



AGRICULTURAL POTENTIAL, LAND CAPABILITY AND SOIL ASSESSMENT FOR THE PROPOSED SOLAR FACILITY AT PPC SLURRY NORTHWEST PROVINCE

March 2021

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- There were no circumstances that may compromise INDEX's objectivity in performing such work;
- INDEX have expertise in conducting the specialist report relevant to this application, including knowledge of NEMA and its regulations and any guidelines that have relevance to the proposed activity;
- Have no and will not engage in conflicting interests in the undertaking of the activity.

The study was undertaken by Dr Andries Gouws. He is a registered member of SACNASP in the category of Agriculture.


Signature of specialist
for INDEX(PTY) LTD
1 February 2021

Summary and conclusions

This report discusses the agricultural Potential and impact of the proposed construction of a 10MW Solar PV facility near PPC's Slurry Plant in Mahikeng Local Municipality, North West Province.

The site is located some 20 km east of Mahikeng along the road to Ottoshoop.

The construction site will be less than 20 hectares. A larger piece of land was evaluated to allow the final design to accommodate any sensitive areas that may emerge as part of the EIA process.

The main site and the two alternative sites are all vacant and not used for farming. There is also no farming infrastructure.

On a regional level some cultivated lands were found to the north of the site. However, it is also clear from the satellite images that these lands are not planted every year, but likely only when and if adequate soil moisture could be stored in the pre-season that will allow a reasonable chance that a crop can be planted and harvested.

The grazing capacity of natural veld is 8 ha/LSU. Assuming that the area under PV will be approximately 20 hectares, then the development will affect 2 LSUs.

Soils that occur on site are generally shallow, dark greyish sandy clay with poorly developed blocky and single grain structure. Limestone banks and loose rock occurs on all the sites. Isolated patches of deeper soils were found. The land was classified as shallow Mispah and Glenrosa soil forms.

No high or medium potential soils were found; it is not arable because the soils are shallow and rocks are common.

Land use capability of the site

The survey found that all the soil is low potential that falls into Land Capability Class v or vi. It is not suitable for cultivation and should only be used as grazing. The conclusion is that the land need not be protected.

The loss of income from farming is zero because the land is not farmed at present.

If the land was optimally used for farming purposes and used as animal grazing, then the potential income would be R11 407 per year which is not sufficient to cover even the labour cost.

According to the Screening Tool of the Department of Environment, the site has mostly a medium sensitivity.

The detailed assessment found that *the soils are shallow with a land use capability is low.*

This is low potential land that is not arable and which has never been cultivated before. It is only suitable for animal grazing.

Impact description and assessment of alternatives sites

The land is not used for agriculture and implementation of the PV project will not have any negative impact on agriculture.

The portion that will be developed is too small to contribute meaningfully to farming, even if it is farmed on a subsistence level.

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1 BACKGROUND

CES appointed Index to do an *agricultural potential, land capability and soil assessment* for the proposed construction of a 10MW Solar PV facility near PPC's Slurry Plant in Mahikeng Local Municipality, North West Province.

The authorization process will function as an Environmental Impact Assessment process for the 20 ha footprint. The site is located some 20 km east of Mahikeng, it is close to the road towards Ottoshoop.

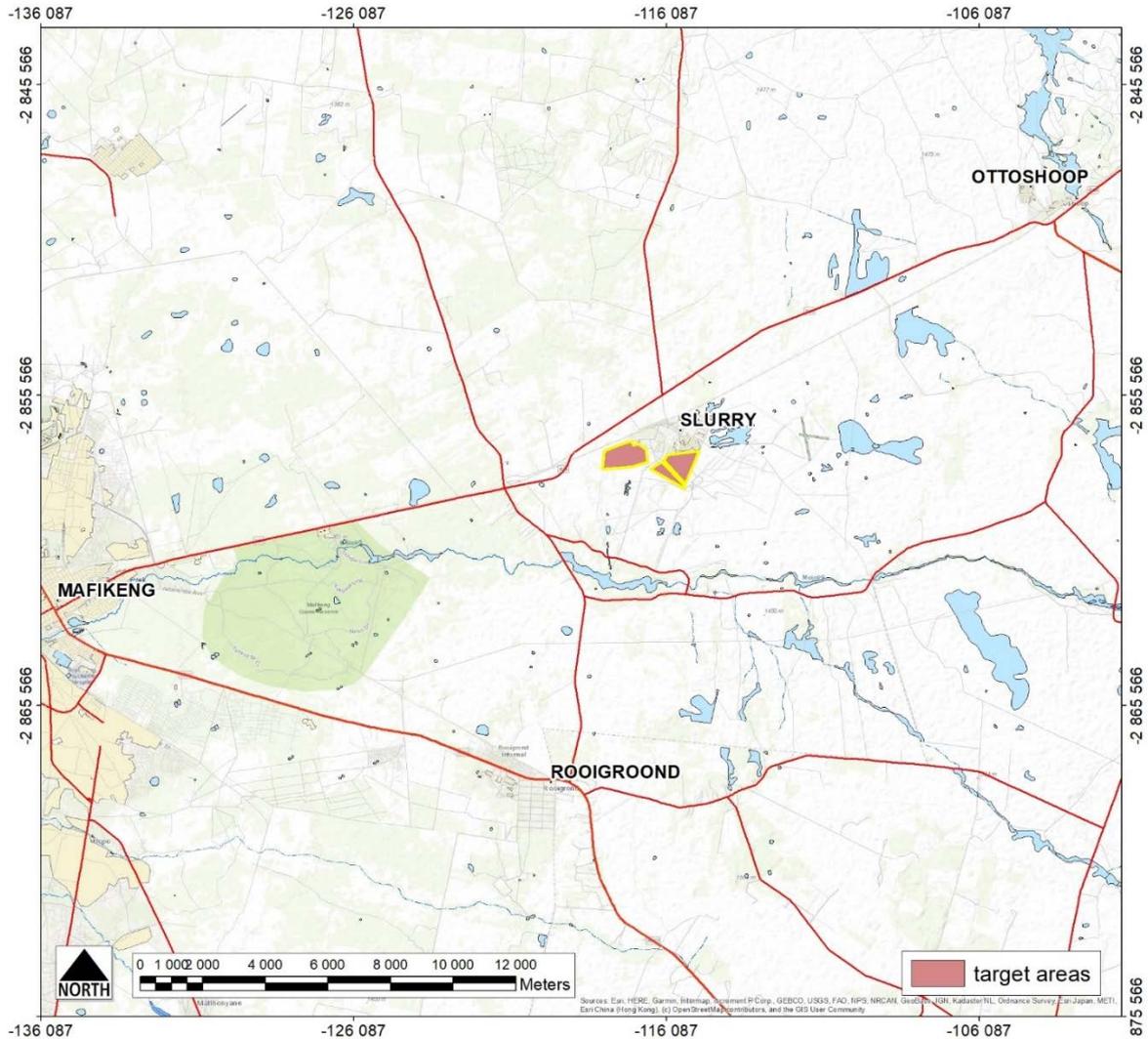


Figure 1. Locality of the site

The main output of this report will be to assess the following:

- Natural resource assessment as it relates to agricultural potential. The section will discuss soil, vegetation (grazing and browsing capacity), climate and water availability from ground and surface sources.
- Map the present land uses and farming infrastructure;
- Indicate land capability (potential);
- Determine the farming patterns of farmers the region; and
- Indicate the impact of the development on agriculture.

Agricultural potential is evaluated in terms of three components:

- Arable potential, which is described in the Capability Classes;
- The grazing potential will determine the stocking density and number of animals that the property can carry.
- An estimation of potential loss of farm income.

The sites that were assessed and as follows:

- Slurry (Site 1) is the preferred site and is located directly south of the railway line and west of the processing plant. This site was investigated in detail because it is preferred.
- The two alternative sites and located directly south of the Processing plant.

The construction site will be less than 20 hectares and will be within the portion indicated in light blue in Figure 2. A larger piece of land was evaluated to allow the final design to accommodate any sensitive areas that may emerge as part of the EIA.

