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Pri.Sci.Nat # 400045/08

BOTANICAL ASSESSMENT FOR SECTION 24G PROCESS, PTN 7 OF FARM ZOUTEKLOOF 116 AND FARM SCHIETPAD 326, BREDASDORP, WESTERN CAPE.

Compiled for: Lornay Environmental Consulting

Applicant: Schietpad Plase Boerdery (Mr A Wessels)

21 March 2024

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

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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:

- Scoping and Constraints studies for Cape Winelands Airport (PHS Consulting 2022-2024)
- Macassar WWTW IA (Zutari 2023)
- Strandfontein Coastal Node IA (Infinity Environmental 2024)
- Hazendal Ptns 31 & 33 (Monique Sham 2024)
- N7 weighbridge IA (SES 2023)
- 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)

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 botanical assessment was requested to inform the Section 24g environmental rectification and authorisation process being followed for the alleged unauthorised cultivation of land on Portion 7 of farm Zoutekloof 116 and on farm Schietpad 326, in the Napier area (Bredasdorp district) of the Western Cape. Schietpad 326 is 909ha in extent, and Ptn 7 of Zoutekloof 116 is 94ha. The applicant also owns an adjacent property (Windhoek 367) but this is not part of the current application, and is hence not assessed. The alleged unauthorised cultivation and vegetation loss took place in the 17 areas marked in green in Figure 1, over the period 2014-2023, and these areas total about 11.17ha on Schietpad and another 1.3ha on Zoutekloof, making a total of about 12.47ha.

According to CapeNature (letter dated 10 Dec 2023) a total of thirteen patches of vegetation clearing were identified in the S24G Report, and they noted that the pre-compliance (20 June 2022) and compliance notice (28 Aug 2022) only referred to two patches. CapeNature notes that all patches of indigenous vegetation that have been cleared within the legislated 10 year timeframe and had not been cleared in the preceding 10 years must be included within the S24G application – and this is why I specifically remapped the entire area (see Figure 1), resulting in 17 mapped areas of vegetation loss. It is noted that there is likely to have been additional vegetation clearing in the ten years prior to 2014, but that it is excluded from this report.

