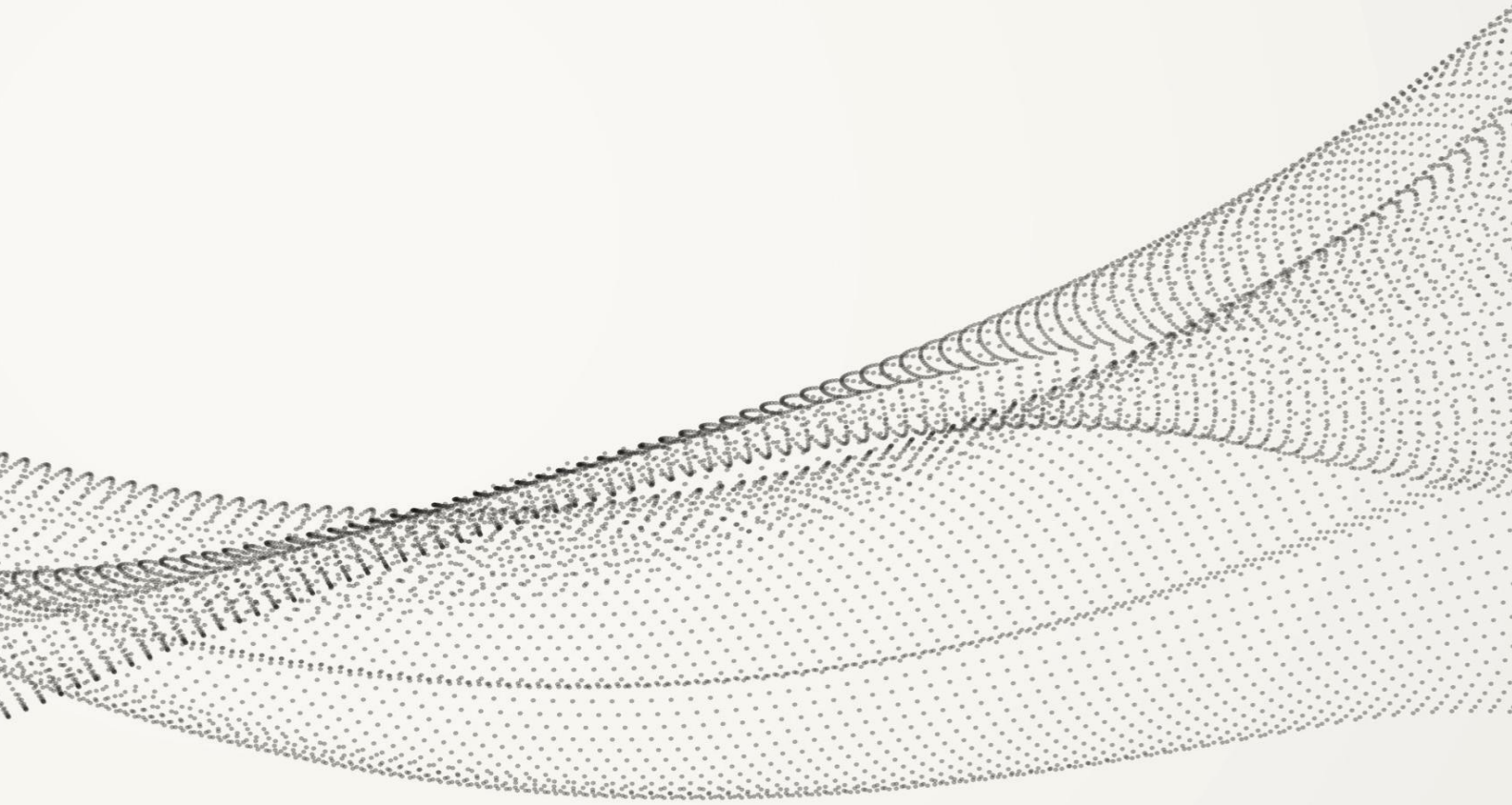
PROPOSED DEVIATIONS OF ± 14 KM OF THE PLUTO-MAHIKENG 400 KV POWERLINE WITHIN THE JB MARKS LOCAL MUNICIPALITY UNDER DR KENNETH KAUNDA DISTRICT MUNICIPALITY AND MAHIKENG LOCAL MUNICIPALITY WITHIN THE NGAKA MODIRI MOLEMA DISTRICT MUNICIPALITY, NORTH WEST PROVINCE

DRAFT BASIC ASSESSMENT REPORT



October 2026

Vhubvo Consultancy cc
Suite 2, 546, 16th Road
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DOCUMENT CONTROL

Report Name:	**Proposed Deviations of ± 14 km of the Pluto-Mahikeng 400 kV Powerline within the JB Marks Local Municipality under Dr Kenneth Kaunda District Municipality and Mahikeng Local Municipality within the Ngaka Modiri Molema District Municipality, North West**
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Report compiled by:	Brenda Makanza
Report Date:	01 October 2026
Status:	**Draft Report**- *For Public Review*

DISCLAIMER

Vhubvo Consultancy cc has prepared this report in fulfilment of Section 24 (5) of NEMA and its associated Regulations, showing reasonable skill and care, for the intended purposes as stated in the agreement under which this work was completed. The report may not be relied upon by any other party without the express agreement of the client, NTCSA. No other warranty expressed or implied is made as to the professional advice included in this report. Where any data supplied by the client or from other sources have been used it has been assumed that the information is correct. No responsibility can be accepted by Vhubvo Consultancy cc for inaccuracies in the data supplied by any other party. The conclusions and recommendations in this report assume that all relevant information has been supplied by those bodies from whom it was requested. Where field investigations have been carried out these have been restricted to a level of detail required to achieve the stated objectives of the work. This work has been undertaken in accordance with the EIA Regulations, GNR982 of 2014.

APPROVAL SCHEDULE		
REV	Vhubvo Consultancy	
	Compiler	Reviewer
02	 Brenda Makanza 01.10.2026 Date	 Frank Mhandu 01.10.2026 Date

EXECUTIVE SUMMARY

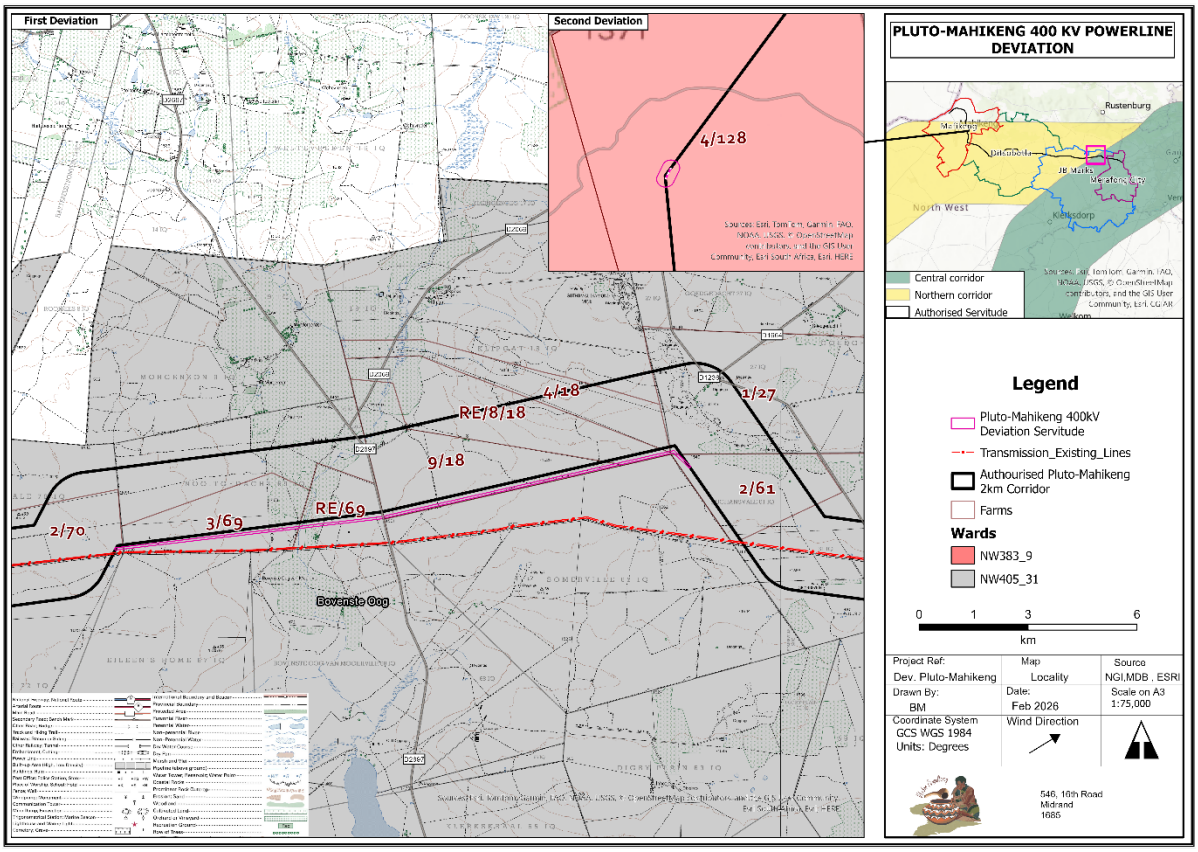
A. BACKGROUND

The Pluto–Mahikeng powerline and the associated Mahikeng Main Transmission Substation (MTS) are identified in NTCSA's Transmission Development Plans (2016–2025, 2019–2028 and 2025–2034) as strategic transmission infrastructure required to increase network capacity, improve voltage regulation, and strengthen the reliability and security of electricity supply in the Province. The powerline further forms part of NTCSA's Botswana–South Africa (BOSA) Transmission Interconnection Project, a 210 km link extending from the Mahikeng MTS to Isang in Botswana that is required to strengthen regional transmission infrastructure and support cross-border energy security. The infrastructure was assessed through a Scoping and Environmental Impact Assessment culminating in Environmental Authorisation 14/12/16/3/3/2/1051, issued on 4 February 2019 and extended to 2029. During detailed engineering and line design, two sections of the required 55 m servitude were found to fall outside the approved 2 km corridor and were therefore not assessed under the original EIA, necessitating this application, since the Environmental Authorisation permits no deviation from the approved project description without the prior written approval of the competent authority.

Vhubvo Consultancy cc has been appointed by National Transmission Company South Africa (NTCSA) to undertake the Basic Assessment for the proposed deviations of the Pluto-Mahikeng 400 kV powerline within the North West Province.

B. LOCATION

The proposed deviations spans across several farms of the two local municipalities, JB Marks and Mahikeng under the jurisdiction of two District Municipalities; Dr Kenneth Kaunda and Ngaka Modiri Molema of North West Province. The first deviation which is approximately 14km is 24 km North West of Pluto MTS while the second deviation, the second deviation, comprises a short lateral shift of approximately ± 45 m between Towers 110 and 111. It is approximately 15 km south east of Mahikeng and 3 km east of Mafikeng Nature Reserve. The proposed powerline deviations traverses various land-uses such as residential built-up (farmsteads), agricultural and borders conservation areas. Villages such as Mahikeng, Klerkskraal, Merindol, Rentse and Roodepoort are the closest settlements to the proposed deviation. Refer to the map below.



Project Location

C. THE PROCESS

The proposed activities, along with the provided infrastructure, are listed as having negative environmental impacts, necessitating a Scoping and Environmental Impact Assessment. However, the National Environmental Management Act, 1998 Government Notice 113 of 16 February 2018, as amended, indicates that where the greater part of the project occur in one or more Strategic Transmission Corridors, a Basic Assessment (BA) procedure contemplated in Regulation 19 and 20 of the Environmental Impact Assessment Regulations, Government Notice R982 of 2014, as amended (hereinafter EIA Regulations, 2014 (as amended)) must be followed to obtain Environmental Authorisation (EA), as required in terms of the Act. The proposed project falls within the Central and Northern Strategic Transmission Infrastructure Corridors; hence, a Basic Assessment (BA) is being undertaken for this project.

D. ASSUMPTIONS AND LIMITATIONS

In undertaking this Basic Assessment (BA), the Environmental Assessment Practitioner (EAP) has considered the following assumptions:

i. The EAP compiled the BAR using information sourced from multiple inputs, including specialist studies. The EAP relied on the specialist reports on the basis that the respective specialists are knowledgeable and suitably qualified in their fields of expertise. Accordingly, the EAP has relied

on the accuracy and professional integrity of their findings, and no independent review or verification of the specialist information has been undertaken.

ii. This report is based on a short-term investigation using the available information and data related to the site to be affected. No long-term investigation or monitoring was conducted.

E. SPECIALIST STUDIES

Considering the proposed development and the nature of the environment, potential environmental impacts were identified through an internal process based on similar developments, site visits, and the Screening Tool Report (STR). Specialist studies were therefore commissioned to gain an in-depth understanding of the status quo of various aspects of the environment and how development will impact these environmental aspects. The results of these studies serve as a basis for identifying the potentially significant impacts expected should the development be undertaken. The summaries of the Avifauna, Archaeology, Palaeontology, Terrestrial Biodiversity (including flora and fauna), Aquatic, Civil Aviation, Soil and Land Capability and Visual Assessment are below:

(i) **Archaeology:** The Archaeological Impact Assessment determined that the proposed deviated alignments are located within an area of low archaeological and cultural heritage sensitivity. No archaeological or cultural heritage resources of significance were identified within the surveyed development footprint. Consequently, no significant heritage-related constraints to the proposed development were identified, and the project may proceed subject to the implementation of the recommended mitigation measures.

(ii) **Avifauna:** The Avifaunal Impact Assessment determined that the proposed route deviations traverse habitat of medium to high avifaunal sensitivity, reflecting the presence of diverse habitats and the confirmed or potential occurrence of several Species of Conservation Concern (SCC), including collision-prone and disturbance-sensitive species. The primary impacts are associated with an increased risk of bird collisions with the transmission line, together with disturbance and limited habitat transformation during construction. Although the unmitigated impacts range from medium to high significance, the implementation of targeted mitigation measures, including the installation of bird flight diverters and appropriate construction management practices, is expected to reduce the residual impacts to acceptable levels.

(iii) **Aquatic Biodiversity:** The freshwater assessment identified the Mooi River crossing and an adjacent seasonal wetland within Deviation 1 as the primary aquatic sensitivity features. Following the freshwater walkdown, the alignment was refined through micro-siting to avoid direct impacts on these aquatic features and their associated buffer areas. Deviation 2 is located entirely within dryland habitat and does not intersect any wetlands, watercourses, riparian habitat, or drainage features. Consequently, anticipated impacts are limited to temporary, localised construction-related disturbance adjacent to regulated areas. With the implementation of recommended mitigation measures, including the establishment of aquatic buffers and erosion

and sediment control measures, residual freshwater impacts are expected to be low. Based on the desktop assessment, field verification and revised tower placement, the specialist concluded that the proposed deviation alignments are environmentally acceptable from a freshwater perspective.

(iv) **Civil Aviation:** The Civil Aviation Site Sensitivity Verification (CASSV) concluded that the proposed transmission line deviations present a low civil aviation sensitivity and are unlikely to result in significant impacts on aviation operations or infrastructure. No aerodromes, obstacle limitation surfaces, or significant ground-based aviation infrastructure will be affected, and the only nearby aviation feature is the Magalies-Orient Glider advisory area, where the proposed infrastructure will not penetrate the applicable advisory airspace. The assessment also confirmed that the deviations will not affect civil aviation radar, navigation aids, communication systems, or established flight routes, with all aviation infrastructure located well beyond the minimum separation distances recommended by the SACAA and international guidelines. Overall, the operational and safety risks are considered low and tolerable, subject to compliance with SACAA requirements for obstacle approval, marking, and illumination during the detailed design and construction phases.

(v) **Palaeontology:** The Palaeontological Impact Assessment identified Deviation 1 as having a high palaeontological sensitivity due to the underlying Malmani Subgroup dolomites, which have the potential to contain scientifically important fossil deposits. Although no fossil sites were identified during the field assessment or are known from the immediate area, there remains a low possibility of uncovering previously unknown fossil material during excavation. Deviation 2 is underlain by Tertiary calcrete and Quaternary soils and sands, which have a very low fossil potential. Overall, the palaeontological impacts are considered manageable, provided that a chance-find procedure is implemented during construction.

