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Environmental Impact Management Services (Pty) Ltd (EIMS)  
Qaphela Magaqa  
Qaphela@eims.co.za

**To whom it may concern:**

**SOIL AND AGRICULTURAL SPECIALIST INPUT FOR AN AMENDMENT TO AN ENVIRONMENTAL AUTHORISATION FOR THE PROPOSED CONSTRUCTION OF TETRA4 132 kV AND 33 kV POWERLINE DEVIATION WITHIN THE MATJHABENG LOCAL MUNICIPALITY, LEJWELEPUTSWA DISTRICT MUNICIPALITY, FREE STATE PROVINCE.**

**Project Background**

Tetra4 (Pty) Ltd proposes to amend the Environmental Authorisation (EA) for the 132 kV (300 m-wide transmission corridor) and 33 kV Powerlines. These powerlines were assessed as part of the Tetra4 Cluster 2 Gas Production Project but were authorised separately through a dedicated EA to facilitate the future transfer of the authorisation to Eskom, now the National Transmission Company South Africa (NTCSA), following completion of construction.

The EA authorises the following activities:

- A new 132kV dual Loop-In-Loop-Out (LILO) powerline of approximately 5.5km in length connecting to the Eskom Theseus-Oryx 132kV Line. The proposed powerline will feed into a new 40 MVA substation at the Liquid Natural Gas (LNG)/Liquid Helium (LHe) plant to provide the plant with operational power requirements.
- A new 33kV powerline to connect a gas compressor station to the existing 33kV Beatrix powerline. The 33kV powerline will be approximately 1km in length.

The amendment application to the Department of Forestry, Fisheries and Environment (DFFE) includes the request to amend the EA granted in 2023 as follows:

- Amendments to the approved powerline alignments (corridors) following the final design process and servitude agreements, resulting in deviations from the originally authorised corridors, including the inclusion of Portion 8 of Farm Alex Glen Ross No. 562 and the exclusion/avoidance of Portions 1 and 2 of the same farm;
- Amendments to the project layout and associated infrastructure positioning, informed by specialist Heritage walkdowns and micro-siting requirements in line with EA Condition 12;
- Amendments to the Generic Environmental Management Programme (EMPr) to incorporate site-specific mitigation measures identified during specialist Heritage walkdowns, as required by Conditions 13 to 17;

Soil and Agricultural studies have been conducted for the approved Tetra4 Cluster 2 Project, which is now split into the two (2) separate components (Tetra4 Cluster 2 Project, and Tetra4 132 kV and 33 kV Powerline Deviation). These Soil and Agricultural studies include the following:

- The Biodiversity Company. 2022. Soil Pedology Assessment for the proposed Tetra4 Cluster 2 Project, Virginia, Free State.
- The Biodiversity Company. 2024. Soil and Agricultural Compliance Statement for the Proposed Tetra4 Production Right Extension Project, Matjhabeng and Masilonyana Local Municipalities, Free State Province, South Africa.