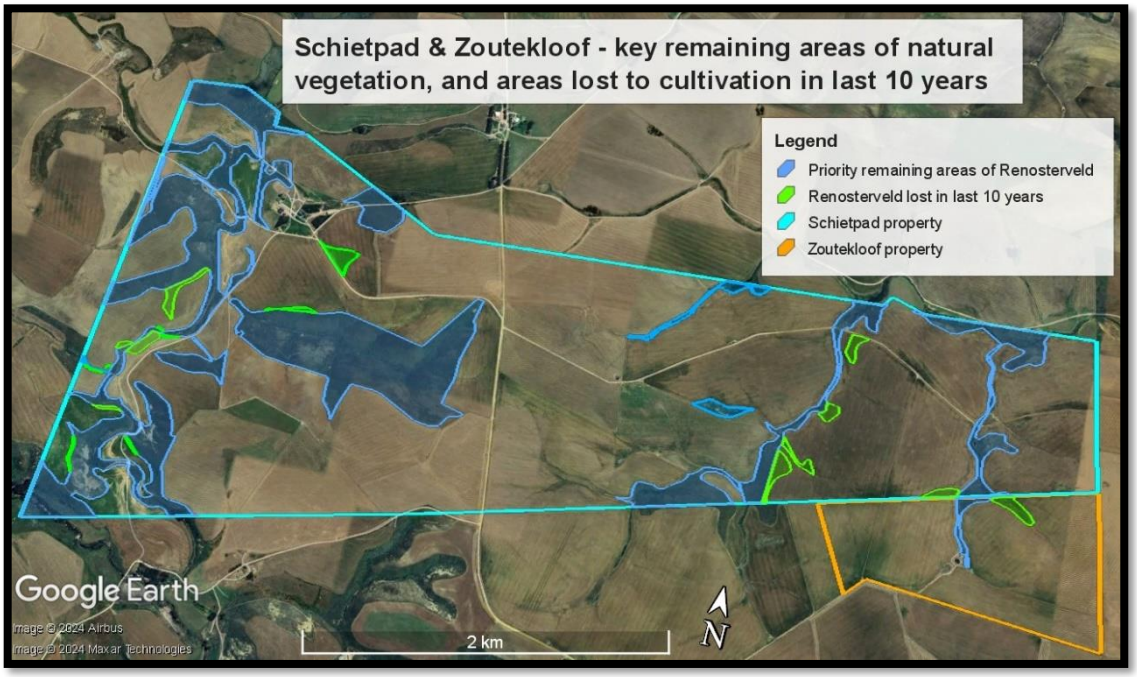

Figure 1: Satellite image showing the areas of unauthorised cultivation and vegetation loss over the last ten years (in green; totalling 12.47ha). These areas are derived from a

comparison between satellite imagery from January 2024 and January 2014. Satellite image dated January 2024.

2. TERMS OF REFERENCE

The terms of reference for this study were as follows:

- Undertake a site visit to assess the current status of the vegetation in the study area, looking specifically at the areas cleared in the last ten years, and including in the adjacent uncultivated areas
- Identify and describe the vegetation in the study area and place it in a regional context, including its status in terms of the CapeNature Spatial Biodiversity Plan (CBA/ESA/ONA, etc)
- Identify and locate any (likely) plant Species of Conservation Concern in the study area (adjacent, and likely in the recently cultivated areas), based on observation, literature (including previous studies) and iNaturalist website review
- Identify and assess (according to standard IA methodology) the significance of the botanical impacts of the unauthorised clearing (about 12ha) that has taken place, including impacts associated with the construction and operational phases
- Identify and describe the potential cumulative impacts of the cultivation in relation to proposed and existing developments in the surrounding area
- Recommend mitigation measures to avoid, minimise and mitigate impacts associated with the cultivation, including possible biodiversity offsets or on-site conservation contributions.

3. LIMITATIONS, ASSUMPTIONS AND METHODOLOGY

The site was visited on 5 March 2024. This was well outside the optimal winter – spring flowering season in this mainly winter rainfall area, and most (but not all) of the likely geophytes were thus not flowering (and few were evident and identifiable), whilst all perennial plants were identifiable. There were thus some moderate to high seasonal constraints on the accuracy and detail of the botanical findings, but given the heavy dominance of perennials in this area – which in a Fynbos system can usually be used as indicators of habitat sensitivity - the confidence in the accuracy of the botanical findings is fairly high, especially as detailed floristic information is not required for a report of this nature. Given the constraints a habitat based approach was taken, where likely habitat diversity and quality in the cultivated focus areas is inferred from the position in the landscape, adjacent remnant habitat, and time series satellite imagery. The

author has undertaken extensive work within the region, which facilitates the making of local and regional comparisons and inferences of habitat quality and conservation value.

Much of the property was driven, and many of the indigenous plants on site were noted. Most of the cultivated target areas were viewed from closeup, and some of the adjacent patches of natural vegetation were examined on foot. Photographs of some of the key plant species were made using a Fuji mirrorless slr camera, and have been uploaded to the biodiversity website iNaturalist.org. Satellite imagery dated January 2024 (and earlier time series, going back to 2011) was used to inform this assessment, and for mapping. Polygon areas were calculated using Google Earth.

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 difficult to define, and is not particularly relevant, as the focus areas are now cultivated production lands.

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 relatively high rainfall (mostly in winter), moderate rainfall gradients, rich, loamy soils, moderate topographic diversity, and very extensive cultivation (mostly for cereals) and sheep farming. Due to this combination of factors the loss of natural vegetation in this bioregion has been severe (>60% 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 Plan (2017) for the area (Figure 2) shows that most of the Renosterveld patches are mapped as high priority CBA1 (Critical Biodiversity Areas, terrestrial), with drainage lines mapped as ESA2 and CBA1 (wetland). There are some errors in the mapping (both over and under mapping of Renosterveld) but it is generally fairly accurate and shows good congruence with my sensitivity mapping.

