MAFADI SOLAR POWER PLANT

SITE ASSESSMENT FOR THE DEVELOPMENT OF MAFADI SOLAR POWER PLANT ON THE FARM LANGGEDACHT NO. 1210, REGISTRATION DIVISION LS, LIMPOPO PROVINCE

Prepared for:
Environamics Environmental Consultants

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1. Executive Summary

The Farm Langgedacht No.1210 is located approximately 32km South-West of the town Louis Trichardt and is owned by Vermaas Boerdery Pty Ltd, and the farm is approximately 749 hectares (ha) within the Limpopo Province, Registration Division LS, South Africa (Figure 1). The study area falls within the Makhado Local Municipality.

The landscape consists of level plains with some relief. The farm borders the N1 and R36 roads for access to the site**.** For connection to the grid there is three options. This option is that the facility will tie in with either the existing Tabor MTS Substation or two options within the same assessment corridor, the existing Tabor-Flurian Tee 1 132kv or the Louis Trichardt/Tabor 1 132kv.

The site has low agricultural potential as well as low to moderate potential grazing capacity. This site has favourable conditions for a solar power plant due to its environmental and weather conditions.

2. Langgedacht No:1210

Langgedacht No:1210, is located within the Limpopo Province, Registration Division LS, South Africa and falls within the Makhado Local Municipality.

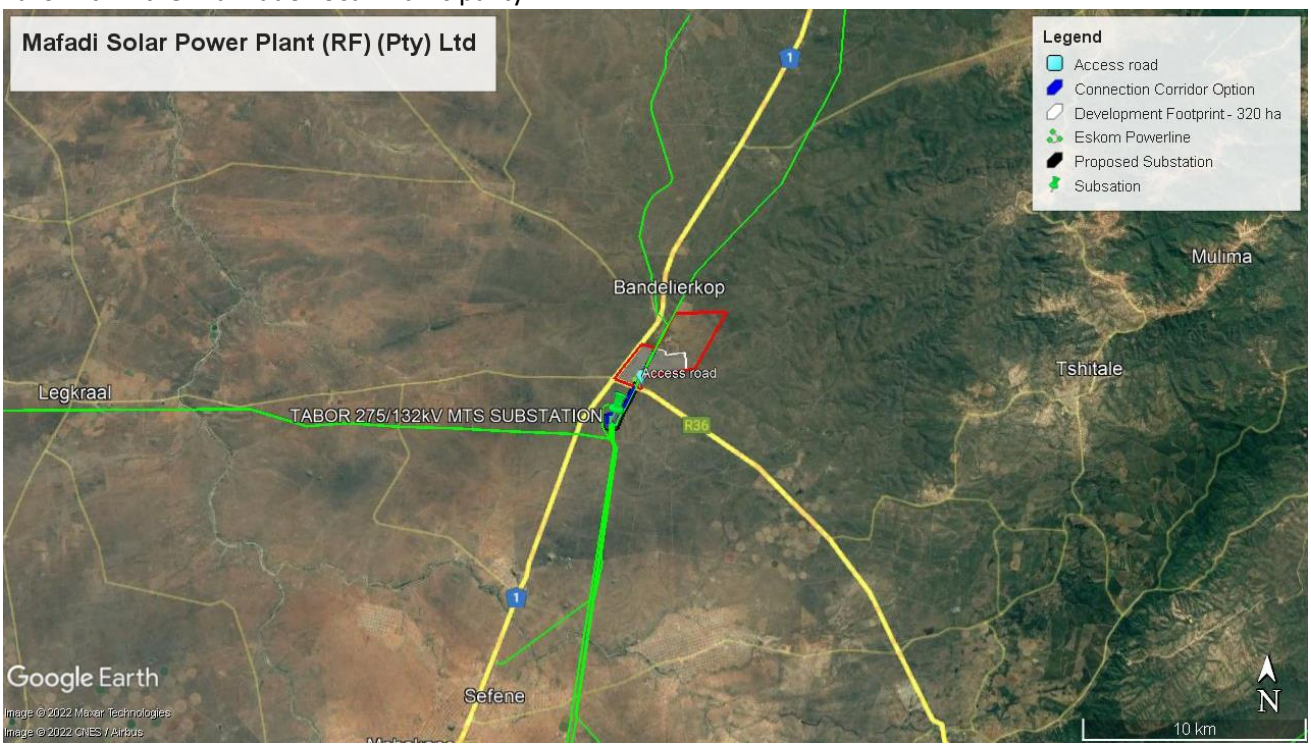

Figure 1: Land portion of farm (Google Earth)

3. Power lines and substations: TABOR 275/132KV MTS SUBSTATION, TABOR-FURIAN TEE 1 132KV OVERHEAD LINE AND THE LOUIS TRICHARDT/TABOR 1 132KV OVERHEAD LINE.

