PHALA SOLAR POWER PLANT

SITE ASSESSMENT FOR THE DEVELOPMENT OF PHALA SOLAR POWER PLANT ON REMAINING EXTENT OF PORTION 1, REMAINING EXTENT OF PORTION 2, PORTION 5 AND PORTION 7 OF THE FARM TURFBULT NO. 494, REGISTRATION DIVISION KR, LIMPOPO PROVINCE

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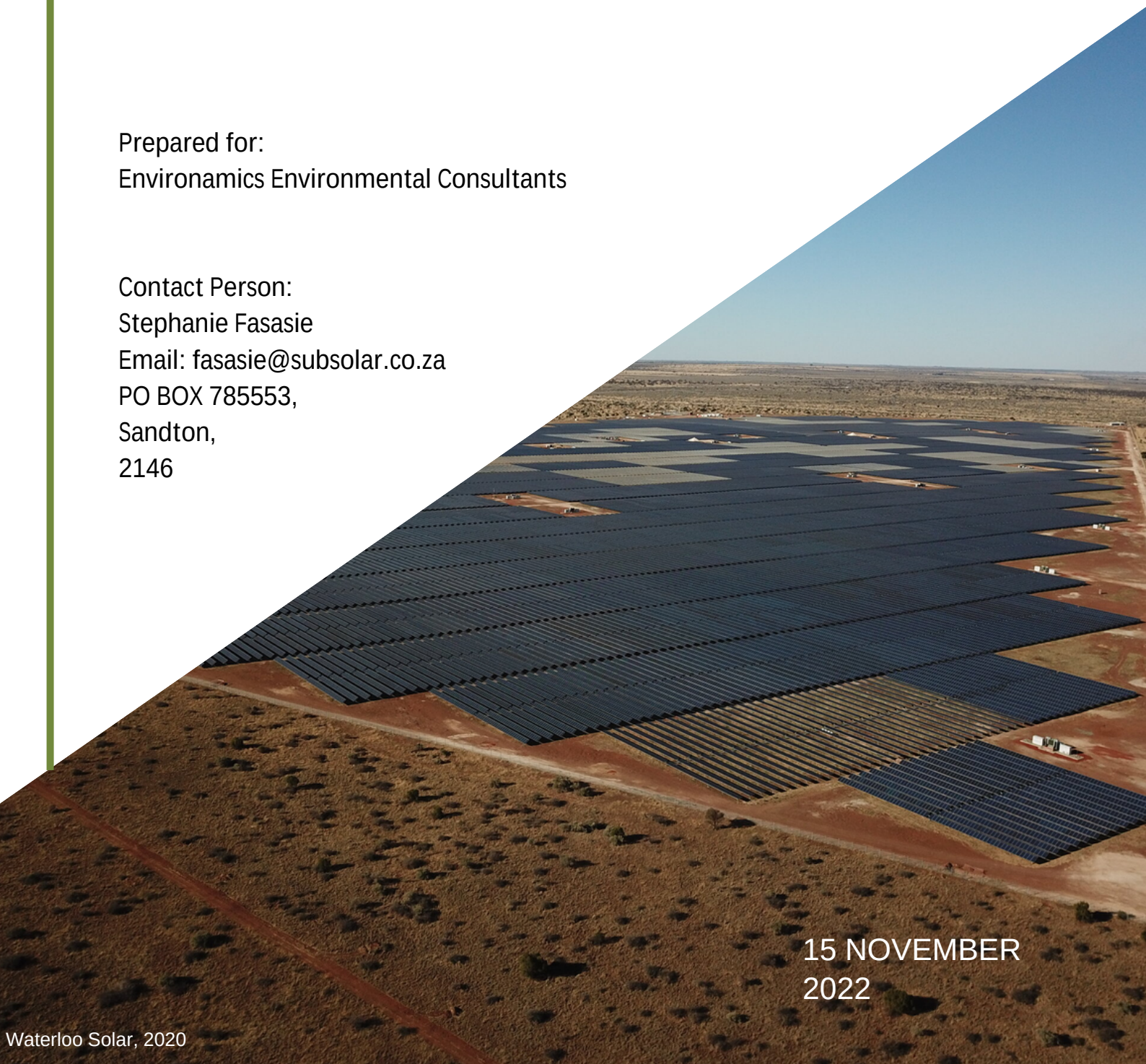

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Waterloo Solar, 2020

Contents

1. Executive Summary

The town of Bela Bela is located approximately 2 km North of the proposed development and is owned by Kusasa Commodities 160 (Pty) Ltd. The area assessed includes Remaining Extent of Portion 1, Remaining Extent of Portion 2, Portion 5 & Portion 7 of the farm Turfbult No. 494, and the total size of the farm is approximately 812 hectares (ha) within the Limpopo Province, Registration Division KR, South Africa (Figure 1). The study area falls within Bela Bela Local Municipality.