## **Terms of Reference**

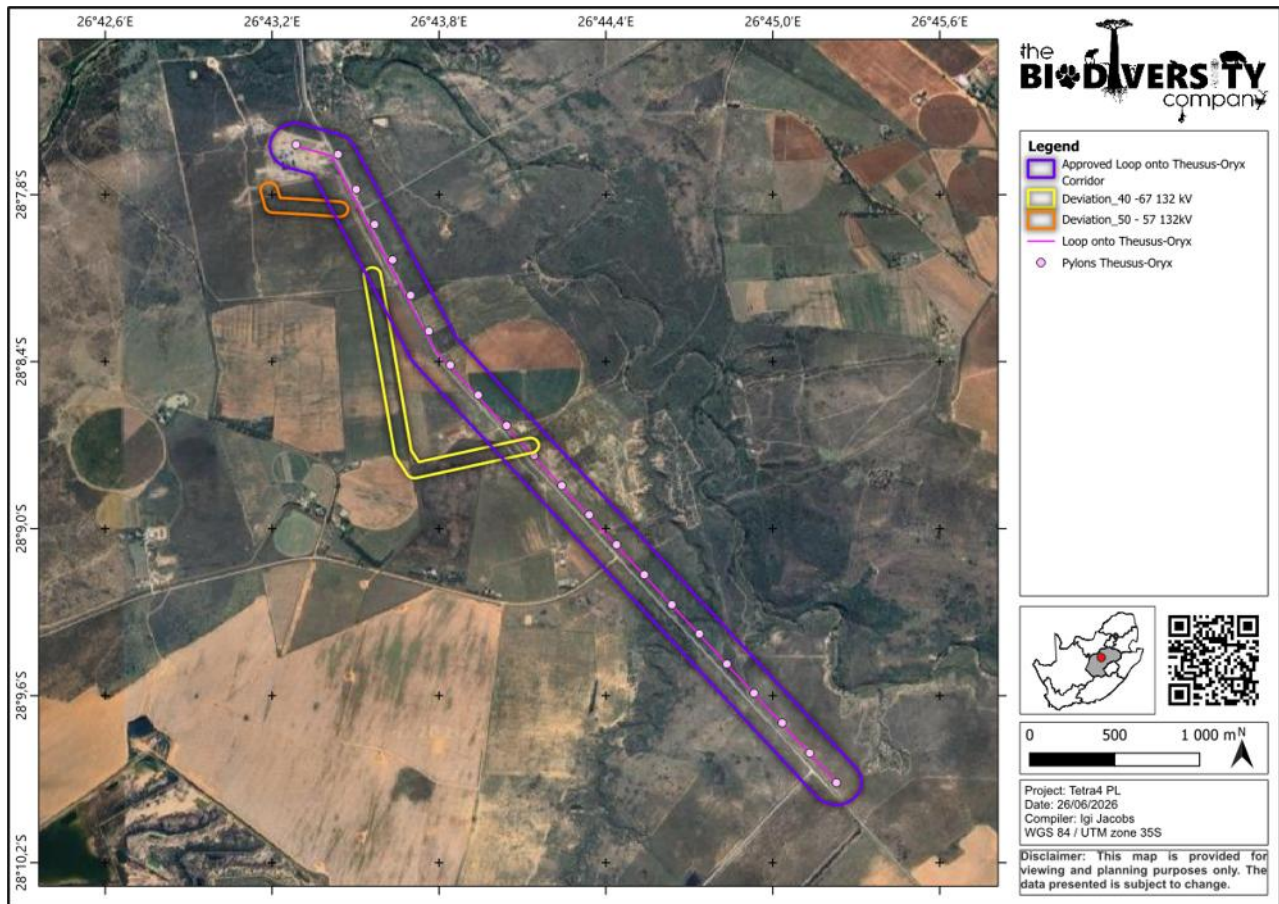
The Biodiversity Company (TBC) was appointed to conduct a Soil and Agricultural survey of the proposed Tetra4 132 kV and 33 kV Powerline Deviation project area. This project area was assessed during the previous studies listed above. The focus of this study was therefore to confirm or dispute the findings of the previous studies. Therefore, the Terms of Reference (ToR) for this assessment include the following:

- Review of existing information related to the development;
- Conduct a Soil and Agricultural survey for the planned footprint areas;
- Compare findings in previous reports to those of this survey. Describe any changes to the environment, if applicable, since the previous studies were conducted;
- Review impact ratings and mitigation measures of previous reports and adjust, if necessary, to findings of this survey;
- Detail any Soil and Agricultural constraints identified for the planned infrastructure; and
- Provide information to adequately inform any contractors, environmental officers and personnel pertaining to the freshwater sensitivity and significance for the area.

