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Pri.Sci.Nat # 400045/08

TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT FOR THE PROPOSED SUBDIVISION OF A PORTION OF REMAINDER OF LOT 1 AND LOT 266, RIVERSDALE, WESTERN CAPE.

Compiled for: Kapp Environmental Consultants, Mossel Bay

Client: Hessequa Municipality

1 June 2023

DECLARATION OF INDEPENDENCE

In terms of Chapter 5 of the National Environmental Management Act of 1998 specialists involved in Impact Assessment processes must declare their independence and include an abbreviated Curriculum Vitae.

I, N.A. Helme, do hereby declare that I am financially and otherwise independent of the client and their consultants, and that all opinions expressed in this document are substantially my own.

NA Helme

ABRIDGED CV:

Contact details as per letterhead.
Surname : HELME
First names : NICHOLAS ALEXANDER
Date of birth : 29 January 1969
University of Cape Town, South Africa. BSc (Honours) – Botany (Ecology & Systematics), 1990.

Since 1997 I have been based in Cape Town, and have been working as a specialist botanical consultant, specialising in the diverse flora of the south-western Cape. Since the end of 2001 I have been the Sole Proprietor of Nick Helme Botanical Surveys, and have undertaken over 1700 site assessments in this period.

A selection of relevant previous botanical work is as follows:

- Botanical assessment of Zeekoevlei weir upgrades (Infinity Environmental 2022)
- Botanical assessment of proposed development on Ptn 29 of Farm 410 Caledon (PHS Consulting 2022)
- Botanical assessment of proposed development on Ptn 10 of Broken Hill 88, Heidelberg (Isikhova 2021)
- Botanical assessment of Ptns 3 & 6 of Farm 563 Kleinmond (Lornay Environmental 2021)
- Botanical assessment of Ptn 9 of Farm 429 Gabrielskloof, Caledon (Infinity Environmental 2021)

- Baseline ecological assessment of Karwyderskraal 584, Caledon (Terramanzi 2021)
- Botanical impact assessment of proposed development of Ptn 29 of Farm 410, Caledon (PHS Consulting 2021)
- Botanical assessment of proposed new cultivation on Welbedacht farm, Tra Tra Mountains (Footprint Environmental 2020)
- Biodiversity Compliance Statement - Philippi erf 1/1460 (Infinity Environmental 2020)
- Botanical assessment of Kleinmond WWTW expansion (Aurecon 2020)
- Botanical assessment of Mooreesburg WWTW expansion (Aurecon 2020)
- Botanical assessment of Struisbaai cemetery sites (Infinity Environmental 2020)
- Botanical assessment of MoPama development site, Swellendam (Landscape Dynamics 2020)
- Botanical assessment of Ptn of Rem of Erf 1 Caledon (Theewaterskloof Municipality 2019)
- Botanical assessment of proposed new cultivation on Portion of Wittewater 148, Piketberg (Cornerstone Environmental 2019)
- Botanical assessment of Droogerivier farm Leipoldtville (Footprint Environmental 2018)
- Botanical assessment of Sebulon farm, Redelinghuys (Natura Libra Environmental Services 2018)
- Botanical assessment of proposed new cultivation on Ptn 2 of farm Groenevalley 155, Piketberg (Cederberg Environmental Assessment Practise 2017)
- Botanical assessment of proposed new cultivation on farm Rosendal, Koue Bokkeveld (Cederberg Environmental Assessment Practise 2016)
- Botanical assessment of proposed cultivation on farm Kransvlei, Clanwilliam (Cederberg Environmental Assessment Practise 2016)
- Botanical assessment of proposed cultivation on farm Erfdeel, Bo-Swaarmoed, Ceres (Cederberg Environmental Assessment Practise 2016)
- Botanical constraints in a northern corridor across Ptns 2 and 3 of Farm Frankendale 152, Vissershok (Urban Dynamics 2014).

CONDITIONS RELATING TO THIS REPORT:

The methodology, findings, results, conclusions and recommendations in this report are based on the author's best scientific and professional knowledge, and on referenced material and available knowledge. Nick Helme Botanical Surveys and its staff reserve the right to modify aspects of the report, including the recommendations and conclusions, if and when additional relevant information becomes available.