The landscape consists of level plains with some relief. The farm is adjacent to the R101 regional road for access to the site. Generation from the facility will tie in with the existing Eskom Warmbad 275/132/66kV MTS Substation. The connection power line will be constructed within the limits of the grid connection corridor.

The site has low to medium agricultural potential as well as Low-Moderate potential grazing capacity. This site has favourable conditions for a solar power plant due to its environmental conditions, weather conditions (i.e. Bela Bela has good solar radiation levels) as well as good site access.

The site has good solar radiation, ecology and relative flat terrain (refer to Figures below). Some parts of this site may not be suitable due to issues found on it namely rock outcrops, cultivated land etc.

2. Site Identified

Remaining Extent of Portion 1, Remaining Extent of Portion 2, Portion 5 & Portion 7 of the farm Turfbult no.494 is located within the Limpopo Province, Registration Division KR, South Africa and falls within the Bela-Bela Local municipality.

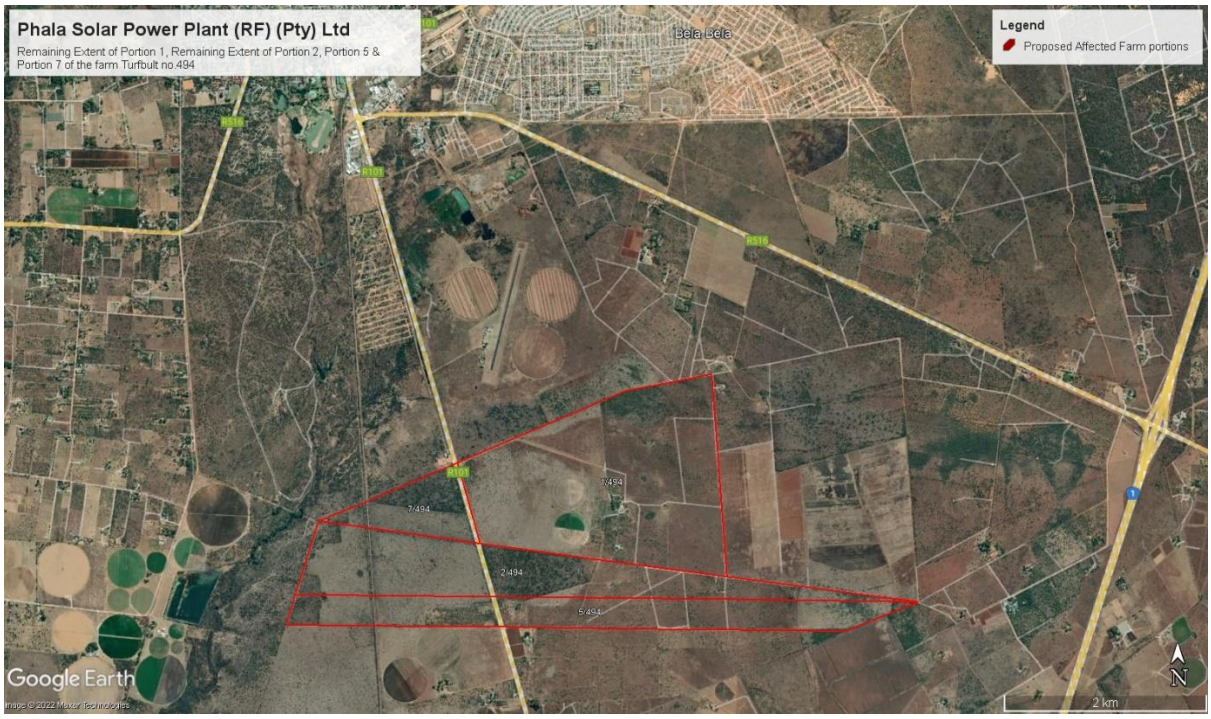


Figure 1: Proposed affected farm portions

3. Power lines and Substations

3.1 Substations near the site

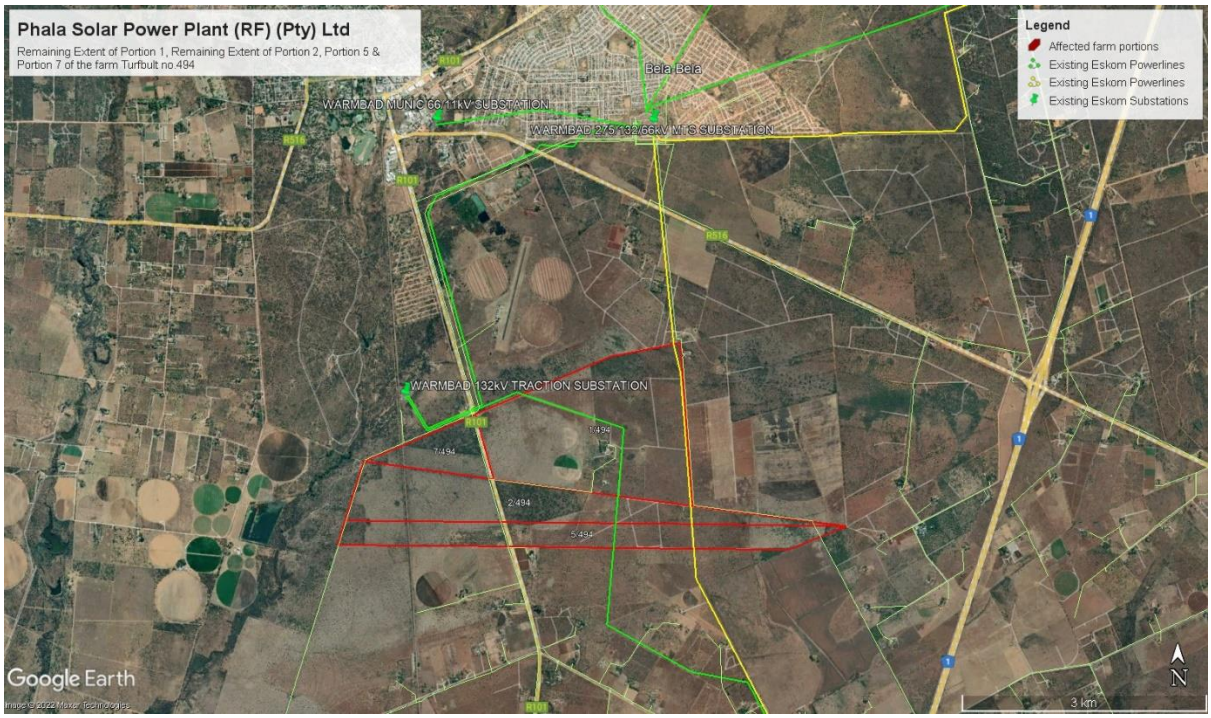


Figure 2: Warmbad 275/132/66kV MTS Substation, Warmbad 132kV traction substation; Warmbad Munic 66/11kV substation