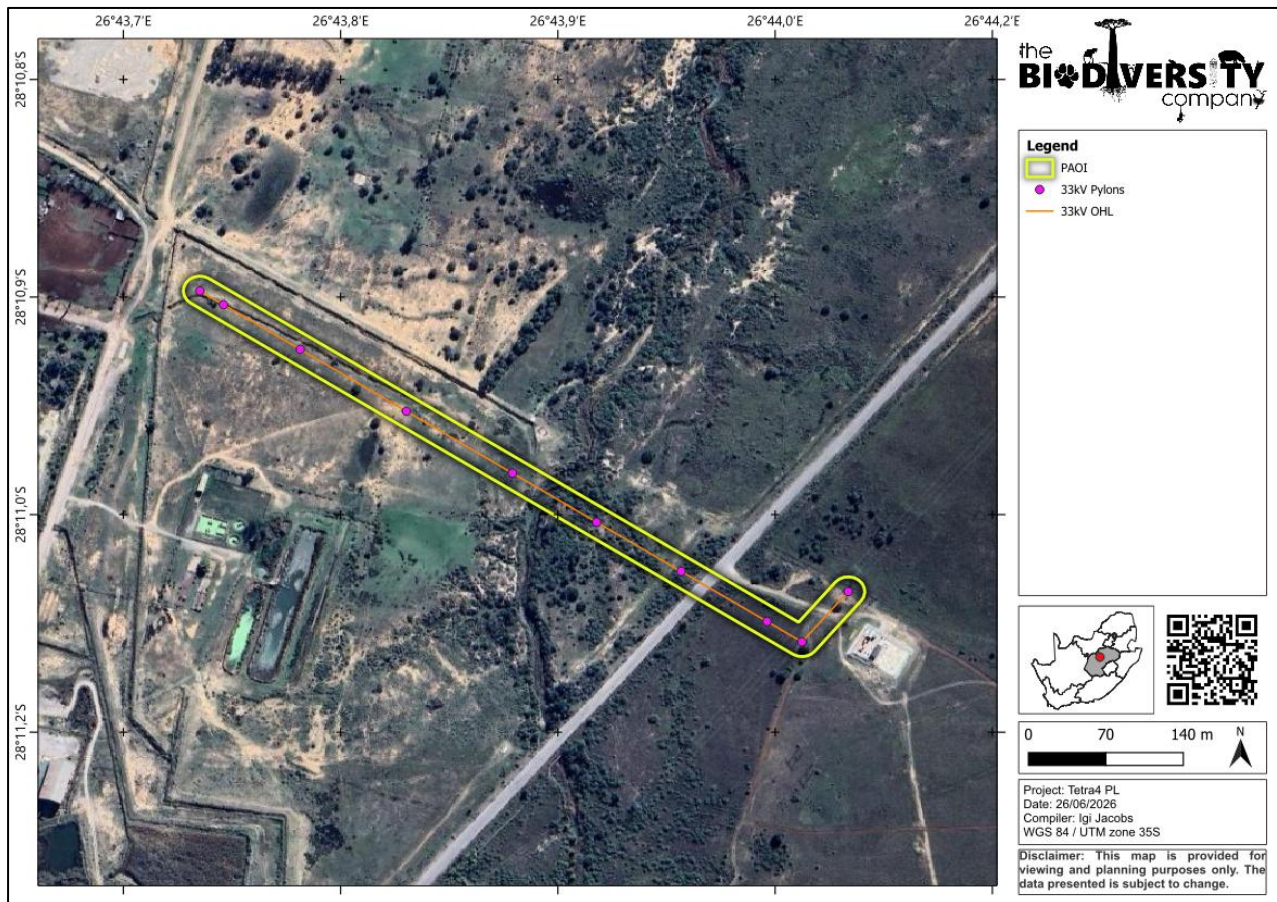
## **Tetra4 132 kV and 33 kV Powerline Deviation Project Information**

Tetra4 (Pty) Ltd is proposing to amend the Environmental Authorisation (EA) for the Tetra4 132 kV and 33 kV Powerline Deviation by deviating from portions of the originally approved corridor. This deviation triggers the requirement for a Part II Amendment process for which the DFFE requires confirmation that the environment and potential impacts associated with the project have not changed.

Environmental Impact Management Services (Pty) Ltd (EIMS) have been appointed to prepare the Application. The EA Amendment will be completed in terms of Regulation 30(1)(a) of the Environmental Impact Assessment (EIA) Regulations, 2014, as amended, including additional specialist studies and public participation required by the DFFE. The proposed Tetra4 132 kV and 33 kV Powerline Deviation project is located within the approved Tetra4 Cluster 2 natural gas production right area in Virginia, Free State. It is located within the Matjhabeng Local Municipality and the Lejweleputswa District Municipality. The infrastructure associated with the proposed project includes a 132 kV transmission line with a 300 m-wide corridor, and a 33 kV transmission line with a 15 m-wide corridor. The Project Area of Influence (PAOI) can be seen in (Figure 1 and Figure 2).



