# TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT

# MOORREESBURG CEMETRY

**THE PROPOSED DEVELOPMENT OF A NEW CEMETRY & ASSOCIATED INFRASTRUCTURE ON ERF 5662, MALMESBURY (MOORREESBURG), SWARTLAND LOCAL MUNICIPALITY, WESTERN CAPE PROVINCE.**

**27 May 2022**


**P.J.J. Botes (Pr.Sci.Nat: 400184/05)**

*Registered Professional Botanical, Environmental and Ecological Scientist*





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## EXECUTIVE SUMMARY

The proposed activity entails the rezoning of Erf 5662 and the development of a new cemetery and associated infrastructure on this property. For the purpose of this site sensitivity scan it was assumed that the whole of Erf 5662 will be impacted or transformed as a result of the activity.

Historically the proposed footprint would have been covered by Swartland Shale Renosterveld, considered "Critically Endangered" in terms of the "*List of ecosystems that are threatened and in need of protection*", GN 1002, December 2011.

Erf 5662 is a portions of a larger land unit still actively cultivated (dry-land seasonal crops such as wheat & lucerne). It is surrounded by cultivated land. At the time of the site visit it had just been ploughed/prepared for the next planting season (Photo 1). It has clearly been subject to agricultural use over a long period of time. No remaining indigenous veld (or even species of any significance) was observed within or anywhere near the site. The site can only be described as transformed because of past and present agricultural practices. Given the transformed condition of the site, the development footprint will have no significant impact on national or provincial conservation targets for this vegetation type. Also take into account that Renosterveld, once cultivated, will not restore itself for many generations (if ever).

A Screening Tool Report (generated 08/03/2022) suggests a Very High Sensitivity rating in terms of the Terrestrial Biodiversity Theme.

However, the site itself is considered transformed with no natural veld or even plant species of any significance remaining (refer to Heading 4.1).

**As a result, the sensitivity rating for the Terrestrial Biodiversity Theme for this site should be negligible.**

It is considered highly unlikely that the development will contribute significantly to any of the following:

- Significant loss of vegetation type and associated habitat.
- Loss of ecological processes (e.g., migration patterns, pollinators, river function etc.) due to construction and operational activities.
- Loss of local biodiversity and threatened species.
- Loss of ecosystem connectivity

**WITH THE AVAILABLE INFORMATION IT IS RECOMMENDED THAT PROJECT BE APPROVED**

## INDEPENDENCE & CONDITIONS

PB Consult is an independent consultant and has no interest in the activity other than fair remuneration for services rendered. Remunerations for services are not linked to approval by decision making authorities and PB Consult have no interest in secondary or downstream development because of the authorization of this proposed project. There are no circumstances that compromise the objectivity of this report. The findings, results, observations, and recommendations given in this report are based on the author's best scientific and professional knowledge and available information. PB Consult reserve the right to modify aspects of this report, including the recommendations if new information become available which may have a significant impact on the findings of this report.

## RELEVANT QUALIFICATIONS & EXPERIENCE OF THE AUTHOR

Mr. Peet Botes holds a BSc. (Hons.) degree in Plant Ecology from the University of Stellenbosch (Nature Conservation III & IV as extra subjects). Since qualifying with his degree, he had worked for more than 20 years in the environmental management field, first at the Overberg Test Range (a Division of Denel) managing the environmental department of OTR and being responsible for developing and implementing an ISO14001 environmental management system, ensuring environmental compliance, performing environmental risk assessments with regards to missile tests and planning the management of the 26 000 ha of natural veld, working closely with CapeNature (De Hoop Nature Reserve).

In 2005 he joined Enviroscientific, an independent environmental consultancy specializing in wastewater management, botanical and biodiversity assessments, developing environmental management plans and strategies, environmental control work as well as doing environmental compliance audits and was also responsible for helping develop the biodiversity part of the Farming for the Future audit system implemented by Woolworths. During his time with Enviroscientific he performed more than 400 biodiversity environmental legal compliance audits.

During 2010 he joined EnviroAfrica to move back to the biodiversity aspects of environmental management. Experience with EnviroAfrica includes NEMA EIA applications, environmental management plans for various industries, environmental compliance audits, environmental control work as well as more than 70 biodiversity & botanical specialist studies.

Towards the end of 2017, Mr. Botes started his own small environmental consulting business focusing on biodiversity & botanical assessments, biodiversity management plans and environmental compliance audits.

Mr. Botes is a registered Professional Botanical, Environmental and Ecological Scientists at SACNASP (South African Council for Natural Scientific Professions) as required in terms of Section 18(1)(a) of the Natural Scientific Professions Act, 2003, since 2005.

## DECLARATION OF INDEPENDENCE

**THE INDEPENDENT PERSON WHO COMPILED A SPECIALIST REPORT OR UNDERTOOK A SPECIALIST PROCESS**

I Petrus, Jacobus, Johannes Botes, as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in this application;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014, as amended, and any specific environmental management Act;
- have and will not have no vested interest in the proposed activity proceeding;
- have disclosed, to the applicant, EAP and competent authority, any material information that have or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- am fully aware of and meet the responsibilities in terms of NEMA, the Environmental Impact Assessment Regulations, 2014 (specifically in terms of regulation 13 of GN No. R. 326) and any specific environmental management Act, and that failure to comply with these requirements may constitute and result in disqualification;
- have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- have ensured that the names of all interested and affected parties that participated in terms of the specialist input/study were recorded in the register of interested and affected parties who participated in the public participation process;
- have provided the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 13 of GN No. R. 326.

