SOIL AND AGRICULTURAL COMPLIANCE STATEMENT FOR THE PROPOSED ONDERSTEPOORT GRID CONNECTION INFRASTRUCTURE PROJECT

Rustenburg Local Municipality, Bojanala Platinum Municipality, North West Province, South Africa

2/13/2025

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Report Name	**SOIL AND AGRICULTURAL COMPLIANCE STATEMENT FOR THE PROPOSED ONDERSTEPOORT GRID CONNECTION INFRASTRUCTURE PROJECT**
Specialist Theme	Soil and Agricultural Theme
Project Reference	Onderstepoort Grid Connection Infrastructure
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Submit to	Onderstepoort Grid (Pty) Ltd
Fieldwork/Report Writer	Masilabela Seepamore (SACNASP 113907) 
Reviewer	Andrew Husted (SACNASP 400213/11) 
Declaration	The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, Amended. We have no conflicting interests in the undertaking of this activity and have no interest in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time, and budget) based on the principals of science.

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1 Introduction

1.1 Background

The Biodiversity Company was appointed to conduct a soil and agricultural potential assessment for the proposed development of the Onderstepoort Grid project. The proposed project is located near Boshoek, in the Rustenburg Local Municipality, Bojanala Platinum District Municipality, North West Province (Figure 1-1).

The approach adopted for this assessment has taken cognisance of Government Notice 320 in terms of the National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA) dated 20 March 2020: "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 NEMA, 1998, when applying for Environmental Authorisation". The National Web based Environmental Screening Tool (DFFE, 2025) has characterised the agricultural theme sensitivity of the project area ranging from "Low" to "High" sensitive areas, with a key consideration of this assessment being the determination of agricultural theme sensitivities for the project. However, the information gathered from the site sensitivity verification, based on the current land use disputes the agricultural theme tool. Based on the verified baseline findings, the proposed project area was found to have agricultural sensitivity ranging from "Low" to "Medium". The GNR 320 requirements of an Agricultural Compliance Statement stipulate that a 50 m buffered development envelope be considered.

This report aims to present and discuss the findings from the soil resources identified within the 50 m buffered area. The report will also identify the soil suitability and land potential of these soils, the land uses within the assessment area and the risks associated with the proposed Grid development from an agricultural and soil resources management perspective.

This report should be interpreted after taking into consideration the findings and recommendations provided by the specialist (Section 3 and 4 of this report). Further, this report should inform and guide the Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making, as to the soil resources of the proposed project.

1.2 Project Description

Onderstepoort Grid (Pty) Ltd proposes the construction and operation of a grid connection solution for the proposed Onderstepoort Solar 1 (DFFE Reference: 14/12/16/3/3/2/2319) and Onderstepoort Solar 2 (DFFE Reference: 14/12/16/3/3/2/2320) PV facilities, near Boshoek in the North West Province of South Africa. The grid connection solution will include the development of a double-circuit 132 kV power line and collector substation to connect the proposed solar PV facilities to the national grid via the existing Ngwedi Main Transmission Substation (MTS). Other associated infrastructure will also be required for the grid connection solution; including access tracks/roads, administrative buildings and laydown areas.

A 100 m wide corridor approximately ~11 km in length is being assessed to allow for the optimisation of the grid and associated infrastructure, and to accommodate for any environmental sensitivities. The grid infrastructure will be developed within the assessed corridor. The height of the powerline pylons will be approximately ~32 m and the servitude width of the power line will be 31 m. The extent of the collector substation will be 100 m x 200 m and the capacity of the substation will be 132 kV. Two grid route alternatives are being considered (i.e., southern and northern corridor; **Error! Reference source not found.**).

The 100 m corridor traverses twelve affected properties:

- Remaining Extent of Portion 2 the Farm ONDERSTEPOORT No. 98;

- Portion 13 (a portion of Portion 2) of the Farm ONDERSTEPOORT No. 98;
- Remaining Extent of Portion 3 the Farm ONDERSTEPOORT No. 98;
- Portion 8 the Farm ONDERSTEPOORT No. 98;
- Remaining Extent of Portion 2 the Farm FRISCHGEWAAGD No. 96;
- Portion 19 of the Farm FRISCHGEWAAGD No. 96;
- Portion 45 of ELANDSFONTEIN No. 102;
- Portion 24 of the Farm FRISCHGEWAAGD No. 96;
- Portion 23 of the Farm FRISCHGEWAAGD No. 96;
- Portion 7 of the Farm FRISCHGEWAAGD No. 96;
- Portion 14 of the Farm FRISCHGEWAAGD No. 96; and
- Portion 10 of the Farm FRISCHGEWAAGD No. 96.

1.3 Project Area

The extent of the property/development footprint is referred to as the project area. A map of the buffered area in relation to the local region is presented (Figure 1-1) below. A map illustrating the proposed layout to be assessed is presented in Figure 1-2. The surrounding land use includes mining, wildlife and livestock production.

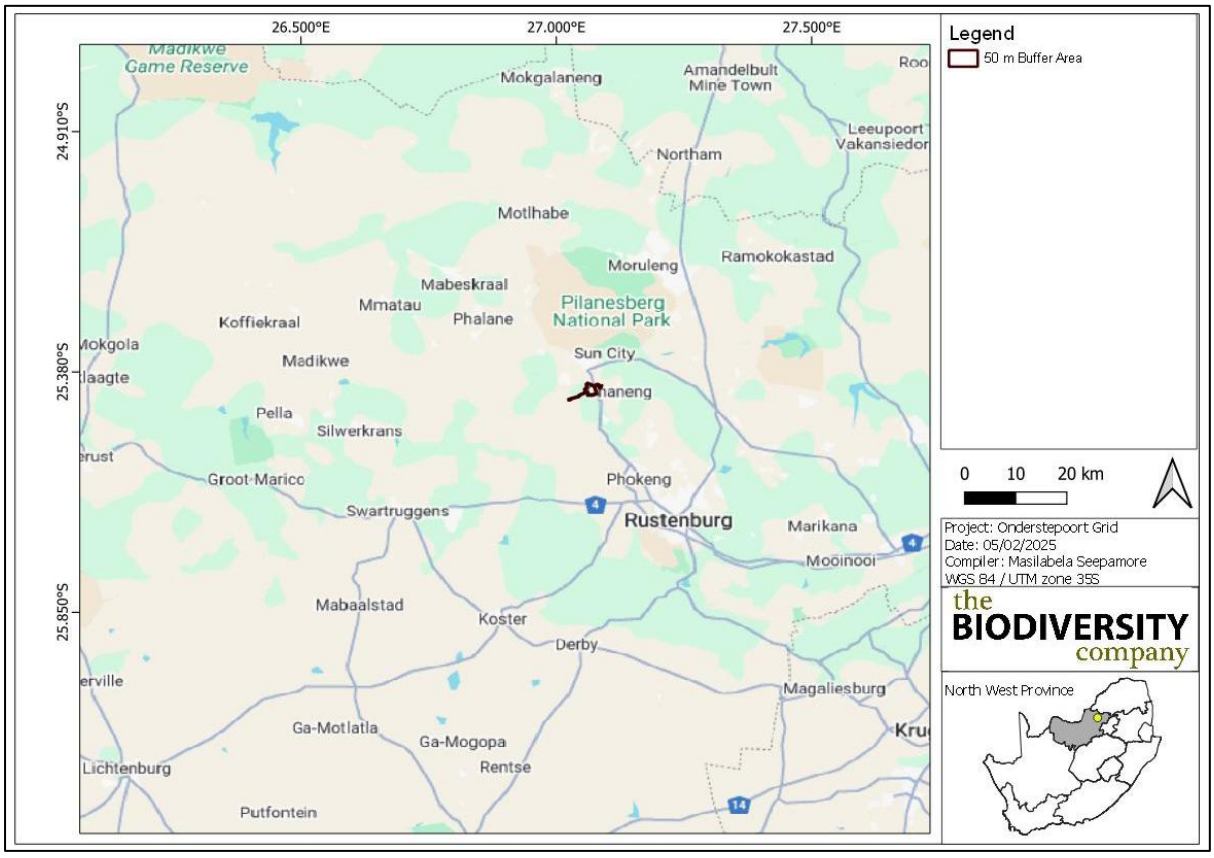


Figure 1-1 Spatial context of the proposed development

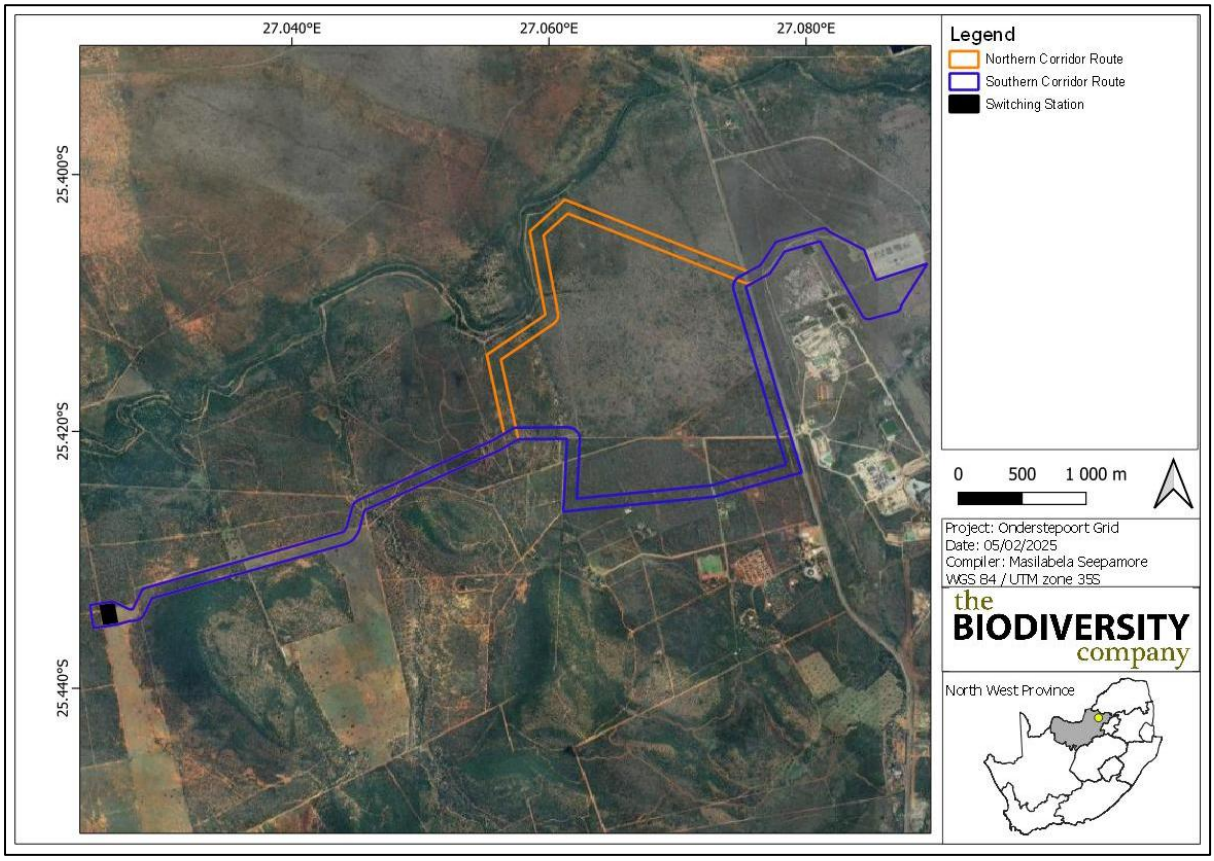


Figure 1-2 The proposed components of the project

1.4 Scope of Work

In addition to the requirements stipulated in GNR 320, the following Terms of Reference apply to the Agricultural Compliance Statement:

- Ensure a thorough assessment, which includes both the desktop assessment of databases and aerial photography; a description of the on-site verification of the agricultural potential of the area; and the soil forms present in the development area;
- Identify and assess potential impacts on both agricultural potential and soil resulting from the proposed project;
- Identify and describe potential cumulative soil, agricultural potential and land capability impacts resulting from the proposed project in relation to proposed and existing developments in the surrounding area; and
- Recommend mitigation, management, and monitoring measures, to minimise impacts and/or optimise benefits associated with the proposed project.

