

**Botanical Impact Assessment,
Crown Grant Hotel and Resort,
Hermanus,
Overstrand Municipality,
Western Cape Province**



TP-A Theart
(H. Olivier)



Gregory Nicolson in association with



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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, 2014, as amended.

Appointment of Specialist

Bergwind Botanical Surveys & Tours CC was appointed by POHL Property Development Group to provide specialist botanical consulting services for the proposed development of a hotel and resort in Hermanus, Overstrand Municipality, Western Cape Province. Gregory Nicolson, an associate of Bergwind Botanical Surveys & Tours CC, was appointed to conduct the botanical survey and assess the impacts of the proposed developments.

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- Has experience in Botanical exploration in South Africa and Namibia
- Has published numerous popular papers and has had many photos published (details available on request).

Independence

The views expressed in the document are the objective, independent views of Gregory Nicolson and the survey was carried out under the aegis of Bergwind Botanical Surveys and Tours CC. Neither Mr Nicolson 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.

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THE SPECIALIST

I ...Gregory Nicolson, 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/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
- in terms of the remainder of the general requirements for a specialist, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- have disclosed/will disclose, to the applicant, the Department and interested and affected parties, 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;
- have ensured/will ensure that information containing all relevant facts in respect of the application was/will be distributed or was/will be made available to interested and affected parties and the public and that participation by interested and affected parties was/will be facilitated in such a manner that all interested and affected parties were/will be provided with a reasonable opportunity to participate and to provide comments;
- have ensured/will ensure that the comments of all interested and affected parties were/will be considered, recorded and submitted to the Department in respect of the application;
- have ensured/will ensure the inclusion of inputs and recommendations from the specialist reports in respect of the application, where relevant;
- have kept/will keep a register of all interested and affected parties that participate/d in the public participation process; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Note: The terms of reference of the review specialist must be attached.

Signature of the specialist:  

Name of company: Bergwind Botanical Surveys and Tours CC

Date: 06 August 2018

CONTENTS

1. Introduction.....	7
2. Terms of Reference	8
3. Evaluation Method	9
4. Study Area.....	10
4.1 Locality	10
4.2 Topography, Geology, Soils.....	13
4.3 Climate.....	13
5. Limitations	13
6. Vegetation	14
6.1 General Description.....	14
6.1.1 Vegetation Map of South African, Lesotho and Swaziland (South African National Biodiversity Institute, 2012)	14
6.1.2 The Western Cape Biodiversity Spatial Plan (CapeNature, 2017)	15
6.2 Vegetation Condition of the Study Area.....	19
7. Sensitivity and Constraints.....	25
8. Impact Assessment	30
Direct Impacts	30
Indirect Impacts	30
Cumulative impacts	30
8.1 Zone A – Mixed Use Precinct.....	30
8.1.1 Direct Impacts	30
8.1.2 Indirect Impacts.....	30
8.1.3 Cumulative Impacts.....	31
8.2 Zone B – Self Catering / Villa Precinct.....	31
8.2.1 Direct Impacts	31
8.2.2 Indirect Impacts.....	32
8.2.3 Cumulative Impacts.....	32
8.3 Zone C - Hotel/Conference/Wedding Precinct	33
8.3.1 Direct Impacts	33
8.3.2 Indirect Impacts.....	33
8.3.3 Cumulative Impacts.....	33
8.4 Zone D – High Density Precinct.....	34
8.4.1 Direct Impacts	34
8.4.2 Indirect Impacts.....	34
8.4.3 Cumulative Impacts.....	34
8.5 Zone E – Klein River Lagoon Park Precinct.....	35
8.5.1 Direct Impacts	35
8.5.2 Indirect Impacts.....	35
8.5.3 Cumulative Impacts.....	35
8.6 Zone F – Milkwood Cabin Precinct	36
8.6.1 Direct Impacts	36

8.6.2 Indirect Impacts.....	37
8.6.3 Cumulative Impacts.....	37
8.7 Zone G – Restaurant/Jetty Precinct.....	38
8.7.1 Direct Impacts	38
8.7.2 Indirect Impacts.....	38
8.7.3 Cumulative Impacts.....	38
9. Mitigation Measures	40
10. Conclusions and Recommendations	40
11. References	42
Appendix 1: Convention for assigning significance ratings to impacts.....	43
Appendix 2: Botanical Assessment Content Requirements of Specialist Reports, as prescribed by Appendix 6 of GN 982, as amended.	47
Appendix 3: Abbreviated Curriculum Vitae: Greg Nicolson	49

1. Introduction

The Overstrand Local Municipality wishes to enter into a long-term lease with a developer in respect of the land on which the De Mond Caravan Park, Klein River Lagoon Park and the municipal land adjacent thereto are located, with the specific purpose of developing a hotel and public resort with the capability to accommodate large tour groups. The properties are:

- **De Mond (Portions of Erf 4831 and Erf 5327, Hermanus):**

Approximately 9,74 hectares of vacant land with concrete platforms, a few derelict basic structures including a café/shop, utility hall, a warehouse, access control, the remains of an ablution block from the previous caravan park as well as basic sewerage and water services, access and internal roads.

- **Klein River Lagoon Park (Portion of Erf 4831, Hermanus):**

The site measures 6279m² and is currently occupied by 20 temporary caravan-type residential units (in reasonable condition) with basic structures. The site also has basic sewerage and water services and access roads. In addition, there are three boat houses and two concrete slipways.

- **Prawn Flats (Portion of Erf 4831, Hermanus):**

This portion of land directly abuts to the eastern boundary of the KRLP. It includes a boat launch site with two boat ramps that should be retained. It has a separate entrance and it would be required of the developer entity to maintain controlled public access.

- **Selkirk Cottage (situated on the Prawn Flats):**

The cottage is approximately 150m² in size. It is a fenced, stand-alone historical building that is listed in the Heritage Register and must thus be preserved due to its historical value. The developer would be expected to include the cottage in its site development plan and look after its preservation as it could be used in an innovative manner in the development.

In terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (as amended), the proposed development may trigger certain listed activities that require authorisation from the competent environmental authority, namely the Western Cape Department of Environmental Affairs and Development Planning (DEADP). POHL Property Development Group appointed Delron Consulting (Pty) Ltd. as the project's independent Environmental Assessment Practitioner (EAP) to undertake the Basic Assessment application process as prescribed in the National Environmental Management Act, 1998 (NEMA, 1998) (Act 107 of 1998). Bergwind Botanical Surveys and Tours CC was appointed to provide a Botanical Impact Assessment of the site.

The objective of the survey of the vegetation was to determine if there are any sensitive habitats or species present on the areas proposed for development and if there are Critical Biodiversity Areas present. The survey was carried out as described below and takes careful note of the requirements

and recommendations of DEADP, CapeNature and the Botanical Society of South Africa for proactive assessment of the biodiversity of proposed development sites, and follows published guidelines for evaluating potential impacts on the natural vegetation in an area earmarked for some form of development (Brownlie 2005, Cadman *et al.*, 2016).

The proposed development is extensive and covers the greater part of the site and includes (Figure 2):

- Zone A: Mixed Use Precinct (13 998m²), Ground Floor Retail (2 200m²), Upper Floor Offices (3 000m²)
- Zone B: Self Catering / Villa Precinct (25 7900m²) 60m² – 120m² range, Family Villas 170m²
- Zone C: Hotel/Conference/Wedding Precinct (26 662m²) 50 Hotel Keys @ 40m²
- Zone D: High Density Precinct (10 900m²) Single Units @ 55m², Double Units @ 64m²
- Zone E: Klein River Lagoon Park Precinct (6 621m²) up to Lagoon Edge. Developable Area 4 686m², Undevelopable Area 1935m².
- Zone F: Milkwood Cabin Precinct (12 908m²). 13 Milkwood Cabins @ 34m²/unit, Tent Units Under 5 m Contour
- Zone G: Restaurant Jetty Precinct (3 969m²), Two Restaurants, Grass Lawn, Boat Launching

2. Terms of Reference

Undertake a site visit to the study area and compile a specialist report that addresses the following:

- Take cognizance of the Department of Environmental Affairs (DEA) and Department of Environmental Affairs and Development Planning (DEA&DP) Guideline for Involving Biodiversity Specialists in the EIA Process and the requirements of the Botanical Society of South Africa (BotSoc) in developing an approach to the botanical investigation.
- Delineate the vegetation communities and sensitive areas from a floristic perspective using GPS to fix locations, and overlay onto aerial photography and /or site map (i.e. create a vegetation sensitivity map of the project area).
- Assess the local and regional importance of the vegetation communities and plant species within the affected areas based on the relevant biodiversity plans, bioregional planning documents and Environmental Management Frameworks etc.
- Identify the ecosystem status and conservation value of the vegetation communities, including whether the areas to be developed comprise critically endangered or endangered ecosystem(s) listed in terms of Section 52 of the NEMBA.
- Identify any rare or endangered species encountered or likely to be present; or the presence of or proximity of the proposed site to protected area(s) identified in terms of NEMPAA.

- Identify any areas not suitable for development or related activities (No-Go Areas) and related buffers that should be observed.
- A description of the direct, indirect and cumulative botanical impacts (both before and after mitigation) and an assessment of the significance of the impacts.
- A description of the measures to mitigate any impacts, and an indication of whether or not the measures (if implemented) would change the significance of the impact, for the construction and operational phases of the project.

3. Evaluation Method

The study area was visited on 25 July 2018. The habitat condition was sampled and described with the aid of photographic records, sample waypoints and a desktop analysis (Google Earth TM imagery and Quantum GIS software). A number of standard assessment criteria were used to determine the potential impacts as follows:

- *Ecosystem status*: ecosystem status of the vegetation type was obtained using the List of Threatened Terrestrial Ecosystems (Government Gazette 34809, 2011). The gazetted list is important for commenting on the level of sensitivity in relation to natural vegetation quantity and quality. An update of the Ecosystem Threat Status has been produced as part of the Western Cape Biodiversity Spatial Plan (CapeNature, 2016) and is used as the most up to date information on ecosystem threat status in the Western Cape.
- *Conservation planning*: The Western Cape Biodiversity Spatial Plan (WCBSP) for the Overstrand Municipality (CapeNature, 2017) is essential to determine the conservation importance of the affected habitats. Ground-truthing is an essential component in terms of determining the habitat condition.
- *Species of conservation concern*: the presence of rare or threatened species as listed in the Red List of South African Plants (redlist.sanbi.org and Raimondo *et al.* 2009).
- *Special habitats*: the presence of rare or sensitive habitats such as forests, wetlands and dune systems.
- *Species, communities and populations*: the presence or absence of any species provides insight into the ecological state of the area. Pioneer exotic and/or natural species, for example, are important to mention, since these usually indicate past disturbance, whereas endemic mature or old individuals indicate areas that have not undergone physical disturbance and may be sensitive or support important biodiversity. Populations and communities hold the same value in terms of interpretation of the ecological status of an area.

