3.3 Climate

Struisbaai and its surrounds are within the winter-rainfall region of the Western Cape. The climate diagram for Overberg Dune Strandveld (Figure 5)* shows that rain occurs throughout the year but displays a unimodal pattern with a peak in winter (May to August) Cold fronts in the winter bring cyclonic rainfall from the north-west whereas south-east winds bring rain onshore in the spring and summer. Mean annual precipitation is 476 mm. The proximity to the sea ameliorates the temperatures with the coldest month being July where the temperature at night drops to 7 °C. Midday temperatures range from 18 °C in July to 26 °C in January and February, the hottest months.

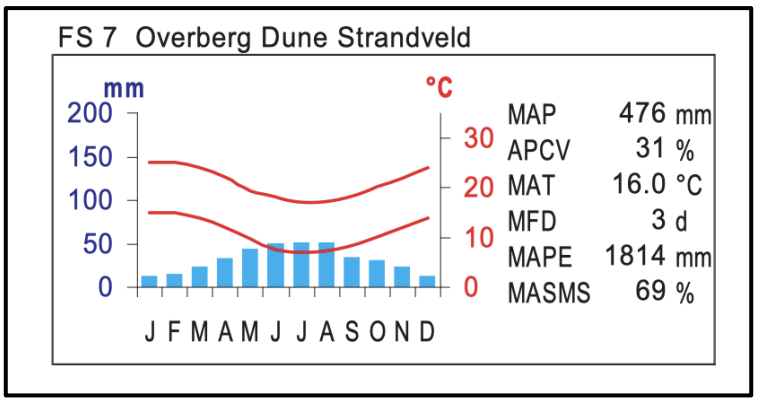


Figure 5. Climate diagram for Overberg Dune Strandveld, according to Rebelo *et al.*, 2006 (in Mucina & Rutherford, 2006) showing MAP – Mean Annual Precipitation; ACPV = Annual Precipitation Coefficient of Variance; MAT = Mean Annual Temperature; MFD = Mean Frost Days; MAPE = Mean Annual Potential Evaporation; MASMA = Mean Annual Soil Moisture Stress.

*Note: Overberg Dune Strandveld has now been included in Southwestern Strandveld (SANBI, 2024).

4. Methods

4.1 Field Sampling

The field work for the assessment was carried out on 20 December 2022 and took approximately 2 hours. The property was surveyed on foot and the 'sample track' was recorded (Figure 3). Notes on the terrain and vegetation were recorded and photographs taken to support the written observations. Where relevant observations of animals and birds were also made.

4.2 Desk-top analysis and reporting

The photographs obtained in the field as well as available literature and Google Earth Pro™ were used for description of the vegetation presented in this report. The National Vegetation Map (Mucina *et al.* 2005; SANBI, 2012; 2024) (referred to as VEGMAP) was used to determine the vegetation type. The National Web-based Environmental Screening Tool was applied as required in the protocols for specialist assessments.

5. Limitations and Assumptions

The site is accessible to the public so there was no restricted access. No other limitations were experienced, or assumptions made.

6. The Vegetation

6.1 General description

The property falls with the Southern Coastal Bioregion with only one major vegetation type occurring at the site, namely Southwester Strandveld (SANBI, 2024), with Cape Seashore Vegetation, an azonal vegetation type, playing a subordinate role. The latter occurs at the seashore, usually on beaches but less so on waves-swept rocky coastlines as at the site. The relevant part of the VEGMAP overlaid on a Google Earth Pro ™ satellite image pf the site (Figure 6) does not depict Cape Seashore Vegetation. In reality, at the site, the vegetation mapped as Southwestern Strandveld is not a pure type. It contains some plant species that are in most circumstances more likely to be found on the seashore. The latter plant species are mostly halophytes i.e. plant species able to tolerate a saline to hyper-saline environment. Agulhas Limestone Fynbos is not found at the site at all, but further inland.

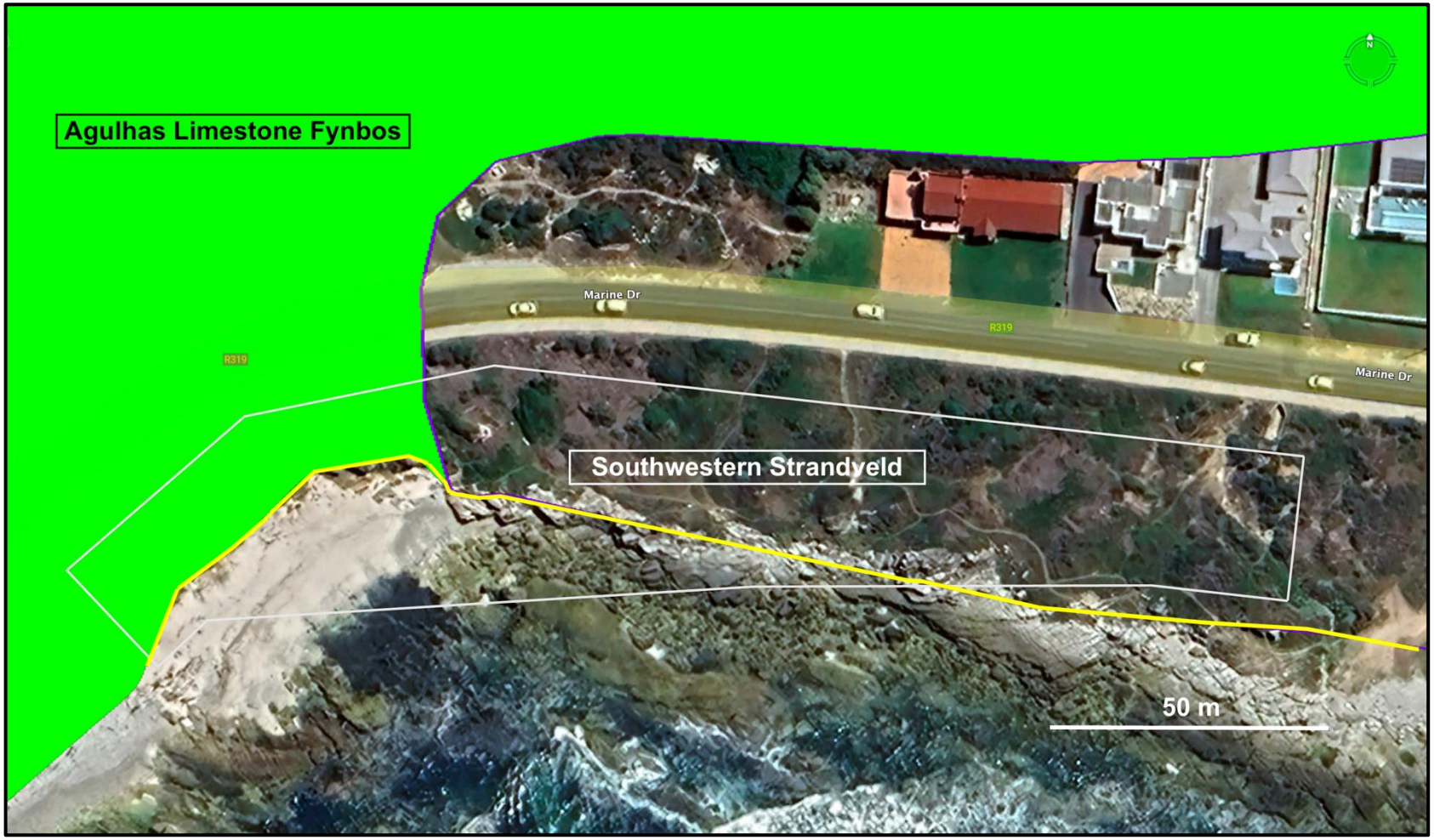


Figure 11. Portion of the vegetation map (VEGMAP) (SANBI, 2024) indicating that the site is mostly within Southwestern Strandveld (northwards of the yellow line). Cape Seashore Vegetation is not shown, with Agulhas Limestone Fynbos occurring at the western end of the site.