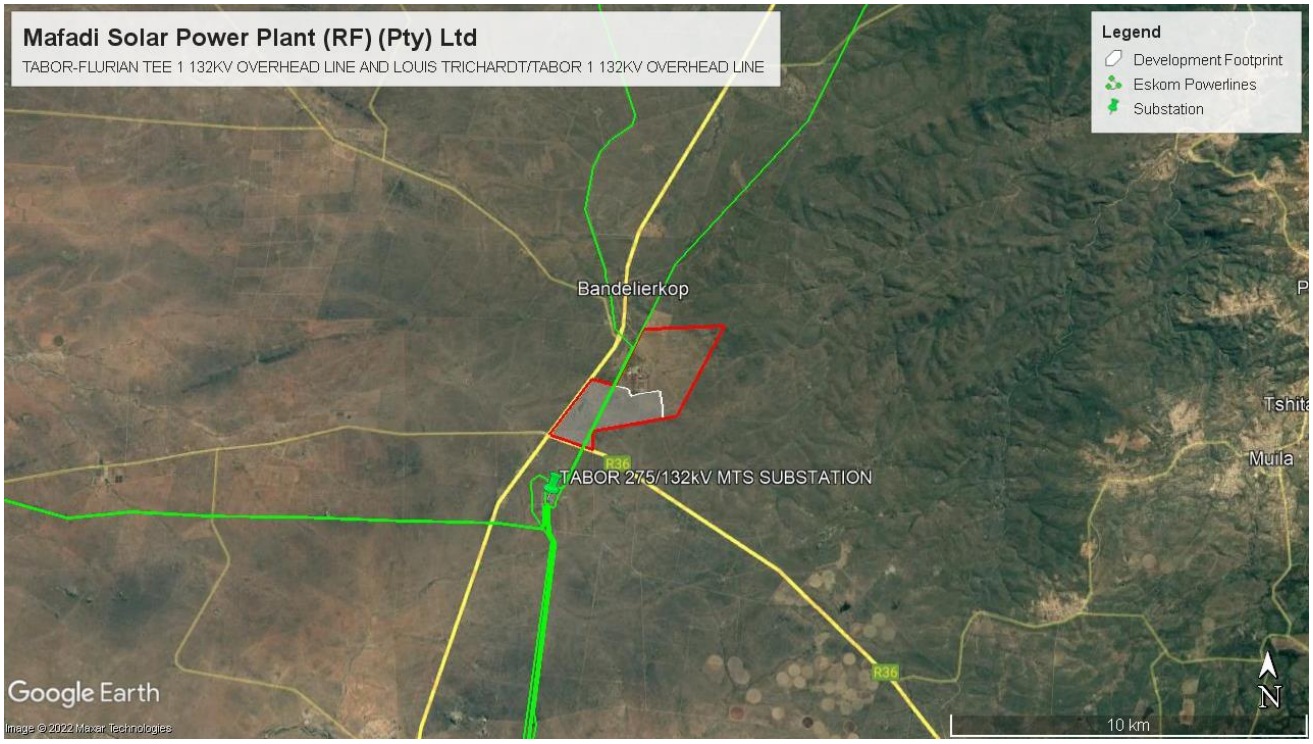

Figure 2: Mafadi Solar Power Plant_ Powerlines and substations (Google Earth)

3.1. Substations near site

DESCRIPTION: TABOR SUBSTATION 275/132KV

3.2. Power Lines near site

DESCRIPTION: TABOR-FURIAN TEE 1 132KV OVERHEAD LINE AND THE LOUIS TRICHARDT/TABOR 1 132KV OVERHEAD LINE.