- *Restoration potential and biodiversity corridors:* degraded areas or alien-infested areas have the potential to be restored depending on the level of disturbance or transformation. Degraded and transformed areas may also be of importance if, for example, these areas link portions or remnants of good-quality or threatened vegetation types.

4. Study Area

4.1 Locality

The site is located at the eastern end of Hermanus within the Overstrand Municipality, Western Cape Province (Figure 1). It is bounded on the northern side by the R43 Provincial Road, by 17th Avenue and the residential area of Voëlklip on the north-western side and the Klein River Lagoon estuary on the southern side. To the east of the Klein River Lagoon Park and Prawn Flats is vacant, undeveloped land.

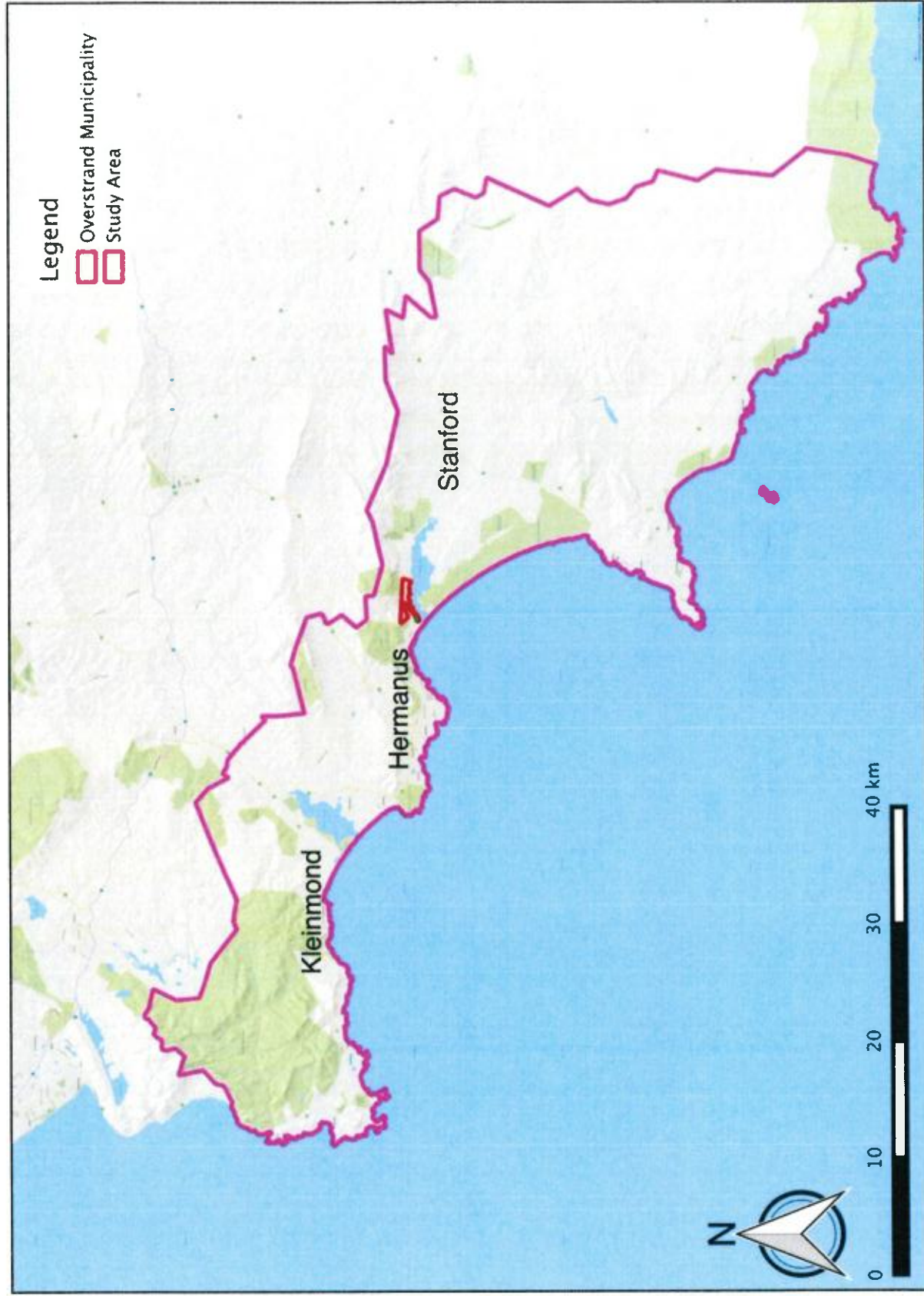


Figure 1. The study area showing the study area (red outline) within the Overstrand Municipality (pink outline) overlaid on a Bing™ street map.

4.2 Topography, Geology, Soils

The study site is located on the edge of the Klein River Lagoon near to the mouth of the lagoon. A narrow band of flat land borders the lagoon after which a short and steep slope rises to another relatively flat area at an elevation of approximately 15 m above mean sea level (m.a.s.l.). After this a gentle increase in height occurs to the edge of the property boundary at the R43. Soils comprise grey regic sands on limestones (exposed in places) of the Bredasdorp Formation (Rebelo *et al.* 2006 in Mucina & Rutherford, 2006).

4.3 Climate

The study area falls within a Mediterranean climate, experiencing cool wet winters and warm dry summers (Figure 3).

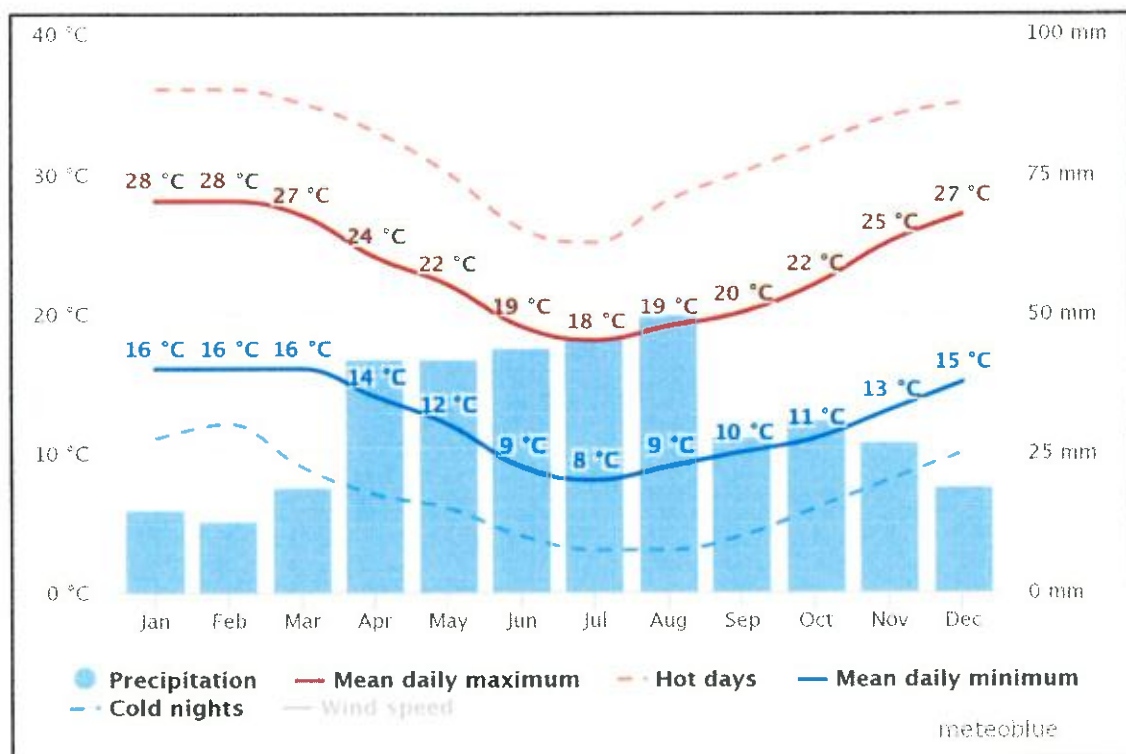


Figure 3. Climatic chart for Hermanus showing the average precipitation and mean daily maximum and minimum temperatures per month (www.meteoblue.com)

5. Limitations

The site visit was carried out in late winter, which is an acceptable time for botanical surveys in the Western Cape Province. It should be noted that the previous three years a severe drought has prevailed in the province and although this has been relieved by average rainfall this winter, the effects are potentially still applicable. No other limitations apply and the confidence in the findings of the survey is considered to be high.

6. Vegetation

6.1 General Description

6.1.1 Vegetation Map of South African, Lesotho and Swaziland (South African National Biodiversity Institute, 2012)

According to the Vegetation Map of South African, Lesotho and Swaziland (VEGMAP) the vegetation type occurring in the study area is Agulhas Limestone Fynbos with Cape Coastal Lagoons on the south border of the site. Southern Coastal Forest is not mapped on the site but occurs along the lagoon edge (South African National Biodiversity Institute, 2012) (Figure 4).

Agulhas Limestone Fynbos

“Low hills in plains, fragmented on the coastal margin of the Agulhas coastal forelands. Mainly on the plains, but with significant patches at higher altitudes such as on the Soetanysberg. Moderately dense, low shrublands contain tall, emergent proteoids. Structurally it is mainly asteraceous and proteoid fynbos, with restioid fynbos in sandy areas and on limestone pavements. Wetter areas, such as waterlogged bottomlands, are dominated by Leucadendron linifolium restioland fynbos, grading to FFd 7 Agulhas Sand Fynbos whereas sands become deeper” (Rebelo *et al.* 2006 in Mucina & Rutherford, 2006). Agulhas Limestone Fynbos is listed as a **Vulnerable** vegetation type under **Criterion D1** which relates to a high threatened species association since **it contains 49 species of conservation concern and 47 endemic species** (Government Gazette No. 34809, 2011).