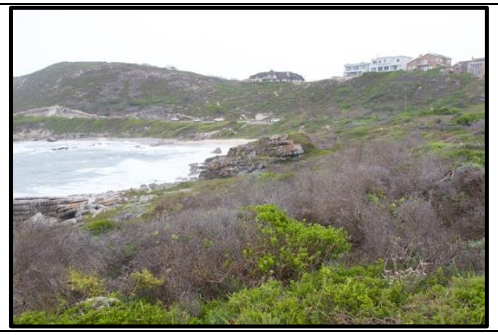
6.2. Vegetation of the project area

6.2.1 Southwestern Strandveld

As noted above, the vegetation at the site is mainly Southwestern Strandveld, with a small area of Agulhas Limestone Fynbos at the western end. The terrain is partly a moderately sloping windswept slope consisting of deep aeolian sand above a rocky shoreline consisting of Table Mountain Group sandstone. The western part of the site has a sandy beach with the toe of the slope having a margin of Cape Seashore Vegetation with the steeper slope inland and above the beach being vegetated by strandveld and limestone fynbos.

The vegetation and terrain is described below using photo waypoints. The photo illustrations provide an overview of the site and its condition. Some individual component plant species of the strandveld are depicted as well as some exotic species that have established on the site. strandveld

Waypoint Coordinates	Notes	Illustrations
S 34°48'50.118" E 20°1'57.234" E	The east boundary of the site runs from Marine Drive to the shoreline, roughly in a straight line through the habitat seen in this image.	

S 34°48'49.806" E 20°1'57.006"	This image shows erosion of the accumulated aeolian sand. Note the thickness (depth) of the sand. The cause of the erosion is the egress of stormwater from a culvert at the edge of Marine Drive.	
S 34°48'50.214" E 20°1'57.048"	The view westwards from the eastern boundary of the site showing the rocky promontory above the rocky coastline. The vegetation is all strandveld.	
S 34°48'50.028" E 20°1'56.532"	The strandveld vegetation is mostly clipped short by wind and salt-spray. It is only the resistant tall shrubs such as *Metalasia muricata* that can withstand the windshear.	

S 34°48'50.124" E 20°1'56.166"	*Euclea racemosa* (sea gwarrie), a well-known indicator species of strandveld vegetation. It is usually a tall shrub but here it is stunted by wind and close proximity to the sea.	
S 34°48'49.704" E 20°1'56.208"	*Limonium scabrum* (sea lavender), a common strandveld component.	
S 34°48'50.142" E 20°1'56.016"	*Drosanthemum hispidum* (hairy dew flower or skaapvygie). A widespread plant species but commonly in strandveld.	

S 34°48'49.704" E 20°1'56.124"	*Helichrysum crispum* (mattress everlasting or kooigoed), a species commonly found in strandveld and fynbos.	
S 34°48'50.28" E 20°1'56.112"	*Solanum africanum* (dune nightshade, drunken berry, drunken rope (Eng.); dronkbessie, dronktou (Afr.). Found commonly in coastal vegetation.	
S 34°48'50.232" E 20°1'56.148"	The view from roughly the centre of the site looking eastwards.The rocky sandstone shelf that separates the sea from the strandveld vegetation. No Cape Seashore Vegetation is found here due to the highly energetic and abrasive shore-zone.	

S 34°48'50.232" E 20°1'56.148"	The view from roughly the centre of the site looking westwards. The strandveld is found up to the rocks. In the distance is a small beach at the western end of the site.	
S 34°48'50.238" E 20°1'58.74"	*Euphorbia burmannii* (soetmelkbos), a succulent often found in strandveld vegetation but stunted by the closeness to sea.	
S 34°48'50.358" E 20°1'55.872"	*Bassia diffusa* (soutbossie*),* a prostrate, mat-forming succulent perennial halophyte, tolerant of high concentrations of salt and often found in saltmarshes.	

S 34°48'50.334" E 20°1'55.494"	*Sporobolus virginicus* (seashore dropseed, marine rush grass, sand couch, salt couch grass, saltwater couch, coastal rat-tail grass) is a species of grass tolerant of sites subject to high salt concentrations. This species is widespread along beaches in subtropical and tropical regions of the world.	
S 34°48'49.566" E 20°1'55.518"	*Brunsvigia orientalis* (candelabra lily, also known as one of the March lilies), a widespread geophyte that flowers in autumn. The leaves dry out in summer and reappear in winter during the rainy season.	
S 34°48'49.266" E 20°1'49.398"	*Searsia crenata* (rear) (dune crow berry) with *Searsia glauca* (front) (blue khunibush). These two related shrub species are a common component of strandveld.	

S 34°48'49.962" E 20°1'49.254"	*Thesium* sp. – one of many species that are root parasites on dune shrubs.	
S 4°48'49.806" E 20°1'54.756"	*Metalasia muricata* mid-high shrubs now senescent, with *Osteospermum moniliferum* (bright green shrub), both common species in dune vegetation.	
34°48'49.704" S 20°1'54.078" E	*Carpobrotus edulis* (sour fig) [centre], is well known as a dune-stabilising plant in coastal dunes.	

S 34°48'49.584" E 20°1'52.152"	*Helichrysum petiolare* (silver bush everlasting, herbal helichrysum, bedding helichrysum (Eng.), kooigoed, kruie (Afr.), imphepho (Xho.), a species found in the Western Cape in strandveld and fynbos vegetation.	
S 34°48'49.482" E 20°1'52.14"	*Helichrysum retortum* (flask everlasting or sea / beach strawflower), is a dwarf shrub that spreads on beach sand or rocks.	
S 34°48'49.554" E 20°1'51.54"	The small beach at the west end of the site, with a small amount of Cape Seashore Vegetation at the upper limit of the beach. This quickly gives way to Agulhas Limestone Fynbos.	

S 34°48'50.1" E 20°1'49.266"	*Tetragonia decumbens* (dune spinach) and *Tetragonia fruticosa* (sprawling sea coral), two closely related prostrate shrubs that are found in Cape Seashore Vegetation.	
S 34°48'48.678" E 20°1'52.956"	*Sideroxylon inerme* (White milkwood) occurs along the upper edge of the strandveld on the site, bordering the pavement along Marine Drive. The trees are severely wind-clipped and stunted due to onshore wind and salt-spray. This is a protected tree species in terms of the National Forests Act (Act 84 of 1998). It may not be disturbed by cutting or removal without the necessary permits.	

