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**SITE SENSITIVITY VERIFICATION
AND
AGRICULTURAL COMPLIANCE STATEMENT
FOR
THE PROPOSED UPGRADE OF THE EXISTING 132KV GORDONIA-AVONDALE TRANSMISSION LINE
NEAR UPINGTON, NORTHERN CAPE**

**Report by
Johann Lanz**

30 July 2021

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EXECUTIVE SUMMARY

The key findings of this study are:

The corridor is entirely on land that has only ever had grazing as an agricultural land use. The predominantly low agricultural sensitivity of the corridor is confirmed by this assessment.

The conclusion of this assessment is that the proposed development will not have an unacceptable negative impact on the agricultural production capability of the site. The proposed development is therefore acceptable. This is substantiated by the facts that the land is of very low agricultural potential and the actual agricultural impact from the proposed activity is negligible.

From an agricultural impact point of view, it is recommended that the development be approved.

1 INTRODUCTION

Environmental authorisation is being sought for the proposed upgrade of the existing 132kV Gordonia-Avondale transmission line near Upington, Northern Cape (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 an Agricultural Compliance Statement (see terms of reference, below).

Johann Lanz was appointed as an independent agricultural specialist to provide the Agricultural Compliance Statement. The objective and focus of an Agricultural Compliance Statement is to assess whether or not the proposed development will have an unacceptable agricultural impact or not, and based on this, to make a recommendation on whether it should be approved or not.



Figure 1. Locality map of the grid corridor east of Upington.

2 PROJECT DESCRIPTION

The existing transmission line needs to be upgraded to prevent potential future issues and failure of the infrastructure. The line is located inside a registered servitude and comprises of ninety-two (92) lattice pylon structures over an approximate distance of 32 kilometres. The line is accessed via existing access/farm roads and the service track running underneath the line.

Two alternatives are to be investigated as part of the specialist assessment:

1. Upgrade the existing line in place and replace the existing pylons with either new lattice structures or monopoles.
2. Develop a new monopole line directly south and parallel to the existing line.

For agricultural impacts, the exact nature of the different infrastructure within a development has very little bearing on the significance of impacts. What is of most relevance and addressed in this assessment, therefore, is simply the total footprint of the facility that excludes agricultural land use or impacts agricultural land.

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 entire corridor is on land that is classified by the national web-based environmental screening tool as less than high sensitivity for impacts on agricultural resources. The level of agricultural assessment required in terms of the protocol (and hence in terms of NEMA) for sites of less than high sensitivity is an Agricultural Compliance Statement. The protocol also requires that a Site Sensitivity Verification be done.

The terms of reference for an Agricultural Compliance Statement, as stipulated in the 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).
2. The compliance statement must:
 1. be applicable to the preferred site and proposed development footprint;
 2. confirm that the site is of “low” or “medium” sensitivity for agriculture (Section 6); and
 3. indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site (Section 8.7).
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 (Section 8.5);
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 8.7);
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 (Section 8.6);
8. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMP (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

4.1 Methodology for assessing the agro-ecosystem

This report adheres to the process and content requirements of the gazetted agricultural protocol as outlined in Section 3 above. As per the requirement, the assessment was based on a desktop analysis of existing soil and agricultural potential data for the site.

The following sources of information 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.

- 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.
- Grazing capacity data was sourced from the 2018 DAFF long-term grazing capacity map for South Africa, available on Cape Farm Mapper.
- Satellite imagery of the site and surrounds was sourced from Google Earth.

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 SITE SENSITIVITY VERIFICATION

In terms of the gazetted agricultural protocol, a site sensitivity verification must be submitted that:

1. confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;
2. contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity.

Agricultural sensitivity, in terms of environmental impact, is a direct function of the capability of the land for agricultural production. This is because a negative impact, or exclusion of agriculture, on land of higher agricultural capability is more detrimental to agriculture than the same impact on land of low agricultural capability. The general assessment of agricultural sensitivity that is employed in the national web-based environmental screening tool, identifies all arable land that can support viable production of cultivated crops, as at least high sensitivity. This is because there is a scarcity of arable production land in South Africa.