3.2 Powe Lines near the site

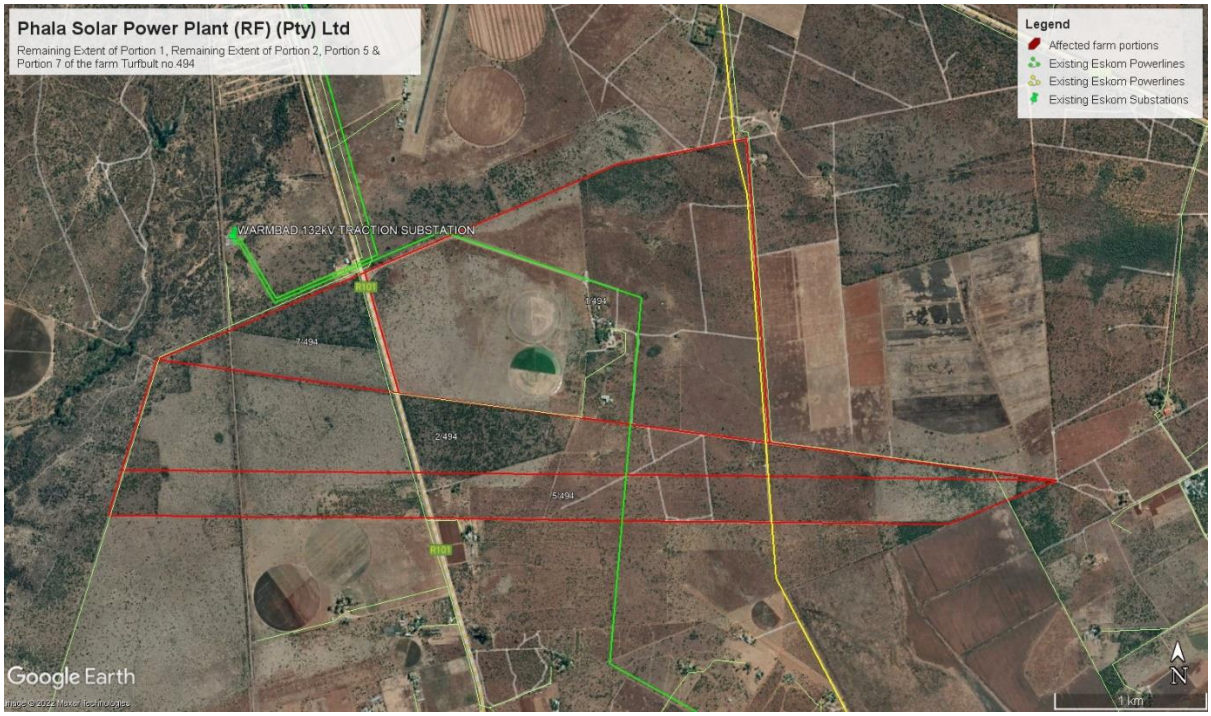


Figure 3: Illustration of Affected powerlines

WARMBRON RURAL / RADIUM 22kV Overhead Line

WARMBRON RURAL / PIENAARS 22kV Overhead Line

WARMBRON RURAL / LEHAU 22kV Overhead Line

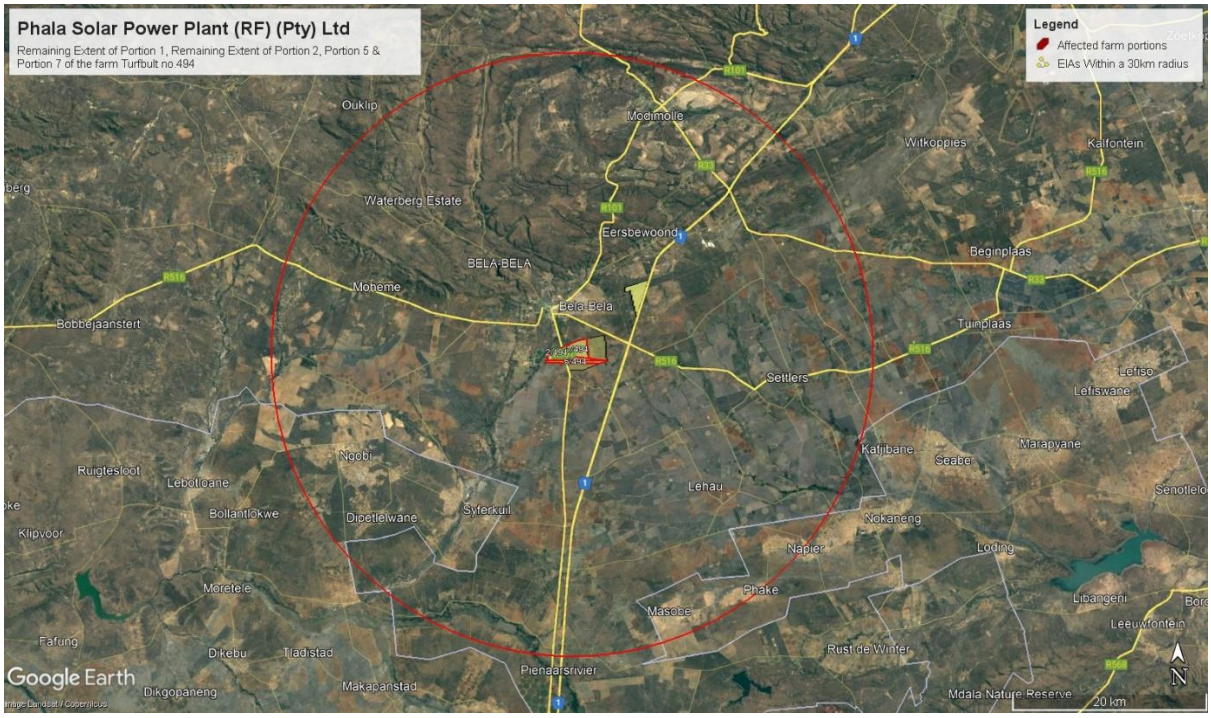
WARMBAD / WARMBAD TRACTION 132kV Overhead Line

PIENAARSRIVIER / SAR WARMBAD 132kV Overhead Line

Pelly/Warmbad 1 275kV Overhead Line

4. Environmental Impact Assessments done in the area

2 other EIA have been conducted within a 30km radius of the farm portion. It should be noted that an EIA has been conducted on the proposed farm portions Phala will be developed on however, the previous developers have withdrawn their Environmental Authorisation and lease with the farmer.



Summary of similar EIAs conducted within 30km of the site.

Project name	**Proposed generation capacity (MW)**	**DFFE Reference**	**Project Status**
Proposed Gihon Solar Energy facility project within Bele-Bela Local Municipality, Limpopo Province	75	14/12/16/3/3/2/576	Withdrawn
The Renewable Energy Generation Project on Portion 67 of the Farm Tweefontein 462 Kr, Bela-Bela Local Municipality, Waterberg District Municipality, Limpopo	TBC	14/12/16/3/3/2/688/AM1	Approved