1.5 Assumptions and Limitations

The following aspects were considered as limitations;

- Only the slopes affected by the proposed development have been assessed;
- It has been assumed that the extent of the development area provided by the responsible party is accurate;

- The GPS used for ground truthing is accurate to within five meters. Therefore, the soil and the observation site's delineation plotted digitally may be offset by up to five meters to either side;
- No heavy metals have been assessed nor fertility been analysed for the relevant classified soils, and
- The eastern section of the Southern Corridor Route was not covered due to access limitations and only a desktop evaluation was conducted.

1.6 Key Legislative Requirements

The report follows the protocols as stipulated for agricultural assessment in Government Notice 320 of 2020 (GNR 320). This Notice provides the procedures and minimum criteria for reporting in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act (No. 107 of 1998) (NEMA).

The above mentioned are supported by additional legislation that aims to manage the impact of development on the environment and the natural resource base of the country. Related legislation to this effect includes:

- Conservation of Agricultural Resources Act (Act 43 of 1983);
- Environment Conservation Act (Act 73 of 1989);
- National Environmental Management Act (Act 107 of 1998); and
- National Water Act (Act 36 of 1998).

1.7 Legislative Framework

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on soil and agricultural assessment as per the Government Notice 320 published in terms of NEMA, dated 20 March 2020: "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 National Environmental Management Act, 1998, when applying for Environmental Authorisation" – the following has been assumed:

- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified on the screening tool as being of:
    - "Low and Medium sensitivity" for agriculture, must submit an Agricultural Compliance Statement.

An Agricultural Compliance Statement must contain the information as presented in Table 1-1 below.

Table 1-1 Agricultural Compliance Statement information requirements as per the relevant protocol, including the location of the information within this report

Information to be Included (as per GN 320, 20 March 2020)	Report Section
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	Page i, Appendix C
a signed statement of independence by the specialist	Appendix B

a map showing the proposed development footprint (including supporting infrastructure) with a 50 m buffered development envelope, overlaid on the agricultural sensitivity map generated by the screening tool	Section 3.3 or Figure 3-10
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 5.1
a substantiated statement from the soil scientist or agricultural specialist on the acceptability, or not, of the proposed development and a recommendation on the approval, or not, of the proposed development	Section 5.2
any conditions to which this statement is subjected	Section 5.3
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 be returned to the current state within two years of completion of the construction phase	Section 5.3
where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr	Section 5.1
a description of the assumptions made and any uncertainties or gaps in knowledge or data	Section 1.5

A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

2 Fieldwork

Field assessment for the proposed project area were undertaken on the 16th and 17th of September 2023 and later on the 30th of January 2025, to determine the soil forms and current land uses within the assessed area.

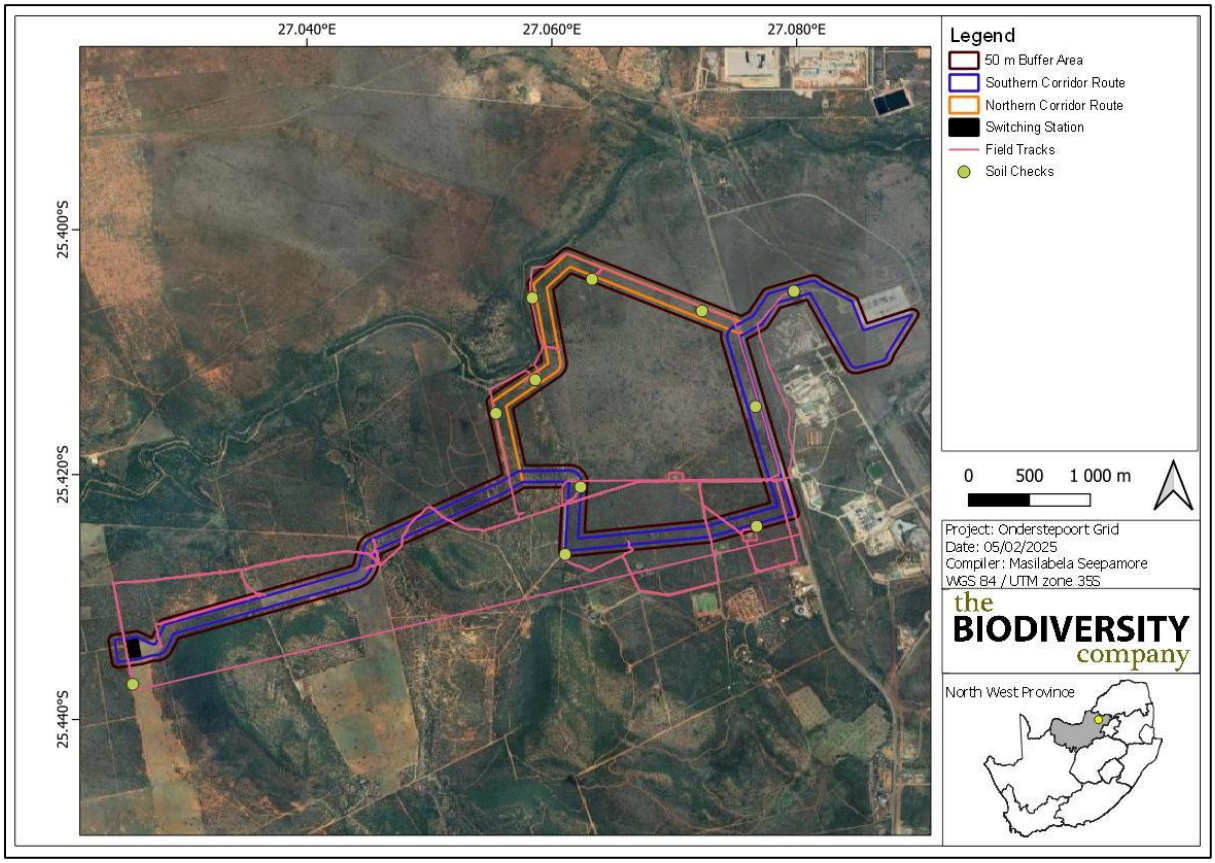


Figure 2-1 Map illustrating the field work tracks for the proposed project area

3 Results and Discussion

3.1 Desktop Information

3.1.1 Climate

The project area falls within the Zeerust Thornveld and Gold Reef Mountain Bushveld vegetation. It is characterised with summer-rainfalls, very dry winters and frost occurrence is frequent in winter months. The overall mean average precipitation (MAP) of the proposed project area ranges from 568 mm to 666 mm (Mucina & Rutherford 2006). The mean average temperatures of the project area range with the maximum of 30.8 °C and a minimum of -1.8 °C for January and July, respectively. (Mucina & Rutherford, 2006; Figure 3-1).

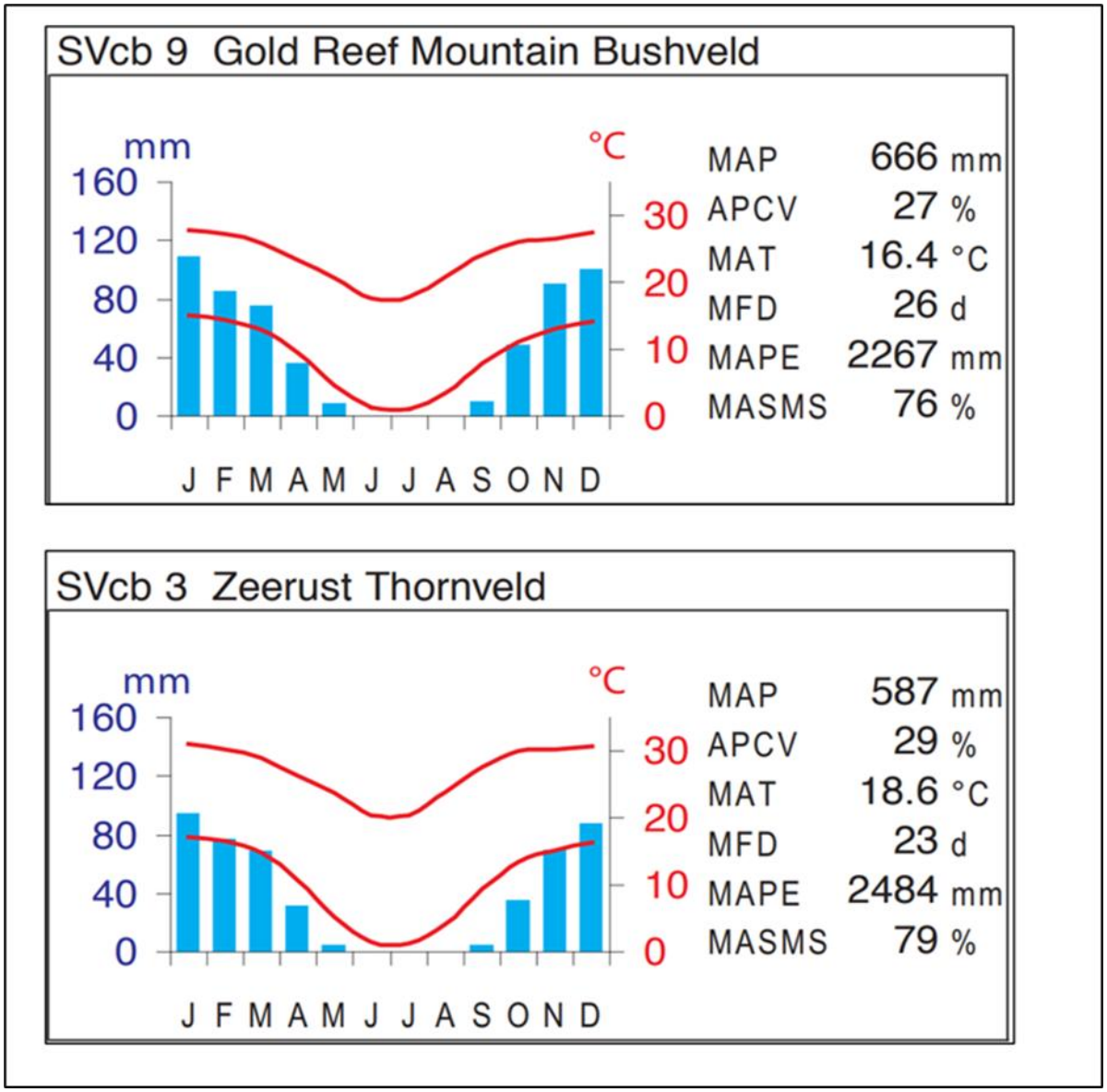


Figure 3-1 Summarised climate for the region (Mucina & Rutherford, 2006)

3.1.2 Geology & Soils

The geology of the area includes sediments of the Pretoria Group (Transvaal Supergroup) particularly the Silverton and Rayton Formation. Moreover, quartzites, conglomerates and some shale horizons of the Magaliesberg, Daspoort and Silverton Formations (Vaalian Pretoria Group) and the Hospital Hill,

Turffontein and Government Subgroups (Randian Withwatersrand Supergroup). The geology in turn support soils which are mostly deep, red-yellow apedal, freely drained with high base status also with some vertic or melanic clays of the Ae and Ea land types. Shallow, gravel lithosols of the Mispah and Glenrosa forms occur typical of the Ib and Fb land types.