Southern Coastal Forest

“Generally low forests dominated by Celtis africana, Sideroxylon inerme, Mimusops caffra and Dovyalis rotundifolia. In the eastern regions of the distribution area, having well developed low-tree and shrub (Brachylaena discolor, Strychnos decussata, Euclea natalensis, Dracaena aleetiformis etc.) as well as herbs (Isoglossa woodii, Hypoestes aristata, Laportea grossa, Oxalis pes-caprae) layers, becoming increasingly floristically and structurally impoverished in a westward direction.

The western form of Southern Coastal Forests is classified as a sub-type, Western Cape Milkwood Forest.

Western Cape Milkwood Forest

The Western Cape Milkwood Forest ecosystem would have been more extensive in the past but due to the high levels of mineral components, notably calcium, these areas have been more conducive to farming than the adjoining habitats (Privett & Lutzeyer, 2010). The vegetation type is well represented in Grootbos Nature Reserve but is confined to remnant patches in the Hermanus – Stanford area. The vegetation is a ‘subtype’, which is listed as **ENDANGERED** in the *National*

List of Threatened Terrestrial Ecosystems (Government Gazette No. 34809, 2011) but not mapped (only mentioned in Rebelo *et al.* in Mucina & Rutherford, 2006). The original extent of the ecosystem is not known but approximately 2 000 ha of the habitat remain (Government Gazette No. 34809, 2011). **The ecosystem is therefore of high conservation importance.**

Western Cape Milkwood Forest is protected under the National Forest Act, (Act No. 84 of 1998) Section 3 that stipulates that natural forests may not be destroyed. Section 7 of this Act also states that trees in a natural forest may not be cut, destroyed, pruned or damaged without a license. Furthermore, at least one specifically protected tree, the milkwood (*Sideroxylon inerme* subsp. *inerme*) occurs within the study area.

6.1.2 The Western Cape Biodiversity Spatial Plan (CapeNature, 2017)

The Overstrand Municipality is included in the Western Cape Biodiversity Spatial Plan (WCBSP) (CapeNature, 2017). The WCBSP presents a Critical Biodiversity Areas (CBA) map that aims to guide sustainable development by providing a synthesis of biodiversity information to decision-makers. It serves as the common reference for all multi-sectoral planning procedures, advising which areas can be developed and which areas of critical biodiversity value, with their support zones, should be protected against impacts. The broad objective is to ensure appropriate land use and planning for the best possible long-term benefits, as well as to promote integrated management of natural resources. The main CBA map categories are Critical Biodiversity Areas (CBA 1 - Natural and CBA 2 - Degraded), Ecological Support Areas (ESA 1 - Natural and ESA 2 - Degraded), Other Natural Areas (ONA) and No Natural Remaining (NNR) (CapeNature, 2017).

The CBA habitat parcels are selected for conserving important habitats and biodiversity processes. The habitat categories are selected for various reasons and may include degraded or low quality vegetation, since they may serve as important biodiversity corridors between ecologically intact habitats. The CBA maps are generated using desktop methods and may overlook intact vegetation, especially subtle changes in vegetation type and niche habitats. It is therefore important to ground-truth these areas and interpret the findings in relation to the objectives of the CBA.

Various small parts of the site investigated here have been included in the WCBSP map and include areas considered to be CBA 1 (Aquatic) the lagoon, CBA 2 (Terrestrial) small portions on the east and west side of the site, and ESA 2 (Coastal Corridor/Watercourse/Wetland) on the east side of the site. The Fernkloof Nature Reserve occurs adjacent to the study area on both the east and the west (Figure 5).



Figure 4. The vegetation types on the site according to the Vegetation Map of South Africa (South African National Biodiversity Institute, 2012) overlaid on a Google Earth™ aerial image. It should be noted that no presence of Southern Coastal Forest has been included in the map but certainly occurs at the site.



Figure 5. The WCBSB CBA Map, Overstrand Municipality, as applicable to the study site and surrounding area (CapeNature, 2017) overlaid on a Google Earth™ image.



Figure 6. The habitat map of the study site as delineated by the author July 2018.

6.2 Vegetation Condition of the Study Area

The vegetation within the study area is mapped as Agulhas Limestone Fynbos (SANBI 2012), however, only a very small portion at the far eastern side of the site contains any fynbos and this area does not fall within any of the proposed developments (Figure 6). The remainder of the fynbos on the site has been transformed by the De Mond Resort and the Klein River Lagoon Park. The only originally occurring vegetation that remains intact are patches of Western Cape Milkwood Forest. Although this vegetation type is not mapped as originally occurring here, the presence of large milkwood (*Sideroxylon inerme* subsp. *inerme*) and coastal camphor bush (*Tarchonanthus littoralis*) specimens currently dominating the dense coastal vegetation indicate that this vegetation type may have been locally dominant before historical development of the area. The patches of forest occur scattered throughout the site and are considered to be intact to semi-intact, with a number of exotic species co-occurring along the forest margins.

Table 1. Trees, shrubs and associated forest species recorded from the study area

Species	Common Name
<i>Anemone vesicatoria</i>	brandblaar
<i>Apodytes dimidiata</i>	white pear
<i>Asparagus retrofractus</i>	wag n' bietjie
<i>Cassine peragua</i> subsp. <i>barbara</i>	dune spoon-wood
<i>Chionanthus foveolatus</i>	pock ironwood
<i>Colpoon compressum</i> (= <i>Osyris compressa</i>)	coastal tannin-bush
<i>Cynanchum obtusifolium</i>	bostou
<i>Euclea racemosa</i>	dune guarri
<i>Gymnosporia buxifolia</i>	common spike-thorn
<i>Haemanthus coccineus</i>	april fool
<i>Halleria lucida</i>	tree fuschia
<i>Kiggelaria africana</i>	wild peach
<i>Maytenus acuminata</i> var. <i>acuminata</i>	silky bark
<i>Maytenus oleoides</i>	rock candlewood
<i>Myrsine africana</i>	Cape myrtle
<i>Olea exasperata</i>	dune olive
<i>Phyllica buxifolia</i>	box hard-leaf
<i>Pterocelastrus tricuspidatus</i>	candlewood
<i>Rapanea melanophloeos</i>	Cape beech
<i>Searsia crenata</i>	dune crowberry
<i>Searsia laevigata</i>	dune current
<i>Searsia lucida</i>	waxy current
<i>Searsia tomentosa</i>	bicoloured current
<i>Secamone alpini</i>	bobbejaantou
<i>Sideroxylon inerme</i> subsp. <i>inerme</i>	milkwood
<i>Tarchonanthus littoralis</i>	coastal camphor bush
<i>Virgilia divaricata</i>	keurboom

A number of separate forest patches have been mapped and can be seen in the habitat map for the site (Figure 6) and are described below:

De Mond Resort: Milkwood/*Tarchonanthus* Forest (MTF)

These forest patches occur as a mosaic with degraded coastal areas and trees that were planted within the De Mond resort. There is a narrow flat and generally open area adjacent to the lagoon that has been used as a campsite and for accommodation associated with the resort. Behind this is a small but steep slope that contains the forest species dominated by milkwoods (*Sideroxylon inerme* subsp. *inerme*) and coastal camphor bush (*Tarchonanthus littoralis*). These specimens are very large and mature and estimated to be hundreds of years old (Figures 7 and 8). Behind the slope the ground levels out again and this is where most of the resort structures would be located as per the draft plan. Many exotic trees that have been planted on the site have proliferated and now form a continuous 'forest' mixed in with the indigenous species. Demarcation of the boundary between the indigenous and exotic species is difficult and has been done as accurately as possible. A number of the areas proposed for development overlap with or occur in very close proximity to these indigenous forest patches. If the development were to go ahead as planned it is likely that a significant portion of these forests would be directly removed or indirectly affected by construction activities. **These forest patches are considered to be semi-intact and of regional significance due to their age and rarity, and the presence of protected milkwood trees.**

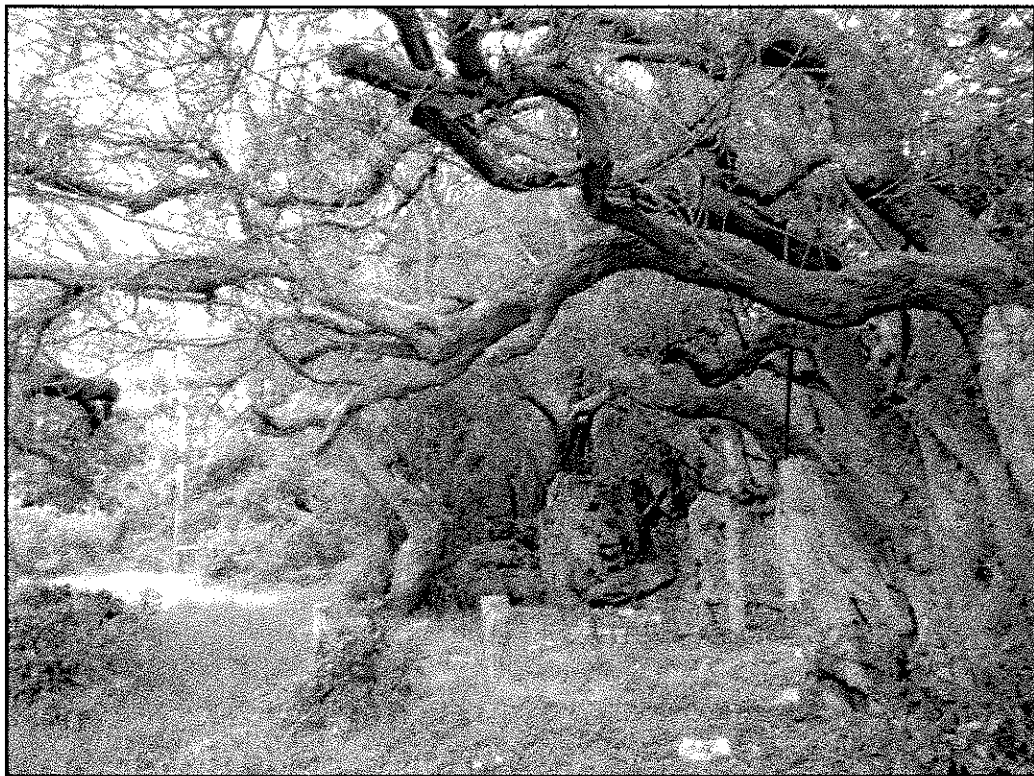


Figure 7. Mature milkwood trees line the edge of a derelict campsite. These trees are very old and have important botanical and aesthetic value.