All calculations for agricultural impacts will be based on the positions indicated and a land area of 20 hectares to accommodate for any changes.

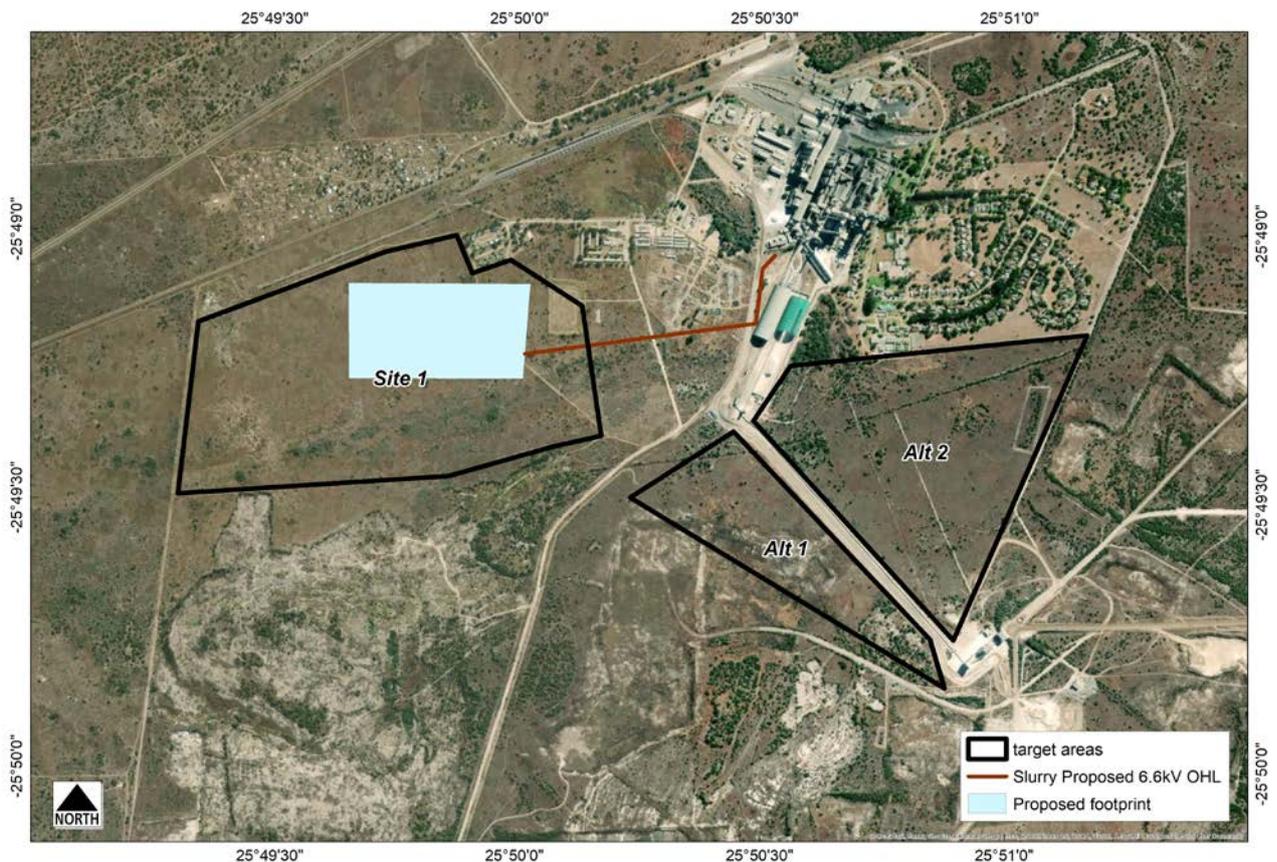


Figure 2. The proposed site and alternatives

2 PROCESS OF THE ASSESSMENT

The present land uses were identified from various satellite images, dated from 2010 to 2020. These are available on the internet.

A site visit took place on 9th February 2021 to confirm the land uses and to carry out a soil survey. Soils were classified according to the binomial soil classification system for South Africa. Land capability classification was then done by using the classical eight class system of Montgomery.

The land uses were delineated as four categories:

- 1) Cultivated land;
- 2) Grazing (open veld or pastures);
- 3) Vacant land. This is derelict land with building rubble and infrastructure that is not suitable for agriculture in its present state;
- 4) Mining/infrastructure. This is under mining infrastructure or debris as a result of mining activities.

The impact assessment evaluated each category and indicated the significance of loss.

Observations

Some observations were photographed to confirm land uses and soil conditions on the sites. These were superimposed on aerial photos and satellite images to determine on which land use zones they are located. The observation positions that were photographed are indicated below. Photos of these points are provided in the addendum.

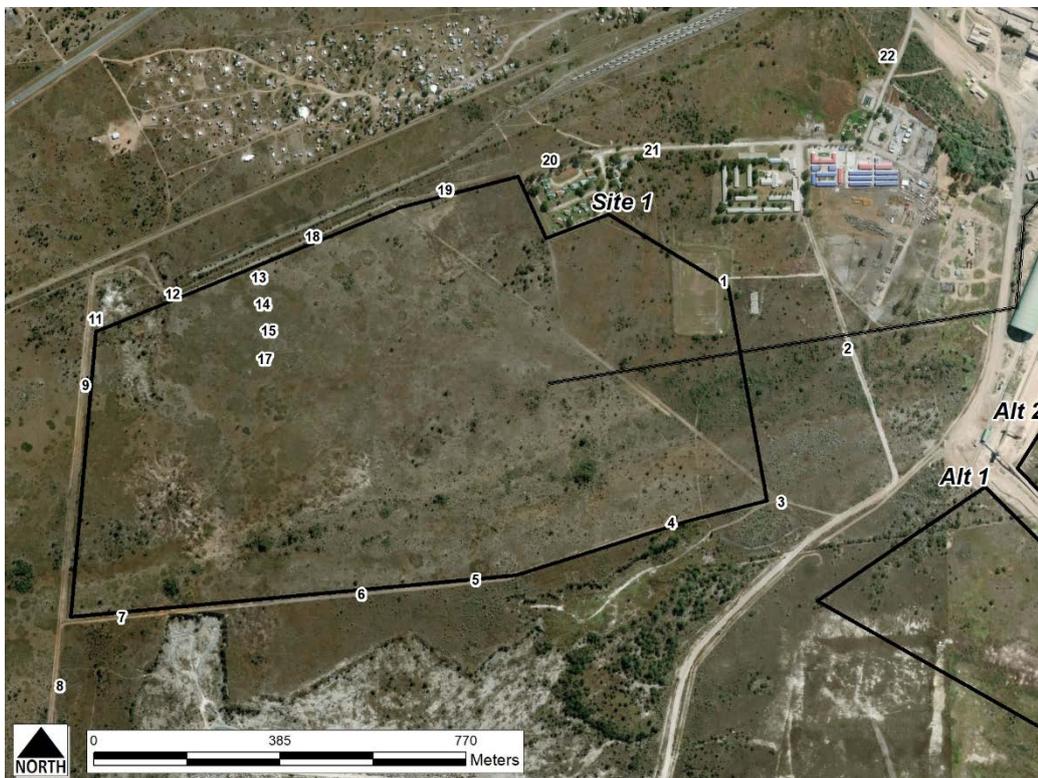


Figure 3. Photo positions

3 AGRICULTURAL LAND USES

All three sites are vacant and not used for any farming activities. There is also no farming infrastructure present. This is grazing land that is not used.



On a regional scale, cultivated lands were found some distance to the north. However, it is also clear from the satellite images that these lands are not planted every year.