5. Natural Resources

5.1 Geology

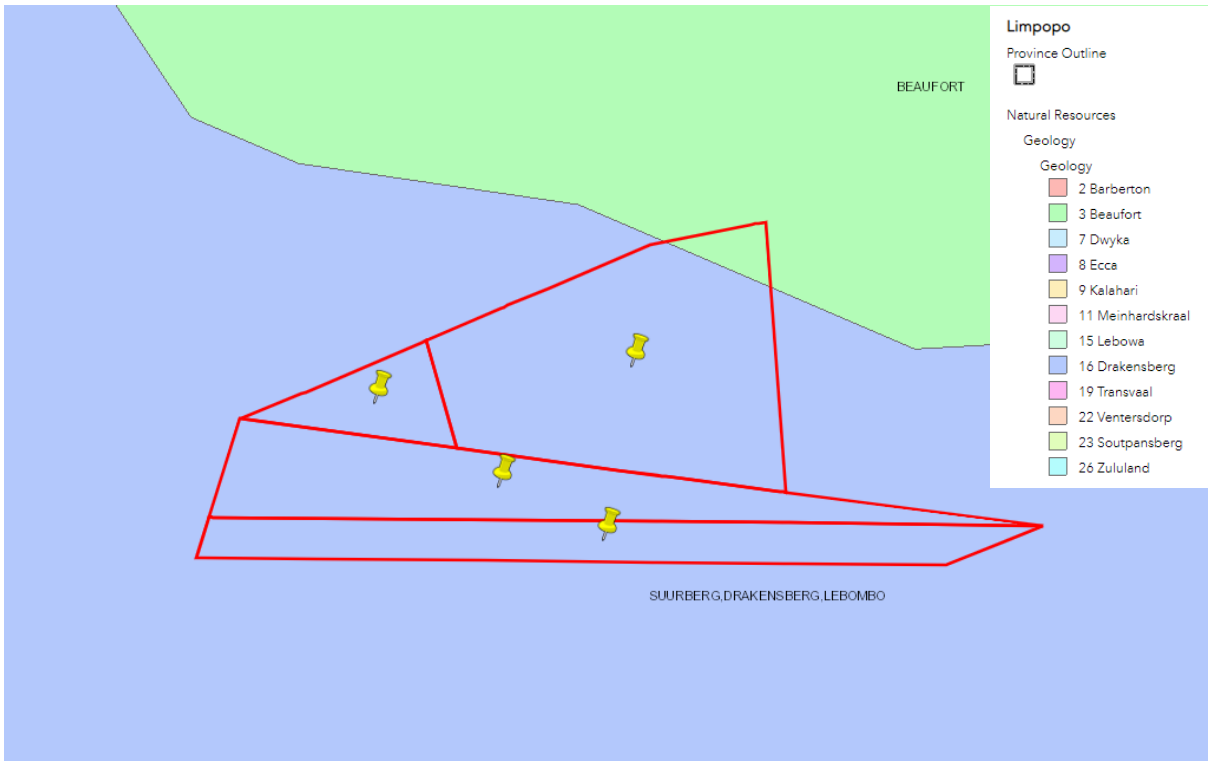


Figure 5: The proposed Development is underlain by the Beaufort, Suurberg, Drakensberg, Lebombo groups.

5.2 Terrain

Figure 6: The slope class of the study area consists of the lowest slope class: 0-3%. The terrain is therefore considered flat and suitable for a solar PV development.

5.3 Vegetation

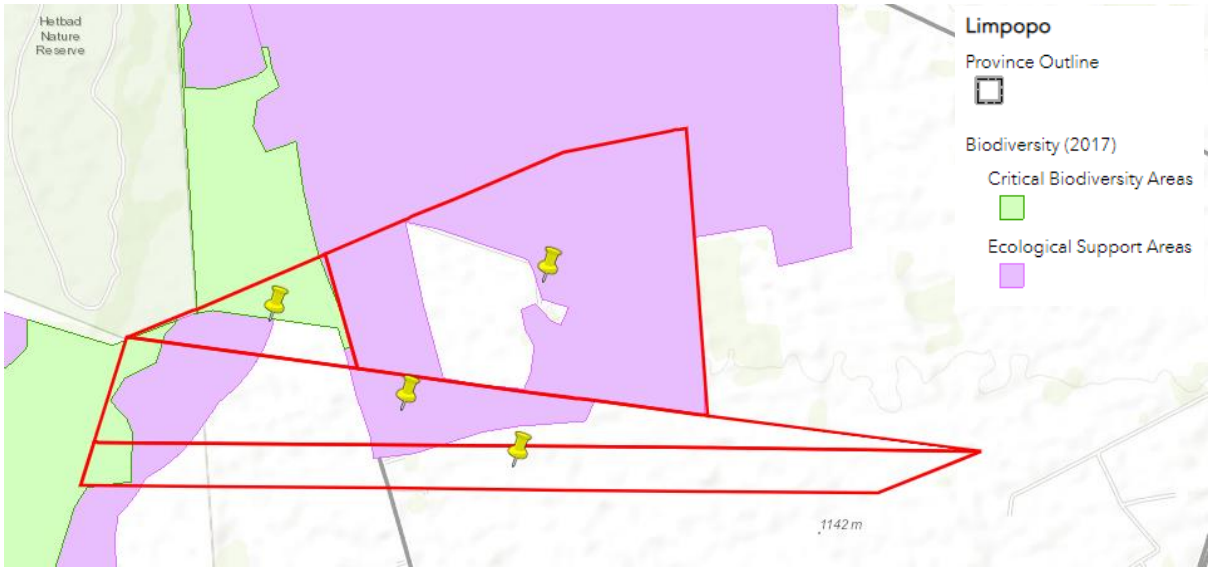


Figure 7: The study falls within an Ecological Support Area (ESA) and a very small section in the north-west corner and west section is classified as a Critical Biodiversity Area (CBA). Sections of the site is not classified as an ESA or CBA and is therefore considered less sensitive.