This report may not be altered or added to without the prior written consent of the author, and this also applies to electronic copies of this report, which are supplied for purposes of inclusion in other reports, including in the report of EAPs. Any recommendations, statements or conclusions drawn from or based on this report must cite this report, and should not be taken out of context, and may not change, alter or distort the intended meaning of the original in any way. If these extracts or summaries form part of a main report relating to this study or investigation this report must be included in its entirety as an appendix or separate section to the main report.

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1. INTRODUCTION

This terrestrial biodiversity (ecology) compliance statement was requested to inform the environmental planning and authorisation process being followed for the potential subdivision and development of Lot 266 and a Portion of the Remainder of Lot 1, Riversdale, in the Western Cape (Figure 1). A single development layout was presented for assessment (Figure 2).

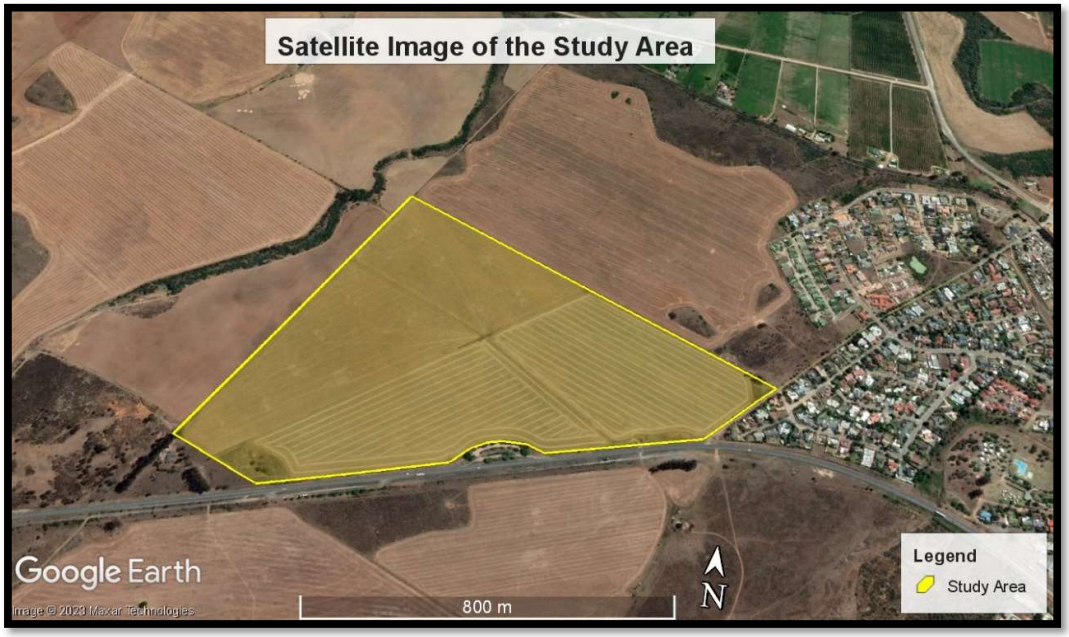

Figure 1: Satellite image showing the location of the study area. Satellite image dated October 2022.

Figure 2: The proposed development layout, as assessed.

2. TERMS OF REFERENCE

The terms of reference for this study were as follows:

- Compile a desktop Compliance Statement that identifies and describes the vegetation and fauna in the study area and place it in a regional context, including its status in terms of the CapeNature Spatial Biodiversity Plan for the area (CBA/ESA/ONA, etc)
- Identify and locate any (likely) plant and faunal Species of Conservation Concern in the study area, based on literature and iNaturalist website review
- Provide an overview of the ecological conservation significance (sensitivity) of the study area
- Indicate how the ecological status of the site differs from the Screening Tool products
- Identify and assess potential impacts of the proposed site development, including impacts associated with the construction and operational phases, using standard impact rating methodology
- Recommend mitigation measures to avoid and/or minimise impacts and/or optimise benefits associated with the proposed project.

3. LIMITATIONS, ASSUMPTIONS AND METHODOLOGY

No site visit was undertaken for this study. The author has undertaken extensive work within the region, including on various sites within 5km of the study area, which facilitates the making of local and regional comparisons and inferences of habitat quality and conservation value. The study area is also largely cultivated, with little or no natural vegetation or habitat remaining, and recent colour site photographs were provided to the author by the EAP. The confidence in the accuracy of the botanical and faunal findings is high.