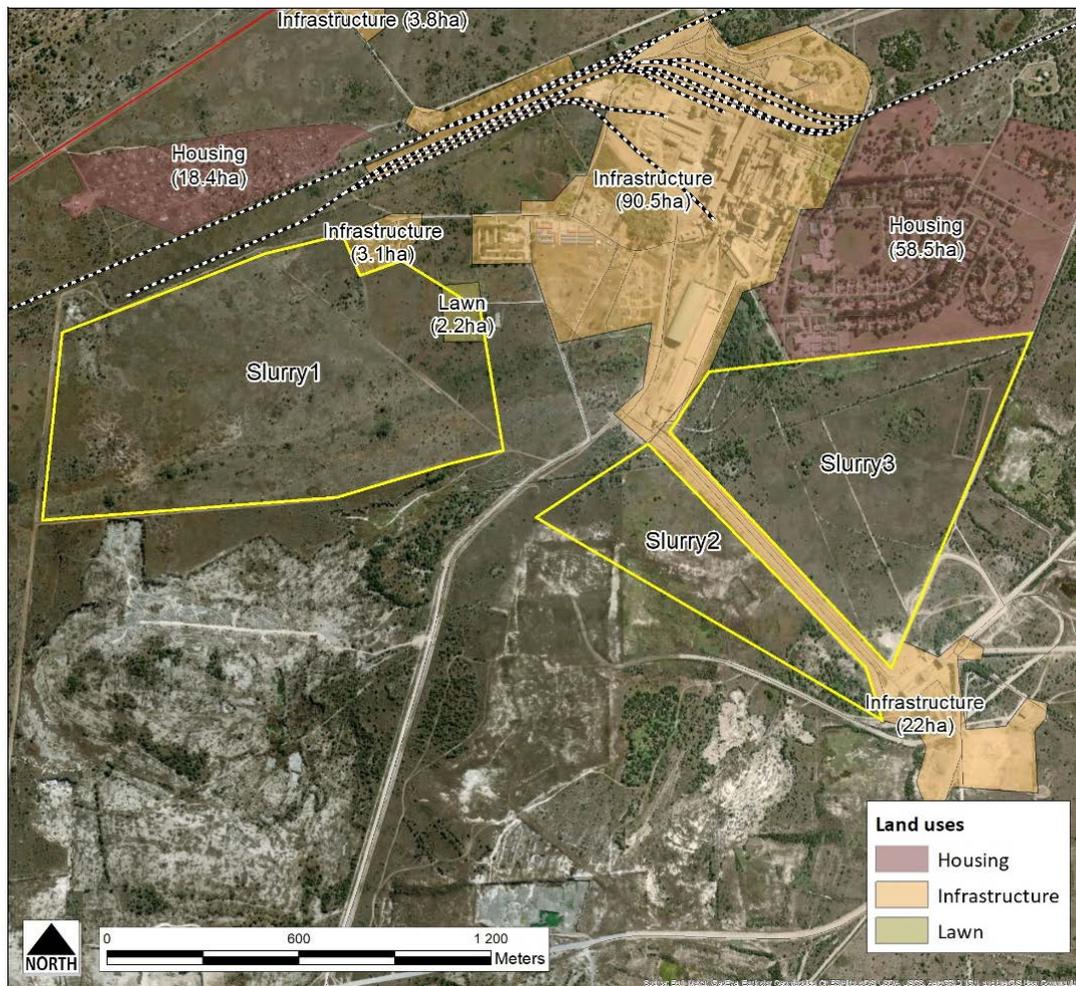


Figure 4. Land uses on the sites considered for the PV

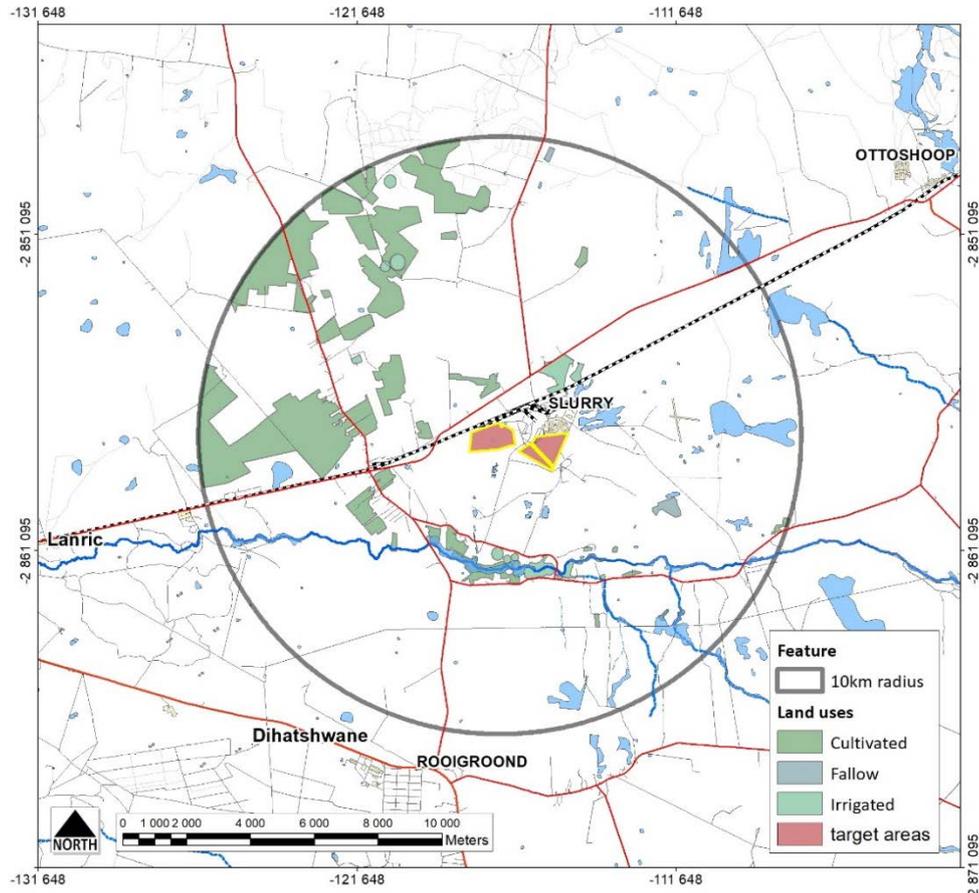


Figure 5. Cultivated land within 10 kilometre of the site

The general region is not recognized as a major cropping area. Much of the production is opportunistic and depends on the seasonal rainfall prospects or moisture that can be stored in the pre-season.

4 NATURAL RESOURCES

4.1 Climate

Summers at Mahikeng are long, warm and partly cloudy, while the winters are short, cold, dry and clear.

Rainfall

The long term average rainfall of weather stations around the PPC Slurry site shows significant variation and ranges from 442 to 585 mm per year. The site receives around 518 mm per year.

Actual rainfall is highly variable, so too are the monthly averages (see Figure 7).

From a rainfall perspective, therefore, the climate is not very suitable for summer rainfall cropping.

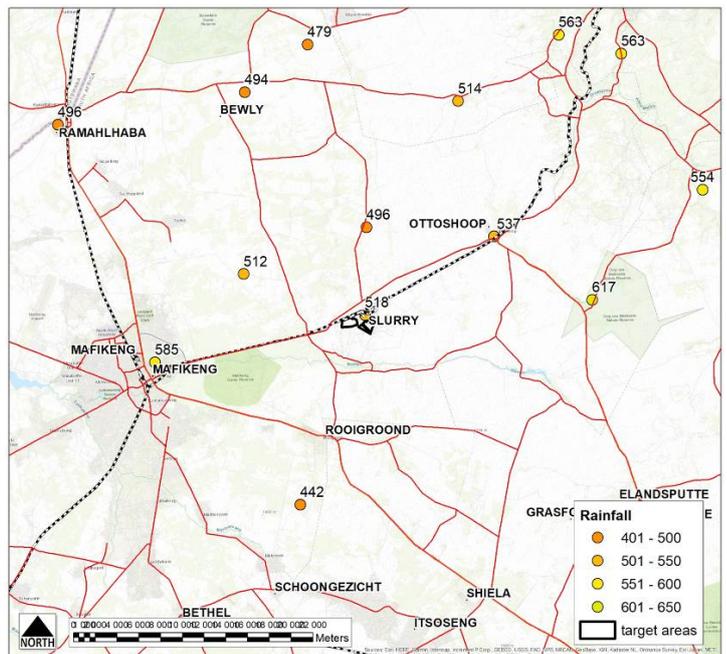


Figure 6. Average rainfall of stations around Slurry

Temperature

The warm season lasts for 5 months, from early October to mid-March, with an average daily high temperature above 28°C. The hottest period of the year is in end December, with an average high of 30°C and low of 18°C. The cool season lasts for 2,4 months; from end May to early August, with an average daily high temperature below 22°C. The coldest time of the year is early July, with an average low of 5°C and high of 20°C.



