Botanical Assessment for proposed Agricultural Expansion at Rustenberg Wines, Stellenbosch Municipality

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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.

Appointment of Specialist

Bergwind Botanical Surveys & Tours CC was appointed by EnviroAfrica to provide specialist botanical consulting services for proposed Agricultural Expansion at Rustenburg Wines, Stellenbosch Municipality. The consulting services comprise a botanical impact assessment of the flora and vegetation in the designated study area by the proposed project.

Details of Specialists

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Expertise

Dr David J. McDonald:

- Qualifications: BSc. Hons. (Botany), MSc (Botany) and PhD (Botany).

- Botanical ecologist with over 40 years' experience in the field of Vegetation Science.
- Founded Bergwind Botanical Surveys & Tours CC in 2006.
- Has conducted over 400 specialist botanical / ecological studies.
- Has published numerous scientific papers and attended numerous conferences both nationally and internationally (details available on request).

Mr Paul I. Emms

- Qualifications: ND Horticulture, BSc. (Biodiversity & Conservation Biology), Hons. (Botany), MSc (Botany).
- Botanist with seven years' experience in the field of botanical surveys.
- Has conducted over 170 specialist botanical studies.

Independence

The views expressed in the document are the objective, independent views of Dr McDonald and Mr Emms and the survey was carried out under the aegis of Bergwind Botanical Surveys and Tours CC. Neither Dr McDonald, Mr Emms, 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 authors' 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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Declaration of independence:

I Paul Ivor Emms, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

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

Signature of the specialist:

Bergwind Botanical Surveys & Tours CC

Name of company:

14 December 2018

Date:

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1. Introduction

Rustenberg Wines (Pty) Ltd intend expanding their vineyard production and have identified a portion of the estate for this purpose. The proposal triggers an environmental assessment process in terms of the NEMA Environmental Impact Assessment (EIA) Regulations, 2014 since the project would result in natural vegetation being lost. EnviroAfrica is facilitating the EIA process and commissioned Bergwind Botanical Surveys and Tours CC to carry out the botanical assessment study.

2. Terms of Reference

2.1. General Terms of Reference

Botanical assessments must follow guidelines set out in the following documents:

- Department of Environmental Affairs and Development Planning (DEA&DP) Guidelines for Involving Biodiversity Specialists in the EIA Process (Brownlie, 2005);
- Ecosystem Guidelines for Environmental Assessment in the Western Cape (Cadman *et al*., 2016);
- The requirements of CapeNature for providing comments on agricultural, environmental, mine planning and water-use related applications (Turner, 2013); and
- Appendix 6 of the Environmental Impact Assessment Regulations, 2014 (Government Gazette, 2014).

2.2. Specific Terms of Reference

- Identify and describe biodiversity patterns at community and ecosystem level (main vegetation type, plant communities in the vicinity and threatened/vulnerable ecosystems), at species level (threatened Red List species, presence of alien species) and in terms of significant landscape features;
- Describe the sensitivity of the site and its environs and map these resources;
- Identify potential impacts associated with the no development option, in addition to direct, indirect and cumulative impacts; and
- Review previous botanical work applicable to the area and any relevant biodiversity plans compiled in terms of the National Environmental Management Biodiversity Act (No. 10 of 2004), specifically the 2017 Western Cape Biodiversity Spatial Plan (CapeNature 2017).

3. The Study Area

3.1. Locality

The study area is located with the Rustenberg Wines estate in a rural setting about 4km north of Stellenbosch and about 2.5km southwest of Simonsberg Nature Reserve (Figures 1 and 2). The site consists of a 6.5 ha portion of land located on a hill-slope at 33° 53' 28.76" S; 18° 53' 11.88" E and surrounded by rolling hills with cultivated, and uncultivated land as well as plantations (Figures 3 and 4).