5.4 Water

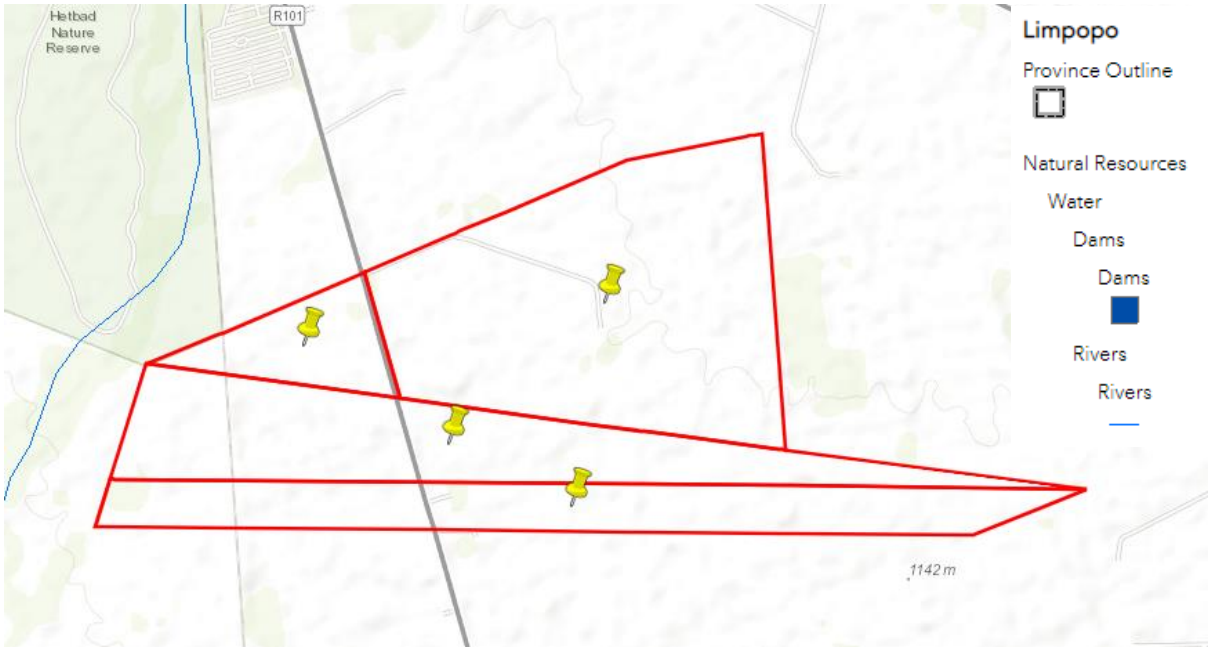


Figure 8: A NFEPA river is present near the North West border of the farms but does not travers the proposed development footprint.

5.5 Agriculture

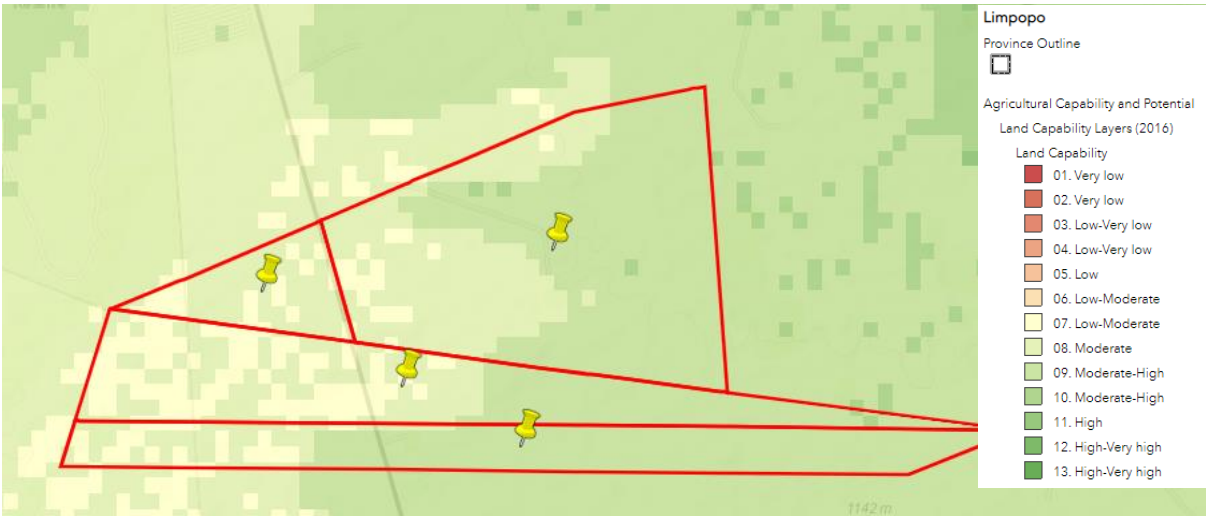


Figure 9: The land capability in the study area consists of Low-Moderate to Moderate- High land capability