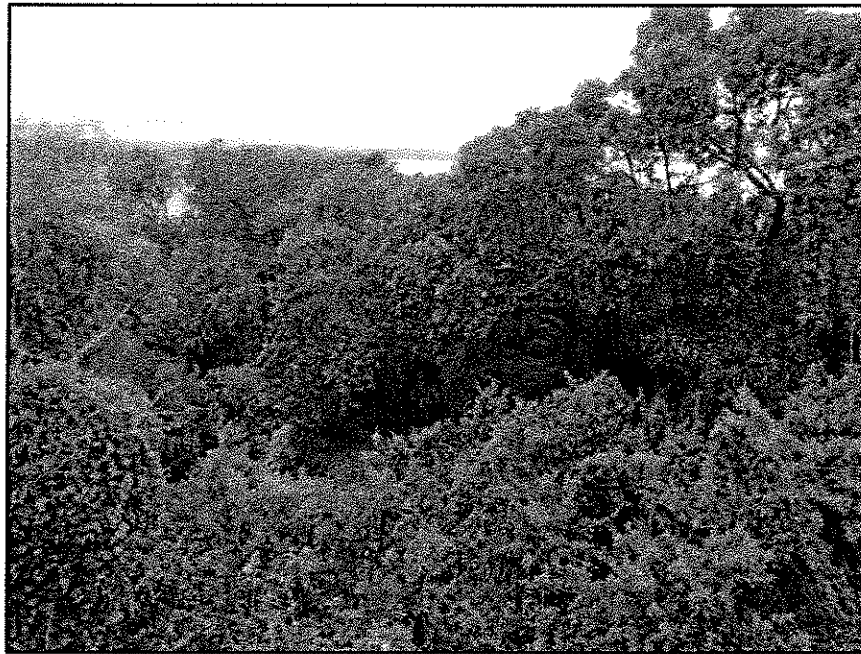


Figure 8. Tall and mature forest occurs along the lagoon edge at the De Mond Resort. Invasive species such as Port Jackson Willow (*Acacia saligna*) (yellow flowers on the left of image) occur scattered throughout the site.

Prawn Flats MTF

This forest contains most of the forest species listed above (Table 1) and forms an almost continuous section of forest (Figure 9) with only one small track that traverses the portion as the single disturbance. **This forest patch is considered to be intact and of regional significance due to its age and rarity, and the presence of protected milkwood trees.**

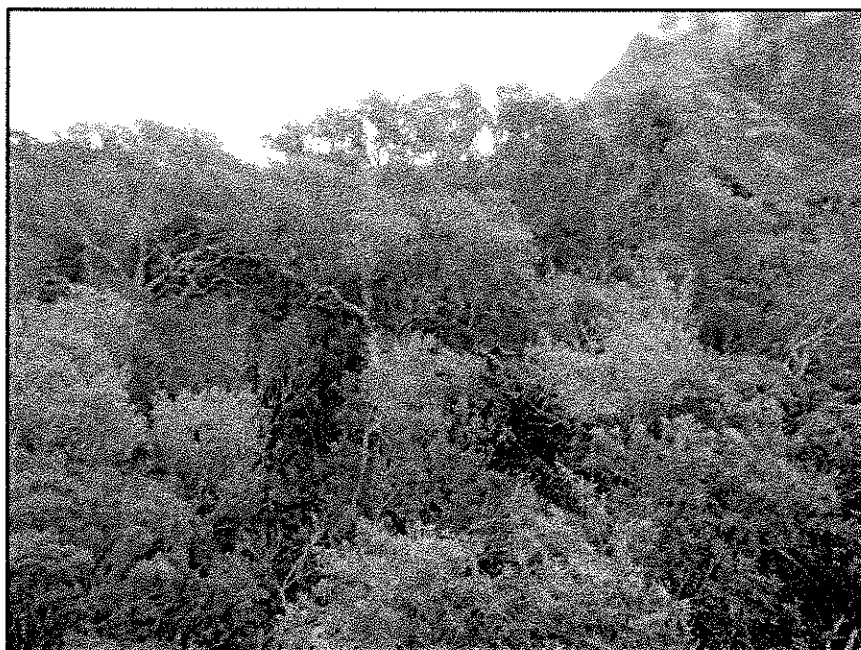


Figure 9. Some of the forest of good condition in the study area is found on the Prawn Flats side. Here tall coastal camphor bush (*Tarchonanthus littoralis*) dominates. This forest is a functioning ecosystem with much bird and insect life.

Prawn Flats Coastal Forest

This area contains fewer milkwood and coastal camphor bush specimens than the previously described areas. It is dominated by Cape Beech (*Rapanea melanophloeos*) and contains a high diversity of other indigenous tree and shrub species (Figure 10). A number of invasive and non-invasive exotic species also occur here, especially in the area behind the house and on the forest margins. Despite these exotics, **this area is considered to be semi-intact and of regional significance due to its age and rarity, and the presence of protected milkwood trees.**



Figure 10. The Prawn Flats Coastal forest is more diverse than the other forest patches and contains many thicket species as well as forest trees. A number of exotic and invasive species occur in this area including gum trees (*Eucalyptus* sp.) – and stinkbean (*Paraserianthes lophantha*) back right of image.

Lagoon Shore Vegetation

A small section of shoreline between the Prawn Flats boat launch area and the Klein River Lagoon Park development contains a rocky area with a distinctive suite of plant species (Figure 11). The milkwood and coastal camphor bush (dominant in the forest) occur at this location as dwarf forms due to the rocky habitat and strong winds. Other species found here include but are not limited to *Asparagus* sp., *Bonatea speciosa*, *Chasmanthe aethiopica*, *Colpoon compressum*, *Cotyledon orbicularis*, *Dipogon lignosus*, *Haemanthus coccineus*, *Olea exasperata*, *Phylica buxifolia*, *Polygala myrtifolia*, *Tetragonia fruticosa*, *Tetragonia decumbens*, *Searsia lucida* and *Senecio crassulifolius*.



Figure 11. The lagoon edge is sandy in most places but a small area contains exposed rocks that provide habitat for a high number of species especially bulbs and succulents.

The remainder of the study area, mapped as “De Mond Resort” (Figure 13), “Klein River Lagoon Park” (Figure 12) and “Prawn Flats” are all considered to be transformed and have previously been or are currently used for holiday accommodation and activities (see Figure 6).

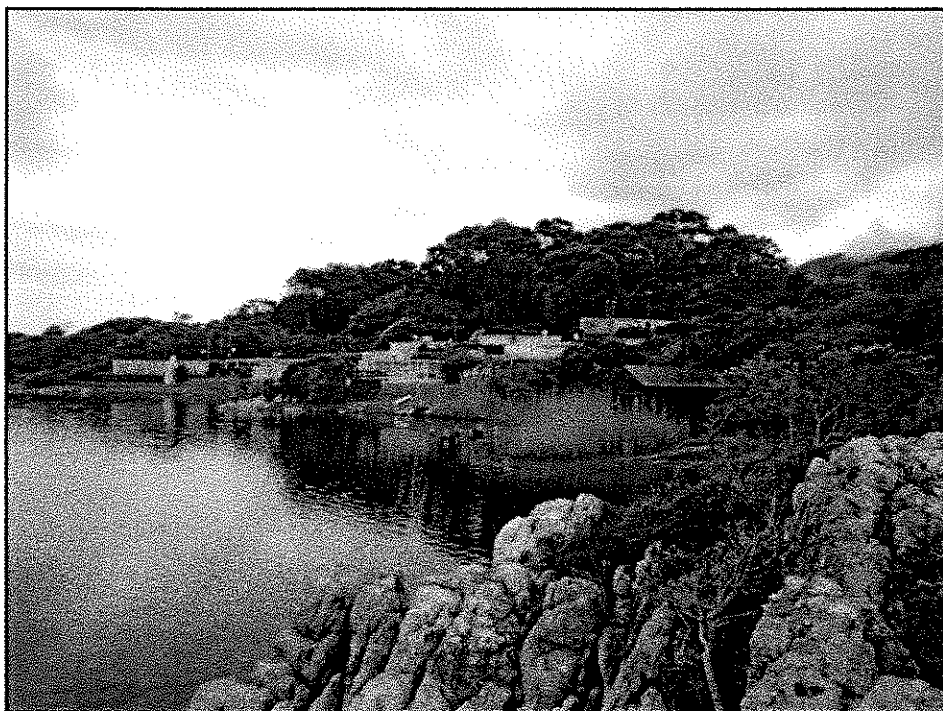


Figure 12. View of the Klein River Lagoon Park from the east. This area is currently used for holiday accommodation and no indigenous vegetation remains.



Figure 13. The De Mond Resort has been unused for many years. Most of the originally occurring vegetation, most likely Agulhas Limestone Fynbos has been completely transformed. Mature gums trees (*Eucalyptus* sp.) line all the roads in the resort.

Wetland

A small patch of *Phragmites australis* (common reed) at the Prawn Flats site indicates a wetland area. The sensitivity of this area should be considered by a freshwater ecologist.

Agulhas Limestone Fynbos

A very small portion of Agulhas Limestone Fynbos occurs on the far eastern side of the study area, but not within an area proposed for development. The presence of fynbos is indicated by species such as *Agathosma ciliaris*, *Cliffortia* cf. *atrata*, *Bulbine annua*, *Erica plukenetti* subsp. *plukenetti*, *Lampranthus fergusoniae* (Vulnerable), *Metalasia muricata*, *Orbea variegata* and *Passerina corymbosa*.

Rocky Outcrop

A rocky outcrop with a mature milkwood tree occurs at the lagoon edge (see cover photo). This unique feature is important and should be retained.