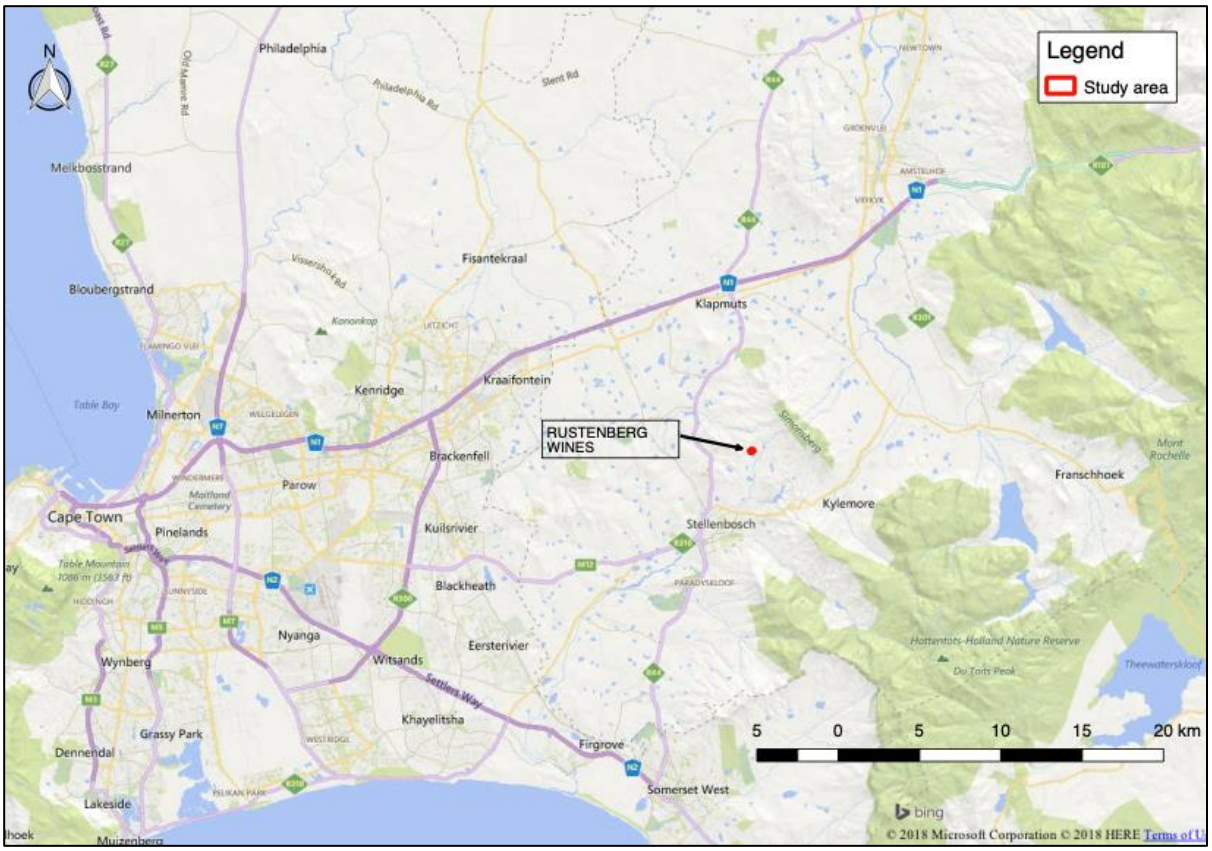

Figure 1. Locality of the study area north of Stellenbosch, Western Cape Province.

Figure 2. Topocadastral image showing the study area (purple outline at centre) (1:50 000 topographic map, Western Cape Department of Agriculture).

Figure 3. The study area (red outline) shown in relation to the main farm office and facilities (Western Cape Department of Agriculture).

Figure 4. Magnified aerial image of the study area (red outline) (Western Cape Department of Agriculture)..

3.2. Geology, topography and soils

The study area is located on a moderate to steep southeast-, south- and southwest-facing even slope (Figure 5, 6 and 7). The land surrounding the site is characterized by well-defined moderate- to steep-sloping rolling hills. Soils are loamy and well drained, derived from the Cape Granite Suite (Rebelo *et al.* in Mucina and Rutherford, 2006).

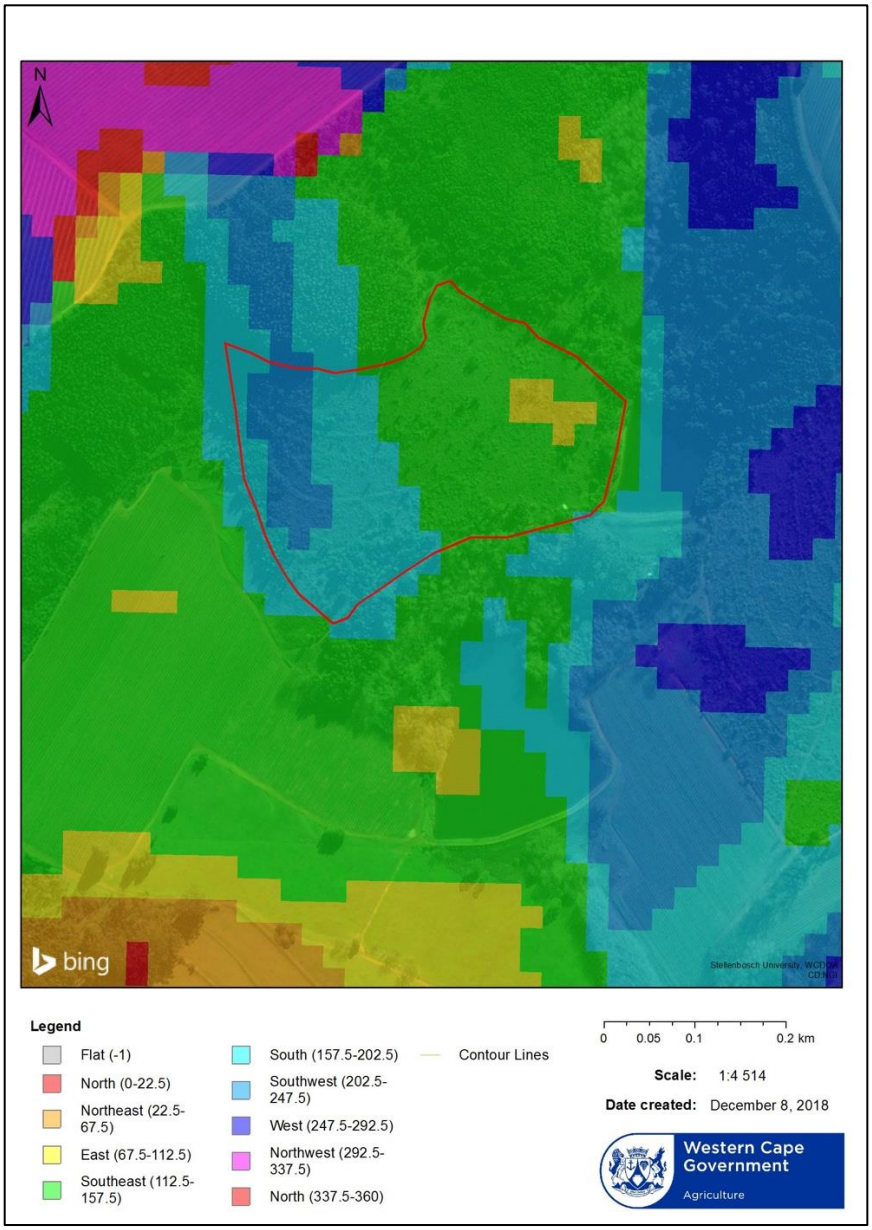

Figure 5. Aspect overlay map of the study area (red outline) (Chief Director, National Geo-spatial Information; information source Stellenbosch University, WCDOA).

Figure 6. View from the site looking east southeast over characteristic rolling hills of the region.

Figure 7. The study area (red outline) with 20m contours (Western Cape Department of Agriculture).