6.2.2 Exotic and Invasive Plant Species

With the site being in close proximity to the gardens of houses at Struisbaai, some exotic plant species found in coastal gardens around the world but more specifically in the sub-tropics and tropics, have become established. Notable species are *Plantago maritima*, *Reseda lutea* and *Lagunaria patersoniae,* as illustrated below. *Acacia cyclops* has previously been more prominent on the site, but the large shrubs have been removed leaving only the less conspicuous specimens that blend in with the wind- and salt-pruned low vegetation. Such specimens could become larger with time if they are not eradicated.

S 34°48'49.44" E 20°1'53.91"	*Plantago maritima (*sea plantain) is widely distributed on the coasts of the world but is non-native to South Africa where it has naturalised along the coast.		
S 34°48'49.692" E 20°1'56.112"	*Acacia cyclops* (red arrows) is an alien invasive woody species that is well-adapted to coastal environments with sandy soil. It is a major problem along the coast and inland in the Western and Eastern Cape Provinces. At the site the invasive trees have mostly been removed but some individuals, stunted by the effects of salt-spry and wind, persist amongst the short strandveld vegetation.		

S 34°48'50.064" E 20°1'55.842"	A large *Acacia cyclops* (rooikrans) has been removed and a barren area is left due to shading out of native plants.	
S 34°48'50.022" E 20°1'55.716"	*Reseda lutea* (yellow mignonette or wild mignonette) is native to Europe, southwest Asia and North Africa, from the Canary Islands and Iberia east to northwest India. This species has medicinal properties having been used as a sedative. It is not native to the site.	
S 34°48'49.818" E 20°1'54.036"	*Lagunaria patersonia* (known by a wide number of common names including Norfolk Island hibiscus, primrose tree and cow itch tree), is not native to South Africa. It has become established on the site as a stunted shrub, probably having escaped from a local garden.	

6.2.3 Disturbance

Apart from the ongoing disturbance effects of the coastal environment, there are some other disturbance features on the site. The disturbance is from people accessing the rocks and beach for picnics and walks, as well as poorly managed stormwater as described below.

S 34°48'49.692" E 20°1'54.432"	A footpath was noted running parallel with the shoreline, through the low strandveld and above the rock outcrops. This footpath appears to cause only limited disturbance since many of the trailing plants extend across the path, helping to stabilize the sand.	
S 34°48'49.104" E 20°1'56.382"	Some areas of the site have been disturbed by removal of alien invasives, leaving open areas where the harsh environment (wind) does not allow for quick revegetation.	

S 34°48'50.004" E 20°1'55.842"	A problem for the strandveld vegetation is that *Acacia cyclops* trees have been cleared and then the cut material is chipped on-site with a mechanical chipper. This produces a large amount of chipped material which has been left on the site in piles. Clearing of the alien plants is positive but leaving the chipped material is undesirable since it contains a high seed load and the problem of invasion is exacerbated. The chipped material should be removed to a recognized landfill and burnt to destroy the seeds.	
S 34°48'49.158" E 20°1'57.324"	At this location, a stormwater culvert has been constructed. This is a good thing but the flow of water below the culvert should be appropriately managed. It is eroding the sandy soil and leaving and undesirable erosion gulley.	

7. Conservation Status and Site Sensitivity

7.1 Western Cape Biodiversity Spatial Plan (Critical Biodiversity Areas and Ecological Support Areas)

The Revised National List of Ecosystems that are Threatened and in need of Protection was published in the Government Gazette No. 47526 of November 2022. The name Southwestern Strandveld (Cowling *et al.* 2023) was only published after the abovementioned gazette. It has thus not been given a 'threat status' or conservation status. Therefore, the vegetation type name Overberg Dune Strandveld is used here since it was the previously recognized vegetation type. It is listed as **Critically Endangered B1 (iii)** (Government Gazette, 2022) and the reason for this is that the ecosystem is '*narrowly distributed with ongoing biotic disruption by invasive species'*. This immediately places a 'red flag' on development as well.

The Western Cape Biodiversity Spatial Plan [WCBSP] (CapeNature, 2017; Pence, 2017, Poole-Stanvliet *et al*., 2017) describes the conservation standard developed by CapeNature, that includes the currently accepted critical biodiversity areas (CBAs) and ecological support areas (ESAs) at a provincial level but recognized nationally as well. The map of CBAs and ESAs for the Agulhas Municipality was overlaid on a Google Earth Pro™ image and the result of this exercise is given in Figure 12. The classification shows that part of the site is classified as ESA1, whereas the remainder of the site is not recognized as sensitive.

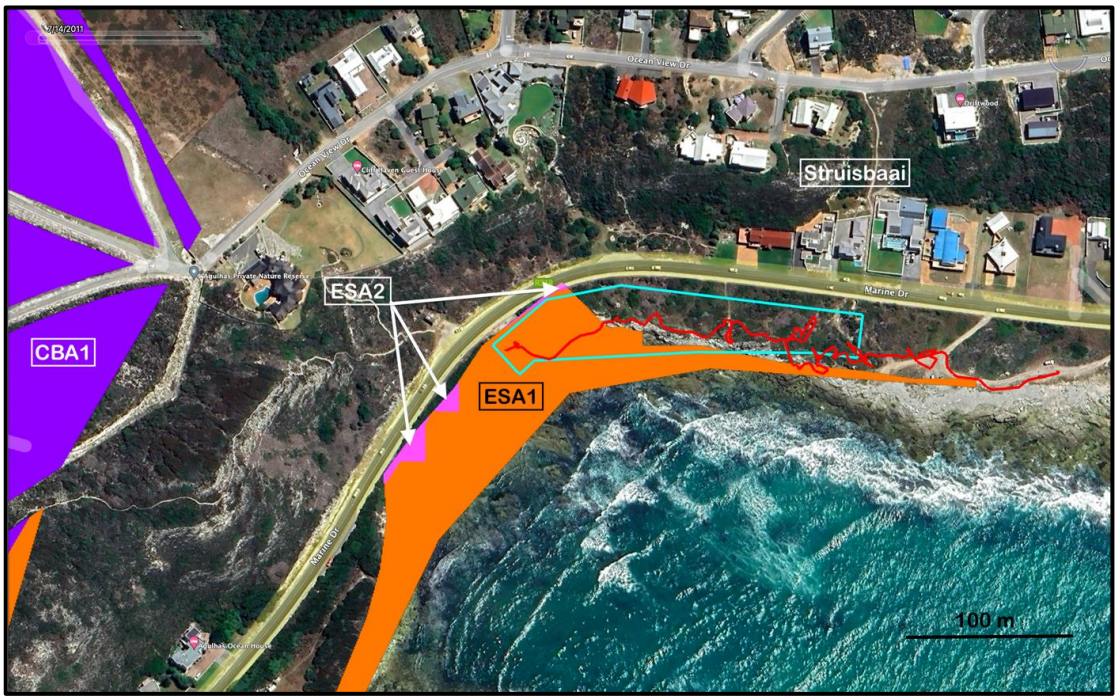


Figure 12. The WCBSP map overlaid on a Google Earth Pro ™ image, indicating that the western part of the site is classified as ESA1.