According to the land type database (Land Type Survey Staff, 1972 - 2006) the assessment area to be focused on mainly falls within the Ae 64, Ea 3 and Ib 3 land type. The Ae 64 land type mainly consists of Mispah, Hutton and Willowbrook soil forms according to the Soil classification working group (1991), with the occurrence of other soils within the landscape. The Ea 3 land type mainly consists of Arcadia and Oakleaf soil forms according to the Soil classification working group (1991), with the occurrence of other soils and rocky within the landscape. The Ib 3 land type consists mainly of Hutton soil form according to the Soil classification working group (1991), with the occurrence of other soils and rocky areas within the landscape. The Ae land types are characterised by red-yellow apedal, freely drained soils; red, high base status greater than 300 mm deep with no dunes. The Ea land types are characterised with one or more of vertic, melanic and red structured diagnostic horizons which are undifferentiated. The Ib land types are characterised as miscellaneous land classes, rocky areas with miscellaneous soils. The land terrain units for the featured land types are illustrated in the below tables and figures.

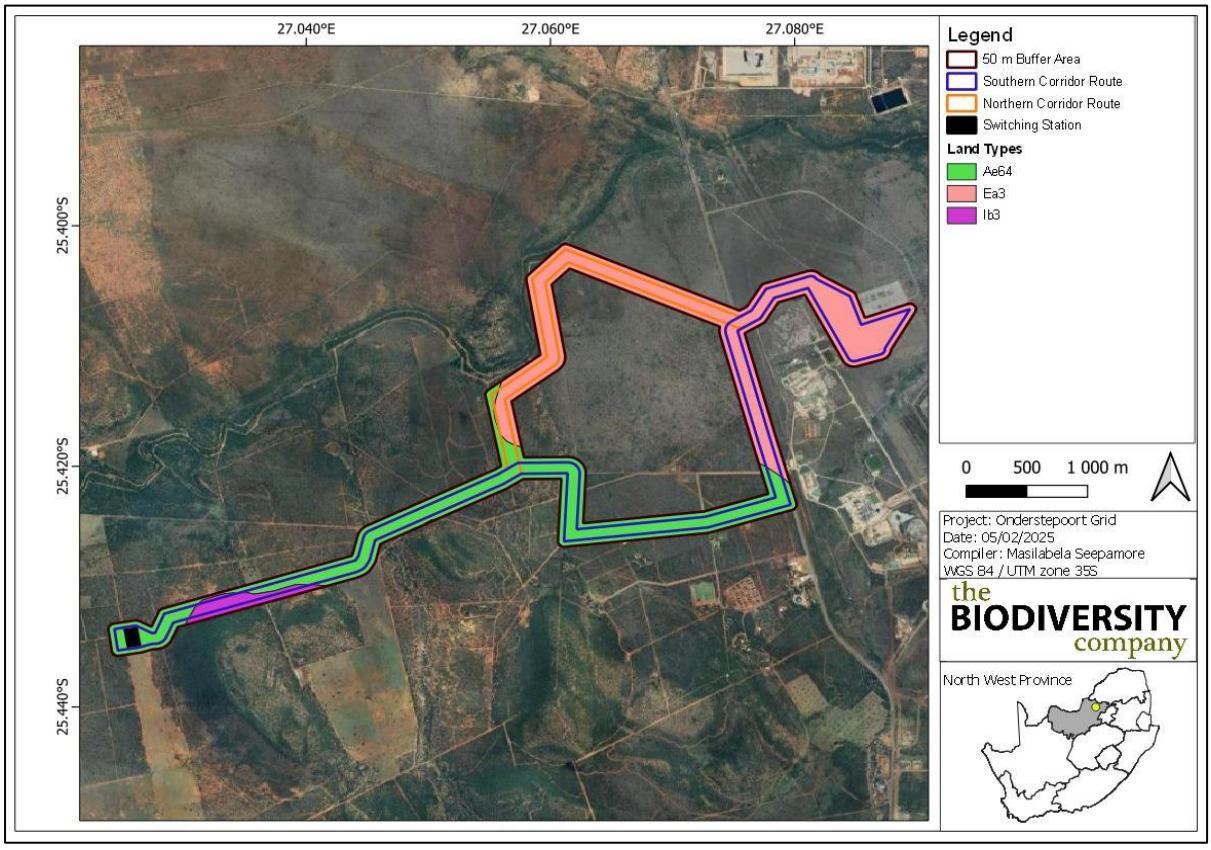


Figure 3-2 Land types associated with the proposed project area

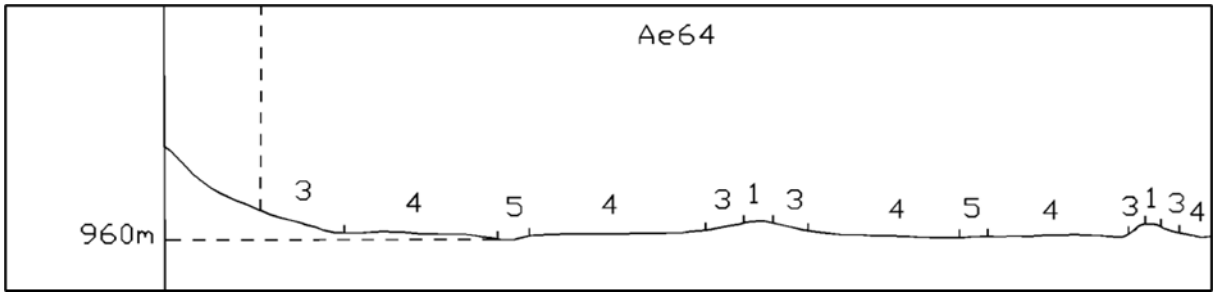


Figure 3-3 Illustration of land type Ae 64 terrain units (Land Type Survey Staff, 1972 – 2006)

Table 3-1 Soils expected at the respective terrain units within the Ae 64 land type (Land Type Survey Staff, 1972 - 2006)

Terrain Units							
1 (2%)		**3 (7%)**		**4 (87%)**		**5 (4%)**	
Mispah	40%	Hutton	59%	Hutton	70%	Willowbrook	38%
Hutton	35%	Glenrosa	31%	Shortland	17%	Valsrivier	37%
Bare Rocks	25%	Bare rock	7%	Willowbrook	4%	Bonheim	25%
		Shortland	3%	Valsrivier	4%		
				Mispah	2%		
				Bare rock	1%		
				Milkwood	1%		
				Bonheim	1%		

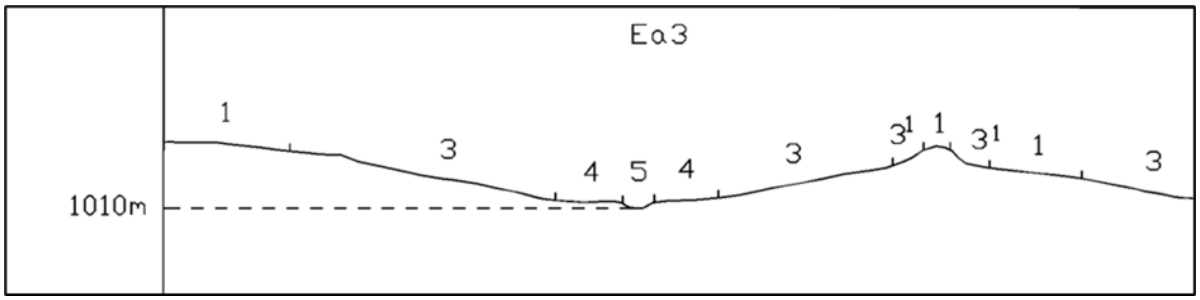


Figure 3-4 Illustration of land type Ea 3 terrain units (Land Type Survey Staff, 1972 – 2006)

Table 3-2 Soils expected at the respective terrain units within the Ea 3 land type (Land Type Survey Staff, 1972 - 2006)

Terrain Units											
1 (30%)		**1^1 (0.5%)**		**3 (44.5%)**		**3^1 (1%)**		**4 (15%)**		**5(9%)**	
Arcadia	70%	Bare rock	80%	Arcadia	76%	Bare rock	70%	Arcadia	89%	Oakleaf	67%
Bare rock	14%	Mispah	20%	Bare rock	10%	Oakleaf	30%	Hutton	3%	Arcadia	22%
Mispah	9%			Mispah	6%			Shortland	3%	Shortland	6%
Hutton	4%			Hutton	4%			Swartland	3%	Hutton	5%

Shortland	3%			Shortland	3%			Bare rock	2%		
				Swartland	1%						

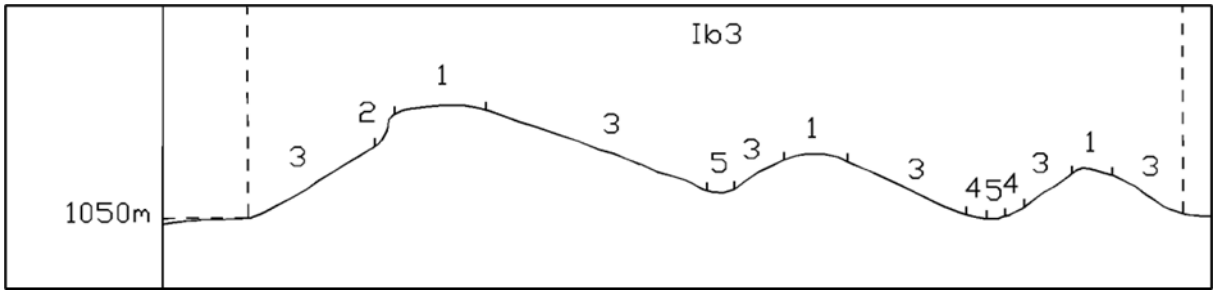


Figure 3-5 Illustration of land type Ib 3 terrain units (Land Type Survey Staff, 1972 – 2006)

Table 3-3 Soils expected at the respective terrain units within the Ib 3 land type (Land Type Survey Staff, 1972 - 2006)

1 (10%)		2 (8%)		3 (71%)		4 (7%)		5 (4%)	
Bare rock	80%	Bare rock	100%	Bare rock	67%	Hutton	43%	Bare rock	25%
Mispah	20%			Mispah	31%	Mispah	29%	Hutton	25%
				Hutton	21%	Glenrosa	21%	Willowbrook, Oakleaf	25%
						Bare rock	7%	Mispah	13%
								Glenrosa	12%

3.2 Baseline Findings

The nine (9) representative soil forms that were identified within the 50 m buffer area include, the Ermelo, Hutton, Bloemdal, Palmiet, Westleigh, Tubatse, Arcadia, Glenrosa and Knersvlakte soil forms (Figure 3-6). The proposed project area comprises various soils with differing characteristics, including deep, moderately drained and limited drainage apedal soils, duplex soils with increased clay content in the subsurface horizons, high clayey soils, and soils with restrictive limitation due to the properties of the subsurface horizon.