4. Evaluation Method

The site was visited and surveyed on foot on 20 November 2018. Approximately four hours were spent surveying the site. The vegetation and habitats were mapped using a combination of annotating aerial imagery in the field and sample waypoints. Waypoints were logged with a Garmin GPSmap 64. Sample photographs were geo-referenced. The annotated map was refined using GIS software. The sensitivity of the site was determined using the following criteria:

- *Ecological condition*: this is the actual condition of the various habitats, which considers (1) quality of the vegetation; (2) species composition; (3) disturbance regime; (4) degree of intactness; (5) the spatial connectivity of the site with adjoining habitats; (6) and non-botanical elements that form part of the broader biodiversity picture and that inform the degree to which the botanical component supports biodiversity.
- *Ecosystem status:* Informed by the List of Threatened Terrestrial Ecosystems (Government Gazette, 2011) and the updated ecosystem status of CapeNature (2013) based on criterion A1 only (irreversible loss of habitat). The ecosystems are based on the vegetation types in *The Vegetation of South Africa, Lesotho and Swaziland* (Mucina & Rutherford, 2006).
- *Biodiversity planning*: The 2017 Western Cape Biodiversity Spatial Plan (CapeNature, 2017) with specific reference to the Stellenbosch Municipality is important for determining the conservation importance of the designated habitat. Ground-truthing is an essential component in terms of determining the habitat condition.
- *Important species*: The presence or absence of threatened (i.e. Red List) and ecologically important species informs the ecological condition and sensitivity of the site.
- *Botanical literature*: This was used to gain a better local contextual understanding of the botanical importance of the site.
- *Botanical literature and past botanical studies*: these were used to gain a better local contextual understanding of the botanical importance of the site.

5. Limitations and assumptions

The survey was carried out after the spring period, which was a limitation. No geophytic flora could be identified due to summer dormancy. Geophytes are usually only found during the winter and spring (most optimal) period when they are in their active growth phase. The limitation is such that, despite most of the study area being highly transformed, important geophytic flora may have been missed since these were not visible at the time of the survey. Factors such as seasonality, post-fire age and inability to observe all the species in a single site visit present limitations. However, despite the limitations, the once-off site visit allowed for an assessment of the flora of the site with an acceptable level of confidence.

6. The Vegetation

6.1 General description, Conservation Status and Biodiversity Plans

The study area supports a single vegetation type according to *The* V*egetation of South Africa, Lesotho and Swaziland* (Rebelo *et al*. 2006 in Mucina & Rutherford, 2006), namely Boland Granite Fynbos. Boland Granite Fynbos occurs at Paarl Mountain, Paardeberg (upper slopes), a number of mountain slopes and valleys of DuToitskloof, Jonkershoek and Wemmershoek Valleys, Hottentots Holland Mountains, the western foothills near Wellington, Simonsberg, Drakenstein Mountains and Klapmutskop (Rebelo *et al*. 2006 in Mucina & Rutherford, 2006. The vegetation is described by Rebelo *et al*. 2006 in Mucina & Rutherford, 2006 as *"A fairly dense, 1-2 m tall closed shrubland with occasional low, gnarled trees dotted through the landscape. A diverse type, dominated by scrub, asteraceous and proteoid fynbos (with Protea repens, P. burchelii, P. laurifolia with Leucadendron rubrum and L. daphnoides as dominants on drier slopes) but with patches of restioid and ericaceous fynbos in wetter areas. Waboomveld is very typical and very extensive within this unit."*

The vegetation is listed as VULNERABLE in the List of Threatened Terrestrial Ecosystems in South Africa (Government Gazette, 2011). Table 1 provides a summary of (a) the original extent of each vegetation type, (b) the proportion of ecosystem target protected, (c) the known number of species of conservation concern and (d) the national conservation target.

Table 1. Ecosystem status with regard to transformation of habitat; level of protection (*CapeNature, 2013) and related taxa of special concern (^Government Gazette (2011).

Vegetation type	Ecosystem status	^Criterion	*Original extent of Ecosystem	*Remaining natural area of ecosystem	*Proportion of ecosystem target protected	^Known number of species of special concern	~National conservation target
Boland Granite Fynbos	Vulnerable	D1	49 906 ha	59%	108%	56 Red Listed plant species (EX, EW, CR, EN & VU excl VU D2) and 23 endemic.	30%

EX = Extinct, EW = Extinct in the wild, CR = Critically endangered, VU D2 = Vulnerable

~National conservation target (Rouget *et al.* 2004).

Criterion A1 = irreversible loss of habitat. Criterion D1 = threatened species associations.