**Figure 1**      *The proposed layout and infrastructure associated with the 132 kV Powerline Deviations*

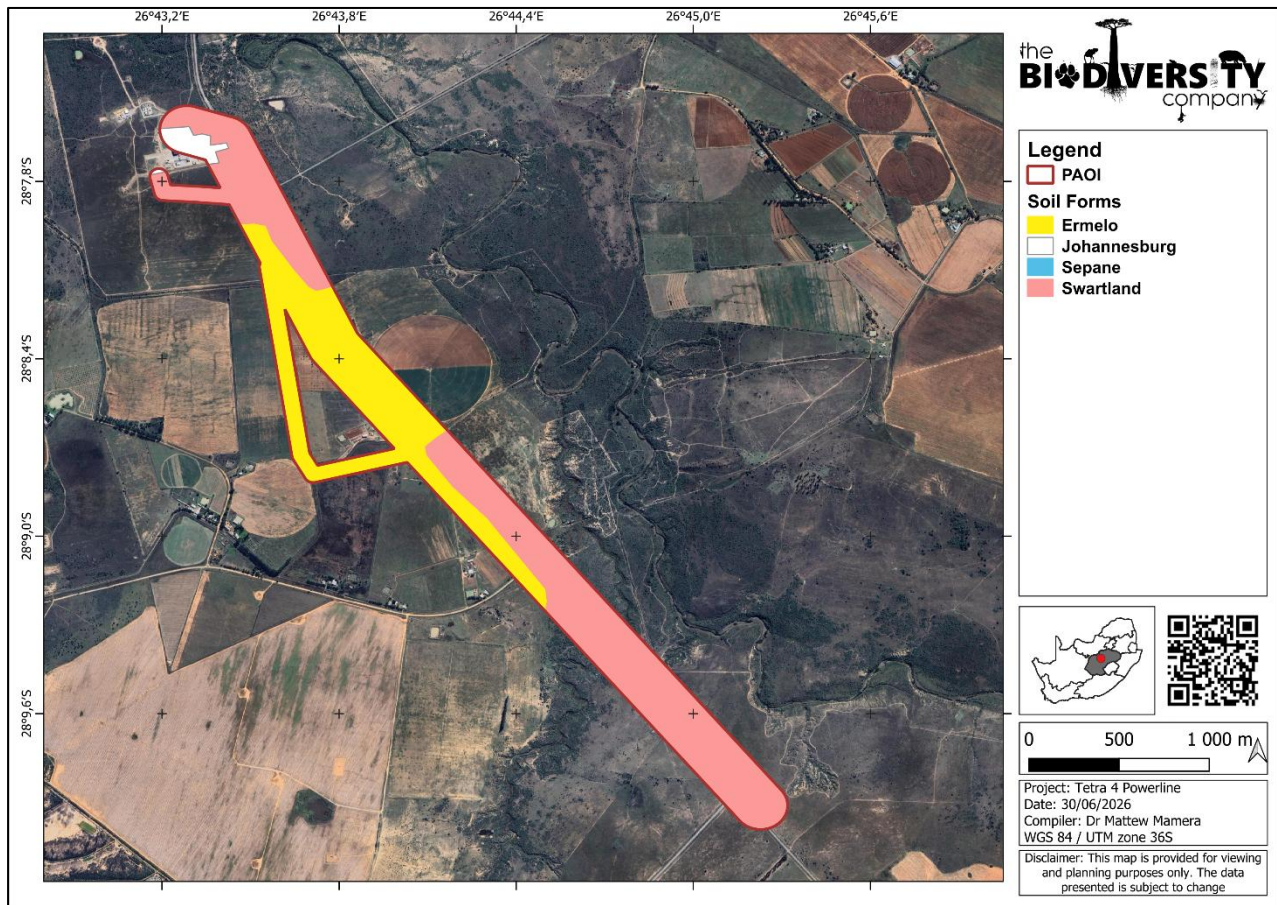


**Figure 2** The proposed layout and infrastructure associated with the 33 kV Powerline Alignment

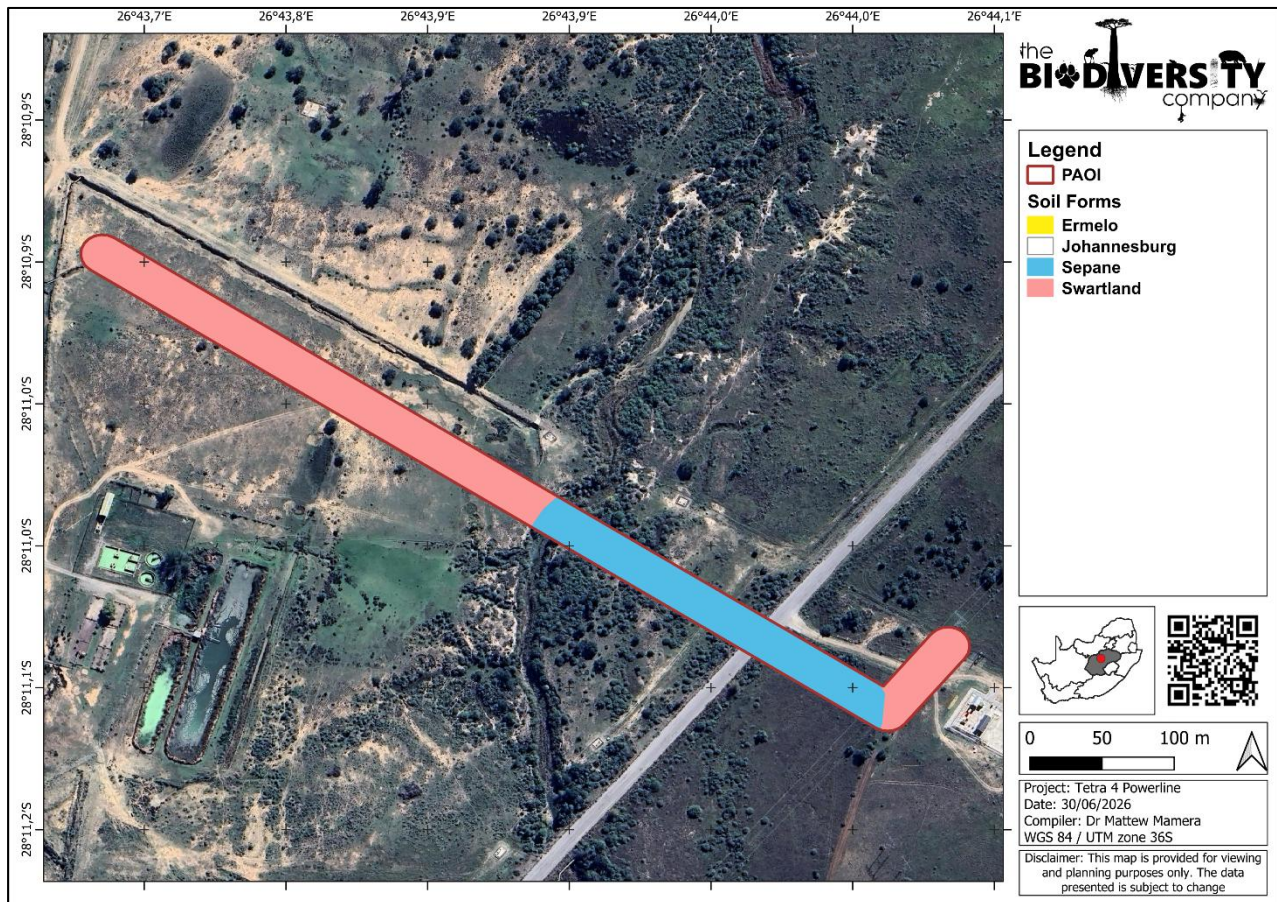
## Findings

### Soil and Agricultural Findings

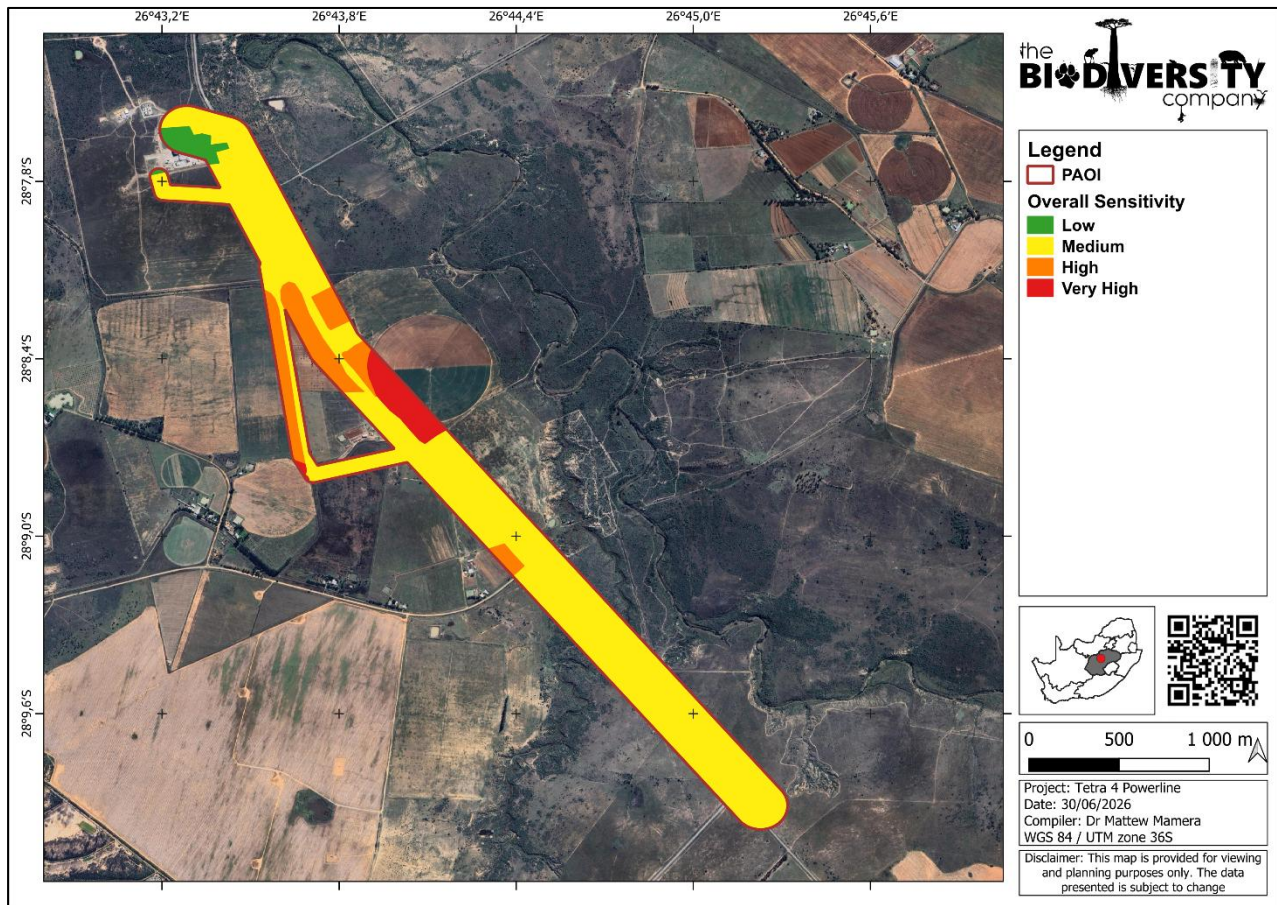
A field survey of the area was conducted from the 14<sup>th</sup> to the 18<sup>th</sup> of March (wet season survey) 2022, with a follow-up survey on the 22<sup>nd</sup> of June 2026 (dry season survey). It's worth noting, that seasonality has no bearing on soil resources. During the most recent site visit, most identified soil forms are similar to those previously recorded (TBC 2022), the only additional soil is the Johannesburg soil form associated with technosols in disturbed areas. Four (4) distinct soil forms were delineated within the PAOI namely: Ermelo, Swartland, Sepane and Johannesburg soil forms. The soil forms identified within the PAOI are illustrated in *Figure 3* and *Figure 4*, corresponding to the Tetra4 132 kV Powerline Deviation and the Tetra4 33 kV Powerline Deviation, respectively. Refer to Appendix A: Site **Photos** for photos of each soil form identified. These delineations are mostly similar to those delineated in the TBC report 2022. The overall sensitivity status of the Tetra4 132 kV Powerline Deviation and the Tetra4 33 kV Powerline Deviation can be seen in *Figure 5* and *Figure 6*.