The most sensitive soil forms with moderate suitable for crop production identified within the proposed project area includes the Ermelo and Hutton soil forms. The Ermelo soil form consists of an orthic topsoil horizon underlain with a thick yellow brown apedal horizon. The Hutton soil form consists of an orthic topsoil horizon underlain with a thick red apedal horizon. These soils are used extensively for crop production under rainfed and irrigation, due to their exceptional drainage, aeration and root penetration.

The other soils identified within the proposed project area with low-moderate suitability for crop production includes, the Bloemdal, Palmiet, Westleigh and Tubatse soil forms. The Bloemdal soil form consists of an orthic topsoil horizon on top of a red apedal horizon underlain with a gleyic horizon. The Palmiet soil form consists of an orthic topsoil horizon on top of a red apedal horizon underlain with a neocutanic horizon. The Westleigh soil form consists of an orthic topsoil horizon on top of a soft plinthic horizon underlain with a gleyic horizon. The Tubatse soil form consists of an orthic topsoil horizon on top of a neocutanic horizon underlain with a lithic horizon. These soils are generally characterized by luvic subsoil horizons, which subsequently increases the subsoil saturation. Periodic saturation limits drainage, aeration and most importantly, can subject essential cash crops to waterlogged conditions.

The less sensitive soil forms identified within the proposed project area with low suitability for crop production includes, the Arcadia, Glenrosa and Knersvlakte soil forms. The Arcadia soil form consists

of a vertic topsoil horizon underlain with a lithic horizon. The Glenrosa soil form consists of an orthic topsoil horizon underlain with a lithic horizon. The Knersvlakte soil form consists of an orthic topsoil horizon underlain with a dorbank horizon. These soils have a limited aeration, drainage, root penetration, and soil water storage capacity. They are therefore more suitable for natural grazing and wildlife practices. All the identified soil horizons within the proposed project area, as well as the current land uses are illustrated in Figure 3-7 and Figure 3-8, respectively.

Accordingly, following Smith, (2006) which the national DAFF, (2017) land capabilities were further expanded from, the above-mentioned identified soil forms associated with the project area are restricted to land capability II (i.e. Ermelo, Hutton, Bloemdal, Westleigh and Tubatse soil) categorised between LC 6-8 (Moderate) and land capability IV (i.e. Arcadia, Palmiet, Glenrosa and Knersvlakte soils) categorised between 1-5 (Low). The baseline soil land capability was aligned and compared to the National Land Capability data (DAFF, 2017), respectively.

The land capability class “II” is characterised by slight limitations, high arable potential, with low erosion hazard and suitable for annual cropping with special tillage or ley (25%). The land capability class “IV” is characterised by severe limitations, low arable potential, with high erosion hazard and suitable for long-term leys (75%). A climate capability level 8 has been assigned to the area given the low Mean Annual Precipitation (MAP) and the high Mean Annual Potential Evapotranspiration (MAPE) rates. By using the determined land capability classes and the determined climate capability, land potential level “L5” and “L7” were calculated. According to Smith (2006), the land potential level “L5” is characterised by restricted potential with regular and/or moderate to severe limitations due to soil, slope, temperatures or rainfall. The land potential level “L7” is characterised by low potential with severe limitations due to soil, slope, temperatures and rainfall.

The following land potential levels have been determined;

- Land Potential level 5 (this land potential level is characterised by restricted potential. Regular and/or severe limitations due to soil, slope, temperatures or rainfall). Arable; and

- Land potential level 7 (this land potential level is characterised by low potential. Severe limitations due to soil, slope, temperatures or rainfall). Non-arable.

Land potential levels of the proposed area are illustrated in Figure 3-9.

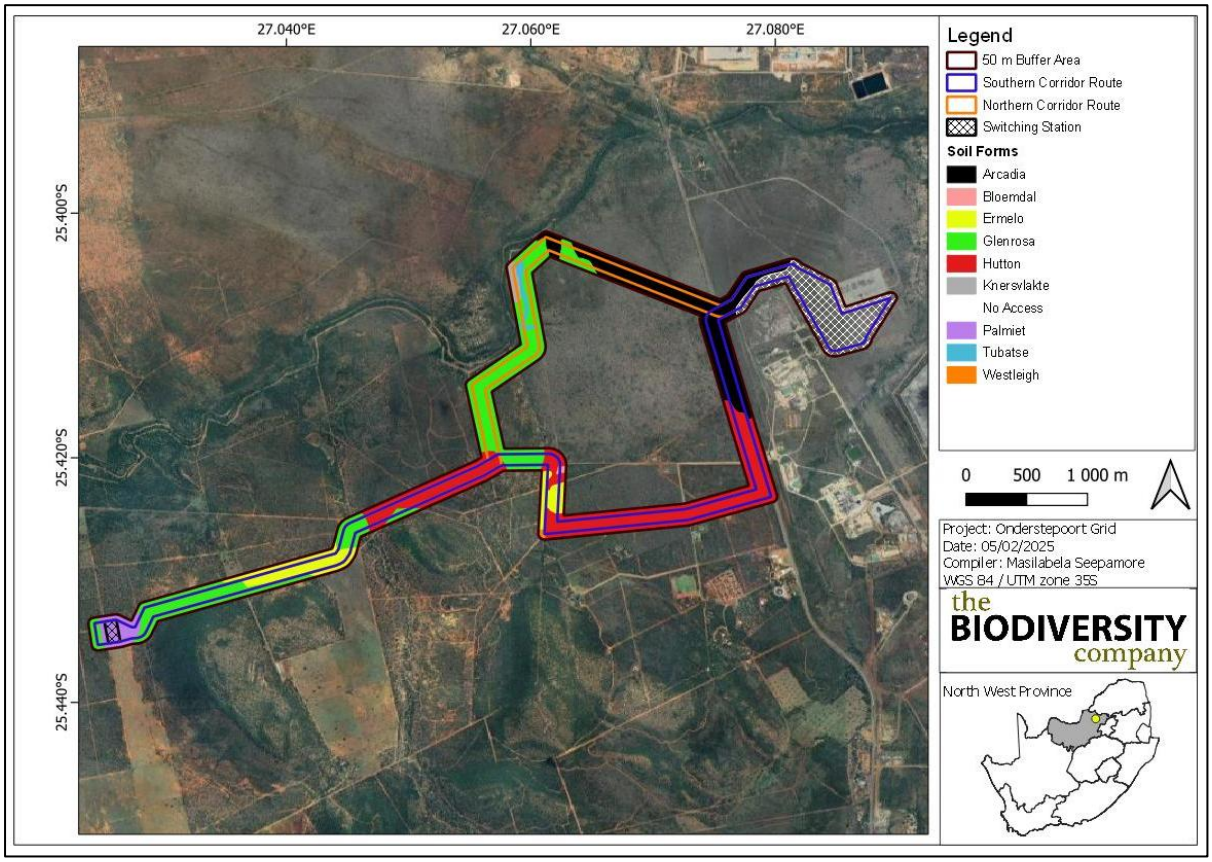


Figure 3-6 Soil forms found within the proposed project area

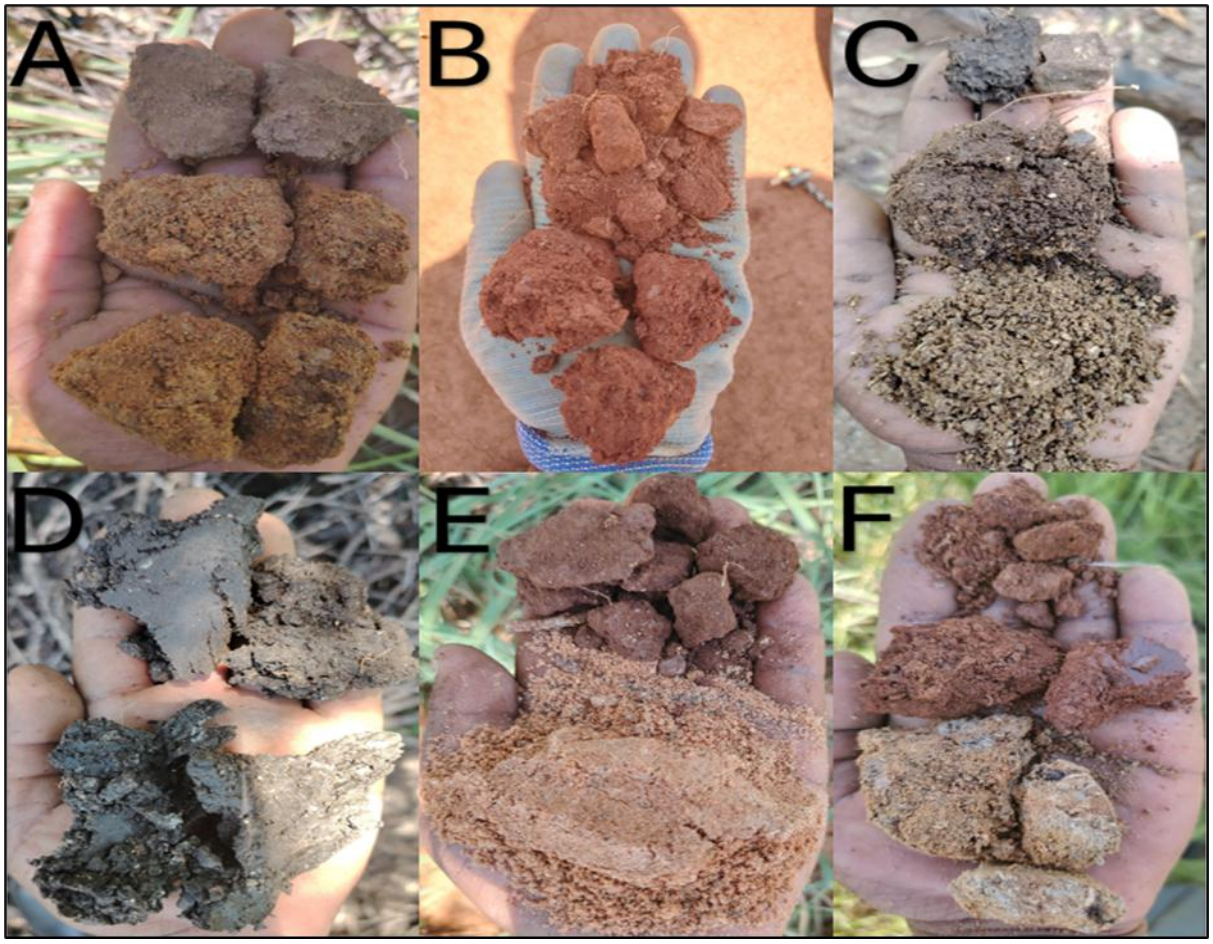


Figure 3-7 ***Diagnostic horizon of dominant soils identified within the proposed project area and different land uses; : A) Westleigh soil form; B) Hutton soil form; C) Tukulu soil form; D) Arcadia soil form; E) Glenrosa soil form; and F) Bloemdal soil form.***