Exotic Species

Owing to historical land uses on the site, a high number of exotic species were recorded. The species of importance are listed below as a number of these are declared invasive species and are required to be eradicated. It is a legal requirement of all landowners, as set out in Section 73(2) of the Invasive and Alien Species (IAS) Regulations (published on 1 August 2014) in the NEMBA (National Environmental Management and Biodiversity Act) Act 10 of 2004, to control all of the NEMA Category 1b invasive plant species. Many of these would be removed due to construction at the site, however, all remaining invasive species must be removed from the site.

Table 2: Invasive species found on the site and their category according to the NEMBA regulations

Species	Common Name	Category
<i>Acacia baileyana</i>	Bailey's wattle	Category 3
<i>Acacia cyclops</i>	rooikrans	Category 1b
<i>Acacia mearnsii</i>	black wattle	Category 2
<i>Acacia saligna</i>	Port Jackson willow	Category 1b
<i>Cestrum laevigatum</i>	inkberry	Category 1b
<i>Eucalyptus conferruminata</i>	spider gum	Category 1b
<i>Eucalyptus</i> sp 1.		
<i>Eucalyptus</i> sp 2.		
<i>Leptospermum laevigatum</i>	Australian myrtle	Category 1b
<i>Myoporum tenuifolium</i>	manatoka	Category 3
<i>Nephrolepis cordifolia</i>	sword fern	Category 1b
<i>Paraserianthes lophantha</i>	stinkbean	Category 1b
<i>Pittosporum undulatum</i>	Australian cheesewood	Category 1b
<i>Schinus terebinthifolius</i>	Brazilian pepper tree	Category 3

7. Sensitivity and Constraints

In general, the transformed/degraded areas within the study area have a very low restoration potential and LOW BOTANICAL SENSITIVITY. Only a few areas that are discussed above warrant special attention. The most important vegetation on the site are the areas mapped as forest. These areas are considered to be intact or semi-intact and can be improved by removing the exotic species that occur within or on the forest margins. These forests have HIGH BOTANICAL AND ECOLOGICAL SENSITIVITY and are listed and described below in Table 3 and represented visually in Figure 16.

Table 3. Constraints of the sensitive areas as mapped on Farm RE/585 and Farm No. 607.

Vegetation Area	Botanical Sensitivity	Constraints	Recommended Action
De Mond Resort MTF	High	High – Endangered vegetation type containing protected forest and milkwood trees	No development within the forest area is supported. Ensure no damage to forest trees during construction in adjacent areas.
Prawn Flats MTF	High	High – Endangered vegetation type containing protected forest and milkwood trees	No development within the forest area. Control and remove all invasive species from the surrounding area.
Prawn Flats Coastal Forest	High	High – Endangered vegetation type containing protected forest and milkwood trees	The number of developments proposed within this area suggest that the indigenous vegetation would be highly compromised. It is recommended that developments should be confined to the already disturbed area surrounding the forest vegetation. Control and remove all invasive species from the surrounding area.
Lagoon Shore Vegetation	Medium	Medium	Only two of the Milkwood Cabins intersect with this area, it is recommended that these should be removed from the development plan.
De Mond Resort	Low	Low	Ensure that development adjacent to forest patches does not impact the sensitive vegetation
Klein River Lagoon Park	Low	Low	Ensure that development adjacent to forest patches does not impact the sensitive vegetation
Prawn Flats	Low	Low	Ensure that development adjacent to forest patches does not impact the sensitive vegetation
Wetland	N/A	N/A	Consult freshwater specialist for recommendation regarding this area.
Aguilhas Limestone Fynbos	Medium	High	No developments are currently proposed for this area, however, it should be considered as a No-area during construction.



Figure 14. The habitat map and the proposed development layout overlaid on a Google Earth™ image. A number of the self-catering Villas and the hotel would impact on the *Milkwood/Tarchonanthus* forests on the site.

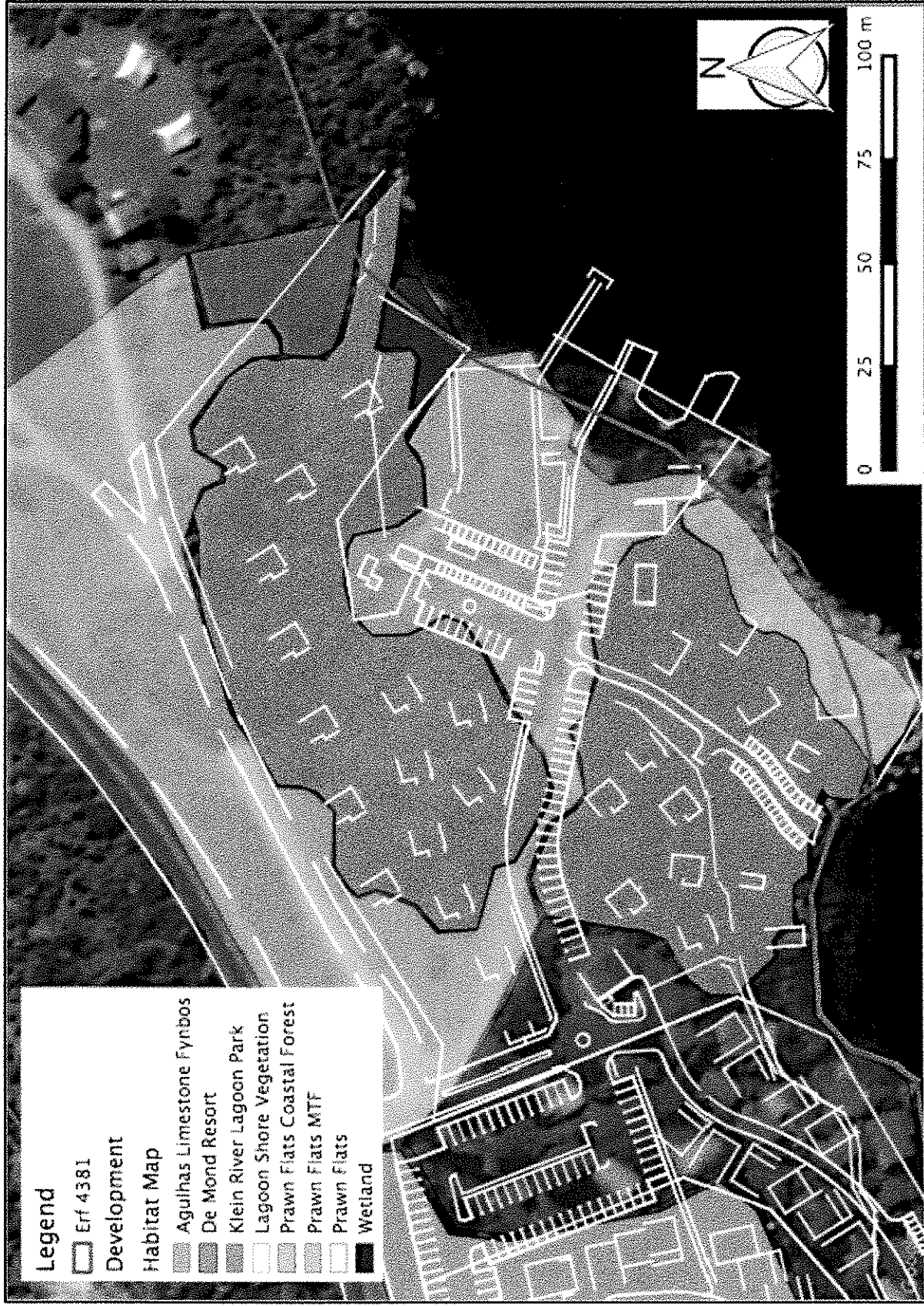


Figure 15. The habitat map and the proposed development layout overlaid on a Google Earth™ image. All the Milkwood Cabins are proposed within intact forest patches.

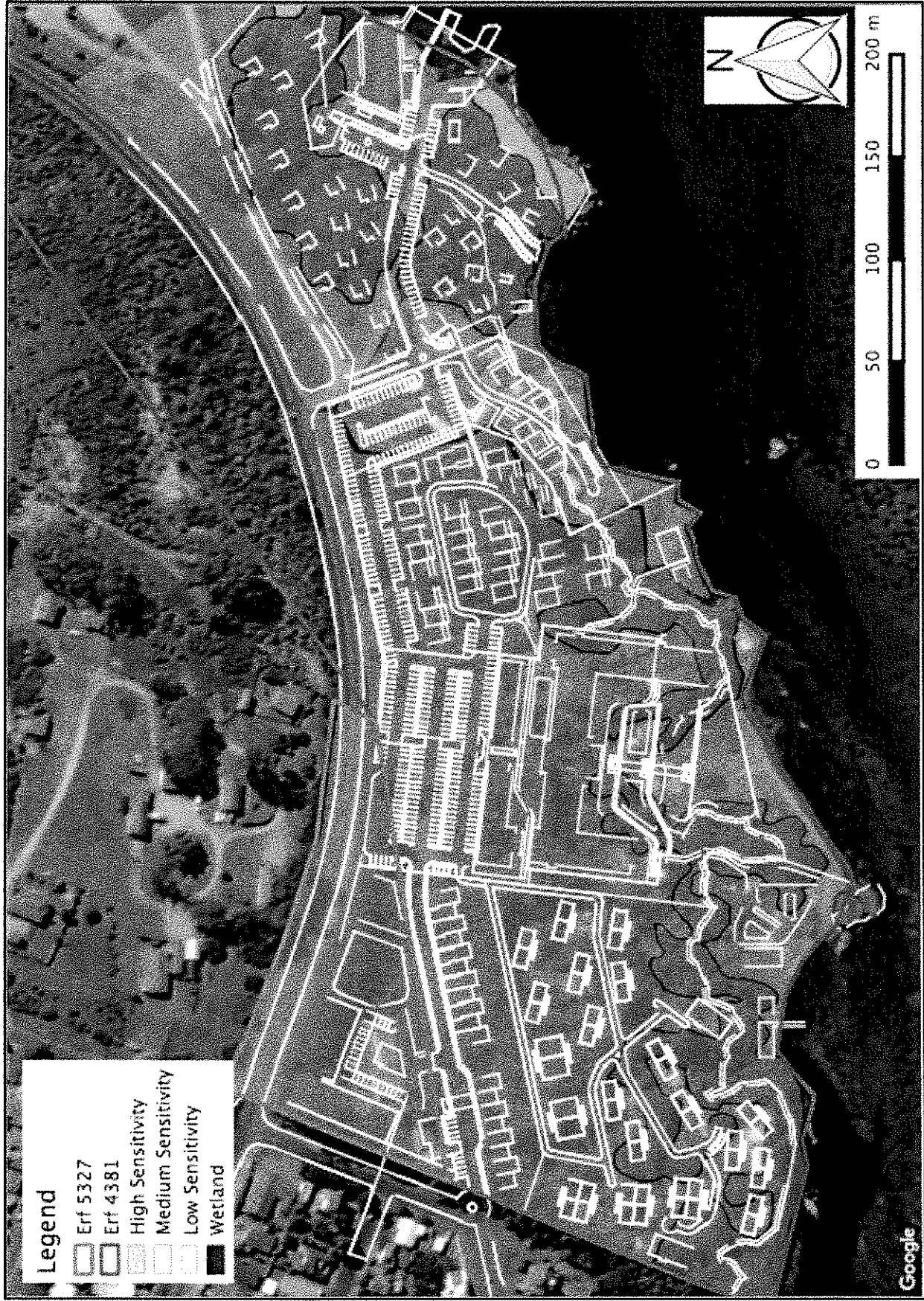


Figure 16. The sensitivity map of the proposed development layout overlaid on a Google Earth™ image