**Figure 3** *Delineated soil forms for the Tetra4 132 kV Powerline Deviation, which is applicable to the soil and agricultural potential*

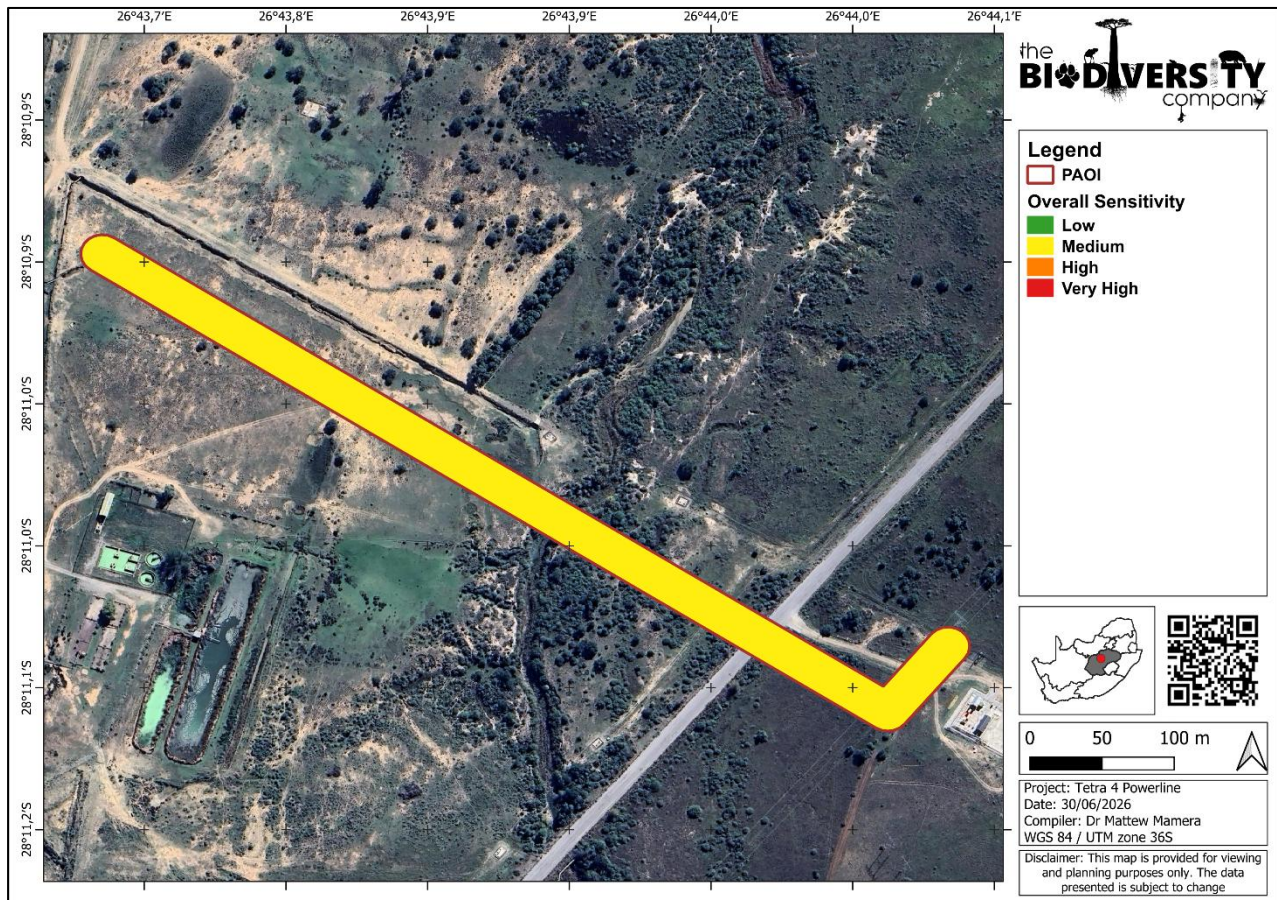


**Figure 4** Delineated soil forms for the Tetra4 33 kV Powerline Deviation, which applies to the soil and agricultural potential



**Figure 5**  
all themes

*Sensitivities assigned to soil forms identified for Tetra4 132 kV Powerline Deviation include all themes*



**Figure 6**  
themes

*Sensitivities assigned to habitats identified for Tetra4 33 kV Powerline Deviation include all*

The full soil and agricultural assessment undertaken in 2022 and 2024 (TBC, 2022& 2024) recommended development for infrastructure within low to medium areas, areas with high potential cropping areas being recommended to be preserved where feasible to minimise loss of soil resources. The reports concluded that all agricultural sensitive areas will not be impacted as the phase will only be for a short period. The current powerline deviations are will also have similar minimum impacts as its for a linear development. These buffer recommendations apply to both the construction and operational phases of the development.

The proposed Tetra4 Powerline Deviation layout has been designed to comply with the recommended buffer requirements for sensitive soil and agricultural resources. All areas which coincide with “Low to Medium” sensitivity can be developed for the project. It is recommended that the final alignment and micro-siting of all pylons be carefully planned to avoid placement within delineated “High” to “Very high” sensitive areas as far as possible. Where, complete avoidance of these sensitive cropping areas only for the pylons is not feasible for the proposed 132 kV deviations, careful placement of infrastructure should be done to minimise soil land fragmentation within the delineated sensitive areas and associated buffer zones in proposed corridor.

In this regard, all pylons must be designed and positioned outside delineated sensitive soil and agricultural areas, including their associated buffer areas. Where the powerline alignment crosses such features, cropping and grazing practices can still occur underneath the powerlines preserving productivity of these areas. The recommended buffer requirements must therefore be implemented throughout the construction and operational phases.

All mitigation measures recommended for the soil and agricultural resources in this amendment are consistent with those outlined in the previous study conducted by TBC, 2022 and 2024. The current assessment has confirmed that the soil and agricultural potential sensitivities and recommended buffer zones remain unchanged from the earlier findings. As such, the avoidance, micro-siting, and management measures previously prescribed continue to be applicable and effective for minimizing soil impacts associated with the proposed powerline deviations.

