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SITE SENSITIVITY VERIFICATION AND AGRICULTURAL COMPLIANCE STATEMENT FOR A PROPOSED TRUCK STOP AND ASSOCIATED INFRASTRUCTURE ON ERVEN 56 AND 57 MOSSDUSTRIA, MOSSEL BAY, WESTERN CAPE PROVINCE

Report by
Johann Lanz

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1 INTRODUCTION

environmental authorisation is being sought for a proposed truck stop and associated infrastructure on Erven 56 and 57 Mossdustria, Mossel Bay (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 site (see Section 7), the level of agricultural assessment required is an Agricultural Compliance Statement.

Johann Lanz was appointed as an independent agricultural specialist to conduct this agricultural assessment. The objective of an agricultural assessment is to assess whether the agricultural impact of the proposed development will be acceptable, and based on this, to make a recommendation on whether it should be approved.

Figure 1. *Locality map of the property (within red circle) in Mossdustria west of Mossel Bay.*

The purpose of the agricultural component in the environmental assessment process is to preserve agricultural production potential by ensuring that development does not unnecessarily exclude existing or potential agricultural production from land, or unnecessarily impact agricultural land to the extent that its production potential is reduced. The primary concern is the preservation of the agricultural production potential of scarce, arable land. The focus of an agricultural assessment must therefore be to determine whether the proposed development will result in a significant loss of land that has economically viable future cropping potential (for more details see Section 9)?

This project poses no threat to agricultural production potential because the impacted land is not viable agricultural land.

2 PROJECT DESCRIPTION

The proposed development is a filling station and truck stop development.

3 TERMS OF REFERENCE

The terms of reference for this study is 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 soil and agricultural potential data for the site. The following sources of existing data were used:

- Soil data was sourced from the land type data set, of the Department of Agriculture, Forestry and Fisheries (DAFF). This data set originates from the land type survey that was conducted from the 1970's until 2002. It is the most reliable and comprehensive national database of soil information in South Africa and although the data was collected some time ago, it is still entirely relevant as the soil characteristics included in the land type data do not change within time scales of hundreds of years.
- Land capability data was sourced from the 2017 National land capability evaluation raster data layer produced by the DAFF, Pretoria.
- The spatial demarcation of Protected Agricultural Areas was obtained from the National Department of Agriculture, Land Reform and Rural Development (DALRRD).
- Field crop boundaries were sourced from Crop Estimates Consortium, 2019. Field Crop Boundary data layer, 2019. Pretoria. Department of Agriculture, Forestry and Fisheries.
- Rainfall and evaporation data was sourced from the SA Atlas of Climatology and Agrohydrology (2009, R.E. Schulze) available on Cape Farm Mapper. Note that Cape Farm Mapper includes national coverage of climate, grazing and certain other data.
- Grazing capacity data was sourced from the 2018 DAFF long-term grazing capacity map for South Africa, available on Cape Farm Mapper.
- Current and historical satellite imagery of the site and surrounds was sourced from Google Earth.

This 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 only require specific agricultural approval (or at least comment from Department of Agriculture) if the land is zoned agriculture and it is not land that is exempt from the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA).

7 SITE SENSITIVITY VERIFICATION

Agricultural sensitivity is a direct function of the capability of the land for agricultural production. The different categories of agricultural sensitivity indicate the priority by which land should be conserved as agricultural production land. The agricultural sensitivity of the site, as given by the web-based environmental screening tool, is shown in Figure 2. The screening tool classifies agricultural sensitivity according to only two independent criteria, both of which are indicators of the land's agricultural production potential:

1. whether the land is classified as cropland or not, and
2. its land capability rating

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, released in 2016. The higher land capability values (≥8 to 15) are likely to be suitable 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 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