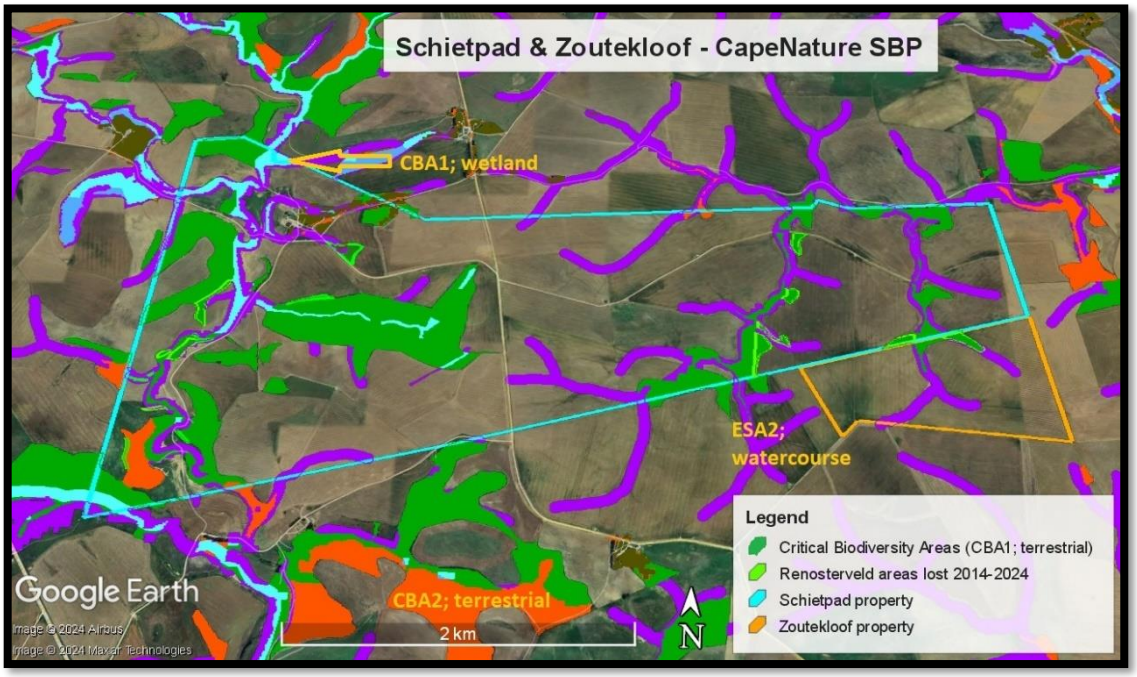

Figure 2: Extract of the CapeNature Spatial Biodiversity Plan (2017) for the area, showing that most of the Renosterveld patches are mapped as high priority CBA1 (Critical Biodiversity Areas, terrestrial), with drainage lines mapped as ESA2 and CBA1 (wetland).

It is clear from the mapping that there has been some loss of CBA1 Renosterveld on site since the CapeNature mapping imagery was taken (2014 - 2016). The large area of CBA2 in the southwest of the site (and south of the site) has been erroneously interpreted by the software as being degraded, when in reality it is just a naturally sparsely vegetated clay area of high ecological sensitivity, and should thus be CBA1.

5. THE VEGETATION

According to the SA Vegetation Map there are two original natural vegetation types in the study area – Western Ruens Shale Renosterveld and Central Ruens Shale Renosterveld (Mucina & Rutherford 2018; see Figure 3). Based on my ground-truthing I largely agree with this mapping.

Western Ruens Shale Renosterveld is gazetted as **Critically Endangered** on a national basis (Government of South Africa 2022), with about 14% 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 fairly high number of endemic plant species, many threatened species, and occurs on nutrient rich, shale derived soils in the western Overberg, and the vegetation type needs fire for optimal ecological functioning (Helme *et al* 2016).

Central Ruens Shale Renosterveld is also gazetted as **Critically Endangered** on a national basis (Government of South Africa 2022), with less than 13% 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 fairly high number of endemic plant species, many threatened species, and occurs on nutrient rich, shale derived soils in the central Overberg, and the vegetation type needs fire for optimal ecological functioning (Helme *et al* 2016).