## Previous Study Comparison

The soil and agricultural study listed in the Project Background was considered as background information. The initial soil and agricultural study were conducted in 2022 (TBC, 2022), resulting in a soil and agricultural potential assessment report for the project area. Table 1 compares the soil and agricultural findings for the two powerline corridors assessed in the current study with those from 2022. The results of the current study support those of the previous study, with no changes in the sensitivity ratings.

**Table 1 Soil and agricultural findings of the current study in relation to the previous studies (TBC, 2022)**

| Powerlines              | Comments and Recommendations                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|-------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                         | Previous Studies (TBC, 2022)                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Current study                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <b>132 kV Powerline</b> | <p><b>Findings:</b> Active cropping areas were identified, and impacts can be avoided with the mitigation provided.</p> <p><b>Location:</b> Located in previously designated Low to High sensitivity area (TBC, 2022).</p> <p><b>Sensitivity area:</b> Classified as "Very Low" sensitivity area and traversing "Low" to "Very High" sensitivity areas.</p> <p><b>Recommendation:</b> Careful placement of pylons or infrastructure to preserve such areas should be done where feasible.</p> | <p><b>Findings:</b> Areas with active cropping and irrigation (Centre pivots) constraints were recorded for the 132 kV deviations corridor, for linear development minimum impacts are expected. Most of the proposed corridor follows areas which have been disturbed along road infrastructure developments</p> <p><b>Location:</b> Located in previously designated Low to High sensitivity area (TBC, 2022).</p> <p><b>Sensitivity area:</b> Classified as "Low to Very High" sensitivity area.</p> <p><b>Recommendation:</b> Careful placement of pylons or infrastructure to preserve such areas should be done where feasible.</p> |
| <b>33 kV Powerline</b>  | <p><b>Findings:</b> No specific soil and agricultural constraints were recorded and located outside the soil and agricultural buffer.</p> <p><b>Location:</b> Located in previously designated Low to Moderate sensitivity areas (TBC, 2022).</p> <p><b>Sensitivity area:</b> Classified as Low to Moderate sensitivity area.</p> <p><b>Recommendation:</b> No changes to placement area required.</p>                                                                                        | <p><b>Findings:</b> No specific soil and agricultural constraints were recorded and located outside the soil and agricultural buffer.</p> <p><b>Location:</b> Located in previously designated Low to Moderate sensitivity area (TBC, 2022).</p> <p><b>Sensitivity area:</b> Classified as "Moderate Sensitivity" area.</p> <p><b>Recommendation:</b> No changes to placement area required.</p>                                                                                                                                                                                                                                          |

