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**SITE SENSITIVITY VERIFICATION
AND
AGRICULTURAL COMPLIANCE STATEMENT
FOR THE BENYA SOLAR PV FACILITY AND ASSOCIATED INFRASTRUCTURE ON THE REMAINDER OF
FARM 198 PORTUGAL AND FARM NAPOLEON 216, WITHIN THE THABAZIMBI LOCAL
MUNICIPALITY IN THE WATERBERG
DISTRICT, LIMPOPO PROVINCE.**

**Report by
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4 November 2025

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EXECUTIVE SUMMARY

South Africa 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 be located where they do not exclude viable crop production from land.

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

The mean annual rainfall versus evaporation and the seasonal distribution of rainfall in the area within which the site is located means that the climatic moisture availability is insufficient for viable rain-fed cropping on all soil types other than the dark-coloured, clay-rich, so-called turf soils that do occur in the area, but are not present on the assessed PV site, except for one small patch that is too small for viable crop production. The combination of climate and soil on the site results in an insufficient moisture reservoir to carry a crop through the season and limits the agricultural potential of the site to being suitable only as grazing land.

This assessment therefore disputes the high and very high sensitivity classification of the site assigned by the DFFE screening tool and verifies the entire site as being of medium agricultural sensitivity because of its assessed cropping potential.

The DFFE screening tool sensitivity of a power line corridor has very little relevance to the assessment of its agricultural impact because the impact is likely to be of negligible significance, regardless of the agricultural sensitivity of the land which it crosses. Power lines are permitted by NEMA's agricultural protocol to cross high and very high sensitivity land, including croplands, because they have negligible impact on the agricultural production potential of such land.

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 that make it unsuitable as viable cropland. The proposed development on this land will result in minimal loss of future agricultural production potential in terms of national food security.

Furthermore, the land occupied by PV panels could 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 occupied by panels remains agriculturally productive. The benefit for sheep farming is that the security infrastructure of the solar PV facility will protect the sheep within it against stock theft. The benefit for the solar PV facility is that the sheep will control

the height of the vegetation below the solar panels thus reducing the need to mechanically control the height of vegetation.

Due to the facts that the proposed development will not occupy scarce, viable cropland, that the land could potentially still be used to graze sheep, and that its negative impact is offset by economic and other 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.

The proposed overhead power line has negligible agricultural impact, regardless of the agricultural potential and sensitivity of the land it crosses. The agricultural impact of a power line is negligible in almost all environments but is even more so where agricultural land use is predominantly grazing, which it is in the environment that is the subject of this assessment. All possible agricultural activities can continue entirely unhindered underneath the power line. The direct, permanent, physical footprint that has any potential to interfere with agriculture is confined to pylon bases and a service and maintenance track underneath the power lines and is therefore insignificantly small. No service and maintenance track needs to be kept within croplands because the cultivation ensures that the land remains accessible for maintenance without a track. The track therefore has no significant impact on agricultural potential underneath the lines. The only potential source of impact of the power line is minimal disturbance to the land (erosion and topsoil loss) during construction (and decommissioning). This impact can be completely prevented with standard, generic mitigation measures that are all inherent in the project engineering and/or are standard, best-practice for construction sites, and are included in the generic EMP_r developed by the DFFE. The power line will result in negligible loss of future agricultural production potential, and its agricultural impact is therefore assessed as being of very low significance and as acceptable.

From an agricultural impact point of view, there are no fatal flaws, and it is recommended that the proposed development be approved.

1 INTRODUCTION

Environmental and change of land use authorisation is being sought for the Benya Solar PV facility and associated infrastructure (including electrical grid infrastructure) on the remaining portion of farm 198 Portugal and Farm Napoleon 216, within the Thabazimbi Local Municipality in the Waterberg District, Limpopo Province. (see location in



Figure 1. Locality map of the development west of Dwaalboom.

). 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 medium agricultural sensitivity of the development footprint (see Section 8), the level of agricultural assessment required by the protocol is an Agricultural Compliance Statement.



Figure 1. Locality map of the development west of Dwaalboom.

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

Will the proposed development cause a significant reduction in future 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 7 of this report. Sections 7 and 9 of this report directly address the above question and therefore contain the essence and most important part of the agricultural impact assessment.

2 PROJECT DESCRIPTION

The solar PV facility will comprise of several arrays of PV panels and associated infrastructure and at this stage it is anticipated that it will have a contracted capacity of up to 300 MW. The solar PV facility will also include associated electrical grid connection infrastructure, to evacuate the electricity generated, which will include a 33kV/132kV Independent Power Producer (IPP) Step-up Substation, a 132kV Eskom Switching Substation and 132kV overhead power line. The project site is accessible via the existing D113 and D1629 roads that pass through the site.

The key infrastructure associated with the Benya Solar PV Development includes the following:

- PV modules and mounting structures, up to 6m in height and a maximum footprint of up to 350 ha.
- Inverters and transformers.
- Operation and Maintenance buildings (up to 6m in height), including a gate house, ablution facilities, security building, control centre, offices, warehouses and workshops for storage and maintenance.
 - o An area of up to 1.5 ha within the assessed development footprint will be occupied by buildings.
- Temporary and permanent laydown areas, situated within the assessed development footprint. Temporary laydown areas will occupy up to 5 ha, while up to 1.5 ha will remain in place for the permanent laydown area, as required for facility operation.
- Site and internal access roads (between 6m and 8m wide). Existing internal roads will be used as far as possible.
- Perimeter fencing up to 3m in height.
- Battery Energy Storage System (BESS), up to 7.5 ha in extent and located within a 10 ha development area.
 - o The infrastructure will be located within the assessed development footprint.
- Associated Electrical Grid Connection Infrastructure, including:
 - o 33kV cabling between the project components and the on-site facility substation;
 - o A 33kV/132kV Independent Power Producer (IPP) Step-up Substation, up to 1.83 ha in extent;
 - o A 132kV Eskom Switching Substation, up to 1.64 ha in extent; and
 - o A 132kV overhead power line (up to 40m in height) connecting the on-site switching substation to one (1) of the nearby 132kV Eskom overhead power lines, via a Loop In – Loop Out (LILO) connection.

The exact nature and layout of the different infrastructure within the boundary fence of a solar PV energy facility have absolutely no bearing on the significance of agricultural impacts. All that is of relevance is simply the total footprint of the facility that excludes agricultural land use. For a solar PV facility, 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. The total relevant footprint of the facility, as shown in the maps below, is 350 hectares.

