Terrestrial Biodiversity Assessment

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

Keurbooms Lifestyle Village on Portion 38 of the Farm 444 in Plettenberg Bay in the Western Cape Province

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30 January 2024

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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.

_____ 30 January 2024

Dr David Hoare Date

TERMS OF REFERENCE

This report is prepared in compliance with the PROTOCOL FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL BIODIVERSITY.

This 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 for Terrestrial Biodiversity.

The assessment and minimum reporting requirements of these protocols are associated with a level of environmental sensitivity identified by the national web based environmental screening tool (screening tool). The screening tool can be accessed at:

https://screening.environment.gov.za/screeningtool.

INTRODUCTION

Site location

The site, which is Erf 38/444, is in Goose Valley in Plettenberg Bay, slightly south-east (on the coastal side) of the N2 National Road between Plettenberg Bay and the crossing of the Bitou River. Refer to Figure 1 below for the general location.

The site is directly adjacent to the Goose Valley Golf Estate, on the northern boundary. There is a road running from the N2 to the lagoon, past the property. More than half of the property is within the salt marsh part of the lagoon (see Figure 2).

The scope of this report is the part of the property that is proposed for development. The entire site is 8.58 ha of which less than half on the western side is proposed for development.

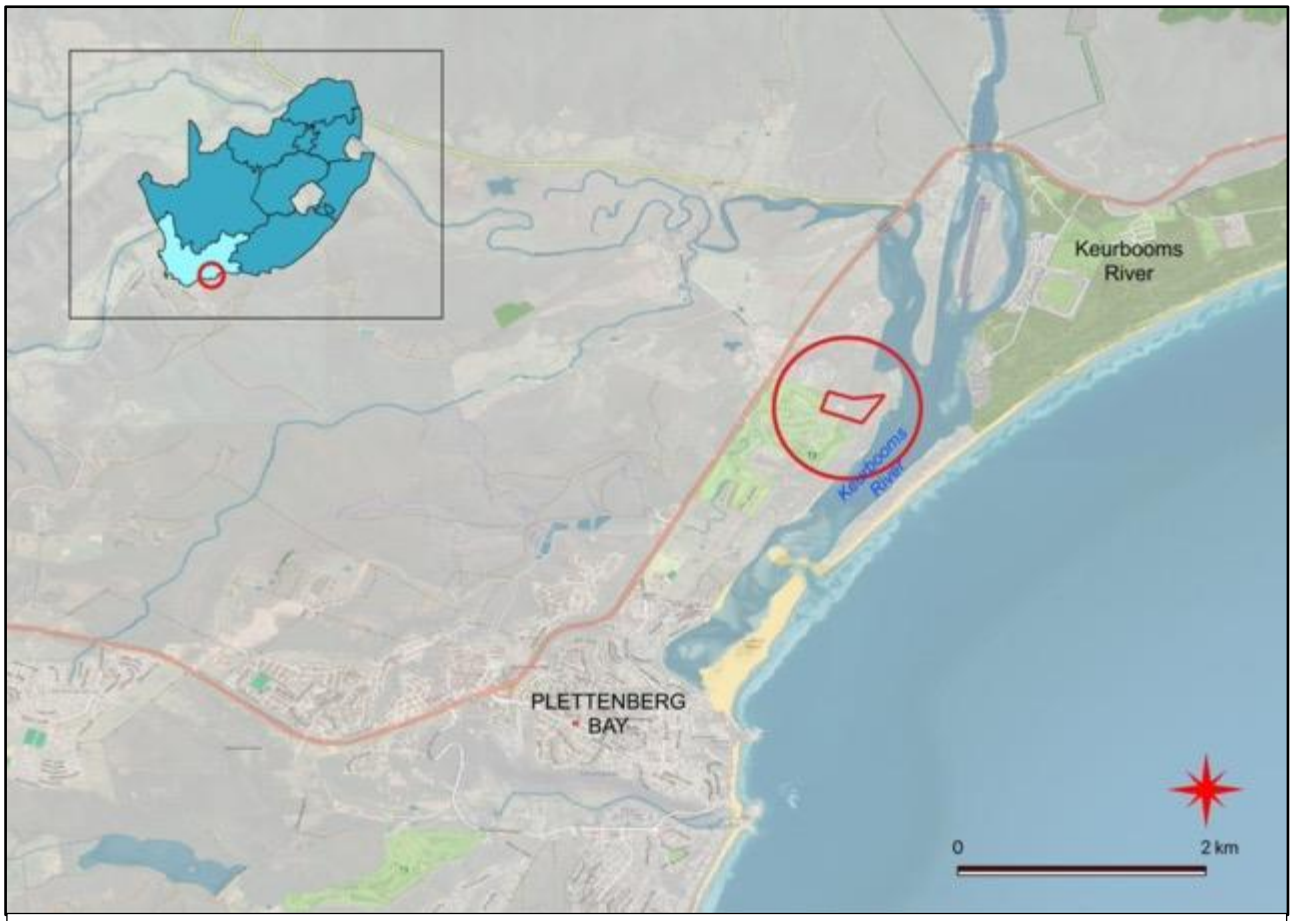


Figure 1: Location of the site.

Figure 2: Aerial image of the site and surrounding areas.

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 23/01/2024, indicates the following sensitivities (see Figure 3):

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Terrestrial Biodiversity Theme	X			

Terrestrial Biodiversity theme

Sensitivity features are indicates as follows:

Sensitivity	Feature(s)
Very High	ESA 2: Restore from other land use
Very High	FEPA Subcatchment
Very High	National Protected Area Expansion Strategy (NPAES)
Very High	SANParks (Buffer)_Garden Route National Park
Very High	EN_Garden Route Shale Fynbos

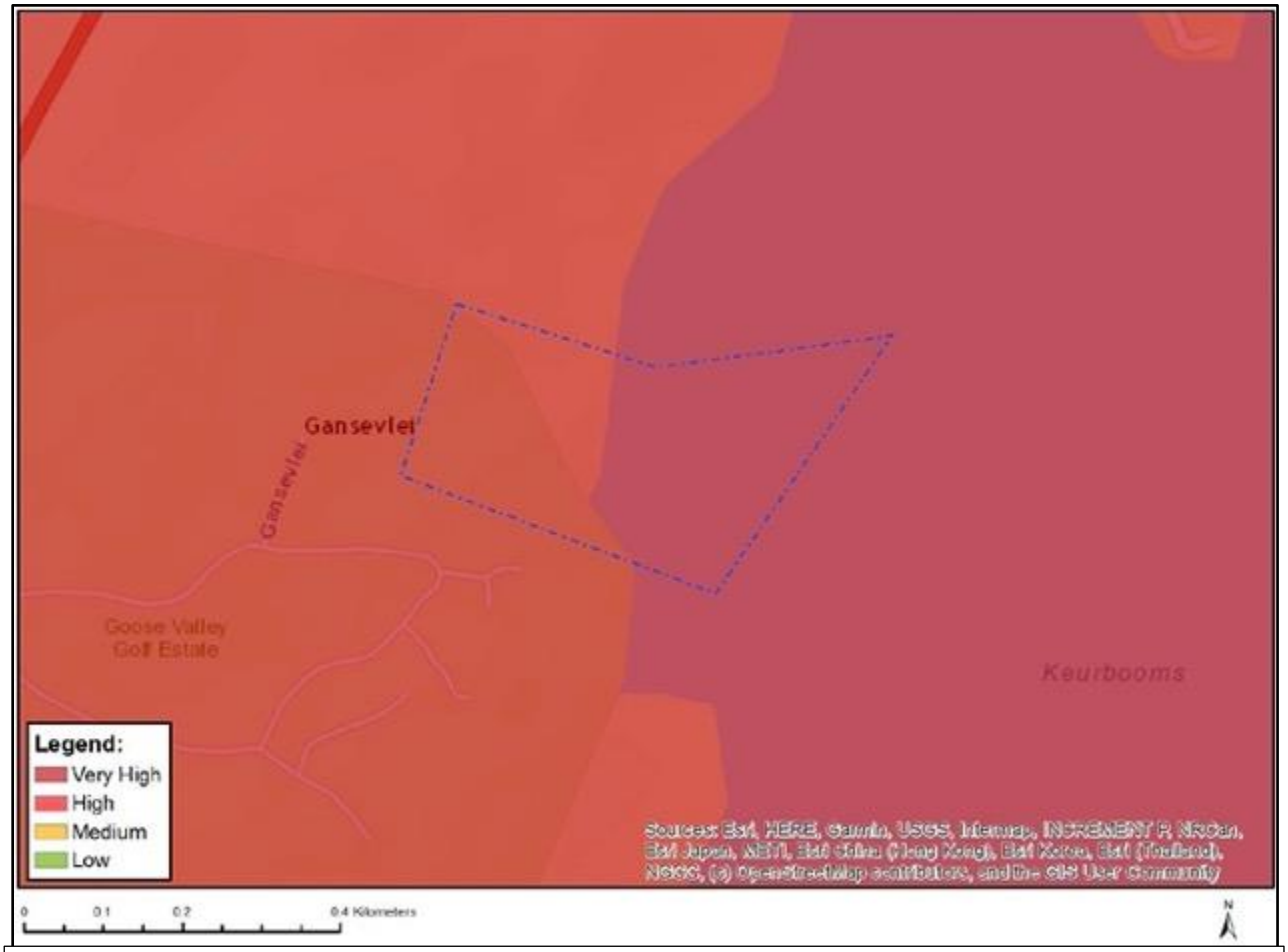


Figure 3: Map of relative terrestrial biodiversity theme sensitivity for the site.

