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**SITE SENSITIVITY VERIFICATION
AND
AGRICULTURAL COMPLIANCE STATEMENT
FOR THE PROPOSED BITOU CEMETERIES, PLETTENBERG BAY, WESTERN CAPE PROVINCE**

**Report by
Johann Lanz**

27 September 2023

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EXECUTIVE SUMMARY

The overall conclusion of this assessment is that the proposed development is acceptable because it leads to no loss of potential cropland and therefore minimal loss of future agricultural production potential.

The site is classified as high agricultural sensitivity by the screening tool. This has been disputed by this assessment, because of the agricultural production potential and current agricultural land use, and the entire site is rated by this assessment as being of medium agricultural sensitivity.

Although cropping may occur in the area, the cropping potential of the site is limited by soil constraints. The soils on site are constrained by shallow depth and poor drainage. The site is unlikely to be suitable for rain-fed crop production. Furthermore, factors other than climate, terrain, and soil capability also constrain the potential of the property to practically deliver agricultural produce and therefore influence its agricultural production potential. These factors include its location surrounded largely by non-agricultural land uses, the lack of any existing cropping infrastructure or inputs, and municipal ownership of the land, which would discourage the necessary investment to establish cropland. For these reasons, the site is highly unlikely to ever be viably utilised for crop production and its potential is therefore assessed here as low.

An agricultural impact is a change to the future agricultural production potential of land. This is primarily caused by the exclusion of agriculture from the footprint of the development. In this case, the entire development footprint is considered to be below the threshold for needing to be conserved as agricultural production land because of the limitations on its cropping potential. The production potential of the land is limited to only being suitable as grazing land, and there is no particular scarcity of such land in the country, in contrast to arable land, which is very scarce. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security.

From an agricultural impact point of view, it is recommended that the proposed development be approved. The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.

1 INTRODUCTION

Environmental and change of land use authorisation is being sought for the proposed Bitou Cemeteries (see location in Figure 1). In terms of the National Environmental Management Act (Act No 107 of 1998 - NEMA), an application for environmental authorisation requires an agricultural assessment. In this case, based on the verified medium agricultural sensitivity of the total infrastructural footprint of the project (see Section 7), the level of agricultural assessment required is an Agricultural Compliance Statement.



Figure 1. Locality map of the property (dark blue outline), north-west of the town of Plettenberg Bay.

The purpose of an agricultural assessment is to answer the question:

Will the proposed development cause a significant reduction in agricultural production potential, and most importantly, will it result in a loss of arable land?

Section 9 of this report unpacks this question, particularly with respect to what constitutes a significant reduction. To answer the above question it is necessary to determine the existing agricultural production potential of the land that will be impacted, and specifically whether it is viable arable land or not. This is done in Section 8 of this report. Section 8, 9, and the conclusion of this report directly address the above question and therefore contain the essence of the agricultural impact assessment.

As is shown in Section 9, this assessed development will not result in any loss of viable arable land and therefore minimal threat to agricultural production potential.

2 PROJECT DESCRIPTION

The proposed development is the establishment of a cemetery. The project will cause the permanent exclusion of any potential future agricultural production from the entire site. Once agriculture is excluded from the site, there can be no further on-site agricultural impact. There is also no off-site agricultural impact. The design and layout of the development within the property is therefore of no relevance to agricultural impacts and it is unnecessary to consider it any further in this assessment. All that is of relevance is the loss of the total site to potential future agricultural production.

3 TERMS OF REFERENCE

The terms of reference for this study are to fulfill the requirements of the *Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources*, gazetted on 20 March 2020 in GN 320 (in terms of Sections 24(5)(A) and (H) and 44 of NEMA, 1998).

The terms of reference for an Agricultural Compliance Statement, as stipulated in the agricultural protocol, are listed below, and the section number of this report which fulfils each stipulation is given after it in brackets.

1. The Agricultural Compliance Statement must be prepared by a soil scientist or agricultural specialist registered with the South African Council for Natural Scientific Professions (SACNASP) (**Appendix 3**).
2. The compliance statement must:
 1. be applicable to the preferred site and proposed development footprint (**Figures 2 and 3**);
 2. confirm that the site is of “low” or “medium” sensitivity for agriculture (**Section 7**); and
 3. indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site (**Section 10**).