Figure 7. The average rainfall (solid line) with 25th to 75th and 10th to 90th percentile bands

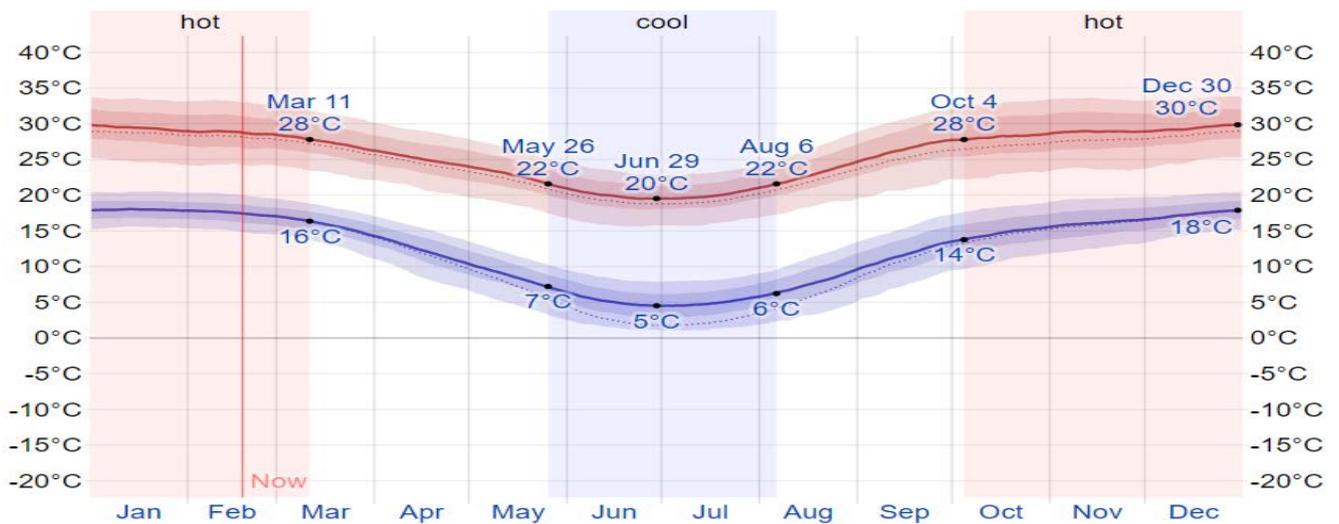


Figure 8. The daily average high and low Temp, with 10th to 90th percentile bands

Wind

The average wind speed the site experiences mild seasonal variation over the course of the year. The windier part lasts for 4 months, from August to December, with average wind speeds of more than 12,3 meters per second. The windier period is in the early growing period of summer crops.

However, wind damage to crops is not expected and has no influence on the land use capability.

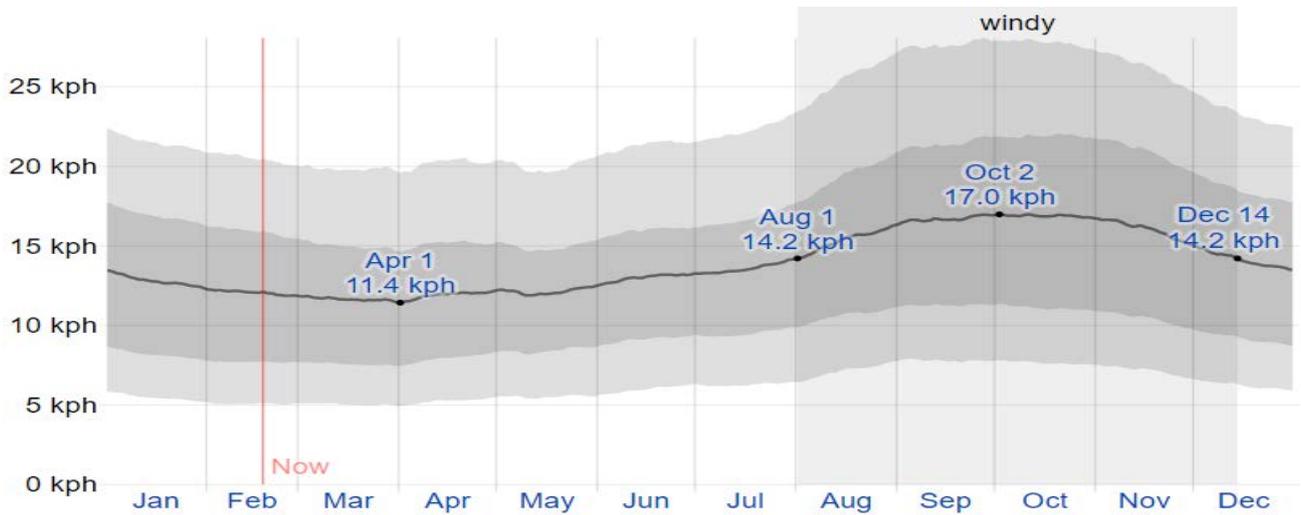


Figure 9. Average wind speed

4.2 Vegetation

Growing season

The growing season for vegetation commences in mid-December when precipitation exceeds 50% of potential evapotranspiration. This lasts until the mid-April. The dry season is for almost 8 months of the year. The winter period is dry with little vegetative growth (see Figure 10).

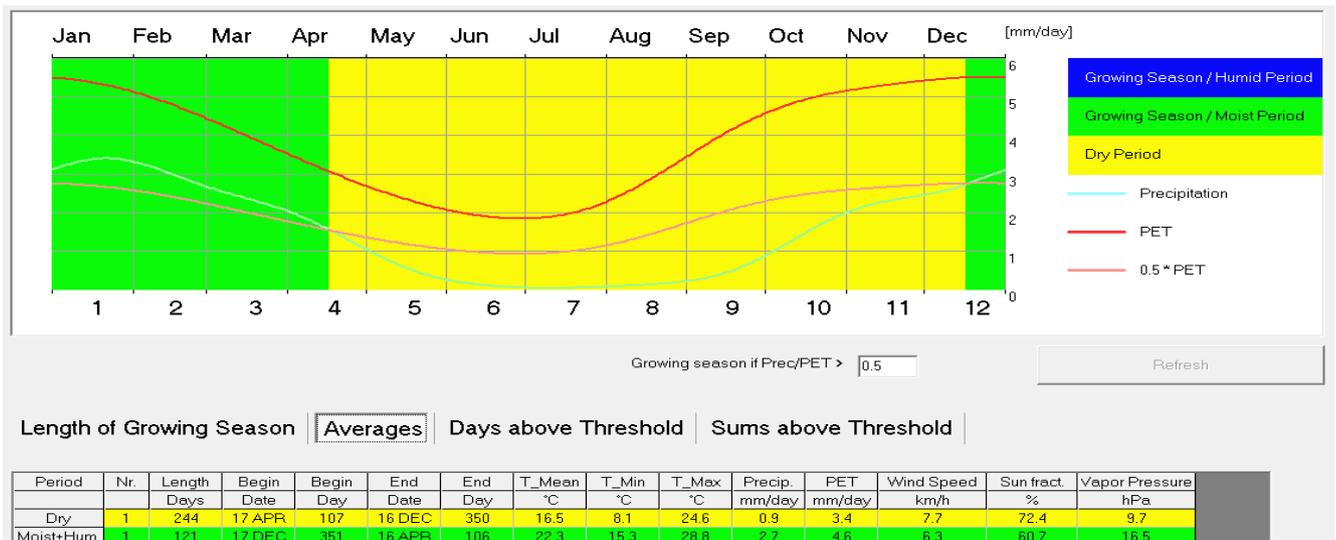


Figure 10. Growing season of plants at Mahikeng

Grazing capacity

As stipulated in Regulation 10 (1) of CARA, it is the mandate of the Department of Agriculture, Land Reform and Rural Development (DALRRD) to provide a long term grazing capacity map for South Africa. This responsibility resides with the Directorate Land Use & Soil Management.