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 12 units and associated infrastructure (see Figure 4 for preferred layout). 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 units on the eastern side are at the summit of a relatively steep slope that overlooks the estuary, for which erosion and downslope impacts are a potentially serious concern. The PAOI is therefore treated here as the development footprint within which direct impacts will occur, as well as the vegetated slope overlooking the estuary (Figure 5).

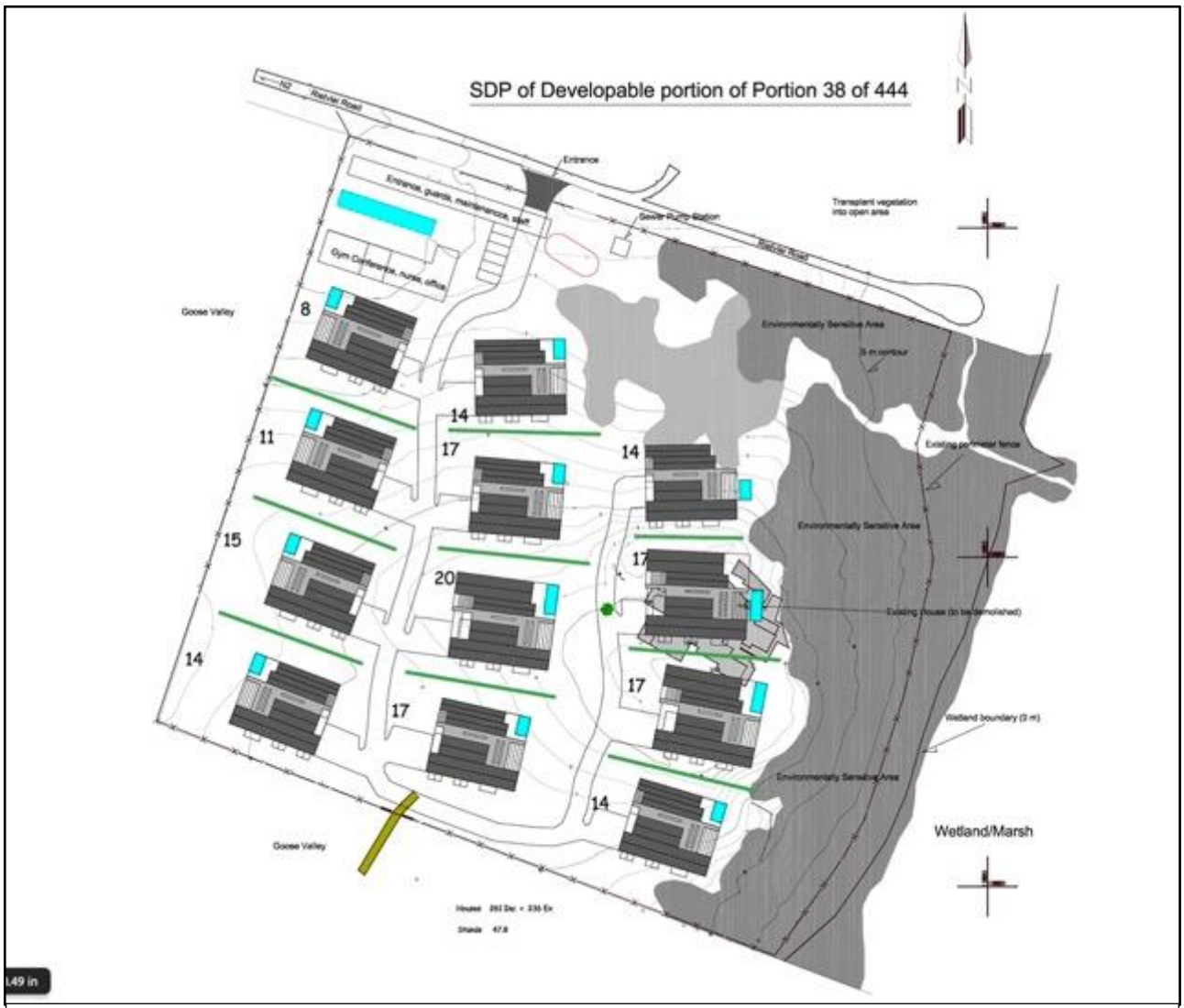


Figure 4: Proposed development on site.

Figure 5: Project Area of Influence (PAOI) for the current assessment.

There is an existing pathway along the base of the slope that forms a natural barrier to any downslope impacts that could potentially occur for the proposed project. The existing road along the northern boundary, and the existing Goose Valley Golf Estate along the other two (western and southern) boundaries, also form natural breaks in any potential impacts. The PAOI is therefore bound by these excisting barriers.

Survey timing

The study commenced as a desktop-study followed by site-specific field study on 1 March 2022 and 29 March 2023. 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 Plettenberg 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.

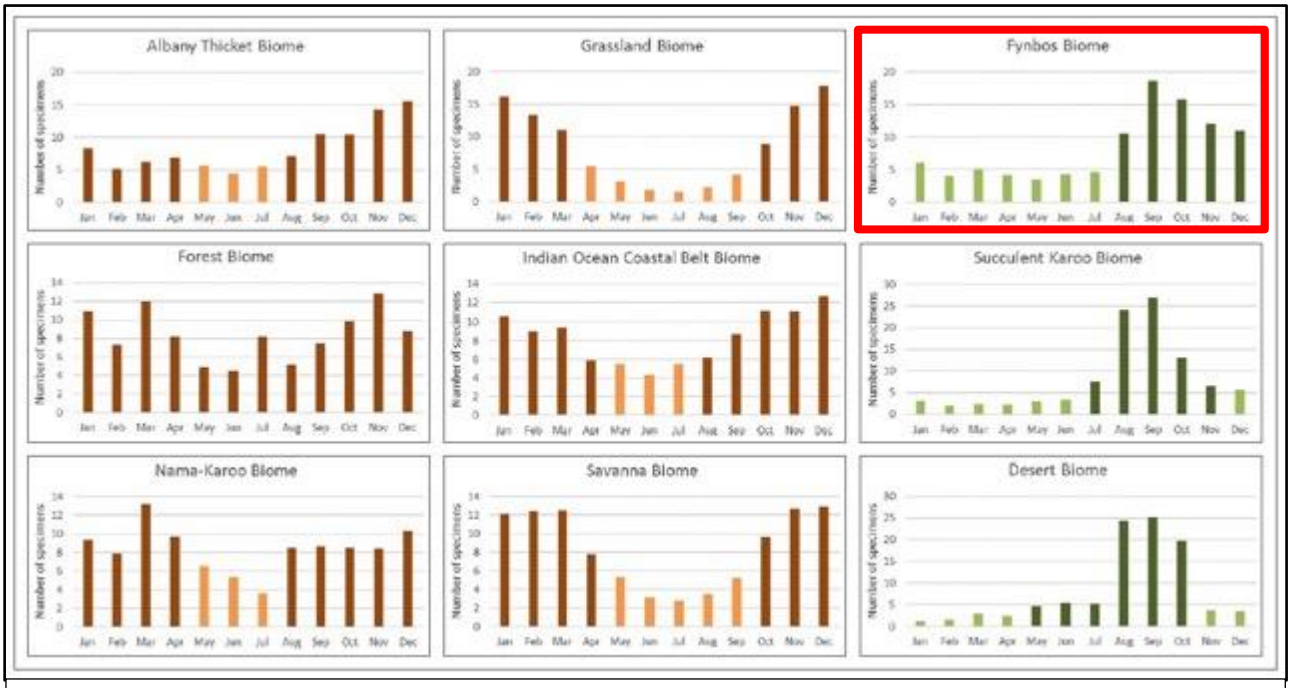


Figure 7: Recommended survey periods for different biomes (Species Environmental Assessment Guidelines). The site is within the Fynbos Biome.

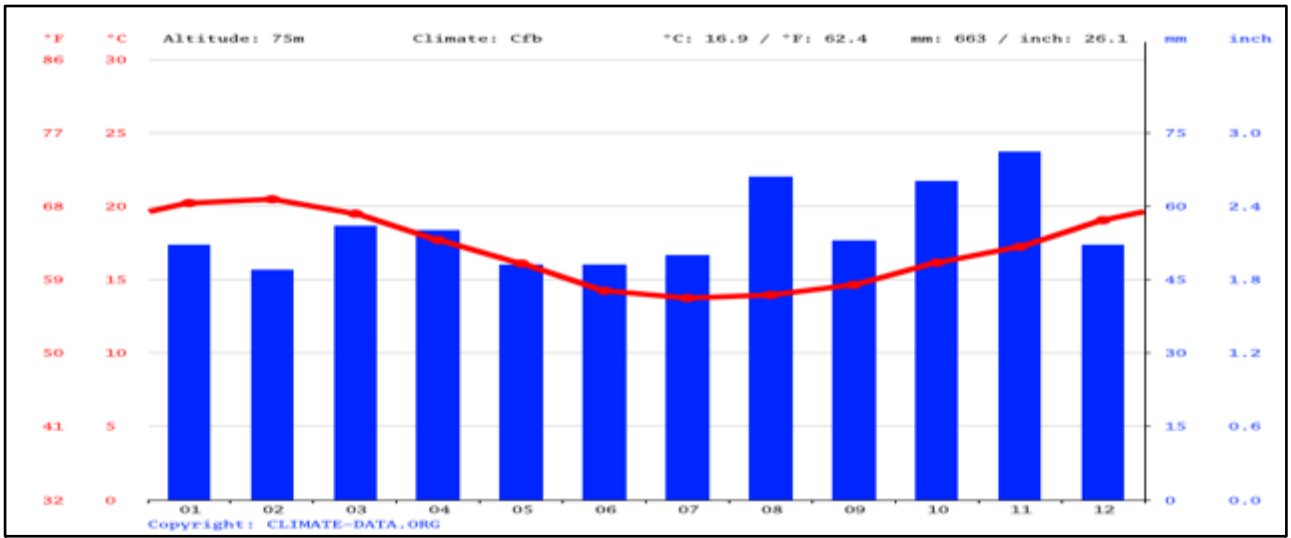


Figure 6: Climate diagram showing average monthly rainfall and temperature for Mossel Bay.