(vi) **Soil and Agricultural Potential:** The Agricultural Impact Assessment concluded that the proposed powerline deviations are unlikely to significantly affect agricultural productivity. The study area is dominated by shallow soils suitable primarily for grazing, while only a small proportion comprises arable land. Agricultural activities are expected to continue beneath the powerline, with only minor, localised impacts anticipated, including temporary disturbance during construction and the placement of pylons within cultivated fields. These impacts can be effectively mitigated through appropriate engineering design, implementation of the Environmental Management Programme (EMPr), and the application of best construction practices.

(vii) **Terrestrial Biodiversity, Animal and Plant Species:** The proposed deviations are characterised by Critical Biodiversity Areas, Ecological Support Areas, the Mooi River, National Protected Areas Expansion Strategy priority areas as well as transformed areas. The assessment concludes that the proposed deviation alignments are environmentally acceptable, with residual impacts on

terrestrial biodiversity expected to be low to moderate following the implementation of the recommended mitigation measures. Where residual impacts remain significant, these should be addressed through the implementation of a biodiversity offset, where required, in accordance with the National Biodiversity Offset Guideline (2023) and the requirements of the relevant provincial conservation authority

(viii) **Visual Assessment:** The Visual Impact Assessment found that the proposed powerline deviations will have varying visual impacts on nearby residents, motorists, and the limited number of tourists in the area. The gently sloping, open landscape has a low visual absorption capacity, making the infrastructure more noticeable. However, as the deviations are predominantly located within agricultural land with relatively few nearby residents or sensitive visual receptors, the overall visual impact is considered manageable. Implementation of the recommended mitigation measures will further reduce the significance of visual impacts.

(ix) **Social:** The Social Impact Assessment found that the proposed deviation is compatible with the applicable legal, policy, and planning framework and supports the strategic strengthening of the national electricity transmission network. The study identified that the primary social impacts are associated with the construction phase and are largely confined to directly affected landowners and agricultural operations. Potential impacts include temporary disruption to farming activities, access and security concerns, damage to farm infrastructure, construction-related nuisance, and veldfire risk. These impacts are localised and can be effectively mitigated through appropriate landowner engagement, contractor management, and the implementation of project-specific mitigation measures. Positive impacts include short-term employment and local procurement opportunities during construction, as well as improved long-term electricity supply reliability during operation

F. PUBLIC PARTICIPATION PROCESS (PPP)

A reconnaissance site visit was undertaken to develop an understanding of the social context (representative structures, language, communication media, etc.). It was noted that the project area is characterised by sparse settlements associated with agricultural activities and conservation areas which are in close proximity to the deviations. The stakeholder database from the previous Scoping and Environmental Impact Assessment (EIA) was updated and it is comprised of the following:

- National, Provincial and Local Government.
- Landowners.
- Neighboring landowners.
- Non-Governmental Organisations.
- Interested and Affected Parties.

A Background Information Document (BID) was sent along with the notifications to affected landowners, Government and Private stakeholders, and Interested and Affected Parties. In addition, site notices were

placed at the property, neighbouring farm fences, and Municipal Offices. Public consultation meetings will be held with landowners, stakeholders, and Non-Governmental Organisations during the review of the Draft Basic Assessment Report (DBAR).

G. PROCEDURE FOR THE REMAINDER OF THE STUDY

The following activities will be conducted during the finalisation of the application:

- All comments received during the 30-day review period will be recorded, responded to, and addressed in the Final Basic Assessment Report (FBAR).
- The FBAR will be submitted to DFFE for review and decision-making.
- Stakeholders will get written notice of DFFE's decision and instructions on appealing it within the specified deadlines.

H. ENVIRONMENTAL IMPACT STATEMENT

The receiving environment governs the significance of the assessed impacts. The first deviation, 14 km in length and located approximately 24 km north-west of the Pluto MTS, traverses semi-arid vegetation showing evidence of grazing, is classified as Critical Biodiversity Area and Ecological Support Area, and crosses the Mooi River and its associated wetlands. The second deviation, a lateral movement of the span between towers 110 and 111, falls within the Klerksdorp Thornveld and is located approximately 3 km east of the Mafikeng Nature Reserve. The principal potential impacts arising from these sensitivities are avifaunal collision and electrocution, disturbance to the Mooi River and its wetland buffers, and the loss or disturbance of terrestrial biodiversity within the Critical Biodiversity and Ecological Support Areas, with the operational phase carrying the greatest residual risk for avifauna and visual.

Various specialist studies were commissioned to determine the significance of these impacts, as guided by the Screening Tool report. The assessment concluded that the deviations align with national, provincial, and local development plans, and that the identified impacts can be reduced to acceptable levels through the recommended mitigation, including the fitting of bird flight diverters along the whole deviation alignment, the fitting of bird guards, the placement of towers outside the freshwater buffers, and strict adherence to the Environmental Management Programme. On this basis, all specialist assessments concluded that there are no fatal flaws provided the recommended mitigation measures are effectively implemented. Having considered the findings of the Basic Assessment, the specialist studies, the public participation process undertaken to date, the applicable legislation, the environmental management principles set out in Section 2 of NEMA, and the objectives of Section 24 of NEMA, it is the reasoned opinion of the Environmental Assessment Practitioner that the Competent Authority may grant Environmental Authorisation for the proposed deviations, subject to appropriate conditions of authorisation, implementation of the approved Environmental Management Programme, compliance with all applicable legislation, and any further conditions the Competent Authority considers necessary.

TABLE OF CONTENTS

EXECUTIVE SUMMARY ii

1 INTRODUCTION 1

1.1 This Application 2

1.2 Details of the Applicant 3

1.3 Details of Environmental Impact Assessment Practitioner (EAP) 4

1.4 Location 5

1.4.1 Regional Context of the Project 5

1.4.2 Description of the Project Location 6

2 PROJECT DESCRIPTION 10

2.1 Description 10

2.2 Technical Details of the Project 12

2.2.1 400kV Powerlines 12

2.3 Pre-construction and Construction Phase 14

2.3.1 Pre-Construction 14

2.3.2 Construction of Powerline 15

2.3.3 Surveying and Tower Pegging 17

2.3.4 Geotechnical Investigations 17

2.3.5 Foundation Construction 18

2.3.6 Tower Erection and Conductor Stringing 18

2.4 Bulk Services and Infrastructure 18

2.5 Operation and Maintenance 19

2.5.1 Land Use and Powerline Operation 19

2.6 Decommissioning 19

3 KEY LEGISLATIVE REQUIREMENTS 21

3.1 Key Legislation 21

3.2 Other Relevant Legislation and Documents 33

3.3 Permits And Registrations 34



4 BASIC ASSESSMENT (BA) PROCESS 35
4.1 Objectives of a Basic Assessment 35
4.2 Methodology 36
4.2.1 Screening Phase 36
4.2.2 Pre-Application Meeting 37
4.2.3 Literature Review 37
4.2.4 Site Assessment and Specialist Studies 37
4.2.5 Public Participation 38
4.2.6 Impact Assessment 38
5 THE NEED AND DESIRABILITY FOR THE PROPOSED DEVELOPMENT 40
5.1 Need for the Project per NTCSA Assessment 40
5.2 Relevance of the Project per National, Provincial and Local Development Plans 41
5.2.1 National Planning Framework 41
5.2.2 Provincial Planning Framework 42
5.2.3 District and Local Planning Framework 42
5.2.4 United Nations Sustainable Development Goals 43
5.3 Desirability 43
5.4 Summary 44
6 ALTERNATIVES 45
6.1 A motivation for the Preferred site, Activity and Technology Alternative 45
6.2 Site and route alternatives 45
6.3 Layout Alternatives 45
6.4 Technology alternatives 46
6.5 No-go Alternative 46
6.6 Outcome of the specialist studies undertaken 47
7 PUBLIC PARTICIPATION PROCESS 49
7.1 Methodology Adopted 49
7.2 Part 1 of the Public Participation Process 50
7.2.1 Site Reconnaissance 50

7.2.2 Stakeholder Database 50
7.2.3 Notification 50
7.2.4 Comments and Responses – Part 1 51
7.3 Part 2 of the Public Participation Process 51
7.3.1 Distribution of the Draft Basic Assessment Report 51
7.3.2 Newspaper Advertisements 51
7.3.3 Public Meetings 51
7.3.4 Comments and Responses – Part 2 51
7.4 Part 3 of the Public Participation Process 52
7.5 Conclusion 52
8 THE ENVIRONMENTAL ATTRIBUTES 53
8.1 Meteorological Setting 53
8.2 Topography 54
8.3 Geology 54
8.4 Soils and Land Capability 55
8.4.1 Land Type 55
8.4.2 Soil pH 57
8.4.3 Soil And Terrain (SOTER) Dominant Soils 58
8.4.4 Land Capability 59
8.4.5 Protected Agricultural Areas 61
8.5 Water Resources 62
8.5.1 Water Management Areas 62
8.5.2 Strategic Water Source Areas (SWSA) 63
8.5.3 The National Biodiversity Assessment 64
8.5.4 National Freshwater Ecosystem Priority Areas 65
8.6 North West Critical Biodiversity Areas and Ecological Support Areas 66
8.7 Terrestrial Biodiversity 69
8.7.1 Protected Areas and Protected Area Expansion Strategy 69
8.7.2 Red List Ecosystems 70

8.7.3 Ecosystem Protection Level 71
8.7.4 Vegetation 72
8.8 Avifauna 74
8.8.1 Key Biodiversity Areas 74
8.8.2 Important Bird Areas 75
8.8.3 Vulture Colonies, Nest Locations and Roosts 76
8.8.4 Coordinated Waterbird Counts (CWAC) 78
8.8.5 Coordinated Avifaunal Roadcounts 78
8.9 Fauna 78
8.10 Land use 78
8.10.1 Transport Network 79
8.10.2 Powerlines 79
8.11 Social Economic Profile 79
8.11.1 Institutional arrangements 80
8.11.2 Population, race and gender profile 80
8.11.3 Housing and living conditions 81
8.11.4 Education and employment levels 83
8.11.5 Safety and security 85
9 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY 86
9.1 EIA Methodology 90
9.1.1 The Impact Rating System 91
9.2 The Assessment of Environmental Impacts and Risks 93
9.3 Impact Assessment During Pre-Construction Phase 113
9.3.1 Inadequate environmental planning and design. 113
9.3.2 Disturbance of the sub-surface environment 113
9.3.3 Failure to demarcate no-go and sensitive areas before construction. 113
9.4 Impact Assessment During Construction Phase 114
9.4.1 Impacts on Avifauna 114
9.4.2 Impact on Archaeological Resources 116



9.4.3 Impact on Palaeontological Resources 116
9.4.4 Impacts on Soil, Land Capability and Agricultural Activities 117
9.4.5 Impacts on Freshwater Resources (Aquatic Biodiversity) 119
9.4.6 Impacts on Terrestrial Biodiversity 121
9.4.7 Inadequate Waste Management 127
9.4.8 Landscape Impact 129
9.4.9 Viewer Sensitivity 129
9.4.10 Impact on the Socio-economic environment 131
9.4.11 Noise 136
9.5 Impact Assessment During Operation Phase 137
9.5.1 Impact on Avifauna 137
9.5.2 Impact on Soil 138
9.5.3 Impact on Freshwater Resources 139
9.5.4 Impact on the Socio-Economic Environment 139
9.5.5 Impacts on Terrestrial Biodiversity 140
9.5.6 Landscape Impact 142
9.5.7 Viewer Sensitivity 143
9.6 Assessment of Cumulative Impacts 144
9.6.1 Spatial Boundary 146
9.6.2 Temporal Boundaries 146
9.6.3 Potential environmental resources to be considered in the Cumulative Impact Assessment 146
9.6.4 Methodology 147
9.6.5 Project Inventory Table 147
9.6.6 Cumulative Impact Assessment 148
9.6.7 Concluding Statement on Cumulative Impacts 153
9.7 Impact Assessment for the Decommissioning / Closure Phase 154
9.8 The possible mitigation measures that could be applied and the level of residual risk. 154
9.9 If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such. 154

9.10 A concluding statement indicating the preferred alternatives, including preferred location of the activity. 154

10 SUMMARY OF THE FINDINGS AND IMPACT MANAGEMENT MEASURES IDENTIFIED IN ANY SPECIALIST REPORT 155

10.1 Screening Report 155

10.2 Site Sensitivity Verification Requirements 155

10.2.1 Agriculture Assessment 155

10.2.2 Landscape/ Visual Impact Assessment 156

10.2.3 Archaeological and Cultural Impact Assessment 157

10.2.4 Palaeontological Impact Assessment 157

10.2.5 Aquatic Biodiversity Assessment 158

10.2.6 Terrestrial Animals 159

10.2.7 Terrestrial Plant Species 160

10.2.8 Terrestrial Biodiversity 161

10.2.9 Civil Aviation 161

10.2.10 RFI and EMI Assessment 162

10.2.11 Geotechnical 162

10.2.12 Social Assessment 163

10.3 Summary of Specialist Studies 164

10.3.1 Soil and Land Capability (Agriculture) Compliance Statement 164

10.3.2 Aquatic (Surface water) Biodiversity Assessment 177

10.3.3 Archaeological Impact Assessment 189

10.3.4 Avifauna Impact Assessment 191

10.3.5 Civil Aviation Site Sensitivity Verification 199

10.3.6 Palaeontology Impact Assessment 206

10.3.7 Social Impact Assessment 214

10.3.8 Terrestrial Biodiversity Assessment 215

10.3.9 Visual Impact Assessment 233

11 IMPACT MANAGEMENT MEASURES FROM SPECIALIST REPORTS FOR INCLUSION IN THE EMPR 243

11.1 Archaeology and Cultural Heritage Assessment 243
11.1.1 Chance Finds Procedure 243
11.2 Avifauna Impact Assessment 244
11.2.1 Site-Specific Construction (CEMPr) 244
11.2.2 Site-Specific Operational (OEMPr) 245
11.2.3 Proposed Monitoring Actions 246
11.3 Civil Aviation 246
11.4 Aquatic Biodiversity (Freshwater) Assessment 246
11.5 Palaeontological Impact Assessment 247
11.6 Soil and Land Capability (Agriculture) 248
11.7 Terrestrial Biodiversity 249
11.8 Visual Impact Assessment 256
11.9 Social Assessment 257
12 ENVIRONMENTAL IMPACT STATEMENT 259
13 ANY ASPECTS WHICH WERE CONDITIONAL TO THE FINDINGS OF THE ASSESSMENT, EITHER BY THE EAP OR SPECIALIST, WHICH ARE TO BE INCLUDED AS CONDITIONS OF AUTHORISATION 287
14 ASSUMPTIONS, UNCERTAINTIES, AND GAPS IN KNOWLEDGE WHICH RELATE TO THE ASSESSMENT AND MITIGATION MEASURES PROPOSED 287
14.1 Environmental Assessment Practitioner 287
14.2 Avifauna Specialist 288
14.3 Archaeology and Cultural Heritage Specialist 289
14.4 Aquatic Biodiversity (Freshwater) Assessment 289
14.5 Civil Aviation 289
14.6 Agricultural (Soil and Land Capability) 290
14.7 Terrestrial Biodiversity 290
14.8 Visual Impact Assessment 290
14.9 Social Impact Assessment 291
15 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED 291
16 THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED 294



17 AN UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP 295

18 ANY SPECIFIC INFORMATION THAT MAY BE REQUIRED BY THE COMPETENT AUTHORITY 296

19 ANY OTHER MATTERS REQUIRED IN TERMS OF SECTION 24 (4) (A) AND (B) OF THE ACT 296

20 CONCLUSION 296

21 REFERENCES 297

LIST OF FIGURES

Figure 1-1: Location of the Project in relation to the Strategic Transmission Corridors 3

Figure 1-2: Regional location 6

Figure 1-3: Locality map indicating the proposed powerline. 8

Figure 1-4: Locality Map(Google Earth) 9

Figure 2-1: Servitude Width And Proposed Tower Footprint Areas 13

Figure 2-2: Tree Clearing Within Servitude 17

Figure 4-1: Basic Assessment Process 36

Figure 8-1: Climate Data per vegetation type (Mucina & Rutherford, 2006). 54

Figure 8-2: Geology of the area. 55

Figure 8-3: Land type classes associated with the eastern side of the study area ((Enviro-Solum Consulting, 2026) 56