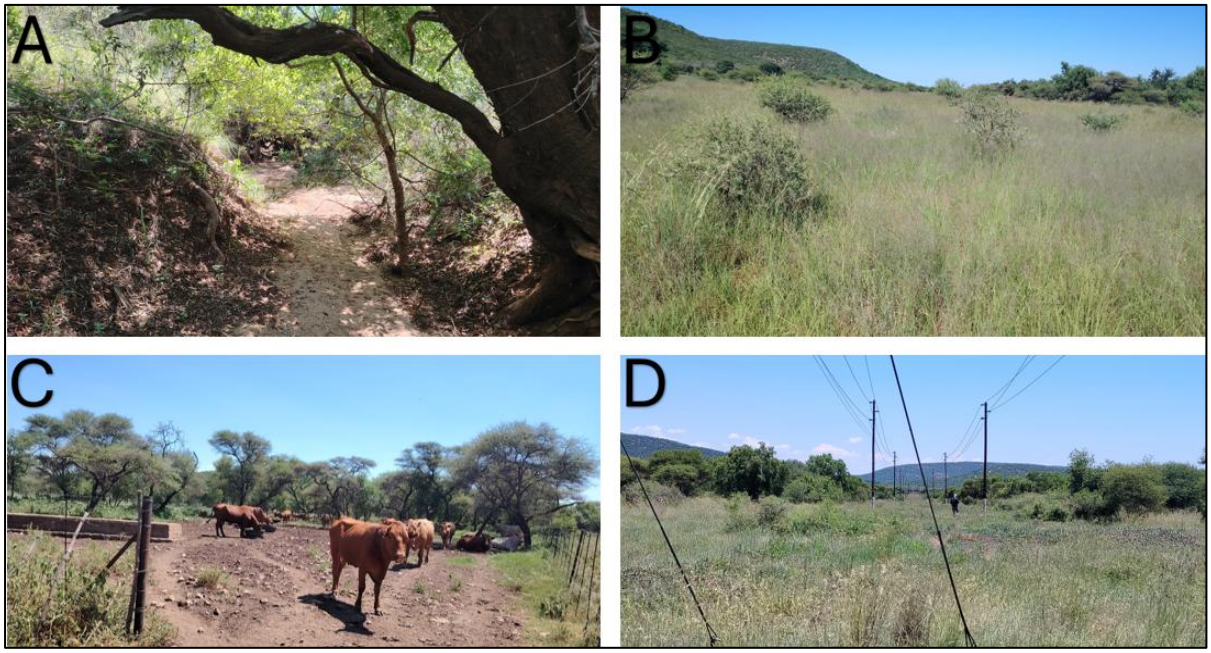


Figure 3-8 ***Different land uses found within the proposed project area; A) Dry River; B) Common vegetation; C) Livestock; and D) Existing powerlines.***

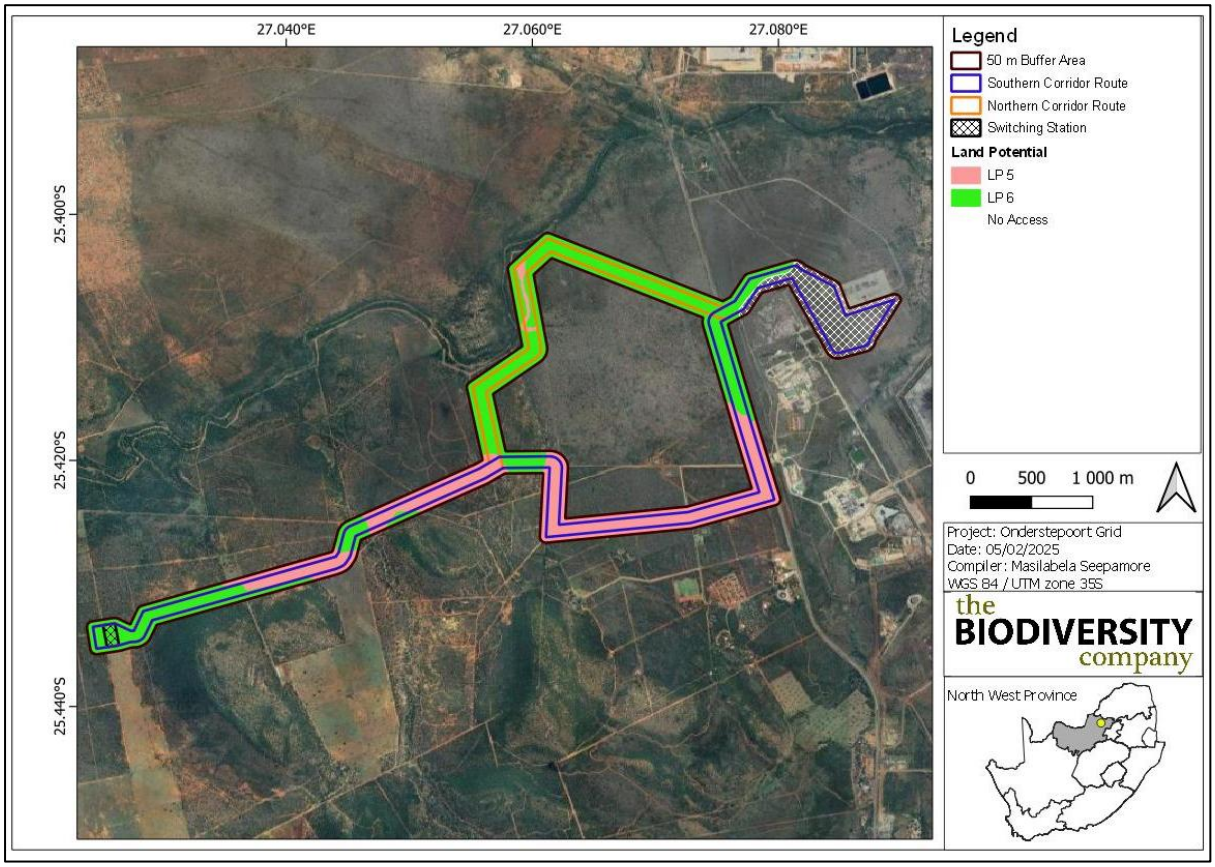


Figure 3-9 Land Potential of the proposed project area

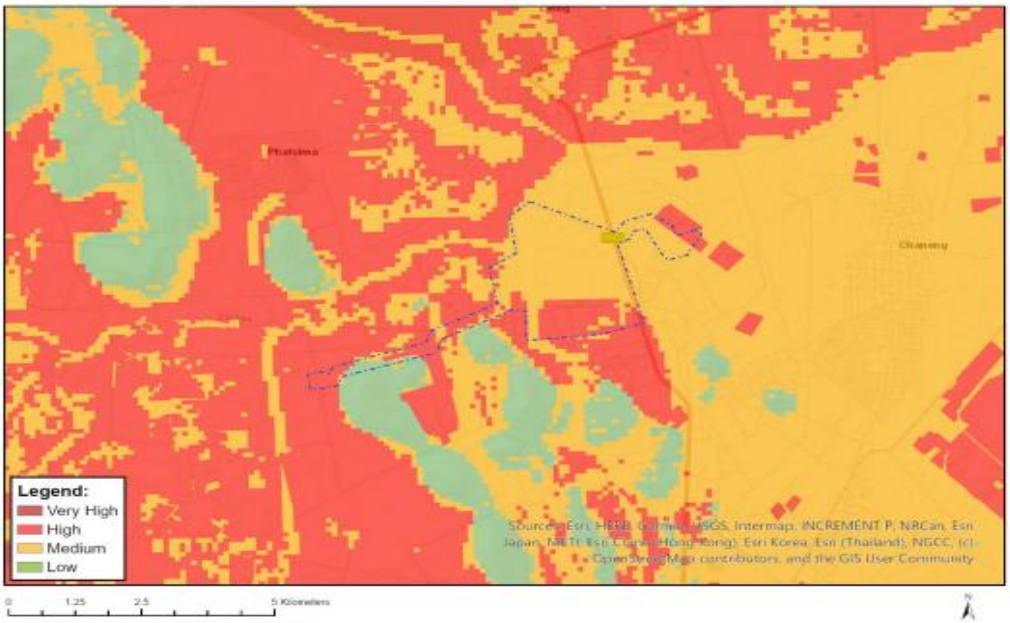
3.3 Sensitivity Verification

3.3.1 Screening Report – Onderstepoort Grid Project

The following is deduced from the National Web-based Environmental Screening Tool Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended):

- Agriculture Theme Sensitivity indicates that the proposed project area falls within the 'Low to High' agricultural sensitivity (Figure 3-10).

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
High	Subsistence Farming 1;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
Low	Land capability;01. Very low/02. Very low/03. Low-Very low/04. Low-Very low/05. Low
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

Figure 3-10 Map of Relative Agricultural Theme Sensitivity for the Onderstepoort Grid Project generated by the Environmental Screening Tool Site Ecological Importance (SEI)

Fifteen land capabilities have been digitised by (DAFF, 2017) across South Africa, of which ten potential land capability classes are located within the assessment area, including;

- Land Capability 1 to 5 (Very Low to Low Sensitivity);
- Land Capability 6 to 8 (Low-Moderate to Moderate Sensitivity); and
- Land Capability 9 to 10 (Moderate High Sensitivity).

The land capability dataset (DAFF, 2017) indicates that the proposed project area falls largely within “Low-Moderate to Moderate”, followed by “Moderate to High” and with isolated areas having “Very Low to Low” sensitivities (see Figure 3-11). Furthermore, “highly” sensitive field crop boundaries were also identified within the proposed project areas with the help of the agricultural theme tool (DFFE, 2025; Figure 3-12).

The baseline soil findings, current land uses and the calculated land potential disputes the agricultural theme entirely in areas associated with “Moderate High” sensitivity and with areas demarcated with

"highly" sensitive with field crop boundaries within the assessed areas. Furthermore, concurs fully and to an extent with areas associated with "Very Low to Low" and "Low-Moderate to Moderate" sensitivities, respectively. No active cropping was confirmed withing the assessed areas and the identified active cropping areas are now historical.