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 property 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

Regional Vegetation

- Broad vegetation types occurring on site were obtained from Mucina and Rutherford (2006), with updates according to the SANBI BGIS website (http://bgis.sanbi.org), as follows:
    - Mucina, L. and Rutherford, M.C. (editors) 2006. Vegetation map of South Africa, Lesotho and Swaziland: an illustrated guide. Strelitzia 19, South African National Biodiversity Institute, Pretoria.
    - South African National Biodiversity Institute 2018 Final Vegetation Map of South Africa, Lesotho and Swaziland [Vector] 2018. Available from the Biodiversity GIS website, downloaded on 23 September 2021.

Threatened Ecosystems

- The conservation status of the vegetation types were obtained from Mucina and Rutherford (2006) and the National List of Ecosystems that are Threatened and in need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004).
- The plant species checklist of species that could potentially occur on site was compiled from a plant species checklist extracted from the NewPosa database of the South African National biodiversity Institute (SANBI) for the quarter degree grids 3422AA.
- 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).

Regional plans

- Information from the National Protected Areas Expansion Strategy (NPAES) was consulted for possible inclusion of the site into a protected area in future (available on http://bgis.sanbi.org).).
- The 2017 Western Cape Biodiversity Spatial Plan (WCBSP) Maps were consulted for inclusion of any parts of the site into any Critical Biodiversity Areas or Ecological Support Areas (CapeNature. 2017 WCBSP Mossel Bay [Vector] 2017. Available from the Biodiversity GIS website (biodiversityadvisor.sanbi.org)).

Limitations

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

- The assessment is based on two detailed site visits. The time spent on site was adequate for understanding general patterns across affected areas on site, as well as for detecting individuals of any sensitive plants species encountered on site.

Impact assessment methodology

The Impact Assessment Methodology assists in evaluating the overall effect of a proposed activity on the environment. Impact assessment must take account of the nature, scale and duration of effects on the environment and whether such effects are positive (beneficial) or negative (detrimental). The rating system is applied to the potential impact on the receptor. In assessing the significance of each issue the following criteria (including an allocated point system) is used:

Table 2: Rating of impact assessment criteria

ENVIRONMENTAL PARAMETER		
A brief description of the environmental aspect likely to be affected by the proposed activity (e.g. Surface Water).		
ISSUE / IMPACT / ENVIRONMENTAL EFFECT / NATURE		
Include a brief description of the impact of environmental parameter being assessed in the context of the project. This criterion includes a brief written statement of the environmental aspect being impacted upon by a particular action or activity (e.g. oil spill in surface water).		
EXTENT (E)		
This is defined as the area over which the impact will be expressed. Typically, the severity and significance of an impact have different scales and as such bracketing ranges are often required. This is often useful during the detailed assessment of a project in terms of further defining the determined.		
1	Site	The impact will only affect the site
2	Local/district	Will affect the local area or district
3	Province/region	Will affect the entire province or region
4	International and National	Will affect the entire country
PROBABILITY (P)		
This describes the chance of occurrence of an impact		
1	Unlikely	The chance of the impact occurring is extremely low (Less than a 25% chance of occurrence).
2	Possible	The impact may occur (Between a 25% to 50% chance of occurrence).
3	Probable	The impact will likely occur (Between a 50% to 75% chance of occurrence).
4	Definite	Impact will certainly occur (Greater than a 75% chance of occurrence).
REVERSIBILITY (R)		
This describes the degree to which an impact on an environmental parameter can be successfully reversed upon completion of the proposed activity.		
1	Completely reversible	The impact is reversible with implementation of minor mitigation measures
2	Partly reversible	The impact is partly reversible but more intense mitigation measures are required.
3	Barely reversible	The impact is unlikely to be reversed even with intense mitigation measures.
4	Irreversible	The impact is irreversible and no mitigation measures exist.
IRREPLACEABLE LOSS OF RESOURCES (L)		
This describes the degree to which resources will be irreplaceably lost as a result of a proposed activity.		
1	No loss of resource.	The impact will not result in the loss of any resources.
2	Marginal loss of resource	The impact will result in marginal loss of resources.
3	Significant loss of resources	The impact will result in significant loss of resources.
4	Complete loss of resources	The impact is result in a complete loss of all resources.
DURATION (D)		
This describes the duration of the impacts on the environmental parameter. Duration indicates the lifetime of the impact as a result of the proposed activity.		
1	Short term	The impact and its effects will either disappear with mitigation or will be mitigated through natural process in a span shorter than the construction phase (0 – 1 years), or the impact and its effects will last for the period of a relatively short construction period and a limited recovery time after construction, thereafter it will be entirely negated (0 – 2 years).

2	Medium term	The impact and its effects will continue or last for some time after the construction phase but will be mitigated by direct human action or by natural processes thereafter (2 – 10 years).
3	Long term	The impact and its effects will continue or last for the entire operational life of the development but will be mitigated by direct human action or by natural processes thereafter (10 – 50 years).
4	Permanent	The only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or such a time span that the impact can be considered transient (Indefinite).
INTENSITY / MAGNITUDE (I / M)		
Describes the severity of an impact.		
1	Low	Impact affects the quality, use and integrity of the system/component in a way that is barely perceptible.
2	Medium	Impact alters the quality, use and integrity of the system/component but system/ component still continues to function in a moderately modified way and maintains general integrity (some impact on integrity).
3	High	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component is severely impaired and may temporarily cease. High costs of rehabilitation and remediation.
4	Very high	Impact affects the continued viability of the system/component and the quality, use, integrity and functionality of the system or component permanently ceases and is irreversibly impaired (system collapse). Rehabilitation and remediation often impossible. If possible, rehabilitation and remediation often unfeasible due to extremely high costs of rehabilitation and remediation.
SIGNIFICANCE (S)		
Significance is determined through a synthesis of impact characteristics. Significance is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required. This describes the significance of the impact on the environmental parameter. The calculation of the significance of an impact uses the following formula: **Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.** The summation of the different criteria will produce a non-weighted value. By multiplying this value with the magnitude/intensity, the resultant value acquires a weighted characteristic which can be measured and assigned a significance rating.		
5 to 23	Negative Low impact	The anticipated impact will have negligible negative effects and will require little to no mitigation.
5 to 23	Positive Low impact	The anticipated impact will have minor positive effects.
24 to 42	Negative Medium impact	The anticipated impact will have moderate negative effects and will require moderate mitigation measures.
24 to 42	Positive Medium impact	The anticipated impact will have moderate positive effects.
43 to 61	Negative High impact	The anticipated impact will have significant effects and will require significant mitigation measures to achieve an acceptable level of impact.

43 to 61	Positive High impact	The anticipated impact will have significant positive effects.
62 to 80	Negative Very high impact	The anticipated impact will have highly significant effects and are unlikely to be able to be mitigated adequately. These impacts could be considered "fatal flaws".
62 to 80	Positive Very high impact	The anticipated impact will have highly significant positive effects.

OUTCOME OF THE ASSESSMENT

Regional vegetation patterns

There are two regional terrestrial vegetation type mapped for the property within which the development is located, namely Garden Route Shale Fynbos and Goukamma Dune Thicket. There is also estuarine vegetation and other estuarine habitat. Detailed published descriptions of these regional vegetation types are available online and in printed form and it is not described further here.

Garden Route Shale Fynbos is listed as Endangered in the Revised National List of Ecosystems that are Threatened and in need of Protection.

Only Garden Route Shale Fynbos and Goukamma Dune Thicket are affected by the proposed development (Figure 9). The national vegetation map is not mapped at a fine scale and the on-site patterns do not necessarily match this description.