Figure 8-4: Land type classes associated with the western side of the study area (Enviro-Solum Consulting, 2026). 56

Figure 8-5: Soil pH associated with the eastern side of the study area. 57

Figure 8-6: Soil pH associated with the western side of the study area (Enviro-Solum Consulting, 2026). 58

Figure 8-7: SOTER dominant soils associated with the eastern side of the study area 59

Figure 8-8: SOTER dominant soils associated with the western side study area. 59

Figure 8-9: Desktop land capability associated with the eastern portion of the study area (Enviro-Solum Consulting, 2026). 61

Figure 8-10: Desktop land capability associated with the western portion of the study (Enviro-Solum Consulting, 2026) 61

Figure 8-11: The location of the line in relation to PAAs 62

Figure 8-12: Vaal-Orange WMA and the affected quaternary catchment 63

Figure 8-13: SWSAs intersected by the deviations 64

Figure 8-14: Water Resources per the National Biodiversity Assessment 2018 65

Figure 8-15: National Freshwater Ecosystem Priority Areas (NFEPA) Datasets 66

Figure 8-16: Terrestrial CBA and ESAs within Deviation 1 67

Figure 8-17: Terrestrial CBA and ESAs within Deviation 2 68

Figure 8-18: Aquatic CBA and ESAs within the deviation servitudes 69
Figure 8-19: Remnants of Vegetation overlapping the project area 71
Figure 8-20: Ecosystem Protection Level 72
Figure 8-21: KBAs and IBAs & CAR Routes in relation to Deviation 1 of the Pluto-Mahikeng 400kV Powerline (Feathers Environmental Services, 2026) 75
Figure 8-22: Protected Area, KBAs, IBAs in relation to Deviation 2 of the *Pluto-Mahikeng 400kV Powerline* (Feathers Environmental Services, 2026) 76
Figure 8-23: Established vulture roosts in relation to Deviation 1 of the Pluto - Mahikeng 400kV Powerline route deviation (Feathers Environmental Services, 2026) 77
Figure 8-24: Established vulture nests & roosts in relation to Deviation 2 of the Pluto-Mahikeng 400kV Powerline (Feathers Environmental Services, 2026) 77
Figure 8-25: Land-use map 79
Figure 9-1: Mitigation Hierarchy as described by the DEA (2013) 93
Figure 9-2: CIA Process Flow 145
Figure 9-3: Infrastructure and activities with a 30km radius 148
Figure 10-1: Land uses associated with the study area. 166
Figure 10-2: Dominant soils form within the western portion of the study area. 170
Figure 10-3: Dominant soils form within the western portion of the study area. 171
Figure 10-4: Map depicting the land capability of soils within the (a) western portion of the study area and (b) of the western section of the study area. 172
Figure 10-5: DFFE (2017) land capability classes associated with the a) western section, b) eastern portion of the study area. 173
Figure 10-6: Agricultural potential for soils associated with the (a) western portion and (b) eastern section of the study area. 174
Figure 10-7: Protected Agricultural Areas associated with the (a) western portion and (b) eastern section of the study area. 175
Figure 10-8: UAV aerial view of the Mooi River crossing (Towers 500-501), showing the perennial channel within its valley-bottom wetland, bordered by cultivated land. 179
Figure 10-9: Closer UAV view of the Mooi River, showing the defined channel, riparian fringe vegetation, and the adjacent cultivated field boundary. 180
Figure 10-10: Representative open Carletonville Dolomite Grassland away from the confirmed aquatic features, Towers 491-521 span. 182
Figure 10-11: Further representative grassland cover with farmstead visible in the distance, Towers 491-521 span. 182
Figure 10-12: Dolomitic rock outcrop with thicket clumps along the Towers 491-521 corridor. 182
Figure 10-13: UAV aerial view of representative Klerksdorp Thornveld cover, Towers 110-111 deviation area, showing scattered thorn shrub clusters over short grassland with no aquatic feature indicators. 183

Figure 10-14: Close-range UAV view of Kalahari sand substrate with sparse shrub cover, confirming the CLp soil mapping unit and the absence of wetness or hydromorphic indicators. 183
Figure 10-15: UAV view showing thornveld cover adjacent to a road servitude near the Towers 110-111 corridor..... 184
Figure 10-16: Mooi river..... 194
Figure 10-17: Bushveld vegetation (Deviation 2) 195
Figure 10-18: Typical grassland habitat (Deviation 1) 196
Figure 10-19: Cultivated lands adjacent to the Mooi River (Deviation 1)..... 197
Figure 10-20: Transmission Line Route from Watershed to Pluto SS showing 14km Deviation 202
Figure 10-21: Deviation 2 of 45m near Wondergat..... 203
Figure 10-22: Location of deviation 1 207
Figure 10-23: Location of deviation 2 208
Figure 10-24: Geology for deviation 1 (a) and deviation 2 (b) 209
Figure 10-25: SAHRIS Palaeosensitivity Map..... 211
Figure 10-26: Site (26°09'56.49"S 27°09'28.07"E)..... 211
Figure 10-27: Chert-rich dolomite exposed at: 26°10'00.81"S 27°05' 47.45"E 212
Figure 10-28: Study site seen from: 26°09'56.57"S 27°09'29.32"E..... 212
Figure 10-29: Dolomite exposed at: 26°09'57.04"S 27°09'30.55"E..... 213
Figure 10-30: Chert-rich dolomite exposed at: 26°09'14.90"S 27°10' 52.93"E 213
Figure 10-31: *Boophane disticha* 217
Figure 10-32: *Gladiolus sericeovillosus*..... 217
Figure 10-33: Aerial view of deviation 1 218
Figure 10-34: Crossing along the Mooi river 218
Figure 10-35: Stoebe plumosa..... 219
Figure 10-36: Tagetes minuta and Melinis repens 219
Figure 10-37: Aerial view of deviation 2 (Tower 110-111)..... 220
Figure 10-38: Grass layer within the deviation 220
Figure 10-39: Vachellia tortilis 221
Figure 10-40: Boophane disticha 222
Figure 10-41: Gladiolus sericeovillosus..... 222
Figure 10-42: Cosmos bipinnatus as one of the invaders..... 224
Figure 10-43: Vegetation Map 235
Figure 10-44: Land cover map 236
Figure 10-45: Visibility Analysis: Pluto-Mahikeng 400 kV Powerline Deviation 241
Figure 12-1: First Section of the First Deviation (Towers 491-502) 283
Figure 12-2: Mid-Section of the first deviation (Towers 503-514) 284
Figure 12-3: Last section of Deviation 1 (Towers 512-522) 285

Figure 12-4: Deviation 2 (Span between tower 110 and 111) 286

LIST OF TABLES

Table 1-1: Applicant's Details 3
Table 1-2: EAP Details 4
Table 1-3: Project Location Information 7
Table 2-1: Activities triggered under NEMA EIA Listing Notices 11
Table 2-2: Powerline Details 13
Table 2-3: 400 kV Towers 14
Table 2-4: Standard for vegetation clearance per 240-52456757 16
Table 3-1: Required Permits/ Licences 34
Table 8-1: Details of Specialists 53
Table 8-2: National Land Capability Values (DAFF,2017) 60
Table 8-3: Institutional arrangements (local municipalities within the proposed development area) 80
Table 8-4: Population demographics data 81
Table 8-5: Housing and living conditions 82
Table 8-6: Education levels progress since the last Census 84
Table 8-7: Labour force characteristics (Q4:2025) 85
Table 9-1: Identification of Significant Impacts 87
Table 9-2: Impact Assessment Methodology 91
Table 9-3:Weights assigned to each attribute 92
Table 9-4: Summary of anticipated impact, significance and listed activities 95
Table 9-5: Projects within the 30km radius 147
Table 10-1: Soil forms in hectares (ha) occurring within the study area 169
Table 10-2: Confirmed aquatic features - Towers 491-521 178
Table 10-3: Classification of identified aquatic features. 180
Table 10-4: PES, EIS, HIA and REC assessment results. 181
Table 10-5: DWS RAM assessment - Towers 491-521 185
Table 10-6: DWS RAM assessment – Towers 110-111. 186
Table 10-7: Risk Assessment Matrix 204
Table 10-8: Risk Tolerability Matrix 204
Table 10-9: Alien invaders within the deviations 223
Table 10-10: Quantification of the CBA and ESA on site 225
Table 10-11: Site Ecological Importance of the deviation habitat units (CI = Conservation Importance; FI = Functional Integrity; BI = Biodiversity Importance; RR = Receptor Resilience). 226
Table 13-1: Summary of assessed impacts. 263
Table 13-2: Positive and Negative Impacts of the proposed project 278

ABBREVIATIONS

ATC	Air Traffic Control
ATNS	Air Traffic and Navigation Services
BA	Basic Assessment
BAR	Basic Assessment Report
BC	Biodiversity Conservation Directorate (DFFE)
CAR	Coordinated Avifaunal Roadcount
CBA	Critical Biodiversity Area
C&R	Comments and Response
DEA	Department of Environmental Affairs
DFFE	Department of Forestry, Fisheries, and the Environment
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EGI	Electricity Grid Infrastructure
EIA	Environmental Impact Assessment
EIS	Environmental Importance and Sensitivity
EMF	Electromagnetic Interference
EMPR	Environmental Management Programme
ESA	Ecological Support Area
GA	General Authorisation
I&APs	Interested and Affected Parties
ICAO	International Civil Aviation Organisation
IDP	Integrated Development Plan
IEA	Integrated Environmental Authorisations
IPP	Independent Power Producer
IRP	Integrated Resource Plan
NFEPA	National Freshwater Ecosystem Priority Area
MTS	Main Transmission Substation
NEMA	National Environmental Management Act, 107 of 1998 (as amended)
NEMBA	National Environmental Management: Biodiversity Act 10 of 2004
NTCSA	National Transmission Company South Africa SOC Ltd
NWA	National Water Act No. 36 of 1998
PAOI	Project Area of Influence
PES	Present Ecological Status
POPIA	Protection of Personal Information Act (No. 4 of 2013),
PPP	Public Participation Process
PV	Photovoltaic

RI	Radio Interference
SABAP 2	South African Bird Atlas 2 (SABAP 2)
SACAA	South African Civil Aviation Authority
SACAD	South African Conservation Areas Dataset
SAHRA	South African Heritage Resources Agency
SANDF	South Africa National Defence Forces
SAPAD	South African Protected Areas Dataset
SARAO	South African Radio Astronomy Observatory
SCC	Species of Conservation Concern
SDF	Spatial Development Framework
SKA	Square Kilometer Array
SEI	Site Ecological Importance
SIA	Social Impact Assessment
SOC	State Owned Company
STR	Screening Tool Report
TDP	Transmission Development Plan
TOPS	Threatened and Protected Species
WUL	Water Use Licence
WULA	Water Use Licence Application
ZVI	Zone of Visual Influence.

APPENDICES

Appendix A: Environmental Practitioner's CV

Appendix B: Maps

Appendix C: Tower Coordinates and 21-SG Digits

Appendix D: Specialist Studies

- **Appendix D-1:** Site Sensitivity Verification Report
- **Appendix D-2:** Archaeological Impact Assessment Report
- **Appendix D-3:** Avifauna Impact Assessment Report
- **Appendix D-4:** Civil Aviation Site Sensitivity Verification Report
- **Appendix D-5:** Freshwater Assessment Report
- **Appendix D-6:** Palaeontological Impact Assessment Report
- **Appendix D-7:** Soil and Land Capability Compliance Statement
- **Appendix D-8:** Terrestrial Biodiversity Impact Assessment Report
- **Appendix D-9:** Social Impact Assessment Report
- **Appendix D-10:** Visual Impact Assessment Report

Appendix E: Public Participation Process

- **Appendix E-1:** Notification and BID
- **Appendix E-2:** Proof of Submission of BID
- **Appendix E-3:** Site notices
- **Appendix E-4:** Stakeholder Database
- **Appendix E-5:** Comments and Responses Report
- **Appendix E-6:** Stakeholder Comments
- **Appendix E-7:** Copies of newspaper adverts
- **Appendix E-8**: PP Minutes

Appendix F: Environmental Management Programme for Powerline

1 INTRODUCTION

This section of the report details the information required as per Section 3(1)(a) to (c) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(a) details of—
(i) the EAP who prepared the report; and
(ii) the expertise of the EAP, including a curriculum vitae.
(b) the location of the activity, including:
(i) the 21-digit Surveyor General code of each cadastral land parcel.
(ii) where available, the physical address and farm name.
(iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is—
(i) a linear activity, a description, and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or
(ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;

The National Transmission Company South Africa SOC Ltd (NTCSA) is mandated to provide reliable and affordable electricity to consumers across South Africa. To meet this mandate, NTCSA must continuously plan, develop and expand its transmission network to keep pace with growing electricity demand. The Watershed Main Transmission Substation (MTS) supply area is currently constrained, as the substation is supplied by two 275 kV powerlines from Pluto Main Transmission Substation (MTS) and serves the greater Lichtenburg, Mahikeng and Vryburg areas, placing the existing network under increasing strain. Integrating the Mookodi and Ngwedi MTSs, together with the Watershed Strengthening project, will provide only limited relief. These works will shift approximately 180 MVA of load from Watershed MTS and share it between Mookodi and Ngwedi MTS, and will create additional transformation capacity at Watershed that relieves the 275 kV voltage constraints, but this relief will last for a limited time only.

In response, NTCSA proposed a 400 kV powerline from the Pluto Main Transmission Substation (MTS) to the proposed Mahikeng MTS in the Gauteng and North West Provinces. The powerline is critical to preventing current and future voltage collapses, improving system reliability and supporting economic growth in the region. The broader Pluto-Mahikeng project underwent a full Environmental Impact Assessment (EIA), and the Department of Forestry, Fisheries and the Environment (DFFE), then Department of Environmental Affairs (DEA) granted Environmental Authorisation (EA) on 4 February 2019 under reference 14/12/16/3/3/2/1051. The authorised infrastructure comprises a 400 kV transmission powerline between Pluto MTS and Mahikeng MTS within an approved 2 km-wide corridor, the Mahikeng

MTS, and associated infrastructure. The EA validity period has since been extended, and the amended authorisation lapses on 4 February 2029.

1.1 This Application

During the line design process, adjustments were required to accommodate landowner requirements. Consequently, two sections of the required 55 m servitude extend beyond the approved 2 km corridor and fall outside the area assessed during the original EIA process. The existing EA therefore does not cover them. The proposed activities and associated infrastructure are listed activities that trigger the need for environmental authorisation. Because the powerline capacity falls within Listing Notice 2 of Government Notice R984 of 2014 (as amended), the deviations to the 400 kV powerline would ordinarily require a Scoping and Environmental Impact Assessment. However, Government Notice 113 of 16 February 2018, promulgated under the National Environmental Management Act, 1998 (NEMA) (as amended), provides that where the greater part of a pre-negotiated transmission powerline route falls within one or more Strategic Transmission Corridors, the Basic Assessment (BA) process contemplated in Regulations 19 and 20 of the EIA Regulations, Government Notice R982 of 2014 (as amended) (hereinafter the EIA Regulations, 2014 (as amended)) must be followed to obtain an EA. The entirety of Deviation 1 is located within the Central and Northern Strategic Transmission Corridors (STCs), while Deviation 2 is situated within the Northern STC (Figure 1-1). Accordingly, the provisions of Government Notice 113 of 2018 are applicable to the proposed development and have been considered as part of this application. A Basic Assessment is therefore being undertaken for the two deviations, assessing them on their own merits while recognising their relationship to the broader authorised Pluto-Mahikeng project. NTCSA has therefore appointed Vhubvo Consultancy cc (Vhubvo) as the independent Environmental Assessment Practitioner (EAP) to undertake this Basic Assessment.