The grazing capacity for livestock of the natural veld, according to the Department of Agriculture, is estimated at 8 hectares per large stock unit (LSU).

The dominant grass is *Hyparrhenia* and *Heteropogon* (Photo 1). Other grasses observed are various *Aristida spp.* and *Eragrostis spp.* (Photo 2).

Accepting that the area under PV will be approximately 20 hectares and the grazing capacity is 8 hectares per LSU; the development will affect 2 LSUs.



Photo 1. *Hyparrhenia veld*



Photo 2. Veld with *Aristida* and *Eragrostis* dominant

4.3 Soil

The underlying material is calcareous deposits. Soils that occur on site are generally shallow, is dark greyish sandy clay with poorly developed blocky and single grain structure.

This is also the case on the land where the transmission line is proposed.

Limestone banks and loose rock occurs on all of the sites. Isolated patches of deeper soils were found in an area of shallow Mispah and Glenrosa soil forms. Generally the soil depth is less than 200 mm.

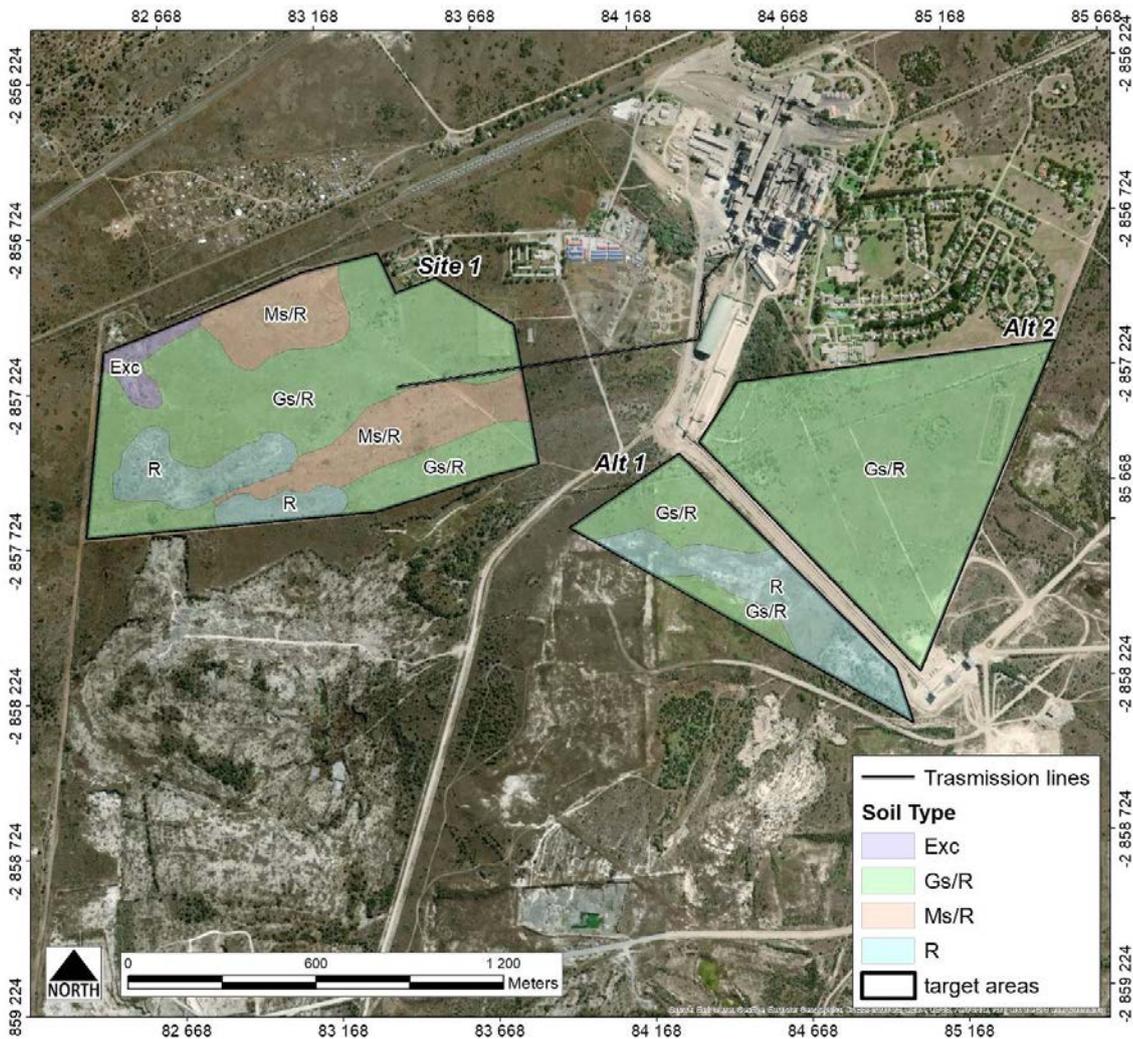


Figure 11. Soil types

No high or medium potential soils were found; the land is not arable because it has shallow and rocky soils.



Photo 3. Mispah soils



Photo 4. Glenrosa soils with rock outcrops

4.4 Water

There is not surface water (streams or dams) that can be used for irrigated farming. The soil is also too shallow to cultivate: irrigated farming is therefore not possible.

Although no boreholes were found during the site survey, the geological formations in the area are capable to yield sufficient water for animal watering.

5 HIGH POTENTIAL LAND

The mandate of the DALRRD is to protect high potential land. This should not be interpreted as soil potential only – it should include the impact that climate has on crop type and crop yield.

The potential of land is defined in terms of a viable farming unit as described in CARA and HUAL and in other legislation and guidelines that are used by DALRRD.

However, land and soil properties will determine if land is arable and is often the only criterion that is used for land use potential, rather than financial viability of a farming unit.

Norms and standards in terms of Conservation of Agricultural Resources Act (CARA) and National Policy of the Preservation of High Potential Land (HUAL)

National policy on the protection of high potential and unique agricultural land published by Department of Agriculture in 2006 relates to subdivision of land and a change in land use, states that *Protection of high potential agricultural land for food security remains the primary responsibility of the Department of Agriculture.*

Draft Policy on the Preservation and Development of Agricultural Land Framework Bill published for discussion in 2014, although not finally approved, does however, indicate the thinking of the Department of Agriculture on land uses, rezoning and of the protection of agricultural land.

In terms of the Draft Bill, high potential cropping land means land best suited to, and capable of, consistently producing acceptable levels of goods and services for a wide range of agricultural enterprises in a sustainable manner, taking into consideration expenditure of energy and economic resources; and includes:

- Land capability classes I to III;
- Unique agricultural land;
- Irrigated land; and
- Land suitable for irrigation.

Essentially, its objective is to prevent high potential land from being exploited for non-farming purposes. The definitions in the Bill states that:

- High Potential Agricultural Land means the best land available for, suited to and capable of *consistently producing optimum yields* of a wide range of agricultural products (food, feed, forage, fibre and oilseed), with minimum damage to the environment, and
- Unique Agricultural Land means land that is or can be used to produce specific high value crops. It is not usually of high potential but important to agriculture due to a specific combination of location, climate or soil properties that makes it highly suited for a specific crop when managed with specific farming or conservation methods. This includes land of high local importance where it is useful and environmentally sound to encourage continued agricultural production, even if some or most of the land is of mediocre quality for agriculture and is not used for particularly high value crops.