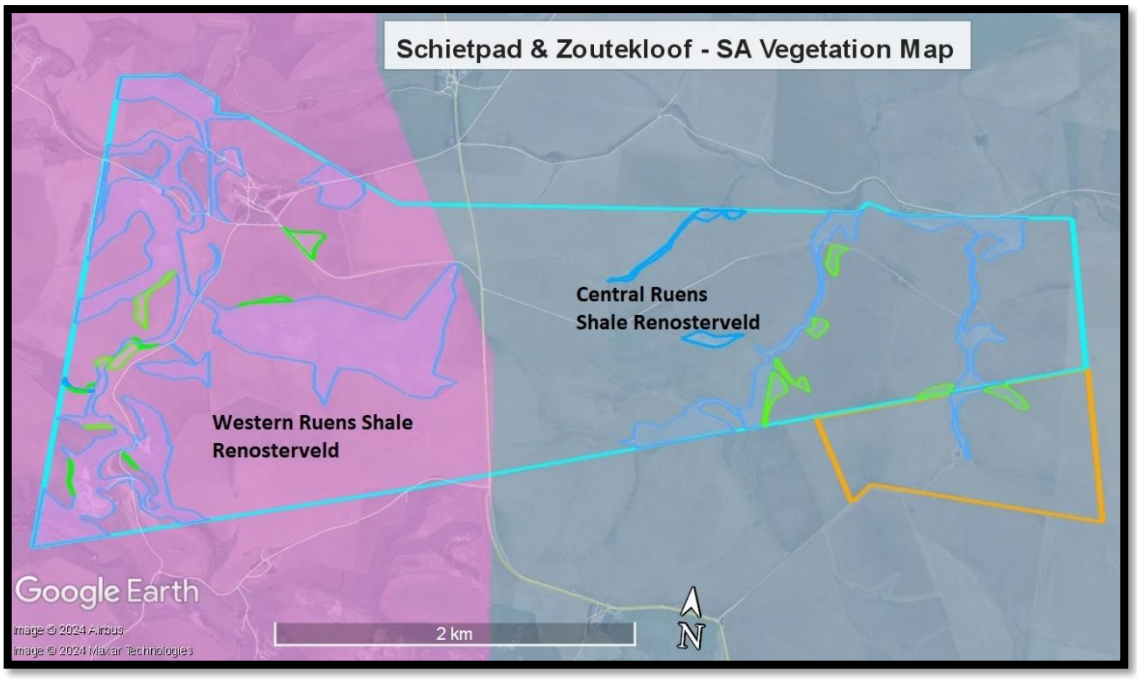

Figure 3: Extract of the SA Vegetation Map, showing the two mapped vegetation types in the study area. Blue polygons are remaining Renosterveld, green areas are areas cleared 2014-2024.

Some of the remaining vegetation has been burnt in the last 5-8 years (Mr Wessels - pers. comm.), but other patches have not been burnt for at least fifteen years, and this is a common problem in natural areas between cultivated, production lands, as landowners are reluctant to allow wild fires to burn through their veld, or undertake controlled burns, as the risk of losing crops and infrastructure can be high. Vegetation that has not burnt for more than 12 years in this area can usually be regarded as senescent (some species dying of old age; diversity dropping), as this type of Renosterveld should burn once every 8-12 years for optimal ecological functioning (Helme *et al* 2016).

The remaining natural vegetation on the study area – a total of about 172ha - ranges from uninvaded to quite heavily impacted by alien invasive vegetation. The most common invasives are alien grasses such as rye grass (*Lolium*) and oats (*Avena*), mainly in drainage lines and areas where livestock are fed, and woody invasives are rare, except in the area shown in Plate 2, on the boundary between Zoutkraal and Schietpad. Here the drainage line and adjacent areas have been invaded by Port Jackson (*Acacia saligna*), which in this fairly small area covers 10-25% of the area.

The general Renosterveld matrix is not described here in any detail, other than to say it is usually in good condition, is species rich, and has all the microhabitats and plant communities that one would expect for Renosterveld in the area.