7.2 Red List Ecosystems (RLE)

The most recent National Biodiversity Assessment has been used as the basis for the mapping of threatened ecosystems, more specifically the remnants of these ecosystems that, for convenience, are referred to as 'Red List Ecosystems' (SANBI, 2022; Skowno & Monyeki, 2021). The shapefile applicable to the site was also overlaid on a Google Earth Pro™ image with the result given in Figure 13. The classification recognises only the western end of the site, where the small beach is located, as Endangered [EN B1 (iii)]. The latter area is now classified as Agulhas Limestone Fynbos (see also Figure 11).

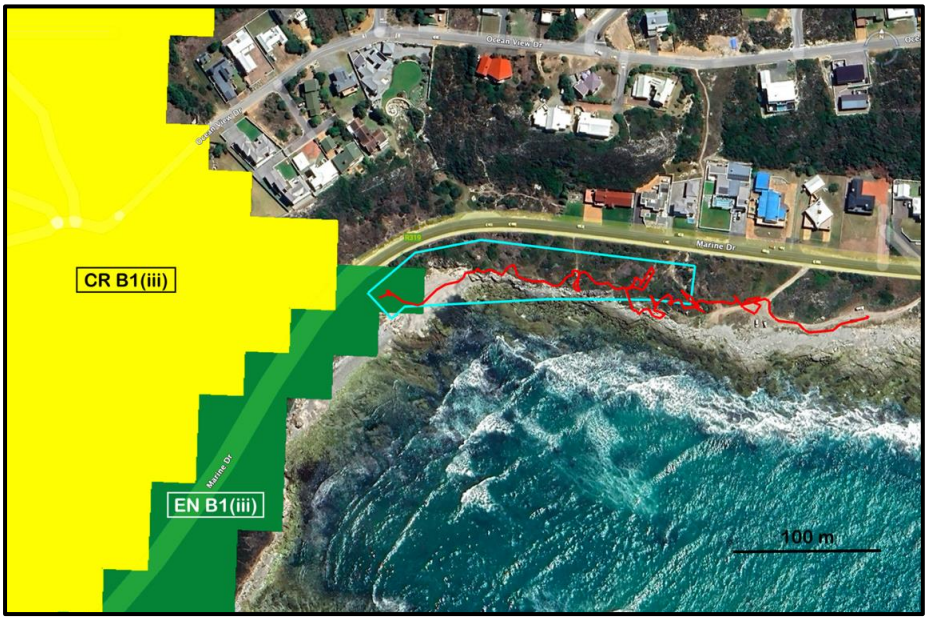


Figure 13. The RLE classification overlain on a Google Earth Pro ™ image, showing that only a small part of the site, at the western end, is recognized as endangered habitat.

7.3 National Web-based Environmental Screening Tool

It is a requirement that the National Web-based Environmental Screening Tool should be applied to an area proposed for development. The result of this process for the Plant Species Sensitivity Theme and Terrestrial Biodiversity Sensitivity Theme resulted in the maps in Figures 14 and 15.

7.3.1 Plant Species Sensitivity

Plant species sensitivity is **Low** for most of the site and **Medium** for the western end of the site. This agrees with both the WCBSP classification and map and the Red List Ecosystem classification and map, where in all cases the western end of the site, where the beach is located, is more sensitive than the remainder. The site at Struisbaai is not typical 'dune

strandveld' due to its topography, so its structure and plant species composition is somewhat less complex than in the typical form of dune strandveld.

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Lampranthus ceriseus
Medium	Lampranthus fergusoniae
Medium	Lampranthus tenuifolius
Medium	Disphyma dunsdonii
Medium	Delosperma mariae
Medium	Drosanthemum austricola
Medium	Amphithalea sericea
Medium	Argyrolobium harmsianum
Medium	Aspalathus aciloba
Medium	Aspalathus pinguis subsp. australis
Medium	Leucadendron coniferum
Medium	Leucadendron laxum
Medium	Leucadendron linifolium
Medium	Leucadendron modestum
Medium	Leucospermum heterophyllum
Medium	Leucospermum patersonii
Medium	Mimetes saxatilis
Medium	Hesperantha juncifolia
Medium	Freesia leichtlinii subsp. leichtlinii
Medium	Sensitive species 137
Medium	Sensitive species 247
Medium	Sensitive species 340
Medium	Lobelia valida
Medium	Erica radicans subsp. schlechteri
Medium	Anginon pumilum
Medium	Sensitive species 1142
Medium	Ficinia latifolia
Medium	Thamnochortus pluristachyus
Medium	Restio dodii var. purpurascens
Medium	Poecilolepis maritima
Medium	Osteospermum hafstroemii
Medium	Osteospermum subulatum
Medium	Osteospermum australe
Medium	Amellus capensis
Medium	Chrysocoma strigosa
Medium	Stoebe muirii
Medium	Diosma arenicola
Medium	Diosma haelkraalensis
Medium	Agathosma riversdalensis
Medium	Agathosma sedifolia
Medium	Zygophyllum fuscatum
Medium	Sensitive species 913
Medium	Phylica amoena
Medium	Skiatophytum skiatophytoides
Medium	Lampranthus debilis
Medium	Xiphotheca reflexa
Medium	Aspalathus tylodes
Medium	Sensitive species 800
Medium	Elegia verreauxii
Medium	Sensitive species 53

Figure 14. The Relative Plant Species Theme Sensitivity as generated by the National Web-based Environmental Screening Tool.

7.3.2 Terrestrial Biodiversity Sensitivity

The sensitivity of terrestrial biodiversity is classified by the screening tool as **High** to **Very High** (Figure 15). From field observations at the site, it is my evaluation that the site should not be classified as more than **MEDIUM** sensitivity, and that the ESA1 classification as well as the other sensitivity features do not warrant application of a **High** to **Very High** classification.

Unlike fynbos, strandveld does not rely on fire as one of the important ecological drivers. The strandveld plant communities stay relatively stable without fire and most of the plants do not rejuvenate by resprouting but rather by seed, should a fire occur. A fire, however, is very unlikely to occur at this site.

Ecological processes on the site are closely linked to the proximity of the sea, with most of the plants being adapted to the salty, windy coastal environment. Apart from the coastal vegetation, some of which has been degraded by human activities, I did not find the habitat generally to be in good condition. The release of stormwater onto the site from culverts below the coastal road has caused some disruption of the sandy soil and, where the water erosion has occurred, revegetation is occurring naturally but is very slow.

The field visit was a snapshot in time so the observations made cannot be taken as definitive. However, no bird species were obviously using the habitat for feeding or nesting. In addition, no insect communities were evident in the dune strandveld habitat either.

The selection of the erf as part of a coastal buffer for the SANPARKS Agulhas National Park appears to have limited merit because the erf is not directly linked to the national park. In addition, the classification of the site as being an Ecological Support Area 1 (ESA1) is tenuous, despite Overberg Dune Strandveld being an Endangered ecosystem.

The area of impact of the proposed development would be very small it would not contribute significantly to the loss of this Overberg Dune Strandveld ecosystem.