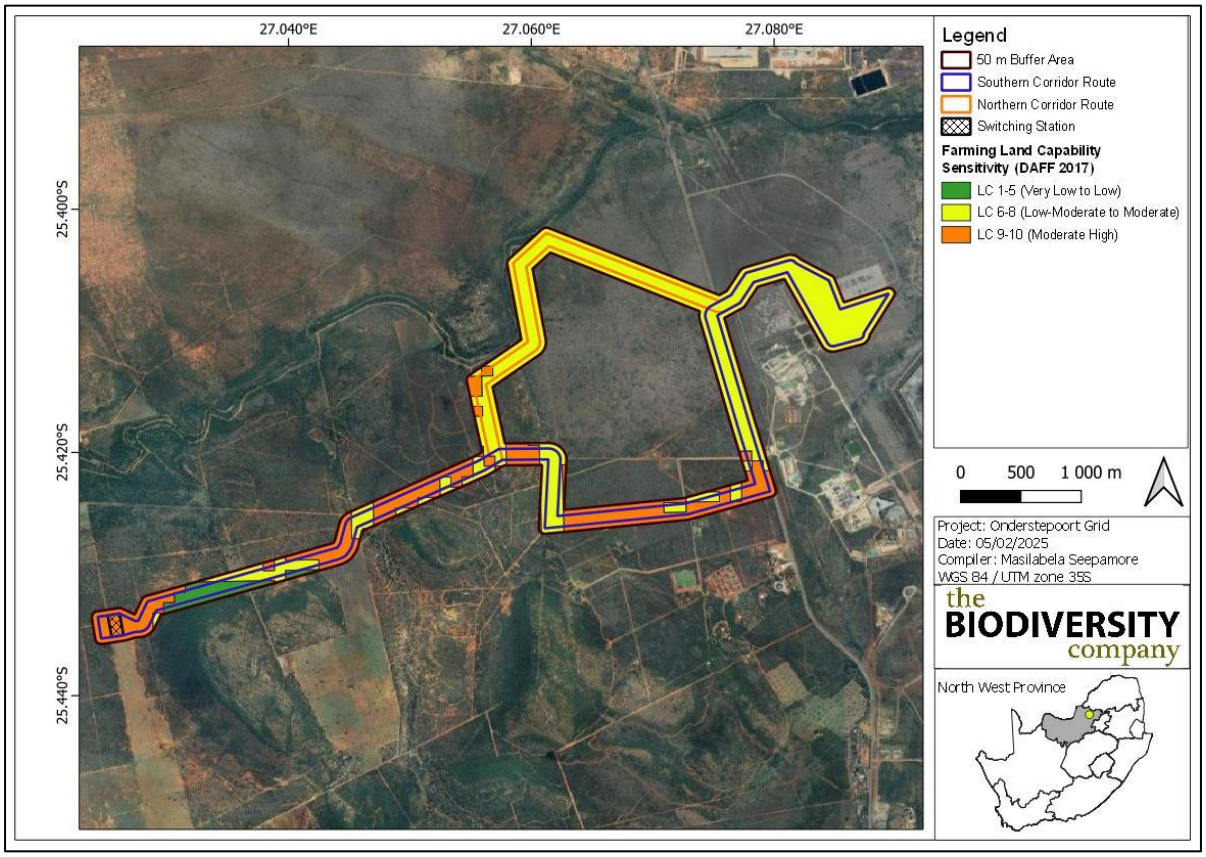


Figure 3-11 Land Capability Sensitivity (DAFF, 2017)

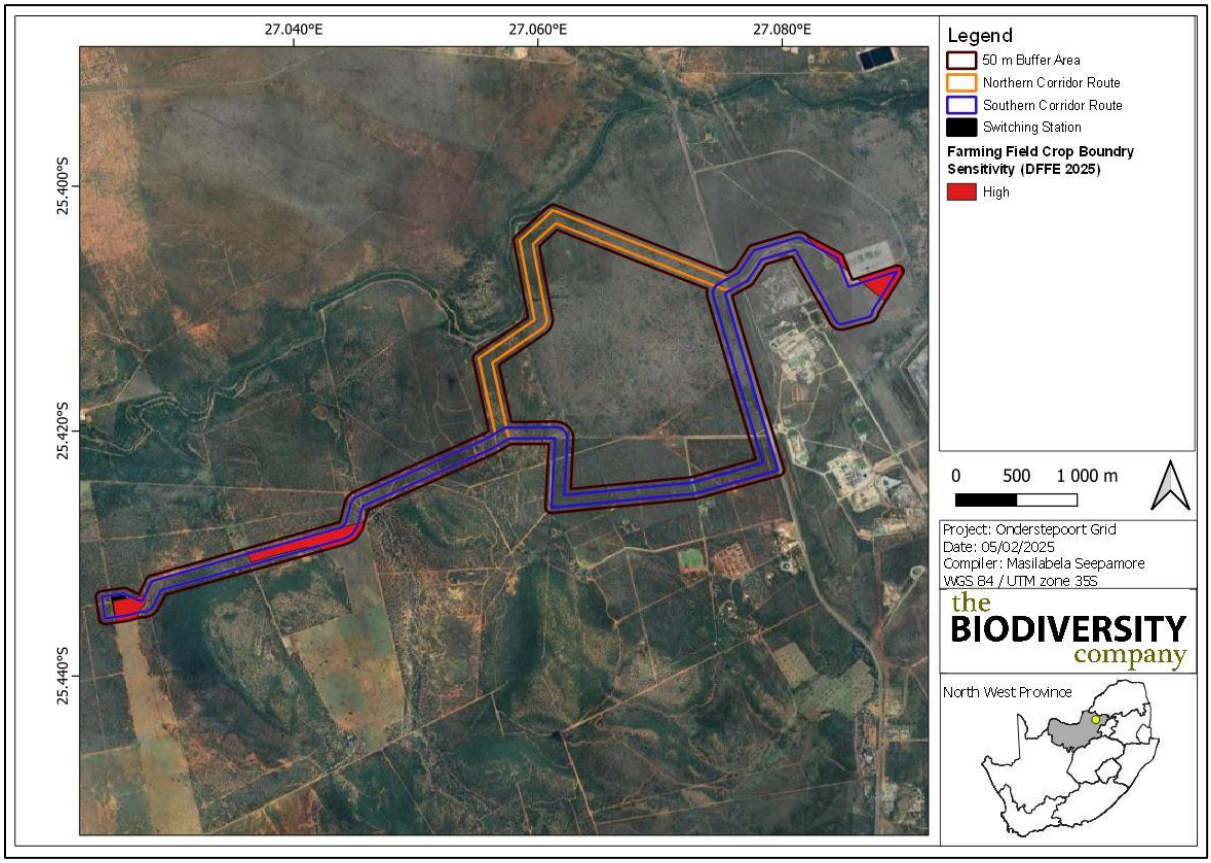


Figure 3-12 Field Crop Boundary Sensitivity (DFFE 2025)

As a result, based on the verified baseline findings, the proposed grid will have acceptable impact on the soil resources. Therefore, based on the confirmed sensitivities, the overall sensitivity of the proposed project area ranges from “Low” to “Medium” (Figure 3-13).

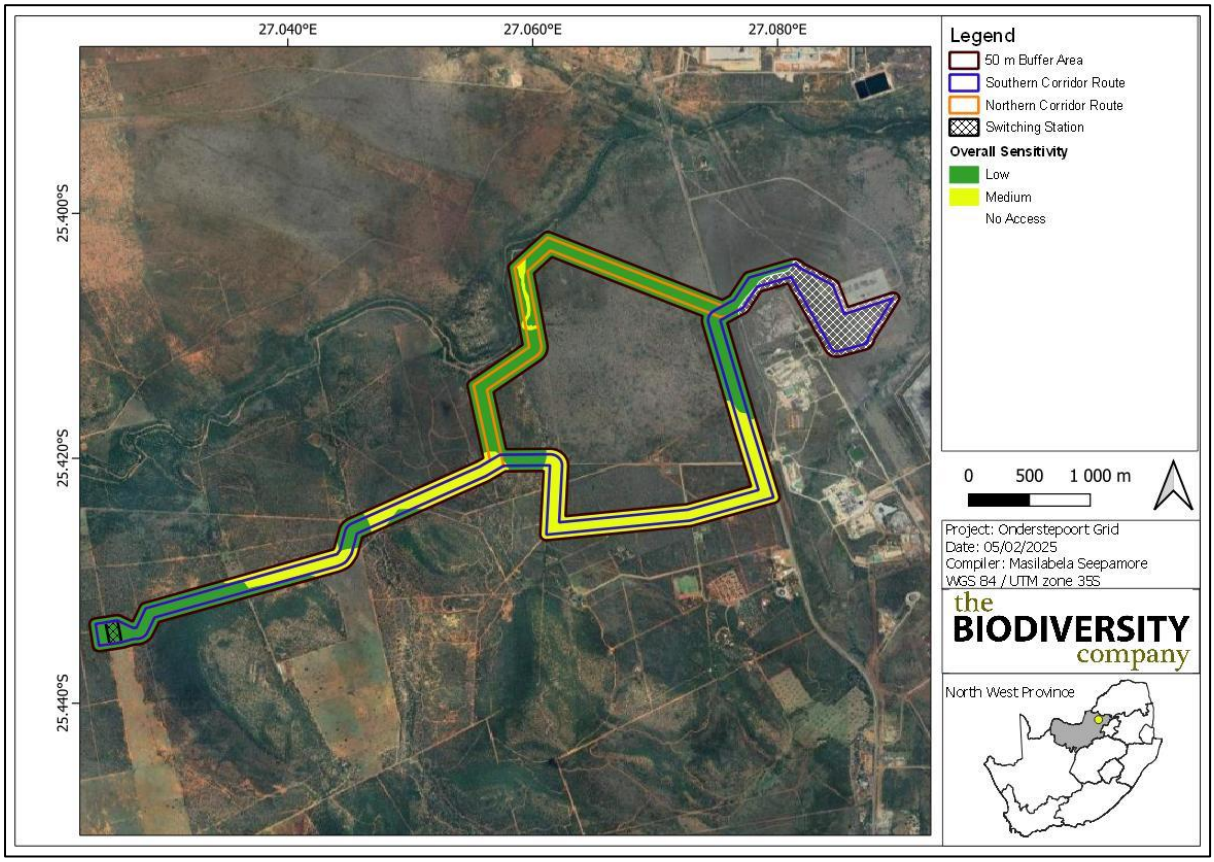


Figure 3-13 Overall site verified sensitivity of the project area

Considering the soil properties, agricultural potential as well as the current land use of the proposed grid area and associated infrastructure, the area has an overall sensitivity ranging from "Low" to "Medium" (Figure 3-13). Based on the confirmed sensitivities, the overall sensitivity of the proposed project area is also categorized as ranging from "Low" to "Medium". The allocated sensitivities for the theme are either disputed or validated in Table 3-4 below.

Table 3-4 Summary of the screening tool vs specialist assigned sensitivities

Screening Tool Theme	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Agricultural Theme	High	Medium	Disputed – Land capability Low-Moderate to Moderate. Presence of soils with moderate soil water storage capacity with good drainage, aeration and root penetration such as Hutton and Ermelo soil forms. No active crop fields either annual cropping or planted pastures in rotation and substantial farming.
	High	Low	Disputed– Land capability Very low to Low. Presence of soils with restrictive limitations to drainage, aeration and root penetration due to limited soil profile such as Glenrosa and Palmiet soil forms. No active crop fields either annual cropping or planted pastures in rotation and substantial farming.
	Medium	Medium	Validated – Land capability Low-Moderate to Moderate. Presence of soils which are deep with, moderate soil water storage capacity such as Ermelo and Hutton soil forms. Furthermore, the presence a soil form subjected to periodic saturation such as Westleigh.
	Medium	Medium	Validated/Disputed – Lack of Access.
	Medium	Low	Disputed – Land capability Very Low to Low. Presence of soils with restrictive limitations to drainage, aeration and root penetration due to limited soil profile and high clay content soils such as Glenrosa, Palmiet and Arcadia, respectively.
	Low	Low	Validated - Land capability Very Low to Low. Presence of low potential soil with restrictive limitations on drainage, soil water storage capacity and root penetration such as Glenrosa soil from.