The Renosterveld areas (approximately 12ha) cleared in the study area during the last ten years have all been cultivated (ripped, ploughed, sown, fertilized) repeatedly since first clearing and thus currently have low rehabilitation potential.

Plate 1: View of fallow lands and intact Renosterveld in the central western part of Schietpad, looking southwest.

Plate 2: View of degraded Renosterveld in drainage line (with invasive Port Jackson) on Schietpad, looking east across fence to the area cleared in 2018 (also in drainage line) on Zoutkloof.

Plate 3: Intact Renosterveld and cultivated areas on the southern edge of Schietpad, looking west.

Plate 3: *Athanasia pectinata*, is a summer flowering shrub only known from the central Ruens, and is Redlisted as Vulnerable. The species was seen in drainage lines and sparsely vegetated alluvium in the western part of the study area.

5.1 Plant Species of Conservation Concern (SoCC)

Two plant Species of Conservation Concern (SoCC) was recorded during the survey. Many others (maybe 5-10) are likely to occur in the remaining Renosterveld areas, most of which are likely to be spring or winter flowering bulbs.

Athanasia pectinata (see Plate 3) is a summer flowering shrub endemic to a small area in the central Ruens, and is Redlisted as Vulnerable. The species was seen in drainage lines and sparsely vegetated alluvium in the western part of the study area, where it is uncommon (<50 plants), but the site population is regionally and nationally important.

Haworthia mirabilis is a succulent Redlisted as Data Deficient (taxonomy), and is quite common in suitable rocky habitat in the Ruens, and on site.

Other SoCC that may occur on site include *Watsonia aletroides* (Near Threatened), *Freesia caryophyllacea* (Near Threatened), *Tritoniopsis flexuosa* (Endangered), *Elegia squamosa* (Endangered), *Aristea teretifolia* (Endangered) and *Gladiolus abbreviatus* (Vulnerable).

6. IMPACT ASSESSMENT

6.1 Construction Phase (Direct) Botanical Impacts

It can safely be assumed that the primary construction phase botanical impact of the cultivation was loss of all of the existing natural and partly natural vegetation in the development footprints (in this case in the study period between Jan 2014 and Jan 2024). The two relevant vegetation types are now gazetted (and probably were at the time of loss) as Critically Endangered on a national basis. It has been calculated that at least 12.47ha of Renosterveld was lost over this period on the two properties (see Figure 1).

The presence or absence of plant Species of Conservation Concern in the cultivated areas has to be inferred from adjacent, currently natural areas. However, the survey was undertaken in the middle of the dry season and thus few such species were recorded (Helme 2016), but this author believes it likely that 2-5 plant SoCC may have occurred in the 12ha of Renosterveld lost.

The botanical significance of this vegetation loss is <u>High negative</u> before mitigation, given that these are Critically Endangered vegetation types.

The No Go alternative would clearly have had a lower direct (construction phase) botanical impact than the cultivation - presumably best rated as Neutral.

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.

Impact	Extent of impact	Duration of impact	Intensity	Probability of impact	Irreplaceable loss of biodiversity	Significance before mitigation	Significance after mitigation *
Loss of 12.47ha of Renosterveld (Critically Endangered)	Local & regional	Permanent	High	Definite	High	High -ve	Medium -ve
No Go	Local	Unknown and variable	Neutral to low negative	Not likely	Low	Neutral	Neutral

Table A: Summary table for construction phase botanical impacts associated with the unauthorised loss of natural vegetation in the study area between 2014 and 2024. The primary construction phase impacts are permanent loss of natural and partly natural vegetation in the study area, including possible loss of an estimated 2-5 plant SoCC. *Mitigation in this case has not yet been implemented, and includes all steps required in Section 7 of this report.

6.2 Operational Phase Botanical Impacts

Operational phase impacts will take effect as soon as the natural vegetation in the focus areas is lost or disturbed (has already occurred at 17 mapped areas), and will persist in perpetuity, or as long as the area is not fully rehabilitated (not possible). Operational phase impacts include loss of previous levels of ecological connectivity across the various areas (including in drainage lines), and associated habitat fragmentation, plus some reduction in overall viability of the Critically Endangered vegetation types at a local and regional scale.