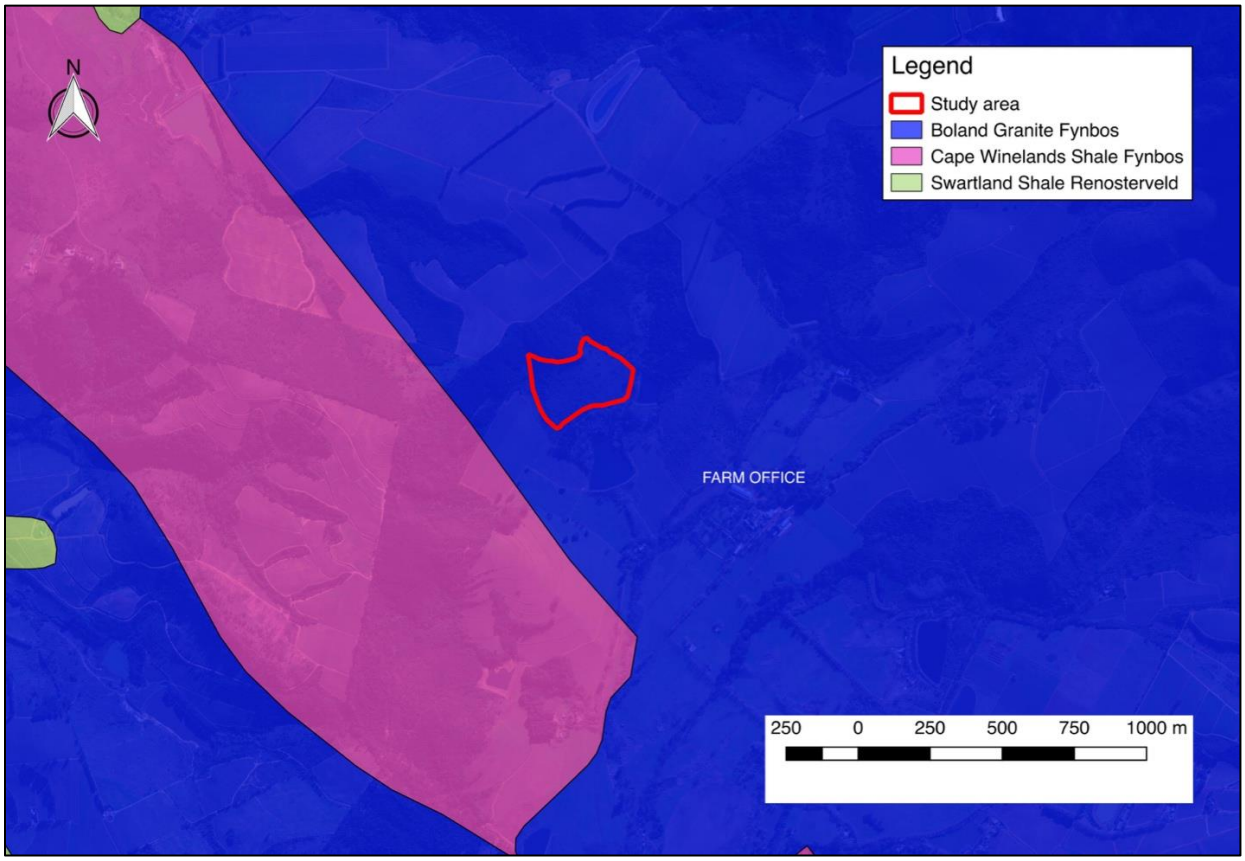

Figure 8A VEGETATION MAP: The study area superimposed on a portion of *The Vegetation Map of South Africa, Lesotho and Swaziland* (SANBI, 2012) overlaid on a Google Earth ™ aerial image.

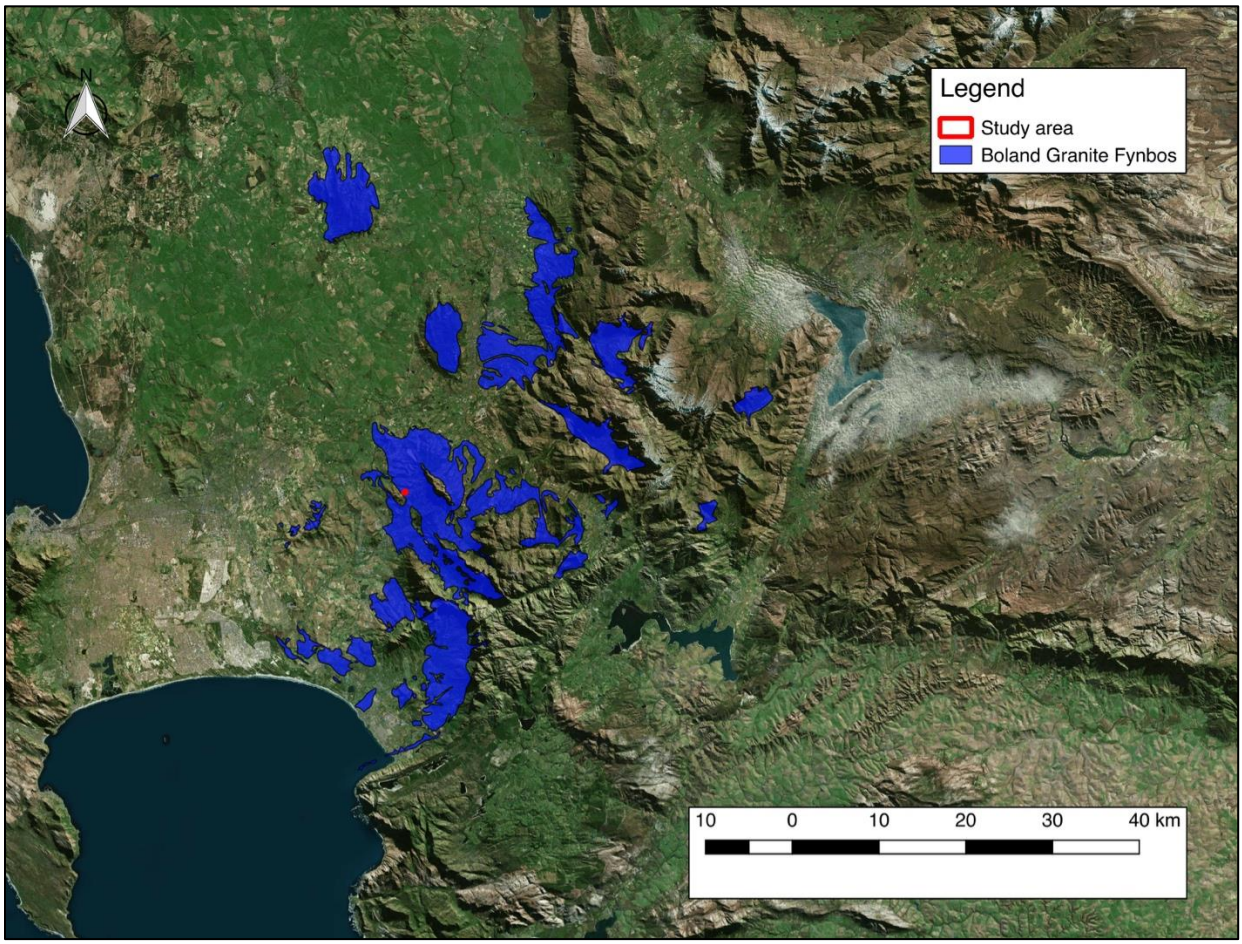

Figure 8B VEGETATION MAP: Distribution of Boland Granite Fynbos in relation to the study area, superimposed on a portion of *The Vegetation Map of South Africa, Lesotho and Swaziland* (SANBI, 2012) overlaid on a Google Earth ™ aerial image.

The *2017 Western Cape Biodiversity Spatial Plan* (CapeNature, 2017) assigns CBA2 and ESA2 conservation planning categories to the site (Figure 9). They are:

- CBA2 (Critical Biodiversity Area 2): about 5% of the site.
- ESA2 (Ecological Support Area 2): about 90% of the site.