8. Impact Assessment

No alternatives have been proposed for the development layout. The development has been divided into 7 Zones (Zone A – G) and each zone is assessed separately looking at two alternatives; (1) development (as per the layout plan – Figure 2), and (2) the 'No Go' alternative. The No Go alternative would happen if the development does not take place and the *status quo* remains. The direct, indirect and cumulative impacts for each zone are discussed and rated.

Direct Impacts

The direct impacts are assessed according to the following inter-related components:

- Loss of vegetation type
- Loss of ecological processes – associated with the loss of vegetation

Indirect Impacts

Indirect impacts are those that do not occur as a direct result of the activity on site but that occur further away. An example would be development across an ecological corridor that prevents the movement of plant and animal species to habitats that were once connected. In the case of the proposed development, no indirect impacts were identified in terms of far-reaching impacts on terrestrial ecological processes.

Cumulative impacts

Cumulative impacts are those impacts linked but not limited to (a) increased loss of vegetation type or the ecosystems listed in the National List of Threatened Terrestrial Ecosystems (Government Gazette No. 34809, 2011) and (b) other developments taking place across the region.

8.1 Zone A – Mixed Use Precinct

8.1.1 Direct Impacts

This area has already been transformed by the De Mond Resort and no intact indigenous vegetation would be lost. The impact of development would be **Low Negative** and no mitigation measures would be required (Table 4).

8.1.2 Indirect Impacts

No indirect botanical impacts have been identified.

8.1.3 Cumulative Impacts

No cumulative impacts would occur due to the development of this zone (Table 4).

Table 4. Impact-significance table for the proposed development of the Crown Grant Hotel Zone A

	No Go	Development
Description and Nature of impact	<i>Status quo</i> remains and exotic species and weeds gradually further invade the site. Negative.	Loss of transformed Agulhas Limestone Fynbos. Negative.
Extent and duration of impact	Local, medium term	Local, long term
Magnitude	Very Low	Very Low
Probability of occurrence	Probable	Probable
Confidence	High	High
Degree to which the impact can be reversed	Partially reversible	Irreversible
Degree to which the impact may cause irreplaceable loss of resources	Very Low	Very Low
Indirect Impacts	None	None
Cumulative impact prior to mitigation:	Negligible	Negligible
Significance rating of impact prior to mitigation	Very Low Negative	Low Negative
Degree to which the impact can be mitigated	Medium	Very Low
Proposed mitigation	Remove and control all invasive species from the area. Manage for no further loss of resources.	N/A
Cumulative impact post mitigation Significance rating of impact after mitigation	Negligible Low Positive	Negligible Low Negative

8.2 Zone B – Self Catering / Villa Precinct

8.2.1 Direct Impacts

The presence of 'Milkwood Bush' has been noted and mapped in the layout plan for the proposed development. However, the extent of this vegetation on the site has not been fully captured or appreciated. A number of the proposed villas and lagoon-side developments (pool and beach bars) have been placed in areas currently containing Milkwood / *Tarchonanthus* Forest (MTF) and others occur in extremely close proximity to the MTF. It is highly likely that these areas of forest would have to be removed or would be indirectly affected by construction activities and that the integrity of the forest system would be compromised. A number of milkwood trees occur outside of the forest patches at waypoints 123 (S34.41456° E19.30067°), 124 (S34.41456° E19.30067°) and 125 (S34.41453° E19.30063°). The loss of these very old and locally (Hermanus) rare forest patches

and trees would have a **High Negative Impact**. Although no layout alternatives have been proposed for the development, it is strongly recommended that the layout should be amended to reduce the number of villas. They must only be located in areas already disturbed by the previous development. Even if this is done, the construction of these villas in such close proximity to the MTF would have a negative impact on the forests. The impact could be reduced from **High Negative** to **Medium Negative** if the forests are avoided (Table 5).

8.2.2 Indirect Impacts

No indirect botanical impacts have been identified.

8.2.3 Cumulative Impacts

Due to the age and local rarity of this forest and the Endangered status of the vegetation type present, the cumulative impact is rated as **Medium Negative** in the development scenario and **Negligible** in the No-Go scenario (Table 5).

Table 5. Impact-significance table for the proposed development of the Crown Grant Hotel Zone B

	No Go	Development
Description and Nature of impact	<i>Status quo</i> remains and exotic species and weeds gradually further invade the site. Negative.	Loss of Western Cape Milkwood Forest (Endangered) and protected milkwood trees Negative.
Extent and duration of impact	Local, medium term	Local, long term
Magnitude	Very Low	High
Probability of occurrence	Probable	Probable
Confidence	High	High
Degree to which the impact can be reversed	Partially reversible	Irreversible
Degree to which the impact may cause irreplaceable loss of resources	Very Low	High
Indirect Impacts	None	None
Cumulative impact prior to mitigation:	Negligible	Medium
Significance rating of impact prior to mitigation	Low Negative	High Negative
Degree to which the impact can be mitigated	Medium	Low
Proposed mitigation	Remove and control all invasive species from the area. Manage for no further loss of resources.	Reduce number of villas and locate them only in previously disturbed areas. Mark off all forest patches and ensure that they are not disturbed during construction. Avoid the milkwood trees at waypoints 123-125.
Cumulative impact post mitigation	Negligible	Low Negative
Significance rating of impact after mitigation	Low Positive	Medium Negative

8.3 Zone C - Hotel/Conference/Wedding Precinct

8.3.1 Direct Impacts

Small parts of the layout for the hotel have been placed in areas currently containing Milkwood / *Tarchonanthus* Forest and others occur in extremely close proximity to the MTF. The 'hotel pool' and 'terraced lawn' areas and a small portion of the east side of the hotel building intersect with MTF. The 'hotel pool' and 'terraced lawn' can and should accommodate the existing MTF into their design and these trees should not be removed. It is likely that some parts of the forest would have to be directly removed or indirectly affected by construction activities related to the hotel. The disturbance of this very old and locally (Hermanus) rare forest patch would have a **Medium Negative Impact** (Table 6). No mitigation measures can reduce this impact, however, measures to protect the adjacent forest must be implemented.

8.3.2 Indirect Impacts

No indirect botanical impacts have been identified.

8.3.3 Cumulative Impacts

Owing to the age and local rarity of this forest and the Endangered status of the vegetation type present, the cumulative impact is rated as **Medium Negative** in the development scenario and **Negligible** in the No-Go scenario (Table 6).

Table 6. Impact-significance table for the proposed development of the Crown Grant Hotel Zone C

	No Go	Development
Description and Nature of impact	<i>Status quo</i> remains and exotic species and weeds gradually further invade the site. Negative.	Loss of Western Cape Milkwood Forest (Endangered) and protected milkwood trees Negative.
Extent and duration of impact	Local, medium term	Local, long term
Magnitude	Very Low	Medium
Probability of occurrence	Probable	Probable
Confidence	High	High
Degree to which the impact can be reversed	Partially reversible	Irreversible
Degree to which the impact may cause irreplaceable loss of resources	Very Low	High
Indirect Impacts	None	None

Cumulative impact prior to mitigation:	Negligible	Medium
Significance rating of impact prior to mitigation	Low Negative	Medium Negative
Degree to which the impact can be mitigated	Medium	Very Low
Proposed mitigation	Remove and control all invasive species from the area. Manage for no further loss of resources.	Mark off all forest patches and ensure that these are not disturbed outside of the development footprint.
Cumulative impact post mitigation	Negligible	Low Negative
Significance rating of impact after mitigation	Low Positive	Medium Negative

8.4 Zone D – High Density Precinct

8.4.1 Direct Impacts

No intact patches of MTF occur within this area, however, a number of very old and important trees occur here. These trees must not be disturbed during the construction phase. The trees are located at waypoints 19 (S34.41480° E19.30277°), 20 (S34.41493° E19.30279°) and 21 (S34.41492° E19.30276°). If these trees are lost, the impact of development here would be **Medium Negative**, however, if they are avoided and allowed to persist on the site, the development of this area would have a **Low Negative Impact** (Table 7).

8.4.2 Indirect Impacts

No indirect botanical impacts have been identified.

8.4.3 Cumulative Impacts

Owing to the presence of protected milkwood trees in this area the cumulative impact is considered to be **Low Negative**, with the significance **Negligible** post mitigation (Table 7).

Table 7. Impact-significance table for the proposed development of the Crown Grant Hotel Zone D

	No Go	Development
Description and Nature of impact	<i>Status quo</i> remains and exotic species and weeds gradually further invade the site. Negative.	Loss of disturbed Agulhas Limestone Fynbos/Western Cape Milkwood Forest and protected milkwood trees Negative.
Extent and duration of impact	Local, medium term	Local, long term
Magnitude	Very Low	Medium

Probability of occurrence	Probable	Probable
Confidence	High	High
Degree to which the impact can be reversed	Partially reversible	Irreversible
Degree to which the impact may cause irreplaceable loss of resources	Very Low	High
Indirect Impacts	None	None
Cumulative impact prior to mitigation:	Negligible	Medium
Significance rating of impact prior to mitigation	Low Negative	Medium Negative
Degree to which the impact can be mitigated	Medium	Very Low
Proposed mitigation	Remove and control all invasive species from the area. Manage for no further loss of resources.	Mark off all milkwood trees and ensure that that are not disturbed by construction activities.
Cumulative impact post mitigation	Negligible	Negligible
Significance rating of impact after mitigation	Low Positive	Low Negative

8.5 Zone E – Klein River Lagoon Park Precinct

8.5.1 Direct Impacts

This area has already been transformed by the Klein River Lagoon Park development and no intact indigenous vegetation would be lost. The impact of development here would be **Low Negative** and no mitigation measures would be required (Table 8).

