



environmental affairs

Department:
Environmental Affairs
REPUBLIC OF SOUTH AFRICA

DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

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Date Received:	

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

PROJECT TITLE

Ndau 1 Solar Energy Facility

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1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at <https://www.environment.gov.za/documents/forms>.
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1. SPECIALIST INFORMATION

Specialist Company Name:	John Phipson		
B-BBEE	Contribution level (indicate 1 to 8 or non-compliant)	5	Percentage Procurement recognition
Specialist name:	John Phipson		
Specialist Qualifications:	BA UED (UNKZN)		
Professional affiliation/registration:	SA CNASP Pr.Sci.Nat. 116608		
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2. DECLARATION BY THE SPECIALIST

I, John Phipson declare that –

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

Signature of the Specialist

John Phipson

Name of Company:

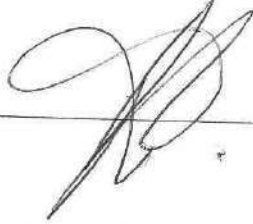
20 May 2023

Date

3. UNDERTAKING UNDER OATH/ AFFIRMATION

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

Signature of the Specialist



John Phipson

Name of Company

20 May 2023

Date

Signature of the Commissioner of Oaths



Date

2023/05/20



SITE SENSITIVITY VERIFICATION REPORT ON THE PROPOSED ESTABLISHMENT OF NDAU 1 SOLAR ENERGY FACILITY AND ASSOCIATED INFRASTRUCTURE LOCATED ON PORTION 19 OF THE FARM IRETVLEY NO.13 (140 HA IN EXTENT), 27 KM SOUTH-WEST OF POLOKWANE LOCAL MUNICIPALITY, CAPRICORN DISTRICT MUNICIPALITY, LIMPOPO PROVINCE

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21 May 2023

1. SITE SENSITIVITY SCREENING TOOL: NDAU SITE 1

This document represents an *onsite assessment of the screening tool* prepared by DFFE reflecting the *Agricultural Theme Sensitivity (ATS)* of the site. A site assessment was undertaken on 21 November 2022.

1.1 Soils Quality

During a preliminary drive through of virtually any land parcel one of the early indicators of soil quality and thus Yield Potential / Agricultural Theme Sensitivity is the presence or absence of Ant Bear (*Orycteropus afer*) holes. If these are present, they are usually accompanied by deep, well-structured and well drained soils, key basic properties of high yield potential soils. An absence points in the direction of shallow, stony soils or poorly drained heavy soils with wet feet, key indicators of non-arable soils.

An examination of a representative cross section of 25 soil profiles for Ndau 1 up to a depth of 250 to 300 mm on shallow soils confirmed that these are Land Capability Class VII (LCCVII) soils. These are well suited to livestock but cannot be used for arable crop production. In addition to the 25 profiles examined, numerous others were observed along road banks, railway cuttings and eroded drainage lines.

Shallow stony soils were universally distributed across the higher lying slopes while the few deep soils encountered offsite were on footslopes and had 'wet feet' due to underground water seepage. The latter were close to low lying areas that have already been excluded due to the presence of drainage lines and watercourses, most of which have been severely eroded.

On a scale of LCCI to LCCVIII these soils are placed at LCC VII and LCC VIII. This is equivalent to an ATS of 3 to 4 on a scale of 1 to 15 i.e. a **moderate soil potential, suitable for livestock and wild game, but not for arable crops.**

However, soil quality is not the only criterion for crop yield potential at any given site. The other criteria are rainfall and management.

1.2 Climate and Rainfall

This is a summer rainfall area with the incidence of heavy winter frost thus making it a summer production area. A moderate rainfall with a high annual variation coefficient means that the planting of annual arable crops is a risk that should be carefully considered, even if suitable soils are available.