4. Farm portions

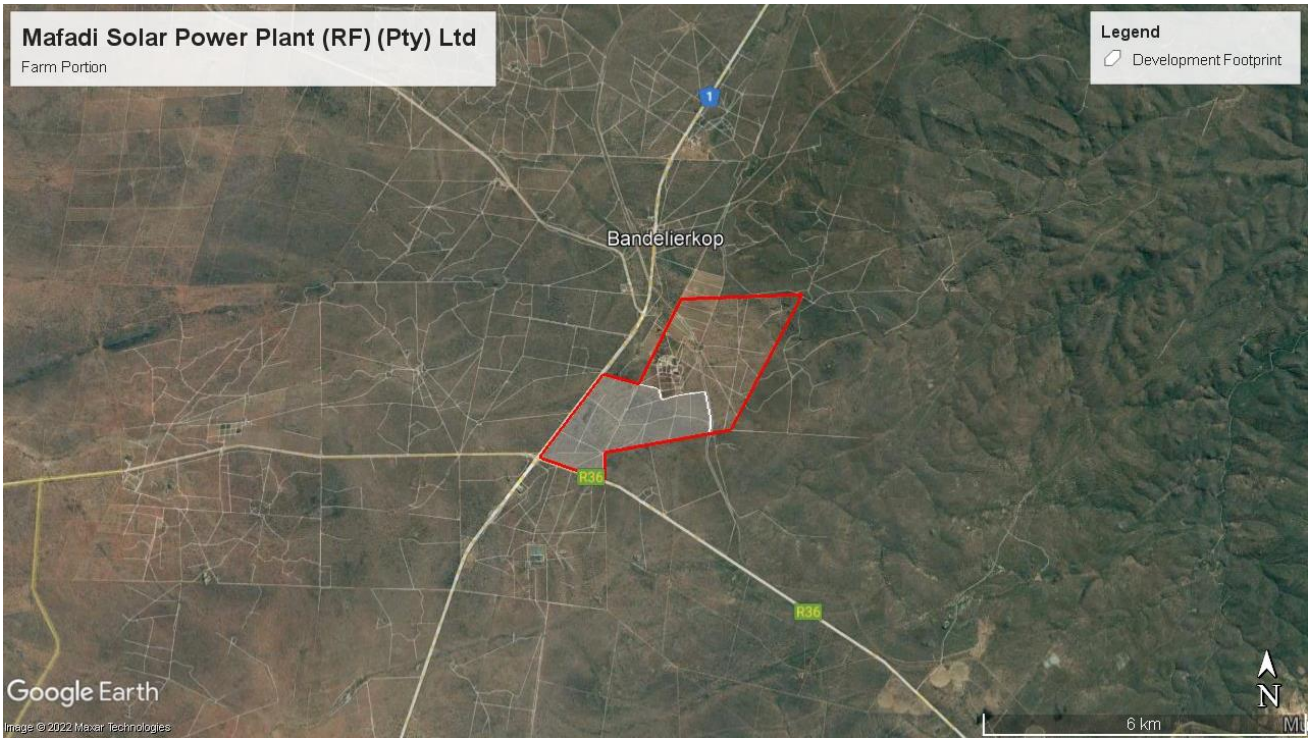

Figure 3: Mafadi Solar Power Plant_ Farm portions (Google Earth)

5. Environmental impact assessments done in the area

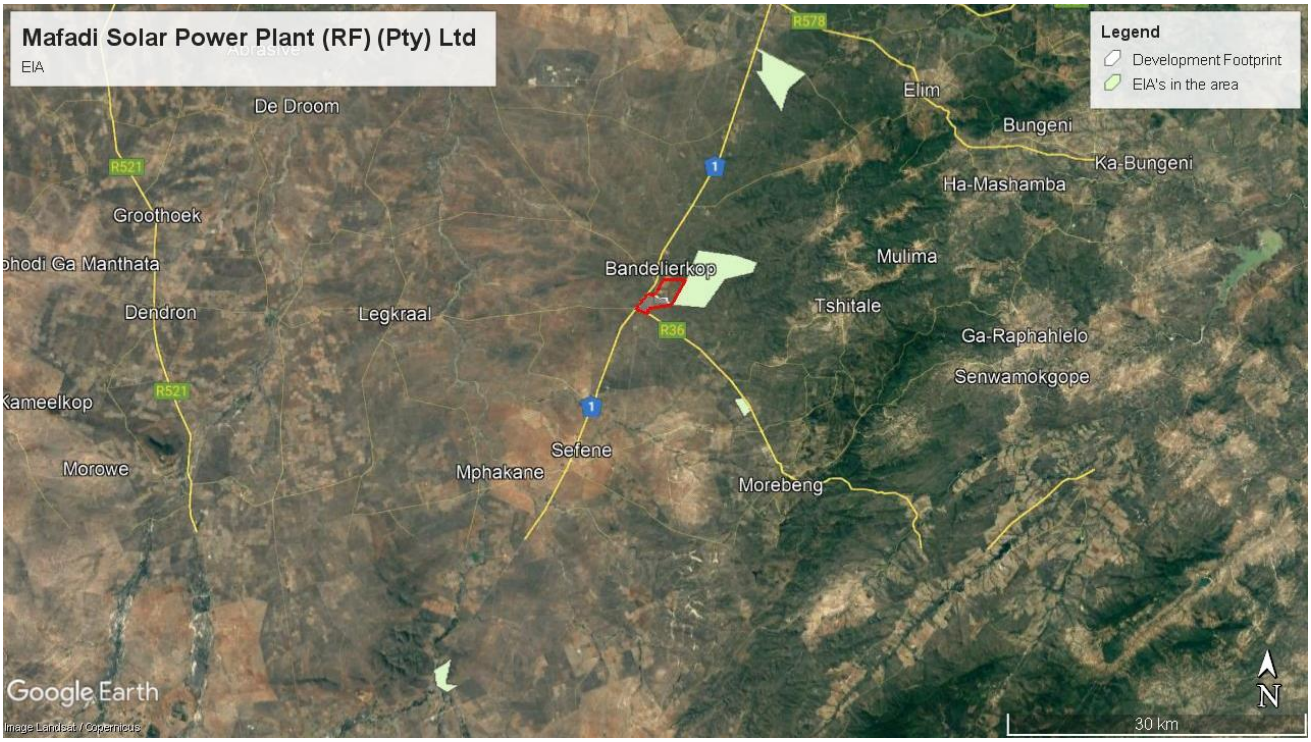

Figure 4: Mafadi Solar Power Plant_ EIA's conducted in the area (Google Earth)

A few EIA's have been conducted in this area.