4 Impact & Management Objectives

The assessment of impact significance considers pre-mitigation as well as implemented post-mitigation scenarios. Two phases were considered for the impact assessment, with the infrastructure assumed to be permanent (> 20 years) and no decommissioning phase required:

- Construction Phase; and
- Operational Phase.

The aim of the management outcomes (below) is to present the mitigation measures in such a way that the can be incorporated into the Environmental Management Programme (EMPr) for the project, allowing for more successful implementation and auditing of the mitigations and monitoring guidelines. The tables below present the prescribed mitigation measures for construction and operational phases for the assessment.

Table 4-1 The project management measures for the soils and agriculture resources during the construction phase

Environmental Theme: Agriculture Impact Management Outcome: Protection of soil resources Phase: Construction						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Cleared areas must be rehabilitated and stabilised to avoid impacts to adjacent areas	Contractor/ Environmental Officer	Implement a rehabilitation plan	Construction Phase	Environmental Officer	Throughout phase	Rehabilitation implemented
Restrict the disturbance footprint and the clearing of vegetation for the authorized area only.	Engineer/Contractor/ Environmental Officer	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	Disturbance minimised
Make use of existing access routes as much as possible before new routes are considered.	Contractor	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	All routes authorised
Promptly remove all alien and invasive plant species that may emerge during construction (i.e. weedy annuals and other alien forbs) must be removed	Environmental Officer	Implement an alien vegetation management plan	Construction Phase	Environmental Officer	Throughout phases	Implement alien vegetation management plan
Limit soil disturbance	Contractor/ Environmental Officer	Clear/disturb soil on a need basis only	Construction Phase	Environmental Officer	Throughout phase	Soil disturbance is reduced
Keep excavation and soil heaps neat and tidy	Contractor	Separate topsoil and sub-soil	Construction Phase	Environmental Officer	Throughout phase	Soil heaps are managed
Lightly till any disturbed soil around the development footprint to avoid compaction	Contractor/ Environmental Officer	Implement a rehabilitation plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
Ensure soil stockpiles sand are sufficiently safeguarded against rain wash	Contractor/ Environmental Officer	Implement soil management plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
Minimize unnecessary clearing of vegetation beyond the development footprints	Contractor/ Environmental Officer	Visibly demarcate authorised working areas	Construction Phase	Environmental Officer	Throughout phase	Clearance is minimised
The use of herbicides is not recommended (opt for mechanical removal).	Contractor/ Environmental Officer	Demarcate buffer area	Construction Phase	Environmental Officer	Throughout phase	Avoided buffer area
Make sure all excess consumables are removed from site and deposited at an appropriate waste facility	Contractor/ Environmental Officer	Restrict to designated working/storage/service areas	Construction Phase	Environmental Officer	Throughout phase	Restricted to demarcated area
Appropriately contain any generator diesel storage tanks, machinery spills (e.g.	Contractor/ Environmental Officer	Restrict to designated working/storage/service areas	Construction Phase	Environmental Officer	Throughout phase	Restricted to demarcated area

accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete) in such a way as to prevent them leaking.						
Provide appropriate sanitation facilities for workers during construction and service them regularly	Contractor	Provide service ablution for contractors/labour	Construction Phase	Environmental Officer	Throughout phase	Ablution facilities provided and serviced
The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected must be disposed of at a licensed disposal facility	Contractor	Implement waste management plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
The Contractor must be in possession of an emergency spill kit that must be complete and available at all times on site	Contractor	Implement spill response plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
Any possible contamination of topsoil by hydrocarbons must be avoided. Any contaminated soil must be treated in situ or be placed in containers and removed from the site for disposal in a licensed facility	Contractor	Implement spill response plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented

Table 4-2 The project management measures for the soils and agriculture resources during the operational phase

Environmental Theme: Agriculture Impact Management Outcome: Protection of soil resources Phase: Operational						
Impact Management Actions	**Implementation**			**Monitoring**		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Implement erosion control methods like mulching, geotextile sheets, reduce soil compaction, chemical spills which can affect soil fertility. Promptly remove all alien and invasive plant species that may emerge during construction (i.e. weedy annuals and other alien forbs) must be removed	Environmental Officer	Implement an alien vegetation management plan	Operational Phase	Environmental Officer	Throughout phases	Implement alien vegetation management plan

Ensure successful rehabilitation of areas disturbed during construction and these areas are stabilised to avoid impacts to adjacent areas	Contractor/ Environmental Officer	Implement spill rehabilitation plan	Operational Phase	Environmental Officer	Quarterly during first two years of operation.	Plan is implemented

4.1 Cumulative Impacts

The term "Cumulative Effect" has for the purpose of this report been defined as: the summation of effects over time which can be attributed to the operation of the project itself, and the overall effects on the ecosystem of the site that can be attributed to the project and other existing and planned future projects.

The geographic area of evaluation is the spatial boundary in which the cumulative effects analysis was undertaken. The spatial boundary evaluated in these cumulative effects analysis generally includes the area within a 30 km radius surrounding the proposed development. Refer to Figure 4-1.

A temporal boundary is the timeframe during which the cumulative effects are reasonably expected to occur. The temporal parameters for these cumulative effects analysis is the anticipated lifespan of the proposed project, beginning in the start of 2025 and extending out at least 25 years, which is the minimum expected project life of the proposed project. Where appropriate, particular focus is on near-term cumulative impacts of overlapping construction schedules for proposed projects in the area of evaluation.

The quantitative impact of the proposed project in isolation on agriculture is anticipated to be “Low” due to the absence of active cropping and high potential soils (Table 4-3). The cumulative impact of the proposed project is anticipated to be “Medium”. The project area has undergone historic and current modification.

After implementation of the mitigation measures as stipulated above the agricultural productivity of the area is not expected to deteriorate further because of the proposed development and no irreplaceable loss of resources is anticipated.

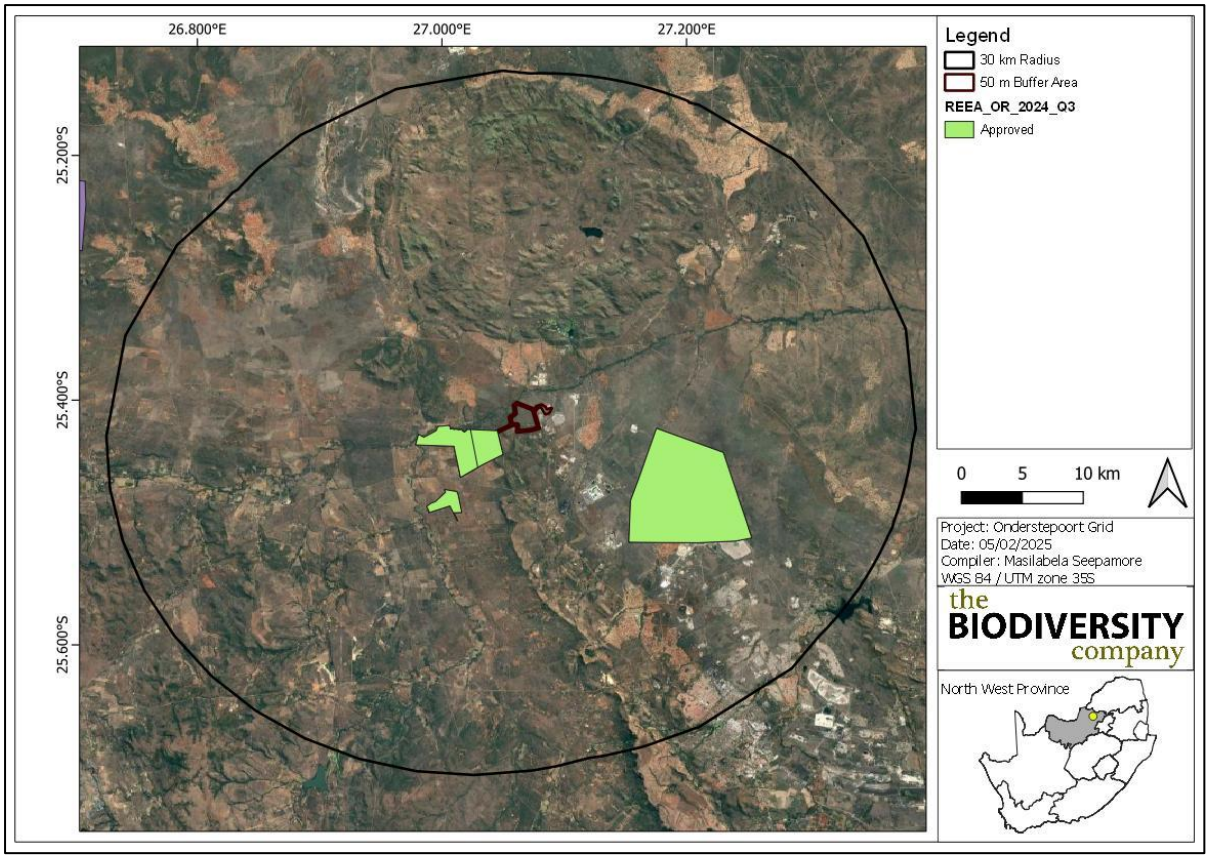


Figure 4-1 Cumulative Impact Map for the Onderstepoort Grid

Table 4-3 Cumulative Impacts associated with the proposed project

Status	Extent	Probability	Reversibility	Irreplaceability	Duration	Cumulative Effect	Magnitude	Impact Significance	Impact Rating	Can impact be mitigated?	Is the impact acceptable?
Impact in isolation	1	2	1	2	1	2	1	9	Low (6-28)	Yes	Yes
Cumulative impact	2	3	2	3	2	3	2	30	Medium (29-50)		

5 Conclusion

The final results based on the baseline findings and current land use, indicate an overall low land capability sensitivity in areas demarcated with low potential soils such as Arcadia, Glenrosa, Knersvlakte and Palmiet soils. Moreover, medium land capability sensitivity in areas demarcated with well drained and limited drainage soils such as Ermelo, Hutton, and Bloemdal and Westleigh forms, respectively

The land capability sensitivity (DAFF, 2017) is dominated by land capabilities ranging from “Low-Moderate to Moderate”, to “Moderate High” sensitivities. Furthermore, highly sensitive field crop boundaries were also identified by the use of agricultural theme tool (DFFE, 2025).

The site-verification baseline findings, current land uses, and the calculated land potential disputes the agricultural theme tool in areas associated with “Moderate High” sensitivity and with areas demarcated with highly sensitive for field crop boundaries. Furthermore, concur and disputes to an extent with areas with “Low-Moderate to Moderate” sensitivity. No active cropping and irrigation infrastructure is present within the proposed project area.

5.1 Management Measures

An impact assessment is not required to be included in the Agricultural compliance statement, but where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr must be provided. The following measures are provided:

- Vegetation clearance must be restricted to areas authorised for development;
- Land clearing and preparation may only be undertaken immediately prior to construction activities and within authorised areas;
- A stormwater management plan must be developed and implemented for the project; and
- If soil erosion is detected, the area must be stabilised using geo-textiles and facilitated re-vegetation.

5.2 Specialist Statement

The proposed Onderstepoort Grid Project and associated infrastructure will have an overall low residual impact on the agricultural production capability of the area. The proposed development can be favourably considered for authorisation. The following serves to substantiate this statement:

- The site verified land capability of the proposed project area is found to range from low to medium;

- The agricultural potential of the area ranges is found to range from low to medium;
- Historical crop fields were confirmed within the proposed project area; and
- The overall agricultural sensitivity for the grid and associated infrastructure area is “Low” with “Medium” areas.