1.3 Livestock

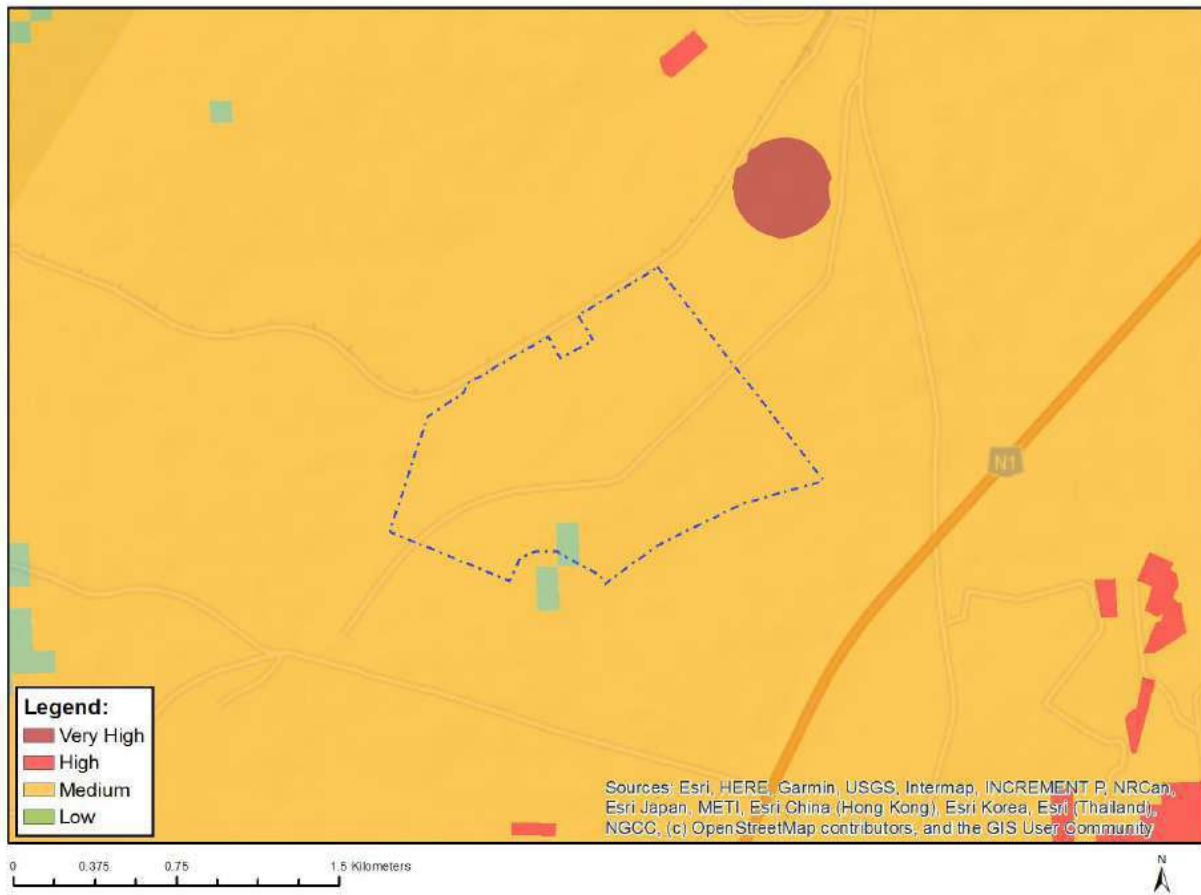
A combination of moderate soils and annually variable rainfall is sufficient to maintain large livestock in good condition during the summer months, but a breeding herd or dairy herd would require supplementary feeding in the winter months in order to maintain calving rates and lactation levels. The veld carrying capacity of 5 ha per Large Stock Unit (LSU), is commensurate with soil quality and climate.

The soil and climatic conditions described above are replicated time and time again in the hot bushveld regions of Limpopo, Northwest, Mpumalanga and KZN Provinces as well as the Central Provinces of Namibia and Southwestern Provinces of Zimbabwe. Prior to the introduction of commercial scale beef farming, these habitats were occupied predominantly by large wild game, both grazers and browsers.

1.4 Full Impact Assessment and Recommendations

A Full impact assessment will be a detailed follow up to this document as soon as the ATS has been reviewed by the authorities.

2. DFFE AGRICULTURAL THEME SENSITIVITY MAP



A Full Site Assessment confirmed that this is a medium Sensitivity area.