The screening tool classifies agricultural sensitivity according to only two independent criteria – the land capability rating and whether the land is cultivated or not. All cultivated land is classified as at least high sensitivity, based on the logic that if it is under cultivation, it is indeed suitable for cultivation, irrespective of its land capability rating.

Uncultivated land is classified by the screening tool in terms of its land capability rating, as per the 2017 DAFF updated and refined land capability mapping for South Africa. Land capability is defined

as the combination of soil, climate and terrain suitability factors for supporting rain fed agricultural production. It is an indication of what level and type of agricultural production can sustainably be achieved on any land. The higher land capability values (≥ 8 to 15) are likely to be suitable as arable land for the production of cultivated crops, while lower values are only likely to be suitable as non-arable, grazing land, or at the lowest extreme, not even suitable for grazing.

A map of the proposed corridor overlaid on the screening tool sensitivity is given in Figure 2. Because none of the land is classified a cultivated land, agricultural sensitivity is purely a function of land capability. The land capability of the corridor varies from 2 to 6. Values of 2 to 5 give a low agricultural sensitivity and a value of 6 gives a medium agricultural sensitivity. There are only a few pixels of 6 (medium sensitivity) at a few points along the corridor. The small scale differences in land capability (pixels) across the project area are not very significant and are more a function of how the land capability data is generated by modelling, than actual meaningful differences in agricultural potential on the ground.