14/12/16/3/3/2/757

14/12/16/3/3/2/757	
FID	1408
DEA_REF	14/12/16/3/3/2/757
NEAS_REF	To Review
REGULATION	2010
EIA_PROCES	Scoping and EIA
PROJ_TITLE	Prooposed construction of 75MW Makhado solar energy within Makhado Local Municipality in Limpopo
APP_RECEIV	2014/11/12
APPLICANT	Gogoro Renewables and Communications
EAP	Tshikovha Environmental and Communication Consultants
LOCAL_MUNI	Makhado Local Municipality
DISTRICT_M	Vhembe District Municipality
PROVINCE	Limpopo
TECHNOLOGY	Solar PV
MEGAWATT	75
PRJ_STATUS	In process

14/12/16/3/3/2/306

14/12/16/3/3/2/306	
FID	1165
DEA_REF	14/12/16/3/3/2/306
NEAS_REF	DEA/EIA/00001085/2012
REGULATION	2010
EIA_PROCES	Scoping and EIA
PROJ_TITLE	Proposed establishment of a 50MW solar power farm and associated infrastructure on a Portion of Farm Boschhoek 428 LS within the Makhado Local Municipality, Limpopo Province.
APP_RECEIV	2012/03/05
APPLICANT	To review
EAP	Phaki Phakanani Environmental Consultants (Pty) Ltd
LOCAL_MUNI	Makhado Local Municipality
DISTRICT_M	Vhembe District Municipality
PROVINCE	Limpopo
TECHNOLOGY	Solar PV
MEGAWATT	50
PRJ_STATUS	In process

12/12/20/2619/AM2

12/12/20/2619/AM2	
FID	1471
DEA_REF	12/12/20/2619/AM2
NEAS_REF	To Review
REGULATION	2014
EIA_PROCES	Amendment
PROJ_TITLE	Proposed Establishment Of A 65mw Photovoltaic Solar Facility On Portion 4 Of The Farm Droogeloop 516 Ls Near Soekmekaar, Limpopo Province
APP_RECEIV	2015/09/28
APPLICANT	KPR Engineers and Associates
EAP	Phaki Phakanani Environmental Consultants (Pty) L
LOCAL_MUNI	Molemole Local Municipality
DISTRICT_M	Capricorn District Municipality
PROVINCE	Limpopo
TECHNOLOGY	No Technology
MEGAWATT	0
PRJ_STATUS	Approved

14/12/16/3/3/1/820

14/12/16/3/3/1/820	
FID	1088
DEA_REF	14/12/16/3/3/1/820
NEAS_REF	DEA/EIA/A/0001687/2013
REGULATION	2010
EIA_PROCES	BAR
PROJ_TITLE	Proposed PV Plant on portion 2 of the farm Zandriverspoort 851 LS within Molemole Loc Municipality of Capricon District Municipality
APP_RECEIV	2013/09/19
APPLICANT	Kinross Energy (Pty) Ltd
EAP	Kimopax Pty Ltd
LOCAL_MUNI	Molemole Local Municipality
DISTRICT_M	Capricorn District Municipality
PROVINCE	Limpopo
TECHNOLOGY	Solar PV
MEGAWATT	10
PRJ_STATUS	Approved

