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SITE SENSITIVITY VERIFICATION AND AGRICULTURAL COMPLIANCE STATEMENT FOR A PROPOSED SOLAR PV ENERGY FACILITY, BESS AND ASSOCIATED INFRASTRUCTURE ON THE FARMS DOORNFONTEIN A NO. 118 AND KRUISPAD NO. 120 NEAR VELDDRIF, WESTERN CAPE PROVINCE

Report by
Johann Lanz

5 September 2023

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EXECUTIVE SUMMARY

South Africa urgently needs electricity generation, and renewable energy offers good potential for that, but requires land. Agriculturally zoned land will inevitably need to be used for the renewable energy generation that the country requires. However, to ensure food security, energy facilities should not exclude viable crop production from land.

The overall conclusion of this assessment is that the proposed development is desirable because it can provide benefits to agriculture but leads to minimal loss of future agricultural production potential.

The assessed area 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 recommended area is rated by this assessment as being entirely of medium agricultural sensitivity.

The cropping potential of the site is severely limited by the combination of climate and soil constraints. The rainfall is low and consequently very marginal for crop production. The soils are very sandy and consequently have very low water and nutrient holding capacity. The low water holding capacity, in combination with the rainfall, provides an insufficient moisture reservoir to reliably carry a crop through the season. The climate and soil constraints mean that the assessed area is not suitable for continuous, profitable crop production.

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 a development. In this case, the entire assessed area is considered to be below the threshold above which it is a priority to conserve land for agricultural production. This is because of the limitations on its cropping potential. The use of this land for solar power generation represents a minimal loss of agricultural production potential in terms of national food security. Furthermore, the land occupied by PV panels can be used for the dual purposes of solar power generation and agricultural food production by way of sheep grazing. This has potential benefits for both activities and means that the land remains agriculturally productive.

At the farm level, the development will provide a positive economic impact. The income generated by the farming enterprises through the lease of the land to the energy facility is highly likely to exceed the potential agricultural income from the site. It will diversify the farm's income sources and provide reliable and predictable income that is independent of variable agricultural economic factors such as weather, agricultural markets and agricultural input costs. This is likely to increase cash flow and financial security and may improve farming operations and productivity on other, higher potential parts of the farm or properties owned by the same farmer, through increased

investment into farming.

Due to the fact that the solar facility will not occupy scarce, viable cropland, that it can still be used to graze sheep, and that its negative impact is offset by economic benefits to farming, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable. From an agricultural impact point of view, it is recommended that the proposed development be approved.

1 INTRODUCTION

Environmental and change of land use authorisation is being sought for a proposed solar energy facility on the farms Doornfontein no. 118 and Kruispad A no. 120 near Velddrif, Western Cape Province (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 assessed area (see Section 7), the level of agricultural assessment required is an Agricultural Compliance Statement.

Figure 1. *Locality map of the farms (red outline) and assessed area (yellow shading) south east of the town of Velddrif.*

The purpose of an agricultural assessment is to answer this 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 a significant loss of viable arable land and therefore does not pose a significant threat to agricultural production potential.

2 PROJECT DESCRIPTION

The proposed facility will consist of the standard infrastructure of a PV energy facility including PV arrays; inverters; cabling; battery energy storage system (BESS); auxiliary buildings; access and internal roads; on-site IPP substation; IPP sub-station; temporary construction laydown areas; and perimeter fencing.

The exact nature and layout of the different infrastructure within the boundary fence of a solar energy facility has absolutely no bearing on the significance of agricultural impacts. It is therefore not necessary to detail this design and layout of the facility any further in this assessment. All that is of relevance is simply the total footprint of the facility that excludes agricultural land use or impacts agricultural land, referred to as the agricultural footprint. This is the area within the facility fence. Whether that footprint comprises, for example, a solar array, a road or a BESS is irrelevant to agricultural impact.

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 by onshore wind and/or solar photovoltaic energy generation facilities where the electricity output is 20 megawatts or more*, 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. calculations of the physical development footprint area for each land parcel as well as the total physical development footprint area of the proposed development including supporting infrastructure **(Section 9.4)**;
    5. confirmation that the development footprint is in line with the allowable development limits contained in Table 1 of the protocol **(not yet applicable at this phase of the assessment)**;
    6. 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 yet applicable at this phase of the assessment)**;
    7. 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)**;
    8. any conditions to which this statement is subjected **(Section 10)**;
    9. 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)**;
    10. where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr **(not yet applicable at this phase of the assessment)**; and
    11. a description of the assumptions made and any uncertainties or gaps in knowledge or data **(Section 5)**.