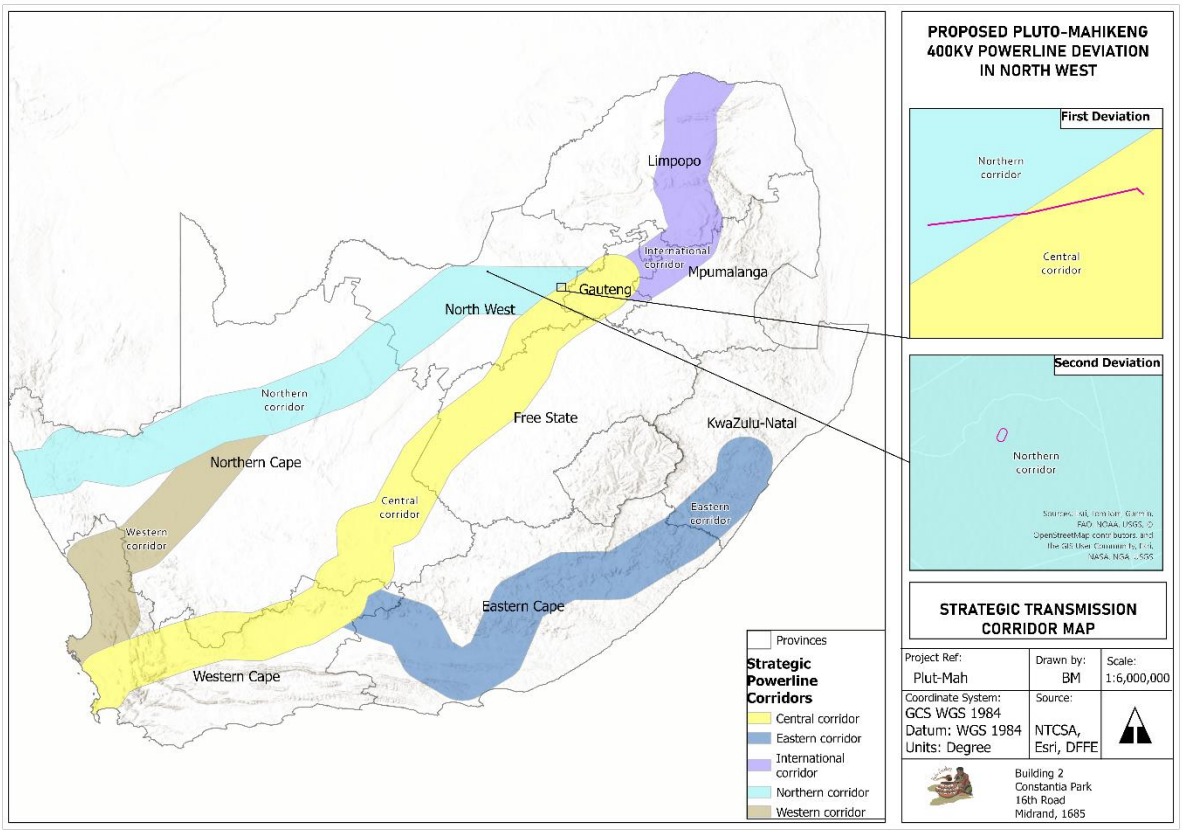


Figure 1-1: Location of the Project in relation to the Strategic Transmission Corridors

The following activities are therefore being undertaken as part of the BA process:

i. Compilation of a screening report as per the DFFE Screening Tool.
ii. Site Sensitivity Verification.
iii. Specialist Assessment.
iv. Public Participation Process.
v. Compilation of the Basic Assessment Report and Environmental Management Programmes.

1.2 Details of the Applicant

The details of the applicant are given in the Table below.

Table 1-1: Applicant's Details

Name of Company	National Transmission Company South Africa SOC Ltd
Physical Address	Megawatt Park, Maxwell Drive, Sunninghill, Sandton
Postal Address	P.O. Box 1091, Johannesburg, 2001
Contact Person	David Tunnicliff
Email Address	TunnicDA@ntcsa.co.za

1.3 Details of Environmental Impact Assessment Practitioner (EAP)

Section 13 of the EIA Regulations, 2014, as amended, stipulates that an Environment Assessment Practitioner (EAP) should be independent and possess expertise in conducting Environmental Impact Assessments, including knowledge of the Act and any relevant guidelines applicable to the proposed activity.

Vhubvo is a black-owned, BBB-EE-accredited consultancy company established in 2010, offering services in the geo-environmental sector. The company has completed Environmental Impact Assessments for various developments. The details for the project EAPs are given below as per Section 3(1)(a)(i) of Appendix 1 of the EIA Regulations, 2014, as amended. Reference is also made to the CVs attached in Appendix A.

Table 1-2: EAP Details

Aspect	Details
Principal EAP	
Company name of EAP:	Vhubvo Consultancy cc
EAP's name and surname:	Brenda Makanza
Postal address:	P.O. Box 7068, Midrand, 1685
Tel:	011 312 2878
Fax:	011 312 7824
E-mail:	brenda@vhubvo.co.za
Qualifications and relevant experience	• B.Sc. Honours Environmental Science. • Professional Diploma in Geographic Information Systems • Twenty-one (21) in the environmental consulting field. Refer to Appendix A for CV and Qualifications
Professional affiliations	• South African Council for Natural Scientific Professions (SACNASP). Registration Number 400016/17. • Environmental Assessment Practitioners of South Africa (EAPASA). Registration Number 2019/1542.
EAP	
Company name of EAP:	Vhubvo Consultancy cc
EAP's name and surname:	Frank Mhandu
Postal address:	P.O. BOX 7068, Midrand, 1685

Aspect	Details
Tel:	011 312 2878
Fax:	011 312 7824
E-mail:	info@vhubvo.co.za
Qualifications and relevant experience	• MSc Conservation Biology • Nine years (9) in the environmental consulting field. Refer to Appendix A for CV and Qualifications
Professional Affiliations	• South African Council for Natural Scientific Professions (SACNASP). Registration Number 120638. • Environmental Assessment Practitioners of South Africa (EAPASA). Registration Number 2020/268.

1.4 Location

1.4.1 Regional Context of the Project

The two deviations (project area) are in the North West Province, South Africa's fourth-smallest province, with a total land area of approximately 106,000 km^2. It is bordered by Botswana to the north, Northern Cape to the west, Gauteng to the east, Limpopo to the north-east, and Free State to the south. The Province consists of eighteen local municipalities clustered into four districts: Bojanala Platinum, Dr. Kenneth Kaunda, Dr Ruth Segomotsi Mompati and Ngaka Modiri Molema. The deviations are within two of the district municipalities: Dr. Kenneth Kaunda and Ngaka Modiri Molema. The general profile of the Districts, including the affected local municipalities, is discussed below and shown in Figure 1-2.

A. Dr. Kenneth Kaunda District Municipality (DC35)

The Dr Kenneth Kaunda District Municipality (DrKKDM) is a Category C municipality situated in the southern part of the North West Province and consisting of three local municipalities i.e., Matlosana, **JB Marks** and Maquassi Hills. It is located 65km south-west of Johannesburg and borders the Gauteng Province on the south and the Free State Province on the North, with the R501 and R30 passing over the Vaal River. The district has a total area of 13 916 km^2 with an average of 53 people per square kilometre. The largest section (99%) of the deviations are located within JB Marks Local Municipality. The Municipality's profile is indicated below:

- **JB Marks (NW405):** JB Marks Local Municipality is a Category B municipality within Dr Kenneth Kaunda District Municipality in the North West Province. Established in 2016 through the amalgamation of the former Tlokwe City Council and Ventersdorp Local Municipalities, it encompasses the urban centres of Potchefstroom and Ventersdorp, surrounding residential areas, extensive rural and commercial farming areas, six rural villages, and key tourism assets including the Vredefort Dome and the Vaal River. The municipality is strategically located along the N12 national route linking Johannesburg and Kimberley to Cape Town and is served by the main Gauteng–Northern and Western Cape railway corridor, with additional access provided by an airfield near Potchefstroom. (Final IDP, 2022-2027).

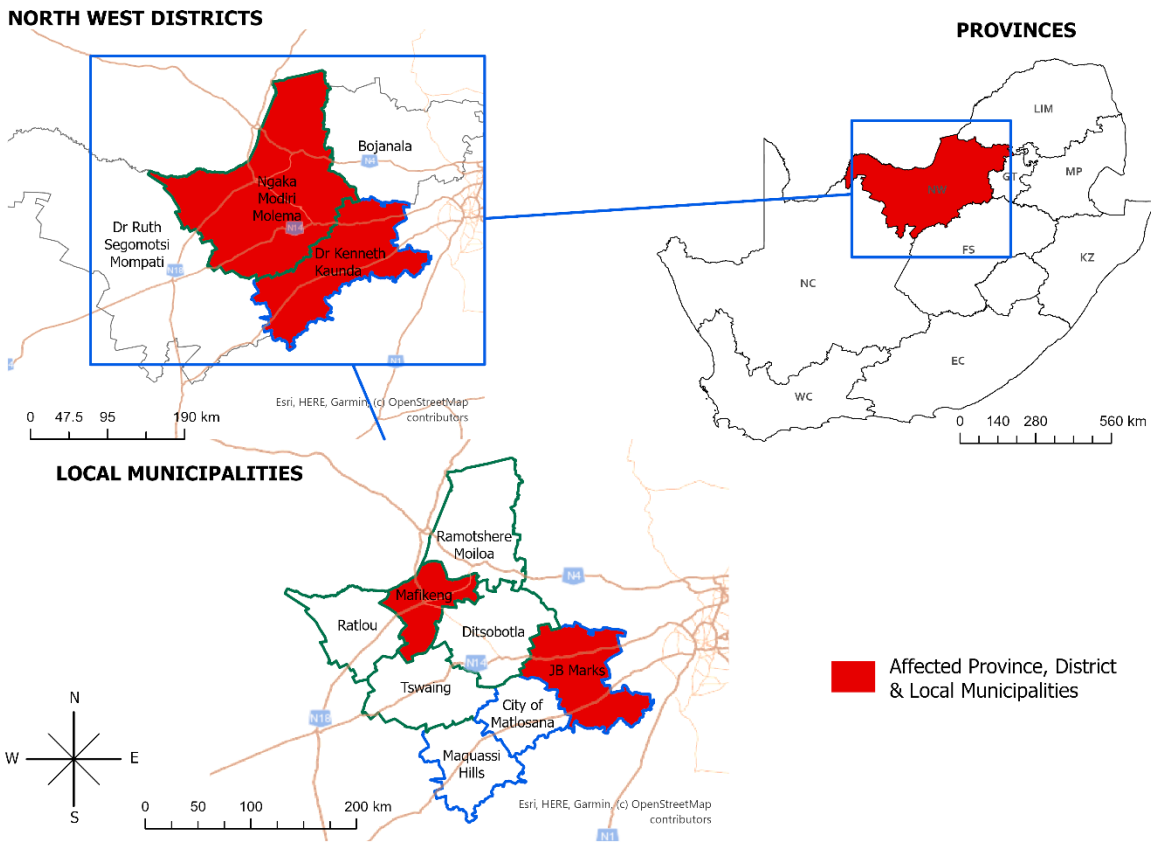


Figure 1-2: Regional location

B. Ngaka Modiri Molema District Municipality (DC34)

The Ngaka Modiri Molema District Municipality is a Category C municipality and one of four district municipalities in the North West Province. It is situated centrally within the province and shares an international border with Botswana. It is comprised of five local municipalities: Mahikeng, Ratlou, Ramotshere Moiloa, Ditsobotla and Tswaing. The district covers an area of approximately 28 114km^2. The shorter (±45 m) powerline deviation is within the Mahikeng Local Municipality.

- **Mahikeng Local Municipality (NW383):** is a Category B municipality located within the Ngaka Modiri Molema District Municipality in the North West Province and close to the Botswana border. Covering approximately 3,646 km^2 and comprising 35 wards, the municipality includes Mahikeng, Mmabatho, Ottoshoop and numerous surrounding villages and suburbs. Mahikeng is the capital city of the North West Province and functions as an important provincial administrative centre, accommodating the Provincial Legislature and a number of regional offices of national government departments.

1.4.2 Description of the Project Location

The proposed deviations span across several farm portions of the two local municipalities, JB Marks and Mahikeng under the jurisdiction of two District Municipalities; Dr Kenneth Kaunda and Ngaka Modiri

Molema of North West Province. The first deviation which is approximately 14km is located 24 km north west of Pluto Main Transmission Substation (MTS) while the second deviation, comprises a short lateral shift of approximately ± 45 m between Towers 110 and 111. It is approximately 15 km south east of Mahikeng and approximately 3 km east of Mafikeng Nature Reserve.

The proposed powerline deviations traverse various land-uses such as sparse farmsteads, natural areas, agricultural areas and borders conservation areas. Villages such as Mahikeng, Klerkskraal, Merindol, Rentse and Roodepoort are within a 20km radius of the proposed deviations. Reference is made to Table 1-3 and Figures 1-3 and 1-4 for the location information.

Table 1-3: Project Location Information

Province	North West
DEVIATION 1	
Length	± 14 km
District	Dr Kenneth Kaunda
Local Municipality	JB Marks
Ward No(s)	31
Affected Farms	Buchansvale 61 IQ/2, Goedgedacht 27 IQ /1, Klipgat 18 IQ /4, Klipgat 18 IQ /8, Klipgat 18 IQ /9, Nooitgedacht 69 IQ /0, Nooitgedacht 69 IQ /3, Illmasdale 70 IQ /2
Coordinates	*Start:* 26° 10' 1.84" S, 027° 05' 37.51" E *Mid:* 26° 09' 30.91" S, 027° 09' 42.46" E *End:* 26° 08' 52.25" S, 027° 13' 42.82" E
No. of Towers	31
Strategic Transmission Corridor	Central and Northern
DEVIATION NO.2	
Length	±45 m
District	Ngaka Modiri Molema
Local Municipality	Mahikeng
Ward No(s)	9
Affected Farm(s)	Bauwel 128 JO/4
Coordinates	*Start:* 25° 52' 18.48" S, 025° 46' 27.5" E *Mid:* 25° 52' 19.11" S, 025° 46' 27.19" E *End:* 25° 52' 19.75" S, 025° 46' 26.88" E
Towers	Between span for Tower 110 and 111
Strategic Transmission Corridor	Northern

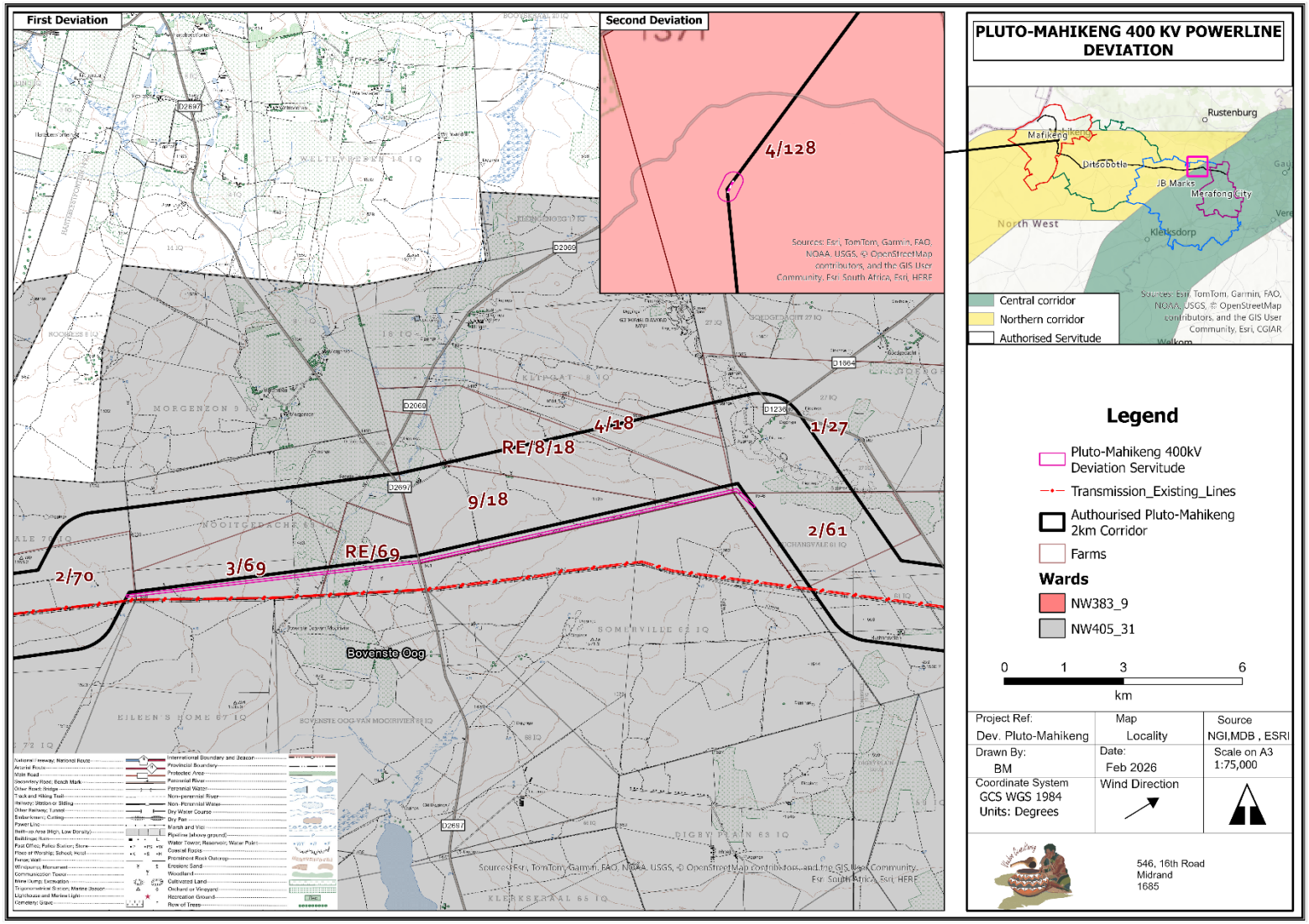


Figure 1-3: Locality map indicating the proposed powerline.