6. Natural resources

6.1 Geology

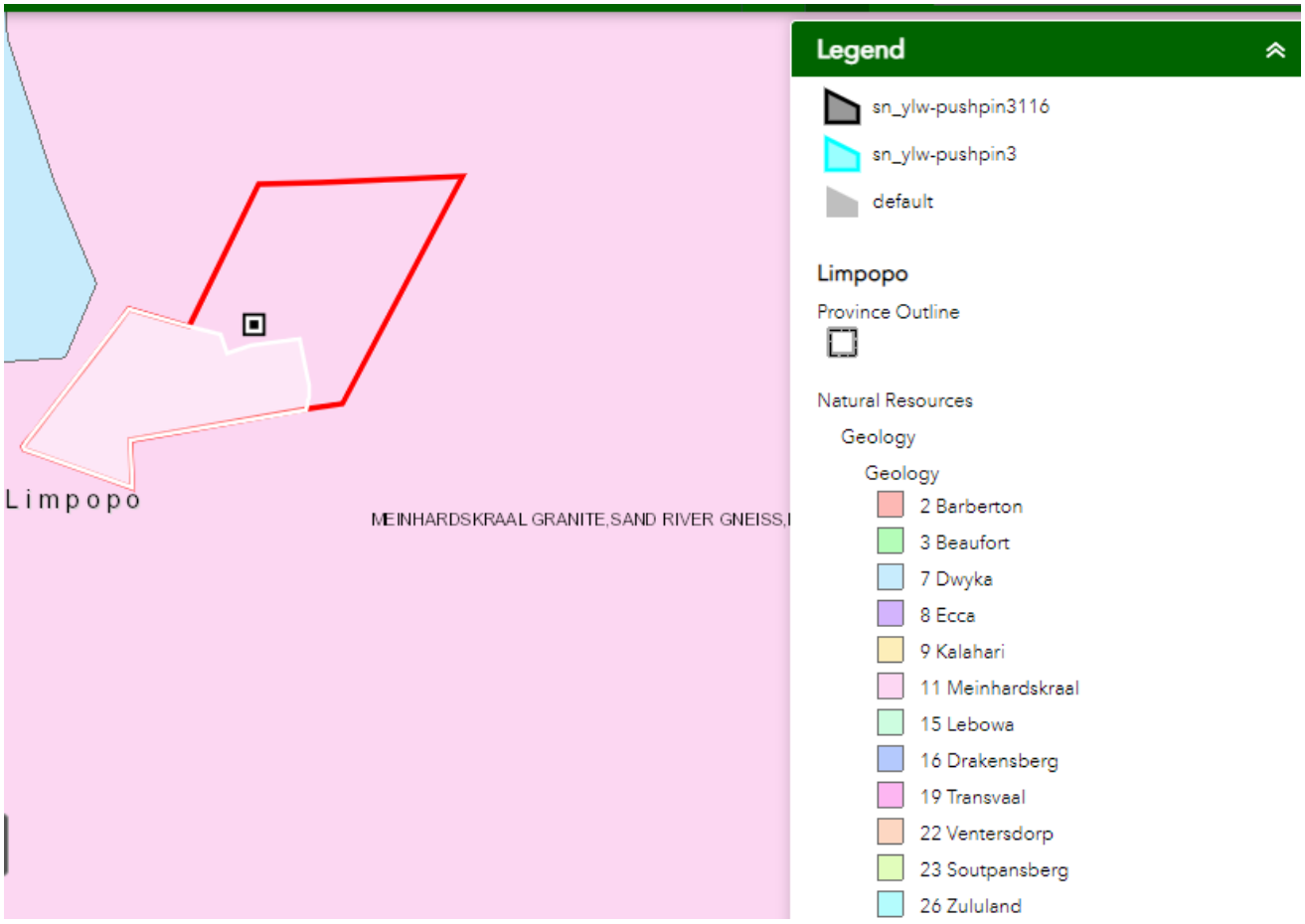

Figure 5: Mafadi Solar Power Plant_ Simplified Geology map
Source: [Natural Agricultural Resources Atlas of South Africa (nda.agric.za)]