3. The Agricultural Compliance Statement must contain, as a minimum, the following information:
 1. details and relevant experience as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the statement including a curriculum vitae **(Appendix 1)**;
 2. a signed statement of independence by the specialist **(Appendix 2)**;
 3. a map showing the proposed development footprint (including supporting infrastructure) with a 50 m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool **(Figure 2)**;
 4. confirmation from the specialist that all reasonable measures have been taken through micro-siting to avoid or minimize fragmentation and disturbance of agricultural activities **(not applicable)**;
 5. a substantiated statement from the soil scientist or agricultural specialist on the acceptability, or not, of the proposed development and a recommendation on the approval, or not of the proposed development **(Section 10)**;
 6. any conditions to which this statement is subjected **(Section 10)**;
 7. in the case of a linear activity, confirmation from the agricultural specialist or soil scientist, that in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase **(not applicable)**;
 8. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr **(Section 9)**; and
 9. a description of the assumptions made and any uncertainties or gaps in knowledge or data **(Section 5)**.

4 METHODOLOGY OF STUDY

The assessment was based on a verification of current agricultural land use on the site and was informed by existing climate, soil and agricultural potential data for the site (see references). The level of agricultural assessment is considered entirely adequate for an understanding of on-site agricultural production potential for the purposes of this assessment.

5 ASSUMPTIONS, UNCERTAINTIES OR GAPS IN KNOWLEDGE OR DATA

There are no specific assumptions, uncertainties or gaps in knowledge or data that affect the findings of this study.

6 APPLICABLE LEGISLATION AND PERMIT REQUIREMENTS

The project will require agricultural approval (or at least comment from Department of Agriculture)

as part of the required approval in terms of applicable municipal land use legislation, as well as in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970 - SALA), because it is on land currently zoned for agriculture.

7 SITE SENSITIVITY VERIFICATION

A specialist agricultural assessment is required to verify the agricultural sensitivity of the development site as per the sensitivity categories used by the DFFE's web-based environmental screening tool. However, such an exercise is of very limited value once the agricultural assessment, which supersedes any screening tool result, has been done. What is of importance to this assessment, rather than the site sensitivity verification, is its assessment of the cropping potential (see Section 8) and its assessment of the impact significance (see Section 9).

The screening tool classifies agricultural sensitivity according to two independent criteria, from two independent data sets, both of which may be indicators of the land's agricultural production potential but are limited in that the first is outdated and the second relies on fairly coarse data. The two criteria are:

1. whether the land is classified as cropland or not on the field crop boundary data set, and
2. its land capability rating on the land capability data set

All classified cropland is, by definition, either high or very high sensitivity. Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. It is rated by the Department of Agriculture's updated and refined, country-wide land capability mapping (DAFF, 2017). The higher land capability values (≥ 8 to 15) are likely to indicate suitability as arable land for crop production, while lower values (< 8) are only likely to be suitable as non-arable grazing land. The direct relationship between land capability rating and the screening tool's agricultural sensitivity is shown in Table 1.

Table 1: Relationship between land capability and agricultural sensitivity as given by the screening tool.

Land capability value	Agricultural sensitivity
1 - 5	low
6 - 8	medium
9 - 10	high
11 - 15	very high

The agricultural sensitivity of the site, as classified by the screening tool, is shown in Figure 2.



Figure 2. The development footprint overlaid on agricultural sensitivity, as classified by the screening tool (green = low; yellow = medium; red = high; dark red = very high). The screening tool's high sensitivity is disputed by this assessment, which rates the entire assessed area as being of medium agricultural sensitivity.

The screening tool classifies the assessed area as ranging from low to high agricultural sensitivity. None of the land is classified as cropland and the rating of agricultural sensitivity is therefore purely a function of classified land capability as per Table 1 above. The high sensitivity classification is due to a portion of that land being classified with a land capability of 9.

The classified land capability of the site ranges from 4 to 9. This assessment disputes the classified land capability of >7 , based on the assessment in this report that the site is unsuitable for viable rain-fed crop production (see following section). The appropriate land capability of land that is unsuitable for viable rain-fed crop production is ≤ 7 because the relationship between land capability and agricultural production potential is such that a land capability of >7 should denote land that is suitable for viable rain-fed crop production. This assessment therefore disputes the high sensitivity rating by the screening tool that is based on a classified land capability of 9 and

rates the entire fenced area as being of medium agricultural sensitivity with a maximum land capability of 7.

8 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

The purpose of this section of an agricultural assessment report is to present the baseline information that controls the agricultural production potential of the site so that an assessment of that potential can be made. Agricultural production potential, and particularly cropping potential, is one of three factors that determines the significance of an agricultural impact, together with size of footprint and duration of impact (see Section 9).

All important parameters that control the agricultural production potential of the site are given in Table 2. The land type soil data are given in Appendix 4. A satellite image map of the development site is given in Figure 3.