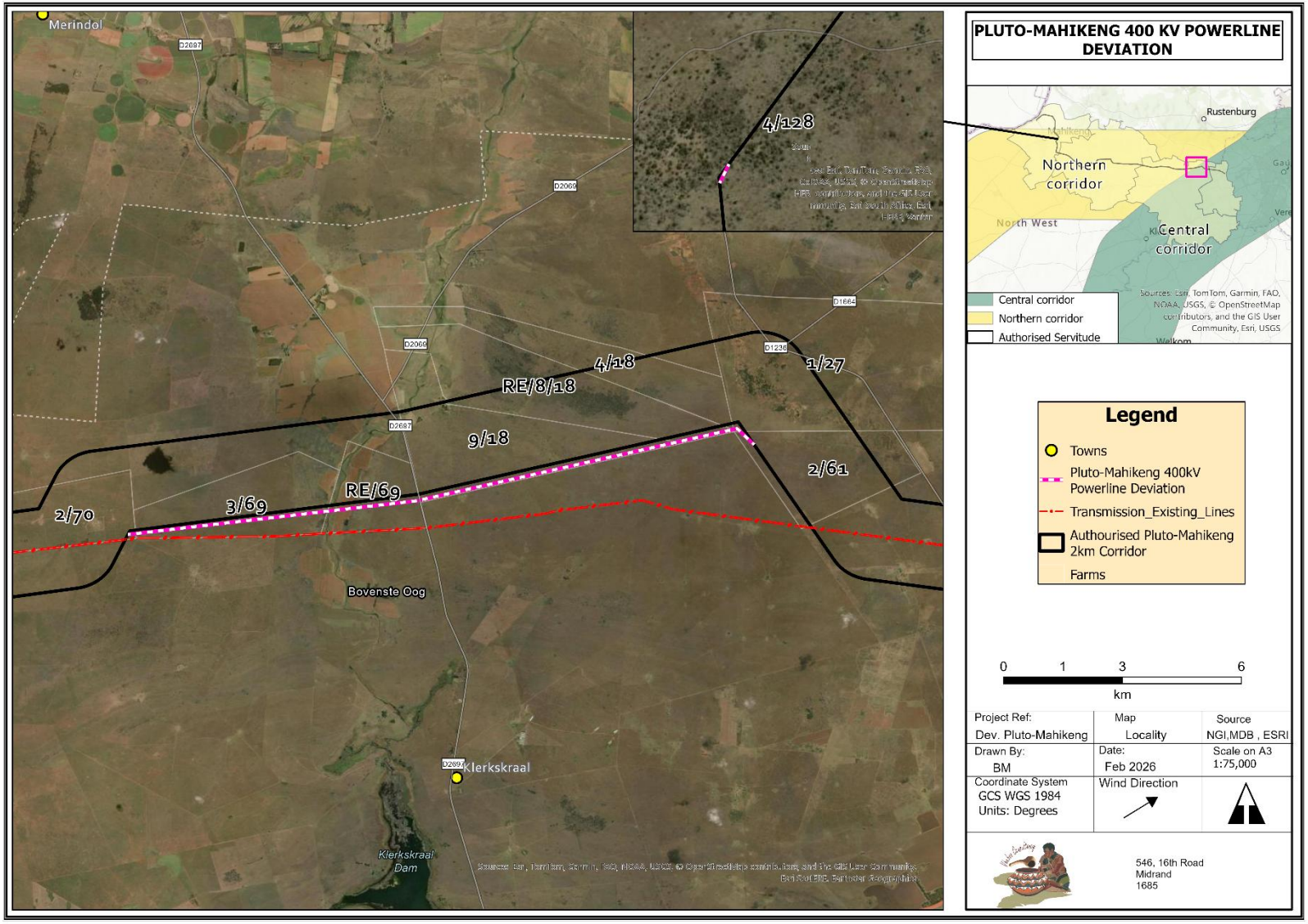


Figure 1-4: Locality Map(Google Earth)

2 PROJECT DESCRIPTION

This section of the report outlines the information required in accordance with Section 3(1)(d) of Appendix 1 to the Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(d) a description of the scope of the proposed activity, including—
(i) all listed and specified activities triggered and being applied for; and
(ii) a description of the activities to be undertaken including associated structures and infrastructure

2.1 Description

NTCSA is tasked with delivering reliable and affordable electricity to consumers across South Africa. To meet its mandate and address the growing needs of end-users, it must continuously plan, establish and expand its transmission infrastructure to support generation processes. It is therefore vital that transmission capacity keeps pace with both electricity generation capacity and electricity demand.

The growing electricity demand places increasing pressure on the existing generation and transmission capacity of Eskom Holdings SOC Ltd (Eskom) and NTCSA. NTCSA has accordingly identified the need to develop further infrastructure to improve the reliability of electricity supply to the country, and in particular to provide for:

a) the growth in electricity demand in the North West Province; and
b) the injection of electricity from the proposed pumped storage schemes in Botswana.

In doing so, NTCSA commits to a sustainable energy strategy that adheres to the policies and strategies of the national government of the Republic of South Africa. To this end, NTCSA identified the need to develop a new 400 kV transmission powerline running from the Pluto Substation near Carletonville in the Gauteng Province, traversing the North West Province, and connecting to the proposed Mahikeng Main Transmission Substation (MTS) near Miga in the North West Province. This development will ensure a steady electricity supply to the North West area. The 400 kV powerline and Mahikeng MTS were authorised in 2019; however, during detailed line design, two sections were routed outside the approved corridor. The scope of work covered in this application, therefore entails the following:

i. Construction of two power line deviation sections, totalling approximately 14.045 km, on the authorised Pluto–Mahikeng 400 kV power line within the North West Province. Both deviations fall outside the approved 2 km corridor and will be constructed concurrently with the broader authorised Pluto–Mahikeng project.
ii. Construction of a 3.5 m-wide access road approximately 14 km in length. The access road will be constructed within the deviation servitude.

The EIA Regulations, 2014 (as amended), provide for two types or levels of assessment: Basic Assessment, Scoping, and Environmental Impact Assessment (EIA). The Regulations specify that all activities appearing

in Listing Notice 1, GNR 983 of 2014 (as amended), and Listing Notice 3, GNR 985, require a Basic Assessment, while activities indicated in Listing Notice 2, GNR 984 of 2014 (as amended) require a Scoping and EIA process. The construction of the 400kV powerline deviations is listed in Listing Notice 2; however, as the proposed project falls within the Central and Northern Strategic Transmission Corridor, the application will be made in accordance with Government Notice No. 113 of 2018 (as amended), read in conjunction with the EIA Regulations, 2014 (as amended). As a result, a Basic Assessment (BA) process is being undertaken, and an application is being lodged with the Department of Forestry, Fisheries and the Environment (DFFE) to obtain an Environmental Authorisation (EA). Table 2-1 lists the activities for which the application is being made.

Table 2-1: Activities triggered under NEMA EIA Listing Notices

Activity Number	Description of the relevant Basic Assessment Activity as per Listing Notice	Applicability of the Listed Activity to the proposed project
Listing Notice 1 (GNR 983) under EIA Regulations of 2014 as amended		
12(ii)(a), (c)	*The development of* (ii) *infrastructure or structures with a physical footprint of 100 square metres or more where such development occurs:* *(a) within a watercourse* *(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.*	The proposed 3.5 m-wide access road serving the Deviation 1 tower positions has a physical footprint of approximately 3 500 m^2 and is located within 32 m of the Mooi River / associated watercourse.
19	*The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse*	Construction of towers and access in the vicinity of the Mooi River crossing (Towers 500-501) and the seasonal wetland (Tower 493) will involve excavation and/or infilling exceeding 10 m^3 within the watercourse.
Listing Notice 2 (GNR984) under EIA Regulations of 2014 as amended		
9	*The development of facilities or infrastructure for the transmission and distribution of electricity with a capacity of 275 kilovolts or more, outside an urban area or industrial complex*	The realignment of two sections of the authorised 400 kV Pluto-Mahikeng transmission line (combined length approximately 14.045 km) into areas falling outside the previously authorised 2 km corridor and therefore not assessed under EA 14/12/16/3/3/2/1051. Furthermore, the powerline is greater than 275 kV transmission infrastructure in a rural area.

Activity Number	Description of the relevant Basic Assessment Activity as per Listing Notice	Applicability of the Listed Activity to the proposed project
Listing Notice 3 (GNR985) under EIA Regulations of 2014 as amended		
12 h, iv, vi	*The clearance of an area of 300 square metres or more of indigenous vegetation, except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.* ***h. North West*** iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; vi. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.	The tower and access-road development will require the clearance of indigenous vegetation, (6.6 ha) exceeding the 300 m^2 threshold within a Critical Biodiversity Area (CBA) identified in the North West Biodiversity Sector Plan, and within 100 m of the Mooi River and its associated wetland.
14ii (a), (c) h, iv, vi	*The development of* ii *infrastructure or structures* *with a physical footprint of 10 square metres or more, where such development occurs—* *(a) within a watercourse.* *(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse.* ***h. North West*** *iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority;* *vi. Areas within 5 kilometres from protected areas identified in terms of NEMPAA or from the core areas of a Biosphere reserve.*	The access road (≈ 3 500 m^2 footprint) is located within 32 m of the Mooi River watercourse, a CBA (North West Biodiversity Sector Plan), and within 5 km of the Sommerville and Fred Coetzee Private Nature Reserves declared as Nature Reserves in terms of NEMPAA.

2.2 Technical Details of the Project

2.2.1 400kV Powerlines

According to Eskom (2011), the tree and building restriction distance, as well as the parallel line separation distance, must be obtained from the relevant Design Engineer for each project. However, the requirements based on theoretical and practical principles of 400 kV powerlines are given in the table below and discussed in subsequent sections.

Table 2-2: Powerline Details

Component	Description/dimensions
400kV Powerline Specifications	
Servitude	55 m
Type of Tower Structure	▪ Guyed "VEE" Suspension Tower (520B) ▪ Angle Strain and Closing Span Tower (517E)
Number of towers	31
Tower Height	18.5 m – 33m
Tower spacing	▪ Tower 520B - Mean: 452m, maximum: 520m ▪ Tower 517E- Mean: 333 m, maximum: 486 m
Conductor attachment height (mean):	21 m
Minimum ground clearance	8.1m

2.2.1.1 Towers

Towers are selected based on factors such as weight, area, height, cost, and erection time. The proposed transmission line will comprise lattice steel towers ranging from 18.5 m to 33 m in height, depending on the tower type and site-specific conditions, with electrical conductors suspended between adjacent towers. The overall average tower spacing is approximately 425 m, although the actual span varies according to tower type and site-specific conditions. Figure 2-1 shows the typical servitude required for a 400 kV powerline, while Table 2-3 shows towers used for the 400 kV powerline.

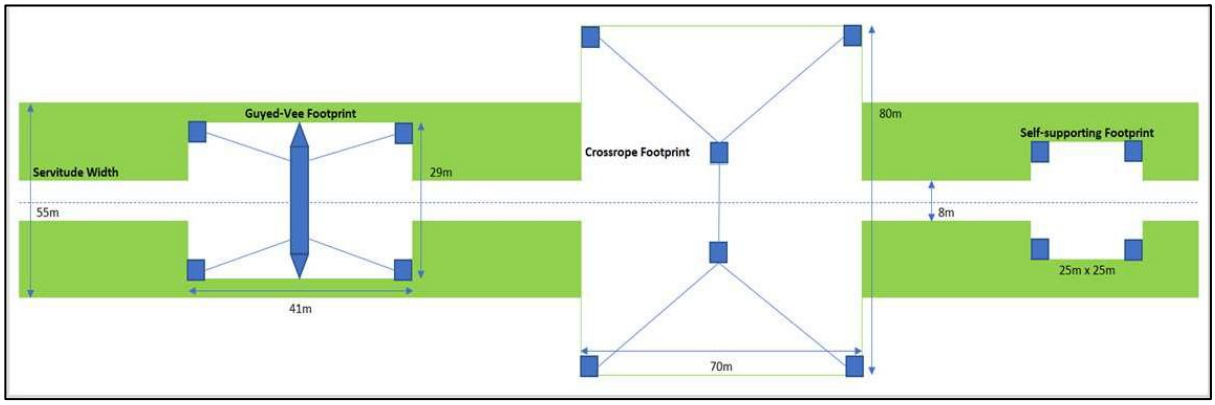
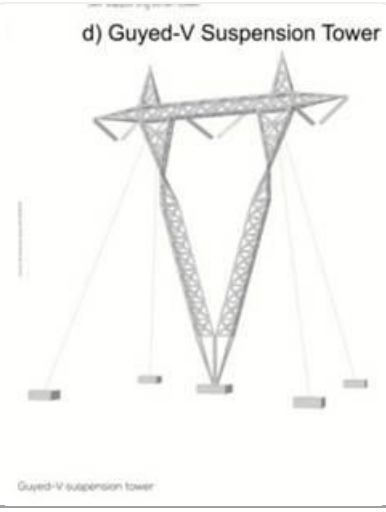


Figure 2-1: Servitude Width And Proposed Tower Footprint Areas

Table 2-3: 400 kV Towers

Type	Guyed "VEE" Suspension Tower (520B)	Angle Strain and Closing Span Tower (517E)
		
Tower Height	22.5 m - 33 m	18.5m – 33 m
Footprint	32x50 m, 30x40 m	15X15 m; 25x25 m
Span	384-520 m	180 m – 486 m

2.2.1.2 Aviation Protection

Crop sprayers may be utilised in commercial agriculture in the area. Where crop sprayers are active on the property, aircraft warning spheres are to be fitted to the earth wire according to the specifications for the affected spans. Allowance must be made to accommodate aircraft diversion spheres on an ad hoc basis as further information becomes available during construction.

2.3 Pre-construction and Construction Phase

The main works to be undertaken during the pre-construction and construction phases of the proposed project include the following:

2.3.1 Pre-Construction

2.3.1.1 Land Negotiation

NTCSA Land and Rights has negotiated with the affected landowners and secured the required servitude for the proposed powerline deviation. During the servitude acquisition process, existing land uses, including crop-spraying operations and other fixed infrastructure, were identified and taken into consideration during the powerline design process to minimise potential conflicts.

The registration of the servitude does not prevent landowners from continuing with agricultural and other compatible land-use activities, provided these do not interfere with the safe operation, maintenance or

integrity of the transmission line. Any special conditions agreed upon with the affected landowners during the negotiation process will be available on site and implemented throughout the construction phase.

Within the registered servitude, NTCSA retains the rights necessary to construct, operate, inspect, maintain and repair the transmission line infrastructure. In summary, NTCSA has the following rights within the servitude:

(i) Reasonable access to operate and maintain the line inside the servitude area; and

(ii) The removal of trees and vegetation that will interfere with the operation of the powerline.