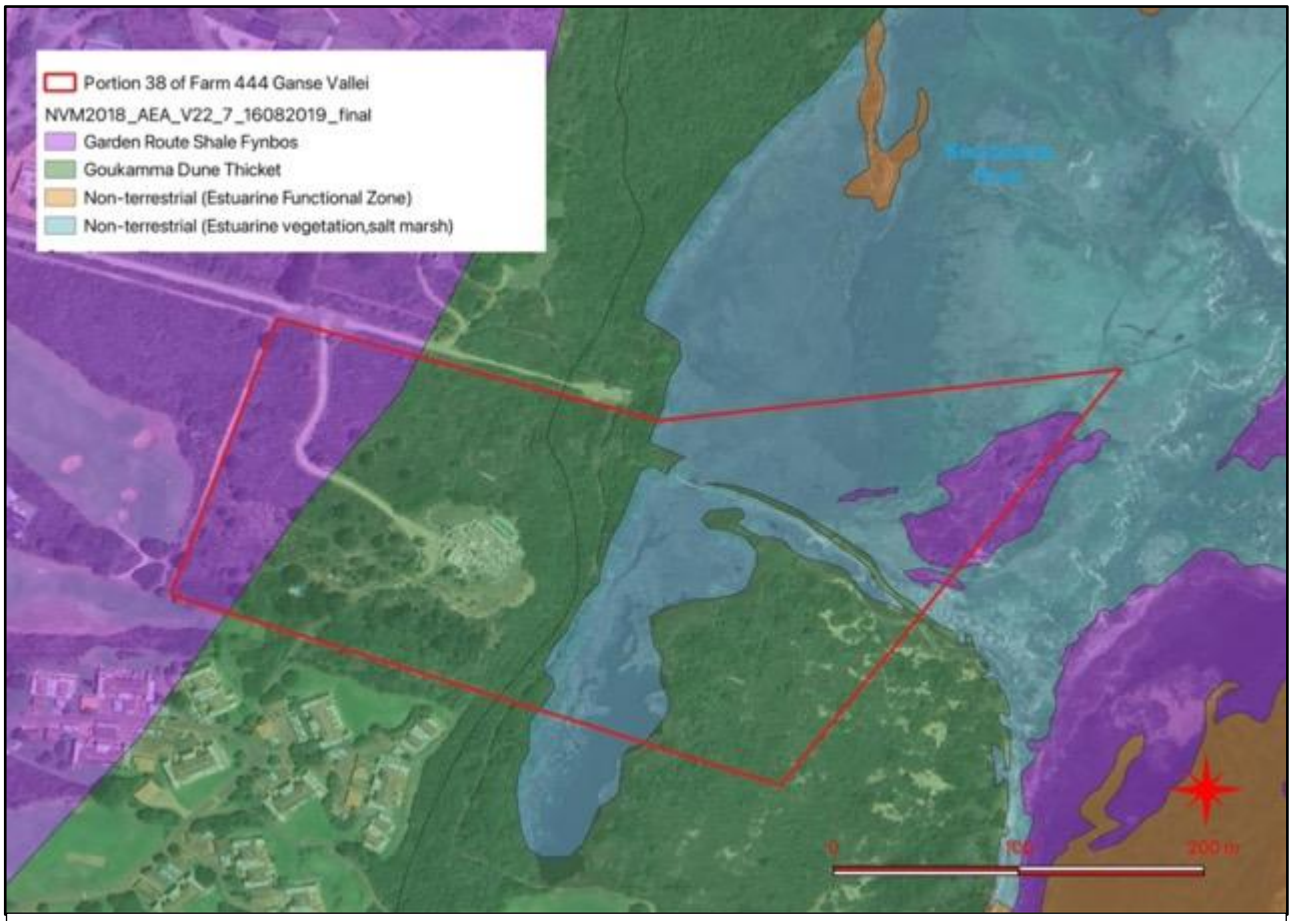


Figure 9: Regional vegetation types of the site and surrounding areas.

Conservation status of broad vegetation types

The development footprint falls entirely within North Langeberg Sandstone Fynbos, which is not listed in the Revised National Ecosystem List.

Table 3: Conservation status of different vegetation types occurring in the study area.

Vegetation Type	**Conservation status**		
	Driver *et al.* 2005 ; Mucina *et al.*, 2006	**2018 NBA (Skowno et al. 2019)**	**Government Notice No 2747 of 18 November 2022**
Garden Route Shale Fynbos	Endangered	Vulnerable	Endangered
Goukamma Dune Thicket			Least Concern

Note that this is a desktop description of what could possibly occur on site, based on mapped ecosystems. The on-site habitat assessment, described in a section below, determines whether any such vegettion occurs on site or not.

It is therefore <u>verified</u> that the site occurs partially within a mapped Listed Ecosystem, as listed in The National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011). However, the characteristics of the on-site vegetation, as described in the on-site habitat assessment below, determine whether vegetation of a listed ecosystem occurs on site or not – if there is no natural habitat remaining on site then the sensitivity is <u>LOW</u> with respect to this attribute, or, if natural habitat occurs on site then those areas would have <u>VERY HIGH</u> sensitivity with respect to this attribute.

Biodiversity Conservation Plans

The Western Cape Biodiversity Spatial Plan (WCBSP) classifies the habitats of the province according to conservation value in decreasing value, as follows:

1. Protected Areas (PA);
2. Critical Biodiversity Areas 1 (CBA1);
3. Critical Biodiversity Areas 2 (CBA2);
4. Ecological Support Area 1 (ESA1);
5. Ecological Support Area 2 (ESA2);

The WCBSP map for Bitou shows that the estuarine parts of the property are located within areas mapped as Critical Biodiversity Area 1 (CBA1) (Figure 10). There is also a small patch of area mapped as Ecological Support Area 2 (ESA2). Only this latter area is potentially affected by the proposed development (see Figure 10).

Note that the purpose of the specialist study, as undertaken here, is to verify whether the vegetation on site meets the standards for inclusion in a conservation zone or not. Provincial-level conservation assessments make use of remote methods for mapping and do not ground-truth all locations. It is necessary to verify on the ground whether natural habitat occurs on site or not in order to determine whether the inclusion in a conservation zone is justified.

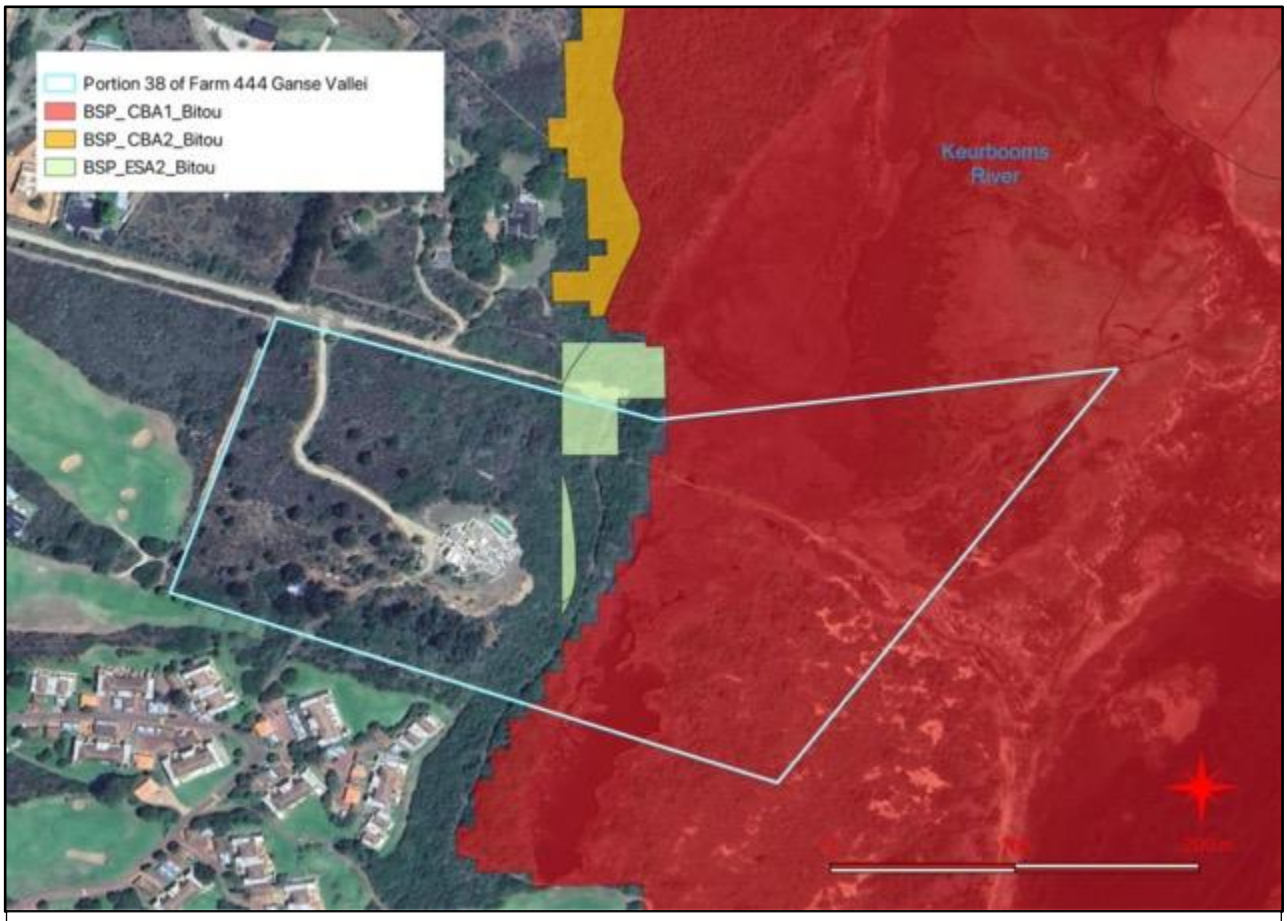


Figure 10: Western Cape Biodiversity Spatial Plan of the site and surrounding areas.

This desktop description verifies that the development footprint is not within any conservation zones. However, an on-site assessment is required to verify the sensitivity of the site with respect to this attribute.

Historical disturbance on site

Historical aerial photographs (1936, 1960, 1974) (see Figure 11, for example from 1960), shows that the property has probably always been in a natural state, with no evidence of soil disturbance from ploughing. The existing house is already in place in 1960, as well as a short row of trees along the boundary to the south of the house. These patterns are mostly consistent with the vegetation patterns found on site, as determined from the site visit - the exception is that the fynbos on site appears from its current structure and species composition to be secondary, but no conclusive evidence of ploughing exists from the available imagery.

Figure 11: Historical aerial image of the property, dated 14 December 1960.