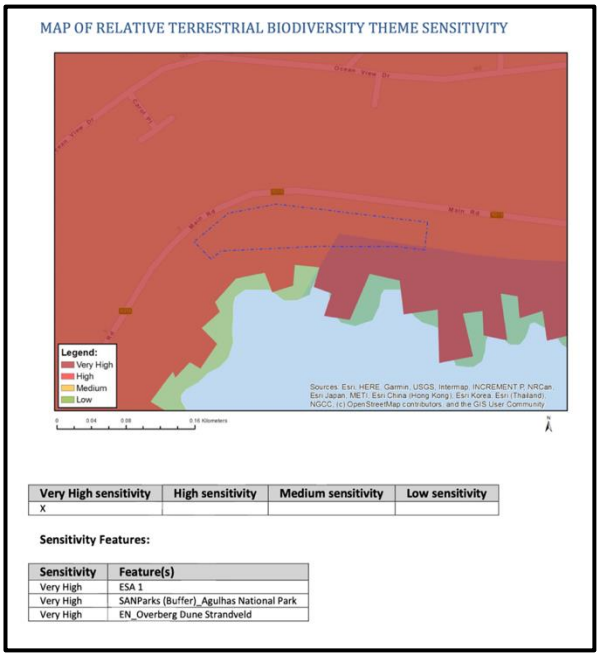


Figure 15. The Relative Terrestrial Biodiversity Theme Sensitivity as generated by the National Web-based Environmental Screening Tool. The site is outlined in blue dotted line.

7.4 Plant species of conservation concern (SCC)

Most of the plant species listed in Figure 14 do not occur on the site. Firstly, the vegetation on the erf is a poor representative of Overberg Dune Strandveld, with a low species-richness and, secondly, many of the species listed are more typical of fynbos vegetation than strandveld so the list is somewhat misleading.

No plant species of conservation concern (SCC), also known as Red List species (Raimondo *et al.* 2009) were encountered on the site.

8. The development alternatives

The descriptions of the alternative and the reasons for their rejection or acceptance are as follows (in blue type), as provided by the project proponents:

Alternative 2

Alternative 2 proposed 7 residential erven, with a parallel private road access alongside Marine Drive and an open space erf below the High-Water Mark.

It has however been discarded for the following reasons:

• the density was considered too high with a larger consequential impact;

• There was no provision for coastal access

• Only the high-water mark was taken into account

• Open Space was limited.

• Erven 1 to 3 along southern boundary of erf were too close to the ocean

• Orientation of the erven for views and wind shield was poor.

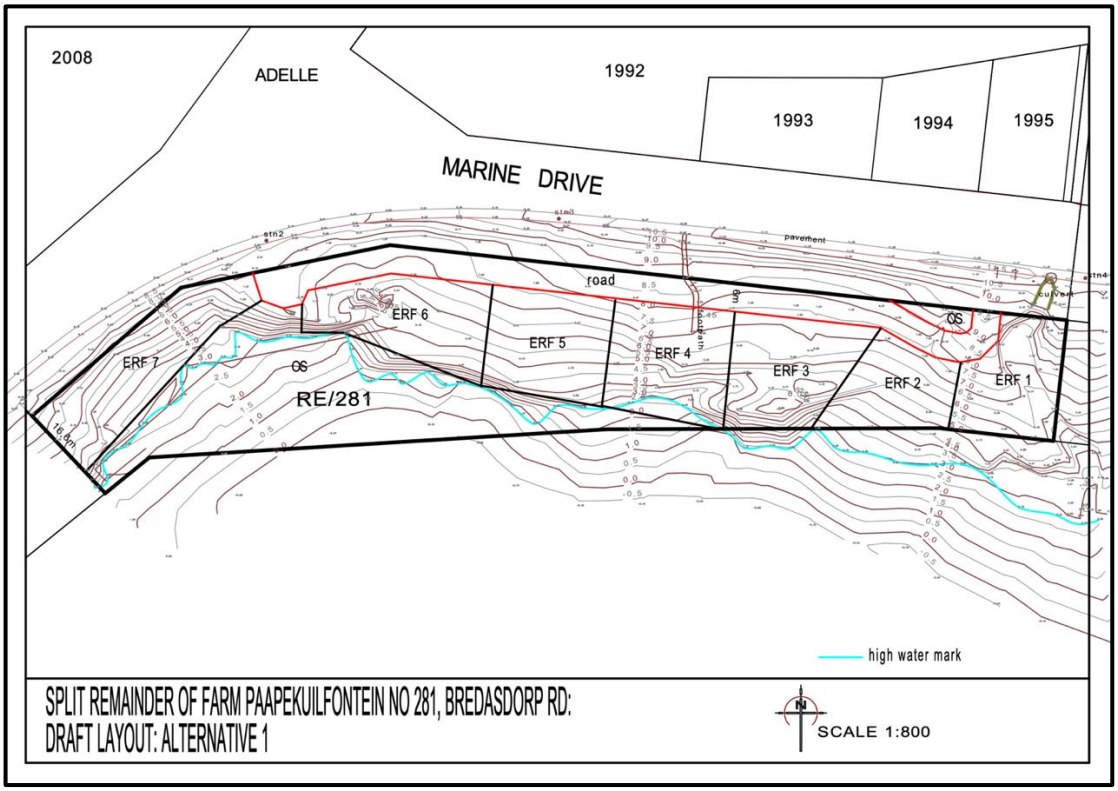


Figure 16. The Site Development Plan (SDP) used during the Scoping Phase. This is Alternative 2 (not preferred).

Alternative 3

The layout takes into consideration the 5m contour line; the High-Water Mark; and the High, Medium and Low Risk Coastal Zones.

It includes:

• Five Single Residential Erven of between 549 and 588m2;
• One Medium Density Residential Erf of 630m2 intended for two dwellings;
• A parallel private road access alongside Marine Drive;
• A 1.5m wide public footpath along the western boundary, providing access to the beach below the High Water Mark.

• A Private Open Space of 2,713m2 comprising the beach and some of the rocky shoreline within the property boundary.

• A Refuse Room.

The development of the erven will be prescribed only by the Zoning Scheme (i.e. there are no development guidelines), along with:

• A departure from the 2m building lines (to zero) proposed for the 5 single residential erven, along the seaward boundary;

• A departure for a refuse room in the street building line;

• Departures from the Main Road building line to a 4m street building line.