The biodiversity website iNaturalist.org was consulted (only three observations from this site). Satellite imagery dated October 2022 (and earlier) was used to inform this assessment, and for mapping. It is assumed that any development would result in the permanent loss of all natural or partly natural vegetation and faunal habitat in that area.

The botanical sensitivity of a site is a product of plant species diversity, plant community composition, rarity of habitat, degree of habitat degradation, rarity of species, ecological viability and connectivity, restorability of habitat, vulnerability to impacts, and reversibility of threats.

The meaning of the No Go alternative in this case is assumed to mean ongoing cultivation as the primary landuse.

4. REGIONAL CONTEXT OF THE VEGETATION

The study area is part of the East Coast Renosterveld bioregion (Mucina & Rutherford 2006), and is part of the Fynbos biome, located within what is now known as the Core Region of the Greater Cape Floristic Region (GCFR; Manning & Goldblatt 2012). The GCFR is one of only six Floristic Regions in the world, and is the only one largely confined to a single country (the Succulent Karoo component extends into southern Namibia). It is also by far the smallest floristic region, occupying only 0.2% of the world's land surface, and supporting about 11500 plant species, over half of all the plant species in South Africa (on 12% of the land area). At least 70% of all the species in the Cape region do not occur elsewhere, and many have very small home ranges (these are known as narrow endemics). Many of the lowland habitats are under pressure from agriculture, urbanisation and alien plants, and thus many of the range restricted species are also under severe threat of extinction, as habitat is reduced to extremely small fragments. Data from the nationwide plant Red Listing project indicate that 67% of the threatened plant species in the country occur only in the southwestern Cape, and these total over 1800 species (Raimondo *et al* 2009). It should thus be clear that the southwestern Cape is a major national and global conservation priority, and is quite unlike anywhere else in the country in terms of the number of threatened plant species.

The East Coast Renosterveld bioregion is characterised by moderate winter rainfall, relatively rich loamy soils, fairly low topographic diversity, few urban areas and high levels of cultivation. Due mostly to the intense cultivation the loss of natural vegetation in this bioregion has been severe (>80% of original extent lost within the region), and the bioregion has a very high number of threatened plant species (Raimondo *et al* 2009).

The CapeNature Spatial Biodiversity Network (see Figure 3) shows that there are two small patches of terrestrial CBA2 (degraded) in the eastern and western corners of the site, and a small patch of ESA2 (watercourse) in the centre of the site – which is clearly a mapping error, as the latter is all cultivated land. Neither of the two small CBA2 areas is supported by my observations (including time series Google Earth imagery), as both areas are very degraded and dominated by weedy grasses, and would not contribute substantially to Renosterveld pattern or process in this area.