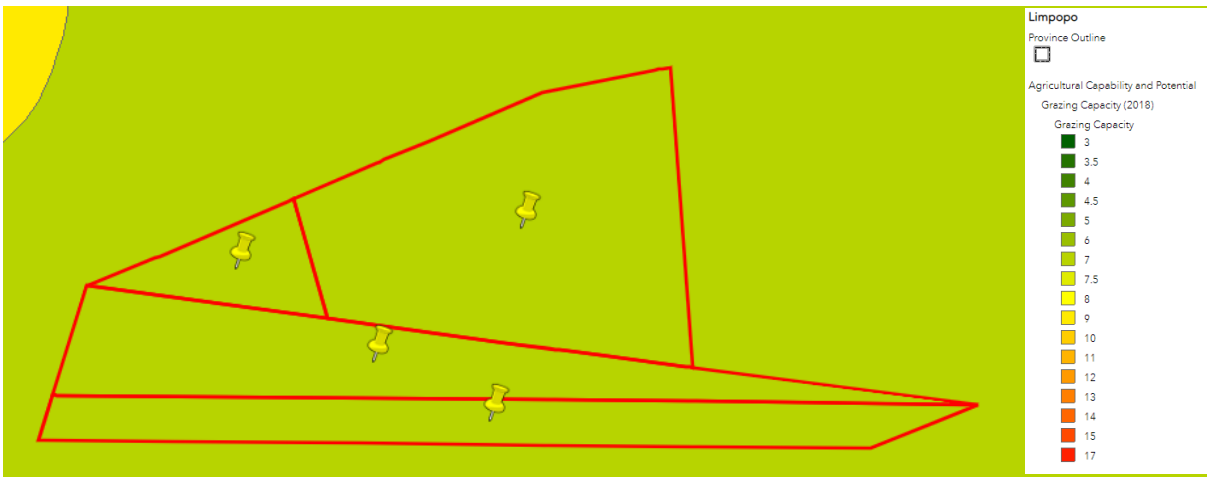


Figure 10: The grazing capability in the study area has a value of 6, this is considered a low-moderate grazing capacity