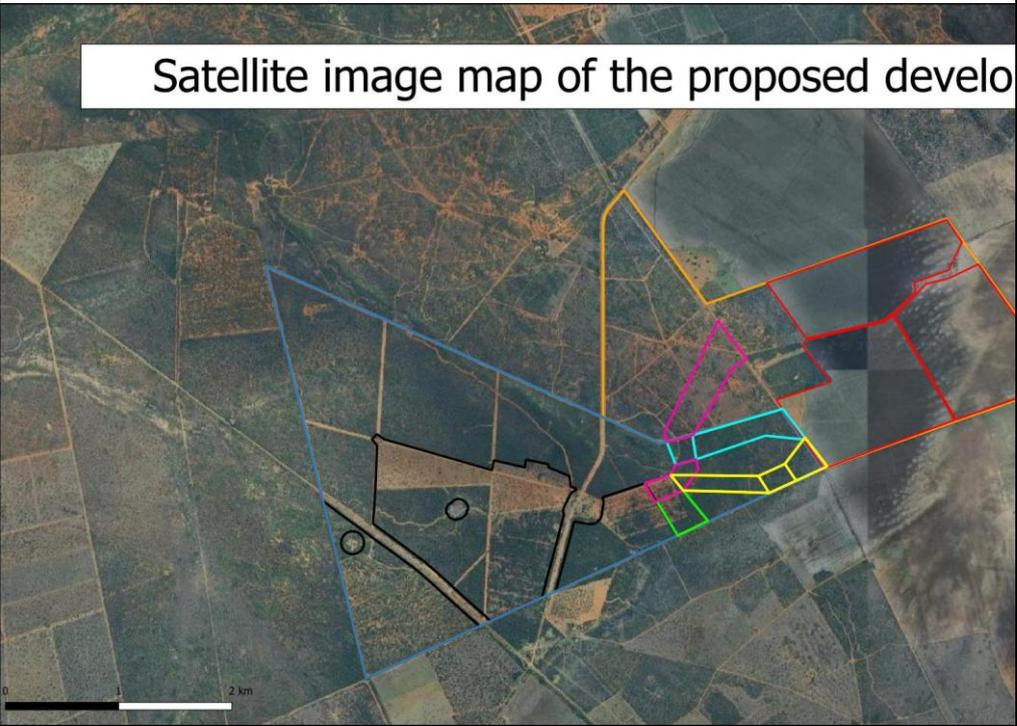
3 TERMS OF REFERENCE

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 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).

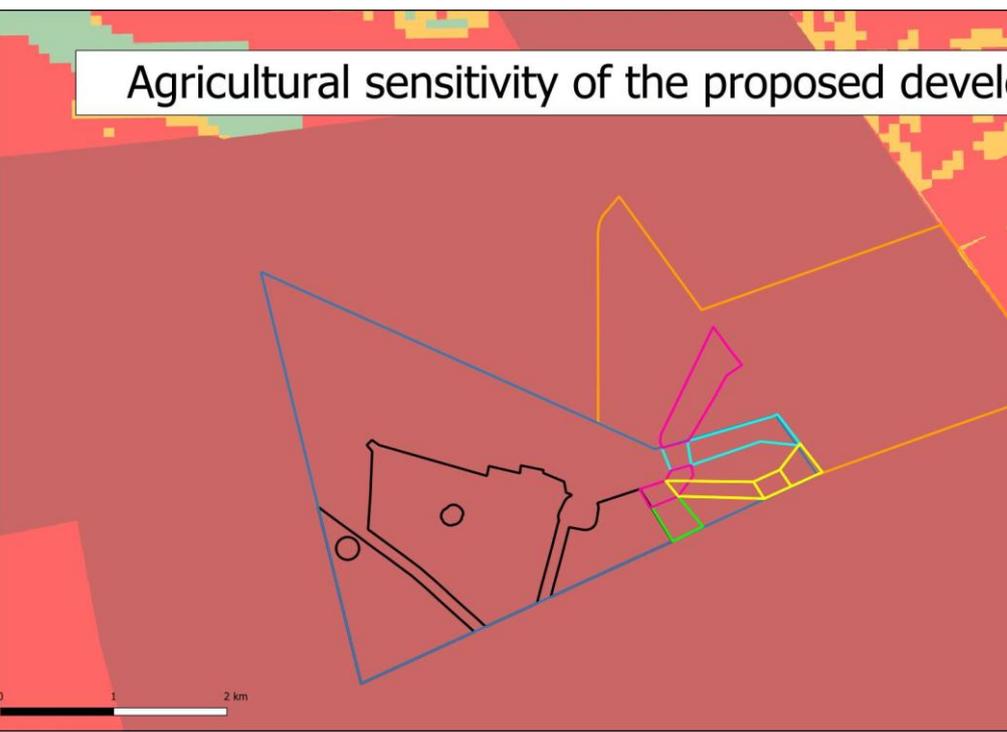
The terms of reference for an Agricultural Compliance Statement, as copied exactly from the protocol, are listed in the table below, and included, is the place in this report where each is addressed.

Table 1: Reporting requirements as per NEMA's Agricultural Protocol

Number	Requirement	Where it is addressed
3.	Agricultural Compliance Statement	
3.1.	The Agricultural Compliance Statement must be prepared by a soil scientist or agricultural specialist registered with the SACNASP.	Appendix 3
3.2.	The compliance	

	statement must:	
3.2.1.	be applicable to the preferred site and proposed development footprint;	 <p style="text-align: center;">Satellite image map of the proposed development footprint</p> <p style="text-align: center;">Figure 2</p>
3.2.2.	confirm that the site is of “low” or “medium” sensitivity for agriculture; and	Section 8
3.2.3.	indicate whether or not the proposed development will have an unacceptable impact on the agricultural	Section 9.1

	production capability of the site.	
3.3.	The Agricultural Compliance Statement must contain, as a minimum, the following information:	
3.3.1.	details and relevant expertise as well as the SACNASP registration number of the soil scientist or agricultural specialist preparing the statement including a curriculum vitae;	Appendix 1
3.3.2.	a signed statement of independence by the specialist;	Appendix 2

<p>3.3.3. a map showing the proposed development footprint (including supporting infrastructure) with a 50m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool;</p>	<p>Figure 6</p>	 <p>The map displays a large red area representing agricultural sensitivity. Overlaid on this are several colored polygons: a blue outline for the development footprint, a yellow outline for the 50m buffered development envelope, and various other colored shapes (orange, pink, cyan, green) representing different land parcels or infrastructure. A scale bar at the bottom left indicates 0, 1, and 2 kilometers.</p>
<p>3.3.4. 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</p>	<p>Section 11.3</p>	

	infrastructure;	
3.3.5.	confirmation that the development footprint is in line with the allowable development limits contained in Table 1 above;	Section 11.3
3.3.6.	confirmation from the specialist that all reasonable measures have been taken through micro-siting to avoid or minimise fragmentation and disturbance of agricultural activities;	Section 11.1
3.3.7.	a substantiated statement from the soil scientist or	Section 12

	<p>agricultural specialist on the acceptability, or not, of the proposed development and a recommendation on the approval, or not, of the proposed development ;</p>	
<p>3.3.8.</p>	<p>any conditions to which this statement is subjected;</p>	<p>Section 12</p>
<p>3.3.9.</p>	<p>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</p>	<p>Section 11.2</p>

	be returned to the current state within two years of completion of the construction phase;	
3.3.10.	where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr; and	Section 10.2
3.3.11.	a description of the assumptions made and any uncertainties or gaps in knowledge or data.	Section 5
3.4.	A signed copy of the compliance statement must be appended to	

	<p>the Basic Assessment Report or Environmental Impact Assessment Report.</p>	
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4 METHODOLOGY OF STUDY

The assessment was based on an on-site investigation by Johann Lanz of the soils and agricultural conditions conducted on 5 February 2025. It was also informed by existing climate, soil, and agricultural potential data for the project site (see references). The aim of the on-site assessment was to assess and determine the cropping potential across the project site. Soils were assessed based on the investigation of existing soil exposures in combination with indications of the surface conditions and topography, and strategically positioned auger samples where necessary. Soils were classified according to the South African soil classification system (Soil Classification Working Group, 2018). An interview was also conducted with the landowner for information on farming practices on the project site.