The 2017 WCBSP Handbook (Pool-Stanvliet *et al*., 2017) distinguishes between the various conservation planning categories. Critical Biodiversity Areas are habitats with high biodiversity and ecological value. Such areas include those that are likely to be in a natural condition (CBA 1) and those that are potentially degraded or represent secondary vegetation (CBA 2). Ecological Support Areas are essential for meeting biodiversity targets. They play an important

role in supporting the functioning of Protected Areas or CBAs and are often vital for delivering ecosystem services. A distinction is made between ESAs that are still likely to be functional (i.e. in a natural, near-natural or moderately degraded condition; (ESA 1) and Ecological Support Areas that are severely degraded, or have no natural cover remaining, and therefore require restoration (ESA 2). Ground-truthing of the assigned CBA and ESA sites are described in the vegetation and sensitivity sections below (Sections 6.2 and 7).

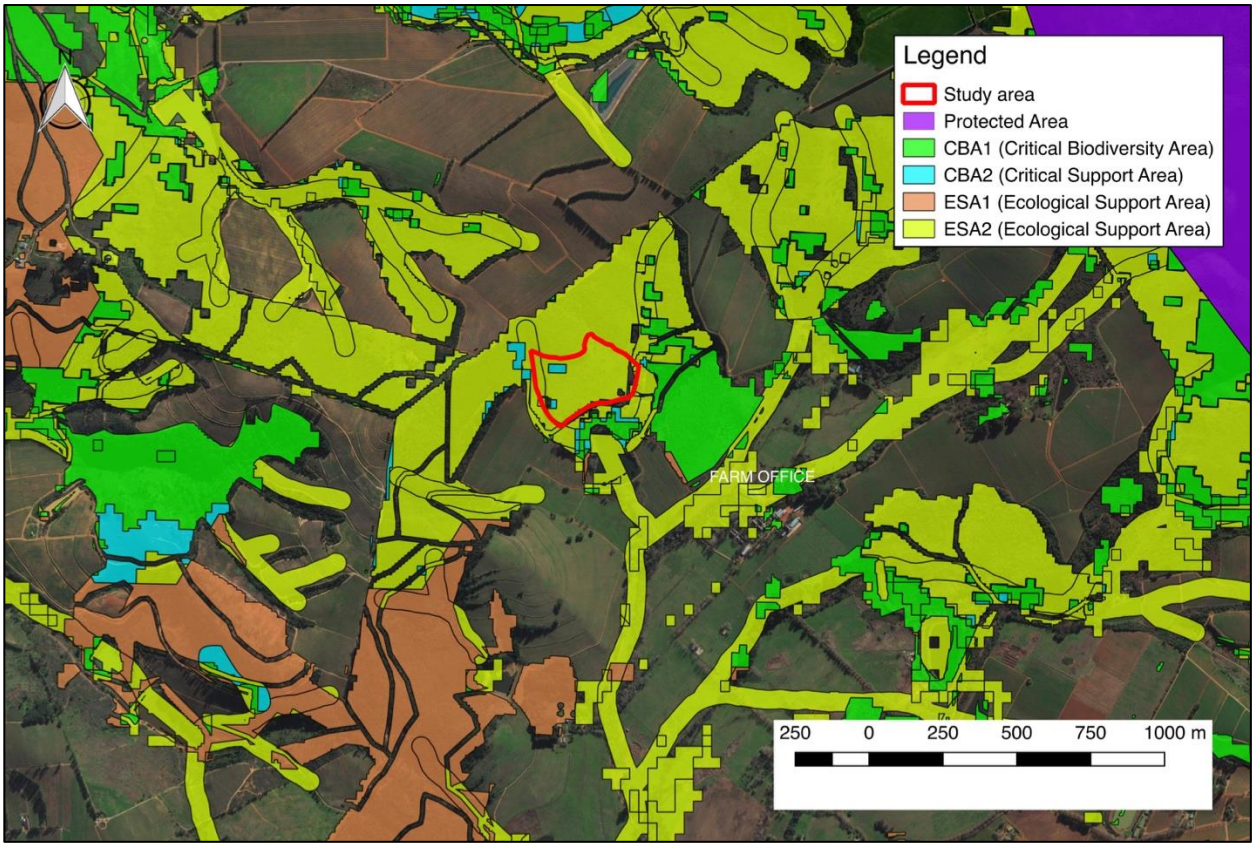

Figure 9. CONSERVATION MAP: The study area in relation 2017 Western Cape Biodiversity Spatial Plan Framework (CapeNature, 2017) overlaid on a Bing aerial image.

6.2. Vegetation of the Study Area

The vegetation description below should be read with the accompanying survey map (Figure 10) and habitat map (Figure 11). The survey map indicates the localities of the sample waypoints referred to in the text below and site photographs.

The vegetation of the study area has undergone disturbance in the past and was apparently cleared for vineyards more than ten years ago but not developed (Geyser pers. comm. 2018). The outer edges of the site are the most disturbed. As a result, the edges are heavily invaded with alien vegetation. The central area, indicated by the green shading in Figure 11 as 'intact natural vegetation', is ecologically intact but old and senescent. The two main habitat categories include (1) intact natural vegetation and (2) alien vegetation infestations. The edge of a dam falls on the far eastern boundary. Table 2 provides a breakdown of the percentage cover for each habitat category. The intact vegetation covers 33.5% of the study area.

Table 2. Habitat cover and percentage occurring in the study area

Habitat category	Area	Percentage of study area
Intact vegetation with scattered alien vegetation	4.28 ha	68%
Alien vegetation infestations	1.95 ha	31%
Dam	0.045 ha	0.7%
TOTAL	6.27 ha	100%

Intact natural vegetation

The intact natural vegetation is homogeneous. The most obvious and dominant species are wild olive (*Olea europaea* subsp*. africana*) and *Searsia angustifolia.* They occur as either tall shrubs or small trees and occur in high numbers across the site. Other dominant species include *Anthospermum aethiopicum, Athanasia trifurcata, Cyanella hyacinthoides* and *Passerina corymbosa*.

Figure 10: SURVEY MAP: Google Earth ™ aerial image of the study area showing the sample waypoints and survey tracks.

Figure 11: HABITAT MAP: Google Earth ™ aerial image of the study area (yellow outline) with habitat overlay.