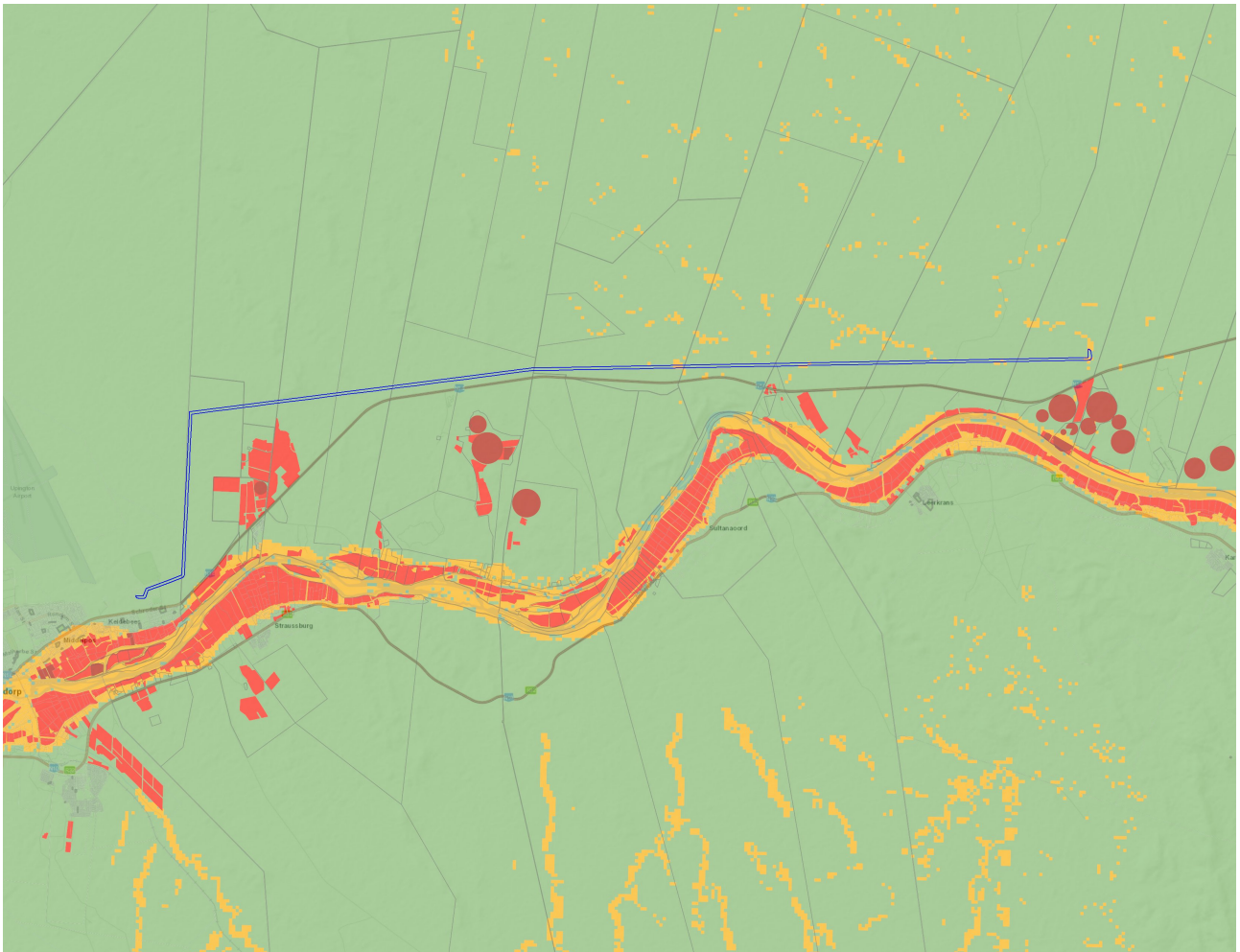


Figure 2. The proposed corridor (blue outlines) overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high).

The motivation for confirming the sensitivity is predominantly that the climate data (low rainfall of between 160 and 200 mm per annum and high evaporation of over 1,700 mm per annum) proves the area to be arid, and therefore of limited land capability. The land of the study area, therefore, without doubt, corresponds to the definitions of the different screening tool sensitivity categories in terms of its land capability and cultivation status.

7 AGRICULTURAL LAND USE

The corridor is entirely on land that has only ever had grazing as an agricultural land use.

8 ASSESSMENT OF AGRICULTURAL IMPACT

8.1 General

The focus and defining question of an agricultural impact assessment is to determine to what extent a proposed development will compromise (negative impacts) or enhance (positive impacts) current and/or potential future agricultural production. The significance of an impact is therefore a direct function of the degree to which that impact will affect current or potential future agricultural production. If there will be no impact on production, then there is no agricultural impact.

The proposed electrical grid infrastructure has negligible agricultural impact for three reasons:

1. Overhead transmission lines have no agricultural impact because all agricultural activities that are viable in this environment, can continue completely unhindered underneath transmission lines.
2. The direct, permanent, physical footprint of the development that has any potential to interfere with agriculture, is entirely insignificant within this agricultural environment.
3. The affected land has very low agricultural potential, anyway.

8.2 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. It is important to note that the cumulative impact assessment for a particular project, like what is being done here, is not the same as an assessment of the impact of all surrounding projects. The cumulative assessment for this project is an assessment only of the impacts associated with this project, but seen in the context of all surrounding impacts. It is concerned with this project's contribution to the overall impact, within

the context of the overall impact.

Because the development itself has negligible agricultural impact, its cumulative impact must also logically be negligible.

8.3 Comparative assessment of alternatives

Because of the negligible agricultural impact, there can be no material difference between the agricultural impacts of any alternative layouts within the corridor and any technology alternatives. All possible alternatives are considered acceptable.

8.4 Impacts 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 is no agricultural impact of the no-go option. Therefore, the extent to which the development and the no-go alternative will impact agricultural production are more or less equal, which results in there being, from an agricultural impact perspective only, no preferred alternative between the development and the no-go.

8.5 Micro-siting to minimize fragmentation and disturbance of agricultural activities

The agricultural protocol requires confirmation that all reasonable measures have been taken through micro-siting to minimize fragmentation and disturbance of agricultural activities. However, the agricultural uniformity and low potential and the nature of the agricultural impact mean that the exact positions of all infrastructure will not make any material difference to agricultural impacts.

8.6 Confirmation of linear activity impact

The protocol provision of a linear impact confirmation only makes sense when the requirement for an Agricultural Compliance Statement is based on the fact that the development is a linear activity. In this case the low and medium agricultural sensitivity determines that an Agricultural Compliance Statement suffices. Nevertheless, it is hereby confirmed that, due to the low impact of this linear activity, the land can be returned to the current state within two years of completion of the construction phase.