3. LAND CAPABILITY CLASSES (LCC) AND AGRICULTURAL THEME SENSITIVITY (ATS): SOIL PROFILES AT THE TARGET SITE: NDAU 1

Ref	Co-ordinates	Soil Form	Slope %	Clay %	Depth (mm)	Permeability	Wetness	LCC	Aspect
ND1.1	24°02'54.8"S 29°13'39.3"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	NW
ND1.2	24°03'03.2"S 29°13'30.4"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	NW
ND1.3	24°03'09.9"S 29°13'22.1"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	NW
ND1.4	24°03'11.1"S 29°13'04.6"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	NE
ND1.5	24°03'18.8"S 29°13'03.1"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	N
ND1.6	24°03'22.9"S 29°13'13.1"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	N
ND1.7	24°03'18.3"S 29°13'31.0"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	NW
ND1.8	24°03'02.3"S 29°13'45.6"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	NW
ND1.9	24°03'03.9"S 29°13'08.4"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	NW
ND1.10	24°02'55.7"S 29°13'07.1"E	Glenrosa/ Mispah	0-2	15-25	0-200	1	W0	VII	NW
ND1.11	24°02'39.7"S 29°13'28.1"E	Glenrosa/ Mispah	0-2	15-35	50	1	W0	VII	E
ND1.12	24°02'54.0"S 29°13'02.5"E	Glenrosa/ Mispah	0-2	15-25	50	1	W0	VII	W

ND1.13	24°02'56.8"S 29°12'54.5"E	Glenrosa/ Mispah	0-2	15-25	100	1	W0	VII	NE
Ref	Co-ordinates	Soil Form	Slope %	Clay %	Depth (mm)	Permeability	Wetness	LCC	Aspect
ND1.14	24°02'53.6"S 29°12'47.1"E	Glenrosa/ Mispah	0-2	15-25	250	1	W0	VII	NW
ND1.15	24°03'01.7"S 29°12'23.7"E	Swartland	0-2	>35	>500	1	W2	V	NE
ND1.16	24°02'46.4"S 29°13'30.1"E	Mispah/ Glenrosa	0-2	15-25	0-100	1	W0	VII	NE
ND1.17	24°02'48.3"S 29°13'36.3"E	Mispah/ Glenrosa	0-2	15-25	0-100	1	W0	VII	NE
ND1.18	24°02'50.4"S 29°13'39.4"E	Mispah/ Glenrosa	0-2	15-25	0-100	1	W0	VII	NW
ND1.19	24°02'44.8"S 29°13'20.2"E	Glenrosa/ Mispah	0-2	15-25	250	2	W0	VII	NW
ND1.20	24°02'52.2"S 29°13'07.8"E	Glenrosa/ Mispah	0-2	15-25	100	1	W0	VII	NW
ND1.21	24°02'56.5"S 29°12'58.2"E	Glenrosa/ Mispah	0-2	15-25	150	1	W0	VII	N
ND1.22	24°03'10.3"S 29°13'34.9"E	Mispah/ Glenrosa	0-2	15-25	0-100	1	W0	VII	NW
ND1.23	24°03'16.4"S 29°12'55.5"E	Glenrosa/ Mispah	0-2	15-25	250	2	W0	VII	NW
ND1.24	24°03'08.0"S 29°12'57.8"E	Glenrosa/ Mispah	0-2	15-25	100	1	W0	VII	NW
ND1.25	24°02'55.5"S 29°13'22.8"E	Glenrosa/ Mispah	0-2	15-25	150	1	W0	VII	N

LCC Colour Code	LCC Determination I
LCVIIC	Medium Agricultural Potential suitable for large livestock and wild game only
LCCV	As above but with “wet feet”