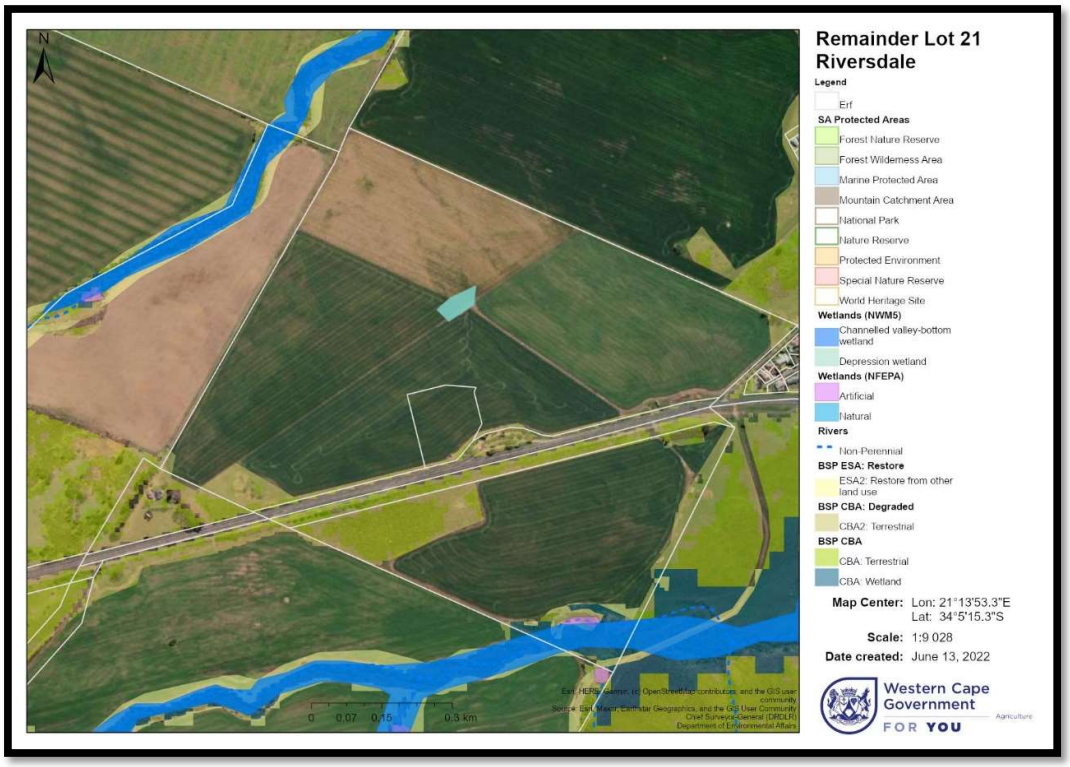

Figure 3: Extract of the CapeNature Spatial Biodiversity Plan (Pence 2017) for the area, showing that there are two small patches of terrestrial CBA2 in the eastern and western corners, and a small patch of ESA2 (watercourse) in the centre of the site – which is clearly a mapping error.

5. THE VEGETATION AND ITS SENSITIVITY

According to the SA Vegetation Map the original natural vegetation in the study area is all Eastern Ruens Shale Renosterveld (Mucina & Rutherford 2018), and I agree with this. No copy of the vegetation map is provided as it adds little value.

Eastern Ruens Shale Renosterveld is gazetted as **Critically Endangered** on a national basis (Government of South Africa 2022), with less than 19% of its total original extent remaining intact, less than 1% conserved, and a national conservation target of 27% (Rouget *et al* 2004). The unit supports a very high number of threatened and endemic plant species, and occurs on nutrient rich, shale derived soils in the lowland area between Swellendam and Albertinia, and the vegetation type needs fire for optimal ecological functioning (Helme and Rebelo 2016).

There is essentially no natural vegetation remaining on site, as >97% of the site is regularly cultivated. The two small patches of CBA2 may support some low

diversity, partly natural vegetation, one on the eastern corner and on the western corner, but have both clearly been moderately to heavily disturbed, and were used as dumping grounds for rocks, equipment, animal feed and storage areas for farm implements over many years. The areas also each support a few alien trees, probably for livestock shade, in the form of gums (*Eucalyptus* sp.) and rooikrans (*Acacia cyclops*).

The vegetation in the study area is deemed to be of Very Low sensitivity, with the two small, partly natural remnants (terrestrial CBA2 areas) being of Low sensitivity at a regional scale.

5.1 Plant Species of Conservation Concern (SoCC)

No plant Species of Conservation Concern (SoCC) are likely to be present anywhere within the study area, given its long history of agricultural disturbance.

6. FAUNA

The fauna on site is likely to be depauperate, given the heavily disturbed and agricultural nature of the site, with no wetlands, and no significant natural vegetation or habitat diversity. Few faunal species are likely to be resident, other than perhaps a limited number of common insects and rodents in the CBA2 patches, and all other fauna in the area is likely to be merely traversing the site.

Blue Cranes (*Anthropoides paradiseus*; Near Threatened) are present in the area and may occasionally visit the site, but are certainly not dependant on habitat on site. This is probably the most likely Redlisted faunal species in the study area, but it probably only occurs here an average of <5 days per year.

No threatened butterflies are likely to utilise the site, given the absence of natural vegetation, although this cannot be ruled out without a survey (Mecenero *et al* 2013).

7. IMPACT ASSESSMENT

7.1 Construction Phase (Direct) Ecological Impacts

It can safely be assumed that the primary construction phase ecological impact of the proposed subdivision and development would be permanent loss of any of the existing natural and partly natural vegetation and faunal habitat in the development footprints (essentially the two areas mapped as CBA2; gazetted as a

Critically Endangered vegetation type). No plant or faunal Species of Conservation Concern are likely within the actual site.