5.3 Statement Conditions

Approval of the project for authorisation is not subject to any conditions.

5.4 Layout Approval

The revised design been informed by the specialist findings and the corresponding sensitivities. This layout, encompassing all necessary information such as proposed powerlines and a switching station (Figure 5-1). It is the opinion of the specialist that the revised layout is acceptable and may be considered favourably for approval by the Competent Authority, with either the Southern or Northern grid Corridor.

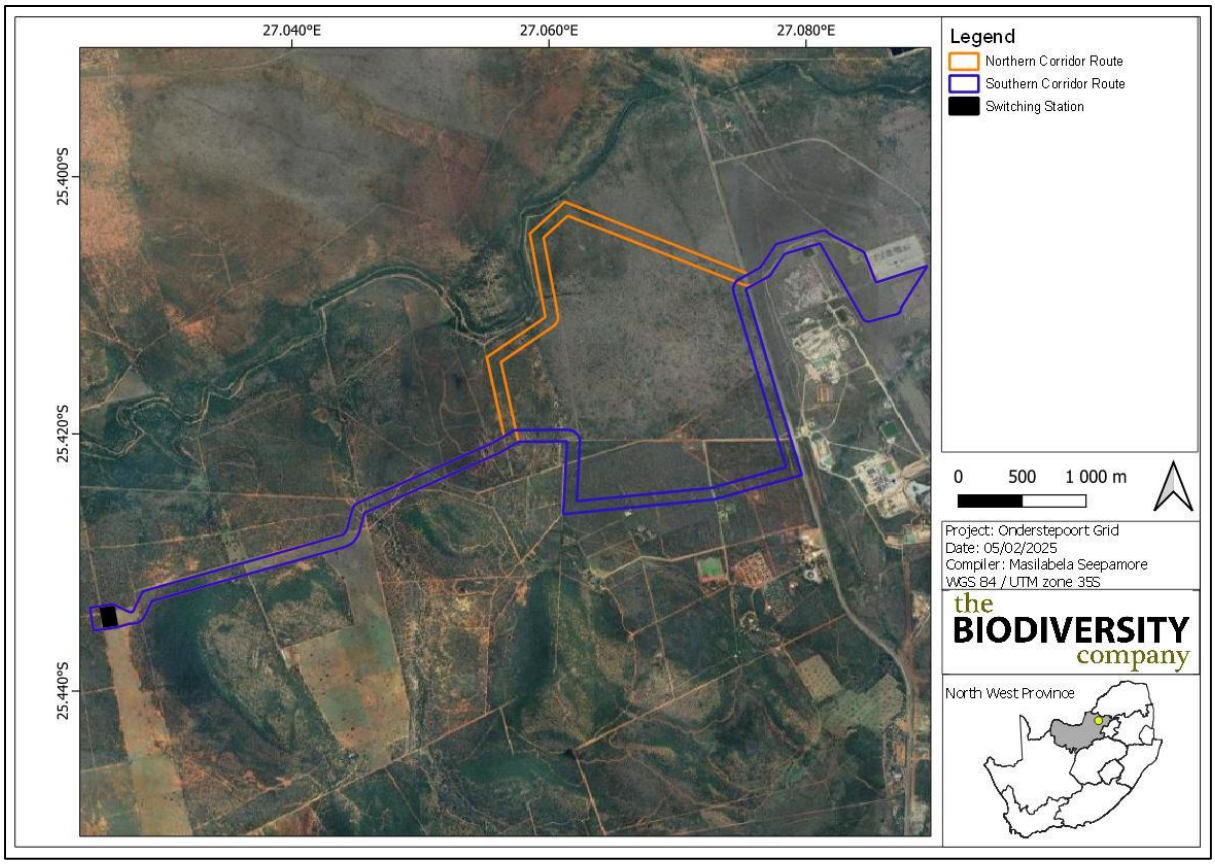


Figure 5-1 Updated layout for the proposed Onderstepoort Grid

6 References

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7 Appendix Items

7.1 Appendix A: Methodology

7.1.1 Desktop Assessment

As part of the desktop assessment, baseline soil information was obtained using published South African Land Type Data. Land type data for the site was obtained from the Institute for Soil Climate and Water (ISCW) of the Agricultural Research Council (ARC) (Land Type Survey Staff, 1972 - 2006). The land type data is presented at a scale of 1:250 000 and comprises of the division of land into land types. In addition, a Digital Elevation Model (DEM) as well as the slope percentage of the area was calculated by means of the NASA Shuttle Radar Topography Mission Global 1 arc second digital elevation data by means of QGIS and SAGA software.

7.1.2 Field Survey

The site was traversed on foot. A soil auger was used to determine the soil form/family and depth. The soil was hand augured to the first restricting layer or 1.2 m. Soil survey positions were recorded as waypoints using a handheld GPS. Soils were identified to the soil family level as per the “Soil Classification: A Taxonomic System for South Africa” (Soil Classification Working Group, 2018). Landscape features such as existing open trenches were also helpful in determining soil types and depth.

7.1.3 Land Capability

Land capability and agricultural potential will be determined by a combination of soil, terrain, and climate features. Land capability is defined by the most intensive long-term sustainable use of land under rain-fed conditions. At the same time an indication is given about the permanent limitations associated with the different land use classes.

Land capability is divided into eight classes, and these may be divided into three capability groups. Table 7-1shows how the land classes and groups are arranged in order of decreasing capability and ranges of use. The risk of use increases from class I to class VIII (Smith, 2006).

Table 7-1 Land capability class and intensity of use (Smith, 2006)

Land Capability Class	Increased Intensity of Use									Land Capability Groups
I	W	F	LG	MG	IG	LC	MC	IC	VIC	Arable Land
II	W	F	LG	MG	IG	LC	MC	IC		
III	W	F	LG	MG	IG	LC	MC			
IV	W	F	LG	MG	IG	LC				
V	W	F	LG	MG						Grazing Land
VI	W	F	LG	MG						
VII	W	F	LG							
VIII	W									Wildlife
W - Wildlife		MG - Moderate Grazing			MC - Moderate Cultivation					
F- Forestry		IG - Intensive Grazing			IC - Intensive Cultivation					
LG - Light Grazing		LC - Light Cultivation			VIC - Very Intensive Cultivation					

The land capability was determined by using the guidelines described in the "The farming handbook" (Smith, 2016) which the DAFF land capabilities were further developed from. Accordingly, the identified soil forms associated with the PAOI are restricted land capability "II" (i.e. Ermelo, Hutton, Bloemdal, Westleigh and Tukulu soils) categorised between LC 6-8 (Moderate) and land capability "IV" (Arcadia, Palmiet, Glenrosa and Knersvlakte soils) categorised between LC 1-5 (Low). The baseline soil land capability was compared to the National Land Capability data (DAFF, 2017), respectively.

The land potential classes are further determined by combining the land capability results and the climate capability of a region as shown in the table below. The final land potential results are then described in the subsequent table.

Table 7-2 The combination table for land potential classification

Land capability class	Climate capability class							
	C1	C2	C3	C4	C5	C6	C7	C8
I	L1	L1	L2	L2	L3	L3	L4	L4
II	L1	L2	L2	L3	L3	L4	L4	L5
III	L2	L2	L3	L3	L4	L4	L5	L6
IV	L2	L3	L3	L4	L4	L5	L5	L6
V	Vlei	Vlei	Vlei	Vlei	Vlei	Vlei	Vlei	Vlei
VI	L4	L4	L5	L5	L5	L6	L6	L7
VII	L5	L5	L6	L6	L7	L7	L7	L8
VIII	L6	L6	L7	L7	L8	L8	L8	L8

Table 7-3 The Land Potential Classes

Land potential	Description of land potential class
L1	Very high potential: No limitations. Appropriate contour protection must be implemented and inspected.
L2	High potential: Very infrequent and/or minor limitations due to soil, slope, temperatures, or rainfall. Appropriate contour protection must be implemented and inspected.
L3	Good potential: Infrequent and/or moderate limitations due to soil, slope, temperatures, or rainfall. Appropriate contour protection must be implemented and inspected.
L4	Moderate potential: Moderately regular and/or severe to moderate limitations due to soil, slope, temperatures, or rainfall. Appropriate permission is required before ploughing virgin land.
L5	Restricted potential: Regular and/or severe to moderate limitations due to soil, slope, temperatures, or rainfall.
L6	Very restricted potential: Regular and/or severe limitations due to soil, slope, temperatures, or rainfall. Non-arable
L7	Low potential: Severe limitations due to soil, slope, temperatures, or rainfall. Non-arable
L8	Very low potential: Very severe limitations due to soil, slope, temperatures, or rainfall. Non-arable

The land capability of the proposed footprint will be compared to the National Land Capability which was refined in 2014- 2016. The National Land Capability methodology is based on a spatial evaluation modelling approach and a raster spatial data layer consisting of fifteen (15) land capability evaluation values (Table 7-4), usable on a scale of 1:50 000 – 1:100 000 (DAFF, 2017). The previous system is based on a classification approach, with 8 classes (Table 7-1). Land capability and land potential will also be determined in consideration of the screening tool to ultimately establish the accuracy of the land capability sensitivity from (DAFF, 2017).

Table 7-4 National Land Capability Values (DAFF,2017)

Land Capability Evaluation Value	Land Capability Description
1	Very low

2	
3	Very Low to Low
4	
5	Low
6	Low to Moderate
7	
8	Moderate
9	Moderate to High
10	
11	High
12	High to Very High
13	
14	Very High
15	

7.2 Appendix B: Specialist declarations

DECLARATION

I, Masilabela Seepamore, 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.

Masilabela Seepamore

Soil & Agricultural Scientist

The Biodiversity Company

February 2025

7.3 Appendix C: Curriculum vitae

Masilabela Klaas Seepamore

MSc Soil Science *Cum Laude* (*Pr Sci Nat*)

Cell: +27 788151878
Email: masilabela@thebiodiversitycompany.com
Identity Number: 8806085781088
Date of birth: 08 June 1988

Profile Summary

Working experience in South Africa

Specialist experience with soil science, agronomy and agrometeorology.

Specialist expertise include production agronomy, Soil classification, fertilizer recommendation, Input planning, trial management, data analysis and crop modelling.

Areas of Interest

Farming, resource use efficiency production agronomy, soil classification, soil and crop research, climate change adaptation and mitigation strategies,

Key Experience

- Land suitability studies and report writing
- Soil taxonomic classification SA forms
- Fertilizer recommendation
- Crop research
- Data analysis
- Environmental Impact Assessment (EIA)
- Environmental Management Programme (EMP)
- Agricultural potential assessment

Country Experience

South Africa

Nationality

South African

Languages

English – Proficient

Setswana, Sesotho – Proficient

Qualifications

- BASOS-FACTS Course (FERTASA)
- MSc Agriculture *Cum laude* (University of the Free State) – Soil Science (soil science, agronomy, and production agronomy)
- BSc Agriculture Honours (University of the Free State) – Soil Science (soil science, agronomy, crop nutrition)
- BSc Agricultural Agronomy and Soil Science
- Pr Sci Nat 113907