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 date on which this assessment was done 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 have 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 DALRRD). The construction and operation of the solar PV facility will therefore not require consent from the DALRRD in terms of this provision of CARA.

It should be noted that the Preservation and Development of Agricultural Land Act (Act 39 of 2024) has been enacted but is not yet in operation because many of the norms, standards, and detailed regulations are still to be finalised. Once this act comes into operation it will replace SALA, but it is not yet known when it will come into operation.

Power lines require the registration of a servitude for each farm portion crossed. In terms of the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA), the registration of a power line servitude requires written consent of the Minister unless either of the following two conditions apply:

1. if the servitude width does not exceed 15 metres; and
2. if Eskom is the applicant for the servitude.

If one or both conditions apply, then no agricultural consent is required. The second condition is likely to apply, even if another entity receives Environmental Authorisation for and constructs the power line, but then hands it over to Eskom for its operation. Eskom is currently exempt from agricultural consent for power line servitudes.

7 BASELINE DESCRIPTION OF THE AGRO-ECOSYSTEM

The purpose of this section is firstly to present the baseline information that controls the agricultural production potential of the project site and then, most importantly, to assess that potential.

Agricultural production potential, and particularly cropping potential, is one of four factors that determines the significance of an agricultural impact, together with magnitude of impact, size of footprint, and duration of impact. (see Section 9). Cropping potential also directly determines the true agricultural sensitivity of the land and therefore informs the site sensitivity verification.

All the important parameters that control the agricultural production potential of the project site are presented in Table 2. Soil data is provided in Appendix 5. A map of the development site is shown in

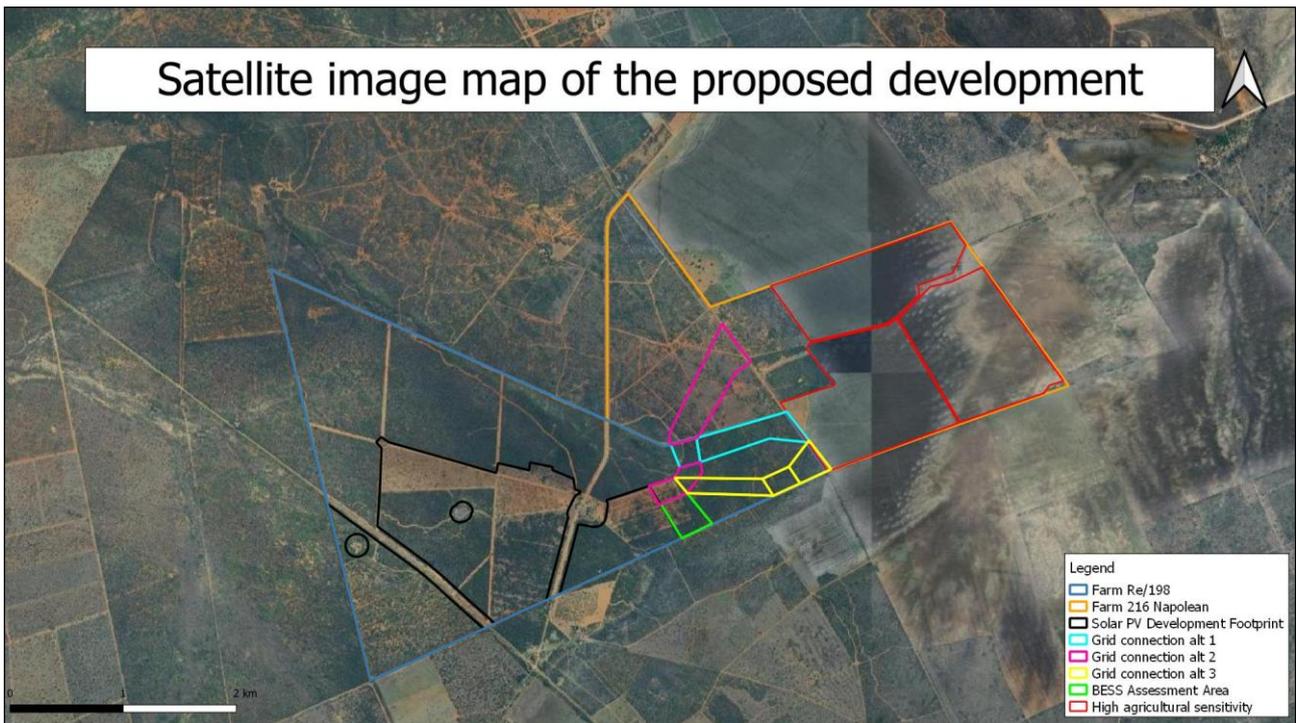


Figure 2 and photographs of site conditions are shown in Figure 3 to Figure 5.

The project site is situated within a Protected Agricultural Area (PAA) (DALRRD, 2020). Details regarding the affected PAA is provided in Table 2 below. A PAA is a demarcated area in which the climate, terrain, and soil are generally conducive for agricultural production and which, historically, or in a regional context, has made important contributions to the production of the various crops that are grown across South Africa. Within PAAs, the protection of viable, arable land is considered a priority for the protection of food security in South Africa. The **proposed development footprint is located on land that is not viable for cropland** (see Section 7.1). **This land does not therefore deserve prioritised protection as agricultural production land** (see Section 9.1), even though it is within a demarcated PAA.

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)	Arid, steppe, hot
	Mean Annual Rainfall (mm) (Schulze, 2009)	495
	Reference Crop Evaporation Annual Total (mm) (Schulze, 2009)	1595
	Climate capability classification (out of 9) (DAFF, 2017)	4 (low-moderate) to 5 (moderate)
Terrain	Terrain type	Rolling hills
	Terrain morphological unit	Varied
	Slope gradients (%)	0 to 18
	Altitude (m)	1010
	Terrain capability classification (out of 9) (DAFF, 2017)	4 (low-moderate) to 8 (high-very high)
Soil	Geology (DAFF, 2002)	Tertiary and Quaternary sediments. Granite and granitic gneiss of the Archaean Complex, sand of the Kalahari Group and granite and quartz porphyry of the Gaborone Complex.
	Land type (DAFF, 2002)	Ea155, Ae236, Bc40
	Description of the soils	Shallow to deep, heavy to very heavy soils with underlying rock.
	Dominant soil forms	Arcadia, Rensburg, Hutton
	Soil capability classification (out of 9) (DAFF, 2017)	5 (moderate) to 8 (high-very high)
	Soil limitations	Drainage
Land use	Agricultural land use in the surrounding area	Natural grazing
	Agricultural land use on the site	Natural grazing
General	Long-term grazing capacity (ha/LSU) (DAFF, 2018)	7
	Land capability classification (out of 15) (DAFF, 2017)	7 (low-moderate) to 10 (moderate-high)

Parameter	Value
Within Protected Agricultural Area (DALRRD, 2020)	Yes, Maseleje River PAA, Rating: Rainfed, Type: C
Within Renewable Energy Development Zone (REDZ)	No