4 METHODOLOGY OF STUDY

This assessment was informed by a soil and agricultural economic assessment that was previously done for solar development on the farms (Laubscher & Ellis, 2019). It also involved an on-site investigation of the soils and agricultural conditions and was also informed by existing soil and agricultural potential data for the site. The site investigation was conducted on 26 August 2023. An

interview was also conducted with the farmers for information on farming practices on the site. Soils were assessed using auger samples. Soils were classified according to the South African soil classification system (Soil Classification Working Group, 1991).

An assessment of soils and long-term agricultural potential is in no way affected by the season in which the assessment is made, and therefore the fact that the assessment was done in winter has no bearing on its results.

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 development requires approval from the National Department of Agriculture, Land Reform and Rural Development (DALRRD) because it is on agriculturally zoned land. This approval is separate to the Environmental Authorisation. There are two approvals that apply. The first is a No Objection Letter for the change in land use. This letter is one of the requirements for receiving municipal rezoning. This application requires a motivation backed by good evidence that the development is acceptable in terms of its impact on the agricultural production potential of the development site. This agricultural assessment report will serve that purpose.

The second approval is a consent for long-term lease required in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA). SALA approval is not required if the lease is over the entire farm portion. If DALRRD approval for the development has already been obtained in the form of the No Objection letter, then SALA approval is likely to be readily forthcoming. SALA approval can only be applied for once the Municipal Rezoning Certificate and Environmental Authorisation has been obtained.

Rehabilitation after disturbance to agricultural land is managed by the Conservation of Agricultural Resources Act (Act 43 of 1983 - CARA). A consent in terms of CARA is required for the cultivation of virgin land. Cultivation is defined in CARA as “any act by means of which the topsoil is disturbed mechanically”. The purpose of this consent for the cultivation of virgin land is to ensure that only land that is suitable as arable land is cultivated. Therefore, despite the above definition of cultivation, disturbance to the topsoil that results from construction of infrastructure does not constitute cultivation as it is understood in CARA. This has been corroborated by Anneliza Collett

(Acting Scientific Manager: Natural Resources Inventories and Assessments in the Directorate: Land and Soil Management of the Department of Agriculture, Land Reform and Rural Development (DALRRD)). The construction and operation of the facility will therefore not require consent from the Department of Agriculture, Land Reform and Rural Development in terms of this provision of CARA.

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 much more importance to this assessment 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 course 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, released in 2016. 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 given by the screening tool, is shown in Figure 2.

Figure 2. *The assessed area (blue outline) overlaid on agricultural sensitivity, as given 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 medium to high agricultural sensitivity. The high sensitivity classification is due to a combination of land being classified as cropland and being classified with a land capability of 9.

The distinction between cropland and non-cropland is clearly visible in Figure 3. Although the cropland on the farms is still used as such, the combination of climate and soil (see Section 8) makes it very marginal and high risk in terms of economic viability. It is therefore undeserving of a land capability rating >7. 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 cropping status because those lands are not viable croplands.

For the same reason, it disputes the classified land capability and rates it as a maximum of 7. The land capability rating on the site of >7 is associated with H land types. The H land types comprise grey, regic sands originating from dunes and coastal sands. These land types, because of their unlimited soil depth, are attributed a land capability on the modelled land capability data set, wherever they occur, that is too high (≥8) in relation to their actual cropping potential. In reality such soils have a low cropping potential due to their very low water and nutrient holding capacity and therefore do not deserve a land capability rating of any higher than 7.

This assessment disputes the screening tool rating and rates the entire assessed area as being of medium agricultural sensitivity.

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 the 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. A satellite image map of the development site is given in Figure 3 and photographs of site conditions are shown in Figures 4 to 6.

The site falls within 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. However, there may be much variation within a Protected Agricultural Area and all land within it is not necessarily of sufficient agricultural potential to be suitable for crop production, due to site-specific terrain, soil, and other constraints. Although the assessed area is within a Protected Agricultural Area, its cropping potential is severely limited (see following section).