8.5.2 Indirect Impacts

No indirect botanical impacts have been identified.

8.5.3 Cumulative Impacts

No cumulative impacts would occur due to the development of this zone (Table 8).

Table 8. Impact-significance table for the proposed development of the Crown Grant Hotel Zone E

	No Go	Development
Description and Nature of impact	<i>Status quo</i> remains and exotic species and weeds gradually further invade the site. Negative.	Loss of disturbed Agulhas Limestone Fynbos/Western Cape Milkwood Forest and protected milkwood trees Negative.
Extent and duration of impact	Local, medium term	Local, long term
Magnitude	Very Low	Low
Probability of occurrence	Probable	Probable
Confidence	High	High
Degree to which the impact can be reversed	Partially reversible	Irreversible
Degree to which the impact may cause irreplaceable loss of resources	Very Low	High
Indirect Impacts	None	None
Cumulative impact prior to mitigation:	Negligible	Medium
Significance rating of impact prior to mitigation	Low Negative	Low Negative
Degree to which the impact can be mitigated	Medium	Very Low
Proposed mitigation	Remove and control all invasive species from the area. Manage for no further loss of resources.	N/A
Cumulative impact post mitigation	Negligible	Negligible
Significance rating of impact after mitigation	Low Positive	Low Negative

8.6 Zone F – Milkwood Cabin Precinct

8.6.1 Direct Impacts

Apart from the reception building, all cabins and tent units fall within areas mapped as containing indigenous forest (Prawn Flats MTF and Prawn Flats Coastal Forest). Only the existing boathouses, which are proposed to be upgraded to cabins, occur in previously disturbed areas but are surrounded by intact forest. It is highly likely that the greater part of these areas of forests would have to be directly removed or indirectly affected by construction activities and that the integrity of the forest system would be compromised. The loss of these very old and locally (Hermanus) rare forest patches would have a **High Negative Impact** (Table 9). Potential exists for a number of units to be placed at the north side of the Prawn Flats Coastal Forest adjacent to the

current road. The forest is semi-intact at this location and has been partially invaded by exotic species. If the number of units is greatly reduced and placed only in areas that have been previously disturbed, the impact could be reduced to **Medium Negative**.

8.6.2 Indirect Impacts

No indirect botanical impacts have been identified.

8.6.3 Cumulative Impacts

Owing to the age and local rarity of this forest and the Endangered status of the vegetation type present, the cumulative impact is rated as **Medium Negative** in the development scenario and **Negligible** in the No-Go scenario (Table 9).

Table 9. Impact-significance table for the proposed development of the Crown Grant Hotel Zone F

	No Go	Development
Description and Nature of impact	<i>Status quo</i> remains and exotic species and weeds gradually further invade the site. Negative.	Loss of Western Cape Milkwood Forest and protected milkwood trees Negative.
Extent and duration of impact	Local, medium term	Local, long term
Magnitude	Very Low	High
Probability of occurrence	Probable	Probable
Confidence	High	High
Degree to which the impact can be reversed	Partially reversible	Irreversible
Degree to which the impact may cause irreplaceable loss of resources	Very Low	High
Indirect Impacts	None	None
Cumulative impact prior to mitigation:	Negligible	Medium
Significance rating of impact prior to mitigation	Low Negative	High Negative
Degree to which the impact can be mitigated	Medium	Low
Proposed mitigation	Remove and control all invasive species from the area. Manage for no further loss of resources.	Reduce number of units and locate them only in previously disturbed areas. Mark off all forest patches and ensure that these are not disturbed during construction
Cumulative impact post mitigation	Negligible	Negligible
Significance rating of impact after mitigation	Low Positive	Medium Negative

8.7 Zone G – Restaurant / Jetty Precinct

8.7.1 Direct Impacts

This area has already largely been transformed by the existing jetty and grassy area behind it. It is located in very close proximity to the surrounding Prawn Flats Coastal Forest and this would probably be impacted by the development. Disturbance to this forest would be undesirable and any loss of this vegetation would have at least a **Medium Negative** Impact. It is recommended that the portion of Prawn Flats Coastal Forest adjacent to this development should be marked off and considered as a no-go area during construction. If this can be implemented and no loss of indigenous forest occurs, the impact would be reduced to **Low Negative** (Table 10).

8.7.2 Indirect Impacts

No indirect botanical impacts have been identified.

8.7.3 Cumulative Impacts

No cumulative impacts would occur due to the development of this zone (Table 10).

Table 10. Impact-significance table for the proposed development of the Crown Grant Hotel Zone G

	No Go	Development
Description and Nature of impact	<i>Status quo</i> remains and exotic species and weeds gradually further invade the site. Negative.	Loss of disturbed Agulhas Limestone Fynbos/Western Cape Milkwood Forest and protected milkwood trees Negative.
Extent and duration of impact	Local, medium term	Local, long term
Magnitude	Very Low	Medium
Probability of occurrence	Probable	Probable
Confidence	High	Medium
Degree to which the impact can be reversed	Partially reversible	Partially reversible
Degree to which the impact may cause irreplaceable loss of resources	Very Low	Medium
Indirect Impacts	None	None
Cumulative impact prior to mitigation:	Negligible	Negligible

Significance rating of impact prior to mitigation	Low Negative	Medium Negative
Degree to which the impact can be mitigated	Medium	Low
Proposed mitigation	Remove and control all invasive species from the area. Manage for no further loss of resources.	Mark off all milkwood trees and indigenous forest and ensure that they are not disturbed by construction activities.
Cumulative impact post mitigation	Negligible	Negligible
Significance rating of impact after mitigation	Low Positive	Low Negative

9. Mitigation Measures

The areas of important forest vegetation as described above must be conserved as far as possible since they are botanically sensitive and regarded as botanically and ecologically important. The following mitigation measures apply to the project:

- The number of Villas and Milkwood Cabins should be reduced and only located in previously disturbed areas.
- A suitably qualified Environmental Control Officer (ECO) must be present on the site before and during any construction activities.
- All indigenous trees and forest patches as mapped in this report must be clearly marked off prior to any construction by a suitably qualified professional.
- These forest areas must be considered as No-Go Areas during the construction phase of the project.
- No construction vehicles, personal should be allowed within No-Go Areas or equipment stored underneath any indigenous trees.
- This must be written into an EMP as a condition for any authorization.
- An application to the Department of Agriculture, Forestry & Fisheries (Western Cape region) for permits would be required for the milkwood trees (*Sideroxylon inerme* subsp. *inerme*) that have to be removed or in any other way affected. Milkwood trees are protected under the National Forests Act of 1998 (Act No. 84 of 1998).
- All invasive species must be removed and controlled from the properties. Regardless of development, it is a legal requirement for all landowners, as set out in Section 73(2) of the Invasive and Alien Species (IAS) Regulations (published on 1 August 2014) in the NEMBA (National Environmental Management and Biodiversity Act) Act 10 of 2004, to control all of the NEMA Category 1b invasive plant species.

10. Conclusions and Recommendations

- The study area originally supported Agulhas Limestone Fynbos (**Vulnerable D1**) and Western Cape Milkwood Forest (**Endangered**).
- The greater part of the investigated properties have been subject to a long history of disturbance and thus are transformed from their original state.
- No Western Cape Milkwood Forest or Terrestrial CBA 1 areas have been mapped on the site. However, this vegetation type certainly occurs at the site and its presence suggests that these portions of the site should have been classified as CBA 1 areas.

- A number of areas within the properties contain remnants of the original forest vegetation and a number of protected milkwood trees (*Sideroxylon inerme* subsp. *inerme*). These forested areas are considered to be of **high botanical and ecological importance** since the forest patches are very old and locally rare. They have very high aesthetic and historical value and should be seen as an asset to the development and retained as far as possible.
- The proposed developments in Zone B and Zone F pose the greatest threat to the forest systems and the current layout plans for these areas are not supported from a botanical perspective. Zone F is of utmost concern since almost all of the proposed Milkwood Cabins are proposed for areas that contain indigenous forest. It is recommended that the number of units should be drastically reduced and the layout redrafted to ensure that minimal damage occurs to the forest system.
- All invasive species must be removed from the subject properties.
- Under the current layout and development plan a high proportion of the existing indigenous forest would be directly or indirectly negatively impacted. Owing to the high value of this forest, the currently-proposed layout is not supported from a botanical perspective. The number and positioning of the self-catering Villas and Milkwood Cabins must be reviewed. The positioning of the Milkwood Cabins are particularly unsuitable and should rather be placed in previously disturbed areas. If these aspects of the development are reviewed and changed the development would be more acceptable from a botanical perspective.

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Report Submitted: 06 August 2018

Appendix 1: Convention for assigning significance ratings to impacts.

Specialists will consider seven rating scales when assessing potential impacts. These include:

- extent;
- duration;
- intensity;
- status of impact;
- probability;
- degree of confidence; and
- significance.