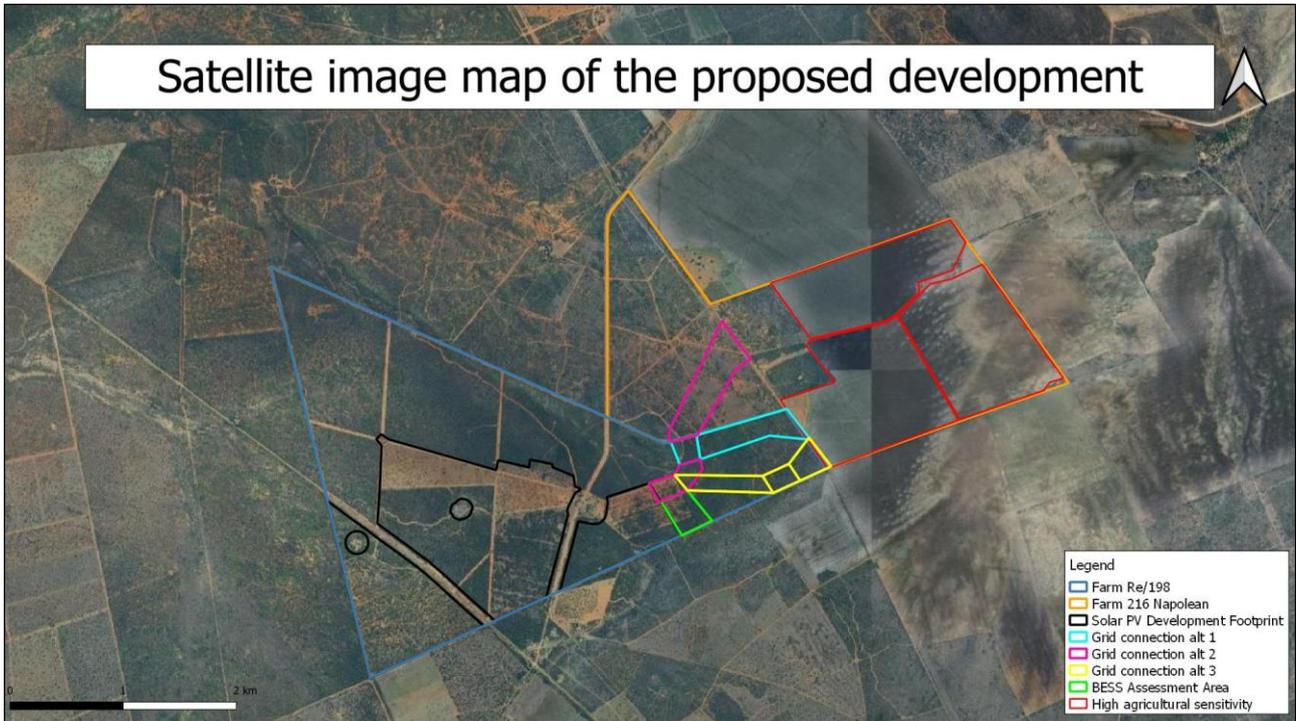


Figure 2. Satellite image map of the proposed development.

7.1 Assessment of the agricultural production potential

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

The mean annual rainfall versus evaporation and the seasonal distribution of rainfall in the area within which the project site is located means that the climatic moisture availability is insufficient for viable rain-fed cropping on all soil types other than the dark-coloured, clay-rich, so-called turf soils that do occur in the area, but are not present on the assessed PV site, except for one small patch that is too small for viable crop production. The combination of climate and soil on the site results in an insufficient moisture reservoir to carry a crop through the season and limits the agricultural potential of the project site to being suitable only as grazing land.



Figure 3. Typical site conditions.



Figure 4. Typical site conditions.



Figure 5. Typical site conditions showing the red soil conditions.

8 SITE SENSITIVITY VERIFICATION

A specialist agricultural assessment is required to include a verification of the agricultural sensitivity of the development site as per the sensitivity categories used by the web-based environmental screening tool of the Department of Forestry, Fisheries and the Environment (DFFE). The screening tool's classification of sensitivity is merely an initial indication of what the sensitivity of a piece of land might be, as indicated by the only data that is available. What the screening tool attempts to indicate is whether the land is suitable for crop production (high and very high sensitivity) or unsuitable for crop production (low and medium sensitivity). To do this, the screening tool uses three independent criteria, from three independent data sets, which are all indicators of suitability for crop production but are limited and were not designed for this purpose. The three criteria are:

1. Whether the land is classified as cropland or not on the field crop boundary data set (Crop Estimates Consortium, 2019). All classified cropland is, by definition, either high or very high sensitivity.
2. Its land capability rating as per the Department of Agriculture's updated and refined, country-wide land capability mapping (DAFF, 2017). Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. The direct relationship between land capability rating, agricultural sensitivity, and rain-fed cropping suitability is summarised by this author in Table 3.
3. Whether the land is classified as a PAA or not (DALRRD, 2020). All classified PAAs are, by definition, either high or very high sensitivity.

The limitations for determining cropping suitability based on these data are as follows:

1. The field crop boundary data set used by the screening tool is very outdated.
2. Land capability mapping is fairly coarse, modelled data which is not accurate at site scale.
3. PAAs are demarcated broadly, not at a fine scale, and there is therefore much variation of cropping suitability within a PAA. All land within these demarcated areas is not necessarily of sufficient agricultural potential to be suitable for crop production, due to finer scale terrain, soil, and other constraints, and therefore not all land within a PAA necessarily deserves to be classified as more than medium agricultural sensitivity.

These three inputs operate independently, and the screening tool's agricultural sensitivity is simply determined by whichever of these gives the highest sensitivity rating. The agricultural sensitivity of the site, as classified by the screening tool, is shown in

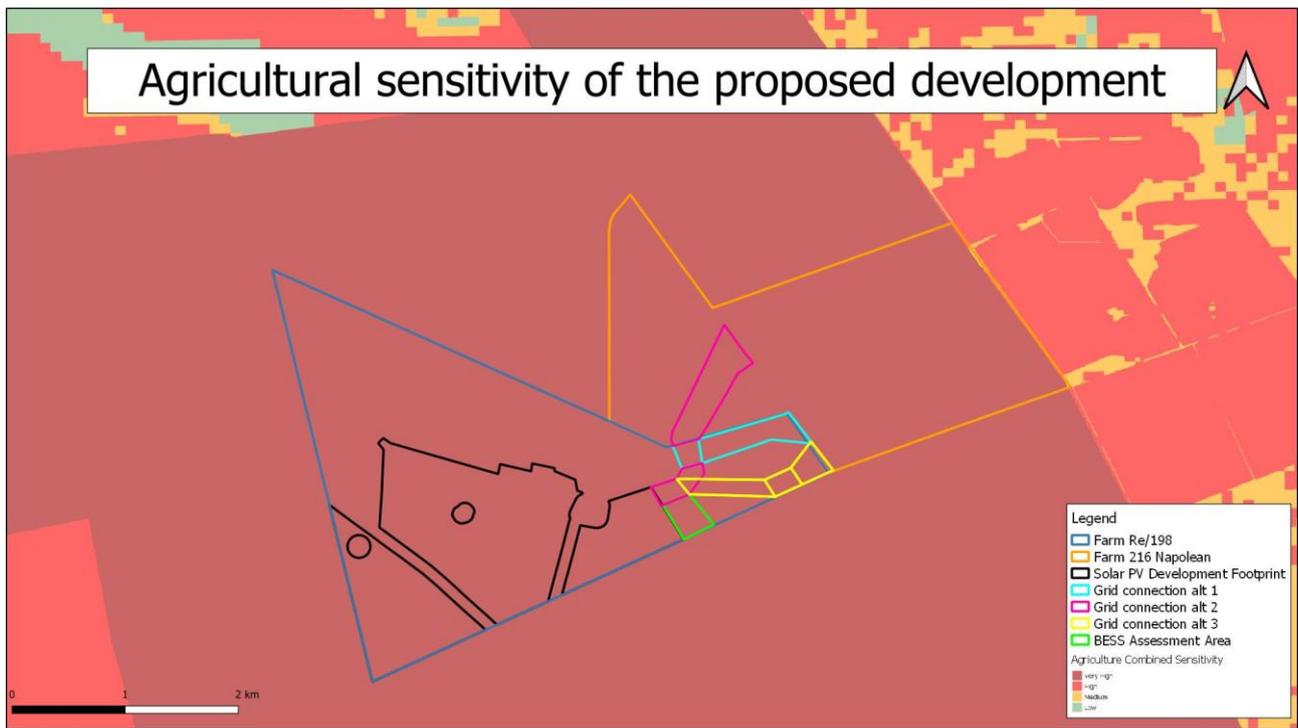


Figure 6.