This alternative has also been discarded as it could not be supported by the HIA and VIA

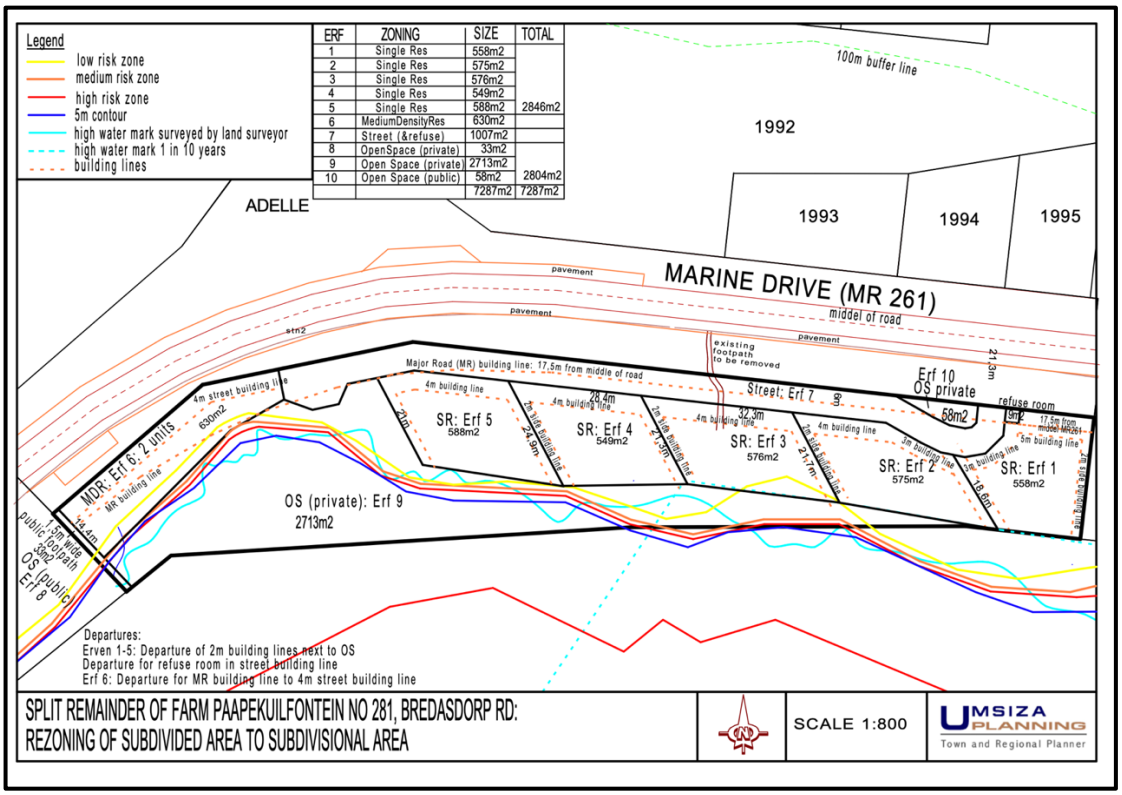


Figure 17. The Site Development Plan (SDP) subsequent to the Scoping Phase. This is **Alternative 3,** also not preferred).

Alternative 4 – the preferred alternative

The preferred alternative proposes a rezoning from Agriculture to Sub-divisional Area that will include six Single Residential Zone subdivisions (1-6), one Public Open Space Zone subdivision (7) providing public access to the beach, a street zone subdivision (10) and two Private Open Space subdivisions (8 and 9).

The revisions are based on a response to the specialist assessments of Alternative 3 and propose a further reduction of the overall density across the property, whilst also permitting the property boundary to be treated differently and in a manner which enhances sight lines and visual corridors as the "corner" is no longer a built environment in terms of dwelling structures, as was contemplated previously. Additionally, this revision further enhances and expands the retention of flora areas within the overall development.

The preferred alternative is now also accompanied by Architectural Guidelines, a Landscape Development Plan taking into account built form options and Landscape Guidelines.

Key architectural guidelines include:

The dwellings are intended to sit within the landscape as opposed to sitting on the landscape to minimize the visual impact of large singular-built forms intruding on this unique landscape.

The placement of built forms must be sensitive to the natural contours of the site and create a stepped visual profile to reduce massing impact. The dwellings are intended to comprise of various linked forms consisting of landscaped flat roof elements which are connected to a singular pitched primary form.

The extensive use of natural materials and exposed concrete, natural stone and timber that will age and blend with the environment is vital in reducing any visual impact.

With the visual concept of “nesting,” the landscaping will be exclusively local flora to ensure that the negative impact of these footprints is minimized and expanded by virtue of additional initiatives such as the planting of flat roofs. •

Styles such as Tuscan or Georgian or any other revivalist or period style will not be permitted.

• Composite roof forms consisting of major roof forms separated by flat roof sections and augmented by verandas and pergolas fragment the massing and minimise the visual impact of individual buildings against the slope of the land.

• Erf size

Building envelopes: The maximum footprint and coverage of the built forms may not exceed 50% of the

• Building lines: per the Local Municipal town planning scheme with the addition of the lateral building lines being 2.5m:

• street building line – 4.0m

• rear building lines – 2.0m

• lateral building line - 2.5m

• Garages are permitted to encroach on the side and rear building line and may be on the 1.5m building line with the necessary approvals in place. Garages must be set-back from the street kerb a minimum of 5.0m.

• The height restriction of 7.5m for primary and major roof forms measuring parallel from the natural ground level is applicable. Secondary roof forms are to be subservient to the primary roof.

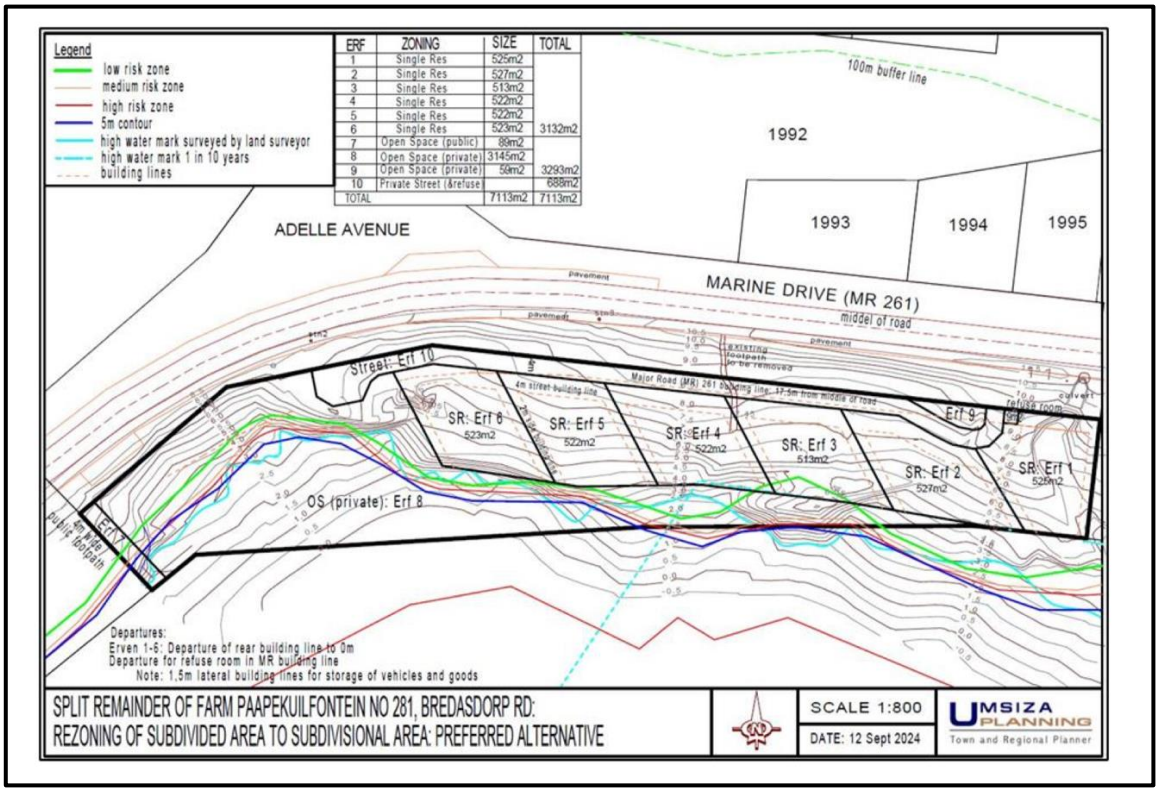


Figure 18. The Site Development Plan (SDP); **Alternative 4,** the preferred alternative.