Verification of observations on site

According to the "AMENDMENT TO THE PROTOCOLS FOR THE SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR ENVIRONMENTAL IMPACTS ON TERRESTRIAL ANIMAL AND PLANT SPECIES IN TERMS OF SECTIONS 24(5)(a) AND (h) AND 44 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998", a specialist report must include the following:

5.3.4A verifiable evidence from the specialist's site inspection, including as a minimum:

5.3.4A.1 a map showing the specialist's GPS track in relation to the study area; and

5.3.4A.2 at least 4 spatially representative sample site descriptions from across the study area that include as a minimum:

(a) precise geographical coordinates of the sample site;

(b) at least one in situ photograph (taken on site by the specialist during the site inspection) of the sample site; and

(c) a habitat description of the sample site;"

To address these specific requirements, photographs of landscapes on site were taken at various localities to show conditions on site. A map showing the location of these photographs is provided in Figure 12. A GPS track log in provided in Figure 8 in the section of this report titled "Field Survey Approach".

Figure 12: Location of photographs taken on site during the site inspection.

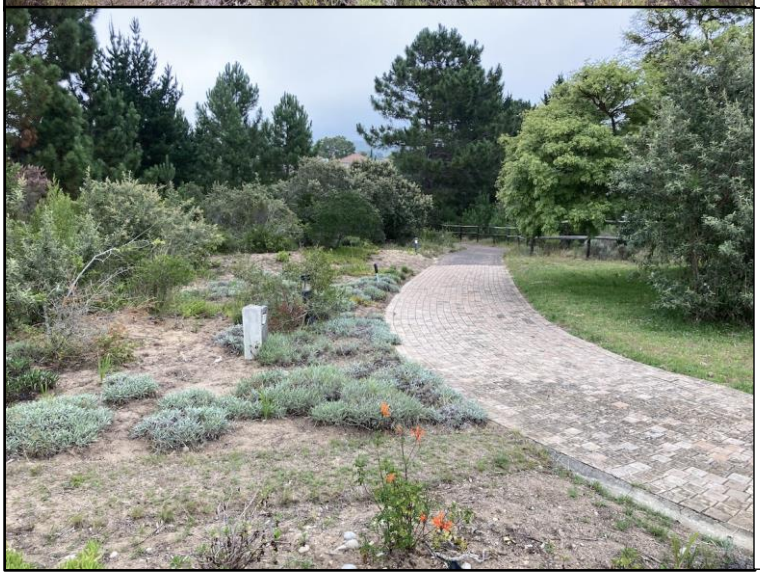
	**Photo 6019** **34° 1' 27.9" S, 23° 23' 12.51" E** **Secondary fynbos alongside the existing driveway on site.**
	**Photo 6018** **34° 1' 30.51" S, 23° 23' 10.488" E** **View of secondary fynbos on site, dominated by *Osteospermum moniliferum, Erica peltata, Passerina corymbosa, Anthospermum aethiopicum, Agathosma apiculata, Trichocephalus stipularis, Seriphium plumosum, Eriocephalus africanus, Chironia baccifera, Helichrysum cymosum* and *Restion triticeus*.**
	**Photo 6027** **34° 1' 31.04" S, 23° 23' 15.198" E** **View down the driveway of the existing house southwards towards the Goose Valley Golf Estate, showing gardens.**

	**Photo 6042** **34° 1' 31.5" S, 23° 23' 24.75" E** **Photo from within the estuarine area looking back towards the existing house on site. Note the band of thicket growing on the slope between the house and the estuarine vegetation. In the foreground is mixed salt marsh vegetation and Juncus.**
	**Photo 6052** **34° 1' 29.99" S, 23° 23' 22.152" E** **Photo from within the estuarine area looking back towards the existing house on site. Note the band of thicket growing on the slope between the house and the estuarine vegetation. The foreground is dominated by *Juncus kraussii*, a typical component of the esturaine tidal vegetation.**
	**Photo 6048** **34° 1' 33.77" S, 23° 23' 25.788" E** **Example of dune fynbos / thicket mosaic within vegetated dunes in the estuarine environment.**

	**Photo 6033** **34° 1' 31.63" S, 23° 23' 15.108" E** **Garden rehabilitation on the south-eastern side of the existing house.**
	**Photo 6037** **34° 1' 31.83" S, 23° 23' 17.49" E** **Top of the slope next to the existing house showing the edge of the thicket on the estuarine-facing slope. and a view of the estuary below**
	**Photo 6039** **34° 1' 32.48" S, 23° 23' 16.332" E** **Southern edge of existing gardens showing area where exotic pine trees have been cleared where they are invading into the thicket vegetation.**

Natural habitats on site

Based on two detailed field surveys to verify conditions on site, it was determined that the site consists of a single vegetation community, namely Fynbos, with a small amount of disturbance around the edge. There is some woody encroachment that has taken place in recent years, otherwise this pattern has been stable for nearly 100 years. A general habitat map is shown for the entire property in Figure 13. A series of photographs are provided above that give various views of the vegetation on site (in section of report "Verification of observations on site" with locations shown in Figure 12). 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. For the Plant Species assessment, it also provides habitats in which sensitive species could potentially occur.

Estuarine salt marsh

This is the vegetation within the estuarine environment that is subject to occasional to daily flooding from tidal rise and fall of water. An example of the vegetation is shown in Photo 6042. It is a combination of herbaceous and succulent species with taller rushes. The species composition includes the following: *Chenolea diffusa, Gazania rigens, Juncus kraussii, Limonium scabrum, M*orella cordifolia, Salicornia decumbens, Samolus porosus, Sporobolus virginicus, Triglochin bulbosa and *Triglochin striata*. The rush, *Juncus kraussii*, is dominant in extended areas (Photo 6052). The salt marsh vegetation is functional and in relatively good condition.

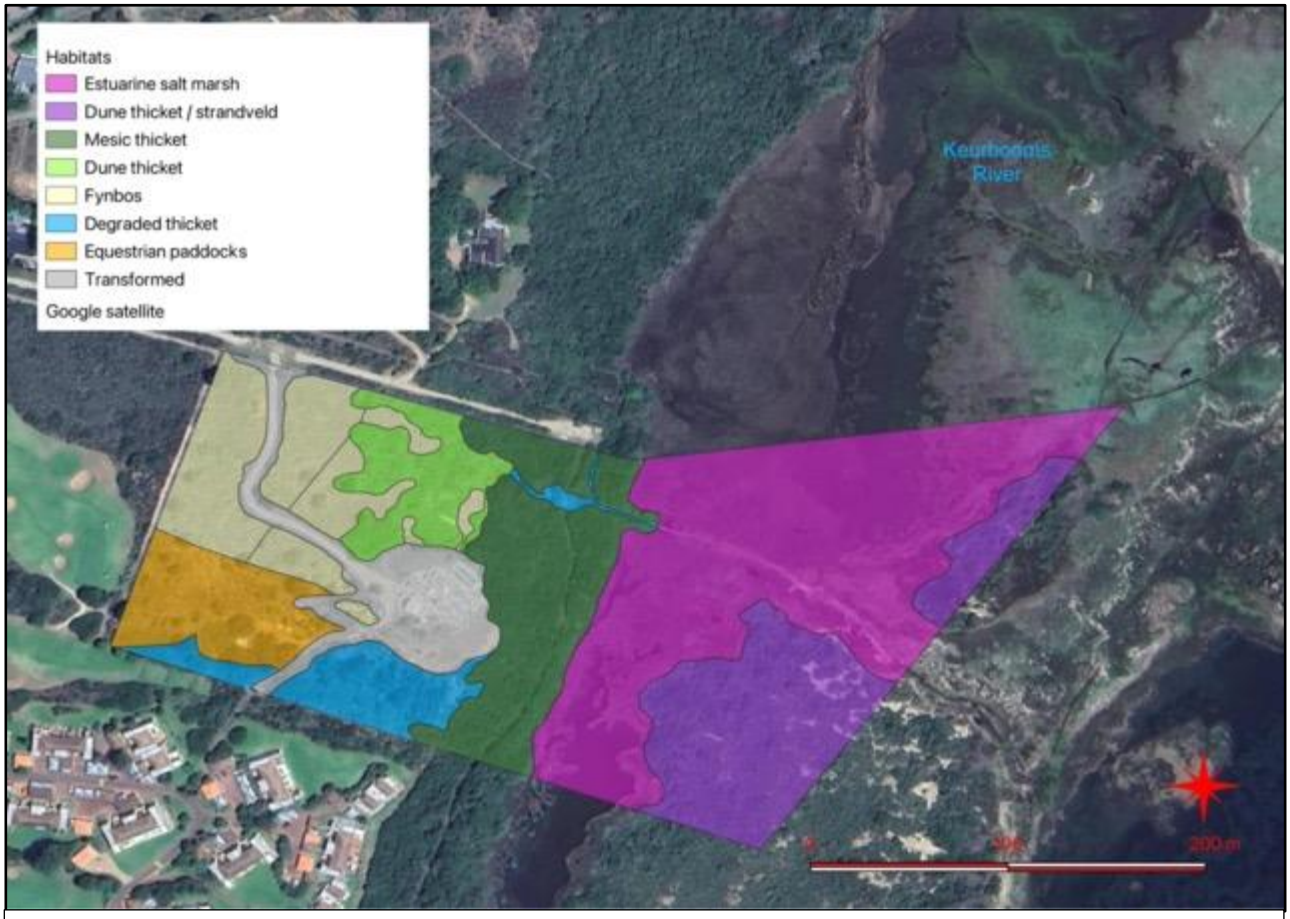


Figure 13: Map of habitats on site.