The Bill further states that irrigated land is automatically high potential. This then necessitates that the registered water rights with DWS will determine the extent of cultivation that may take place on any piece of land.

Change of land use applications must be submitted to the Minister of DALRRD for approval. The deeds office will only consider the application for rezoning and subdivision if rezoning authorisation had been approved.

6 LAND CAPABILITY

Land capability classes are interpretive groupings of land with similar potential and limitations or similar hazards. It is considered by many practicing land use planning as one of the few methods to describe the potential of land for development.

The evaluation involves consideration of difficulties posed on land use owing to physical land characteristics, the risks of land damage from erosion and other causes, and climate.

For the purposes of this study, the classic eight-class land capability system (Klingebiel & Montgomery, 1961) was used for the evaluation.

Land Capability is determined by the collective effects of soil, terrain and climate features and shows the most intensive long-term use of land for rain-fed agriculture. At the same time, it indicates the permanent limitations associated with the different land-use classes (refer to Table 2).

- Order A: Arable land – high potential land with few limitations (Classes i and ii)
- Order B: Arable land – moderate to severe limitations (Classes iii and iv)
- Order C: Grazing and forestry land (Classes v, vi and vii)
- Order D: Land not suitable for agriculture (Class viii)

Table 1. Land capability classes – intensity of land uses

LAND CAPABILITY			Wildlife	Grazing and Forestry			Crop production			
Order		Class		Forestry	Veld	Pastures	Limited	Moderate	Intensive	Very
Arable	A	i								
		ii								
	B	iii								
		iv								
Non arable	C	v								
		vi								
		vii								
	D	viii								

Note: the shaded area indicate the suitable land use

Land use capability of the site

An analysis indicates that all the soil is low potential land that falls into Land Capability Class v or vi. It is not suitable for cultivation and should only be used as grazing.

Table 2. Land capability of the different soil groups

Soil Group	Area (ha)	Land Capability	Flood	Erosion	Depth	Texture	Drainage	Mechanisation	Climate
Exc	3,2	vi	0	0	5	2	2	4	4
Gs/R	129,1	v	0	0	5	2	2	3	4
Ms/R	23,5	v	0	0	5	2	2	3	4
R	27,5	vi	0	0	5	2	2	4	4

The conclusion is that the land has a very low land capability and that it need not be protected line with the norms and standards of CARA (refer to Section 5).

7 CROP AND BEEF PRODUCTION

7.1 Assumptions

The footprint of the site is 20 hectares. This is the area that will finally be lost to agricultural production.

According to the land use potential analyses in Section 6, the land has no arable potential and is only suitable for animal grazing.

The livestock grazing capacity is estimated at 8 hectares per LSU. The 30 hectares will, therefore, deprive grazing to 2 LSUs.

7.2 Potential

Land capability of the site is Class v and poorer and is not arable. Rainfed cropping is not feasible.

It is estimated that the gross margin for beef production is R5 703 per LSU and the gross enterprise income from the 20 hectares, is R11 406 per year.

Labour cost to tend to the cattle is R58 500 (one worker at minimum wage). The implication is that the income is unable to cover even the labour cost. Livestock farming on the site is no feasible and the loss of income if the land is farmed, is insignificant.

8 SENSITIVITY ANALYSIS

The Department of Environmental Affairs published Notice 648 of the National Environmental Management Act (NEMA) in May 2019 that describes the minimum criteria when applying for environmental authorisation. The notice applies specifically to energy generation projects. Nevertheless, it is now more broadly used and also includes other developments.

This protocol provides the criteria for the assessment and reporting of impacts on agricultural resources for activities requiring environmental authorisation. The assessment requirements are associated with a level of environmental sensitivity determined by the national web-based environmental screening tool which also applies to agricultural resources. It is based on the most recent unpublished land capability evaluation available from DALRRD.

The sensitivity analyses, although not perfect in terms of describing site specific impacts because it is based on very broad datasets. Figure 15. Indicates the result of the screening tool.

According to the screening tool, the site has mostly of *low or medium* sensitivity. Tool results are provided in the addenda.

For land with a medium and low sensitivity, the following will apply:

In the case where the site status is different to that of the screening tool, an Agricultural Compliance Statement is to be provided by a registered soil scientist/agricultural specialist. It should provide evidence of the changed agricultural resource sensitivity.

The Agricultural Compliance Statement must be prepared on the site being submitted as the preferred development site and must verify that:

- The site is of *medium or low* sensitivity for agricultural resources; and
- Whether or not the proposed development will have an unacceptable negative impact on the agricultural production capability of the site.

Analysis for this development

According to the Screening Tool the site has mostly of medium sensitivity.

The detailed assessment performed by Index found the following:

The soils are shallow with a land use capability of v and vi. This is low potential land that is not arable and which has never been cultivated before. It is only suitable for animal grazing.

Therefore, it was, found that the screening tool is incorrect and that the land is indeed low sensitivity.

A compliance statement as required by the protocol is provided as an addendum.

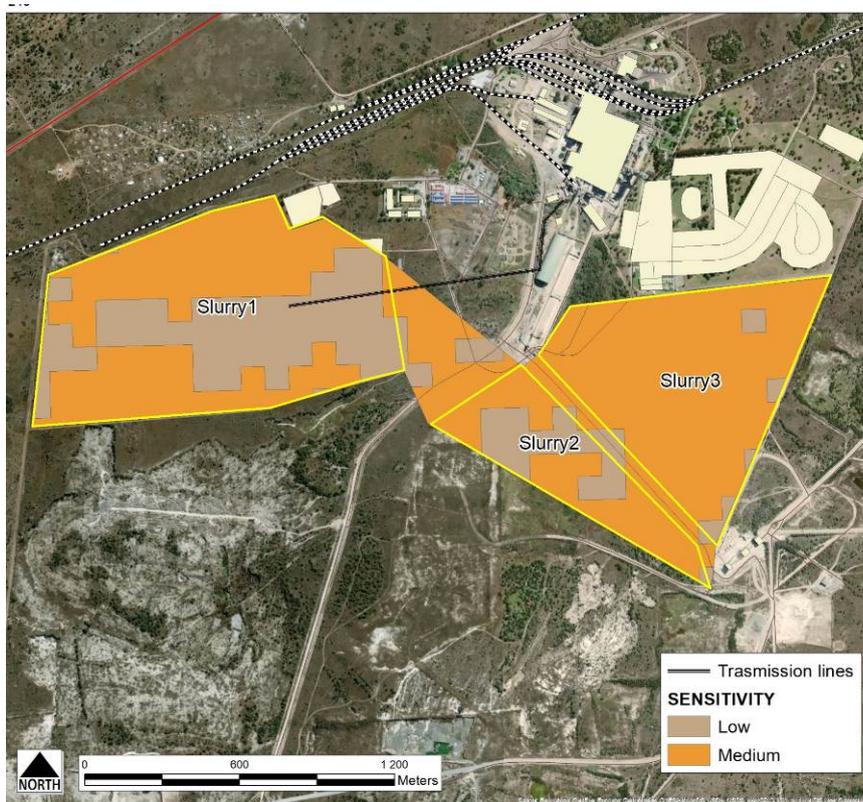


Figure 12. Agricultural sensitivity – (sensitivity tool)

9 IMPACT ASSESSMENT

9.1 Assumptions

Land uses

The impact assessment is done for a land use change, from agriculture to infrastructure.
At present the land use is vacant.

Land use potential classes

High potential land is defined as follows:

Land best suited to, and capable of consistently producing acceptable levels of goods and services for a wide range of agricultural enterprises in a sustainable manner, taking into consideration expenditure of energy and economic resources; and includes:

- Land Capability Classes i, ii and iii;
- Unique agricultural land;
- Irrigated land; and
- Land suitable for irrigation (deep well-drained soils and assuming irrigation water is available).

9.2 Rating criteria

The following rating was used to indicate impacts:

Extent

- 1: Local - extend to the site and its immediate surroundings.
- 2: Regional - impact on the region but within the province.
- 3: National - impact on an interprovincial scale.
- 4: International - impact outside of South Africa.