Overall the operational phase botanical impacts of the new cultivation in the 17 mapped areas is likely to have been **Medium negative** (prior to mitigation).

The No Go alternative would clearly have a lower indirect (operational phase) botanical impact than the new cultivation of these areas.

Positive ecological impacts could be realised in the future only if the applicant implements all required mitigation.

Development Area	Extent of impact	Duration of impact	Intensity	Probability of impact	Irreplaceable loss of biodiversity function	Significance before mitigation	Significance after mitigation *
Loss of 12.47ha of Renosterveld (Critically Endangered) in 17 patches	Local & regional	Permanent	Medium	High	Medium	Medium -ve	Low to Medium -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 botanical impacts associated with the new cultivation undertaken between 2014 and 2024. The main operational phase impacts would be loss of previous ecological connectivity across the sites and associated habitat fragmentation. *Mitigation in this case has not yet been implemented, and includes all steps required in Section 7 of this report.

6.3 The No Go Alternative

The No Go alternative (continuation of the *status quo)* on this site would have clearly lower construction and operational phase botanical impacts (Neutral to Low negative) than the new cultivation, and would thus technically have been the preferred alternative from a botanical perspective, but in this case is purely academic, as the impact has already occurred.

6.4 Cumulative Impacts

The cumulative ecological impacts are in many ways equivalent to the regional ecological impacts, in that the vegetation type/s impacted by the new cultivation have 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 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 the 12.47ha of new cultivation in the study area at the regional scale is likely to have been Low to Medium negative.

6.5 Positive Impacts

No significant positive ecological impacts of the new cultivation have been recorded, and these would only manifest if the applicant does indeed undertake all the required mitigation (see Section 7).

7. REQUIRED MITIGATION

The following mitigation for the unauthorised 12.47ha of new cultivation undertaken in the study areas between 2014 and 2024 is deemed feasible, reasonable and mandatory:

- No further areas of natural or partly natural vegetation should be disturbed or cultivated outside the currently cultivated areas on the property (as per the January 2024 satellite imagery and mapping shown in Figure 1), unless authorised via a formal environmental application process.
- All woody alien invasive vegetation (mostly Port Jackson - *Acacia saligna*) should be removed from all areas of natural vegetation on the property by the end of 2024. Removal of the alien vegetation must be undertaken using methodology outlined in the Best Practise Guidelines (see Martens *et al* 2021), and no heavy machinery may be used to uproot trees. The cut stumps of the trees will need to be painted with the relevant poison to prevent resprouting.
- This Section 24G application should only be approved on condition that the remainder of *all the natural vegetation on the subject property (i.e. all Renosterveld and watercourses mapped and shaded blue in Figure 1; a total of at least 172ha)* is committed to conservation in perpetuity, through a title deed restriction. This can take the form of a Nature Reserve or Biodiversity Agreement through CapeNature, or a conservation easement/servitude with the Overberg Renosterveld Renosterveld Conservation Trust (ORCT). All costs associated with either of these options must be carried by the landowner/applicant. This process should be completed within 18 months of any S24G application being authorised.
- As the required conservation contribution on the study site is not big enough (172ha) to compensate for loss of 12.47ha of Renosterveld (at the required 20:1 ratio recommended in Dept. of Forestry, Fisheries & Environment, 2022), an additional area will have to be added to the conservation contribution. Fortunately the applicant also owns the adjacent property to the south - Windhoek 367 (248.58ha), and this property still supports about 47.3ha of natural vegetation (see Figure 4), which can and should be added

to the offset total and the conservation area, taking it up to 219ha of conserved Renosterveld, which is a more acceptable ratio of 17.7:1. This entire Renosterveld area (on the three properties) should then be managed as a single unit.

- If the Department deems a fine appropriate in addition to the above the most appropriate recipient would be the Overberg Renosterveld Conservation Trust (ORCT), a licensed conservation NGO operating in this area.

8. CONCLUSIONS

- The natural vegetation on site is confirmed as Western Ruens Shale Renosterveld and Central Ruens Shale Renosterveld, both of which are gazetted as Critically Endangered on a national basis.
- The majority of the remaining natural vegetation on site, in about 2014 and currently, is mapped as CBA1 in the CapeNature Spatial Biodiversity Plan, and is about 172ha in extent.
- All remaining natural vegetation onsite, and most of the approximately 12.47ha lost to unauthorised cultivation in the last ten years, is and probably was of High botanical conservation value.
- The overall botanical impact of the loss of the approximately 12.47ha of Renosterveld on site is deemed to have had a High negative impact before mitigation, and Medium negative after mitigation (See Section 7 for mitigation required).
- All mitigation outlined in Section 7 is considered feasible, reasonable and essential, and must be implemented timeously and correctly.
- An on-site conservation contribution of at least 219ha of Renosterveld is required as the primary mitigation. A commitment of this nature would not impede existing farming activities in any substantive way, but will require a solid commitment by the landowner to abide by the NEMA laws in future, and may help minimise the chances of any future mining or prospecting applications on the properties (evidently a real current threat). A conservation easement or contract reserve should be accompanied by an Integrated Management Plan for the conservation area which would focus on the most important management principles related to fire, alien clearing, livestock management and erosion control.

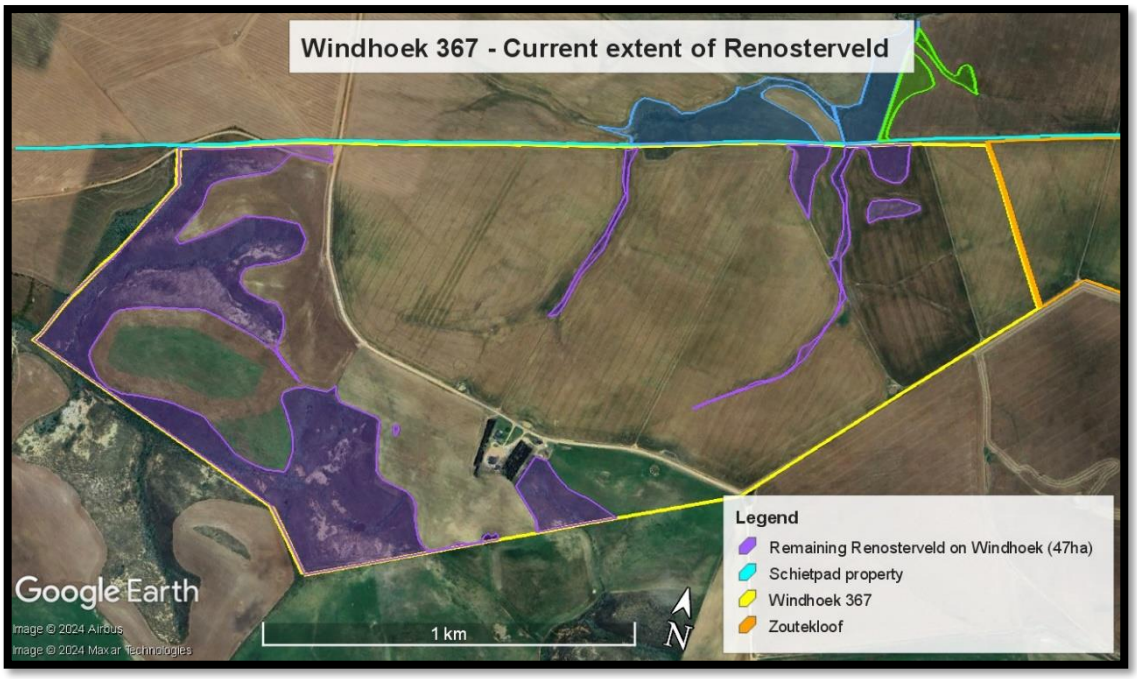

Figure 4: Map showing the adjacent Windhoek 367 property, and the 47ha of Renosterveld which must be added to the conservation contribution.

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