2.3.2 Construction of Powerline

The construction of the deviation forms part of the broader Pluto-Mahikeng 400 kV powerline project and is expected to take approximately 24 months to complete. The sequence of construction activities is listed below and briefly discussed in the following sections:

- Construction campsite and laydown area establishment.
- Vegetation clearing to facilitate access, construction, and the safe operation of the infrastructure.
- Establishing access roads on the servitude where required.
- Preparation for construction right-of-way and ground preparation.
- Pegging of tower positions for construction.
- Transportation of equipment, materials, and personnel to and from sites and stores.
- Installation of foundations for the towers.
- Tower assembly and erection.
- Conductor stringing and regulation.
- Transfer of the line from the Contractor for commissioning.
- Final inspection of the line, commissioning and transfer to the Grid Line and Servitude Manager for operation.
- Rehabilitation of disturbed areas.
- Signing off by the Landowners on the acceptability of the rehabilitation upon completion of the construction and rehabilitation.
- Transfer of the servitude by the Grid Environmental Manager.

2.3.2.1 Construction Camp

Construction camps will be established at locations agreed upon between the contractor and the affected landowners. The contractor, in consultation with the Environmental Control Officer (ECO), will select suitable sites based on accessibility to the construction works, the availability of services, and proximity to construction materials. Material lay-down areas will be located adjacent to the construction camps and will be used for the temporary storage of construction equipment and materials.

2.3.2.2 Clearing

Given the environmental sensitivity of the area, vegetation clearing will be kept to the minimum required for the safe construction and operation of the transmission line. A single 3.5 m-wide access road will be established along the deviation servitude where necessary, while vegetation clearing will be limited primarily to tower positions. Conductor stringing will be undertaken without clearing indigenous vegetation between towers wherever practicable. Tree clearing will only be undertaken where vegetation poses a risk to conductor safety, resulting in potential line trips or fire hazards.

The minimum conductor-to-ground clearance at mid-span will be 8.1 m for a 400 kV transmission line and 10 m where the line crosses irrigated land. Vegetation management within the servitude will comply with NTCSA Standard 240-52456757, which prescribes vegetation clearance requirements based on the applicable biome and land use. The standard for vegetation clearance for both new and existing powerlines for access, safety clearance, and prevention is indicated in the Table below:

Table 2-4: Standard for vegetation clearance per 240-52456757

Nominal voltage	**Servitude building restriction widths (measured from the centre line of the powerline) ***	**Maximum Vegetation Clearance**
220 to 765 kV	22 m to 40 m	Clear from the centre of the powerline up to the outer conductor, plus an additional 10 meters on either side. Grass and shrubs will be managed in accordance with Annex B (refer to 240-52456757) which is biome and land use dependent.

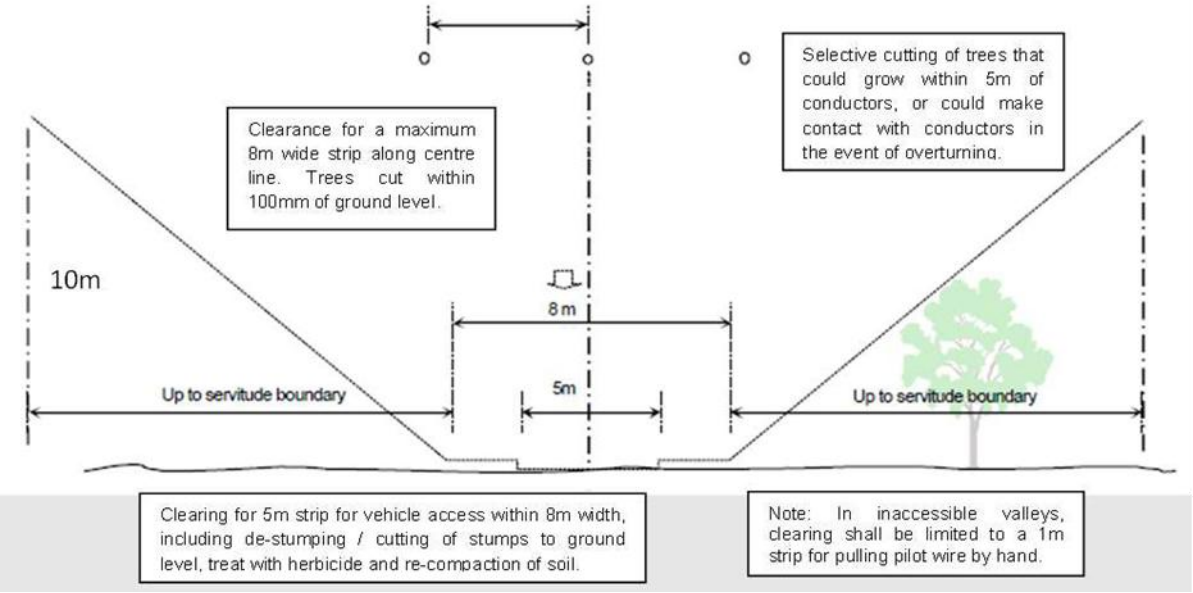


Figure 2-2: Tree Clearing Within Servitude

2.3.2.3 Access and gate installation

Access to tower positions is required during both the construction and operational phases of the project. Existing roads will be utilised wherever possible to minimise environmental disturbance. Where no suitable access exists, new gravel access roads may be established following consultation and agreement with the affected landowners. Access routes will be clearly demarcated before construction commences.

Gates will be installed, where necessary, to breach existing fence lines. This is required to facilitate access along roads utilised for the operation and maintenance of the powerline. Their use will be subject to the conditions agreed upon with the affected landowners.

2.3.3 Surveying and Tower Pegging

Prior to construction, a detailed ground survey will be undertaken to determine the ground profile, confirm tower positions, and ensure compliance with engineering design requirements. Environmental constraints identified during the planning process will be incorporated into the final tower placement. Trees that compromise statutory electrical clearances will be pruned or removed where necessary.

Following the centreline survey, a registered surveyor appointed by the contractor will peg the tower positions and mark the tower footprints to guide construction activities.

2.3.4 Geotechnical Investigations

Site-specific soil investigations will be undertaken during construction to determine the prevailing soil and rock conditions. The results will inform the selection and design of the most appropriate foundation type in accordance with the Standard for the Construction of Overhead Powerlines (TRMSCAAC6). These

investigations reduce the risk of foundation failure and avoid unnecessarily conservative foundation designs.

2.3.5 Foundation Construction

Foundation excavation and construction will be undertaken according to the geotechnical conditions encountered. Foundation dimensions will vary depending on the soil bearing capacity and the type of support structure. Excavations may be completed manually or mechanically, depending on site conditions. Strain towers generally require larger foundations than suspension towers. Excavated areas will be secured to protect people and livestock, after which foundations will be backfilled, compacted, and capped with concrete.

2.3.6 Tower Erection and Conductor Stringing

Steel tower components will generally be delivered after the completion of the foundations and temporarily stored adjacent to the tower sites. Towers will then be erected, followed by conductor stringing using guide wires. Depending on site conditions, conductor stringing may be undertaken either mechanically or manually. Temporary storage of construction materials and equipment may occur within the right-of-way during these activities.

2.4 Bulk Services and Infrastructure

The provision of the following basic services will form part of the contractor's responsibilities. The contractor will therefore be responsible for obtaining any necessary agreements, approvals or authorisations associated with these services.

i. **Water**: This report has not quantified the water volume required for the construction phase of this project. A general authorisation may be required if the water used for construction is sourced from surface water or a borehole where the abstracted quantities are more than what is permissible within the quaternary catchment.
ii. **Sewerage:** Sewerage generation is anticipated during the construction phase due to the presence of the project's contracted workforce. Consequently, portable chemical toilets are recommended and will be serviced periodically.
iii. **Stormwater:** Stormwater measures will be implemented to suit the terrain. The measures to be implemented are detailed in the Environmental Management Programme attached in Appendix F.
iv. **Solid Waste:** It is anticipated that solid waste will be generated primarily during the construction phase, including litter, packaging materials such as plastics, cardboard boxes, paper, and beverage containers, and stockpiles. This type of waste will not require a Waste Management License. The contractor will be required to prepare a Waste Management Method Statement before commencing construction activities.

2.5 Operation and Maintenance

The management of a transmission line servitude depends on the details and conditions of the agreement between the landowner and NTCSA and is therefore site-specific. These may, therefore, vary from location to location. However, it is common for there to be dual responsibility for the maintenance of the servitude, and NTCSA will be responsible for the tower structures, access roads, and roads relating to servitude access. However, periodic maintenance access, vegetation management within the servitude, repairs following storm or fire damage, and occasional emergency access may still affect landowners and occupiers. For this reason, access management and ongoing communication with directly affected landowners remain relevant beyond the construction phase.

2.5.1 Land Use and Powerline Operation

Literature studies have shown that farming and associated infrastructure, such as irrigation systems and support structures, can be practised under 400 kV powerlines, provided that all safe working clearances, crop height restrictions, and building restrictions are adequately followed. However, the landowner also needs an agreement with NTCSA regarding the activities that can be carried out under the servitude. Under NTCSA's policies, the company has the right to impose restrictions and/or allowances on specific activities within its servitudes. These, for example, include:

Restrictions:

- No building of houses, sheds or similar constructions that could affect or be affected by the powerline and pylons.
- No blocking of access to the servitude area that would deny NTCSA maintenance operators access to and/or servicing the servitude area.
- The planting of trees and crops that could threaten the functioning of the powerlines (e.g., forestry plantations, sugarcane, which could pose a fire risk).
- No blasting or excavating within the servitude area without prior approval from NTCSA.

Allowances:

- Grazing and dry land cultivation activities within the servitude area.
- Vegetation clearing and animal movement within the servitude area.
- Placing of topsoil berms not exceeding specific dimensions under the powerlines or within the servitude area.

2.6 Decommissioning

The process of decommissioning any transmission line will contain the following:

- The physical removal of the transmission line and towers would entail the reversal of the construction process which includes dismantling of structures and separating materials into groups of recyclables, reusables and materials that will go to landfill sites.
- A rehabilitation programme would have to be agreed upon with the landowner before being implemented.
- The disposal of materials from decommissioned structures (steel, cabling, concrete, etc.) would be at an approved waste disposal facility. Alternatively, recycling opportunities could be investigated and implemented.
- Specific considerations regarding servitude and landowner rights would need to be negotiated with the landowner at the time of decommissioning and fall outside the scope of this EIA.

3 KEY LEGISLATIVE REQUIREMENTS

This section of the report outlines the information required in accordance with Section 3(1)(e) of Appendix 1 to the Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(e) a description of the policy and legislative context within which the development is proposed including—
(i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and
(ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments.

3.1 Key Legislation

Environmental laws are formulated to achieve sustainable development strategies, prevent adverse environmental impacts from implementing plans and construction projects, and promote the coordinated development of the economy, society, and environment. Most developments are regulated by legislation, with the Constitution of the Republic of South Africa and the National Environmental Management Act, 1998 (NEMA), serving as the cornerstone of environmental law. The legislation aims to integrate both human rights and sustainable development, particularly in environmental contexts. The following laws, principles and regulations have been formulated to promote environmental sustainability, and those that are relevant to this project are discussed below:

Table 3-1: Legislation, Policies and Guidelines applicable to the proposed project

Legislation/Policy/Guideline	Applicability
The Constitution of South Africa, 1996 (Act 108 of 1996)	Section 24 of the Constitution states that: *Everyone has the right—* *a) to an environment that is not harmful to their health or wellbeing; and* *b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that—* *(i) prevent pollution and ecological degradation.* *(ii) promote conservation; and* *(iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.* **Relevance**

Legislation/Policy/Guideline	Applicability
	The proposed project is expected to have negative environmental impacts; however, these will be mitigated to ensure they do not compromise the rights of other human beings. The Bill of Rights in Chapter 2 of the Constitution entrenches the rights to information, freedom of expression, participation in political activity, administrative justice, and fundamental rights in the areas of science, culture, law, economics, and the environment. In addition, the Constitution requires all legislature to facilitate public involvement in the legislative and other policy processes. Citizens have the right to engage in public initiatives and processes on an ongoing basis. **Relevance** Based on the Bill of Rights, the public will have access to all information compiled during the Basic Assessment process.
National Environmental Management Act, 1998 (Act 107 of 1998) (NEMA), as amended	The National Environmental Management Act 107 of 1998 (NEMA) establishes the legislative framework for environmental protection in South Africa and aims to give effect to the environmental rights enshrined in the Constitution. It outlines several guiding principles that apply to the actions of all state organs that may significantly impact the environment. Sustainable development (socially, environmentally, and economically) is one of the key principles, and internationally accepted principles of environmental management, such as the precautionary principle and the polluter pays principle, are also incorporated. NEMA also provides that a wide variety of listed developmental activities that may significantly affect the environment may be performed only after an environmental impact assessment has been conducted and authorisation has been obtained from the relevant authority. **Relevance** The proposed transmission powerline deviation constitutes a listed activity in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended), and the Government Notice No. 113, published in Government Gazette No. 41445 on 16 February 2018. An environmental authorisation is therefore required prior to implementation.

Legislation/Policy/Guideline	Applicability
	The project has been assessed in accordance with the principles of NEMA, including the prevention and minimisation of environmental impacts, the application of the mitigation hierarchy, the precautionary approach, and the promotion of ecologically sustainable development while balancing environmental, social and economic considerations. The following Integrated Environmental Management (IEM) Guidelines were used during the Basic Assessment process: • Stakeholder Engagement, Integrated Environmental Management, Information Series 3. • Specialists Studies, Integrated Environmental Management, Information Series 4. • Impact Significance, Integrated Environmental Management, Information Series 5. • Ecological Risk Assessment, Integrated Environmental Management, Information Series 6. • Cumulative Effects Assessment, Integrated Environmental Management, Information Series 7. • Criteria for determining alternatives, Integrated Environmental Management, Information Series 11.
SPECIFIC ENVIRONMENTAL MANAGEMENT ACTS	
The National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA)	The Act outlines the mechanisms for managing and conserving South Africa's biodiversity and its components, protecting species and ecosystems that warrant national protection, and promoting the sustainable use of indigenous biological resources. It also ensures the fair and equitable sharing of benefits arising from bioprospecting, including the use of indigenous biological resources. Some of the lists and regulations that have been promulgated in terms of various sections of the Act are: i. Threatened or Protected Species Regulations, ii. GN 1003 of 18 September 2020: Alien and Invasive Species Lists, 2020 iii. GN 2747 of 18 November 2022: The revised National list of ecosystems that are threatened and in need of protection. Categories are defined as Critically Endangered, Endangered, Vulnerable, and Protected, depending on their ecological structure, function, and composition. The primary implication of the Revised National List of Ecosystems that are Threatened or in need of Protection is that it is linked to Listing

Legislation/Policy/Guideline	Applicability
	Notice 3 published under the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). **Relevance** Although the mapped Rand Highveld Grassland is classified as Vulnerable, no remnant ecosystem occurs within the proposed deviations, with the area having been transformed by historical cultivation. However, the deviations intersect Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). Accordingly, the potential impacts on these biodiversity priority areas have been assessed, and the mitigation hierarchy has been applied to identify appropriate avoidance, minimisation and rehabilitation measures, with biodiversity offsets considered where necessary.
National Environmental Management: Protected Areas Act (Act No. 57 of 2003) (NEMPAA) Regulations for the proper administration of Nature Reserves, Government Notice 99 of 2012	The National Environmental Management and Protected Areas Act (NEMPAA) of South Africa aims to conserve the country's biodiversity, natural landscapes, and seascapes. It also seeks to promote sustainable development and prevent pollution. Section 50(5) of the Act, as well as Regulation 39(1) of Government Notice 99 of 2012, indicates that no development, construction, or farming may be permitted in a national park, nature reserve, or World Heritage site without the prior written approval of the management authority. **Relevance** The first section of the proposed deviation runs parallel to the boundaries of the Sommerville and Fred Coetzee Private Nature Reserves. Although the development does not occur within the protected areas, construction activities must be undertaken in a manner that avoids impacts on the adjacent reserves and complies with the objectives and applicable provisions of NEMPAA.
National Environmental Management: Waste Act, 2008 (Act 59 of 2008) (NEMWA).	NEMWA aims to protect health and the environment in accordance with the constitutional right to an environment that is not harmful to health and well-being, and to safeguard the environment for the benefit of present and future generations, while promoting justifiable economic development. This is to be achieved through measures including uniform application of strategies throughout the Republic, as well as norms and standards which seek to ensure best waste practices within a system of co-operative governance to achieve: • Prevention of pollution and ecological degradation through institutional arrangements, planning, and standards for regulating waste management by all spheres of government.