The site falls outside of an area that is classified as a Protected Agricultural Area. A Protected Agricultural Area is a demarcated area in which the climate, terrain, and soil are generally conducive for agricultural production and which, historically, has made important contributions to the production of the various crops that are grown across South Africa. Within Protected Agricultural Areas, the protection, particularly of arable land, is considered a priority for the protection of food security in South Africa, but the protection of land outside of these areas is generally not considered a food security priority.

Table 2: Parameters that control and/or describe the agricultural production potential of the site.

	Parameter	Value
Climate	Köppen-Geiger climate description (Beck <i>et al</i> , 2018)	Temperate, no dry season, warm summer
	Mean Annual Rainfall (mm) (Schulze, 2009)	809
	Reference Crop Evaporation Annual Total (mm) (Schulze, 2009)	829
	Climate capability classification (out of 9) (DAFF, 2017)	7 (high)
Terrain	Terrain type	Southern Cape coastal hilly terrain
	Terrain morphological unit	Crest
	Slope gradients (%)	0-6
	Altitude (m)	185
	Terrain capability classification (out of 9)	Between 3 (very low) and 6 (moderate-high), but

	Parameter	Value
	(DAFF, 2017)	predominantly 3
Soil	Geology (DAFF, 2002)	Mainly quartzitic sandstone of the Table Mountain Group, Cape Supergroup.
	Land type (DAFF, 2002)	Ca46
	Description of the soils	Predominantly very shallow to moderately deep, medium to heavy textured, imperfectly drained soils on underlying rock, structured clay, and hardpan.
	Dominant soil forms	Es, Wa, Ss
	Soil capability classification (out of 9) (DAFF, 2017)	Predominantly 4 (low-moderate)
	Soil limitations	Drainage and limited soil depth in places
Land use	Agricultural land use in the surrounding area	Urban development, grazing, dry land crop production, irrigated crop production
	Agricultural land use on the site	Grazing
General	Long-term grazing capacity (ha/LSU) (DAFF, 2018)	108 (very low)
	Land capability classification (out of 15) (DAFF, 2017))	Between 4 (low-very low) and 9 (moderate-high)
	Within Protected Agricultural Area (DALRRD, 2020)	No

8.1 Assessment of the agricultural production potential

This assessment of the agricultural production potential of the site is based on an integration of the different parameters in Table 2 above.

Although cropping may occur in the area, the cropping potential of the site is limited by soil constraints. The soils on site are constrained by shallow depth and poor drainage. The site is unlikely to be suitable for rain-fed crop production. Furthermore, factors other than climate, terrain, and soil capability also constrain the potential of the property to practically deliver agricultural produce and therefore influence its agricultural production potential. These factors include its location surrounded largely by non-agricultural land uses, the lack of any existing cropping infrastructure or inputs, which would therefore necessitate agricultural investment for crop production, with questionable security of return on that investment, and municipal ownership of the land, which would discourage the necessary investment to establish cropland. For these reasons, the site is highly unlikely to ever be viably utilised for crop production and its potential is therefore assessed here as low.



Figure 3. Satellite image map of the development site.

9 ASSESSMENT OF THE AGRICULTURAL IMPACT

9.1 Impact identification and assessment

It should be noted that an Agricultural Compliance Statement is not required to formally rate agricultural impacts by way of impact assessment tables.

An agricultural impact is a change to the future agricultural production potential of land. In most developments, including the one being assessed here, this is primarily caused by the exclusion of agriculture from the footprint of the development. Soil erosion and degradation may also contribute to loss of agricultural production potential. The significance of an agricultural impact is a direct function of the following three factors:

1. the size of the footprint of land from which agriculture will be excluded (or the footprint that will have its potential decreased)
2. the baseline production potential (particularly cropping potential) of that land
3. the length of time for which agriculture will be excluded (or for which potential will be decreased).

The most significant agricultural impact possible, for any development anywhere in the country, ignoring the length of time component, is therefore a loss of a large area of high yielding cropland and the least significant impact is a loss of a small area of low carrying capacity grazing land.

Cropping potential is highlighted in factor 2, above, because the threshold, above which it is a priority to conserve land for agricultural production, is determined by the scarcity of arable crop production land in South Africa (approximately only 13% of the country's surface area) and the relative abundance of land that is only good enough to be used for grazing. If land can support viable and sustainable crop production, then it is considered to be above the threshold and is a priority for being conserved as agricultural production land. If land is unable to support viable and sustainable crop production, then it is considered to be below the threshold and of much lower priority for being conserved.