6. Global Horizontal Irradiation (SolarGIS)

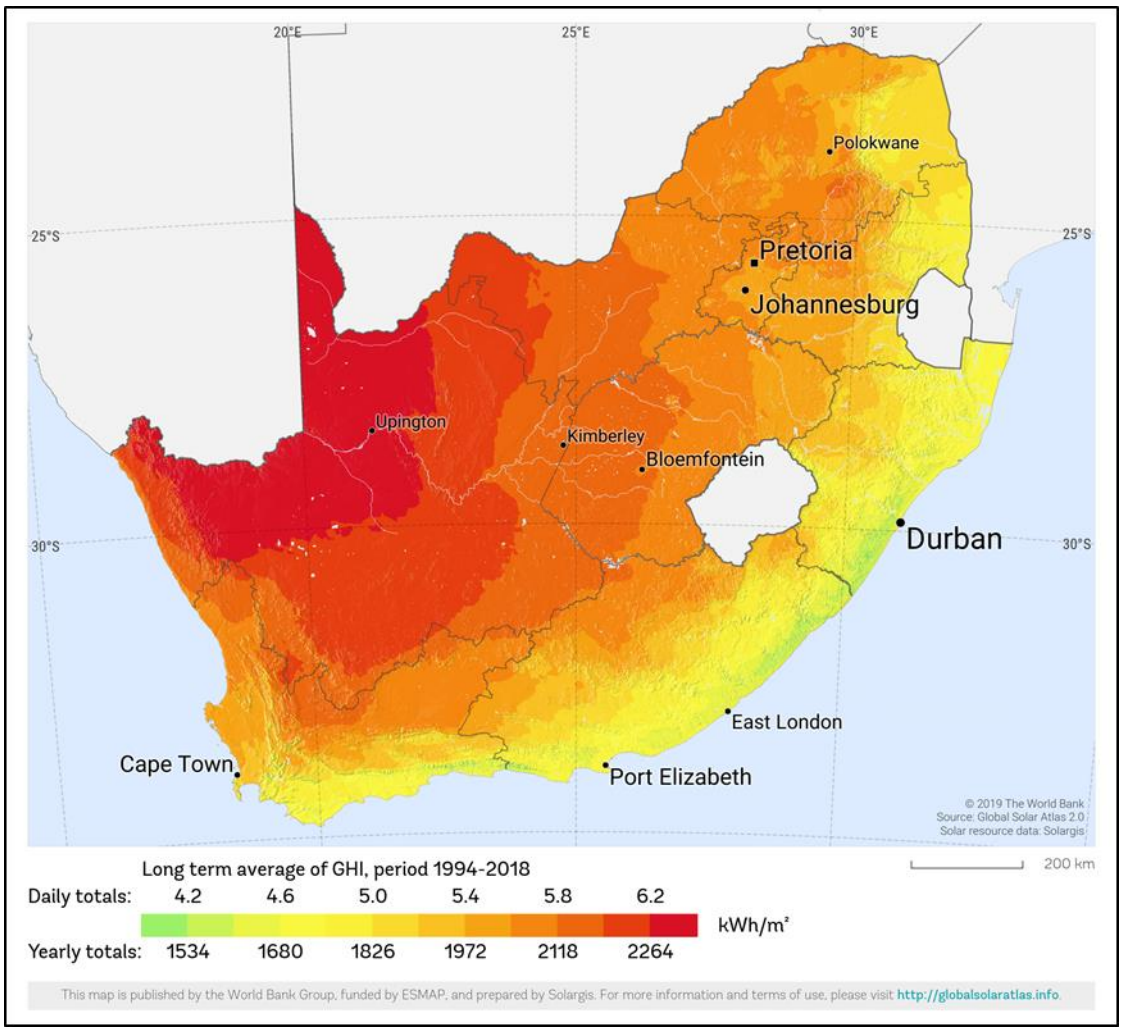


Figure 11: This study falls within an area with a global horizontal irradiation

7. Possible Areas for development

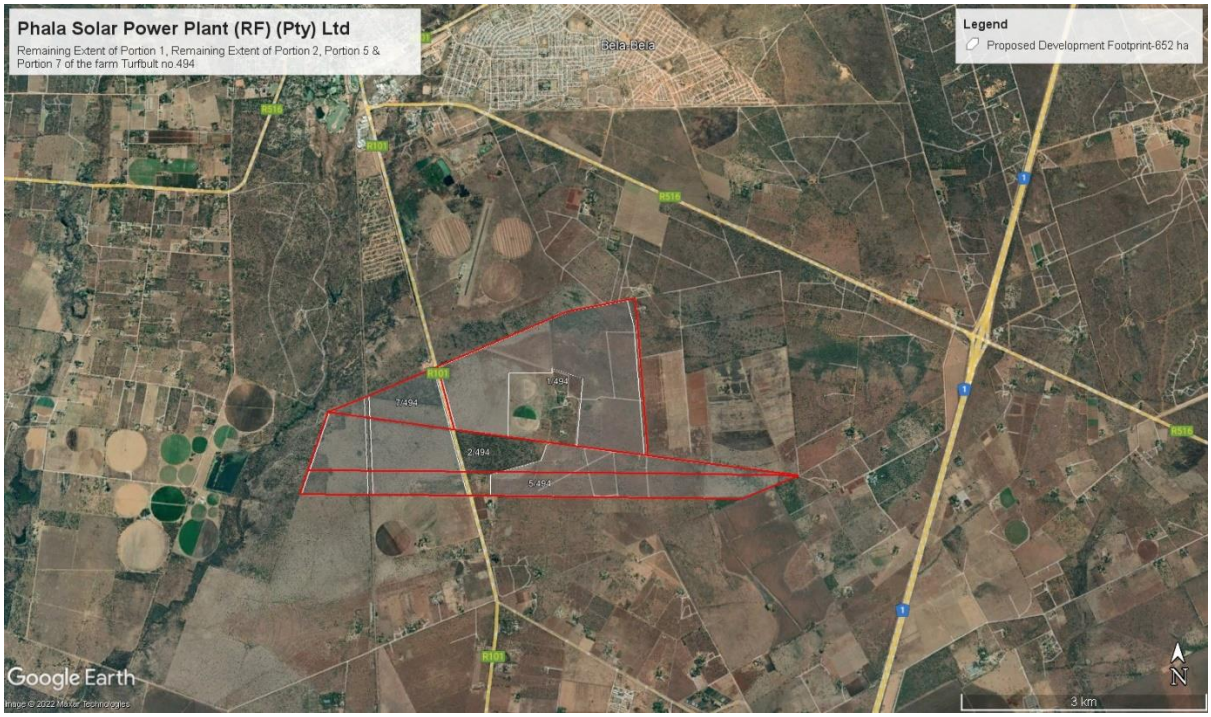


Figure 12: Proposed Development area for a solar power plant

A proposed development footprint was identified for a proposed solar plant, this footprint is 652ha 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. The proposed development footprint has various access route options. The footprint cuts out sensitive areas in the middle of the farm portions.

Keeping all the above information into consideration, the proposed development footprint 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.

8. References

NDAGIS Esri website https://ndagis.nda.agric.za/portal/apps/webappviewer

SOLARGIS. 2022. SolarGIS GeoModal Solar, accessed from

http://solargis.info/pvplanner/#tl=Google:hybrid&bm=satellite on 02-05-2022