Figure 3. *Satellite image map of the assessed area.*

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

	Parameter	**Value**
Climate	Köppen-Geiger climate description (Beck *et al*, 2018)	Arid, steppe, cold
	Mean Annual Rainfall (mm) (Schulze, 2009)	247-269
	Reference Crop Evaporation Annual Total (mm) (Schulze, 2009)	1068 - 1279
	Climate capability classification (out of 9) (DAFF, 2017)	4 (low-moderate) to 5 (moderate)
Terrain	Terrain type	Flat coastal plain
	Terrain morphological unit	Crest to mid-slope
	Slope gradients (%)	0 to 3
	Altitude (m)	7 to 48
	Terrain capability classification (out of 9) (DAFF, 2017)	5 (moderate) to 7 (high)

	Parameter	Value
Soil	Geology (DAFF, 2002)	Aeolian sand mostly overlying marine sediments.
	Land type (DAFF, 2002)	Hb118, Ha70, Db298, Db297
	Description of the soils	Heuweltjie veld (land with a regular, dotted pattern of extinct underground termite nests) occurs across the site, but apart from the soil distinctions on and off the heuweltjies, the soils are very homogenous. All are deep, light coloured, very light textured (sandy) soils, occasionally with clay in the subsoil.
	Dominant soil forms	Fernwood
	Soil capability classification (out of 9) (DAFF, 2017)	Hb land types: 6 (moderate-high) to 7 (high). However this is an overestimation of soil capability (see Section 7) Db land types: 4 (low-moderate)
Land use	Agricultural land use in the surrounding area	Small grain and natural grazing.
	Agricultural land use on the site	Small grain and natural grazing.
General	Long-term grazing capacity (ha/LSU) (DAFF, 2018)	30
	Land capability classification (out of 15) (DAFF, 2017)	Hb land types: 7 (low-moderate) to 9 (moderate-high), bu tis an overestimate Db land types: 6 (moderate-high) to 7 (high)
	Within Protected Agricultural Area DALRRD, 2020)	Yes

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.

The cropping potential of the site is severely limited by the combination of climate and soil constraints. The rainfall is low and consequently very marginal for crop production. The soils are very sandy and consequently have very low water and nutrient holding capacity. The low water holding capacity, in combination with the rainfall, provides an insufficient moisture reservoir to reliably carry a crop through the season. The soil is very homogeneous and there are no significant differences in soil potential across the assessed area. The climate and soil constraints mean that the assessed area is not suitable for continuous, profitable crop production.

Figure 4. *Photograph showing typical conditions in croplands on the site.*

Figure 5. *Photograph showing typical conditions in non-croplands on the site and the presence of alien invasive wattles.*

Figure 6. *Photograph showing typical conditions in croplands on the 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, 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 entire assessed area is considered to be below the threshold because of the limitations on its cropping potential, discussed in Section 8. The use of this land for solar power generation represents a minimal loss of agricultural production potential in terms of national food security. Furthermore, the land occupied by PV panels can be used for the dual purposes of solar power generation and agricultural food production by way of sheep grazing. This has potential benefits for both activities and means that the land remains agriculturally productive. The benefit for sheep farming is that the security infrastructure of the solar facility will protect the sheep within it against stock theft. The benefit for the solar facility is that the sheep will control the height of the vegetation below the solar panels and make it unnecessary to mechanically control the height of vegetation.

At the farm level, the development will provide a positive economic impact. The income generated by the farming enterprises through the lease of the land to the energy facility is highly likely to exceed the potential agricultural income from the site. It will diversify the farm's income sources and provide reliable and predictable income that is independent of variable agricultural economic factors such as weather, agricultural markets and agricultural input costs. This is likely to increase cash flow and financial security and may improve farming operations and productivity on other, parts of the farm, through increased investment into farming.

Due to the fact that the solar facility will not occupy scarce, viable cropland, that it can still be used to graze sheep, and that its negative impact is offset by economic benefits to farming, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.

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.

The most important concept related to a cumulative impact is that of an acceptable level of change to an environment. A cumulative impact only becomes relevant when the impact of the proposed development will lead directly to the sum of impacts of all developments causing an acceptable level of change to be exceeded in the surrounding area. If the impact of the development being assessed does not cause that level to be exceeded, then the cumulative impact associated with that development is not significant.

The potential cumulative agricultural impact of importance is a regional loss (including by degradation) of future agricultural production potential. The defining question for assessing the cumulative agricultural impact is this:

> What loss of future agricultural production potential is acceptable in the area, and will the loss associated with the proposed development, when considered in the context of all past, present or reasonably foreseeable future impacts, cause that level in the area to be exceeded?

Department of Forestry, Fisheries and the Environment (DFFE) requires compliance with a specified methodology for the assessment of cumulative impacts. This is positive in that it ensures engagement with the important issue of cumulative impacts. However, the required compliance has some limitations and can, in the opinion of the author, result in an over-focus on methodological compliance, while missing the more important task of effectively answering the above defining question.

This cumulative impact assessment will determine the quantitative loss of agricultural land if all renewable energy project applications within a 30 km radius become operational. The quantification of the cumulative impact will be done in detail in the EIA phase. This is highly likely to confirm that the cumulative impact of loss of future agricultural production potential is low. The development is highly likely to have an acceptable impact on the agricultural production capability of the area and therefore be recommended for approval from a cumulative agricultural impact point of view.