In this case, the entire development footprint is considered to be below the threshold for needing to be conserved as agricultural production land because of the limitations on its cropping potential, discussed in Section 8. The production potential of the land is limited to only being suitable as grazing land, and there is no particular scarcity of such land in the country, in contrast to arable land, which is very scarce. The use of this land for non-agricultural purposes will cause minimal loss of agricultural production potential in terms of national food security.

9.2 Cumulative impact assessment

Specialist assessments for environmental authorisation are required to assess cumulative impacts. The cumulative impact of a development is the impact that development will have when its impact is added to the incremental impacts of other past, present or reasonably foreseeable future activities that will affect the same environment.

Agricultural land throughout South Africa is under inevitable pressure from various non-agricultural land uses, including urban expansion. The cumulative impact of agricultural land loss is significant. However, the agricultural priority should be to conserve future agricultural production, not simply agriculturally zoned land. As has been shown above, the site has limited current agricultural production and limited capacity for future agricultural production. Therefore, it is a site which can be used for non-agricultural purposes without a high loss of agricultural production potential. The cumulative agricultural impact of the proposed development is therefore assessed

as being of low significance and therefore as acceptable. The development will not have an unacceptable negative impact on the agricultural production capability of the area, and it is therefore recommended, from a cumulative agricultural impact perspective, that the development be approved.

9.3 Mitigation measures

No mitigation measures are required for the protection of agricultural production potential on the site because the site is not utilised as agricultural production land.

9.4 Assessment of alternatives

Specialist assessments for environmental authorisation are required to assess the impacts of alternatives including the no-go alternative. The exact nature and layout of the different infrastructure within the development have absolutely no bearing on the significance of agricultural impacts. Any alternative layouts within the site will have equal impact and are assessed as equally acceptable.

The no-go alternative considers impacts that will occur to the agricultural environment in the absence of the proposed development. There are no agricultural impacts of the no-go alternative. Even though the impacted land has insufficient agricultural production potential for cropping, and the impact of the development is low, its negative agricultural impact is marginally more significant than that of the no-go alternative, and so from an agricultural impact perspective, the no-go alternative is the preferred alternative. However, the no-go option would mean that the social benefits of the project would not be realised.

10 CONCLUSION: AGRICULTURAL COMPLIANCE STATEMENT

The overall conclusion of this assessment is that the proposed development is acceptable because it leads to no loss of potential cropland and therefore minimal loss of future agricultural production potential.

The site is classified as high agricultural sensitivity by the screening tool. This has been disputed by this assessment, because of the agricultural production potential and current agricultural land use, and the entire site is rated by this assessment as being of medium agricultural sensitivity.

Although cropping may occur in the area, the cropping potential of the site is limited by soil constraints. The soils on site are constrained by shallow depth and poor drainage. The site is unlikely to be suitable for rain-fed crop production. Furthermore, factors other than climate, terrain, and soil capability also constrain the potential of the property to practically deliver

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From an agricultural impact point of view, it is recommended that the proposed development be approved. The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.

11 REFERENCES

Beck, H.E., N.E. Zimmermann, T.R. McVicar, N. Vergopolan, A. Berg, E.F. Wood. 2018. Present and future Köppen-Geiger climate classification maps at 1-km resolution, Nature Scientific Data. Available at: <https://gis.elsenburg.com/apps/cfm/>.

Department of Agriculture Forestry and Fisheries (DAFF). 2018. Long-term grazing capacity map for South Africa developed in line with the provisions of Regulation 10 of the Conservation of Agricultural Resources Act, Act no 43 of 1983 (CARA), available on Cape Farm Mapper. Available at: <https://gis.elsenburg.com/apps/cfm/>

Department of Agriculture, Forestry and Fisheries (DAFF). 2017. National land capability evaluation raster data layer, 2017. Pretoria.

Department of Agriculture, Forestry and Fisheries (DAFF). 2002. National land type inventories data set. Pretoria.

Department of Agriculture, Land Reform and Rural Development (DALRRD). 2020. Protected agricultural areas – Spatial data layer. 2020. Pretoria.

Schulze, R.E. 2009. South African Atlas of Agrohydrology and Climatology, available on Cape Farm

Mapper. Available at: <https://gis.elsenburg.com/apps/cfm/>

Soil Classification Working Group. 1991. Soil classification: a taxonomic system for South Africa. Soil and Irrigation Research Institute, Department of Agricultural Development, Pretoria.

APPENDIX 1: SPECIALIST CURRICULUM VITAE

Johann Lanz Curriculum Vitae

Education

M.Sc. (Environmental Geochemistry)	University of Cape Town	1996 - 1997
B.Sc. Agriculture (Soil Science, Chemistry)	University of Stellenbosch	1992 - 1995
BA (English, Environmental & Geographical Science)	University of Cape Town	1989 - 1991
Matric Exemption	Wynberg Boy's High School	1983

Professional work experience

I have been registered as a Professional Natural Scientist (Pri.Sci.Nat.) in the field of soil science since 2012 (registration number 400268/12) and am a member of the Soil Science Society of South Africa.