Table 3: Relationship between land capability, agricultural sensitivity, and rain-fed cropping suitability.

Land capability value	Agricultural sensitivity	Rain-fed cropping suitability	
		Summer rainfall areas	Winter rainfall areas
1 - 5	Low	Unsuitable	Unsuitable
6	Medium		
7		High	Suitable
8			
9 - 10			
11 - 15	Very High		

The true agricultural sensitivity of any land is equivalent to its actual suitability for crop production on the ground, rather than being determined by a parameter that serves as a proxy for crop suitability in a dataset, which is how the DFFE’s screening tool determines sensitivity. The land’s suitability for cropping directly determines how important it is to conserve that land as agricultural production land. To determine suitability for crop production, and hence sensitivity, requires a site-specific assessment, as has been conducted in this assessment, rather than a reliance on data sets that have significant limitations.

Despite the detail in this section above, the determinants of agricultural sensitivity are actually very straightforward and may be summed up as follows. If land is suitable for viable crop production - that is if it has the capability to deliver an above break-even crop yield on a sustainable basis - then it is of high or very high agricultural sensitivity. If it has limitations that prevent it from being able to deliver an above break-even crop yield on a sustainable basis, then it is of medium or low agricultural sensitivity.

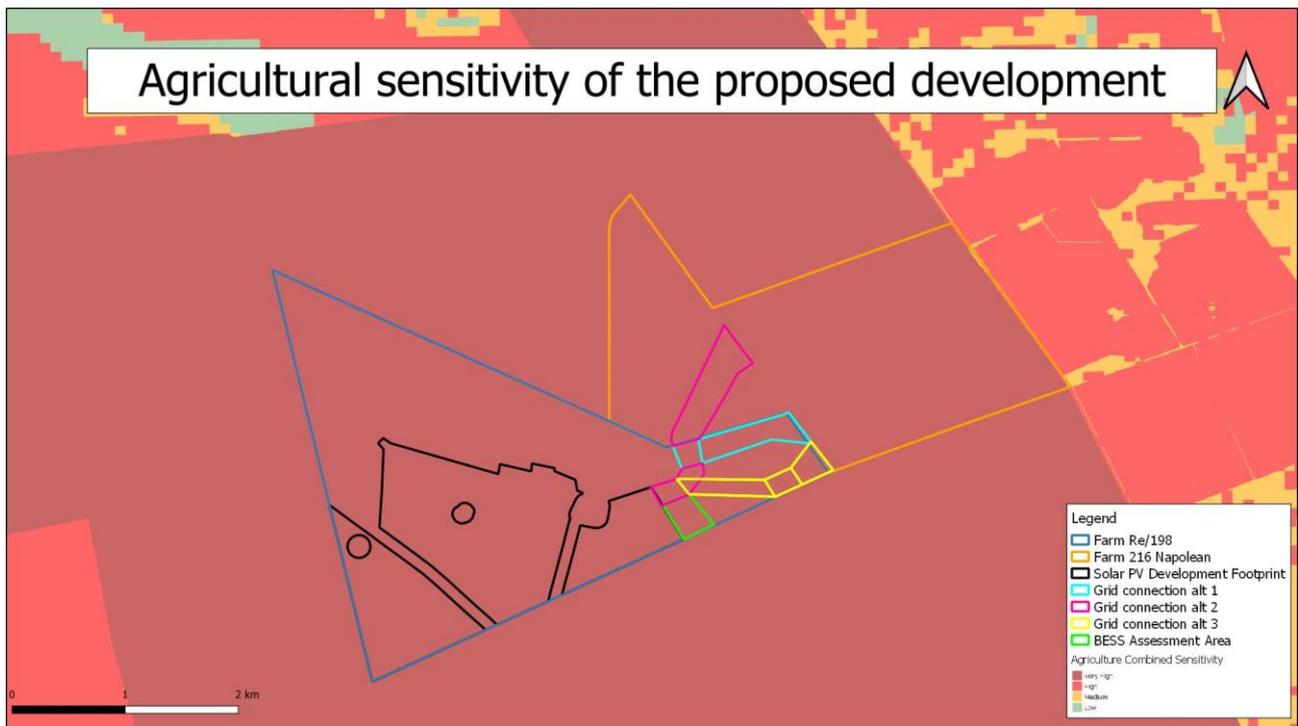


Figure 6. The development footprint overlaid on agricultural sensitivity, as given by the screening tool.

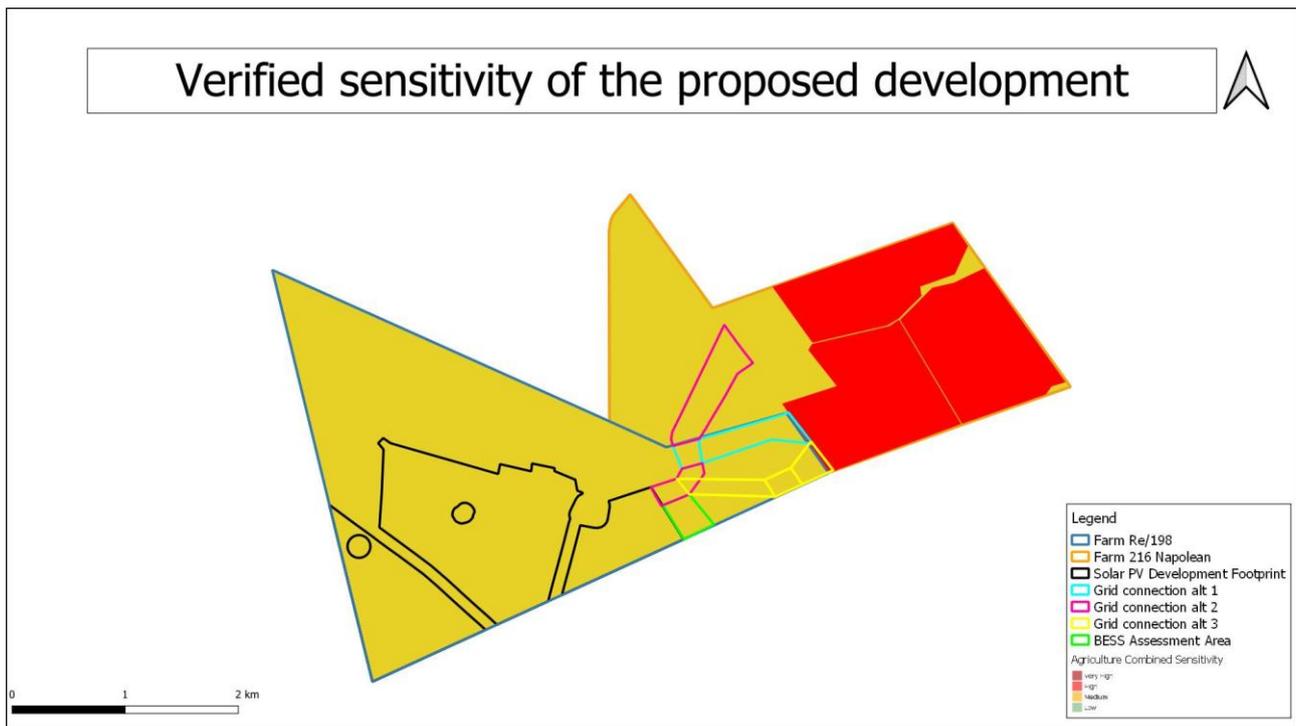


Figure 7. Agricultural sensitivity of the development footprint, as verified by this assessment.