Legislation/Policy/Guideline	Applicability
	• Remediation of contaminated land. • Implementation of the national waste information system. • Compliance and enforcement. **Relevance** Construction activities will generate general waste, including vegetation, packaging materials and domestic waste. The Act requires that waste be managed in accordance with the waste management hierarchy, prohibits unauthorised disposal and littering, and prescribes requirements for the storage, collection, transportation and disposal of waste. Waste generated during the construction phase will be managed in accordance with the Act and the waste management measures contained in the Environmental Management Programme (Appendix F).
National Environmental Management: Air Quality Act 2004 (Act 39 of 2004)	The Act has introduced prescribed standards to protect and enhance air quality and pollution prevention in South Africa. This includes the National Ambient Air Quality Standards (AAQ Standards), which set ambient air quality standards for sulphur dioxide (SO_2), nitrogen dioxide (NO_2) and particulate matter, amongst other priority pollutants. In addition, the Minister has published the National Dust Control Regulations in the gazette to control dust in all areas, including requirements for monitoring, dust management plan development, implementation, and reporting. **Relevance** Mitigation measures have been recommended to minimise dust emissions during construction.
WATER	
National Water Act, 1998 (Act 36 of 1998) (NWA)	The Act aims to ensure that the country's water resources are protected, utilised, developed, conserved, managed, and controlled in a manner that considers relevant factors, including meeting the basic human needs of present and future generations. In terms of Section 19(1), an owner of land or a person in control of land where any activity or process is or was performed or undertaken or where any situation exists must take all reasonable measures to prevent pollution of a water resource where an activity causes, has caused, or is likely to cause such pollution, must take all appropriate measures to prevent any such pollution from occurring, continuing, or recurring. Section 19(2) further indicates that measures must be undertaken to cease or modify the activity, comply with any waste standard or management

Legislation/Policy/Guideline	Applicability
	practice, or eliminate the source of pollution. It further clarifies what is termed 'water use', and the 11 water uses specified in Section 21 require a General Authorisation or a Water Use Licence. **Relevance** The Mooi River crossing at Towers 500-501 constitutes a direct impact area. The Mooi River is perennial, with HIGH ecological sensitivity and a Present Ecological State (PES) rating of B/C. Construction activities at this crossing will trigger Section 21(c) (impeding or diverting the flow in a watercourse) and Section 21(i) (disposing of waste in a manner that detrimentally affects a water resource) of the National Water Act. A Water Use Licence Application (WULA) must be submitted to the Department of Water and Sanitation (DWS) before any construction activities commence at the Mooi River or any other identified Section 21 water use point. Water conservation measures are included in the EMPr.
FORESTRY	
National Forestry Act, 1998 (Act No. 84 of 1998)	This Act provides for the management, utilisation, and protection of forests by enforcing permitting requirements for removing protected tree species listed in the protected tree species list. In terms of Section 15(1) of the Act, a licence is required to cut, disturb or remove protected tree species occurring within the servitude during clearing and construction.
ENERGY	
National Energy Act, 2008 (Act 34 of 2008)	The purpose of the act is to ensure that diverse energy resources are available in sustainable quantities and at an affordable price and to provide for integrated energy planning, increased generation and consumption of renewable energies, contingency energy planning, holding of strategic fuel stocks and carriers, provide appropriate energy infrastructure, data on energy demand, supply and generation and establish institutions responsible for energy research. The proposed project is being implemented to ensure adequate infrastructure is in place.
HERITAGE	
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future

Legislation/Policy/Guideline	Applicability
	generations. The National Heritage Resources Act (NHRA) has introduced an integrated system for identifying, assessing, and managing South Africa's heritage resources. Section 3 of the Act lists a wide range of national resources protected under the Act as they are deemed to be part of the national estate. When conducting a Heritage Impact Assessment (HIA), it is essential to identify the relevant heritage resources. In addition, the Act also makes provision for the general protection of heritage resources: ▪ Section 34 in respect of the built environment. ▪ Section 35 in respect of archaeology, palaeontology, and meteorites; and ▪ Section 36 in respect of graves and burial grounds. Section 38 outlines guidelines for Heritage Resources Management and the conditions under which heritage impact assessments are required when developments impact heritage resources. If the appropriate authority permits the disturbance, the impacts on the affected heritage resource(s) must be mitigated to ensure the recovery and recording of information about that site. **Relevance** Section 38 requires notification and heritage assessment for linear developments exceeding 300 m. It protects archaeological, palaeontological, cultural and burial resources, administered by SAHRA and the North West provincial heritage authority.
INFRASTRUCTURE	
Infrastructure Development Act, 2014 (Act No. 23 of 2014)	This Act facilitates and coordinates the development of public infrastructure that is of significant economic or social importance to the country. It ensures that infrastructure development in the country is given priority in planning, approval and implementation. It furthermore ensures that the state's development goals are promoted through infrastructure development and improves the management of such infrastructure throughout all life-cycle phases. The South African Government adopted an Infrastructure Plan. Based on the spatial analysis of the country's needs, Strategic Integrated Projects (SIPs) have been identified that cover a wide range of

Legislation/Policy/Guideline	Applicability
	economic and social infrastructure. The construction and operation of the powerline and associated infrastructure address the following SIP: **SIP 10: Electricity Transmission and Distribution for All.** Expand the transmission and distribution network to address historical imbalances, provide access to electricity for all and support economic development. Align the 10-year transmission plan, the services backlog, the national broadband roll-out and the freight rail line development to leverage off regulatory approvals, supply chain and project development capacity.
LAND USE	
Spatial Planning and Land Use Management Act (SPLUMA), 2013 (Act No. 16 of 2013)	SPLUMA, as the framework Act for all spatial planning and land-use management legislation in South Africa, seeks to promote consistency and uniformity in procedures and decision-making in this field. The other objectives of the Act include addressing historical spatial imbalances and integrating the principles of sustainable development into land use planning, regulatory tools, and legislative instruments. **Relevance** There is a need to ensure that the development aligns with the local Land Use Management Schemes.
AGRICULTURE	
Preservation and Development of Agricultural Land Act, 2024 (Act No. 39 of 2024)	This Act, aims to (i) promote the preservation and sustainable development of agricultural land; (ii) establish systems for evaluating and classifying agricultural land; (iii) designate protected agricultural areas to safeguard land from non-agricultural uses and support long-term agricultural production; (iv) implement a coordinated national framework, including norms, standards, and authorizations for agricultural land use (v) introduce mitigation measures to address the loss of agricultural land and the impact of non-agricultural developments on agricultural productivity; and (vi) establish a national agro-eco information system with geo-referenced data to support the objectives of this Act, including records of all agricultural land, protected areas, and spatial information on agricultural potential and use. **Relevance**

Legislation/Policy/Guideline	Applicability
	Although the proposed deviation does not traverse a Protected Agricultural Area, measures have been incorporated into the project design and the Environmental Management Programme (EMPr) to minimise the fragmentation of agricultural land and maintain the continued viability of farming activities within the area.
Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	To provide for control over the utilisation of the Republic's natural agricultural resources, to promote the conservation of soil, water sources, and vegetation, and to combat weeds and invasive plants; and for matters connected therewith. **Relevance** Approvals are required for various activities, such as cultivating virgin land, veld burning, cultivating localised alien plants for commercial purposes, and draining wetland systems. For the cultivation of virgin land, CARA specifies that only arable land should be cultivated. However, disturbances to topsoil resulting from the construction of the laydown camps and their infrastructure do not fall under this category of cultivation, as defined by CARA, but rather under the category of soil disturbance. Therefore, the construction and operation of the camps do not require consent under CARA. Additionally, since the proposed development does not involve veld burning or the commercial cultivation of localised alien plants, it does not require consents under those provisions of CARA.
HEALTH AND SAFETY	
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993)	The purpose of the Act includes providing for the health and safety of persons at work and the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work. Alongside the Act, a compensation scheme for victims of occupational accidents and diseases, as well as their dependents, is provided for in the Compensation for Occupational Injuries and Diseases Act 130 of 1993. Additionally, there are ancillary occupational safety and health regulations, including the Construction Regulations (2014), the Environmental Regulations for Workplaces (1987), and the Facilities Regulations (2004). **Relevance**

Legislation/Policy/Guideline	Applicability
	The applicable Regulations should be implemented and adhered to during the project life cycle.
PROVINCIAL	
The North West Biodiversity Management Act, 2016 (Act No.4 of 2016)	Provincial biodiversity legislation providing for the protection, management and sustainable use of indigenous fauna and habitats within the North West Province.
Nature Conservation Ordinance (Transvaal), *Ordinance 12 of 1983*	Remains in force in the former-Transvaal areas of the North West Province and governs permits for protected and specially protected flora and fauna affected by vegetation clearing and construction.
North West Parks and Tourism Board Act, (Act No. 2 of 2022)	Establishes the provincial conservation authority and is relevant since Mahikeng Nature Reserve is in close proximity to the second deviation.
North West Biodiversity Sector Plan, 2025	The plan serves as a strategic decision-making tool to guide planners, municipalities, developers and other stakeholders in promoting informed, balanced and sustainable land-use planning. Building on the 2015 North West Biodiversity Sector Plan, it incorporates updated biodiversity datasets and mapping to align with legislative requirements, including NEMBA and SPLUMA. Its primary objectives are to identify areas essential for maintaining ecological resilience, provide the authoritative biodiversity information for environmental planning and authorisation processes, and guide conservation and ecological restoration in priority areas.
North West Spatial Development Framework, 2022 (NW SDF)	The North West Spatial Development Framework (NW SDF) provides the statutory provincial spatial framework within which provincial development plans, programmes and projects must be considered. The NW SDF promotes a spatial development pattern that supports regional development initiatives, development corridors, nodes and strategic infrastructure investment, while also requiring the protection of biodiversity, water resources and agricultural land. It further recognises the importance of economic infrastructure, including electricity networks and planned transmission power corridors, in supporting provincial growth and development. **Relevance** The proposed powerline deviation aligns with the intent of the NW SDF by supporting strategic electricity transmission infrastructure essential for energy security, economic development and service delivery. However, consistent with the NW SDF, the deviation must also protect critical biodiversity, water resources, agricultural land and other environmental constraints, ensuring that the development

Legislation/Policy/Guideline	Applicability
	upholds the principles of sustainability, integration and efficient spatial planning.
POLICIES, PLANS, GUIDELINES AND PROTOCOLS	
Energy Policy	The white paper gives an overview of the South African energy sector's contribution to the Gross Domestic Product (GDP), employment, taxes, and the balance of payments. It concludes that the sector can significantly contribute to a successful and sustainable national growth and development strategy. The Energy Sector Policy objectives are as follows: • Increasing access to affordable energy services. • Improving energy governance. • Stimulating economic development. • Managing energy-related environmental and health impacts. • Securing supply through diversity
Integrated Resource Plan, 2025	The Integrated Resource Plan (IRP) 2025 recognises electricity transmission infrastructure as an integral component of national power system planning. Read with the Eskom Transmission Development Plan 2025-2034, the IRP reinforces the strategic importance of expanding and strengthening the transmission network. In the context of this application, the IRP 2025 is relevant as updated national policy context supporting the continued strategic importance of transmission infrastructure.
The National Environmental Management Act 107 of 1998 (NEMA) Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Agricultural Resources, Aquatic Biodiversity, Terrestrial Biodiversity, Animal and Plant Species	The protocols provide the criteria for specialist assessment and minimum report content requirements for impacts on terrestrial animals and/or avifaunal species associated with activities requiring environmental authorisation. This protocol replaces the requirements of Appendix 6 of the Environmental Impact Assessment Regulations. The assessment and reporting requirements of this protocol are associated with a level of environmental sensitivity identified by the national web-based environmental screening tool (the screening tool) for agricultural resources, aquatic biodiversity, terrestrial biodiversity, and animal and plant Species.
Species Environmental Assessment Guideline: Guidelines for the implementation of the Terrestrial Flora (3c) & Terrestrial Fauna (3d) Species Protocols for environmental impact assessments in South Africa.	The Species Environmental Assessment Guideline provides background and context for the assessment and minimum reporting criteria outlined in the Terrestrial Animal and Plant Species Protocols, as well as guidance on sampling and data collection methodologies for the different taxonomic groups represented in these protocols. This guideline is intended for specialist studies undertaken for activities

Legislation/Policy/Guideline	Applicability
	that have triggered a listed and specified activity in terms of the National Environmental Management Act, 1998 (No. 107 of 1998) (NEMA), as identified by the EIA Regulations, 2014 (as amended) and Listing Notices 1-3.
The Standard for the Development and Expansion of Powerlines and Substations within Identified Geographical Areas	Section 24(2)(c) - (e) of NEMA provides the Minister, or the MEC, in concurrence with the Minister, with the authority to identify activities and geographical areas within which activities may be excluded from the requirement to obtain environmental authorisation. The *Standard for the Development and Expansion of Powerlines and Substations within Identified Geographical Areas allows for the exclusion of activities related to the development and expansion of electricity transmission and distribution infrastructure,* as identified in Listing Notices 1 and 2 of the Environmental Impact Assessment (EIA) Regulations. This Standard has been developed based on two Strategic Environmental Assessment (SEA) processes undertaken for the development of Electricity Grid Infrastructure (EGI) in South Africa. This Standard has been prepared to enable a proponent to achieve planning, routing, siting, and remediation objectives that will ensure the acceptability of the environmental impacts of EGI development, independently of the need for an assessment by the competent authority. For the proposed Pluto-Mahikeng deviation, the Standard is relevant as part of the broader legal and decision-making framework, but it does not remove the need for the present Basic Assessment process. The current screening report confirms that the site falls within both the Strategic Transmission Corridor - Northern corridor and the Strategic Transmission Corridor - Central corridor.
Convention on Biological Diversity and Kunming-Montreal GBF	Target 4 calls for urgent management action to halt human-induced extinction and recover threatened species; Goals and Targets also require biodiversity-inclusive planning and impact reduction. The Convention is directly relevant to a Critically Endangered species and cumulative mortality.
Convention on Migratory Species	Requires conservation of migratory species and action to prevent adverse effects of obstacles and infrastructure. This applies to species that are wide-ranging and is relevant to the project as impacts are anticipated to extend beyond property boundaries.
CMS Raptors MOU	Promotes coordinated measures to achieve favourable conservation status of migratory birds of prey. The MOU is relevant to regional movement and energy-sector cooperation.

Legislation/Policy/Guideline	Applicability
CMS Vulture Multi-species Action Plan and Resolution 12.10	Calls for baseline impact assessment, sensitivity mapping, avoidance of high-risk sites such as colonies, long-term monitoring, bird-friendly technology and retrofit of existing risk-prone infrastructure. Vultures have been recorded in the PAOI hence this is the most directly relevant international action framework for vulture-energy interactions.
SADC Protocol on Wildlife Conservation and Law Enforcement	Requires regional cooperation, harmonised conservation measures and management programmes for wildlife. The protocol supports landscape and regional rather than project-isolated treatment.
AEWA and Ramsar Convention	Require conservation and wise use of wetlands and migratory waterbirds. This is particularly relevant to the Mooi river, and waterbirds affected by the line.
National Vulture Multi-Species Biodiversity Management Plan, 2024	National plan under NEMBA addressing poisoning, energy-infrastructure mortality, habitat protection, monitoring, Vulture Safe Zones and coordinated implementation. The Plan has been reflected in the impact criteria, mitigation, monitoring and institutional commitments.

3.2 Other Relevant Legislation and Documents

The table below lists the other legislation and documents that have been considered for this project.