More generally, the cumulative impact of agricultural land loss in South Africa is significant. However, the agricultural priority should be to conserve future agricultural production potential, not simply agriculturally zoned land. The use of this land for solar power generation represents a minimal loss of future agricultural production potential in terms of national food security because of the limited cropping potential of the land and the fact that it can remain agriculturally productive as sheep grazing while also being used for solar power generation.

9.3 Compliance with the allowable development limits

The agricultural protocol stipulates allowable development limits for renewable energy developments of > 20 MW. Allowable development limits refer to the area of a particular agricultural sensitivity category that can be directly impacted (i.e. taken up by the physical footprint) by a renewable energy development. The agricultural footprint is defined in the protocol as the area that is directly occupied by all infrastructures, including roads, hard standing areas, buildings, substations etc., that are associated with the renewable energy facility during its operational phase, and that result in the exclusion of that land from potential cultivation or grazing. It excludes all areas that were already occupied by roads and other infrastructure prior to the establishment of the energy facility but includes the surface area required for expanding existing infrastructure (e.g. widening existing roads). It excludes the corridor underneath overhead power lines but includes the pylon footprints. It therefore represents the total land that is actually excluded from agricultural use as a result of the renewable energy facility (the agricultural footprint).

For a solar energy facility, the footprint is considered to be the total area inside the security fence of the facility.

The allowable development limit on land of medium agricultural sensitivity with a land capability of < 8, as this site has been verified to be, is 2.5 ha per MW. This would allow a proposed facility with a total generating capacity of 100 MW to occupy an agricultural footprint of 100 X 2.5 = 250 hectares. Compliance with the allowable development limits will be confirmed in the EIA phase once the exact footprint of the fenced off area of the facility and its generation capacity have been finalised.

10 CONCLUSION: AGRICULTURAL COMPLIANCE STATEMENT

The overall conclusion of this assessment is that the proposed development is desirable because it can provide benefits to agriculture but leads to minimal loss of future agricultural production potential.

The assessed area 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 recommended area is rated by this assessment as being entirely of medium agricultural sensitivity.

The cropping potential of the site is severely limited by the combination of climate and soil constraints. The rainfall is low and consequently very marginal for crop production. The soils are very sandy and consequently have very low water and nutrient holding capacity. The low water

holding capacity, in combination with the rainfall, provides an insufficient moisture reservoir to reliably carry a crop through the season. The climate and soil constraints mean that the assessed area is not suitable for continuous, profitable crop production.

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 a development. In this case, the entire assessed area is considered to be below the threshold above which it is a priority to conserve land for agricultural production. This is because of the limitations on its cropping potential. The use of this land for solar power generation represents a minimal loss of agricultural production potential in terms of national food security. Furthermore, the land occupied by PV panels can be used for the dual purposes of solar power generation and agricultural food production by way of sheep grazing. This has potential benefits for both activities and means that the land remains agriculturally productive.

At the farm level, the development will provide a positive economic impact. The income generated by the farming enterprises through the lease of the land to the energy facility is highly likely to exceed the potential agricultural income from the site. It will diversify the farm's income sources and provide reliable and predictable income that is independent of variable agricultural economic factors such as weather, agricultural markets and agricultural input costs. This is likely to increase cash flow and financial security and may improve farming operations and productivity on other, higher potential parts of the farm or properties owned by the same farmer, through increased investment into farming.

Due to the fact that the solar facility will not occupy scarce, viable cropland, that it can still be used to graze sheep, and that its negative impact is offset by economic benefits to farming, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed here as being of low significance and as acceptable.

Its acceptability is further substantiated by the following points:

- The proposed development will also have the wider societal benefits of generating additional income and employment in the local economy.
- In addition, the proposed development will contribute to the country's urgent need for energy generation, particularly renewable energy that has much lower environmental and agricultural impact than existing, coal powered energy generation.
- All renewable energy development in South Africa decreases the need for coal power and thereby contributes to reducing the large agricultural impact that open cast coal mining has on highly productive agricultural land throughout the coal mining areas of the country.

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

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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.
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- 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 BY THE SPECIALIST

I, **Johann Lanz** declare that –

- I act as the independent specialist in this application;
- I am aware of the procedures and requirements 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 National Environmental Management Act (NEMA), 1998, as amended, when applying for environmental authorisation which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols") and in Government Notice No. 1150 of 30 October 2020.
- 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 NEMA Act.

Signature of the Specialist

Johann Lanz – Soil Scientist (sole proprietor)

Name of Company:

5 September 2023

Date

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