The DFFE’s screening tool classifies the assessed project site as being entirely very high agricultural sensitivity. The very high sensitivity classification by the screening tool is due to the PAA status of the site. The high sensitivity classification by the screening tool that underlies the PAA layer is due to a combination of some land being classified as cropland (high sensitivity) and some land being classified as high sensitivity because of a classified land capability rating of 8 to 10, as per Table 3 above. However, as shown in the previous section, the **project site is not suitable for viable crop production and its true sensitivity, as assessed on the ground, is therefore medium. This assessment therefore disputes the high and very high sensitivity classification of the site by the screening tool and verifies the entire site as being of medium agricultural sensitivity because of its assessed cropping potential.**

The screening tool sensitivity of a power line corridor has very little relevance to the assessment of its agricultural impact because the impact is likely to be of negligible significance, regardless of the agricultural sensitivity of the land which it crosses. Power lines are permitted by NEMA’s agricultural protocol to cross high and very high sensitivity land, including croplands, because they have negligible impact on the agricultural production potential of such land (see Section 9.1).

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 assessment is therefore limited to assessing that change. An assessment of the impacts related to a change of the agricultural sense of place should not be included in an agricultural assessment, except where it directly affects production potential, but should instead be assessed in a visual and cultural heritage assessment, which has the appropriate expertise for such an assessment. Similarly, it is not the place of an agricultural assessment, but rather of a social impact assessment, to consider social issues that may impact the farming community, beyond the extent to which they may impact production potential.

An agricultural impact is a change to the future agricultural production potential of land. It occurs as a result of different mechanisms, some of which decrease production potential and some of which increase it. The following potential impact mechanisms of the proposed development are identified:

1. Loss of agricultural production potential due to exclusion of agriculture from land directly occupied by development infrastructure. This occurs during the entire development lifetime.
2. Loss of agricultural production potential due to soil degradation, which includes soil erosion and loss of topsoil. This could occur predominantly in the construction and decommissioning phases of a development. It can be effectively prevented by generic mitigation measures that are all inherent in the project engineering of such a development and are standard, best-practice for construction sites. Soil degradation does not therefore pose a significant impact risk.
3. Increase in agricultural production potential due to increased financial security for farming operations through rental income generation for the farm during the operational phase of a renewable energy development. This provides reliable and predictable income that is independent of variable agricultural economic factors such as weather, agricultural markets and agricultural input costs. This is a big economic advantage for a farmer and can improve farming operations and productivity. This is a big economic advantage for a farmer and can improve farming operations and productivity on other, higher potential parts of the farm or farms owned by the same farmer, through increased investment into farming.
4. Increase in agricultural production potential through improved security against stock theft and other crime due to the presence of security infrastructure and security personnel at the energy facility.

There are two additional effects, but because they are highly unlikely to influence agricultural production, they are not considered further. They are:

- **Interference with farming operations** - Construction (and decommissioning) activities are likely to have some nuisance impact for farming operations but are highly unlikely to have an

impact on agricultural production.

Where there are both positive impacts (increase in production potential) and negative impacts (decrease in production potential), what is important is the net change to the future agricultural production potential of land from its pre-development potential.

The significance of any loss of agricultural production potential 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 loss of potential, for any development anywhere in the country, is on high yielding cropland, and the least significant possible, is on 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 the rest of agricultural land across the country 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. This threshold is legally formalised for solar energy developments in terms of the allowable development limits of the Agricultural Protocol contained in the gazetted Specialist Protocols (GN R 320 and GN R 1150 of 2020) of the EIA Regulations, 2014.

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 that make it unsuitable as viable cropland. The proposed development on this land will result in minimal loss of future agricultural production potential in terms of national food security.

Furthermore, the land occupied by PV panels could 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 occupied by panels remains agriculturally productive. The benefit for sheep farming is that the security infrastructure of the solar PV facility will protect the sheep within it against stock theft. The benefit for the solar PV facility is that the sheep will control the height of the vegetation below the solar panels thus reducing the need to mechanically control

the height of vegetation.

Due to the facts that the proposed development will not occupy scarce, viable cropland, that the land could potentially still be used to graze sheep, and that its negative impact is offset by economic and other 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.

The proposed overhead power line has negligible agricultural impact, regardless of the agricultural potential and sensitivity of the land it crosses. The agricultural impact of a power line is negligible in almost all environments but is even more so where agricultural land use is predominantly grazing, which it is in the environment that is the subject of this assessment. All possible agricultural activities can continue entirely unhindered underneath the power line. The direct, permanent, physical footprint that has any potential to interfere with agriculture is confined to pylon bases and a service and maintenance track underneath the power lines and is therefore insignificantly small. No service and maintenance track needs to be kept within croplands because the cultivation ensures that the land remains accessible for maintenance without a track. The track therefore has no significant impact on agricultural potential underneath the lines. The only potential source of impact of the power line is minimal disturbance to the land (erosion and topsoil loss) during construction (and decommissioning). This impact can be completely prevented with standard, generic mitigation measures that are all inherent in the project engineering and/or are standard, best-practice for construction sites, and are included in the generic EMP developed by the DFFE. The power line will result in negligible loss of future agricultural production potential, and its agricultural impact is therefore assessed as being of very low significance and as acceptable.

9.2 Cumulative impact assessment

Specialist assessments for environmental authorisation are required to include an assessment of 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?

The 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 of this development determines the quantitative loss of agricultural land if all renewable energy project applications within a 30 km radius become operational. These projects are listed in Appendix 4 of this report. According to the latest version of the DFFE's South African Renewable Energy EIA Application Database (REEA_OR_2025_Q2), the only project within a 30 km radius from the project site is the PPC Dwaalboom Cement Plant Heat Recovery Plant in Thabazimbi, which is a Petroleum project. Note that electrical grid infrastructure projects do not contribute to a loss of agricultural land and are not therefore included in this calculation of cumulative land loss. The area of land taken out of agricultural use as a result of all the projects listed in Appendix 4 (total generation capacity of 319 MW) will amount to a total of approximately 750 hectares. This is calculated using the industry standards of 2.5 and 0.3 hectares per megawatt for solar and wind energy generation respectively, as per the Department of Environmental Affairs (DEA) Phase 1 Wind and Solar Strategic Environmental Assessment (SEA) (2015). As a proportion of the total area within a 30 km radius (approximately 282,700 ha), this amounts to only 0.26% of the surface area. This is well within an acceptable limit in terms of loss of low potential agricultural land, which is only suitable for grazing, and of which there is no scarcity in the country.