The overall ecological significance of this direct vegetation and faunal habitat loss for the proposed layout is **Low negative before and after mitigation.**

The No Go alternative would clearly have a slightly lower direct (construction phase) ecological impact than the proposed development - presumably best rated as Neutral, and would thus be marginally preferred.

The extent of the impacts are deemed to be local and regional, but also national, in that the vegetation types and threatened species are also assessed at a national level.

Development Alternative	Extent of impact	Duration of impact	Intensity	Probability of impact	Irreplaceable loss of biodiversity	Significance before mitigation	Significance after mitigation
Proposed Layout	Mainly local	Permanent	High	Definite	Low	Low -ve	Low -ve
No Go	Local	Unknown and variable	Neutral to low negative	Not likely	Low	Neutral	Neutral

Table A: Summary table for construction phase ecological impacts associated with the proposed development layout. The primary construction phase impacts would be permanent loss of the small areas of partly natural vegetation (gazetted as a Critically Endangered vegetation type) and loss of a few widespread faunal species and habitat in the development footprint

7.2 Operational Phase Botanical Impacts

Operational phase impacts will take effect as soon as any of the natural vegetation and faunal habitat on the site is lost or disturbed, and will persist in perpetuity, or as long as those areas are not rehabilitated. Operational phase impacts may include loss of current low levels ecological connectivity across the site and associated habitat fragmentation. This will affect fauna and flora.

Overall the operational phase ecological impacts of the proposed development here are likely to be **Low negative** before and after mitigation.

The No Go alternative would possibly have a slightly lower indirect (operational phase) ecological impact than the proposed development, and would thus be slightly preferred.

No notable positive ecological impacts are likely to be realised as part of this the development of this area.

Development Alternative	Extent of impact	Duration of impact	Intensity	Probability of impact	Irreplaceable loss of biodiversity	Significance before mitigation	Significance after mitigation
Proposed layout	Mainly local	Permanent	Med to High	Definite	Low	Low -ve	Low -ve
No Go	Local	Unknown and variable	Neutral to low negative	Likely	Low	Neutral to Low negative	Neutral to Low negative

Table B: Summary table for operational phase ecological impacts associated with the proposed layout. The operational phase impacts would mainly be loss of current low levels of ecological connectivity across the site and associated habitat fragmentation.

7.3 The No Go Alternative

The No Go alternative (continuation of the *status quo)* on this site would have slightly lower construction and operational phase ecological impact (Neutral to Low negative) than the possible development, and would thus be the marginally preferred alternative from an ecological perspective.

7.4 Cumulative Impacts

The cumulative ecological impacts are in many ways equivalent to the regional ecological impacts, in that the vegetation type to be impacted by the proposed development has been, and will continue to be, impacted by numerous developments and other factors (the cumulative impacts) within the region. The primary cumulative impacts in the region are loss of natural vegetation and faunal habitat and threatened plant species to ongoing agriculture, urban development and alien plant invasion (Mucina & Rutherford 2012; Helme *et al* 2016).

The overall cumulative ecological impact of development of this site at the local and regional scale is Low negative, as there is essentially no natural vegetation or faunal habitat currently on site.

7.5 Positive Impacts

No significant positive ecological impacts of the proposed development are likely during either the construction or the operational phase.

8. REQUIRED MITIGATION

No specific ecological mitigation is required for the proposed subdivision and development, given the already heavily degraded nature of the site.

9. CONCLUSIONS AND RECOMMENDATIONS

- There is essentially no natural vegetation remaining on site, as >97% of the site is regularly cultivated. The two small patches of CBA2 may support some low diversity, partly natural vegetation, one on the eastern corner and on the western corner, but both have clearly been moderately to heavily disturbed.
- The vegetation in the study area is deemed to be of Very Low sensitivity, with the small patches of partly natural remnants (the terrestrial CBA2 areas) being of Low sensitivity at a regional scale.
- Overall both the construction and operational phase ecological impacts of the proposed subdivision and development here are likely to be **Low negative** before and after mitigation.
- No specific ecological mitigation is required for the proposed subdivision and development, given the already heavily degraded nature of the site.
- The site presents no significant ecological constraints to the proposed subdivision and development.

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