Additional species include (*= alien):

Shrubs: *Aspalathus cephalotes* subsp*. violacea, Aspalathus hispida, Aspalathus* sp*., Asparagus rubicundus, Cullumia setosa, Chironia baccifera, Cliffortia polygonifolia, Elytropappus rhinocerotis, Hermannia* sp*., Hypericum* sp*., Metalasia* sp*., *Rubus* sp., *Selago corymbosa*, *Senecio pubigerus, Stoebe plumosa* and *Thesium* sp.*;* ***trees:*** *Kiggelaria africana;* **graminoids:** **Briza maxima, *Briza minima, Melinis repens; Restio capensis,* **annuals:** **Hypochoeris radicata, *Plantago lanceolata;* **geophytes:** *Disa bracteolata* and *Micranthus alopecuroides.*

Note that the above species list is based on a single site visit and point in time and describes only the visible species seen during the site visit. The site would undoubtedly support a much wider variety of species than was observed since factors influencing the visible species matrix such as post-fire veld age, seasonality, cryptic species, and inability to observe all species during a single survey influence the findings.

Figure 12A. View from access road at waypoint 003 (33°53'29.27"S; 18°53'7.84"E) looking north across intact natural vegetation. Stands of gums that fall outside the site boundary are visible in the background.

Figure 12B. View from access road at waypoint 003 (33°53'29.27"S; 18°53'7.84"E) looking northwest across intact natural vegetation showing alien vegetation at left along the western boundary and stands of gums from centre to right that fall outside the site boundary.

Figure 13. 6801. Dense cover of wild olive (*Olea europaea* subsp*. africana*) viewed from waypoint 008(33°53'27.54"S; 18°53'14.25"E) toward the southeastern corner.

Figure 14. High cover of *Anthospermum aethiopicum* at waypoint 009 (33°53'26.65"S; 18°53'15.65"E) looking toward the southeastern corner. The species is indicative of past disturbance.

Figure 15. Dense natural vegetation dominated by *Searsia angustifolia* and bracken fern (*Pteridium aquilinum*). The tall trees in the background include Australian blackwood (*Acacia melanoxylon*), gum (*Eucalyptus* sp.) and Monterey pine (*Pinus radiata*).

Figure 16. Natural vegetation with scattered Monterey pine looking southwest form waypoint 012 (33°53'25.61"S; 18°53'11.48"E).

Alien vegetation

The dense alien vegetation is confined to the outer edges of the site but scattered individuals of exotic species occur throughout the intact natural vegetation. The species consist of a mix of gum, pine and acacia. The dominant species include golden wattle (*Acacia pycnantha*), Monterey pine (*Pinus radiata*) and gum (*Eucalyptus* cf*. diversicolor*). Species present in low densities and numbers include bramble (*Rubus* sp.), long-leaf wattle, Australian cheesewood (*Pittosporum undulatum*) and Australian wattle (*Acacia melanoxylon*).

Figure 17. Transition from natural to alien vegetation at waypoint 004 (33°53'30.43"S; 18°53'10.49"E). The tall vegetation in the background includes a mix of pine, gum and wattle. A single golden wattle shrub can be seen on the right-hand side in the foreground.

7. Sensitivity

Sensitivity is defined here as the 'conservation value' together with the 'degree of resilience to disturbance'. The conservation value relates to the conservation status of the affected ecosystem, whereas the degree of resilience takes into consideration factors such as restoration potential. A combination of the conservation status and habitat condition is thus considered. Sensitivity also takes into consideration the 2017 WCBSP.

Most of the site is an ESA2, which corresponds reasonably well to the distribution of the intact vegetation. The patches and designation of CBA2 sites is, however, not clear, since there appears to be no distinction between the habitats assigned as ESA2 and CBA2. It should be further noted that the desired outcome for ESA2 sites is: "Restore and/or manage to minimize impact on ecological infrastructure functioning; especially soil and water-related services" (Pool-Stanvliet *et al*., 2017) whereas the desired outcome for CBA2 sites is: "Keep natural, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact biodiversity-sensitive land-uses are appropriate" (Pool-Stanvliet *et al*., 2017).

Thus, the presence of an ecologically intact portion of VULNERABLE vegetation type (Boland Granite Fynbos), occupying the major part of the site (68%) and distribution of the ESA2 sites implies **High Sensitivity.** Note that the areas occupied by alien vegetation have Moderate to High restoration potential and are thus assigned as having **Medium-High Sensitivity**.

Figure 18. Google Earth™ aerial image with sensitivity overlay.

8. Impact Assessment

The impact assessment is a measure of the impacts likely to occur on the affected environment, specifically the vegetation, ecological processes, important species and habitats. They are considered for (a) the 'No Go' scenario and (b) the direct, indirect and cumulative impacts of the proposed project. Figure 19 shows the proposed development layout plan, indicated by the yellow outline. The area falling outside the yellow outline would not be developed. The proposed layout in relation to area of sensitivity is indicated in Figure 20.

Figure 19. Proposed development area (yellow outline) in relation to the study area (blue outline).

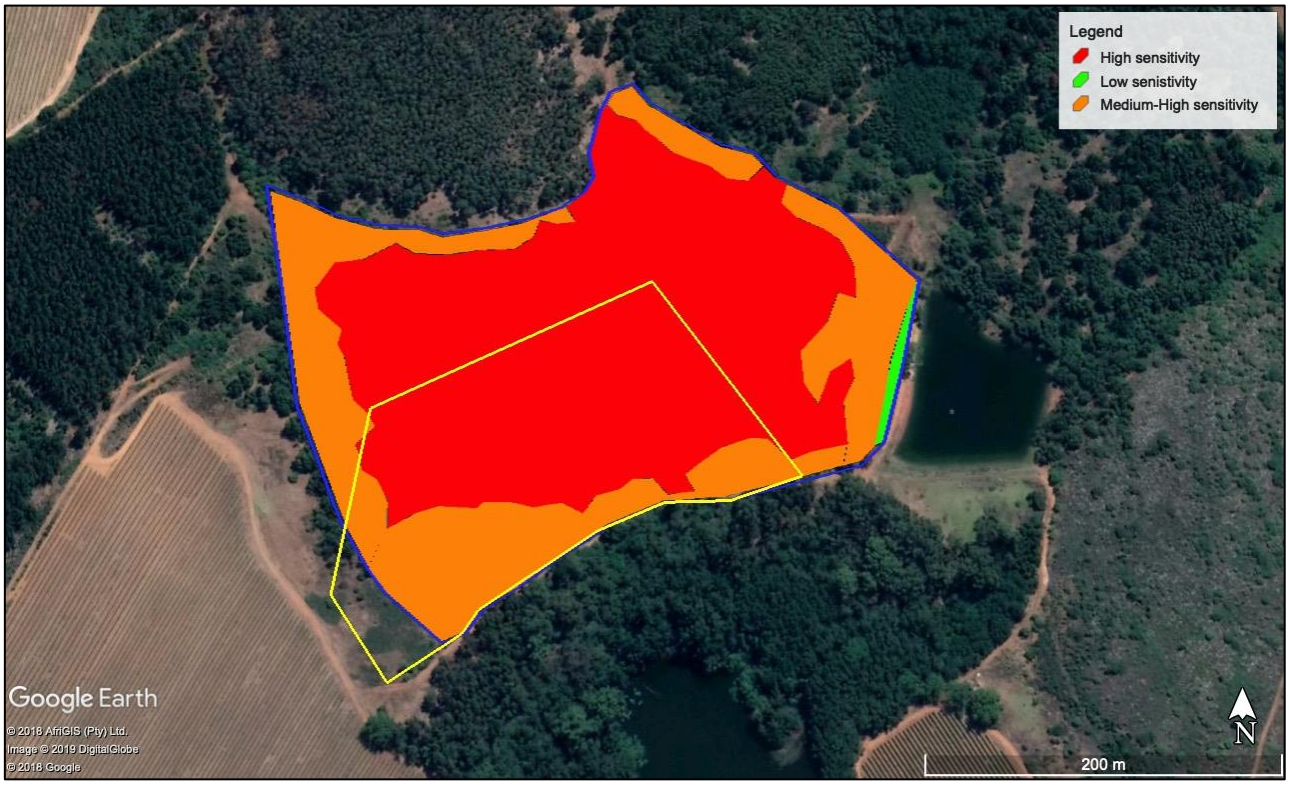

Figure 20. Proposed development area (yellow outline) in relation to the study area (blue outline) with sensitivity overlay.

8.1. 'No Go' or No Development Scenario

The 'No Go' or no development scenario takes into consideration the impact associated with the no development option. It is a prediction of the future state of the affected area in the event of no agricultural activities taking place and is based on the current and/or anticipated future land use. In this instance, the affected site is unlikely to change much with the resultant no change to the *status quo*. If the landowner does not manage the land properly the area will probably become infested with invasive alien plants. However, it is the responsibility of the owner to keep the land clear of invasive plant species according to 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). Thus, given the land owner's responsibility in terms of the law and with regard to 'Duty of Care', the assumption is made that the land would improve ecologically under the No Go option.

8.2. Direct impacts

Direct impacts are those that would occur as a direct result of the proposed agricultural expansion (yellow outline; Figure 19). The activity would require clearance of the vegetation by completely removing it from development area. This would result in the clearance of 2.9 ha of the site. Direct

impacts are assessed for the development and 'No Go' alternatives in Tables 2 and 3 according to the following interrelated components:

- Loss of vegetation type – including intact vegetation, ecologically important species and species of conservation concern.
- Loss of ecological processes – associated with the loss of intact vegetation, ecologically important species and species of conservation concern.

Table 2. Impact and Significance: Loss of vegetation and ecological processes.

CRITERIA	**'NO GO' ALTERNATIVE**		**PROPOSED AGRICULTURAL ACTIVITIES**	
Status of direct impact	Neutral		Negative	
Loss of vegetation and species	**WITHOUT MITIGATION**	**WITH MITIGATION**	**WITHOUT MITIGATION**	**WITH MITIGATION**
Extent	Local	Local	Local	Local
Duration	Permanent	Permanent	Permanent	Permanent
Intensity	Neutral	Neutral	Medium	Low
Probability of occurrence	Definite	Definite	Definite	Definite
Confidence	High	High	High	High
Significance	Neutral	Neutral	Medium	Low
Proposed mitigation: Conserve the remainder of the site in perpetuity.				
Nature of Cumulative impact	No impact		Negligible	
Cumulative impact prior to mitigation	No impact		Low	
Degree to which impact can be reversed	No impact		Irreversible	
Degree to which impact may cause irreplaceable loss of resources	No impact		Medium	
Degree to which impact can be mitigated	No impact		Low	
Proposed mitigation	None		Avoidance	
Cumulative impact post mitigation	No impact		Low	
Significance of cumulative impact (broad scale) after mitigation	No impact		Low	

Table 3. Impact and Significance: Loss of ecological processes.

CRITERIA	**'NO GO' ALTERNATIVE**		**PROPOSED DEVELOPMENT AREA**	
Status of direct impact	Neutral		Negative	
Loss of vegetation and species	**WITHOUT MITIGATION**	**WITH MITIGATION**	**WITHOUT MITIGATION**	**WITH MITIGATION**
Extent	Local	Local	Local	Local
Duration	Permanent	Permanent	Permanent	Permanent
Intensity	Neutral	Neutral	Medium	Low
Probability of occurrence	Definite	Definite	Definite	Definite
Confidence	High	High	High	High
Significance	Neutral	Neutral	Medium	Low
Proposed mitigation: Conserve the remainder of the site in perpetuity.				

8.3 Loss of vegetation & ecological processes

Loss of vegetation is assessed in relation to the vegetation type and ecological processes. The loss of 2.9 ha of high sensitivity, VULNERABLE Boland Granite Fynbos located within a ESA2 site is likely to result in **Medium Negative Impact** (Table 3).

8.4. Mitigation

Mitigation options are generally considered in terms of the following hierarchy: (1) avoidance, (2) minimization, (3) restoration and (4) offsets. Given that 2.9 ha is proposed for the agricultural expansion and that the entire site is 6.5 ha in size, the development area is regarded as acceptable with the proviso that the remainder of the site be set aside as a conservation area in perpetuity. This would ensure that a representative portion of the vegetation would remain and the ESA2 area would still be functional on the northern and eastern sides. If this mitigation can be implemented, the impact can be reduced to **Low Negative Impact**.

8.5. Indirect impacts

Indirect impacts are those that do not occur as a direct result of the activity on site but that occur further away. Indirect impacts are likely to occur as a result of fragmentation of the ESA2 site on the western side of the proposed development area and connected CBA sites. However, connectivity would still be functional on the eastern and northern sides. Indirect impacts relating to the ecological corridor is likely to have a negative impact on ecological processes that flow into and out of the site but would not have far reaching implications if the corridor is maintained on the northern and eastern sides.

8.6. Cumulative impacts

Cumulative impacts are those impacts linked to increased loss of vegetation type or the ecosystems listed in the National List of Threatened Terrestrial Ecosystems (Government Gazette, 2011). Cumulative impacts are assessed as the overall impact of loss of habitat in relation to loss of the same or similar habitat at a local scale due to past, present and future habitat loss. Loss of 2.9 ha of VULNERABLE Boland Granite Fynbos would result in loss of 0.009% of the remaining 296 46 ha of the ecosystem. Cumulative impacts are thus assessed as being likely to be **Low Negative**. Note however, that with every small amount of the ecosystem being lost, the cumulative loss and potential increase in threat status rises. Thus, cumulative impacts can be highly misleading.

9. Conclusions and recommendations

The proposed agricultural expansion at Rustenberg Wines would result in loss of 2.9 ha of ecologically intact VULNERABLE Boland Granite Fynbos. The vegetation is regarded as having **High Sensitivity** despite evidence of past disturbance. The site was apparently cleared for vineyards more than ten years ago but was not developed at the time. The natural vegetation has recovered remarkably well since lying fallow, however, the margins of the site have a heavy infestation of invasive alien plants. The site is important with regard to the 2017 WCBSP since it serves as a key connectivity site, linking ecological processes to the east, south and west.

It is concluded that the proponent's layout plan is supported provided that the remainder of the site is set aside as a conservation area in perpetuity. This would (a) ensure that a representative portion of the vegetation would remain and (b) ensure that the ESA2 area is still functional on the northern and eastern sides. If this mitigation can be implemented the impact can be reduced to **Low Negative Impact**.

In addition to the above, the following recommendations should be followed:

- All invasive alien plants must be cleared from the site and remainder of the landowner's property.
- An invasive alien plant monitoring, eradication and control plan should be compiled to effectively remove all infestations on the property. This will allow for a degree of natural passive restoration of natural vegetation.

10. References

Brownlie, S. 2005. Guideline for involving biodiversity specialists in EIA processes: Edition 1. *CSIR Report No.* ENV-S-C 2005-053 C. Provincial Government of the Western Cape: Department of Environmental Affairs and Development Planning.

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Appendix 1: Botanical Assessment Content Requirements of Specialist Reports, as prescribed by Appendix 6 of GN R326

Regulation	Content as required by NEMA	Specialist Report Section/Annexure Reference
1 (1) (a)	Details of- (i) The specialist who prepared the report; and	Page i.
	(ii) The expertise of that specialist to compile a specialist report, including a CV	Page i.
1 (1) (b)	A declaration that the specialist is independent in a form as may be specified by the competent authority	Page i.
1 (1) (c)	An indication of the scope of, and purpose for which, the report is prepared	Page 5.
1 (1)(cA)	An indication of the quality and age of base data used for the specialist report	Page 9 and 10.
1 (1)(cB)	A description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change	Page 10 and 24.
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 10.
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.

Regulation	Content as required by NEMA	Specialist Report Section/Annexure Reference
1 (1) (f)	Details of an assessment of the specific 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 22 and 24.
1 (1) (g)	An identification of any areas to be avoided, including buffers	Not applicable.
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	Not applicable.
1 (1) (i)	A description of any assumptions made and any uncertainties or gaps in knowledge	Page 10.
1 (1) (j)	A description of the findings and potential implications of such findings on the impact of the proposed activity or activities	Page 24.
1 (1) (k)	Any mitigation measures for inclusion in the EMPr	Page 24.
1 (1) (l)	Any conditions for inclusion in the environmental authorisation	Page 24.
1 (1) (m)	Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Not applicable.
1 (1) (n)	A reasoned opinion- (i) whether the proposed activity, activities or portions thereof should be authorised; and	Page 24.
	(iA) regarding the acceptability of the proposed activity or activities; and	Page 24..
	(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 24.
1 (1) (o)	A description of any consultation process that was undertaken during the course of preparing the specialist report	Not applicable.
1 (1) (p)	A summary and copies of any comments received during any consultation process and where applicable, all responses thereto	Not applicable.
1 (1) (q)	Any other information requested by the competent authority	Not applicable.

Appendix 2: Curriculum Vitae: Paul Emms

EDUCATION

MSc (Botany) - University of the Western Cape (2014).

BSc: Hons (Botany) – University of the Western Cape (2005).

BSc: Biodiversity and Conservation Biology - University of the Western Cape (2002 – 2004).

National Diploma in Horticulture - Cape Peninsula University of Technology (1998 – 2000).

CAREER HISTORY

March 2011 - present – independent botanical specialist and associate at Bergwind Botanical Surveys & Tours CC.

March 2008 - March 2010 - field botanist and botanical specialist - Coastec (Coastal & Environmental Consultants).

January 2006 – December 2007 - Kirstenbosch Scholarship: horticultural research - South African National Biodiversity Institute.

ACCREDITATION

Registered Professional Natural Scientist with the South African Council for Natural Scientific Practitioners (SACNASP). Registration number 400352/14.

EXPERIENCE and SKILLS

Botanical specialist consultant

- Environmental Impact Assessment
- Ecological Constraints Analysis
- Invasive Alien Plant Management Plans
- Vegetation Rehabilitation Plans
- Remediation Plans
- Open Space Management Plans
- Plant Search and Rescue Plans
- Conservation Implementation Management Plans
- Over 150 botanical assessments

PERSONAL DETAILS

- Paul Emms
- Fish Hoek, Cape Town
- Cell: 076 7377 468. Office: 021 783 2036
- emmspaul@gmail.com

- Date of birth – 31/08/1979
- Marital status - Married
- Dependents - 3