**Note:** The terms of reference must be attached.

Signature of the specialist:

PB Consult (Sole Proprietor)

Name of company:

27 May 2022

Date:

## COMPLIANCE WITH APPENDIX 6 OF GN. 982 (4 DECEMBER 2014)

**Specialist reports**

| | |
|---|---|
| **1. A specialist report prepared in terms of these regulations must contain -** | |
| a) Details of – | **Refer to:** |
| (i) The specialist who prepared the report; and | Refer to Page ii, iii & Appendix 1 |
| (ii) The expertise of the specialist to compile a specialist report including a curriculum vitae; | Refer to Appendix 1 |
| b) A declaration that the specialist is independent in a form as may be specified by the competent authority; | Refer to Page iii |
| c) An indication of the scope of, and the purpose for which the report was prepared; | Refer to Heading 1.2 |
| d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment; | Refer to Heading 1.4 |
| e) A description of the methodology adopted in preparing the report or carrying out the specialist process inclusive of equipment and modeling used; | Refer to Heading 1.4 |
| 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 infrastructures, inclusive of a site plan identifying site alternatives; | Refer to Headings 4 |
| g) An identification of any areas to be avoided, including buffers; | Refer to Heading 4.2 |
| 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; | Refer to Heading 4.2 |
| i) A description of any assumptions made and any uncertainties or gaps of knowledge; | Refer to Heading 1.4 |
| j) A description of the findings and potential implications of such findings on the impact of the proposed activity, [including identified alternatives on the environment] or activities; | Refer to Heading 4 |
| k) Any mitigation measures for inclusion in the EMPr; | None |
| l) Any conditions for inclusion in the environmental authorization; | None |
| m) Any monitoring requirements for inclusion in the EMPr or environmental authorization; | Refer to Heading 5 |
| n) A reasoned opinion - | |
| (i) [as to] whether the proposed activity, activities or portions thereof should be authorized; | Refer to the "*Executive Summary*" (Page i) |
| (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 authorized, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable the closure plan; | Refer to the "*Executive Summary*" (Page i) |
| o) A description of any consultation process that was undertaken during the course of preparing the specialist report; | N/a |
| p) A summary and copies of any comments received during any consultation process and where applicable all responses thereto; and | N/a |
| q) Any information requested by the competent authority. | N/a |
| **2. Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.** | |

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# 1. INTRODUCTION

Moorreesburg is a small town between Malmesbury and Piketberg, just off the N7, within the Swartland Local Municipal of the Western Cape Province. The Swartland Local Municipality would like to establish a new cemetery on Erf 5662, next to Moorreesburg. Erf 5662 is just over 5 ha in size and located to the northeast of the existing urban development footprint, but within the Municipal urban edge. The property is used for dryland cultivation (mainly wheat) and is located within an agricultural area (no natural remaining).

The proposed activity entails the rezoning of Erf 5662 and the development of a new cemetery and associated infrastructure on this property. For the purpose of this site sensitivity scan it was assumed that the whole of Erf 5662 will be impacted or transformed as a result of the activity.

The proposed development will trigger listed activities in terms of the NEMA EIA regulations. EnviroAfrica was appointed to facilitate the NEMA EIA application process. A Screening Tool Report (generated 08/03/2022) suggests a Very High Sensitivity rating in terms of the Terrestrial Biodiversity Theme. As a result, PB Consult was appointed to perform a biodiversity scan of the proposed site and to submit a Terrestrial Biodiversity Compliance Statement.

Historically the proposed footprint would have been covered by Swartland Shale Renosterveld, considered "Critically Endangered" in terms of the "*List of ecosystems that are threatened and in need of protection*", GN 1002, December 2011. More recently the 2018 National Biodiversity Assessment (NBA) was published (Skowno *et al.*, 2019a & Skowno *et a*l, 2019b). Although the findings of the 2018 NBA it is not yet formally adopted by NEM: BA in terms of regulations it is important to consider these findings. The 2018 NBA still consider this vegetation type as "Critically Endangered". The site does not overlap any critical biodiversity areas (CBA's) or ecological support areas (ESA's) as identified within the 2017 Western Cape Biodiversity Spatial Plan (WCBSP) (CapeNature, 2017).

The site visit confirmed that the entire Erf had been transformed because of agriculture and does not support any remaining indigenous vegetation. It is the opinion of the author that a full botanical assessment will not produce any significant additional information.

## 1.1. LEGISLATION GOVERNING THIS REPORT

This is a specialist report, compiled in terms of:

- The National Environmental Management Act, Ac. 107 of 1998 (NEMA);
- Appendix 6 of the Environmental Impact Assessment Regulations, 2014 (as amended);
- The "Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes" in terms of Sections 24(5)(a) and (h) and 44 of the NEMA (Government Notice No. 320 of 20 March 2020).

## 1.2. TERMS OF REFERENCE

The terms of reference for this appointment were to:

- Evaluate, discuss and verify the site sensitivity in terms of the Biodiversity Protocol for specialist assessment.
- Determine and record the position of any plant species of special significance (e.g., protected tree species, or rare or endangered plant species) that should be avoided or that may require "search & rescue" intervention.
- Make recommendations on impact minimization and further studies, should it be required

## 1.3. LOCATION & LAYOUT

Moorreesburg is located, just off the N7, between Malmesbury and Piketberg. It falls within the Swartland Municipality of the Western Cape Province (Figure 1). Erf 5662 (Malmesbury) is outside of the urban edge (as defined by NEMA) to the northeast of town, and within Municipal urban (Figure 2). The property is just over 5 ha in size (CapeFarmMapper).