8.7 Impact assessment and statement

An Agricultural Compliance Statement is not required to formally rate agricultural impacts. It is

only required to indicate whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site. It must provide a substantiated statement on the acceptability, or not, of the proposed development and a recommendation on the approval, or not of the proposed development.

The conclusion of this assessment is that the proposed development will not have an unacceptable negative impact on the agricultural production capability of the site. The proposed development is therefore acceptable. This is substantiated by the following points:

- Overhead transmission lines have no agricultural impact because all agricultural activities that are viable in this environment, can continue completely unhindered underneath transmission lines.
- The direct, permanent, physical footprint of the development that has any potential to interfere with agriculture, is entirely insignificant within this agricultural environment.
- The affected land has very low agricultural potential, anyway.

Therefore, from an agricultural impact point of view, it is recommended that the development be approved.

9 ENVIRONMENTAL MANAGEMENT PROGRAMME INPUTS

There are no additional mitigation measures required, over and above what has already been included in the Generic EMPr for overhead electricity transmission and distribution infrastructure as per Government Notice 435, which was published in Government Gazette 42323 on 22 March 2019.

10 CONCLUSIONS

The corridor is entirely on land that has only ever had grazing as an agricultural land use. Its predominantly low agricultural sensitivity is confirmed by this assessment.

The conclusion of this assessment is that the proposed development will not have an unacceptable negative impact on the agricultural production capability of the site. The proposed development is therefore acceptable. This is substantiated by the facts that the land is of very low agricultural potential and the actual agricultural impact from the proposed activity is negligible.

From an agricultural impact point of view, it is recommended that the 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

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.

Schulze, R.E. 2009. SA Atlas of Climatology and Agrohydrology, available on Cape Farm Mapper. Available at: <https://gis.elsenburg.com/apps/cfm/>

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

In the past 5 years of running my soil and agricultural consulting business, I have completed more than 120 agricultural assessments (EIAs, SEAs, EMPRs) in all 9 provinces for renewable energy, mining, urban, and agricultural developments. My regular clients include: Aurecon; CSIR; SiVEST; Arcus; SRK; Environamics; Royal Haskoning DHV; Jeffares & Green; JG Afrika; Juwi; 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 Consultants 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*.



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

APPENDIX 2: DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

(For official use only)

File Reference Number:

NEAS Reference Number:

Date Received:

DEA/EIA/

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

PROJECT TITLE

THE PROPOSED UPGRADE OF THE EXISTING 132KV GORDONIA-AVONDALE TRANSMISSION LINE NEAR UPINGTON, NORTHERN CAPE

Kindly note the following:

- This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
- This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
- A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
- All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
- All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

Departmental Details

Postal address: Department of Environmental Affairs, Attention: Chief Director: Integrated Environmental Authorisations, Private Bag X447, Pretoria, 0001

Physical address: Department of Environmental Affairs, Attention: Chief Director: Integrated Environmental Authorisations, Environment House, 473 Steve Biko Road, Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:
Email: EIAAdmin@environment.gov.za

1. SPECIALIST INFORMATION

Specialist Company Name: B-BBEE	Johann Lanz – Soil Scientist		
Specialist name:	Johann Lanz		
Specialist Qualifications:	M.Sc. (Environmental Geochemistry)		
Professional affiliation/registration:	Registered Professional Natural Scientist Member of the Soil Science Society of South Africa		
Physical address:	1a Wolfe Street, Wynberg, Cape Town, 7800		
Postal address:	1a Wolfe Street, Wynberg, Cape Town, 7800		
Postal code:	7800	Cell:	082 927 9018
Telephone:	082 927 9018	Fax:	Who still uses a fax? I don't
E-mail:	johann@johannlanz.co.za		

2. DECLARATION BY THE SPECIALIST

I, **Johann Lanz**, declare that -

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- all the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the Specialist

Johann Lanz – Soil Scientist (sole proprietor)

Name of Company:

01/07/2021

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

I, **Johann Lanz**, swear under oath / affirm that all the information submitted or to be submitted for the purposes of this application is true and correct.

Signature of the Specialist

Johann Lanz – Soil Scientist (sole proprietor)

Name of Company

Date

01/07/2021

Signature of the Commissioner of Oaths

Date