6.2. Terrain

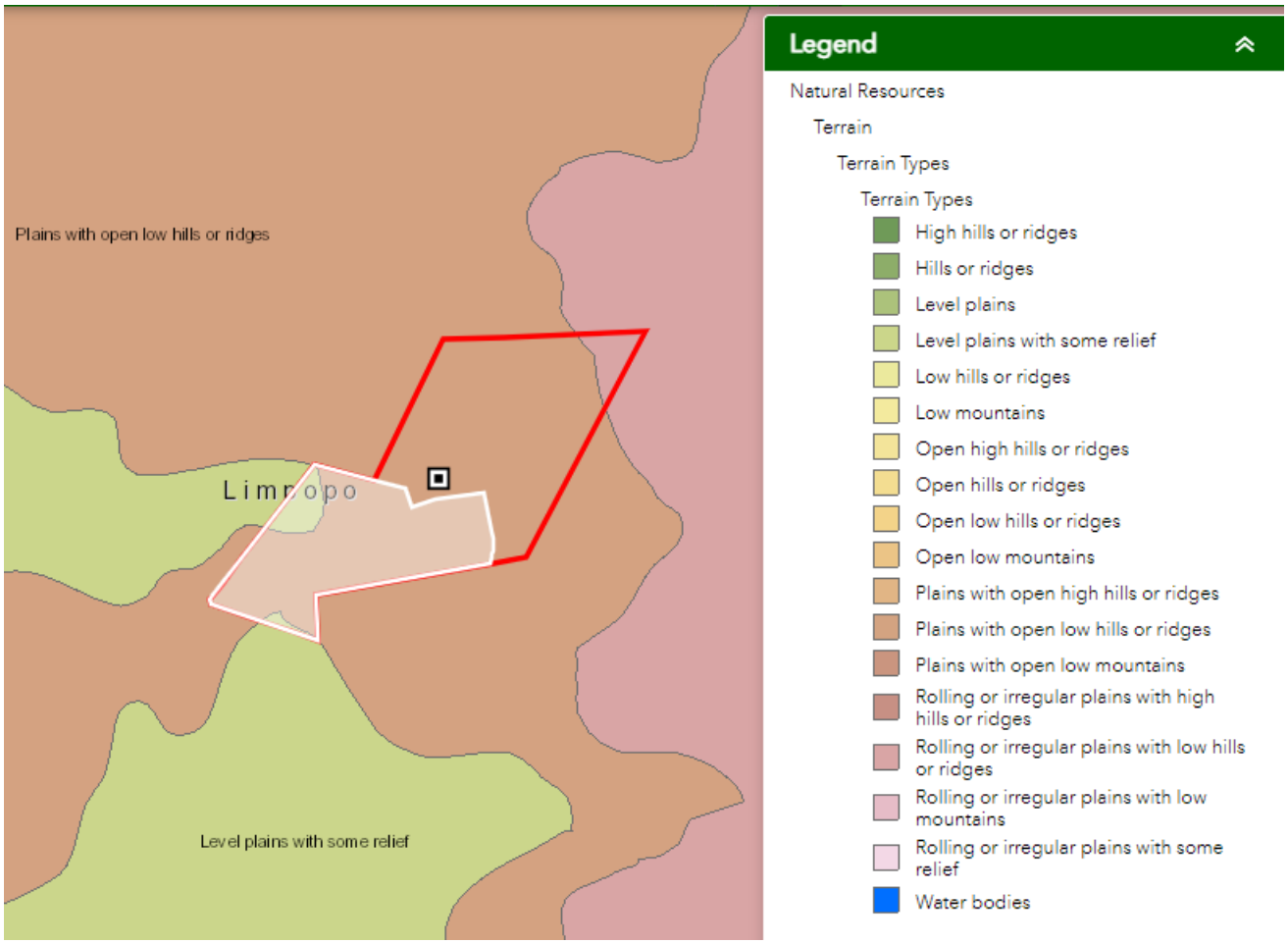

Figure 6: Mafadi Solar Power Plant_ Terrain Type
Source: [Natural Agricultural Resources Atlas of South Africa (nda.agric.za)]