All the projects contributing to cumulative impact for this assessment have the same kind of agricultural impact in a very similar agricultural environment, and therefore the same mitigation measures apply to all.

Furthermore, it should be noted that there are few land uses, other than renewable energy, that are competing for agricultural land use in this area. The cumulative impact from developments, other than renewable energy, is therefore likely to be low.

The loss of agricultural potential by soil degradation can effectively be prevented for renewable

energy developments by generic mitigation measures that are all inherent in the project engineering and/or are standard, best-practice for construction sites. Soil degradation does not therefore pose a cumulative impact risk.

Due to all the considerations discussed above, the **cumulative impact of loss of future agricultural production potential is assessed as low**. It 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.

Due to the fact that the assessed grid infrastructure contributes negligibly to a loss of agricultural land it cannot cause acceptable levels of change in terms of agricultural land loss to be exceeded. The **cumulative impact of the power line and associated infrastructure can therefore confidently be assessed as being of negligible significance** and therefore as acceptable. It 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 power line be approved.

The loss of agricultural potential by soil degradation can effectively be prevented for renewable energy developments by generic mitigation measures that are all inherent in the project engineering and/or are standard, best-practice for construction sites. Soil degradation does not therefore pose a cumulative impact risk.

9.3 Assessment of alternatives

Specialist assessments for environmental authorisation are required to include a comparative assessment of alternatives, including the no-go alternative. As already noted, 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, because agriculture will be completely excluded from within the boundary, regardless of layout. Any alternative layouts within the boundary will have equal agricultural impact and are assessed as equally acceptable. Because of the insignificant agricultural impact of the power line, there can be no material difference between the agricultural impacts of the proposed route alternatives. All have insignificant agricultural impact and are considered equally acceptable in terms of agricultural impact.

All design and technology alternatives, including the choice of Lithium-ion or redox flow for the BESS, will also have no bearing on the significance of agricultural impacts. All 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 if assessed purely from an agricultural impact perspective, the no-go alternative is the preferred alternative. However, the no-go option would prevent the proposed development from contributing to the environmental, social, and economic benefits associated with the development of renewable energy in South Africa.

10 MITIGATION

The most important and effective mitigation of agricultural impacts for any development is avoidance of viable, potential cropland. This development has already applied this mitigation by selecting a site on which there is no viable, potential cropland.

Generic mitigation measures that are effective in preventing soil degradation are all inherent in the engineering of such a project and/or are standard, best-practice for construction sites. These include:

- A system of storm water management, which will prevent erosion on and downstream of the site, will be an inherent part of the engineering design on site. Any occurrences of erosion must be attended to immediately and the integrity of the erosion control system at that point must be amended to prevent further erosion from occurring there.
- Any excavations done during the construction phase, in areas that will be re-vegetated during or at the end of the construction phase, must separate the upper 30 cm of topsoil from the rest of the excavation spoils and store it in a separate stockpile. When the excavation is back-filled, the topsoil must be back-filled last, so that it remains at the surface. Topsoil should only be stripped in areas that are excavated. Across most of the site, including construction lay down areas, it will be much more effective for rehabilitation, to retain the topsoil in place. If levelling requires significant cutting, topsoil should be temporarily stockpiled and then re-spread after cutting, so that there is a covering of topsoil over the entire cut surface. It will be advantageous to have topsoil and vegetation cover below the panels during the operational phase to control dust and erosion.

There are no additional mitigation measures required, over and above what has already been included in the *Generic Environmental Management Programme (EMPr) For The Development And Expansion For Overhead Electricity Transmission And Distribution Infrastructure* and the *Generic Environmental Management Programme (EMPr) For Substation Infrastructure For The Transmission And Distribution Of Electricity*, as per Government Notice 435, which was published in Government Gazette 42323 on 22 March 2019.

11 ADDITIONAL ASPECTS REQUIRED IN AN AGRICULTURAL ASSESSMENT

11.1 Micro-siting

The agricultural protocol requires confirmation that all reasonable measures have been taken through micro-siting to minimize fragmentation and disturbance of agricultural activities. The choice of the site has already avoided viable cropland. Further micro-siting will make no material difference to agricultural impacts and disturbance. The micro-siting of the power line within the corridor will make no material difference to agricultural impacts and disturbance.

11.2 Confirmation of linear activity exclusion

If linear infrastructure that is located on land of high agricultural sensitivity has been given exclusion from requiring an Agricultural Agro-Ecosystem Specialist Assessment because of its linear nature, and therefore only requires an Agricultural Compliance Statement, the protocol requires confirmation that the land impacted by that linear infrastructure can be returned to the current state within two years of completion of the construction phase. The overhead power line is the only linear component of the project, to which this provision is applicable. It is hereby confirmed that the land under the overhead power line, where it is not occupied by other facility infrastructure, can be returned to the current state of agricultural production potential within two years of construction, with the obvious disclaimer that the pylons will continue to be present for the duration of the operational lifetime of the power line. The service and maintenance track underneath the power lines will also be present for the duration of the operational lifetime of the power line. However, no service and maintenance track needs to be kept within croplands because the cultivation ensures that the land remains accessible for maintenance without a track. The track therefore has no significant impact on agricultural potential underneath the lines. It is hereby confirmed that the land in which the power lines cross can be returned to the current state of agricultural production potential within two years of construction.

11.3 Compliance with the allowable development

The agricultural protocol stipulates allowable development limits for renewable energy developments of > 20 MW and explains them as follows:

Allowable development limits refer to the area of a particular land capability that can be directly impacted (i.e. taken up by the physical footprint) by a renewable energy development. Physical footprint in this context is the area that is directly occupied by all infrastructure, including roads, hard standing areas, buildings, substations, etc. that is associated with the renewable energy generation 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 renewable 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 allowable development limit on land of low or medium agricultural sensitivity, as this project site has been verified to be, is 2.5 ha per MW. This would allow the proposed facility with a total generating capacity of 300 MW to occupy an agricultural footprint of up to $300 \times 2.5 = 750$ hectares. The total assessed footprint, as shown in Figure 2, is 350 hectares. It is therefore confirmed that the facility is in line with the allowable development limits contained in the agricultural protocol.

12 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 minimal loss of future agricultural production potential.

The mean annual rainfall versus evaporation and the seasonal distribution of rainfall in the area within which the project site is located means that the climatic moisture availability is insufficient for viable rain-fed cropping on all soil types other than the dark-coloured, clay-rich, so-called turf soils that do occur in the area, but are not present on the assessed PV site, except for one small patch that is too small for viable crop production. The combination of climate and soil on the site results in an insufficient moisture reservoir to carry a crop through the season and limits the agricultural potential of the site to being suitable only as grazing land.

This assessment therefore disputes the high and very high sensitivity classification of the site by the screening tool and verifies the entire site as being of medium agricultural sensitivity because of its assessed cropping potential.

The screening tool sensitivity of a power line corridor has very little relevance to the assessment of its agricultural impact because the impact is likely to be of negligible significance, regardless of the agricultural sensitivity of the land which it crosses. Power lines are permitted by NEMA's agricultural protocol to cross high and very high sensitivity land, including croplands, because they have negligible impact on the agricultural production potential of such land

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 that make it unsuitable as viable cropland. The proposed development on this land will result in minimal loss of future agricultural

production potential in terms of national food security.