Figure 19. The proposed landscape and site plan for the Spookdraai Development (Image supplied by J.d.V. Landscape Studio)

9. Impact Assessment

The assessment of impacts follows the criteria as given in Appendix 1. The assessment is applied to the No Go Alternative i.e. Alternative 1 (retention of the *status quo*), Alternative 2 (the non-preferred alternative (i)) (Figure 16), Alternative 3 (the non-preferred alternative (ii)) (Figure 17) and **Alternative 4, the preferred alternative** (Figures 18 & 19).

9.1 Direct Impacts

There would be almost total loss of the strandveld vegetation on the site, whereas the Agulhas Limestone Fynbos at the western end of the site with the beach and a limited area of Cape Seashore Vegetation would remain intact. The impact at the local level of the site is thus **Medium Negative** since the development footprint would only affect the strandveld from the boundary with the Agulhas Limestone Fynbos eastwards to the eastern boundary of the site. The latter area is classified as being of **least concern** by both the Western Cape Biodiversity Spatial Plan (see Figure 12) and the Red Listed Ecosystem analysis (see Figure 13) [Indicated by no shading].

The direct impacts on the site of the alternatives described above are summarised in Table 1.

Table 1. Impact and Significance – Loss of natural vegetation and natural habitat as a result of development of Rem Farm Paapekuilsfontein 218, Bredasdorp, for the construction and operational phases.

Alternative:	**ALTERNATIVE 1 – NO GO**	**ALTERNATIVE 2 – NOT PREFERRED**	**ALTERNATIVE 3 - NOT PREFERRED**	**ALTERNATIVE 4 – PREFERRED**
PLANNING, DESIGN AND DEVELOPMENT PHASE				
Potential impact and risk: ie. Botanical, visual, heritage, etc	Impact on botanical and biodiversity aspects of the site.			
Nature of impact:	Loss of natural vegetation i.e. Southwestern Strandveld			
Extent and duration of impact:	Local, long-term	Local, long-term	Local, long-term	Local, long-term
Consequence of impact or risk:	No loss of endangered vegetation	Loss of Southwestern Strandveld	Loss of Southwestern Strandveld	Loss of Southwestern Strandveld
Probability of occurrence:	Low probability	Probable	Probable	Probable
Degree to which the impact may cause irreplaceable loss of resources:	Very low	Low	Low	Low
Degree to which the impact can be reversed:	Not applicable	Not reversible	Now reversible	Not reversible
Indirect impacts:	Not applicable	None identified	None identified	None identified
Cumulative impact prior to mitigation:	Not applicable	Contribution to loss of Southwestern Strandveld	Contribution to loss of Southwestern Strandveld	Contribution to loss of Southwestern Strandveld
Significance rating of impact prior to mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Very low negative	High negative	High negative	Medium negative
Degree to which the impact can be avoided:	Not applicable	Very Low	Very Low	Very Low
Degree to which the impact can be managed:	Not applicable	Low	Low	Low
Degree to which the impact can be mitigated:	Not applicable	Low	Low	Low
Proposed mitigation:	Not applicable	On-site mitigation would not be possible since virtually the entire site would be developed.	On-site mitigation would not be possible since virtually the entire site would be developed.	Since the western end of the site supporting Agulhas Limestone Fynbos would remain intact, Alt 4 mitigates the effect of both Alt 2 and Alt 3 since the western end of the site would not be developed.
Residual impacts:	Not applicable	High negative	High negative	Medium negative
Cumulative impact post mitigation:	Not applicable	Low negative	Low negative	Low negative
Significance rating of impact after mitigation (e.g. Low, Medium, Medium-High, High, or Very-High)	Not applicable	High at the scale of the site.	High at the scale of the site.	Low at the scale of the site

OPERATIONAL PHASE				
Potential impact and risk: ie. Botanical, visual, heritage, etc	Not applicable	Limited further loss of plant species found in Overberg Dune Strandveld	Limited loss of plant species found in Overberg Dune Strandveld	Limited loss of plant species found in Overberg Dune Strandveld
Nature of impact:	No impact from development	No further impact after completion of construction.	No further impact after completion of construction.	No further impact after completion of construction
Extent and duration of impact:	Medium to Long-term	The entire site for the long-term.	The entire site for the long-term.	Only the eastern part of the site would be impacted in the long-term. The western end would not be affected.
Consequence of impact or risk:	Low risk	No further loss of vegetation	No further loss of vegetation	No further loss of vegetation
Probability of occurrence:	Low	Low	Low	Low
Degree to which the impact may cause irreplaceable loss of resources:	Low	Low	Low	Low
Degree to which the impact can be reversed:	Not applicable	Not reversible	Not reversible	Not reversible

9.2 Indirect impacts

No indirect impacts were identified.

9.3 Cumulative impacts

The main concern in terms of cumulative impacts would be the loss of Southwestern Strandveld as a vegetation type. However, the site is 0.71 ha, at least a third of which is exposed bedrock and beach, leaving less than 0.5 ha that is true strandveld or Agulhas Limestone Fynbos. Therefore, although there would be total loss of the vegetation on the eastern part of the site, this loss would not be great over the extent of the vegetation type as a whole, so cumulative impacts would be **Low Negative**.

9.4 Mitigation

It would not be possible to mitigate for the negative impacts on the site itself.

9.5 Residual Impacts

Residual impacts are those impacts which remain after mitigation has been implemented. For Alternatives 2 and 3, the residual impacts would be High Negative, whereas for Alternative 4 (the preferred alternative), the residual impact would be Medium Negative since the development footprint would be smaller than for the other two alternatives.

10. Conclusions & Recommendations

- Three vegetation types are found in the designated study area on Rem Paapekuilsfontein 218, Bredasdorp, namely Southwestern Strandveld, Agulhas Limestone Fynbos and Cape Seashore Vegetation. At a regional and national scale Southwestern Strandveld is considered **Endangered** and Cape Seashore Vegetation as **Least Threatened**. Agulhas Limestone Fynbos is **Critically Endangered B1(iii)**, but it will not be affected by the development on Remainder Farm Paapekuilfontein 218.

- There is agreement between the findings of this study and the WCBSP, RLE classification and the screening tool sensitivity rating for plant species. However, the terrestrial biodiversity rating of **High** to **Very High** by the screening tool is not supported by this study. The use by the screening tool of the Agulhas National Park buffer and the ESA1 conservation results in an overemphasis of the terrestrial biodiversity sensitivity. This sensitivity should be no more than **Medium**.