Dune thicket / strandveld mosaic

There are areas within the estuarine environment with raied vegetated dunes. The vegetation is a mosaic of strandveld/fynbos and dune thicket. An example of the vegetation is shown in Photo 6048. The species composition includes the following: *Agathosma apiculata, Asparagus aethiopicus, Crassula atropurpurea, Cynanchum natalitium, Cyperus brevis, Gasteria acinacifolia, Gazania rigens, Metalasia muricata, Morella cordifolia, Olea exasperata, Passerina rigida, Polygala myrtifolia, Pterocelastrus tricuspidatus, Restio eleocharis, Robsonodendron maritimum, Searsia crenata, Sideroxylon inerme* and *Solanum africanum*. The vegetation is functional and in relatively good condition. There are a few signs of trampling from people traversing the area, but this is relatively minimal.

Mesic thicket

The thicket on site occurs on the relatively steep, sea-facing slope and is relatively typical of the thicket overlooking the coast in the Plettenberg Bay and Keurbooms area. It is mesic thicket, tending towards low forest, sometimes being a single stratum with a tangled structure (typical of thicket), and in areas where the vegetation is taller, having a completely open understorey (more typical of forest). An example of the vegetation (in the background) is shown in Photo 6052. The species composition includes the following: *Apodytes dimidiata, Buddleja saligna, Carissa bispinosa, Euclea racemosa, Justicia leptantha, Lauridia tetragona, Mystroxylon aethiopicum, Scolopia zeyheri* and *Sideroxylon inerme*.

There is some **Degraded Thicket** to the south of the existing house, mostly degraded due to heavy invasion by pine trees, but also more recently invaded by the wattle, *Acacia cyclops*. There has been recent clearing of alien plants within this area. This is shown in Photo 6039.

Dune thicket

There is an area just inland of the thicket slope that has been mapped as Dune Thicket. It is possible that it has developed over an extended period of time (>100 years) within areas of fynbos in the absence of fire. However, the landscape slopes more steeply here than where the fynbos is mapped, and historical aerial photos show some evidence that this area probably persists as thicket over an extended period of time (prior to current historical periods in which fire has been regularly excluded). The species composition includes the following: *Aloe arborescens, Apodytes dimidiata, Asplenium aethiopicum, Chrysocoma ciliata, Clausena anisata, Cynanchum obtusifolium, Diospyros dichrophylla, Erica sparsa, Grewia occidentalis, Gymnosporia nemorosa, Hypoestes forskaolii, Indigofera verrucosa, Maytenus procumbens, Mystroxylon aethiopicum, Olea europaea, Pittosporum viridiflorum, Pterocelastrus tricuspidatus, Rhoicissus digitata, Rhynchosia caribaea, Rubia petiolaris, Searsia crenata, Sideroxylon inerme, Tarchonanthus littoralis* and *Viscum rotundifolium*.

Fynbos

The fynbos on site has uniform structure over most of the area where it occurs, but is moribund, invaded by several alien invasive species, and has relatively low species richness. An example of the vegetation is shown in Photo 6018 and 6019. The species composition includes the following: the fynbos shrubs, *Agathosma apiculata, Anthospermum aethiopicum, Erica peltata, Eriocephalus africanus, Helichrysum cymosum, Passerina corymbosa, Seriphium plumosum* and *Trichocephalus stipularis*, the restios, *Restio triticeus*, and *Thamnochortus insignis*, the grasses and sedges, *Cyperus brevis, Cyperus uitenhagensis, Digitaria eriantha, Megathyrsus maximus, Pentameris pallida* and *Tristachya leucothrix*, the herbaceous species, *Brunsvigia orientalis, Carpobrotus edulis, Chironia baccifera, Hypochaeris radicata, Indigofera poliotes, Indigofera priorii, Pelargonium dipetalum, Pollichia campestris* and *Senecio inaequidens*, and the woody shrubs, *Asparagus aethiopicus, Carissa bispinosa, Diospyros dichrophylla, Grewia occidentalis, Osteospermum moniliferum, Pterocelastrus tricuspidatu, Searsia lucida* and *Sideroxylon inerme*.

This is a poor species richness and composition for intact healthy fynbos and suggests that the fynbos is either old secondary, or has been chronically disturbed for an extended period of time. The herbaceous species include some weedy species typical of disturbed areas (*Carpobrotus edulis, Hypochaeris radicata,* and *Senecio inaequidens*), there are a proportionally high number of grass

species (typical of old secondary fynbos, or fynbos with a high disturbance regime from factors such as grazing) and there area a high number of woody shrub species (indicating absence of fire). The typical fynbos shrubs are common in secondary fynbos, and there is a low presence of restios, ericas, and proteoids that are typical of fynbos.

Part of the fynbos on site is within the regional vegetation type, Garden Route Shale Fynbos (Endangered) and part is within Goukamma Dune Thicket. However, it is the same habitat - the discrepancy is due to local inaccuracies in the regional mapping. Where the fynbos occurs within the Goukamma Dune Thicket vegetation type, it occurs as a mosaic with thicket.

There is an area within the Fynbos that has been mapped as **Equestrian Paddocks**. Historical aerial photographs indicate that this was previously similar to the areas currently containing fynbos, but the area has been trampled and grazed to such an extent that the original vegetation has been lost, to be replaced by a plant community of more weedy species. The ground is covered mostly by a combination of *Cyperus brevis* and Digitaria eriantha, but there are localised areas where the tall restio, *Thamnochortus insignis*, has become dominant, and a few woody species have also established, including *Asparagus aethiopicus, Carissa bispinosa, Osteospermum moniliferum* and *Pterocelastrus tricuspidatus*.

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 Biodiversity 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).

Note that Receptor Resilience is calculated relative to the CURRENT status of the site. In other words, if a habitat is highly degraded and contains mostly weeds then the resilience is scored as high, because it would be easy to return it to that particular state. Conversely, where a site is in a pristine state and the vegetation is removed through development, it is almost certain that the original composition is impossible to restore, therefore the resilience is scored as Very Low.

Table 4: Site ecological importance for habitats found on site

Habitat	Conservation importance	Functional integrity	Receptor resilience	Site Ecological Importance (BI)
Estuarine salt marsh	High CBA1	Very High Large area (> 100 ha) if considered as part of greater ecosystem in which site occurs. No or minimal current negative ecological impacts with no signs of major past disturbance (e.g. ploughing). Good habitat connectivity and functionally intact.	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	Very High (BI = Very high
Dune thicket / strandveld mosaic	High CBA1	Very High Large area (> 100 ha) if considered as part of greater ecosystem in which site occurs. No or minimal current negative ecological impacts with no signs of major past disturbance (e.g. ploughing).	Very 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	Very High (BI = Very high

		Good habitat connectivity and functionally intact.	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.	
Mesic thicket	High Mesic thicket / forest forms connected areas of habitat in the Plettenberg Bay area that, even though not within a listed ecosystem, have high conservation value for species, ecosystem integrity and protected trees. Also form critical boundary between estuarine and terrestrial ecosystems.	Medium Mostly minor current negative ecological impacts **(= Medium FI**). Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types **(= Medium FI**) - if site considered in isolation; it is currently part of much larger connected area. Moderately good habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches (if considering site as part of larger landscape - within the site the habitat connectivity is high) **(= Medium to High FI**). Taking three factors together (no ecological impacts, good connectivity & size of site), FI score of Medium is assigned.	Very 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
Dune thicket	Medium Small area (> 0.01% but < 0.1% of the	Low Mostly minor current negative ecological	Low Habitat that is unlikely to be able to recover	Medium (BI = Low

	total ecosystem type extent) of natural habitat.	impacts **(= Medium FI**). Small (> 1 ha but < 5 ha) area. **(= Low FI**) Moderate habitat connectivity with potentially functional ecological corridors and a regularly used road network between intact habitat patches (if considering site as part of larger landscape - within the site the habitat connectivity is high) **(= High FI**). Taking three factors together (minor to major ecological impacts, poor connectivity & small size of site), FI score of Medium is assigned.	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	
Fynbos within Garden Route Shale Fynbos	Medium Very small area (< 0.01% of the total ecosystem type extent - <1 ha on site) of natural habitat of EN ecosystem type - site is within listed Endangered ecosystem type (total fynbos on site < 1 ha).	Low Mostly minor current negative ecological impacts with some major impacts (e.g. established population of alien and invasive flora) and a few signs of minor past disturbance. Moderate rehabilitation potential **(= Medium FI**). Small (> 1 ha but < 5 ha) area. **(= Low FI**) Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity **(= Low FI**). Taking three factors together (minor to major ecological impacts, poor connectivity & small size of site), FI score of Low is assigned.	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	Medium (BI = Medium

Fynbos within Goukamma Dune Thicket	Medium Small area (< 0.01% of the total ecosystem type extent) of natural habitat (total fynbos on site < 1 ha).	Low Mostly minor current negative ecological impacts with some major impacts (e.g. established population of alien and invasive flora) and a few signs of minor past disturbance. Moderate rehabilitation potential **(= Medium FI**). Small (> 1 ha but < 5 ha) area. **(= Low FI**) Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity **(= Low FI**). Taking three factors together (minor to major ecological impacts, poor connectivity & small size of site), FI score of Low is assigned.	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	Medium (BI = Low
Disturbed areas (disturbed thicket & equestrian paddocks)	Low No natural habitat remaining.	Low Several minor and major current negative ecological impacts.	Medium Habitat that can recover moderately quickly >10 years) to restore > 75% of the original species composition and functionality	Low (BI = Low)
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 5).

Table 5: 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 estuarine habitats on site are sensitive and must be avoided.

The Mesic Thicket on the sea-facing slope is sensitive because of its conservation value in terms of being part of an important regional connected system of mesic woodlands (thicket and forest), the essential buffer that it forms between estuarine and terrestrial ecosystms, and the irreplaceability of the vegetation in human time scales.

The fynbos on site is in poor condition, either due to long-term degradation or due to being secondary, although there is no evidence of previous cultivation. It is partly within an Endangered ecosystem, although this does not affect it's Site Ecological Importance due to the small total area of fynbos on site (approximately 1 ha).

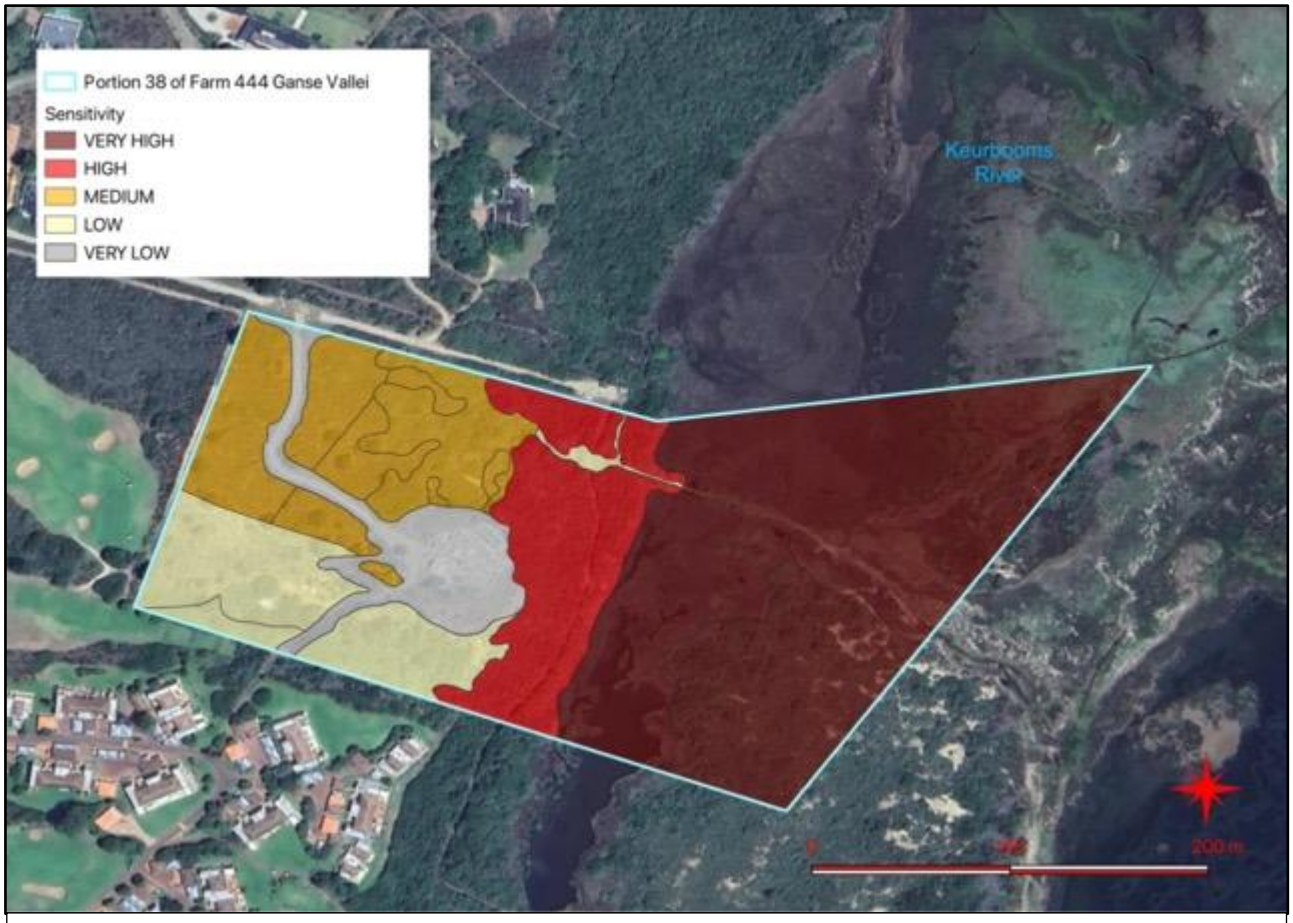


Figure 14: Terrestrial Biodiversity species theme sensitivity for the site.

IMPACT ASSESSMENT

Proposed development

The proposal is to develop residential areas on site. The proposed development layout is shown in Figure 4. The development will be located within habitats in the MEDIUM and LOW Site Ecological Importance classes.

For the assessment undertaken here, two alternatives are being considered:

1. Alternative 1: No-Go Alternative: continued current land use.
2. Alternative 2: Development Alternative: development of most of the site.

Any comparisons below between the development proposal and the "No-go" alternative are for the same area (proposed development area).

Alternative 1

This is the "No-go" alternative. The property will remain vacant and under current management. Current burning regimes and alien invasive levels are likely to remain relatively static. There is currently no ecological burning regime for the site. The impact of this is uncertain but likely to lead to fynbos senescence and possible loss of species. Fynbos becomes moribund in the absence of fire, therefore any fynbos species would require some fire management. Alien invasive plants are under control, which may continue under the present ownership, but could change.

Alternative 2

This is the preferred development option. Under this option there is likely to be partial loss of natural vegetation on site, including fynbos, thicket, and degraded area. Areas not lost to development are likely to undergo slightly elevated disturbance into the future, including probable increase in invasion by alien plant species, which are favoured by disturbance. The most sensitive habitat on the property is protected from disturbance and will not be affected (outside of the PAOI).

Affected sensitivities

All areas within the proposed development footprint are within areas of natural vegetation.

The impacts assessed here are therefore as follows:

1. DIRECT LOSS OF HABITAT.
2. INVASION BY ALIEN INVASIVE PLANT SPECIES.

Assessment of impacts

Degradation of habitat: Alternative 1 (No-go)

Extent of impact
The impact will occur at the local scale. The development site assessed here for the "No-go" option is about 3 hectares in size, which is relatively insignificant at a regional level. The impact is therefore scored as SITE.

Duration of impact
Management of natural vegetation is a LONG-TERM issue.

Probability of occurrence
Based on the current status and the known location of natural habitats found on site, the impact will be POSSIBLE and mostly due to **indirect** impacts.

Reversibility of impact
Impacts due to inappropriate fire regimes and invasion by alien plants is partly reversible.

Degree to which resources will be irreplaceably lost
Due to the site being small, marginal loss of resources will take place.

Intensity or magnitude of impact
Relative to the current status, possible impacts may affect the quality, use and integrity of the system/component in a way that is barely perceptible, therefore impacts will be of LOW magnitude.

Significance of impact
The calculation of the significance of an impact uses the following formula:

Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.

On this basis, the impact is calculated as [(Extent = 1) + (Probability = 2) + (Reversibility = 2) + (Irreplaceability = 2) + (Duration = 3)] x (Intensity = 1)

Score = 10 = LOW negative significance

Possible mitigation measures:
No mitigation is envisaged therefore the "post-mitigation" score is identical.

Issue	Degradation of natural habitat	
Description of Impact		
Poor management of habitat may result in long-term degradation of vegetation on site		
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Operation	
Criteria	**Without Mitigation**	**With Mitigation**
Extent	Site	Site
Duration	Long-term	Long-term
Probability	Possible	Possible

Degree to which impact may cause irreplaceable loss of resources	Marginal loss of resources	Marginal
Degree to which impact can be reversed	Partly reversible	Partly reversible
Intensity	Low	Low
Significance	Low -	Low -

Direct loss of habitat: Alternative 2 (development)

Extent of impact
The impact will occur at the local scale. The impact is therefore scored as SITE.

Duration of impact
Clearing of natural vegetation will result in a PERMANENT impact (cannot be reversed).

Probability of occurrence
Based on the proposed development plan and the known location of habitats found on site, the impact will be DEFINITE and mostly due to direct impacts.

Reversibility of impact
Loss of original habitat is irreversible.

Degree to which resources will be irreplaceably lost
At a regional scale, marginal loss of resources will take place.

Intensity or magnitude of impact
At a site scale, impacts will result in system components ceasing to function, therefore impacts will be of VERY HIGH magnitude. (If assessed at a district scale, then magnitude would be MEDIUM).

Significance of impact
The calculation of the significance of an impact uses the following formula:

Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.

On this basis, the impact is calculated as [(Extent = 1) + (Probability = 4) + (Reversibility = 4) + (Irreplaceability = 2) + (Duration = 4)] x (Intensity = 5)

Score = 75 = VERY HIGH negative significance at a SITE scale.
Score = 32 = MEDIUM negative significance at a DISTRICT scale.

Possible mitigation measures:
According to the guidelines for interpreting Site Ecological Importance in the context of proposed development activities, minimisation and restoration mitigation is required in habitats with Low sensitivity. The following mitigation measures are therefore proposed:

1. Compile and implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control.
2. Use indigenous and site-appropriate plant species in any rehabilitation and landscaping.
3. No additional clearing of vegetation should take place without a proper assessment of the environmental impacts, unless for maintenance purposes, in which case all reasonable steps should be taken to limit damage to natural areas.
4. Obtain permits for any protected trees that may need to be pruned or removed.

Post-mitigation impact is calculated as [(Extent = 1) + (Probability = 4) + (Reversibility = 4) + (Irreplaceability = 2) + (Duration = 4)] x (Intensity = 4)

Score = 60 = VERY HIGH negative significance at a SITE scale.
Score = 32 = MEDIUM negative significance at a DISTRICT scale.

Issue	Loss of natural habitat	
Description of Impact		
Construction activities will result in clearing of natural habitat, to be replaced by the infrastructure. This will result in permanent local loss of vegetation		
Type of Impact	Direct	
Nature of Impact	Negative	
Phases	Construction	
Criteria	**Without Mitigation**	**With Mitigation**
Extent	Site (District)	Site (District)
Duration	Permanent	Permanent
Probability	Definite	Definite
Degree to which impact may cause irreplaceable loss of resources	Marginal loss of resources	Marginal
Degree to which impact can be reversed	Irreversible	Irreversible
Intensity	High (Site), Medium (District)	High (Site), Medium (District)
Significance (site scale)	High -	High -
Significance (district scale)	Medium -	Medium -

Invasion by alien invasive plant species: Alternative 1 (No-go)

Extent of impact
The impact will occur at the site scale. The impact is therefore scored as SITE.

Duration of impact
Severe invasion (worst-case scenario) can cause irreversible ecosystem changes that will result in a PERMANENT impact (cannot be reversed). However, under current legislation, alien control is required by law, therefore effects are more likely to be LONG-TERM.

Probability of occurrence
Based on the presence of several potentially destructive alien invasive species in the region and nearby, it is likely that continuous invasion will occur, therefore the impact will be PROBABLE.

Reversibility of impact
Degradation of habitat is partly reversible.

Degree to which resources will be irreplaceably lost
Marginal loss of resources is likely to take place (vegetation), although significant loss of resources is possible in the absence of any control measures.

Intensity or magnitude of impact
In terms of the effect of alien invasive species on natural vegetation, severe invasion is potentially an impact that affects the continued viability of the natural ecosystems on site, therefore impacts will be of HIGH magnitude/intensity.

Significance of impact
The calculation of the significance of an impact uses the following formula:

Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.

On this basis, the impact is calculated as [(Extent = 1) + (Probability = 3) + (Reversibility = 3) + (Irreplaceability = 3) + (Duration = 3)] x (Intensity = 3)

Score = 39 = MEDIUM negative significance

Possible mitigation measures:
Under the "No-go" option, it is assumed that no alien control as mitigation could be applied.
Post-mitigation impact is calculated as [(Extent = 1) + (Probability = 2) + (Reversibility = 2) + (Irreplaceability = 1) + (Duration = 2)] x (Intensity = 1)

Score = 8 = LOW negative significance

Issue	Invasion by alien invasive plant species, leading to degradation of indigenous habitat	
Description of Impact		
Disturbance and clearing of natural habitat leads to conditions that are ideal for alien invasive species to colonise. Once present, they modify the environment in ways that limit recovery of indigenous habitat..		
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Construction, Operation	
Criteria	**Without Mitigation**	**With Mitigation**
Extent	Site	Site
Duration	Long-term	Long-term
Probability	Probable	Probable
Degree to which impact may cause irreplaceable loss of resources	Significant	Marginal
Degree to which impact can be reversed	Partly reversible	Partly reversible
Intensity	High	Low
Significance	Medium -	Low -

Invasion by alien invasive plant species: Alternatives 2 and 3 (development)

Extent of impact
The impact will occur at the site scale and is therefore scored as SITE.

Duration of impact
Severe invasion (worst-case scenario) can cause irreversible ecosystem changes that will result in a PERMANENT impact (cannot be reversed). However, under current legislation, alien control is required by law, therefore effects are more likely to be LONG-TERM.

Probability of occurrence
Based on the presence of several potentially destructive alien invasive species in the region and nearby, it is almost certain that disturbance will lead to invasion, therefore the impact will be PROBABLE.

Reversibility of impact

Loss of secondary habitat is partly reversible.

Degree to which resources will be irreplaceably lost
Marginal loss of resources will take place (secondary vegetation).

Intensity or magnitude of impact
In terms of the effect of alien invasive species on secondary vegetation, severe invasion is potentially an impact that affects the continued viability of the natural ecosystems on site, therefore impacts will be of HIGH magnitude/intensity.

Significance of impact
The calculation of the significance of an impact uses the following formula:

Significance = (Extent + probability + reversibility + irreplaceability + duration) x magnitude/intensity.

On this basis, the impact is calculated as [(Extent = 1) + (Probability = 3) + (Reversibility = 3) + (Irreplaceability = 2) + (Duration = 3)] x (Intensity = 3)

Score = 36 = MEDIUM negative significance

Possible mitigation measures:
Early detection and effective management, as well as limiting disturbance to vegetation, are all measures that can effectively prevent and control alien invasions. The following mitigation measures are therefore proposed:

1. Compile and implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control.
2. Use indigenous and site-appropriate plant species in any rehabilitation and landscaping.
3. Protect natural areas outside of the development footprint from disturbance.

Post-mitigation impact is calculated as [(Extent = 1) + (Probability = 2) + (Reversibility = 2) + (Irreplaceability = 1) + (Duration = 2)] x (Intensity = 1)

Score = 8 = LOW negative significance

Issue	Invasion by alien invasive plant species, leading to degradation of indigenous habitat	
Description of Impact		
Disturbance and clearing of natural habitat leads to conditions that are ideal for alien invasive species to colonise. Once present, they modify the environment in ways that limit recovery of indigenous habitat..		
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Construction, Operation	
Criteria	**Without Mitigation**	**With Mitigation**
Extent	Site	Site
Duration	Long-term	Medium-term
Probability	Probable	Possible
Degree to which impact may cause irreplaceable loss of resources	Marginal	None
Degree to which impact can be reversed	Partly reversible	Partly reversible
Intensity	High	Low
Significance	Medium -	Low -

SUMMARY & CONCLUSIONS

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

1. The regional vegetation type within which the site is located is Garden Route Shale Fynbos, which is assessed as Endangered, and Goukamma Dune Thicket, which is not listed. The part of the site proposed for development is not within any CBA or ESA. The parts of the site proposed for development have a Site Ecological Importance score calculated as being Very Low, Low, or Medium, based on various factors.

2. The habitat on site (within the development footprint) is fynbos, thicket, and degraded or transformed areas. The fynbos is in poor condition and appears from the species composition and structure to be either secondary or degraded.

3. An impact assessment indicates that loss of natural vegetation on site has an impact of Medium significance at a district level, primarily due to the fact that the impact is definite, permanent and irreversible. At a district scale, loss of the 3 ha of habitat on site would result in the overall ecosystem continuing to function and maintaining general integrity.

4. The habitats on the property with the highest sensitivity and ecological value (estuarine habitats and mesic thicket) are completely excluded from the development footprint.

RECOMMENDATIONS

- Mesic Thicket on the steep, sea-facing slope must be strictly protected from any development impacts. This includes ensuring no erosion impacts from upslope areas.

- If any protected 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 as scatterred individuals within the Dune Thicket on site (see Plant Theme report).

- An ongoing alien invasive management programme should take place on site. This will protect neighbouring sensitive habitats from degradation and could potentially be the biggest contribution to maintaining and protecting biodiversity on site and in surrounding areas.

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Appendix 1: Plant species recorded on site.

Acacia cyclops (NEMBA Category 1b)
Acacia mearnsii (NEMBA Category 2)
Acacia saligna (NEMBA Category 1b)
Agathosma apiculata
Aloe arborescens
Anthospermum aethiopicum
Apodytes dimidiata
Asparagus aethiopicus
Asplenium aethiopicum
Brunsvigia orientalis
Buddleja saligna
Carissa bispinosa
Carpobrotus edulis
Chenolea diffusa
Chironia baccifera
Chrysocoma ciliata
Clausena anisata
Colpoon compressum
Crassula atropurpurea
Cynanchum natalitium
Cynanchum obtusifolium
Cyperus brevis
Cyperus uitenhagensis
Digitaria eriantha
Diospyros dichrophylla
Erica peltata
Erica sparsa
Eriocephalus africanus
Euclea racemosa
Gasteria acinacifolia
Gazania rigens
Pentameris pallida
Pinus sp. (NEMBA Category 1b, 2 or 3)
Thamnochortus insignis
Grewia occidentalis
Gymnosporia nemorosa
Helichrysum cymosum
Hypochaeris radicata
Hypoestes forskaolii
Indigofera poliotes
Indigofera priorii
Indigofera verrucosa
Juncus kraussii
Justicia leptantha
Knowltonia vesicatoria
Lauridia tetragona
Leonotis ocymifolia
Limonium scabrum
Maytenus procumbens
Megathyrsus maximus
Metalasia muricata
Morella cordifolia

Mystroxylon aethiopicum
Olea europaea subsp cuspidata
Olea exasperata
Osteospermum moniliferum
Passerina corymbosa
Passerina rigida
Pelargonium dipetalum
Pittosporum viridiflorum (PROTECTED TREE)
Pollichia campestris
Polygala myrtifolia
Pterocelastrus tricuspidatus
Restio eleocharis
Rhoicissus digitata
Rhynchosia caribaea
Robsonodendron maritimum
Rubia petiolaris
Salicornia decumbens
Salvia aurea
Samolus porosus
Scolopia zeyheri
Searsia crenata
Searsia lucida
Selago corymbosa
Senecio inaequidens
Seriphium plumosum
Sideroxylon inerme (PROTECTED TREE)
Solanum africanum
Sporobolus virginicus
Tarchonanthus littoralis
Trichocephalus stipularis
Triglochin bulbosa
Triglochin striata
Tristachya leucothrix
Viscum capense
Viscum rotundifolium