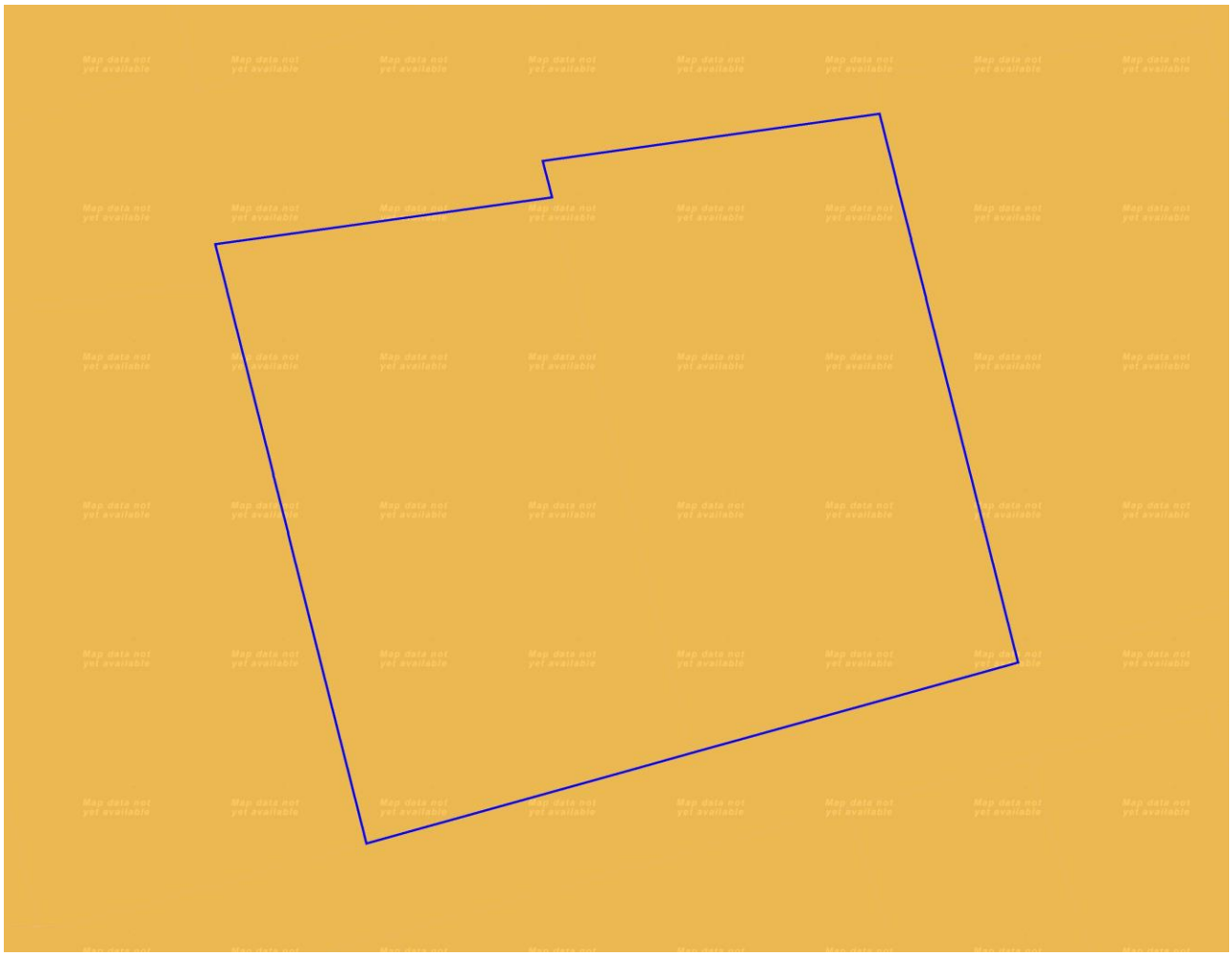

Figure 2. *The proposed development site overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high). The screening tool's medium sensitivity is confirmed by this assessment.*

Because the land capability data is generated by GIS modelling and because it is applicable at a fairly small scale (1:50 000 to 1:100 000) it is not necessarily accurate for a specific site and therefore needs verification. The relationship between land capability and agricultural production potential is that a land capability rating of >8 should denote land that is suitable for viable rain-fed crop production and a rating equal to 8 is somewhat marginal. If land is unsuitable for viable rain-fed crop production then its verified land capability rating should be less than 8. Because crop boundaries change over time, they also need verification.