Furthermore, the land occupied by PV panels could 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 occupied by panels 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 thus reducing the need to mechanically control the height of vegetation.

Due to the facts that the proposed development will not occupy scarce, viable cropland, that the land could potentially still be used to graze sheep, and that its negative impact is offset by economic and other 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.**

The **proposed overhead power line has negligible agricultural impact, regardless of the agricultural potential and sensitivity of the land it crosses.** The agricultural impact of a power line is negligible in almost all environments but is even more so where agricultural land use is predominantly grazing, which it is in the environment that is the subject of this assessment. All possible agricultural activities can continue entirely unhindered underneath the power line. The direct, permanent, physical footprint that has any potential to interfere with agriculture is confined to pylon bases and a service and maintenance track underneath the power lines and is therefore insignificantly small. No service and maintenance track needs to be kept within croplands because the cultivation ensures that the land remains accessible for maintenance without a track. The track therefore has no significant impact on agricultural potential underneath the lines. The only potential source of impact of the power line is minimal disturbance to the land (erosion and topsoil loss) during construction (and decommissioning). This impact can be completely prevented with standard, generic mitigation measures that are all inherent in the project engineering and/or are standard, best-practice for construction sites, and are included in the generic EMP_r developed by DFFE. The **power line will result in negligible loss of future agricultural production potential, and its agricultural impact is therefore assessed as being of very low significance and as acceptable.**

From an agricultural impact point of view, there are no fatal flaws, and 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 other conditions, other than implementation of the proposed mitigation measures.

13 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/>.

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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.
- 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*.



forestry, fisheries & the environment

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Forestry, Fisheries and the Environment
REPUBLIC OF SOUTH AFRICA

Private Bag X447, Pretoria, 0001, Environment House, 473 Steve Biko Road, Pretoria, 0002 Tel: +27 12 399 9000, Fax: +27 86 625 1042

APPENDIX 2: SPECIALIST DECLARATION FORM AUGUST 2023

Specialist Declaration form for assessments undertaken for 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)

REPORT TITLE: THE BENYA SOLAR PV FACILITY AND ASSOCIATED INFRASTRUCTURE ON THE REMAINDER OF FARM 198 PORTUGAL, WITHIN THE THABAZIMBI LOCAL MUNICIPALITY IN THE WATERBERG DISTRICT, LIMPOPO PROVINCE.

Kindly note the following:

1. This form must always be used for assessment that are in support of applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting, where this Department is the Competent Authority.
2. This form is current as of August 2023. 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.dffe.gov.za/documents/forms>.
3. An electronic copy of the signed declaration form must be appended to all Draft and Final Reports submitted to the department for consideration.
4. The specialist must be aware of and comply with '*the Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the act, when applying for environmental authorisation - GN 320/2020*', where applicable.

1. SPECIALIST INFORMATION

Title of Specialist Assessment	Agricultural Assessment
Specialist Company Name	SoilZA (sole proprietor)
Specialist Name	Johann Lanz
Specialist Identity Number	6607045174089
Specialist Qualifications:	M.Sc. (Environmental Geochemistry)
Professional affiliation/registration:	Registered Professional Natural Scientist (Pr.Sci.Nat.) Reg. no. 400268/12 Member of the Soil Science Society of South Africa
Physical address:	2 Roeland Terrace, CAPE TOWN, 8001
Postal address:	Postnet Suite #500, Private Bag X16 Constantia, 7848
Telephone	Not applicable
Cell phone	+27 82 927 9018
E-mail	johann@soilza.co.za

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

SoilZA (sole proprietor)

Name of Company:

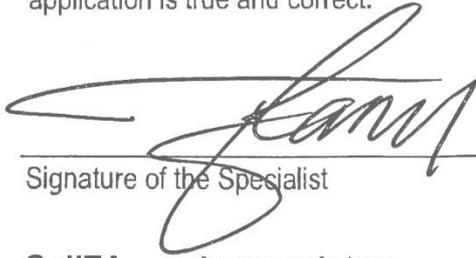
8 October 2025

Date

SPECIALIST DECLARATION FORM – AUGUST 2023

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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



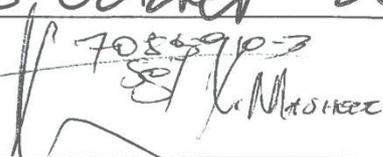
Signature of the Specialist

SoilZA – sole proprietor

Name of Company

2 October 2025

Date


7056910-7
S. Mashree

Signature of the Commissioner of Oaths

2025-10-08

Date





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 2026



Chairperson

Chief Executive Officer



APPENDIX 4: PROJECTS INCLUDED IN CUMULATIVE IMPACT ASSESSMENT

Table 4: Table of all projects that were included in the cumulative impact assessment.

DFFE Reference	Project name	Technology	Capacity (MW)
TBC	Benya Solar	SEF	300
14/12/16/3/3/1/1112	PPC Dwaalboom Cement Plant Heat Recovery Plant in Thabazimbi, Limpopo Province	Petroleum	19
Total solar			300
Total wind			
Total			319

Note: Electrical grid infrastructure projects do not contribute to a loss of agricultural land and are not therefore included in this table and in the calculation of cumulative land loss.

APPENDIX 5: SOIL DATA

Table 5: Land type soil data

Land type	Soil series (forms)	Depth (mm)	Clay % A horizon	Clay % B horizon	Depth limiting layer	% of land type
Ea155	Ar	600 - 1000	40 - 50			73,3
Ea155	Rg	600 - 1000	40 - 50		gc	12,0
Ea155	Hu	800 - 1200	25 - 35	35 - 50		7,8
Ea155	Sd	800 - 1200	30 - 40	35 - 50		5,1
Ea155	Hu	800 - 1200	20 - 30	25 - 35	ka	1,9
Ae236	Hu	> 1200	20 - 30	25 - 35		36,6
Ae236	Hu	> 1200	25 - 35	35 - 50		34,0
Ae236	Sd	> 1200	35 - 45	40 - 50		10,3
Ae236	Hu	300 - 800	20 - 35	25 - 45	ka	9,8
Ae236	Ar	600 - 1000	40 - 50		ka	5,8
Ae236	Bo	600 - 900	35 - 45	35 - 50		2,4
Ae236	Av	500 - 900	20 - 30	20 - 35	sp	0,8
Ae236	We	100 - 300	20 - 30	35 - 45	sp	0,5
Bc40	Hu	700 - 1200	12 - 30	15 - 30	R,so	43,0
Bc40	Hu	700 - 1200	8 - 12	10 - 15	R,so	34,5
Bc40	Ms	100 - 300	10 - 20		R	5,7
Bc40	Hu, Sd	700 - 1200	30 - 40	35 - 45	R,so	5,3
Bc40	Av	600 - 900	15 - 25	20 - 35	sp	3,4
Bc40	Av, Gc	600 - 900	8 - 12	10 - 15	sp,hp	3,4
Bc40	Bv	600 - 900	15 - 25	15 - 30	sp	2,4
Bc40	Ar, Rg	600 - 1000	50 - 70			1,0
Bc40	Lo	200 - 400	6 - 20	10 - 20	sp	0,5
Bc40	Va	200 - 400	20 - 30	35 - 45		0,5
Bc40	We	200 - 400	40 - 50		sp	0,5