- Alien invasive plant species are no longer a problem on the site, since they have been removed. Should the development of the site not proceed the re-infestation of the site by *Acacia cyclops* should be monitored and the plants removed as necessary.

- The proposed subdivision and development of the site (Alternative 4) would result in a **Medium Negative** direct impact that would be very difficult to mitigate any further. However, the loss of habitat at the site would have a **Low** to **Very Low Negative** cumulative impact regionally because of its limited size.

- Both Alternatives 2 and 3 (non-preferred) would have the same footprint, so from the botanical and biodiversity viewpoints, the impacts would be the same and neither would have any lower negative impact than the other. Whereas for Alternative 4 (preferred), the western end of the site with the beach and Agulhas Limestone Fynbos excluded from development, the negative impact would be lower than that for Alternatives 2 and 3.

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Report submitted: 3 December 2024; revised 12 December 2024.

Appendix 1. Criteria for Assessment

These criteria are drawn from the EIA Regulations, published by the Department of Environmental Affairs and Tourism (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989 and the Department of Environmental Affairs and Development Planning, Guidelines for involving Biodiversity Specialists in EIA Processes, 2005. These criteria include:

Nature of the impact

This is an appraisal of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

Extent of the impact

Extent defines the physical extent or spatial scale of the impact. The impact could:

- Site specific: limited to the site.
- Local: limited to the site and the immediate surrounding area (1-10km)
- Regional: covers an area that includes an entire geographic region or extends beyond one region to another.
- National Scale: Across national boundaries and may have national implications.

Duration of the impact

The specialist should indicate whether the lifespan of the impact would be:

- Short term: 0-5 years.
- Medium term: 5-15 years.
- Long term: Beyond the operational phase, but not permanently).
- Permanent: Where mitigation either by natural processes or by human intervention will not occur in such a way or in such time span that the impact can be considered transient.

Intensity

Intensity establishes whether the impact is destructive or benign and should be qualified as low, medium or high.

Probability of occurrence

Probability describes the likelihood of the impact occurring. The likelihood can be described as:

- Improbable/unlikely: Low likelihood of the impact occurring
- Probable: Distinct possibility the impact will occur
- Highly probable: Most likely that the impact will occur
- Definite: Impact will occur regardless of any prevention measures.

Reversibility

This refers to the degree to which an impact can be reversed.

- Fully reversible: Where the impact can be completely reversed.

- Partly reversible: Where the impact can be partially reversed.
- Irreversible: Where the impact is permanent.

Irreplaceable loss of resources

Describes the degree to which resources will be irreplaceably lost due to the proposed activity.

- Fully replaceable: Resources can be fully replaced.
- Partly replaceable: Resources can be partially replaced.
- Irreplaceable: Resources cannot be replaced.

Degree to which an impact can be mitigated

This indicates the degree to which an impact can be reduced. The impact can either be fully or partly mitigated or not mitigated at all.

Cumulative effect

An effect which in itself may not be significant but may become significant if added to other existing or potential impacts that may result from activities associated with the proposed development.

Significance

Based on a synthesis of the information contained in the above-described procedure, the potential impacts can be assessed in terms of the following significance criteria:

- **No significance**: the impacts do not influence the proposed development and/or environment in any way.
- **Low significance**: the impacts will have a minor influence on the proposed development and/or environment. These impacts require some attention to modification of the project design where possible, or alternative mitigation.
- **Moderate significance**: the impacts will have a moderate influence on the proposed development and/or environment. The impact can be ameliorated by a modification in the project design or implementation of effective mitigation measures.
- **High significance**: the impacts will have a major influence on the proposed development and/or environment.

Appendix 2: Curriculum Vitae

Dr David Jury McDonald Pr.Sci.Nat.

Name of Company: Bergwind Botanical Surveys & Tours CC. (Independent consultant)

Work and Home Address: 14A Thomson Road, Claremont, 7708

Mobile: 082-8764051

E-mail: dave@bergwind.co.za

Website: www.bergwind.co.za

Profession: Botanist / Vegetation Ecologist / Consultant / Tour Guide

Date of Birth: 7 August 1956

Employment history:

- Nineteen years with National Botanical Institute (now SA National Biodiversity Institute) as researcher in vegetation ecology.
- Five years as Deputy Director / Director Botanical & Communication Programmes of the Botanical Society of South Africa
- Fifteen years as private independent Botanical Specialist consultant (Bergwind Botanical Surveys & Tours CC)

Nationality: South African (ID No. 560807 5018 080)
Languages: English (home language) – speak, read and write
Afrikaans – speak, read and write

Membership in Professional Societies:

- International Association for Impact Assessment (SA)
- South African Council for Natural Scientific Professions (**Ecological Science, Registration No. 400094/06**)
- Field Guides Association of Southern Africa

Key Qualifications :

- Qualified with a M.Sc. in Botany (1983) and a PhD in Botany (Vegetation Ecology) (1995) at the University of Cape Town.
- Research in Cape fynbos ecosystems and more specifically mountain ecosystems.
- From 1995 to 2000 managed the Vegetation Map of South Africa Project (National Botanical Institute)

- Conducted botanical survey work for AfriDev Consultants for the Mohale and Katse Dam projects in Lesotho from 1995 to 2002. A large component of this work was the analysis of data collected by teams of botanists.
- **Director: Botanical & Communication Programmes** of the Botanical Society of South Africa (2000—2005), responsible for communications and publications; involved with conservation advocacy particularly with respect to impacts of development on centres of plant endemism.

- Further tasks involved the day-to-day management of a large non-profit environmental organisation.

- **Independent botanical consultant** (2005 – to present) Over 1000 projects have been completed providing botanical assessment components for environmental impact assessments in the Western, Southern, Northern and Eastern Cape, Karoo and Lesotho for urban development, agricultural development, roads, dams, transmission lines and renewable energy projects (wind & solar). A list of reports or copies of selected reports are available on request.

Higher Education

Degrees obtained
and major subjects passed:

B.Sc. (1977), University of Natal, Pietermaritzburg
Botany III
Entomology II (Third year course)

B.Sc. Hons. (1978) University of Natal, Pietermaritzburg
Botany (Ecology /Physiology)

M.Sc. - (Botany), University of Cape Town, 1983.

Thesis title: 'The vegetation of Swartboschkloof, Jonkershoek, Cape Province'.

PhD (Botany), University of Cape Town, 1995.

Thesis title: 'Phytogeography endemism and diversity of the fynbos of the southern Langeberg'.

Certificate of Tourism: Guiding (Culture: Local)
Level : 4 Code: TGC7 (Registered Tour Guide: WC 2969).

Employment Record:

January 2006 – present: Independent specialist botanical consultant and tour guide in own company: **Bergwind Botanical Surveys & Tours CC**

August 2000 – December 2005:	Deputy Director, later Director: Botanical & Communication Programmes, Botanical Society of South Africa
January 1981 – July 2000:	Research Scientist (Vegetation Ecology) at National Botanical Institute
January 1979—Dec 1980:	National Military Service

Further information is available on my company website: www.bergwind.co.za