The screening tool rating of the agricultural sensitivity of the assessment area is medium. None of the land is classified as cropland and agricultural sensitivity is therefore purely a function of classified land capability as per Table 1, above. This assessment verifies that the site is not within crop boundaries and verifies the classified land capability, based on the assessment of the

cropping potential of the site in this report (see Section 8). This assessment therefore confirms the medium sensitivity rating by the screening tool.

8 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

The purpose of this section of an agricultural impact 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 is one of the three factors that determines the significance of the agricultural impact (see Section 9).

All important parameters that control the agricultural production potential of the site are given in Table 2. 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	Arid, steppe, cold
	Mean Annual Rainfall (mm)	463
	Reference Crop Evaporation Annual Total (mm)	997
	Climate capability classification (out of 9)	5 (moderate)
Terrain	Terrain type	Coastal plateau
	Terrain morphological unit	Foot slope
	Slope gradients (%)	0-3
	Altitude (m)	179
	Terrain capability classification (out of 9)	7 (high)
Soil	Geology	PENINSULA, PAKHUIS AND CEDARBERG FORMATIONS: Pebbly quartz arenite, diamictite, minor conglomerate, mudrock, siltstone and shale
	Land type	Db8
	Description of land type soils	Shallow, light textured, drainage impaired, duplex soils on underlying structured clay
	Dominant soil forms	Sterkspruit, Estcourt
	Soil capability classification (out of 9)	4 (low-moderate)
Land use	Agricultural land use in the surrounding area	None - industrial
	Agricultural land use on the site	None
	Land Cover classification on the site	Low shrubland (fynbos) and contiguous low forest & thicket
General	Long-term grazing capacity (hectares per Large Stock Unit)	40
	Land capability classification (out of 15)	7 (low-moderate) to 8 (moderate)
	Within Protected Agricultural Area	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 there are soil constraints (depth, drainage, low water holding capacity) on the site's agricultural production potential, it is primary constrained by being non-agricultural land in an industrial area. For this reason, the site will never be utilised for agricultural production and its potential is therefore assessed here as very low.

Figure 3. *Satellite image map of the development site.*

9 ASSESSMENT OF THE AGRICULTURAL IMPACT

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 potential 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, 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 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 site is non-agricultural land within an industrial area . The development will cause no loss of agricultural production potential. The agricultural impact of the development is therefore assessed here as being of very low significance.

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. Due to its lack of agricultural impact, the assessed development will not contribute to the cumulative impact. The cumulative agricultural impact of the proposed development is therefore assessed here as being of very low significance and therefore as acceptable.

Specialist assessments for environmental authorisation are also required to assess the impact of the no-go alternative. 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. From an agricultural impact perspective, there is no preferred alternative between the no-go and the development.

No mitigation measures are required for the protection of agricultural production potential on the site because the entire site will be excluded from agricultural land use.

10 CONCLUSION: AGRICULTURAL COMPLIANCE STATEMENT

The site is classified as medium agricultural sensitivity by the screening tool. This has been confirmed by this assessment, because of the agricultural production potential and current

agricultural land use, and the site is verified by this assessment as being of medium agricultural sensitivity.

Although there are soil constraints (depth, drainage, low water holding capacity) on the site's agricultural production potential, it is primary constrained by being non-agricultural land in an industrial area. For this reason, the site will never be utilised for agricultural production and its potential is therefore assessed here as very 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. 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).

In this case, the site is non-agricultural land within an industrial area . The development will cause no loss of agricultural production potential.

In Section 1 it was stated that the focus of an agricultural assessment must be to determine whether the proposed development will result in a significant loss of land that has economically viable future cropping potential. Due to the lack of agricultural potential of the land loss in this case, there is no loss of viable future cropland. The agricultural impact of the proposed development is therefore assessed as being of very low significance and as acceptable. 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

Crop Estimates Consortium, 2019. *Field Crop Boundary data layer, 2019*. Pretoria. Department of Agriculture, Forestry and Fisheries.

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

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

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

Schulze, R.E. 2009. SA Atlas of Climatology and Agrohydrology, 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: **18 June 2023**

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

SACNASP

South African Council for Natural Scientific Professions

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 fields(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

To verify this certificate scan this code