Magnitude

Degree to which impact may cause irreplaceable loss of resources.

- 0: Not applicable / no impact.
- 1: Low - natural and social functions and processes are not affected or minimally affected.
- 2: Medium - affected environment is notably altered; natural and social functions and processes continue albeit in a modified way.
- 3: High - natural or social functions or processes could be substantially affected or altered to the extent that they could temporarily or permanently cease.
- 4: Very high – Will affect the continued viability of the system/environment.

Duration

- 1: Short term: 0-5 years.
- 2: Medium term: 5-11 years.
- 3: Long term: impact ceases after the operational life cycle of the activity either because of natural processes or by human intervention.
- 4: Permanent: mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.

Probability

- 1: Rare/Remote - the event may occur only in exceptional circumstances.
- 2: Unlikely - the event could occur at some time.
- 3: Moderate - the event should occur at some time.
- 4: Likely - the event will probably occur in most circumstances.

- 5: Almost certain - the event is expected to occur in most circumstances.

Reversibility

- 1: Completely reversible.
- 2: Partially reversible.
- 3: Barely reversible.
- 4: Irreversible. No mitigation possible

Irreplaceability

- 1: No loss of resources.
- 2: Marginal loss of resources.
- 3: Significant loss of resources.
- 4: Complete loss of resources. Cannot be replaced on a regional scale.

Significance

Provides an overall impression of an impact’s importance, and the degree to which it can be mitigated. The range for significance ratings is as follows:

- 0 – Impact will not affect the environment.
- 1 – No impact.
- 2 – Residual impact.
- 3 – Impact cannot be mitigated.

9.3 Impact rating

The significance of each potential impact is calculated using the following formula:

$$\text{Significance points} = (\text{duration} + \text{extent} + \text{irreplaceable} + \text{reversibility} + \text{magnitude}) \times \text{probability}$$

The maximum value is 105 SP (significance points). The unmitigated and mitigated scenarios for each potential environmental impact should be rated as per Table 4 below.

Table 3. Significance rating

Score	Significance	Description of Rating
2 – 10	Low Significance	No specific management action required
10 – 20	Medium-low significance	Administrative management actions required
20 – 40	Medium significance	Management and monitoring action plans required
40 – 60	Medium-high significance	Specific management and monitoring plans required
>60	High significance	Detailed plans required, potential red flag impact

Table 4. Impact rating

	Before mitigation								DISCUSSION/MITIGATION	Significance after mitigation
	Extent	Probability	Reversibility	Irreplaceable	Duration	Magnitude	TOTAL (SP)	Significance before mitigation		
LOSS OF HIGH POTENTIAL LAND										
<i>Preferred site and alternatives</i>	1	1	1	1	1	0	4	N/A	The land is not cultivated and has never been. The land has a low potential and implementing the project will, therefore, not lead to any loss of high potential land. No mitigation required	N/A
LOSS OF GRAZING LAND										
<i>Direct occupation /loss of land</i>	1	4	2	1	3	1	32	Medium negative	The land is not used as grazing at present. Implementing the project will take up 20 hectares of potential grazing land. This loss will affect only 2 livestock. Alternative grazing land can be found in the region.	Low negative
LOSS OF AGRICULTURAL PRODUCTION										
<i>Loss of crop production</i>	1	1	1	1	1	0	4	N/A	The land is not cultivated and has never been. No mitigation required.	N/A
<i>Loss of animal production</i>	1	4	1	1	3	0	24	Medium negative	It is not used as grazing, there will be no loss of income from livestock production. However, the opportunity to use the land as grazing is lost. The potential income if the land was used as grazing is R11 408. No mitigation possible or required	Low negative
LOSS OF AGRICULTURAL INFRASTRUCTURE										
<i>Direct loss</i>	1	1	1	1	1	0	4	N/A	There is now no agricultural infrastructure. Mitigation not required.	N/A
LOSS OF JOBS										
<i>Direct loss</i>	1	1	1	1	1	0	4	N/A	Staff will be required for maintenance of the land as for maintenance of infrastructure. The proposed land use will, therefore, have a positive socio-economic impact. Mitigation not possible and not required.	Low positive

9.4 Impact description and assessment of alternatives sites

In this instance, the land is not used for agriculture and implementation of the PV project will not have any impact on agriculture.

All three sites investigated (the preferred and the alternatives) show low potential with agricultural value only as grazing. Even if farmed, the portion that will be developed is too small to contribute meaningfully to farming, even on a subsistence level.

10 CONCLUSIONS

The survey found that all the soil is low potential. It is not suitable for cultivation and should only be used as grazing. The conclusion is that the land need not be protected and that a land use change from agriculture to infrastructure is supported.

The loss of income from farming is zero because the land is not farmed at present.

According to the Screening Tool of the Department of Environment, the site has mostly a medium sensitivity.

The detailed assessment found that *the soils are shallow with a land use capability of v and vi. This is low potential land that is not arable and which has never been cultivated before.*

The land is not used for agriculture and implementation of the PV project will not have any negative impact on agriculture.

The portion that will be developed is too small to contribute meaningfully to farming, even if it is farmed on a subsistence level.

11 ADDENDA

11.1 References

- 1) Grieser, J., 2006. Local Climate Estimator. Agrometeorology Group, FAO. Rome
- 2) Grondklassifikasie Werkgroep, 1991. Grondklassifikasie, 'n Taksonomiese sisteem vir Suid Afrika, Departement van Landbou-ontwikkeling, Pretoria.
- 3) Department of Agriculture, 2019. http://daffarcgis.nda.agric.za/Comp_Atlas_v2/
- 4) South African Atlas of Agrohydrology and Climatology, Water Research Commission, Pretoria

11.2 Gross margin of beef cattle

Livestock	RAND
Income	8 500.00
Costs	2 796.10
Summer lick	305.5
Winter lick	912.6
Veterinary	190
Bull cost	150
Marketing	58
Transport	20
Labour	560
Farm Fodder	350
Repairs and maintenance	250
Margin	5 703.90

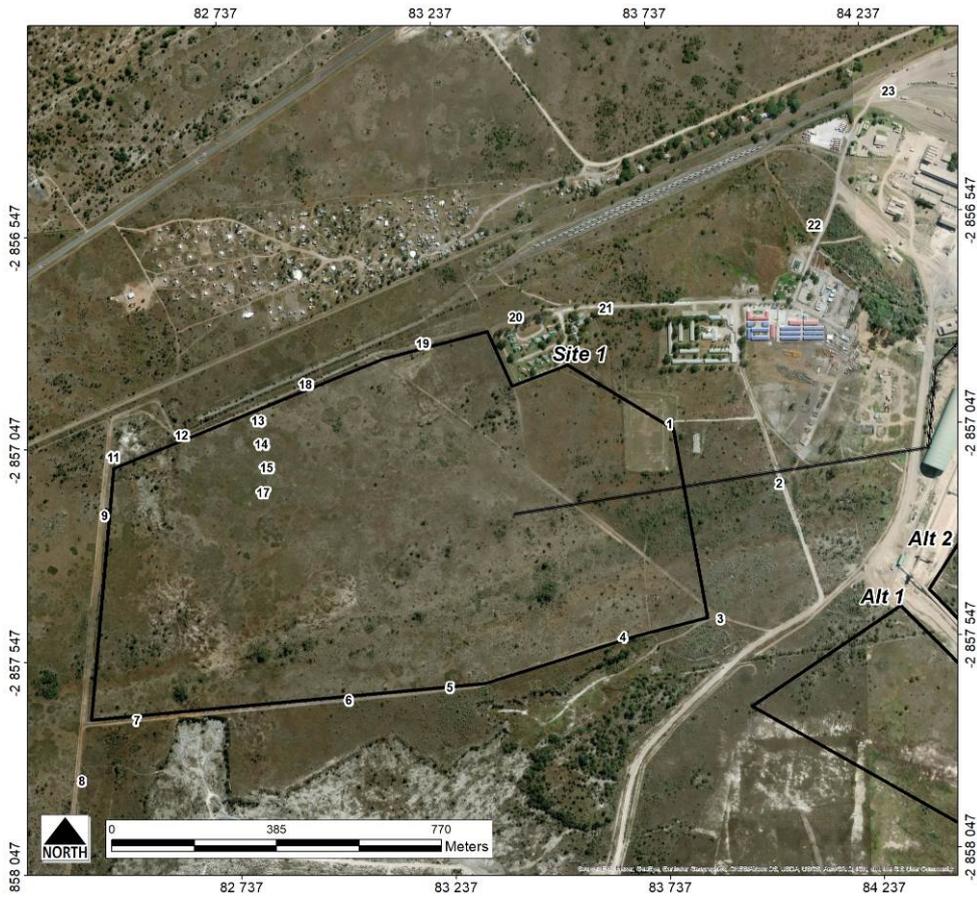
11.3 Compliance statement in terms of 2014 EIA regulations

Environmental authorization in terms of 2014 EIA regulations requires a sensitivity analyses as indicated by the screening tool of the Department.