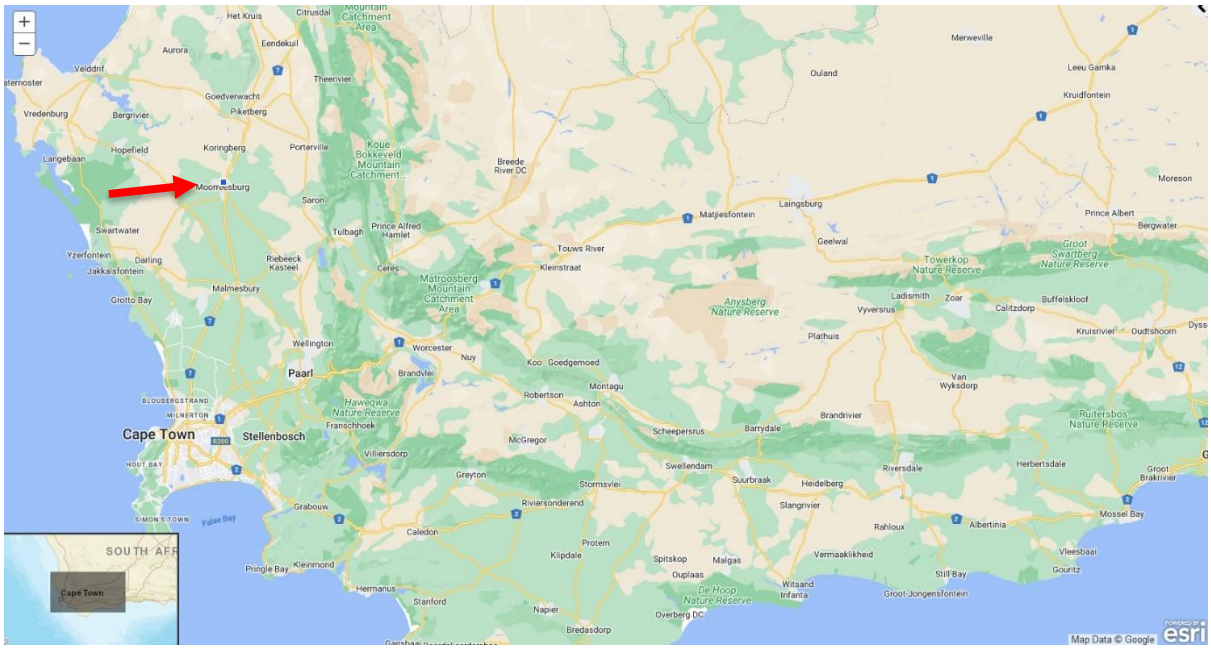



**Figure 1: The location of Moorreesburg in relation to Malmesbury and Piketberg.**


**Figure 2: The location of Erf 5662 within Moorreesburg.**

Corner GPS coordinates for the site are as follows:

| | | | |
|---|---|---|---|
| ***Northwestern corner:*** | S33° 07' 43.0" E18° 40' 05.9" | ***Northeastern corner:*** | S33° 07' 42.4" E18° 40' 15.2" |
| ***Southwestern corner:*** | S33° 07' 49.7" E18° 40' 06.5" | ***Southeastern corner:*** | S33° 07' 49.1" E18° 40' 15.8" |
| ***Midpoint:*** | S33° 07' 46.0" E18° 40' 10.8" | | |

## 1.4. EVALUATION METHOD

Desktop studies together with a site visit was performed to evaluate the site sensitivity in terms of terrestrial biodiversity and specifically potential botanical features of significance and to make recommendations on mitigation measures (should it be required). As part of the desktop study spatial information from online databases such as SANBI BGIS, CapeFarmMapper and Google Earth were used to evaluate the site in terms of vegetation type(s) expected, potential significant features that might be encountered (e.g., variations in soil type, rocky outcrops etc.) and obvious differences in landscape or vegetation densities, which might indicate differences in plant community or species composition. Expected plant species lists were prepared and species of special significance were flagged (to be used as reference during the site visit).

The following general conclusions were drawn on completion of the desktop assessment:

- The footprint and its immediate surroundings are unlikely to support any remaining natural veld and are almost certainly transformed (existing agricultural land);
- Originally, the footprint would have been covered by Swartland Shale Renosterveld (Figure 4), classified as of "Critically Endangered" in terms of the "*List of ecosystems that are threatened and in need of protection*" (GN 1002, December 2011), (Refer to Heading 2).
- According to the 2017 Western Cape Biodiversity Spatial Plan (WCBSP) (Heading 3) the property does not overlap any CBA's or ESA's (Figure 5).

The site visit was conducted on the 14th of May 2022. The survey was conducted by walking the site while examining, marking, and photographing any area of interest. A hand-held Garmin GPSMAP 62s was used to track the sampling route and record waypoints of locations of specific importance. During the survey notes, together with a photographic record, were compiled for the vegetation and landscape. The author endeavoured to identify and locate all significant biodiversity features, special plant species and or specific soil conditions which might indicate special botanical features (e.g., rocky outcrops or heuweltjies). The timing of the site visit was reasonable, given the degraded state of the property.

The site visit confirmed that the proposed footprint (and its surroundings) had been transformed because of agricultural activities. No natural veld remains.

## 1.5. ACTIVITY DESCRIPTION

The proposed activity entails the rezoning of Erf 5662 and the development of a new cemetry and associated infrastructure on the property. For the purpose of this site sensitivity scan it was assumed that the whole of Erf 5662 will be impacted or transformed as a result of the activity.

## 1.6. CURRENT LAND USE

Erf 5662 is a portions of a larger land unit still actively under dry-land seasonal crops (e.g., wheat & lucerne). It is surrounded by cultivated land. At the time of the site visit it had just been ploughed/prepared for the next planting season (Photo 1).

Figure 3 shows a recent Google Image of the property that will be impacted (with the proposed development footprint in green). The transformed state of the site is easily discernable.


**Figure 3: Google Image of Erf 5662 showing the proposed development footprint (green.**

**Photo 1:** A view over Erf 5662, looking from northwest to southeast over the site.

# 2. THE VEGETATION MAP OF SA

According to the 2018 version of the Vegetation map of SA (Mucina & Rutherford, 2006) the site is located within an area that would have been covered by Swartland Shale Renosterveld (Figure 4). This vegetation type is classified as "Critically Endangered" in terms of "*List of ecosystems that are threatened and in need of protection*" (GN 1002, December 2011), promulgated in terms of the National Environmental Management Biodiversity Act, Act 10 of 2004. More recently the 2018 National Biodiversity Assessment (NBA) was published (Skowno et al., 2019a & Skowno et al, 2019b). Although the findings of the 2018 NBA it is not yet formally adopted by NEM: BA, Swartland Shale Renosterveld remains classified as "Critically Endangered".

Mucina & Rutherford (2006) describe Swartland Shale Renosterveld as low to moderately tall leptophyllous shrubland of varying canopy cover as well as low, open shrubland dominated by renosterbos occurring on moderately undulating plains and valleys. Heuweltjies are a very prominent local feature of the environment, forming 'hummockveld' near Piketberg. Stunted trees and thicket are often associated with the heuweltjies. Disturbed areas are dominated by *Athanasia trifurcata* and *Otholobium hirtum*. Patches of *Cynodon dactylon* sometimes occur in abundance.


**Figure 4: Vegetation map of South Africa (2018 version) showing the property in green**

## 2.1. THE VEGETATION IN CONTEXT

Swartland Shale Renosterveld is a part of the Fynbos Biome. Renosterveld has long been the least understood component of the Fynbos Biome, with very little known of its functioning and ecological requirements. It is, however becoming increasingly appreciated for its uniqueness and high species diversity, especially geophytes. Four of the 30 recognized types of renosterveld occur in the Swartland, namely Swartland Shale, Granite, Silcrete and Alluvium Renosterveld. Three of these types are classified as Critically Endangered and the fourth as

Vulnerable. Swartland Shale Renosterveld contains the highest concentration of threatened plant species: 214 species in total, 25 of which are endemic to the vegetation type. A very prominent feature of Swartland renosterveld is its heuweltjies (earth mounds). These are the distinctive circular patches or 'spots' in the veld that give the Tygerberg its name. Heuweltjies are associated with termite nests. These patches are subject to constant disturbance by termites and their predators, and the on-going transportation of plant material by termites to the heuweltjies results in nutrient enrichment of the mounds

Swartland Shale Renosterveld is restricted to fertile fine-grained soils in the winter rainfall region of the Western Cape. Between 91% and 97% of this vegetation type is transformed, mostly due to agriculture. Remaining fragments have an irreplaceable conservation value due to a high richness of endemic geophytes (Walton, 2006).

## 3. WESTERN CAPE BIODIVERISTY SPATIAL PLAN

The 2017 Western Cape Biodiversity Spatial Plan (WCBSP) includes a map of biodiversity importance for the entire province, covering both the terrestrial and freshwater realms, as well as major coastal and estuarine habitats (Pool-Stanvliet, 2017). The WCBSP is the product of a systematic biodiversity plan that delineates, on a map, Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs), which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services (CapeNature, 2017).

According to critical biodiversity areas maps for the Swartland Municipality, the site does not overlap any critical biodiversity areas (CBA's) or ecological support areas (ESA's) as identified within the 2017 Western Cape Biodiversity Spatial Plan (WCBSP) (CapeNature, 2017).

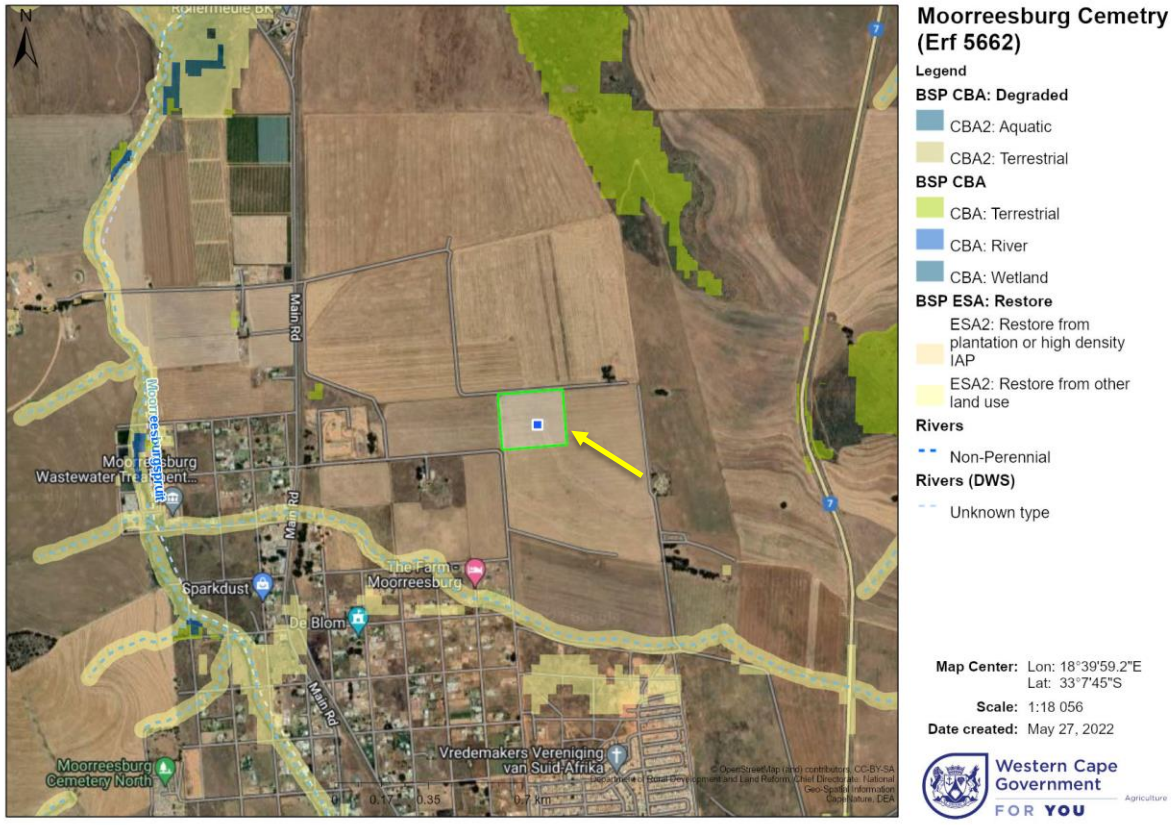



**Figure 5: Western Cape Biodiversity Spatial Plan (2017) indicting the location of the site in relation to critical biodiversity areas**

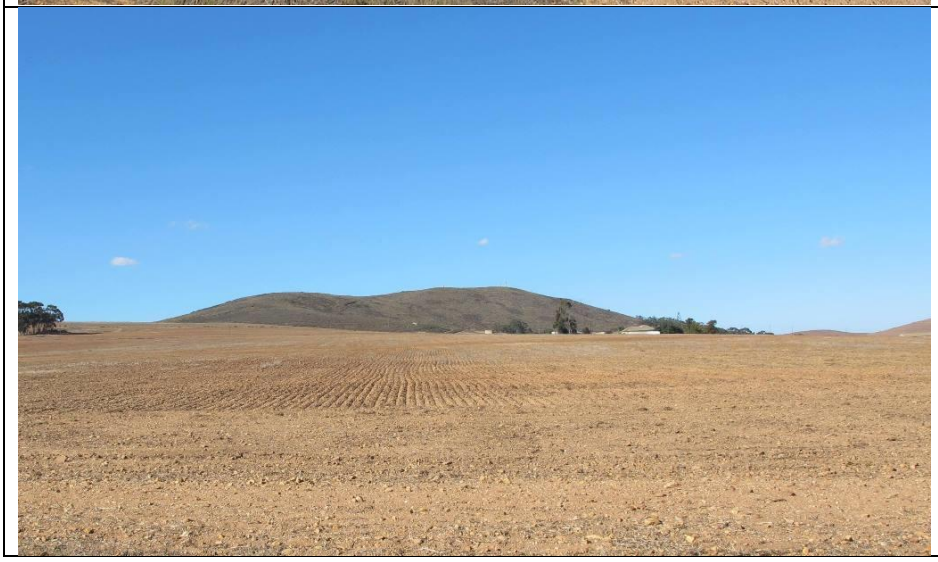
# 4. SITE SENSITIVITY

Erf 5662 is just over 5 ha in size and located to the northeast of the existing urban development footprint, but within the Municipal urban edge.

## 4.1. VEGETATION ENCOUNTERED

The property is used for dryland cultivation (mainly wheat) and is located within an agricultural area (no natural remaining). It has clearly been subject to agricultural use over a long period of time. The site visit confirmed that the site was totally degraded/transformed because of past and present agriculture. No remaining indigenous veld (or even species of any significance) was observed within or anywhere near the site.

It is a known fact that Renosterveld, once cultivated, will not restore itself for many generations (if ever). The site can only be described as transformed because of past and present agricultural practices. Given the transformed condition of the site, the development footprint will have no significant impact on national or provincial conservation targets for this vegetation type.

| | |
|---|---|
|  | **Photo 2:** Erf 5662 is located on the corner of Eight Avenue and Omega Street in Moorreesburg). This photo is directed southwards along Omega Street with Erf 5662 to the left. |
|  | **Photo 3:** Standing within Erf 5662 – looking from west to east. Note the resent agricultural activities (being prepared for planting). |

| | |
|---|---|
|  | **Photo 4:** Looking from south to north over Erf 5662. Note that the site is presently cultivated as part of a larger cultivation area. |
|  | **Photo 5:** Looking from east to west over the site. |
|  | **Photo 6**: Looking from north to south over the property, with Morreesburg Town in the background. |

### 4.2. SITE SENSITIVITY MAP

The site itself is considered degraded / transformed with no natural veld of any significance remaining (refer to Heading **Error! Reference source not found.**).

As a result, the sensitivity rating for the Terrestrial Biodiversity Theme for this site should be negligible.

Normally a sensitivity map would have been included in the report. In this case there remains no sensitive areas and as a result, no sensitivity map is deemed necessary.

## 5. RECOMMENDATIONS

It is considered highly unlikely that the proposed development will lead to any significant impact on any remaining vegetation or fauna species of significant conservation value. In fact, the terrain and its immediate surroundings are considered transformed.

Recommendations on impact minimization are thus limited to good environmental control:

- A suitably qualified Environmental Control Officer should be appointed to monitor the construction phase, specifically pollution and waste management.
- An integrated waste management approach must be implemented during construction.

# 6. REFERENCES

**CapeNature. 2017** WCBSP Swartland [vector geospatial dataset] 2017. Available from the Biodiversity GIS website, downloaded on 20 May 2022.

**De Villiers C.C., Driver, A., Brownlie, S., Clark, B., Day, E.G., Euston-Brown, D.I.W., Helme, N.A., Holmes, P.M., Job, N. & Rebelo, A.B. 2005.** Fynbos Forum Ecosystem Guidelines for Environmental Assessment in the Western Cape. Fynbos Forum, c/o Botanical Society of South Africa: Conservation Unit, Kirstenbosch, Cape Town.

**Driver A., Sink, K.J., Nel, J.N., Holness, S., Van Niekerk, L., Daniels, F., Jonas, Z., Majiedt, P.A., Harris, L. & Maze, K. 2012.** National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. Synthesis Report. South African National Biodiversity Institute and Department of Environmental Affairs, Pretoria

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**South African National Biodiversity Institute. 2020.** Statistics: Red List of South African Plants version 2020.1. Downloaded from Redlist.sanbi.org on 2021/011/15.

## APPENDIX 1: CURRICULUM VITAE – P.J.J. BOTES

# Curriculum Vitae: Peet JJ Botes

**Address**: 22 Buitekant Street, Bredasdorp, 7280; **Cell**: 082 - 921 5949

| | |
|---|---|
| **Nationality**: | South African |
| **ID No.:** | 670329 5028 081 |
| **Language:** | Afrikaans / English |
| **Profession**: | Environmental Consultant & Auditing |
| **Specializations**: | Botanical & Biodiversity Impact Assessments |
| | Environmental Compliance Audits |
| | Environmental Impact Assessment |
| | Environmental Management Systems |
| **Qualifications**: | **BSc** (Botany & Zoology), with Nature Conservation III & IV as extra subjects; Dept. of Natural Sciences, Stellenbosch University 1989. |
| | **Hons. BSc** (Plant Ecology), Stellenbosch University, 1989 |
| | More than 20 years of experience in the Environmental Management Field (Since 1997 to present). |
| **Professional affiliation**: | Registered Professional Botanical, Environmental and Ecological Scientist at SACNASP (South African Council for Natural Scientific Professions) since 2005. |
| **SACNAP Reg**. No.: | 400184/05 |

**BRIEF RESUME OF RELEVANT EXPERIENCE**

**1997-2005**: Employed by the Overberg Test Range (a Division of Denel), responsible for managing the environmental department of OTB, developing and implementing an ISO14001 environmental management system, ensuring environmental compliance, performing environmental risk assessments with regards to missile tests and planning the management of the 26 000 ha of natural veld, working closely with CapeNature (De Hoop Nature Reserve).

**2005-2010:** Joined Enviroscientific, as an independent environmental consultant specializing in wastewater management, botanical and biodiversity assessments, developing environmental management plans and strategies, environmental control work as well as doing environmental compliance audits and was also responsible for helping develop the biodiversity part of the Farming for the Future audit system implemented by Woolworths. During his time with Enviroscientific he performed more than 400 biodiversity and environmental legal compliance audits.

**2010-2017:** Joined EnviroAfrica, as an independent Environmental Assessment Practitioner and Biodiversity Specialist, responsible for Environmental Impact Assessments, Biodiversity & Botanical specialist reports and Environmental Compliance Audits. During this time Mr Botes compiled more than 70 specialist Biodiversity & Botanical impact assessment reports ranging from agricultural-, infrastructure pipelines- and solar developments.

**2017-Present:** Establish a small independent consultancy (PB Consult) specialising in Environmental Audits, Biodiversity and Botanical specialist studies as well as Environmental Impact Assessment.

**LIST OF MOST RELEVANT BOTANICAL & BIODIVERSITY STUDIES**


Botes. P. 2007: Botanical assessment. Schaapkraal, Erf 644, Mitchell's Plain. A preliminary assessment of the vegetation in terms of the Fynbos Forum: Ecosystem guidelines. 13 November 2007.

Botes. P. 2008: Botanical assessment. Schaapkraal Erf 1129, Cape Town. A preliminary assessment of the vegetation using the Fynbos Forum Terms of Reference: Ecosystem guidelines for environmental Assessment in the Northern Cape. 20 July 2008.

Botes, P. 2010(a): Botanical assessment. Proposed subdivision of Erf 902, 34 Eskom Street, Napier. A Botanical scan and an assessment of the natural vegetation of the site to assess to what degree the site contributes towards conservation targets for the ecosystem. 15 September 2010.

Botes, P. 2010(b): Botanical assessment. Proposed Loeriesfontein low-cost housing project. A preliminary Botanical Assessment of the natural veld with regards to the proposed low cost housing project in/adjacent to Loeriesfontein, taking into consideration the National Spatial Biodiversity Assessment of South Africa. 10 August 2010.

Botes, P. 2010(c): Botanical assessment: Proposed Sparrenberg dam, on Sparrenberg Farm, Ceres. . A Botanical scan and an assessment of the natural vegetation of the site. 15 September 2010.

Botes, P. 2011: Botanical scan. Proposed Cathbert development on the Farm Wolfe Kloof, Paarl (Revised). A botanical scan of Portion 2 of the Farm Wolfe Kloof No. 966 (Cathbert) with regards to the proposed Cathbert Development, taking into consideration the National Spatial Biodiversity Assessment of South Africa. 28 September 2011.

Botes, P. 2012(a): Proposed Danielskuil Keren Energy Holdings Solar Facility on Erf 753, Danielskuil. A Biodiversity Assessment (with botanical input) taking into consideration the findings of the National Spatial Biodiversity Assessment of South Africa. 17 March 2012.

Botes, P. 2012(b): Proposed Disselfontein Keren Energy Holdings Solar Facility on Farm Disselfontein no. 77, Hopetown. A Biodiversity Assessment (with botanical input) taking into consideration the findings of the National Spatial Biodiversity Assessment of South Africa. 28 March 2012.

Botes, P. 2012(c): Proposed Kakamas Keren Energy Holdings Solar Facility on Remainder of the Farm 666, Kakamas. A Biodiversity Assessment (with botanical input) taking into consideration the findings of the National Spatial Biodiversity Assessment of South Africa. 13 March 2012.

Botes, P. 2012(d): Proposed Keimoes Keren Energy Holdings Solar Facility at Keimoes. A Biodiversity Assessment (with botanical input) taking into consideration the findings of the National Spatial Biodiversity Assessment of South Africa. 9 March 2012.

Botes, P. 2012(e): Proposed Leeu-Gamka Keren Energy Holdings Solar Facility on Portion 40 of the Farm Kruidfontein no. 33, Prince Albert. A Biodiversity Assessment (with botanical input) taking into consideration the findings of the National Spatial Biodiversity Assessment of South Africa. 27 March 2012.

Botes, P. 2012(f): Proposed Mount Roper Keren Energy Holdings Solar Facility on Farm 321, Kuruman. A Biodiversity Assessment (with botanical input) taking into consideration the findings of the National Spatial Biodiversity Assessment of South Africa. 28 March 2012.

Botes, P. 2012(g): Proposed Whitebank Keren Energy Holdings Solar Facility on Farm no. 379, Kuruman. A Biodiversity Assessment (with botanical input) taking into consideration the findings of the National Spatial Biodiversity Assessment of South Africa. 27 March 2012.

Botes, P. 2012(h): Proposed Vanrhynsdorp Keren Energy Holdings Solar Facility on Farm Duinen Farm no. 258, Vanrhynsdorp. A Biodiversity Assessment (with botanical input) taking into consideration the findings of the National Spatial Biodiversity Assessment of South Africa. 13 April 2012.

Botes, P. 2012(i): Askham (Kameelduin) proposed low cost housing, Mier Municipality Residential Project, Northern Cape. A preliminary Biodiversity & Botanical scan in order to identify significant environmental features (and to identify the need for additional studies if required. 1 November 2012.

Botes, P. 2013(a): Groot Mier proposed low cost housing, Mier Municipality Residential Project, Northern Cape. A preliminary Biodiversity & Botanical scan in order to identify significant environmental features (and to identify the need for additional studies if required. January 2013.

Botes, P. 2013(b): Loubos proposed low cost housing, Mier Municipality Residential Project, Northern Cape. A preliminary Biodiversity & Botanical scan in order to identify significant environmental features (and to identify the need for additional studies if required. January 2013.

Botes, P. 2013(c): Noenieput proposed low cost housing, Mier Municipality Residential Project, Northern Cape. A preliminary Biodiversity & Botanical scan in order to identify significant environmental features (and to identify the need for additional studies if required. January 2013.

Botes, P. 2013(d): Rietfontein proposed low cost housing, Mier Municipality Residential Project, Northern Cape. A preliminary Biodiversity & Botanical scan in order to identify significant environmental features (and to identify the need for additional studies if required. January 2013.

Botes, P. 2013(e): Welkom proposed low cost housing, Mier Municipality Residential Project, Northern Cape. A preliminary Biodiversity & Botanical scan in order to identify significant environmental features (and to identify the need for additional studies if required. January 2013.

Botes, P. 2013(f): Zypherfontein Dam Biodiversity & Botanical Scan. Proposed construction of a new irrigation dam on Portions 1, 3, 5 & 6 of the Farm Zypherfontein No. 66, Vanrhynsdorp (Northern Cape) and a scan of the proposed associated agricultural enlargement. September 2013.

Botes, P. 2013(g): Onseepkans Canal: Repair and upgrade of the Onseepkans Water Supply and Flood Protection Infrastructure, Northern Cape. A Biodiversity & Botanical scan in order to identify significant environmental features (and to identify the need for additional studies if required). August 2013.

Botes, P. 2013(h): Biodiversity scoping assessment with regards to a Jetty Construction On Erf 327, Malagas (Matjiespoort). 24 October 2013.

Botes, P. 2013(i): Jacobsbaai pump station and rising main (Saldanha Bay Municipality). A Botanical Scan of the area that will be impacted by the proposed Jacobsbaai pump station and rising main. 30 October 2013.

Botes, P. 2014(a): Brandvlei Bulk Water Supply: Proposed construction of a 51 km new bulk water supply pipeline (replacing the existing pipeline) from Romanskolk Reservoir to the Brandvlei Reservoir, Brandvlei (Northern Cape Province). A preliminary Biodiversity & Botanical scan in order to identify significant environmental features (and to identify the need for additional studies if required). 24 February 2014.

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Botes, P. 2014(b): Kalahari-East Water Supply Scheme Extension: Phase 1. Proposed extension of the Kalahari-East Water Supply Scheme and associated infrastructure to the Mier Municipality, ZF Mgcawu District Municipality, Mier Local Municipality (Northern Cape Province). Biodiversity & Botanical scan of the proposed route to determine the possible impact on biodiversity with emphasis on vegetation and plant species. 1 July 2014.

Botes, P. 2014(c): The proposed Freudenberg Farm Homestead, Farm no. 419/0, Tulbagh (Wolseley Area). A Botanical scan of possible remaining natural veld on the property. 26 August 2014.

Botes, P. 2014(d): Postmasburg WWTW: Proposed relocation of the Postmasburg wastewater treatment works and associated infrastructure, ZF Mgcawu District Municipality, Tsantsabane Local Municipality (Northern Cape Province). Biodiversity and botanical scan of the proposed pipeline route and WWTW site. 30 October 2014.

Botes, P. 2015(a): Jacobsbaai pump station and rising main (Saldanha Bay Municipality) (Revision). A Botanical Scan of the area that will be impacted by the proposed Jacobsbaai pump station and rising main. 21 January 2015.

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Botes, P 2015(c): Proposed Bredasdorp Feedlot, Portion 10 of Farm 159, Bredasdorp, Cape Agulhas Municipality, Northern Cape Province. A Botanical scan of the area that will be impacted. 28 July 2015.

Botes, P. 2016(a): OWK Raisin processing facility, Kuruman, Erf 151, Kenhardt, Northern Cape Province. A Botanical scan of the proposed footprint. 26 May 2016.

Botes, P. 2016(b): Onseepkans Agricultural development. The proposed development of ±250 ha of new agricultural land at Onseepkans, Northern Cape Province. Biodiversity and Botanical Scan. January 2016.

Botes, P. 2016(c): Henkries Mega-Agripark development. The proposed development of ±150 ha of high potential agricultural land at Henkries, Northern Cape Province. Biodiversity and Botanical Scan of the proposed footprint. 28 February 2016.

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Botes, P. 2018(e): Kakamas Bulk Water Supply – New bulk water supply line for Kakamas, Lutzburg & Cillie, Khai !Garib Local Municipality, Northern Cape Province. Botanical assessment of the proposed footprint. 4 August 2018.

Botes, P. 2018(f): Wagenboom Weir & Pipeline – Construction of a new pipeline and weir with the Snel River, Breede River Local Municipality, Northern Cape Province. Botanical assessment of the proposed footprint. 7 August 2018.

Botes, P. 2018(g): Steynville (Hopetown) outfall sewer pipeline – Proposed development of a new sewer outfall pipeline, Hopetown, Northern Cape Province. Botanical assessment of the proposed footprint. 8 October 2018.

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Botes, P. 2019(a): Lethabo Park Extension – Proposed extension of Lethabo Park (Housing Development) on the remainder of the Farm Roodepan No. 70, Erf 17725 and Erf 15089, Roodepan Kimberley. Sol Plaaitje Local Municipality, Northern Cape Province. Botanical assessment of the proposed footprint (with biodiversity inputs). 15 May 2019.

Botes, P. 2019(b): Verneujkpan Trust agricultural development – The proposed development of an additional ±250 ha of agricultural land on Farms 1763, 2372 & 2363, Kakamas, Northern Cape Province. 27 June 2019.

Botes, P. 2020(a): Gamakor & Noodkamp Low cost housing – Botanical Assessment of the proposed formalization of the Gamakor and Noodkamp housing development on the remainder and portion 128 of the Farm Kousas No. 459 and Ervin 1470, 1474 and 1480, Gordonia road, Keimoes. Kai !Gariep Local Municipality, Northern Cape Province. 6 February 2020.

Botes, P. 2020(b): Feldspar Prospecting & Mining, Farm Rozynen Bosch 104, Kakamas. Botanical assessment of the proposed prospecting and mining activities on Portion 5 of The Farm Rozynen Bosch No. 104, Kakamas, Khai !Garib Local Municipality, Northern Cape Province. 12 February 2020.

Botes, P. 2020(c): Boegoeberg housing project – Botanical assessment of the proposed formalization and development of 550 new erven on the remainders of farms 142 & 144 and Plot 1890, Boegoeberg settlement, !Kheis Local Municipality, Northern Cape Province. 1 July 2020.

Botes, P. 2020(d): Komaggas Bulk Water supply upgrade – Botanical assessment of the proposed upgrade of the existing Buffelsrivier to Komaggas BWS system, Rem. of Farm 200, Nama Khoi Local Municipality, Northern Cape Province. 8 July 2020.

Botes, P. 2020(e): Grootdrink housing project – Botanical assessment of the proposed formalization and development of 370 new erven on Erf 131, Grootdrink and Plot 2627, Boegoeberg Settlement, next to Grootdrink, !Kheis Local Municipality, Northern Cape Province. 14 July 2020.

Botes, P. 2020(f): Opwag housing project – Botanical assessment of the proposed formalization and development of 730 new erven on Plot 2642, Boegoeberg Settlement and Farm Boegoeberg Settlement NO.48/16, Opwag, !Kheis Local Municipality, Northern Cape Province. 16 July 2020.

Botes, P. 2020(g): Wegdraai housing project – Botanical assessment of the Proposed formalization and development of 360 new erven on Erven 1, 45 & 47, Wegdraai, !Kheis Local Municipality, Northern Cape Province. 17 July 2020.

Botes, P. 2020(h): Topline (Saalskop) housing project – Botanical assessment of the pproposed formalization and development of 248 new erven on Erven 1, 16, 87, Saalskop & Plot 2777, Boegoeberg Settlement, Topline, !Kheis Local Municipality, Northern Cape Province. 18 July 2020.

Botes, P. 2020(i): Gariep housing project – Botanical assessment of the proposed formalization and development of 135 new erven on Plot 113, Gariep Settlement, !Kheis Local Municipality, Northern Cape Province. 20 July 2020.