6.3 Vegetation

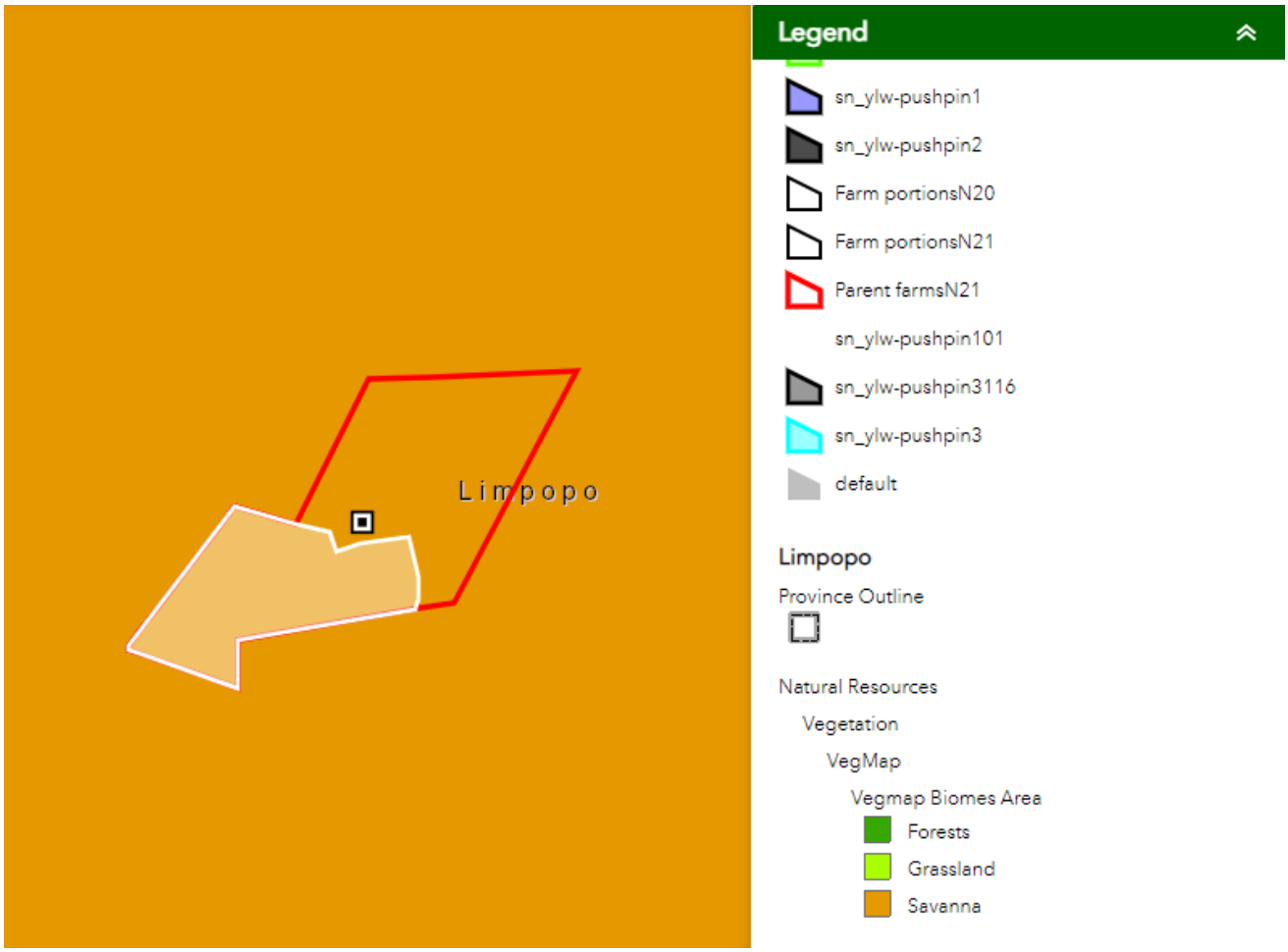

Figure 7: Mafadi Solar Power Plant_ Vegetation Biome map
Source: [Natural Agricultural Resources Atlas of South Africa (nda.agric.za)]

6.4 Water

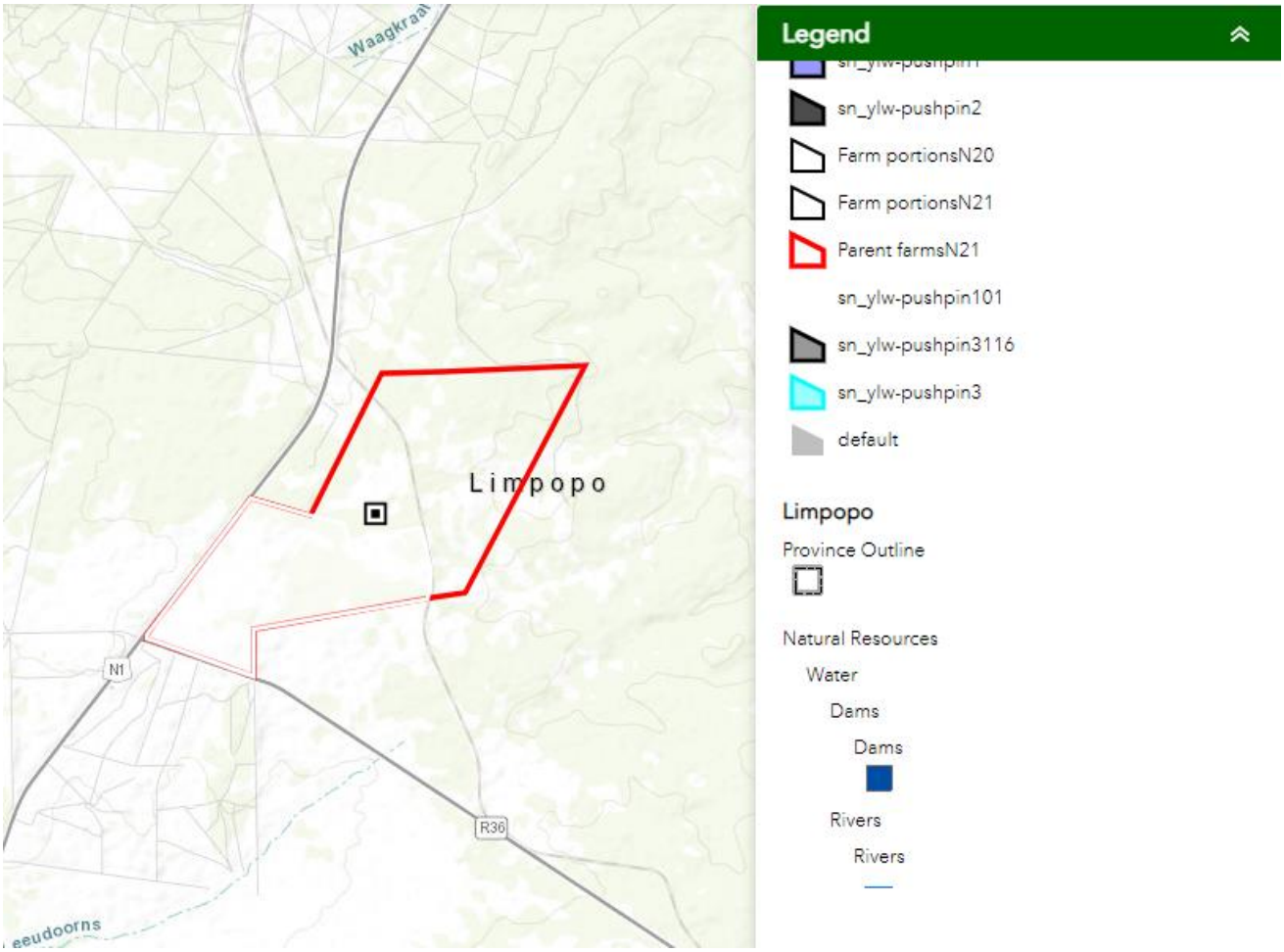

Figure 8: Mafadi Solar Power Plant_ Dams and rivers
Source: [Natural Agricultural Resources Atlas of South Africa (nda.agric.za)]

7. Possible areas for development

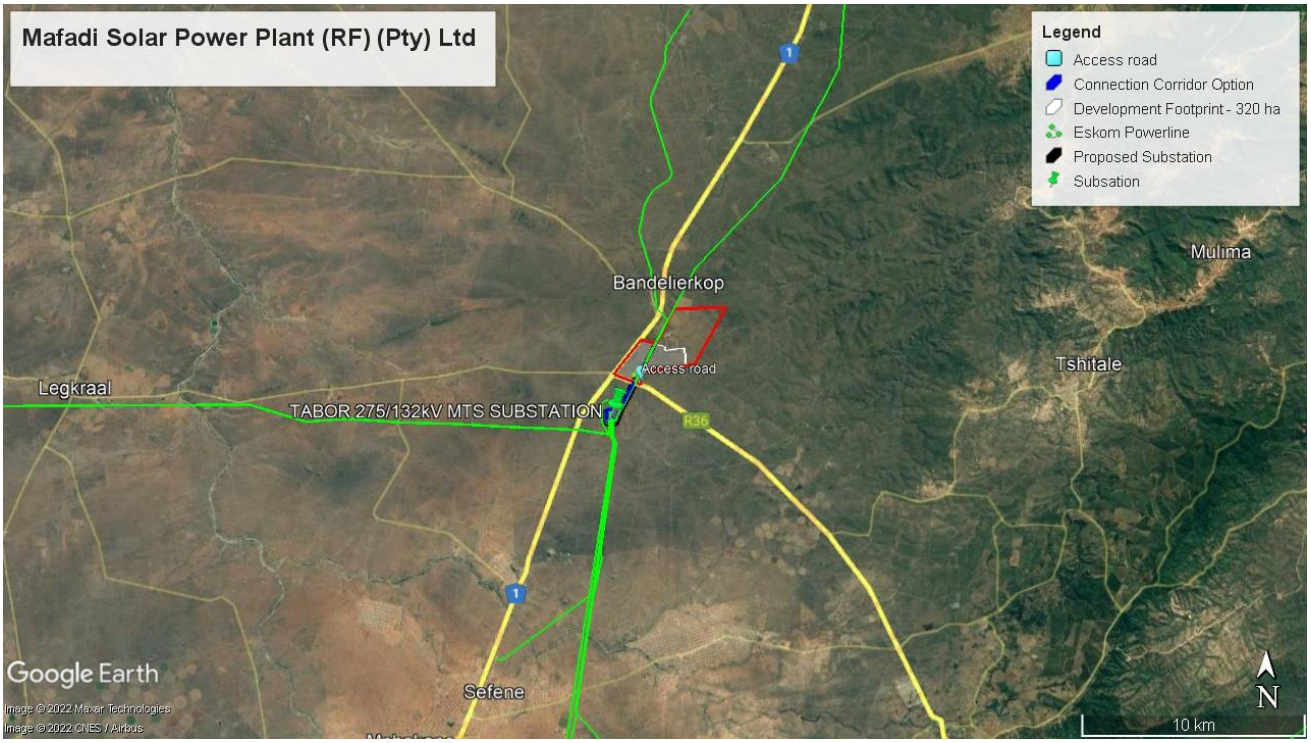

Figure 9: Proposed development area for a solar power plant (Google Earth)

One possible area was identified for a proposed solar plant. This footprint is 320ha in extent:

Preferred development site (white portion): This is the preferred option since there are no major issues to be avoided near the site and the terrain is flat. This area also has the shortest power line and access route options.

Keeping all the above information into consideration, the white portion would be the preferred option for the development of a solar plant. This area was identified due to the low impact on the environment and infrastructure of the land portion.

Reference:

Natural Agricultural Resources Atlas of South Africa (nda.agric.za)