The impact will be for the rezoning of land for mixed use.

1. Dr Andries Gouws compiled the agricultural report and is qualified as soil scientist and land use evaluation specialist. He is also registered with SACNASP in agricultural. The registration certificate and CV are attached;
2. A signed statement of independence by the specialist is provided in the preamble to the report;
3. A map showing the land and its present uses is provided in Figure 3;
4. The size of the land is 30 hectares, none of which is high or moderate potential;
5. The detailed assessment of the farming resources found deviations regarding sensitivity as indicated by the web-based screening tool. The deviations are because the entire site consists of shallow Mispah and Glenrosa soils that are not arable. Some of the land on the screening tool incorrectly indicated these soils as *moderately* sensitivity.
6. No specific condition for implementing the project is required or recommended;
7. There are no gaps in information or specific areas of concern that needs of significance.

11.4 Photos of the site





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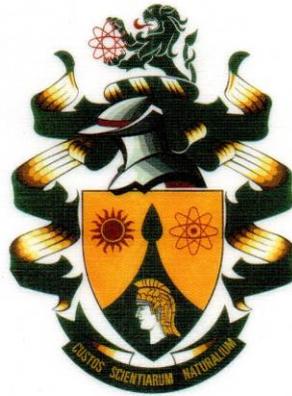
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11.5 SACNSP registration



THE SOUTH AFRICAN COUNCIL FOR NATURAL SCIENTIFIC PROFESSIONS

herewith certifies that

Johan Andries Gouws

Registration number: 400140/06

has been registered as a

Professional Natural 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 I of the Act)

Agricultural Science

11 July 2006

Pretoria

President

Chief Executive Officer



dedect

Department:
Economic Development, Environment, Conservation and Tourism
North West Provincial Government
REPUBLIC OF SOUTH AFRICA



AgriCentre Building
Cnr. Dr. James Moroka
&
Stadium

CHIEF DIRECTORATE: ENVIRONMENTAL SERVICES
DIRECTORATE: ENVIRONMENTAL QUALITY MANAGEMENT

Enquiries: Ouma Skosana
Tel: +27 (18) 389 5156
Email: oskosana@nwpq.gov.za
Fax: +27(18) 384 0104
Rd

Private Bag X2039
MMABATHO 2735
www.nwpq.gov.za

DETAILS AND EXPERTISE OF SPECIALIST AND DECLARATION OF INTEREST

(For official use only)

File Reference Number:
NEAS Reference Number:
Date Received:

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

PROJECT TITLE

Environmental Impact Assessment for the Development of a 10MW AC Solar Photovoltaic (PV) Plant and associated infrastructure on portions of farm Benadeplaats 93 Jo and Slurry 96 Jo, near Mahikeng, North West Province

1. Details of Specialist

Type of Specialist:
Company Name:
Contact person:
Postal address:
Postal code:
Telephone:
E-mail:
Professional affiliation(s) (if any)

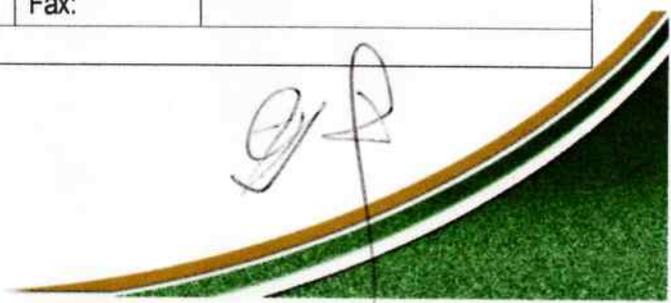
Agriculture		
Index		
Andries Gouws		
P O Box 26275, Monument Park		
0105	Cell:	0828076717
	Fax:	
Index@iafrica.com		
SACNASP, Soil Science Society of South Africa		

Project Consultant:
Contact person:
Postal address:
Postal code:
Telephone:
E-mail:

Coastal and Environmental Services (Pty) Ltd.		
Mr G. Shaw		
67 African Street, Makhanda		
6140	Cell:	+27 606 715 914
046 622 2364	Fax:	
g.shaw@cesnet.co.za		



Together we move North West forward.



2. **Expertise of the Specialist including Curriculum vitae (Appendix 6 (1)(a)(ii) of EIA Regulations, 2014)**

Andries is a soil and land use specialist that provides input in environmental planning, hydro-pedology and impact assessment.

His management and technical experience includes technology development, Geographical Information Systems (GIS), modelling of water requirement of trees and shrubs.

He has extensive experience in surveys with GPS, mapping and spatially-based resource analysis through which informed management decisions can be made. Aerial surveys are done through drones with the aid of photogrammetry and analysis through spectral analysis of digital NIR, red edge and RGB aerial photos.

His skills further extend to implementation and technical auditing where his responsibility is to identify operational problems and recommend remedial actions. His research and development expertise includes modelling of tree performance in relation to soil conditions where they are irrigated with saline water, the effect of well washing on sustainable groundwater yield, irrigation systems evaluation and recommendations on maintenance, the identification of trees resistant to saline soil conditions.

Apart from his management responsibilities, he is a specialist in evaluation and implementation of farming enterprises, with special reference to vegetation, soil and climate's capacity to accommodate enterprises such as animal production and crops. This includes, for example, assessment of soil, veld conditions (including wetlands), farm layout planning, farm management programmes (maintenance of veld conditions through sound grazing rotation strategies and pasture utilisation) and water quality assessment for agricultural use. He has done more than 250 professional reports on agriculture and the environmental impact that development will have on natural resources.

Andries has compiled numerous agricultural potential and wetland studies where he applies his knowledge of soil water and vegetation. His clients in wetland delineation include Tongaat Hewlett, Terraplan Associates, Nemaï Consulting, Group 5, ECO assessments Ecological and Environmental Consultants and Gapp Architects.



3. Declaration by Specialist

I, Johan Andries Gouws of Index declare that;

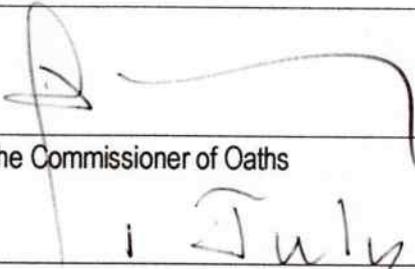
- I act as an independent specialist in this application.
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- there are no circumstances that may compromise my objectivity in performing such 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/ Environmental Assessment Practitioner appointed by 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 48B(2) of the Act.**


 Signature of the specialist
 Index

Name of company (if applicable)

1 July 2021

Date


 Signature of the Commissioner of Oaths

Date

1 July 2021

Designation

FRANCOIS GOUWS
 COMMISSIONER OF OATHS
 PRACTISING ATTORNEY (RSA)
 414 SUSSEX AVENUE
 LYNNWOOD, PRETORIA

Official stamp:

