SOIL AND AGRICULTURAL COMPLIANCE STATEMENT FOR THE CLOVER ALLOYS SA BENEFICIATION PLANT PROJECT

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

12/12/25

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Report Name	**SOIL AND AGRICULTURAL COMPLIANCE STATEMENT FOR THE CLOVER ALLOYS SA BENEFICIATION PLANT PROJECT**
Specialist Theme	Soil and Agricultural Theme
Project Reference	Clovelly Alloys SA S24G
Report Version	25 May 2025
Environmental Assessment Practitioner	EIMS ENVIRONMENTAL IMPACT MANAGEMENT SERVICES
Fieldwork and Report Writer	Masilabela Seepamore (SACNASP 113907) 
Reviewer	Matthew Mamera (SACNASP 116356) 
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, 2017 (as amended). We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than providing 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 Environmental Authorization rectification as per Section 24G of NEMA (National Environmental Management Act, 1998 (Act No. 107 of 1998), near Rustenburg, North West Province. The project site is located approximately 10 km east of Rustenburg in the North West Province. The site is located within the Rustenburg Local Municipality and the Bojanala Platinum District Municipality. A map presenting the regional context of the Project Area can be seen in

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 ranging from “Medium” to “Very High”, with a key consideration of this assessment being the determination of agricultural theme sensitivities for the project. Based on the verified baseline findings, the proposed project area was found to have a predominately “Low” sensitivity, with some areas coinciding with “High” sensitivity for the linear infrastructure developments. 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 project 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, 4, and 5 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.

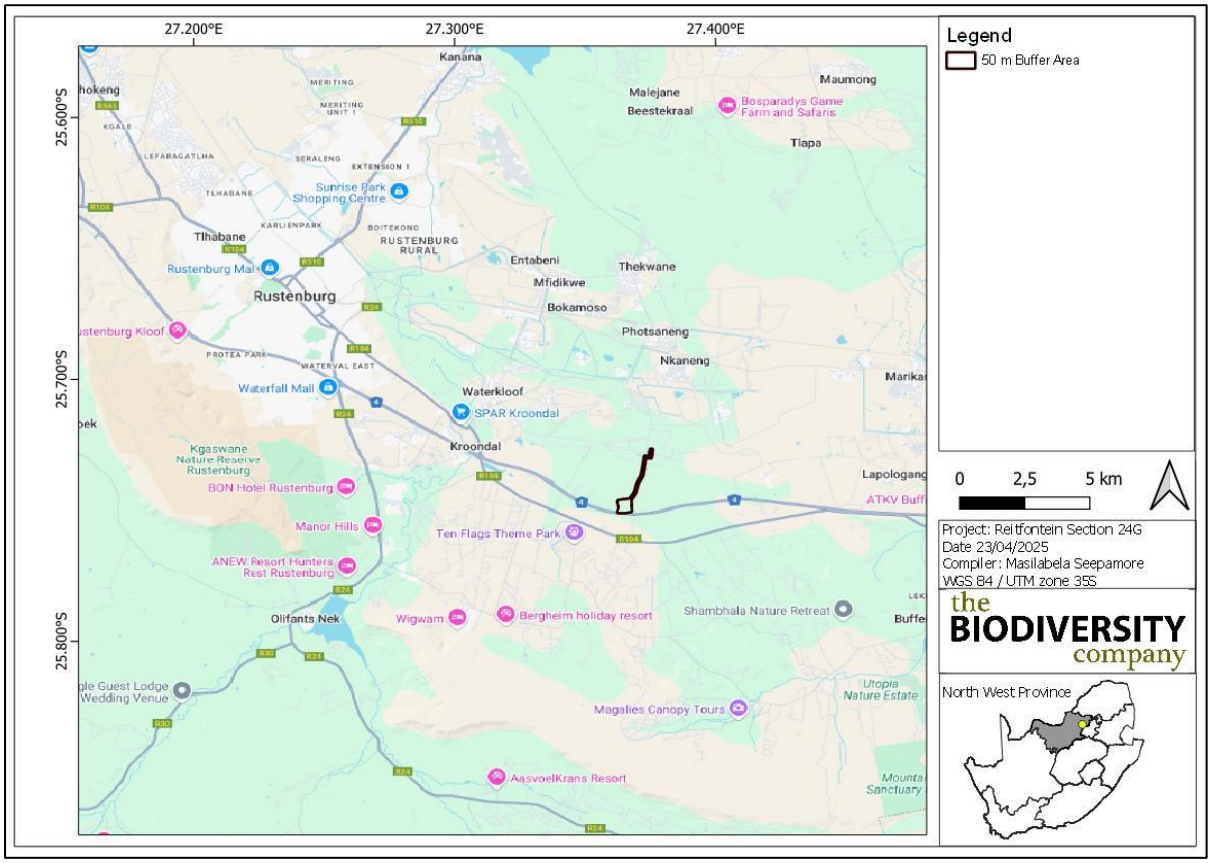

Figure 1-1 Spatial regional context of the proposed development

1.2 Project Description

Clover Alloys SA (Pty) Ltd (the applicant) operates a chrome processing facility in the North West Province. Clover Alloys SA Mining is undertaking steps to ensure compliance with environmental legislation following the development of infrastructure without prior environmental authorisation.

The existing infrastructure at the Clover Alloys SA plant includes two stockpile areas, a chrome wash plant, drying pads, weighbridges, a sump, as well as site offices and staff accommodation. These facilities support the processing, storage, and operational activities associated with chrome beneficiation (Figure 1-2).

In an effort to regularise its operations and address past non-compliance, the applicant is submitting an application in terms of Section 24G of the National Environmental Management Act, 1998 (Act No. 107 of 1998). This application seeks to obtain retrospective environmental authorisation for existing infrastructure and approval for planned developments.

The proposed infrastructure includes:

- The expansion of one of the existing stockpile areas;
- The construction of dirty water channels and culverts to manage contaminated surface runoff;
- The installation of a clean water channel to divert uncontaminated stormwater away from operational areas;
- A Pollution Control Dam (PCD) with a design capacity of 8 000 m³, which will receive all dirty water collected on site; and

- A proposed pipeline approximately 2.5 km in length, to be constructed between the Clover Alloys SA plant and the main mine, facilitating the transfer of materials or water as part of integrated operations.

This Section 24G application is being submitted in response to a compliance notice issued by the North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT) in October 2024, under reference number 18/2024ER. The applicant wishes to rectify unauthorised activities and obtain the necessary environmental approvals for both current and future infrastructure components.

Through this application, the applicant seeks to achieve full environmental compliance, strengthen site water management practices, and continue operating the Clover Alloys SA plant in a sustainable and responsible manner as part of its broader chrome mining operations.

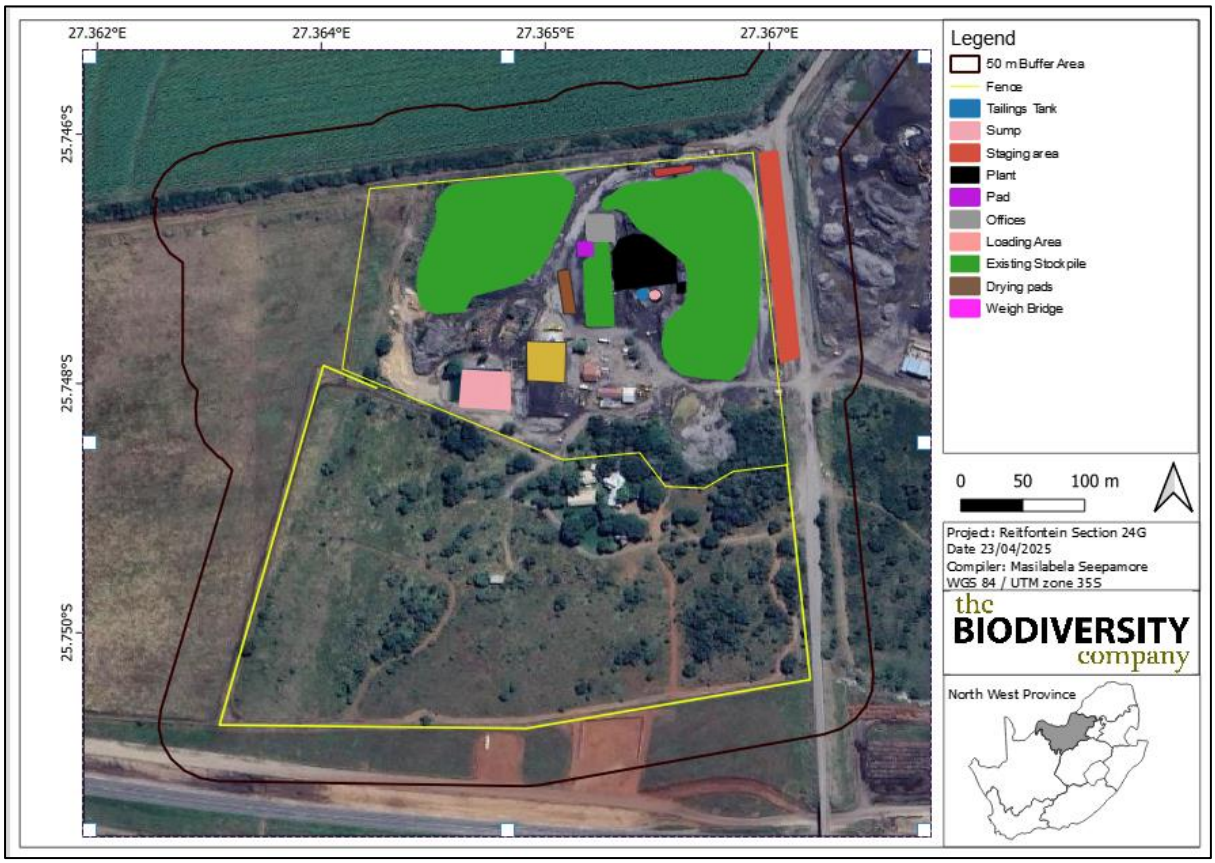

Figure 1-2 Current project layout components

The proposed infrastructure includes:

- The expansion of one of the existing stockpile areas;
- The construction of dirty water channels and culverts to manage contaminated surface runoff;
- The installation of a clean water channel to divert uncontaminated stormwater away from operational areas;
- A Pollution Control Dam (PCD) with a design capacity of 10 000 m³, which will receive all dirty water collected on site; and

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The proposed project is located on Portion 23 and Portion 24 of the farm Rietfontein 338 JQ, within the Rustenburg Local Municipality, North West Province. The site is approximately 15km southeast of Rustenburg, along the N4. The centre point of the site is 25°44'54.40"S 27°21'52.69"E. Please refer to attached project locality map. A detailed layout for the proposed project is provided in Figure 1-3.

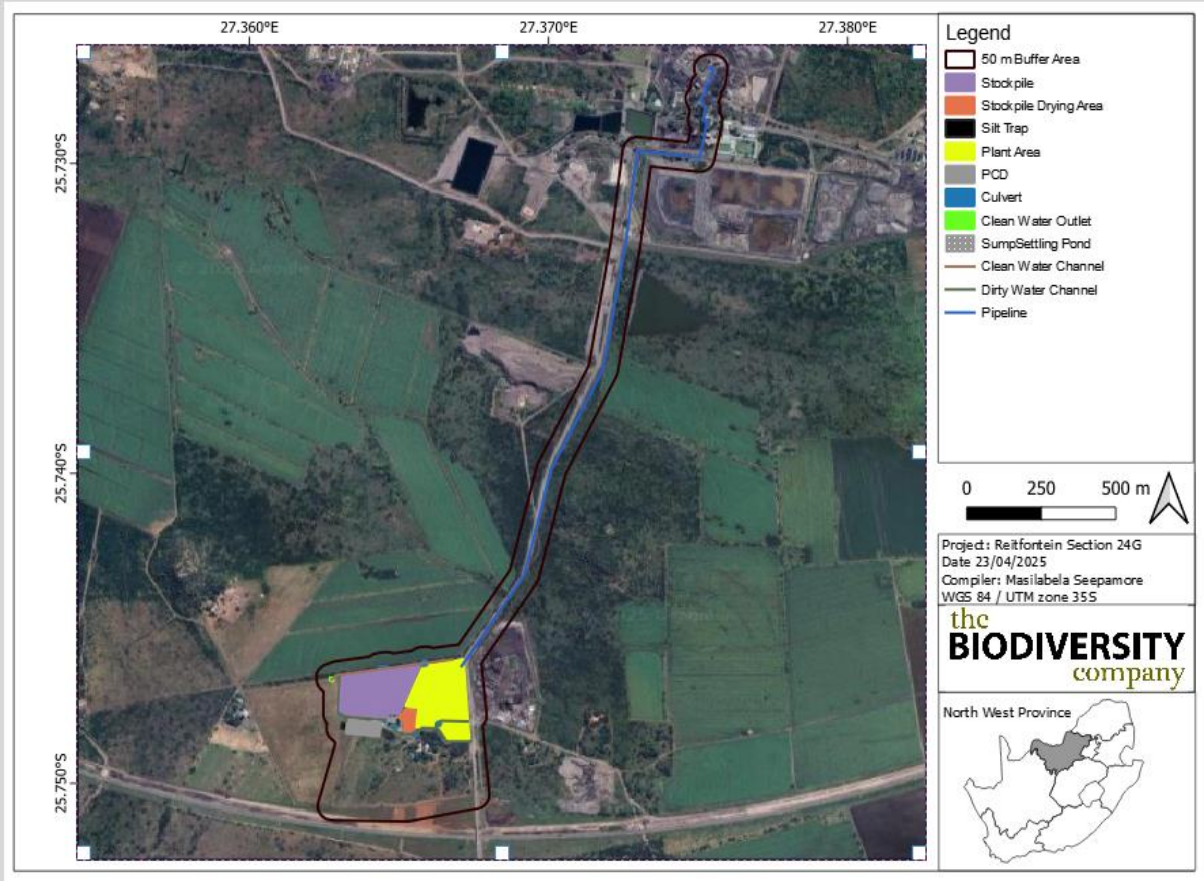


Figure 1-3 Proposed project layout components

1.3 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.

1.4 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; and

- No heavy metals have been assessed, nor fertility been analysed for the relevant classified soils.

1.5 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);

- National Environmental Management Act (Act 107 of 1998); and

- National Water Act (Act 36 of 1998).

1.6 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:
    - ""High sensitivity" for agriculture, within a linear development of which the impacts on agricultural resources are temporal and the land capability can be returned to its current state within two years of the completion of the construction phase, must submit an Agricultural Compliance Statement.
    - If information gathered from the site sensitivity verification differs from the designation of "very high" or "high" agricultural sensitivity, and it is found to be of a "medium" or "low" sensitivity an Agricultural Compliance Statement must be submitted.

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 D
A signed statement of independence by the specialist	Appendix C
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
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 6
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 6.1
Any conditions to which this statement is subjected	Section 6.2
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 1.3

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

2 Fieldwork

The field survey was completed on the 14th of May 2025 to determine the soil forms and current land uses within the assessed area. A map illustrating the field work tracks is presented in Figure 2-1 below.

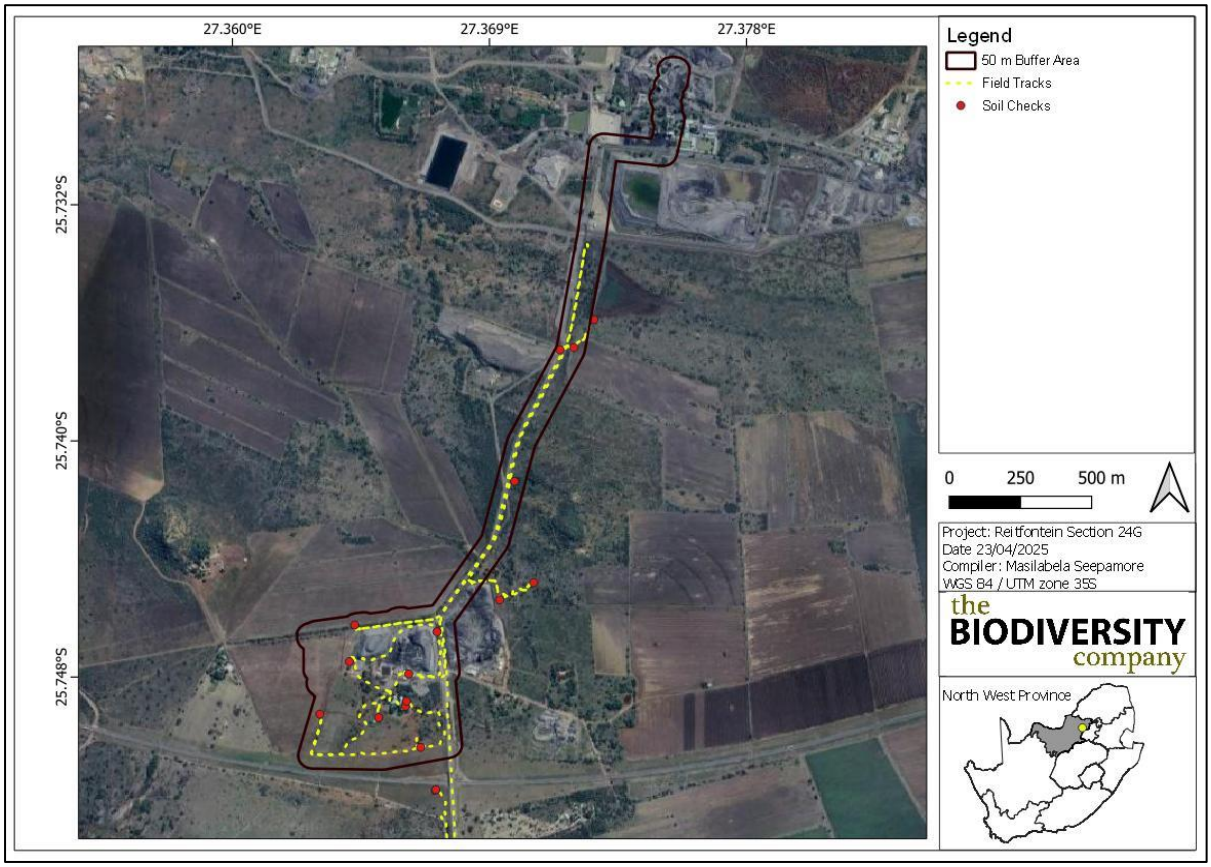


Figure 2-1 Map illustrating the field coverage

3 Results and Discussion

3.1 Desktop Information

3.1.1 Climate

The project area falls within the Marikana Thornveld vegetation. The area is characterised with summer-rainfalls and dry winters. The overall mean average precipitation (MAP) of the proposed project area ranges from 600 mm to 700 mm. The monthly maximum and minimum temperature for Rustenburg are 35.3°C and -1.4°C in November and January, respectively. The area experiences frost frequent in winter (Mucina & Rutherford, 2006; Figure 3-1).

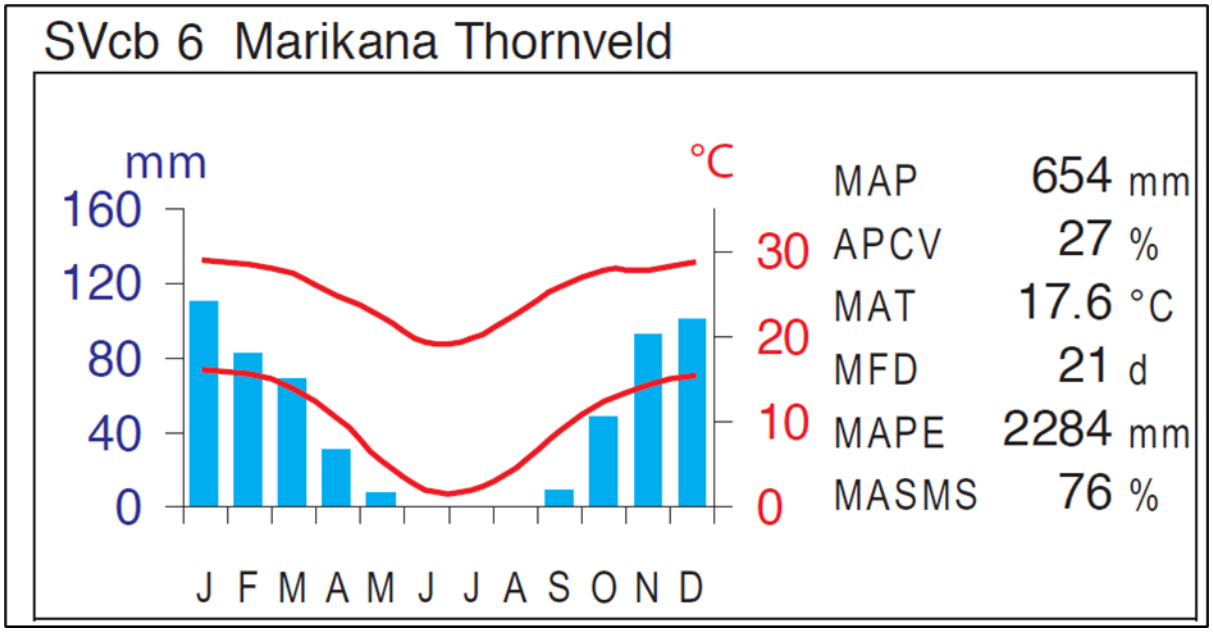


Figure 3-1 Summarised climate for the region (Mucina & Rutherford, 2006)

3.1.2 Geology & Soils

The geology of the area is mostly dominated by mafic intrusive rocks of the Rustenburg layered suite of the Bushveld Igneous Complex. The rocks found within the area include gabbro, norite, pyroxenite, anorthosite, shales and quartzites. Mainly vertic melanic clays with some dystrophic or mesotrophic plinthic catena and some freely drained, deep soils. The land types associated with this geology are Ea, Ba and Ae.

According to the land type database (Land Type Survey Staff, 1972 - 2006) the assessment area to be focused on mainly falls within the Ea 3 land type (Figure 3-2). 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 areas within the landscape. The Ea land types are also characterised by vertic, melanic, red-structured diagnostic horizons and undifferentiated soils. The land terrain units for the featured Ea 3 land type are illustrated in Figure 3-3 with the expected soils listed in Table 3-1.

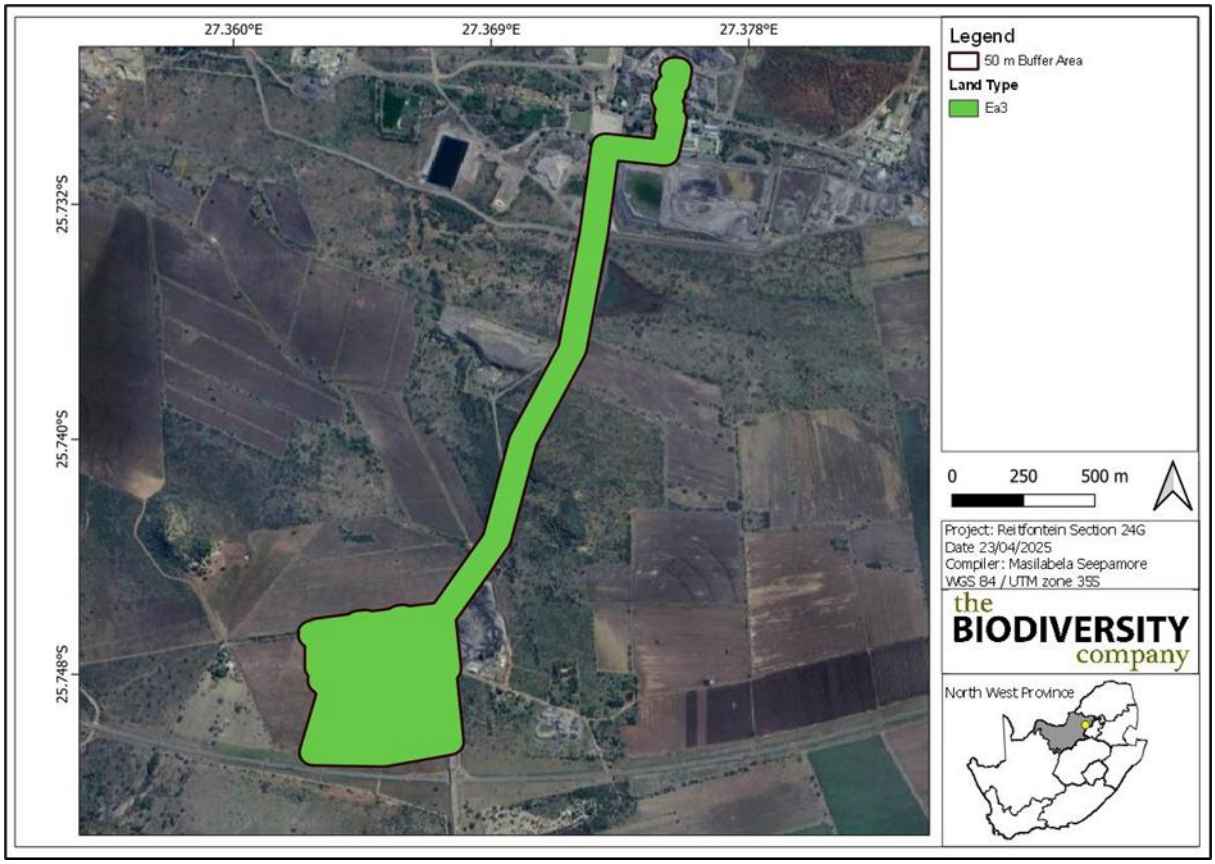


Figure 3-2 Land type associated with the proposed project area

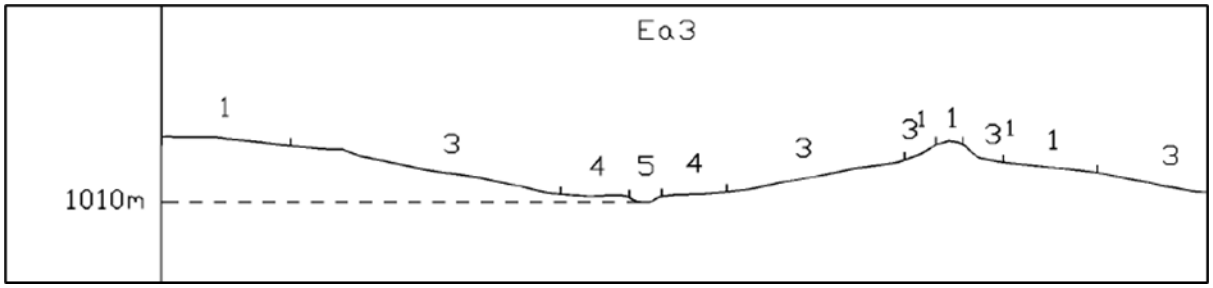


Figure 3-3 Illustration of land type Ea 3 terrain units (Land Type Survey Staff, 1972-2006)

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

Terrain Units											
1 (30%)		**1(0.5)**		**3 (44.5%)**		**3(1) (1%)**		**4(15%)**		**5(9%)**	
Arcadia	70%	Bare Rocks	80%	Arcadia	76%	Bare Rocks	70%	Arcadia	89%	Oakleaf	67%
Bare rock	14%	Mispah	20%	Bare Rocks	10%	Mispah	30%	Hutton	3%	Arcadia	22%
Mispah	9%			Mispah	6%			Shortlands	3%	Shortlands	6%
Hutton	4%			Hutton	4%			Swartland	3%	Hutton	5%
Shortlands	3%			Shortlands	3%			Bare Rocks	2%		
				Swartland	1%						

3.2 Baseline Findings

Seven (7) representative soil forms were identified in the 50 m buffer of the proposed project area namely, Etosha, Rustenburg, Arcadia, Glenrosa, Mispah, Grabouw and Witbank soil forms (Figure 3-4). Six (6) of these representative soil forms were identified within the 50 m buffer of the proposed non-linear infrastructure developments which include, Rustenburg, Arcadia, Glenrosa, Mispah, Grabouw and Witbank soil forms. Only five (5) representative soil forms were identified within the 50 m buffer of the proposed linear development namely, Etosha, Rustenburg, Mispah, Grabouw and Witbank soil forms.

The Etosha soil form consists of an orthic topsoil horizon on top of a neocutanic horizon underlain with a soft carbonate horizon. This soil form is deep, with weak to moderate structure, good soil water holding capacity which is critical for rainfed crop production. The presence of a soft carbonate subsurface horizon results in neutral to alkaline soil pH, which can essential nutrients uptakes, thereby enhancing crop productivity and yield. Targeted soil amelioration is needed to enhance soil productivity.

The Rustenburg soil form consists of a vertic topsoil horizon on top of a hard rock substratum horizon. The Arcadia soil form consists of a vertic topsoil horizon on top of a lithic subsoil horizon. These soils have the shrinking and swelling clay properties promoting cracks on the surface and exhibit slickenside. The vertic soils are generally poorly drained when wet which leads to waterlogging conditions. These soil forms have limiting morphological soil properties for crop production such high clay contents which restrict root penetration of most cash crops and are mostly utilized for tap-rooted crops such as sunflower.

Technosols in the project area with anthropogenic materials because of human interventions include, the Grabouw and Witbank soils. The Grabouw soil form is characterised as physically disturbed Anthrosols due to anthropogenic activities. The Witbank soil form is characterised as transported Technosols in which anthropogenic materials cover natural soil or other anthropogenic materials. These soil forms have extreme limitation and are not suitable for crop production, livestock grazing and afforestation. Some of the identified soil horizons within the proposed project area, as well as the current land uses are illustrated in Figure 3-5 and Figure 3-6, respectively.

Accordingly, following Smith, (2006) which the national DAFF, (2017) land capabilities protocols were further expanded from, the above-mentioned identified soil forms associated with the project area are restricted to land capability II (i.e. Rustenburg soil form under commercial sunflower production) categorized between LC 9-10 (Moderate High), land capability II (i.e. Etosha soil form) categorized by land capability between 6-8 (Moderate), land capability III (i.e. Arcadia, Glenrosa and Rustenburg (under open veld) soil forms) categorised between LC 4-5 (Low), land capability VI (i.e. Mispah soil form) categorised between LC 3 (Low), and land capability VIII (i.e. Grabouw and Witbank soil forms) categorised between LC 1-2 (Very Low to Low). The baseline soil land capability was aligned and compared to the National Land Capability data (DAFF, 2017), respectively.

The land capability classes of the above-mentioned soils have been determined to be class “II”, “III”, “VI” and “VIII” according to Smith (2006). The land capability class “II” is characterised by slight limitations, with low erosion hazard and is suitable for annual cropping with special tillage or ley (25%). The land capability class “III” is characterised by moderate limitations with some erosion hazards and is suitable for rotation of crops and ley (50%). The land capability class “VI” is characterised by limitations that preclude cultivation and is suitable for pasture cultivation, veld and afforestation. The land capability class “VIII” is characterised by extremely severe limitations, requires total protection from agriculture and is only suitable for wildlife practices. 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 “L5”, “L6”, “L7” and “L8” were calculated. According to Smith (2006), the proposed project area is found to be non-arable.

The following land potential levels have been determined;

- Land potential level 5 (this land potential is characterised by restricted potential. Regular and/ or moderate to severe limitations due to soil, slope, temperatures or rainfall. Arable with restrictions;
- Land potential level 6 (this land potential is characterised by very restricted potential. Regular and/ or severe limitations due to soil, slope, temperatures or rainfall). Non-arable;
- Land potential level 7 (this land potential is characterised by low potential. Severe limitations due to soil, slope, temperatures or rainfall). Non-arable; and
- Land potential level 8 (this land potential is characterised by very low potential. Very severe limitations due to soil, slope, temperatures or rainfall). Non-arable.

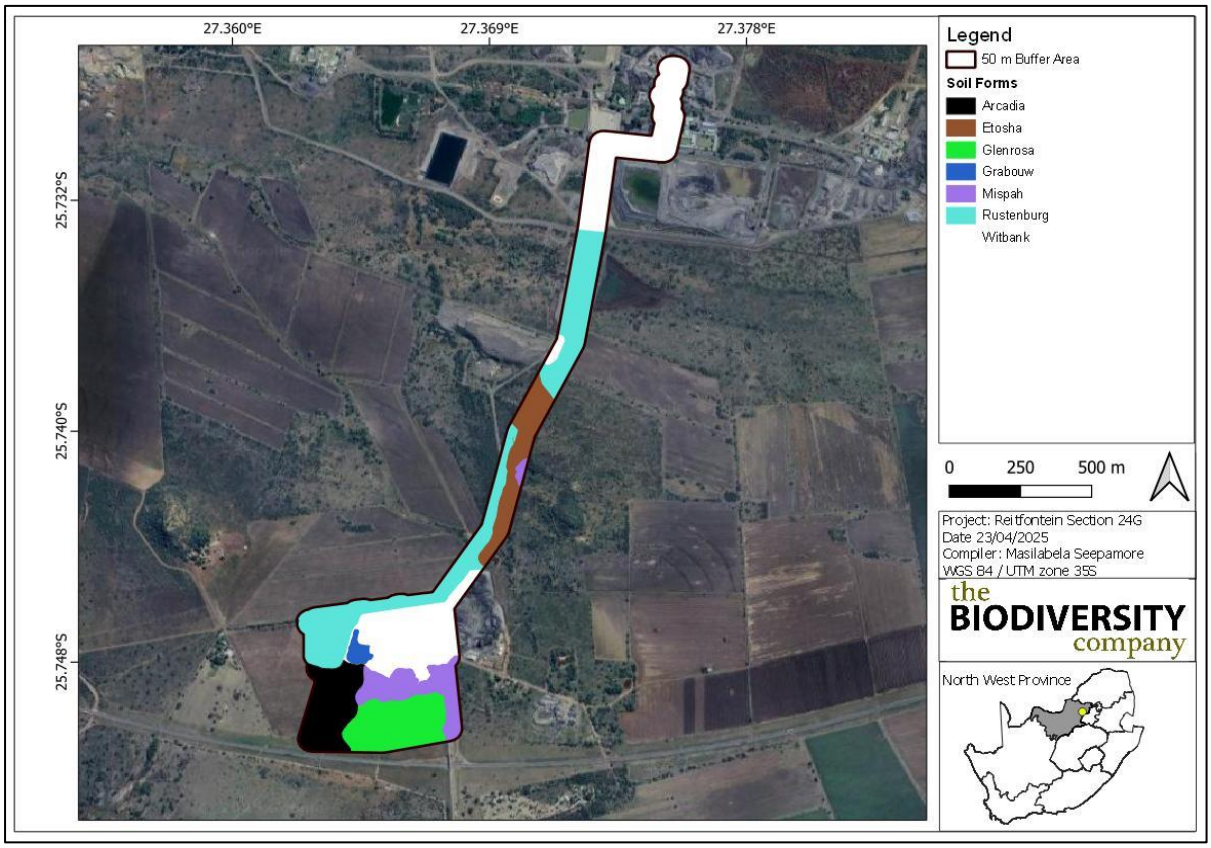


Figure 3-4 Soil forms found within the proposed project area

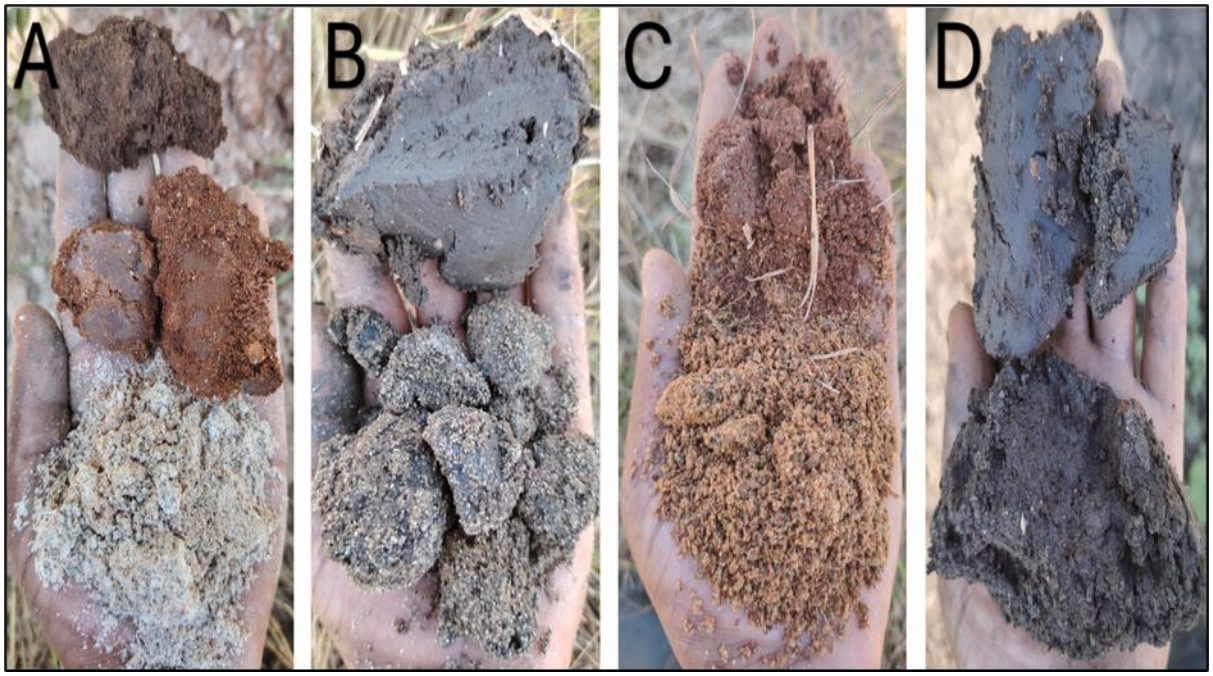


Figure 3-5 ***Diagnostic soil horizons identified on-site: A) Etosha soil form; B) Arcadia soil form; C) Glenrosa soil form; and D) Rustenburg soil form.***

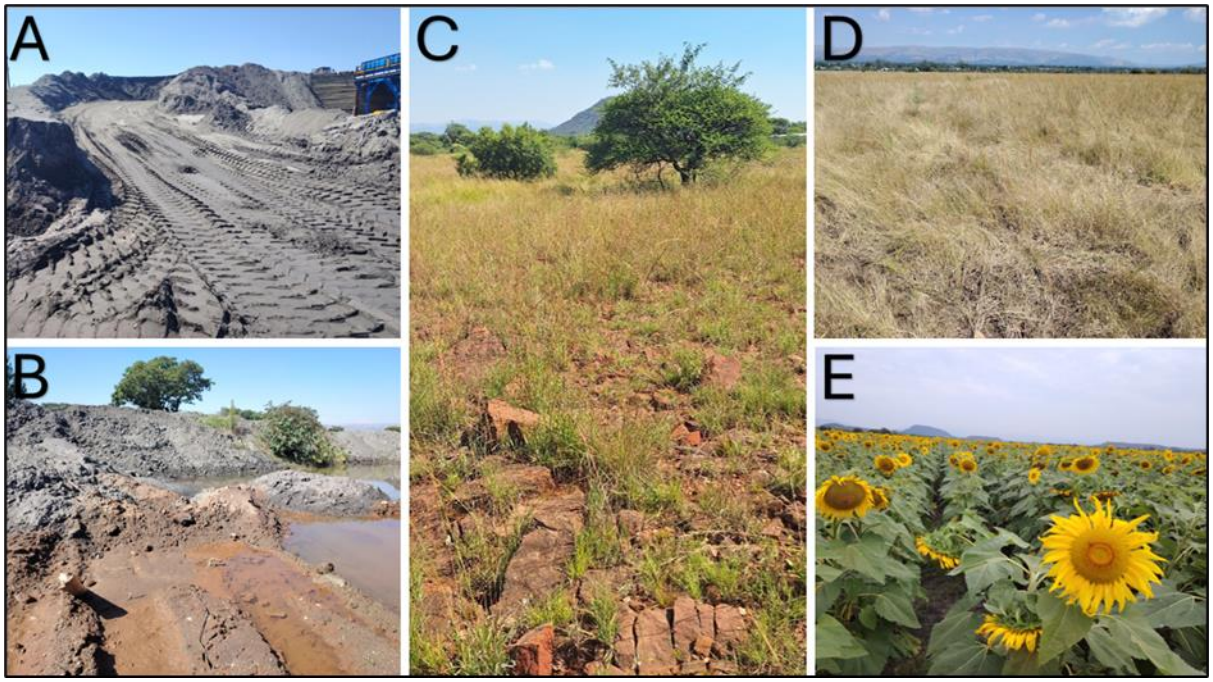


Figure 3-6 ***Current land use found within the 50 m buffer of the proposed project area; A) & B) Anthropogenic soils due to the mining activities; C) Rocky areas; D) Common vegetation; and E) Commercial sunflower production.***

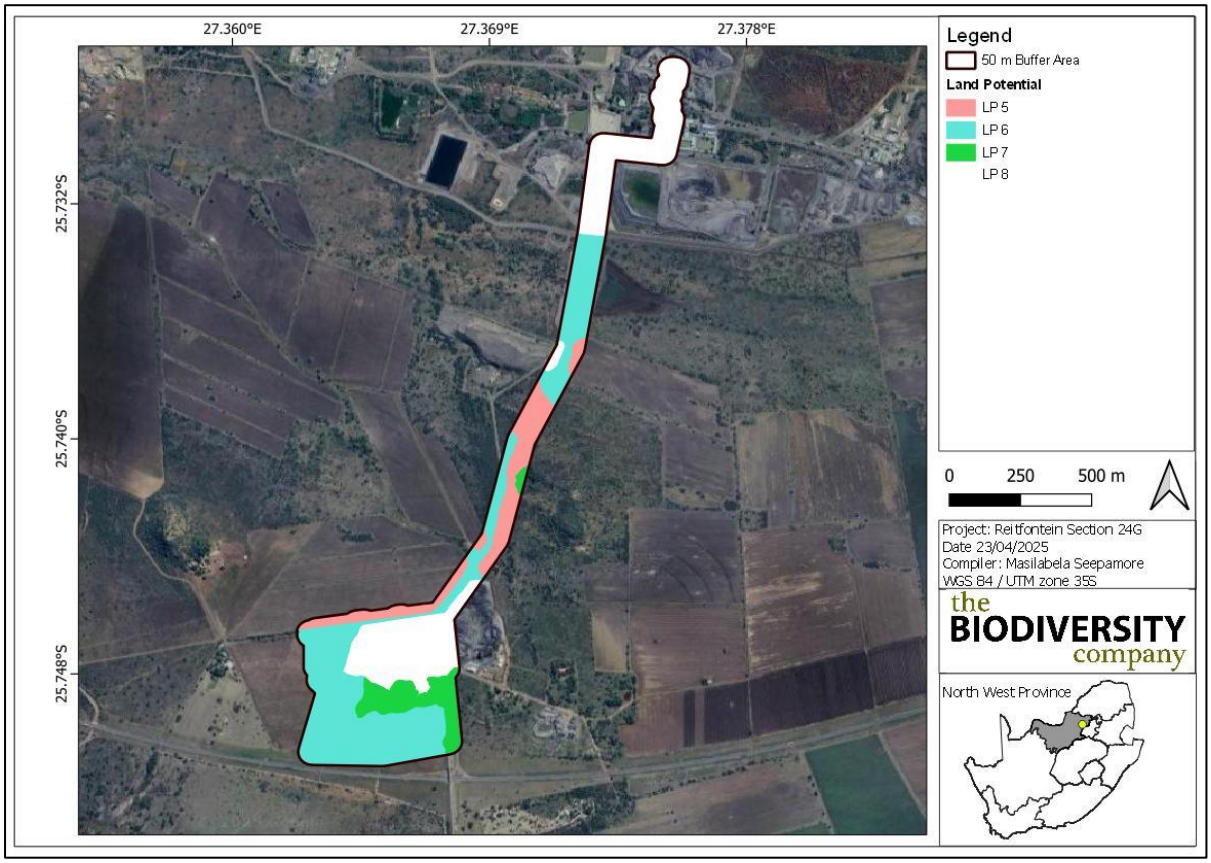


Figure 3-7 Land Potential of the proposed project area

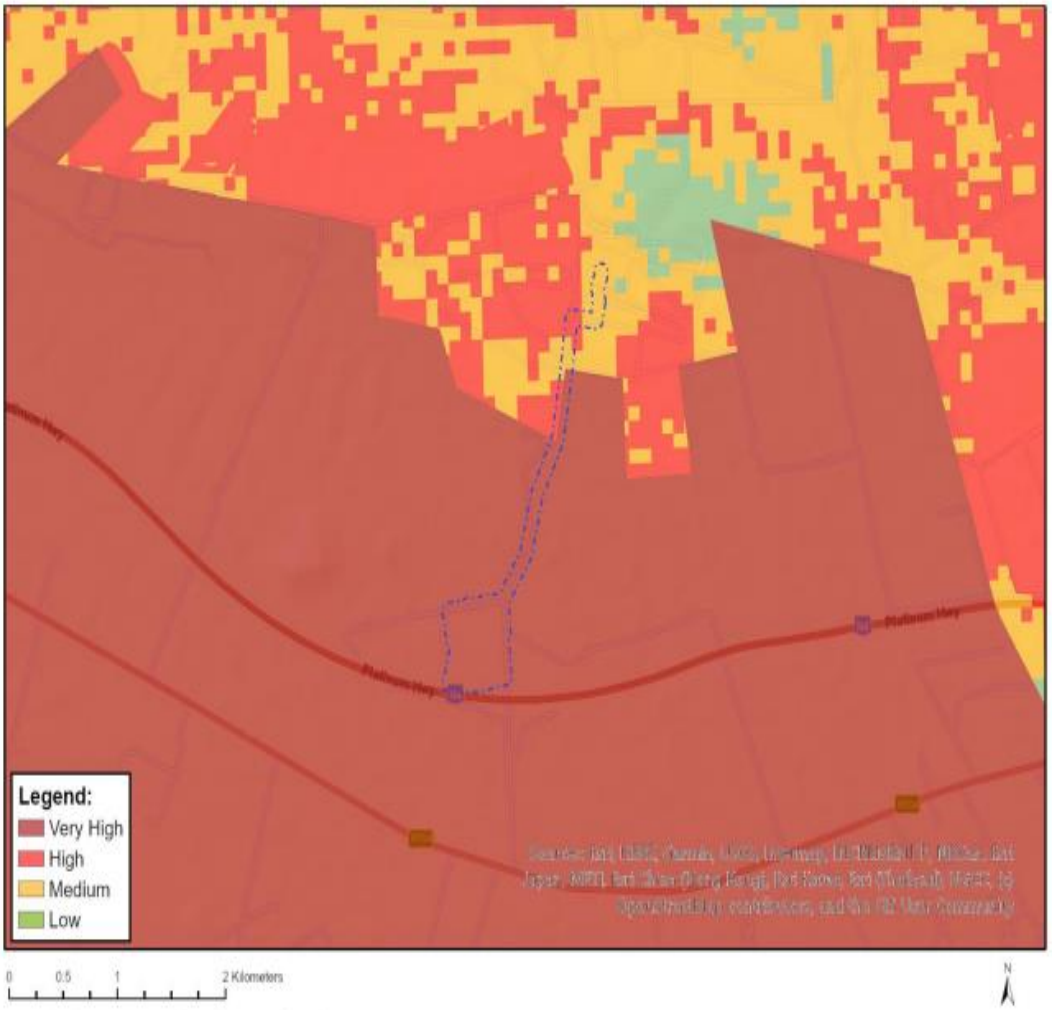
3.3 Sensitivity Verification

3.3.1 Screening Report – Clover Alloys SA 24G 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 50 m buffer of the project area falls within the 'Medium to Very High' agricultural sensitivity (Figure 3-8).

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
High	Rainfed Annual Crop Cultivation / Planted Pastures
High	08. Moderate
Medium	06. Low-Moderate
Medium	07. Low-Moderate
Very High	Crocodile River PAA

Figure 3-8 Map of Relative Agricultural Theme Sensitivity for the Clovelly Alloys SA S24G generated by the Environmental Screening Tool Site Ecological Importance (SEI)

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

- Land Capability 6 to 8 (Low-Moderate to Moderate Sensitivity);
- Land Capability 9 to 10 (Moderate High Sensitivity); and
- Land Capability 11 to 12 (High to Very High Sensitivity).

The land capability dataset (DAFF, 2017) indicates that the proposed project area falls predominately within the “Low-Moderate to Moderate” sensitivity (see Figure 3-8**Error! Reference source not found.**). The remaining areas have “Moderate High” and “High to Very High” sensitivities. Areas which are categorised as “Very High” are still being updated with the screening tool for the correct sensitivities as dated on 12-05-2025. Highly sensitive field crop boundaries were also identified with the 50 m buffer area of the proposed linear activities using agricultural theme tool (DFFE 2025).

The baseline soil findings, current land uses and the calculated land potential disputes the agricultural theme tool, in areas demarcated with “Very High” and “Low-Moderate to Moderate” land capability sensitivities within the 50 m buffer area of the non-linear developments. They further concur to an extent with the agricultural theme tool on all areas demarcated as highly sensitive for field crop boundaries and “Low-Moderate to Moderate” within the 50 m buffer of the proposed linear developments. Commercial sunflower production was confirmed within the 50 m buffer area of the proposed linear developments. However, these areas will be avoided and preserved as they are associated with the buffer zone not the actual development area. Linear development such as the construction of pipeline, clean and dirty water channels, usually have minimal impacts towards soil resources, these disturbed areas are expected to be restored following rehabilitation within a period of 2 years of the development. Furthermore, no irrigation infrastructure was found in the project area for cropping practices such as centre pivot, drip irrigation or canals for flood irrigation.

The current project area and associated activities of the proposed project will have acceptable expected changes to soil resources. As a result, based on the verified baseline findings, the proposed development will have a minimal impact on the soil resources.

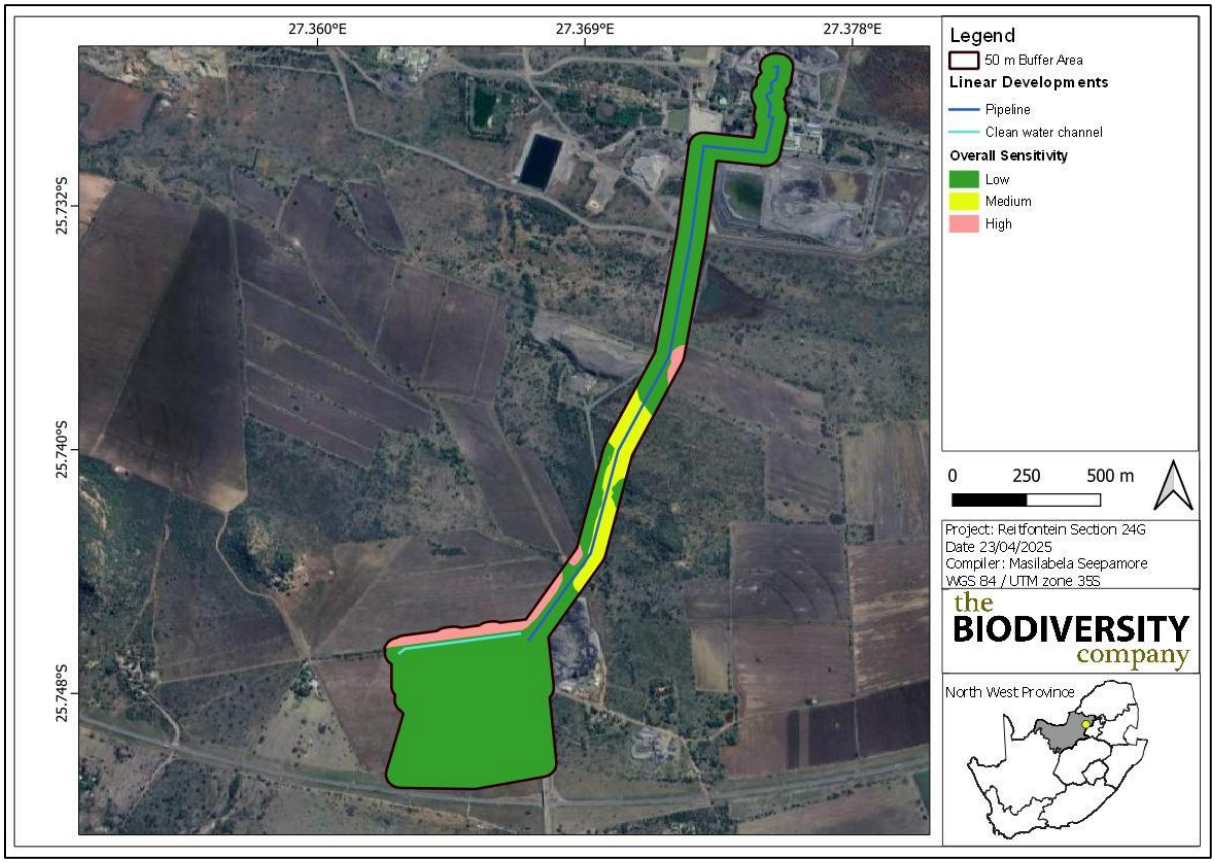


Figure 3-9 Overall site verified sensitivity of the project area

Considering the soil properties, agricultural potential as well as the current land use of the proposed development area, the area has a predominately "Low" agricultural sensitivity within the non-linear developments, and sensitivity ranging from "Low to "High" within the 50 m buffer of the proposed linear developments due to the presence of commercial sunflower production Figure 3-9). The allocated sensitivities for the theme are either disputed or validated in Table 3-2 below.

Table 3-2 Summary of the screening tool vs specialist assigned sensitivities

Screening Tool Theme	Feature	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Agricultural Theme	Crocodile River PAA	Very High	Very High	Disputed/Validated – High to Very High land capability. The absence of cultivation of high value crops such as horticultural or viticulture under any irrigation infrastructure within the 50 m buffer of the proposed project area. **As dated 25-04-2025, the screening tool was being updated, these sections have missing correct sensitivities.**
	Crop Cultivation	High	High	Validated – Moderate High land capability. The presence of commercial sunflower cultivation on low potential soil, which is deep, with high clay content which may impede drainage and aeration such as Rustenburg soil form.
	Moderate (LC 8)	High	Medium	Disputed – Low-Moderate to Moderate land capability. The presence of low-moderate potential soil, which is deep, with good moisture storage capacity and which may impede the availability and the uptake of essential crop nutrients such as Etosha soil form.
	Moderate (LC 8)	High	Low	Disputed – Very Low to Low land capability. The presence of very low potential soils which contain anthropogenic materials as a result of human interaction which are not suitable for crop and animal production such as Grabouw and Witbank.
	Moderate (LC 7)	Medium	Medium	Validated – Low-Moderate to Moderate land capability. The presence of low-moderate potential soil, which is deep, with good moisture storage capacity and which may impede the availability and the uptake of essential crop nutrients such as Etosha soil form.

	Moderate (LC 7)	**Medium**	**Low**	Disputed – Very Low to Low land capability. The presence of soils with restrictive limitations which limit key fundamentals such as soil water holding capacity and root penetration such as Glenrosa and Mispah.

4 Impact and Management Measures

4.1 Section 24G Impact Assessment

In accordance with the requirements for Environmental Authorisation rectification as per NEMA Section 24G, a retrospective assessment must take place to determine the potential state of the environment prior to development taking place as well as the likely impacts that the development has had on the area. The following list provides the identified retrospective impacts which contributed to the loss of land capability:

- Soil erosion: Bare soil surfaces within the proposed project area and along the 2 stockpiles contributed to increased susceptibility to wind and water erosion, leading to loss of topsoil;
- Soil compaction from vehicle traffic: The movement and operation of vehicles within the project footprint resulted in increased soil compaction, which negatively affected soil structure and permeability;
- Soil contamination: Surface flow from dirty water channels, spillages from the chrome wash plant led to soil contamination, impacting soil health and productivity, and
- Soil compaction and degradation from the existing stockpiles: The presence of existing stockpiles caused further soil compaction and land degradation, disturbing soil structure and reducing overall soil quality.

The following table provides the framework for the prospective impacts, albeit limited, for the proposed project (**Error! Reference source not found.**).

Table 4-1 Summative results of the Impact Assessment conducted for the proposed project

Impact	Phase	Pre-Mitigation Impact	Post-mitigation Impact	Final Significance
Soil compaction, Soil erosion, Land degradation and Soil contamination	Construction	Medium to low -	Low -	Low -
Mitigation Measures				
• Avoidance of all high agricultural production land and other actively cultivated areas, where avoidance is not feasible stakeholder engagement should occur to compensate affected landowners; • Minimise project footprint as far as possible. Manage location of topsoil stripping stockpiling, demarcation of topsoil stockpiles and prevention of stockpile erosion and contamination. This can protect the topsoil stockpiles to keep it viable for rehabilitation purposes. • Make use of existing roads or upgrades tracks before new roads are constructed. The number and width of internal access routes must be kept to a minimum. Usually, areas with sandy soils are avoided as far as possible for heavy vehicles, areas dominated with sandy soils, dust suppressions methods should be implemented to reduce wind erosion during this phase; • Implementation of embedded controls such as geotextiles, gabion baskets can effective control soil erosion on-site; • Associated infrastructure foundations must be (preferably) located in already disturbed areas where possible; • Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and bare (unvegetated) areas. • Reduce the dust generated by operational vehicles and earth moving machinery, through wetting the soil surface (with “dirty water”) and putting up signs to enforce speed limits to enforce reduced speeds. • No non-environmentally friendly suppressants may be used as this could result in pollution of water sources. • A stormwater management plan must be implemented for the development. The plan must provide input into the road network and management measures; • Rehabilitation of the area must be initiated from the onset of the project. Soil stripped from infrastructure placement can be used for rehabilitation efforts; and • An alien invasive plant species and control programme must be implemented from the onset of the project.				
Soil compaction, Soil erosion, Land degradation and Soil contamination	Operation	Medium to low -	Low -	Low -
Mitigation Measures				
• Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and bare (unvegetated) areas. • No non-environmentally friendly suppressants or cleaning agents may be used as this could result in pollution of water sources. • A stormwater management plan must be implemented for the development. The plan must provide input into the road network and management measures; • Rehabilitation of the area must be initiated from the onset of the project. Soil stripped from infrastructure placement can be used for rehabilitation efforts; and • An alien invasive plant species and control programme must be implemented from the onset of the project.				
Soil compaction, Soil erosion, Land degradation and Soil contamination	Decommissioning	Low -	Low -	Medium to low -

Mitigation Measures				
• Install erosion and sediment control measures (silt fences, sediment basins, straw bales). • Remove infrastructure, like racking, inverters, and electrical infrastructure. Remove all above-ground and below-ground cabling, foundations, and concrete pads. • Remove hazardous materials (batteries, oils, chemicals) for proper disposal. • Remove all construction debris and waste from the site. • Decompact soils in areas affected by heavy machinery (use subsoiling or deep ripping). • Replace and evenly spread any stockpiled topsoil. • Reseed or replant with native or pre-existing vegetation suited to the soil capability. • Maintain erosion and sediment controls until vegetation is re-established • Conduct post-restoration soil assessments (compaction, fertility, structure). • Document and report restoration outcomes to relevant authorities.				
Soil compaction, Soil erosion, Land degradation and Soil contamination	Rehab and Closure	Low -	Low -	Low -
Mitigation Measure				
• Install erosion and sediment control measures (silt fences, sediment basins, straw bales). • Remove all construction debris and waste from the site. • Decompact soils in areas affected by heavy machinery (use subsoiling or deep ripping). • Replace and evenly spread any stockpiled topsoil. • Reseed or replant with native or pre-existing vegetation suited to the soil capability. • Maintain erosion and sediment controls until vegetation is re-established • Conduct post-restoration soil assessments (compaction, fertility, structure). • Document and report restoration outcomes to relevant authorities. • Conduct a final site inspection with stakeholders and authorities.				

Table 4-2 Summative results of the Impact Assessment conducted for the existing project

Impact	Phase	Pre-Mitigation Impact	Post-mitigation Impact	Final Significance
Soil compaction, Soil erosion, Land degradation and Soil contamination	Construction	Medium to low -	Low -	Low -
Mitigation Measures				
• Avoidance of all high agricultural production land and other actively cultivated areas, where avoidance is not feasible stakeholder engagement should occur to compensate affected landowners; • Minimise project footprint as far as possible. Manage location of topsoil stripping stockpiling, demarcation of topsoil stockpiles and prevention of stockpile erosion and contamination. This can protect the topsoil stockpiles to keep it viable for rehabilitation purposes.				

- Make use of existing roads or upgrades tracks before new roads are constructed. The number and width of internal access routes must be kept to a minimum. Usually, areas with sandy soils are avoided as far as possible for heavy vehicles, areas dominated with sandy soils, dust suppressions methods should be implemented to reduce wind erosion during this phase;
- Implementation of embedded controls such as geotextiles, gabion baskets can effective control soil erosion on-site;
- Associated infrastructure foundations must be (preferably) located in already disturbed areas where possible;
- Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and bare (unvegetated) areas.
- Reduce the dust generated by operational vehicles and earth moving machinery, through wetting the soil surface (with "dirty water") and putting up signs to enforce speed limits to enforce reduced speeds.
- No non-environmentally friendly suppressants may be used as this could result in pollution of water sources.
- Rehabilitation of the area must be initiated from the onset of the project. Soil stripped from infrastructure placement can be used for rehabilitation efforts; and
- An alien invasive plant species and control programme must be implemented from the onset of the project.

Soil compaction, Soil erosion, Land degradation and Soil contamination	Operation	Medium to low -	Low -	Low -

Mitigation Measures

- Dust-reducing mitigation measures must be put in place and must be strictly adhered to, for all roads and bare (unvegetated) areas.
- No non-environmentally friendly suppressants or cleaning agents may be used as this could result in pollution of water sources.
- Rehabilitation of the area must be initiated from the onset of the project. Soil stripped from infrastructure placement can be used for rehabilitation efforts; and
- An alien invasive plant species and control programme must be implemented from the onset of the project.

Soil compaction, Soil erosion, Land degradation and Soil contamination	Decommissioning	Low -	Low -	Medium to low -

Mitigation Measures

- Install erosion and sediment control measures (silt fences, sediment basins, straw bales).
- Remove infrastructure, like racking, inverters, and electrical infrastructure. Remove all above-ground and below-ground cabling, foundations, and concrete pads.
- Remove hazardous materials (batteries, oils, chemicals) for proper disposal.
- Remove all construction debris and waste from the site.
- Decompact soils in areas affected by heavy machinery (use subsoiling or deep ripping).
- Replace and evenly spread any stockpiled topsoil.
- Reseed or replant with native or pre-existing vegetation suited to the soil capability.
- Maintain erosion and sediment controls until vegetation is re-established
- Conduct post-restoration soil assessments (compaction, fertility, structure).
- Document and report restoration outcomes to relevant authorities.

Soil compaction, Soil erosion, Land degradation and Soil contamination	Rehab and Closure	Low -	Low -	Low -

Mitigation Measure

- Install erosion and sediment control measures (silt fences, sediment basins, straw bales).
- Remove all construction debris and waste from the site.
- Decompact soils in areas affected by heavy machinery (use subsoiling or deep ripping).
- Replace and evenly spread any stockpiled topsoil.
- Reseed or replant with native or pre-existing vegetation suited to the soil capability.
- Maintain erosion and sediment controls until vegetation is re-established
- Conduct post-restoration soil assessments (compaction, fertility, structure).

- Document and report restoration outcomes to relevant authorities.
- Conduct a final site inspection with stakeholders and authorities.

Table 4-3 Anticipated impacts for the proposed support infrastructure on agricultural resources

Main Impact	Project activities that can cause loss/impacts to Soils (especially regarding the proposed infrastructure areas)	Secondary impacts anticipated
Loss of land capability	• Construction, operation and decommissioning of dirty water channels, culverts, PCM and pipeline. • Potential waste water treatment leaks or spillage (i.e. hydrocarbons or untreated waste); • Mixing of soil; • Soil dust precipitation in surface or gravel access roads; • Dust precipitation; and • Removal of vegetation for the proposed support infrastructure	• Soil erosion; • Soil degradation; • Soil compaction; • Increase in salinity; • Land contamination; and • Loss of soil via aeolian processes.

4.2 Management Measures

The assessment of impact significance considers pre-mitigation as well as implemented post-mitigation scenarios. The aim of the management outcomes (below) is to present the mitigation measures in such a way that they 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 project management measures for the soils and agriculture resources during the construction phase presents the prescribed mitigation measures for construction phase for the assessment are presented in Table 4-4. Table 4-2 presents the prescribed mitigation for operational phase for the assessment. Table 4-2 presents the prescribed mitigation measures for the decommissioning, rehabilitation and closure phases for the assessment.

Table 4-4 Mitigation Measures and Management Outcomes

No	Mitigation Measures	Phase	Timeframe	Responsible Party for Implementation	Monitoring Party (Frequency)	Target	Performance Indicators (Monitoring Tool)
A	Cleared areas must be rehabilitated and stabilised to avoid impacts to adjacent areas	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Rehabilitation implemented	Implement a rehabilitation plan
B	Make use of existing access routes as much as possible before new routes are considered. Any selected "new" route must be authorized, minimizing disturbances to the wetland areas.	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	All routes authorised	Design engineer to consider this for final layout
C	Keep excavation and soil heaps clear of potential contaminates or waste	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Soil heaps are managed	Separate topsoil and sub-soil
D	Lightly till any disturbed soil around the development footprint to avoid compaction	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Plan is implemented	Implement a rehabilitation plan
E	Ensure soil stockpiles sand are sufficiently safeguarded against rain wash	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Plan is implemented	Implement soil management plan
F	The use of herbicides is not recommended (opt for mechanical removal).	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Avoided buffer area	Demarcate buffer area
G	Make sure all excess consumables are removed from site and deposited at an appropriate waste facility	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Restricted to demarcated area	Restrict to designated working/storage/service areas
H	Appropriately contain any generator diesel storage tanks, machinery spills (e.g., accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g., concrete) in such a way as to prevent them leaking and entering wetlands or buffer areas	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Restricted to demarcated area	Restrict to designated working/storage/service areas

I	Provide appropriate sanitation facilities for workers during construction and service them regularly	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Ablution facilities provided and serviced	Provide service ablution for contractors/labour
J	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	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Plan is implemented	Implement waste management plan
K	The Contractor must be in possession of an emergency spill kit that must be complete and available at all times on site	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Plan is implemented	Implement spill response plan
L	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	Construction	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Plan is implemented	Implement spill response plan
M	Implement dust suppression on stockpiles like the gravel roads.	Construction Operational	Prior to construction and ongoing throughout lifespan of mine	Contractor/ Environmental Officer	Throughout phase	Plan is implemented	Implement scheduled dust suppression plan
N	Implement erosion control methods like mulching, geotextile sheets, reduce soil compaction, chemical spills which can affect soil fertility.	Operational	From operational and ongoing throughout lifespan of mine	Environmental Officer	Throughout phase	Implement an alien vegetation management plan	Implement an alien vegetation management plan
O	Ensure successful rehabilitation of areas disturbed during construction and these areas are stabilized to avoid impacts to adjacent areas	Operational Decommissioning and rehab	From operational and ongoing throughout lifespan of mine including Rehabilitation and closure Phase	Contractor/ Environmental Officer	Throughout phase	Implement soil re-vegetation, spillage or residual waste contamination rehabilitation plan	Should be assessed once a year for soil compaction, fertility, and erosion.
P	Rehabilitation of the Project area will be undertaken, including the ripping of the compacted soil surfaces and establishment of vegetation.	Decommissioning and rehab	Rehabilitation and closure Phase	Contractor/ Environmental Officer	Throughout phase	Implement soil compaction rehabilitation	Implement erosion control, revegetation and alien vegetation management plan on disturbed areas

Q	Ensure rehabilitation of contaminated soil by removal of pollutants by implementing methods such as bioremediation and phytoremediation	Decommissioning and rehab	Rehabilitation and closure Phase	Contractor/ Environmental Officer	Throughout phase	Implement soil spillage or residual waste contamination rehabilitation plan	Should be assessed once a year for soil compaction, fertility, and erosion.

4.3 Cumulative Impacts

The quantitative impact of the proposed project in isolation on agriculture is anticipated to be “Low” due to the presences of low agricultural potential soils. The cumulative impact of the proposed project is anticipated to be “Medium”. The project area has undergone historic and current modification, like the developmental disturbances associated to the mining activities that the local area has currently.

After implementation of the mitigation measures such as implementation of erosion control methods, preventing soil contamination and rehabilitating disturbed and bare surfaces 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.

Table 4-5 Cumulative Impacts associated with the proposed project

Status	Cumulative Effect	Priority Factor	Post mitigation ER	Can impact be mitigated?	Is the impact acceptable?
Impact in isolation	1	1.0	Low	Yes	Yes
Cumulative impact	2	1.7	Medium		

5 Conclusion

The existing infrastructure and proposed project area is dominated by low potential soils including Arcadia, Rustenburg, Glenrosa, Mispah, Grabouw and Witbank soil forms. The remaining extent of the project is associated with moderate potential soil namely the Etosha soil form. Active crop fields were confirmed within the proposed 50 m buffer of the linear development.

The land capability sensitivity (DAFF, 2017) is dominated by land capabilities with “Low-Moderate to Moderate” sensitivity and the remaining extent of the falls within “Moderate High” and “High to Very High” sensitivities. High sensitive crop field boundaries were also identified using the DFFE Screening Tool Report. The verified baseline findings, current land uses and the calculated land capability disputes the agricultural theme in areas associated with “High to Very High” and to an extent “Low-Moderate to Moderate” within the 50 m buffer area of the proposed linear developments. Commercial sunflower production was confirmed within the proposed 50 m buffer area of the linear developments. Linear development such as the construction of pipeline, clean and dirty water channels, usually have minimal impacts towards soil resources, these disturbed areas are expected to be restored following rehabilitation within a period of 2 years of the development. Furthermore, no irrigation infrastructure was found in the project area for cropping practices such as centre pivot, drip irrigation or canals for flood irrigation.

It should be noted that, according to the Government Gazette 43110, Government Notice No. 320, a compliance statement may be submitted if the application is for a linear activity, for which impacts on the agricultural resource are temporary and the land in the opinion of the soil scientist or agricultural specialist, based on the mitigation and remedial measures, can be returned to the current land capability within two years of the completion of the construction phase.

5.1 Specialist Statement

The current existing infrastructure under the section 24G application post development has an overall low impact on the available soil resources. The impact assessment for the existing infrastructure (section 24G), can only be based on the post-developed conditions and available soil resources components as presented in Appendix B: Impact Assessment.

The proposed development 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 ranges from low to medium with marginal high areas;
- The agricultural potential of the area ranges from low to marginal high within the 50 m buffer area;
- Active crop farming was only identified within the 50 m buffer of the proposed linear development; and
- The overall agricultural sensitivity for the project area is categorised as low, with high sensitivity along the buffer area (only).

5.2 Statement Conditions

The project may be favourably considered for authorisation and is not subject to any conditions.

6 References

Department of Agriculture, Forestry and Fisheries, 2017. *National land capability evaluation raster data: Land capability data layer*, 2017. Pretoria.

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Mucina, L., & Rutherford, M. C. 2006. The Vegetation of South Africa, Lesotho, and Swaziland. Strelitzia 19. Pretoria: National Biodiversity Institute.

Smith, B. 2006. The Farming Handbook. Netherlands & South Africa: University of KwaZulu-Natal Press & CTA.

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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.

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 7-1 shows 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 potential classes are 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: Impact Assessment

Table 7-5 Impact assessment related to the loss of the land capability during the planning, construction, operation, decommissioning and rehabilitation phases for the existing (section 24G) infrastructure.

Impact	Phase	Pre-Nature	Pre-Extent	Pre-Duration	Pre-Magnitude	Pre-Reversibility	Consequence	Pre-Probability	Pre-Mitigation Significance Score	Pre-Mitigation Significance	Post-Nature	Post-Extent	Post-Duration	Post-Magnitude	Post-Reversibility	Consequence2	Post-Probability	Post-mitigation Significance Score	Post-Mitigation Significance	Confidence	Cumulative Impact	Irreplaceable loss	Priority Factor	Final score	Final Significance
Soil compaction, Soil erosion, Land degradation and Soil contamination	Construction	-1	3	3	3	3	-3	2	-6	Medium to low -	-1	2	2	2	3	-2.25	1	-2.25	Low -	Medium	2	3	1.38	-3.09	Low -
Soil compaction, Soil erosion, Land degradation and Soil contamination	Operation	-1	2	3	2	2	-2.25	2	-4.5	Medium to low -	-1	2	2	2	1	-1.75	1	-1.75	Low -	Low	2	3	1.38	-2.41	Low -
Soil compaction, Soil erosion, Land degradation and Soil contamination	Decommissioning	-1	1	2	2	3	-2	2	-4	Low -	-1	1	2	1	3	-1.75	2	-3.5	Low -	Low	2	2	1.25	-4.38	Medium to low -
Soil compaction, Soil erosion, Land degradation and Soil contamination	Rehab and Closure	-1	1	2	2	2	-1.75	2	-3.5	Low -	-1	1	2	1	2	-1.5	1	-1.5	Low -	Low	1	2	1.13	-1.69	Low -

Table 7-6 Impact assessment related to the loss of the land capability during the planning, construction, operation, decommissioning and rehabilitation phases for the proposed infrastructure.

Impact	Phase	Pre-Nature	Pre-Extent	Pre-Duration	Pre-Magnitude	Pre-Reversibility	Consequence	Pre-Probability	Pre-Mitigation Significance Score	Pre-Mitigation Significance	Post-Nature	Post-Extent	Post-Duration	Post-Magnitude	Post-Reversibility	Consequence2	Post-Probability	Post-mitigation Significance Score	Post-Mitigation Significance	Confidence	Cumulative Impact	Irreplaceable loss	Priority Factor	Final score	Final Significance
Soil compaction, Soil erosion, Land degradation and Soil contamination	Construction	-1	3	3	3	3	-3	2	-6	Medium to low -	-1	2	2	2	3	-2.25	1	-2.25	Low -	Medium	2	3	1.38	-3.09	Low -
Soil compaction, Soil erosion, Land degradation and Soil contamination	Operation	-1	2	3	2	2	-2.25	2	-4.5	Medium to low -	-1	2	2	2	1	-1.75	1	-1.75	Low -	Low	2	3	1.38	-2.41	Low -
Soil compaction, Soil erosion, Land degradation and Soil contamination	Decommissioning	-1	1	2	2	3	-2	2	-4	Low -	-1	1	2	1	3	-1.75	2	-3.5	Low -	Low	2	2	1.25	-4.38	Medium to low -
Soil compaction, Soil erosion, Land degradation and Soil contamination	Rehab and Closure	-1	1	2	2	2	-1.75	2	-3.5	Low -	-1	1	2	1	2	-1.5	1	-1.5	Low -	Low	1	2	1.13	-1.69	Low -

7.3 Appendix C: 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 and Agricultural Scientist

The Biodiversity Company

May 2025

DECLARATION

I, Matthew Mamera, 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.

Matthew Mamera

Soil Scientist

The Biodiversity Company

May 2025

7.4 Appendix D: Curriculum Vitae

Masilabela Klaas Seepamore

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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

Matthew Mamera

PhD Soil Science (*Pri Nat Sci*)

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Profile Summary

Working experience throughout South Africa

Specialist experience with pedology and agriculture.

Specialist expertise include hydropedology, pedology, land contamination, agricultural potential, land rehabilitation, rehabilitation management and wetlands resources.

Experience hydropedological modelling

Areas of Interest

Mining, Farming, Soil and Water quality contamination, Soil Sanitation management, Soil Carbon, Sustainability and Conservation.

Key Experience

- Environmental Impact Assessments (EIA)
- Environmental Management Programmes (EMP)
- Wetland delineations
- Rehabilitation Plans
- Soil taxonomic classification (SA forms and WRB groups)
- Soil Hydropedology assessments
- Agriculture potential assessments
- Land contamination assessments

Country Experience

South Africa: All Provinces

Zambia - Kitwe and Mufulira

Angola- Zenza – Cacuso; Luena – Saurimo

Namibia

Nationality

South African Permanent Residence

Languages

English – Proficient

Ndebele, Xhosa, Shona – Proficient

Qualifications

- PhD (University of the Free States)- Soil Science (Hydropedology, Sanitation and Water quality management)
- MSc (University of Fort Hare) – Soil Science (Hydropedology, Sanitation and Water quality management)
- BSc Honours *Cum laude* (University of Fort Hare) – Soil Science (Hydropedology, wetlands delineation and rehabilitation)
- BSc Agricultural Soil Science
- Pri Nat Sci 116356
- SSSSA- SSSSA 201