Soil & Agricultural Consulting Self employed 2002 - present

Within the past 5 years of running my soil and agricultural consulting business, I have completed more than 170 agricultural assessments (EIAs, SEAs, EMPRs) in all 9 provinces for renewable energy, mining, electrical grid infrastructure, urban, and agricultural developments. I was the appointed agricultural specialist for the nation-wide SEAs for wind and solar PV developments, electrical grid infrastructure, and gas pipelines. My regular clients include: Zutari; CSIR; SiVEST; SLR; WSP; Arcus; SRK; Environamics; Royal Haskoning DHV; ABO; Enertrag; WKN-Windcurrent; JG Afrika; Mainstream; Redcap; G7; Mulilo; and Tiptrans. Recent agricultural clients for soil resource evaluations and mapping include Cederberg Wines; Western Cape Department of Agriculture; Vogelfontein Citrus; De Grendel Estate; Zewenwacht Wine Estate; and Goedgedacht Olives. In 2018 I completed a ground-breaking case study that measured the agricultural impact of existing wind farms in the Eastern Cape.

Soil Science Consultant Agricultural Consultors International (Tinie du Preez) 1998 - 2001

Responsible for providing all aspects of a soil science technical consulting service directly to clients in the wine, fruit and environmental industries all over South Africa, and in Chile, South America.

Contracting Soil Scientist De Beers Namaqualand Mines July 1997 - Jan 1998

Completed a contract to advise soil rehabilitation and re-vegetation of mined areas.

Publications

- Lanz, J. 2012. Soil health: sustaining Stellenbosch's roots. In: M Swilling, B Sebitosi & R Loots (eds). *Sustainable Stellenbosch: opening dialogues*. Stellenbosch: SunMedia.
- Lanz, J. 2010. Soil health indicators: physical and chemical. *South African Fruit Journal*, April / May 2010 issue.
- Lanz, J. 2009. Soil health constraints. *South African Fruit Journal*, August / September 2009 issue.
- Lanz, J. 2009. Soil carbon research. *AgriProbe*, Department of Agriculture.
- Lanz, J. 2005. Special Report: Soils and wine quality. *Wineland Magazine*.

I am a reviewing scientist for the *South African Journal of Plant and Soil*.

APPENDIX 2: DECLARATION OF THE SPECIALIST

Note: Duplicate this section where there is more than one specialist.

I, **Johann Lanz**, as the appointed Specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent:
 - other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or
 - ~~• am not independent, but another specialist that meets the general requirements set out in Regulation 13 have 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, am fully aware of and meet all of the requirements and that failure to comply with any the requirements may result in disqualification;
- have disclosed/will disclose, to the applicant, the Department and interested and affected parties, all material information that have 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 2014 NEMA EIA Regulations.

Signature of the specialist:



Date: **27 September 2023**

Name of company: **Johann Lanz – soil scientist (sole proprietor)**

herewith certifies that

Johan Lanz

Registration Number: 400268/12

is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)

Soil Science (Professional Natural Scientist)

Effective **15 August 2012**

Expires **31 March 2024**



Chairperson

Chief Executive Officer



APPENDIX 4: SOIL DATA

Table 3: Land type soil data

Land type	Soil series (forms)	Depth (mm)	Clay % A horizon	Clay % B horizon	Depth limiting layer	% of land type
Ca46	Es	300 - 600	8 - 15	40 - 55	pr	32,1
Ca46	Wa	400 - 500	10 - 20		hp	22,1
Ca46	Ss	300 - 400	10 - 25	35 - 55	pr	9,3
Ca46	Pn	500 - 600	10 - 20	10 - 30	gc	6,0
Ca46	Va	400 - 500	10 - 15	35 - 55	vr,vp	5,9
Ca46	Kd	500 - 800	10 - 20	30 - 50	gc	5,6
Ca46	We Lo	500 - 800	10 - 20	15 - 35	sp	5,3
Ca46	Gc	500 - 600	10 - 20	10 - 30	hp	5,0
Ca46	Oa Du	> 1200	6 - 10	10 - 30		3,2
Ca46	Hu	400 - 500	12 - 15	15 - 35	R	2,8
Ca46	Ms	50 - 150	6 - 10		R	1,4
Ca46	Hh	50 - 150	2 - 6	6 - 10	so,R	1,4