In assigning significance ratings to potential impacts before and after mitigation specialists are instructed to follow the approach presented below:

1. The core criteria for determining significance ratings are “extent” (Section 6.3.1), “duration” (Section 6.3.2) and “intensity” (Section 6.3.3). The preliminary significance ratings for combinations of these three criteria are given in Section 6.3.7.
2. The status of an impact is used to describe whether the impact will have a negative, positive or neutral effect on the surrounding environment. An impact may therefore be negative, positive (or referred to as a benefit) or neutral.
3. Describe the impact in terms of the probability of the impact occurring (Section 6.3.5) and the degree of confidence in the impact predictions, based on the availability of information and specialist knowledge (Section 6.3.6).
4. Additional criteria to be considered, which could “increase” the significance rating if deemed justified by the specialist, with motivation, are the following:
 - Permanent / irreversible impacts (as distinct from long-term, reversible impacts);
 - Potentially substantial cumulative effects (see Item 7 below); and
 - High level of risk or uncertainty, with potentially substantial negative consequences.
5. Additional criteria to be considered, which could “decrease” the significance rating if deemed justified by the specialist, with motivation, is the following:
 - Improbable impact, where confidence level in prediction is high.
6. When assigning significance ratings to impacts *after mitigation*, the specialist needs to:
 - First, consider probable changes in intensity, extent and duration of the impact after mitigation, assuming effective implementation of mitigation measures, leading to a revised significance rating; and

- Then moderate the significance rating after taking into account the likelihood of proposed mitigation measures being effectively implemented. Consider:
 - Any potentially significant risks or uncertainties associated with the effectiveness of mitigation measures;
 - The technical and financial ability of the proponent to implement the measure; and
 - The commitment of the proponent to implementing the measure, or guarantee over time that the measures would be implemented.
7. The cumulative impacts of a project should also be considered. "Cumulative impacts" refer to the impact of an activity that may become significant when added to the existing activities currently taking place within the surrounding environment.
 8. Where applicable, assess the degree to which an impact may cause irreplaceable loss of a resource. A resource assists in the functioning of human or natural systems, i.e. specific vegetation, minerals, water, agricultural land, etc.
 9. The significance ratings are based on largely objective criteria and inform decision-making at a project level as opposed to a local community level. In some instances, therefore, whilst the significance rating of potential impacts might be "low" or "very low", the importance of these impacts to local communities or individuals might be extremely high. The importance which I&APs attach to impacts must be taken into consideration, and recommendations should be made as to ways of avoiding or minimizing these negative impacts through project design, selection of appropriate alternatives and / or management.

The relationship between the significance ratings after mitigation and decision-making can be broadly defined as follows (see overleaf): substance

Significance rating	Effect on decision-making
VERY LOW; LOW	Will not have an influence on the decision to proceed with the proposed project, provided that recommended measures to mitigate negative impacts are implemented.
MEDIUM	Should influence the decision to proceed with the proposed project, provided that recommended measures to mitigate negative impacts are implemented.
HIGH; VERY HIGH	Would strongly influence the decision to proceed with the proposed project.

1. Extent

"Extent" defines the physical extent or spatial scale of the impact.

Rating	Description
LOCAL	Extending only as far as the activity, limited to the site and its immediate surroundings. Specialist studies to specify extent.
REGIONAL	Western Cape. Specialist studies to specify extent.
NATIONAL	South Africa
INTERNATIONAL	

2. Duration

"Duration" gives an indication of how long the impact would occur.

Rating	Description
SHORT TERM	0 - 5 years
MEDIUM TERM	5 - 15 years
LONG TERM	Where the impact will cease after the operational life of the activity, either because of natural processes or by human intervention.
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.

3. Intensity

"Intensity" establishes whether the impact would be destructive or benign.

Rating	Description
ZERO TO VERY LOW	Where the impact affects the environment in such a way that natural, cultural and social functions and processes are not affected.
LOW	Where the impact affects the environment in such a way that natural, cultural and social functions and processes continue, albeit in a slightly modified way.
MEDIUM	Where the affected environment is altered, but natural, cultural and social functions and processes continue, albeit in a modified way.
HIGH	Where natural, cultural and social functions or processes are altered to the extent that it will temporarily or permanently cease.

4. Loss of resources

"Loss of resource" refers to the degree to which a resource is permanently affected by the activity, i.e. the degree to which a resource is irreplaceable.

Rating	Description
LOW	Where the activity results in a loss of a particular resource but where the natural, cultural and social functions and processes are not affected.
MEDIUM	Where the loss of a resource occurs, but natural, cultural and social functions and processes continue, albeit in a modified way.
HIGH	Where the activity results in an irreplaceable loss of a resource.

5. Status of impact

The status of an impact is used to describe whether the impact would have a negative, positive or zero effect on the affected environment. An impact may therefore be negative, positive (or referred to as a benefit) or neutral.

6. Probability

"Probability" describes the likelihood of the impact occurring.

Rating	Description
IMPROBABLE	Where the possibility of the impact to materialize is very low either because of design or historic experience.
PROBABLE	Where there is a distinct possibility that the impact will occur.
HIGHLY PROBABLE	Where it is most likely that the impact will occur.
DEFINITE	Where the impact will occur regardless of any prevention measures.

7. Degree of confidence

This indicates the degree of confidence in the impact predictions, based on the availability of information and specialist knowledge.

Rating	Description
HIGH	Greater than 70% sure of impact prediction.
MEDIUM	Between 35% and 70% sure of impact prediction.
LOW	Less than 35% sure of impact prediction.

8. Significance

"Significance" attempts to evaluate the importance of a particular impact, and in doing so incorporates the above three scales (i.e. extent, duration and intensity).

Rating	Description
VERY HIGH	Impacts could be EITHER: of high intensity at a regional level and endure in the long term ; OR of high intensity at a national level in the medium term ;

Rating	Description
	OR of medium intensity at a national level in the long term .
HIGH	Impacts could be EITHER: of high intensity at a regional level and endure in the medium term ; OR of high intensity at a national level in the short term ; OR of medium intensity at a national level in the medium term ; OR of low intensity at a national level in the long term ; OR of high intensity at a local level in the long term ; OR of medium intensity at a regional level in the long term .
MEDIUM	Impacts could be EITHER: of high intensity at a local level and endure in the medium term ; OR of medium intensity at a regional level in the medium term ; OR of high intensity at a regional level in the short term ; OR of medium intensity at a national level in the short term ; OR of medium intensity at a local level in the long term ; OR of low intensity at a national level in the medium term ; OR of low intensity at a regional level in the long term .
LOW	Impacts could be EITHER of low intensity at a regional level and endure in the medium term ; OR of low intensity at a national level in the short term ; OR of high intensity at a local level and endure in the short term ; OR of medium intensity at a regional level in the short term ; OR of low intensity at a local level in the long term ; OR of medium intensity at a local level and endure in the medium term .
VERY LOW	Impacts could be EITHER of low intensity at a local level and endure in the medium term ; OR of low intensity at a regional level and endure in the short term ; OR of low to medium intensity at a local level and endure in the short term .
INSIGNIFICANT	Impacts with: Zero to very low intensity with any combination of extent and duration.
UNKNOWN	In certain cases it may not be possible to determine the significance of an impact.

9. Degree to which impact can be mitigated

This indicates the degree to which an impact can be reduced / enhanced.

Rating	Description
NONE	No change in impact after mitigation.
VERY LOW	Where the significance rating stays the same, but where mitigation will reduce the intensity of the impact.
LOW	Where the significance rating drops by one level, after mitigation.
MEDIUM	Where the significance rating drops by two to three levels, after mitigation.
HIGH	Where the significance rating drops by more than three levels, after mitigation.

10 Reversibility of an impact

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

Rating	Description
IRREVERSIBLE	Where the impact is permanent.
PARTIALLY REVERSIBLE	Where the impact can be partially reversed.
FULLY REVERSIBLE	Where the impact can be completely reversed.

Appendix 2: Botanical Assessment Content Requirements of Specialist Reports, as prescribed by Appendix 6 of GN 982, as amended.

Regulation	Content as required by NEMA	Specialist Report Section/Annexure Reference
1 (1) (a)	Details of-	Page 2
	(i) The specialist who prepared the report; and (ii) The expertise of that specialist to compile a specialist report, including a CV.	Page 2 and Page 49
1 (1) (b)	A declaration that the specialist is independent in a form as may be specified by the competent authority.	Page 4
1 (1) (c)	An indication of the scope of, and purpose for which, the report is prepared.	Page 8
1 (1)(cA)	An indication of the quality and age of base data used for the specialist report.	Page 9
1 (1)(cB)	A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change.	Page 19-25
1 (1) (d)	The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment.	Page 9 and Page 13
1 (1) (e)	A description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used.	Page 9
1 (1) (f)	Details of an assessment of the specifically identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives.	Page 30 - 40
1 (1) (g)	An identification of any areas to be avoided, including buffers.	Page 25 – 30
1 (1) (h)	A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers.	Page 27 – 28 and Page 29
1 (1) (i)	A description of any assumptions made and any uncertainties or gaps in knowledge.	Page 13

Regulation	Content as required by NEMA	Specialist Report Section/Annexure Reference
1 (1) (j)	A description of the findings and potential implications of such findings on the impact of the proposed activity or activities.	Page 40 – 41
1 (1) (k)	Any mitigation measures for inclusion in the EMPr.	Page 40
1 (1) (l)	Any conditions for inclusion in the environmental authorisation.	Page 41
1 (1) (m)	Any monitoring requirements for inclusion in the EMPr or environmental authorisation	N/A
1 (1) (n)	A reasoned opinion-	Page 41
	(i) whether the proposed activity, activities or portions thereof should be authorised; and	
	(iA) regarding the acceptability of the proposed activity or activities; and	
	(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Page 40 – 41
1 (1) (o)	A description of any consultation process that was undertaken during the course of preparing the specialist report	N/A
1 (1) (p)	A summary and copies of any comments received during any consultation process and where applicable, all responses thereto	N/A
1 (1) (q)	Any other information requested by the competent authority	N/A

Appendix 3: Abbreviated Curriculum Vitae: Greg Nicolson

Experience

- Expertise in field work in the CFR – vegetation surveys, plant identification, plant collection, ecological monitoring
- Data management and analysis
- Basic skills in GIS programs
- Vegetation and species mapping
- MSc thesis entitled “ *Road reserves as conservation assets: exploring the species of conservation concern and the ecological condition of the N7 road reserve*”. Graduation date: December 2010
- Experience leading teams of field assistants in remote mountainous areas
- Completed over 50 botanical survey/assessment reports

Career History

- March 2013 – present: independent botanical specialist and associate of Bergwind Botanical Surveys & Tours CC
- March 2011 – December 2012: conducted a comprehensive post fire survey of the Paardeberg (Paardeberg Sustainability Institute)

Education and qualifications

- Pr. Sci. Nat. (116488)
- MSc (Botany) – University of Cape Town (2010).
- BSc: Hons (Env. Science) – University of Cape Town (2005)
- BSc: Environmental and Geographical Science - University of Cape Town (2002 – 2004)

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