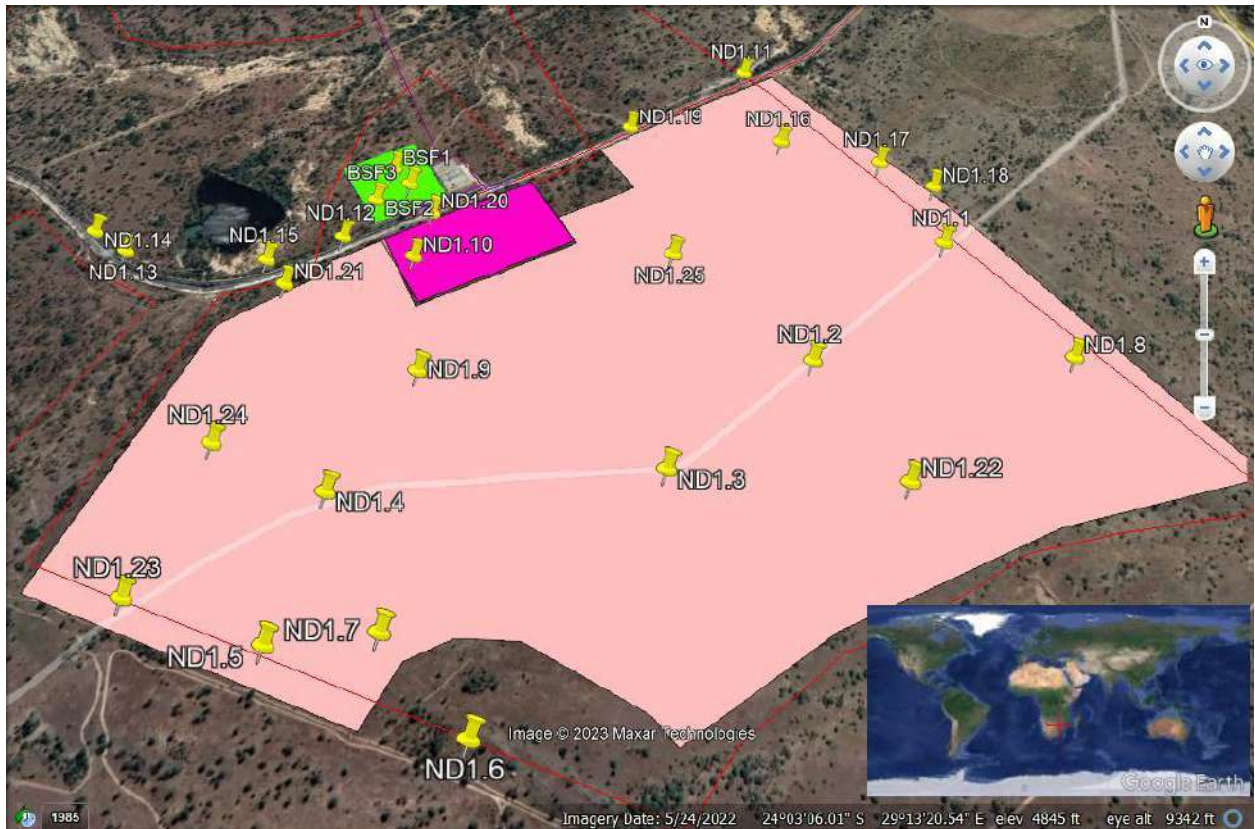
The main reason for this poor land capability class is the almost universal presence of shallow Mispah and Glenrosa soils.

These soils are suitable for grazing because the root concentration of grasses is typically 50 mm below the surface whereas for annual arable crops root concentration is typically at 150 mm to 200 mm. This situation is aggregated by the fact that during good rainfall periods the soil profile fills quickly, and the excess rainwater runs off and is lost. By the same token, shallow soils will dry out far more quickly than deep soils, thus adding to plant stress between rainfall events. The center pivot that is next to Nda 1 is offsite and is supplied by water from a runoff dam supplemented by boreholes. Water for the livestock on the farm is supplied by boreholes.

The final column in the table above provides *Aspect instead of Agricultural Theme Sensitivity* because the aspect will have an effect on the hours and intensity of solar radiation.

The Agricultural Theme Sensitivity equivalent to LCC VII is an ATS rating of 3 to 4 on a scale of 1 to 15.

4. SITE ASSESSMENT LAND CAPABILITY CLASS AND AGRICULTURAL THEME SENSITIVITY AT NDAU 1 SITE



The map above is the outcome of an onsite soil and climate potential assessment undertaken by the author hereof. In addition to the soil profiles exposed, observation of soils profiles at the edge of roads, drainage lines etc confirmed that the actual profiles examined are fully representative of the site. Yellow placemarks indicate non-arable soils

The site verification process also confirmed that the areas that have been excluded on the grounds of soil erosion have been correctly identified and mapped

5. CONCLUSION

Just as the presence of Ant Bear holes is an early indicator of arable land, so is the physical presence of grain silos, often visible from 15 to 20 km away. The nearest grain silos to the target site are at Bela-Bela, 130 km away, which supports the conclusion that the site is only suitable for livestock and game grazing.

6. SITE PHOTOGRAPHS

6.1 Typical Mispah / Glenrosa Soil Profile

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The photograph above depicts a Mispah Soil in the process of transition to a Glenrosa Form. The solid rock diagnostic of Mispah can be seen in the lower left portion of this photograph. The rest of the material is weathering rock, diagnostic of the Glenrosa Soil Form. This process takes place over millions of years

6.2 Typical Vegetation



The photograph above is typical of most of the Polokwane Plateau Bushveld vegetative unit comprised of small to medium trees loosely scattered among medium to poor quality grasses.

JP/NN/ Ndau 1/ 21 May 2023