The proposed transmission loop lines for the Tetra4 Powerlines, as identified in the previous specialist studies, are currently situated outside areas of "High" and "Very high" soil and agricultural sensitivity (TBC, 2022). The findings of the current assessment are consistent with those of earlier studies. It is recommended that the final alignment and micro-siting of all pylons be carefully planned to avoid placement within delineated sensitive soil and agricultural resources. Where the powerline alignment crosses such active areas, cropping and grazing practices can still occur underneath the powerlines preserving productivity of these areas.

## Conclusion and Recommendations

The soil and agricultural potential assessment conducted in 2022 concluded that, the sensitivity of soil resources within the Tetra4 132 kV and 33 kV Powerline Deviation PAOI ranged from “Low” to “High.” The findings of the current assessment, undertaken in June 2026, are consistent with those of the previous study, with land capability and potential sensitivities similarly ranging from “Low” to “High.” In addition, the delineated soil forms and agricultural potential recorded for the Tetra4 132 kV and 33 kV Powerline Deviation PAOI are comparable between the 2022 and 2026 assessments.

The majority of the proposed Tetra4 132 kV and 33 kV Powerline Deviation alignment does not overlap with areas of high sensitivity. While certain portions of the proposed 132 kV corridor traverse areas of “High” and “Very High” sensitivity areas with cropping practices, the impact can be minimized at the infrastructure level by micro-siting pylons within sensitive areas where their effect will be least significant and minimise land fragmentation. The proposed 33 kV corridor deviations do not overlap with any mapped areas of high soil and agriculture sensitivity. As such, no further layout changes are considered necessary from a soil and agricultural perspective, provided that sensitive areas are avoided through final micro-siting.

Notwithstanding the above, precautionary mitigation and impact management measures should still be implemented where the powerline infrastructure traverses high to very high soil and agricultural areas, particularly during the construction and operational phases. This should be undertaken in accordance with the recommendations contained in the Soil and Agricultural Assessment reports (TBC, 2022&2024), together with the mitigation measures prescribed in this amendment. On this basis, indirect and direct impacts to sensitive areas are anticipated to be of “Medium” significance.

Overall, no significant impacts are expected from a soil and agricultural perspective as a result of the proposed amendment, provided that the recommended mitigation measures are implemented and that all pylons are micro-sited outside delineated sensitive areas and associated buffer areas.

Report Writer

Dr Matthew Mamera

(Pr. Sci. Nat. 116356)

Soil and Agricultural Scientist



Reviewer

Masilabela Seepamore

(Pr. Sci. Nat. 113907)

Soil and Agricultural Scientist



## Appendix A: Site Photos

Table 0-1 illustrates photographs of the soil forms identified within the Tetra4 132 kV and 33 kV Powerline Deviation PAOI.

**Table 0-1**      *Photos of the identified soil forms identified within the Tetra4 132 kV and 33 kV Powerline Deviation PAOI*

| Photos                                                                                                                                        | Photos                                                                                                                                          |
|-----------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| <div data-bbox="172 1003 204 1079" data-label="Text"> <p>Ermelo</p> </div> <div data-bbox="252 712 730 1344" data-label="Image"> </div>       | <div data-bbox="772 990 804 1093" data-label="Text"> <p>Swartland</p> </div> <div data-bbox="877 712 1372 1361" data-label="Image"> </div>      |
| <div data-bbox="172 1662 204 1787" data-label="Text"> <p>Transformed</p> </div> <div data-bbox="252 1406 730 2033" data-label="Image"> </div> | <div data-bbox="772 1653 804 1796" data-label="Text"> <p>Johannesburg</p> </div> <div data-bbox="877 1550 1372 1921" data-label="Image"> </div> |

Cropping areas



Cropping areas