Table 3-2: Other Relevant Legislation and Documents

INTERNATIONAL AGREEMENTS AND CONVENTIONS
✓ Sustainable Development Goals ✓ UN Framework Convention on Climate Change and Paris Agreement
OTHER LEGISLATION, GUIDELINES, STANDARDS
✓ Climate Change Act, 2024 (Act No. 22 of 2024) ✓ Civil Aviation Act, 2009 (Act No. 13 of 2009) ✓ Expropriation Act, 2024 (Act No. 13 of 2024) ✓ Fencing Act, 1963 (Act No. 31 of 1963, as amended by Act 108 of 1991) ✓ Promotion of Access to Information Act, 2000 (Act No. 2 of 2000) ✓ Promotion of Administrative Justice Act, 2000 (Act No.3 of 2000) ✓ Protection of Personal Information Act, 2000 (Act No. 4 of 2013), POPIA ✓ Hazardous Substances Act, 1973 (Act No. 15 of 1973) ✓ National Roads Act, 1996 (Act No. 93 of 1996) ✓ National Veld and Forest Fire Act, (Act 101 of 1998) ✓ National Biodiversity Offset Guideline, 2023
PROVINCIAL, DISTRICT AND LOCAL MUNICIPALITIES
✓ The North West Office of the Premier Strategic Plan 2025-2030

✓ The North West Department of Public Works and Roads Strategic Plan 2025-2030 ✓ The North West DEDECT Strategic Plan 2025-2030 ✓ North West Protected Areas Expansion Strategy (NW PAES) ✓ Dr Kenneth Kaunda District Municipality (IDP 2022-2027, 2025-2026 Review) ✓ Ngaka Modiri Molema District Municipality (Draft IDP 2026/2027) ✓ Mahikeng Local Municipality (Draft 3rd IDP Review 2025/2026)	
ESKOM STANDARDS AND GUIDELINES	
✓ Chemical Spillage Assessment and Reporting. ✓ Waste Management. ✓ Water Strategy. ✓ Water Management Policy. ✓ Vegetation management and maintenance within Eskom land servitudes and right-of-way.	
Municipal Bylaws	The proposed project must comply with the bylaws of all the affected local and District Municipalities.

3.3 Permits And Registrations

Based on the specialist assessment reports, other permit or licence required are indicated in the Table below:

Table 3-1: Required Permits/ Licences

LEGISLATION	PERMIT	COMPETENT AUTHORITY	STATUS
National Water Act: Government Notice (GN) 4167, published in December 2023 in Government Gazette (GG) no. 49833	Water Use Licence/ General Authorisation	Department of Water and Sanitation	In progress.
The National Environmental Management: Biodiversity Act, Act No. 10 of 2004 (NEMBA)	TOPS Permit	DFFE	The application has not yet started.
National Heritage Resources Act (Act 25 of 1999)	Exhumation/Destruction	SAHRA	Not required.
National Forest Act, Act No. 84 of 1998	Tree Permit	Department of Forestry, Fisheries, and the Environment	The application has not yet started
Civil Aviation Act 13 of 2009	Obstacle Assessment	South African Civil Aviation Authority	The application has not yet started

4 BASIC ASSESSMENT (BA) PROCESS

This section provides a general overview of the BA process and the activities undertaken to date.

A Basic Assessment (BA) is a proactive and systematic process that assesses both the positive and negative potential environmental impacts associated with specific activities. Every BA project has two objectives, namely, process and content objectives. The process objectives are to ensure that the process is open, transparent, and inclusive, providing stakeholders with sufficient information that affords ample opportunity to contribute and making them feel that their contributions are valued. The project's content objectives are presented as "hard" information, including facts from scientific and technical studies, statistics, and technical data.

Section 24(4) of NEMA prescribes that the procedures for investigating, assessing, and communicating the potential consequences or impacts of activities on the environment must, inter alia, ensure that, in every application for environmental authorisation, the general objectives of Integrated Environmental Management (IEM) are considered. The BA should include an investigation of the potential environmental consequences and impacts of the alternatives, as well as an assessment of the significance of those potential consequences and impacts, including the option of not implementing the activity. However, where the project is in a Strategic Transmission Corridor, where a route has been pre-negotiated, apart from the no-go alternative, no other alternatives are assessed. Figure 4-1 overleaf, presents the BA process for the proposed development.

4.1 Objectives of a Basic Assessment

The objectives of the BA process are:

(a) To determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context.

(b) Where applicable, identify the alternatives considered, including the activity, location, and technology alternatives.

(c) Describe the need and desirability of the proposed development.

(d) Through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts, which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of the impact of the proposed activity and technology alternatives on these aspects to determine:

   i. the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and

   ii. the degree to which these impacts:

   (aa) can be reversed.

(bb) may cause irreplaceable loss of resources, and

(cc) can be managed, avoided, or mitigated.

(e) through a ranking of the site sensitivities and possible impacts, the activity and technology alternatives will impose on the sites and location identified through the life of the activity to—

i. identify and motivate a preferred site, activity, and technology alternative.

ii. identify suitable measures to manage, avoid or mitigate identified impacts; and

iii. identify residual risks that need to be managed and monitored.

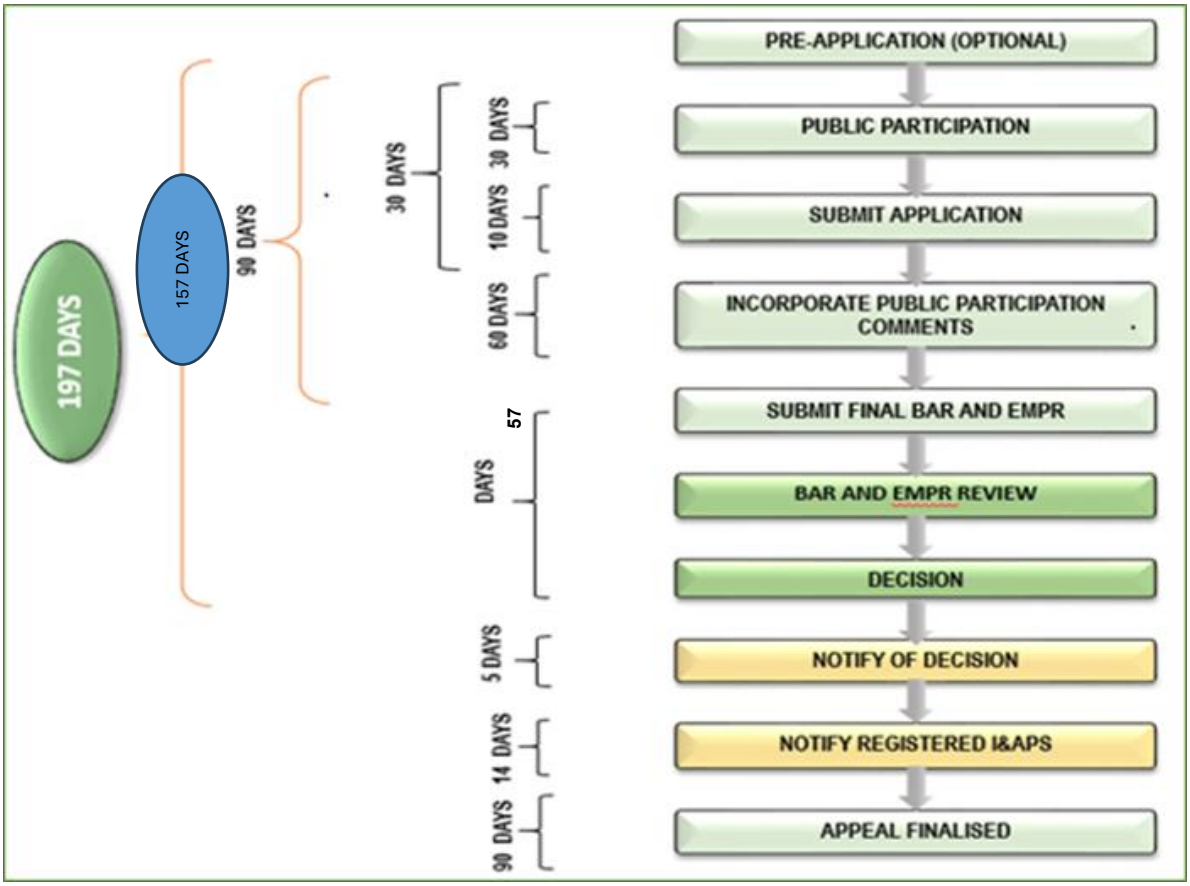


Figure 4-1: Basic Assessment Process

4.2 Methodology

The following phases have been undertaken for this assessment:

4.2.1 Screening Phase

Screening is the first stage in the EIA process, whereby the EAP and the applicant determine whether an EIA is required for the project in accordance with the EIA Regulations, 2014, as amended, and its associated Listing Notices. The screening process determined that, based on the project activities and the geographic area, a Basic Assessment was required, as construction of the powerline deviations will occur within STCs. In addition, a Screening Tool Report (STR) was generated for the powerline deviations using

the National Web-based Environmental Screening Tool. This report provides site-specific environmental information and sensitivities. The report has been attached to the Application Form as Appendix 14.

4.2.2 Pre-Application Meeting

For every new application requiring public participation, the Integrated Environmental Authorisations (IEA) of the DFFE requires that a pre-application meeting request be filed before the application is lodged. This gives the project team a platform to liaise with the DFFE regarding the application requirements. A request for a meeting was therefore made on 11 March 2026, and a meeting was held on 24 March 2026 with officials from DFFE. The approved minutes of the meeting are attached to Appendix 1 of the Application Form.

4.2.3 Literature Review

A background study was undertaken to assess the environmental baseline conditions of the project area. The policy, legal, and administrative framework, as well as the requirements, were identified by reviewing relevant legal documents, guidelines, and planning procedures. This was done to ensure that the necessary measures were included in the project's design and implementation. Reference is made to Section 3 of this report for the key legislative framework. The following documents were also consulted:

i. Previous EIA documents, including specialist, comments and responses reports, and EA.
ii. Farm owner information from Servitude Agreements.
iii. North West, Dr. Kenneth Kaunda, and Ngaka Modiri Molema Districts, JB Marks and Mahikeng Local Municipalities Integrated Development Plans (IDP), Spatial Development Frameworks (SDF), Local Economic Development (LED) and Climate Change Adaptation Plans.
iv. North West Biodiversity Sector Plan (2025).
v. Spatial Datasets for National Biodiversity Assessment (NBA) 2018 and 2025, National Freshwater Priority Areas (NFEPA), Red List Ecosystems (RLE) 2025, Vegetation Map, Cadastral, South African Protected Areas (SAPAD), South African Conservation Areas (SACAD), Protected Agriculture Areas (PAA) and Land Cover.
vi. Other Provincial and local municipality environmental tools.
vii. Relevant documents on water published by the Department of Water and Sanitation.
viii. NTCSA's project motivation.

4.2.4 Site Assessment and Specialist Studies

In March 2026, Vhubvo Consultants, together with the archaeology, terrestrial biodiversity, avifauna, agricultural and freshwater specialists, undertook a walkdown of the proposed servitude and preliminary tower positions. General assessments of the deviation were also conducted by the palaeontology, visual,

civil aviation and social specialists. The project area was assessed by vehicle and on foot along the proposed alignment and access routes. Photographs were taken during the field survey to document the environmental conditions within the project area.

The specialist studies are based on site sensitivity verification undertaken in accordance with the applicable Protocols. The Site Sensitivity Verification Report (SSVR), compiled by the EAP based on specialist inputs, is provided in Appendix D-1. The detailed specialist reports are attached in Appendices D-2 to D-10. Each specialist applied an assessment methodology appropriate to the relevant environmental theme and in accordance with the applicable Protocols for the assessment and reporting of environmental impacts. Site-specific mitigation measures have been incorporated into Section C of the Generic EMPr, attached as Appendix F.

4.2.5 Public Participation

A proactive strategy was employed to find potentially interested and affected parties. Preliminary information was gathered from landowners, municipal and government authorities to identify the Interested Parties. The application was announced to stakeholders via email. A Background Information Document (BID) was sent along with the notifications to affected landowners, Government and Private stakeholders, as well as Interested and Affected Parties. In addition, site notices were placed on neighbouring farm fences, in public places, and at Local Municipal Offices. Public consultation will be conducted during the 30-day review period for the report. Comments received to date have been recorded in the Comments and Response (C&R) Report and responded to accordingly. Reference is also made to Section 7 of this report for the comprehensive details of the public participation process.

4.2.6 Impact Assessment

An impact assessment has been carried out and has been guided by the following criteria:

- **Assessment Criteria for Impacts**: To determine the significance of the project's impacts, a set of assessment criteria was applied to each impact. These criteria included examining the nature, extent, duration, intensity, and likelihood of the impact, as well as assessing whether the impact would be positive or negative for both the biophysical and social environments at the site and in surrounding areas.
- **Environmental Sensitivity Map:** An environmental sensitivity map was used to identify environmentally sensitive features on the site that require protection.
- **Maximisation of Positive Impacts:** The philosophy followed focused on maximising the benefits to the local environment.
- **Specialists Integration**: Vhubvo collated information from all specialists and summarised it in this report.

- **Identification of Mitigation Measures and Environmental Management Programme:** The mitigatory measures recommended describe possible actions to reduce the significant negative environmental impacts identified in the assessment. According to Government Notice 435 of March 2019, a project involving the construction of powerlines must submit a generic EMPr as developed by the Competent Authority. The plan provides guidelines for the planning, construction, operation, and maintenance of the proposed powerline, as well as a comprehensive management and monitoring plan for the entire project. The relevant sections, as determined, have been completed, and the EMPr has been appended to this report in Appendix F.

5 THE NEED AND DESIRABILITY FOR THE PROPOSED DEVELOPMENT

This section of the report details the information required as per Section 3(1)(f) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(f) a motivation for the need and desirability for the proposed development, including the need and desirability of the activity in the context of the preferred location.

According to the Department of Environmental Affairs (DEA) Guideline on Need and Desirability (DEA, 2017), the necessity and desirability of an activity should be assessed in light of the principles of "securing ecological sustainable development and use of natural resources" and "promoting justifiable economic and social development," which are outlined in the Constitution's Bill of Rights. The strategic context for the necessity and desirability of an activity can be examined in light of what is intended for a particular area, particularly as outlined in a municipal Integrated Development Plan (IDP) and Spatial Development Framework (SDF), as per the DEA Guideline (DEA, 2017). These planning instruments give guidance on the intended spatial arrangement of a municipality. In a similar vein, municipal Environmental Management Frameworks (EMFs) offer the intended spatial form concerning an area's environmental context. The sections below outline the socio-economic and ecological context of the project.

5.1 Need for the Project per NTCSA Assessment

The proposed deviations form part of the broader Watershed Strengthening Phase 3 Project, which includes the construction of the Pluto–Mahikeng 400 kV powerline and the Mahikeng Main Transmission Substation (MTS). The project has been identified in NTCSA's Transmission Development Plans (2016–2025, 2019–2028 and 2025-2034) as strategic electricity transmission infrastructure required to address existing network constraints within the national transmission system. The project is intended to increase network capacity, improve voltage regulation and strengthen the reliability and security of electricity supply within the North West Province.

The proposed project also forms part of NTCSA's broader Botswana–South Africa (BOSA) Transmission Interconnection Project, which includes the development of a 210 km transmission line extending from the proposed Mahikeng MTS to Isang in Botswana. The interconnection is required to strengthen regional electricity transmission infrastructure, improve the reliability of electricity supply and facilitate the transfer of power between the two countries in support of regional energy security.

The need for the project is driven by existing technical constraints on the transmission network supplying the greater Mahikeng, Lichtenburg, and Vryburg areas. The Watershed MTS is currently supplied by two 275 kV transmission lines from Pluto MTS and is experiencing substation capacity and voltage regulation

constraints. Although the integration of the Mookodi and Ngwedi MTS in 2016, together with the Watershed Strengthening Project, will provide temporary relief by transferring approximately 180 MVA of load from Watershed MTS, these measures are not sufficient to accommodate the anticipated increase in electricity demand. The additional transformation capacity created at Watershed MTS and the associated improvement in voltage performance are expected to provide only short-term relief before future load growth results in renewed capacity constraints.

The proposed Pluto–Mahikeng 400 kV powerline is therefore required to provide additional transmission capacity, improve voltage stability and ensure a reliable electricity supply to the affected areas over the long-term. In the absence of the project, the existing transmission network will continue to experience increasing operational constraints, reducing the ability of the network to accommodate future electricity demand, and limiting the security and reliability of supply. The project is therefore considered necessary to support current and future electricity requirements, facilitate regional economic development and contribute towards a secure and resilient electricity transmission network.

5.2 Relevance of the Project per National, Provincial and Local Development Plans

In accordance with the EIA Regulations, 2014 (as amended), the need and desirability of the proposed deviations was assessed against the relevant national, provincial and local planning frameworks. The review considered whether the proposed deviations are consistent with government policies, development priorities and spatial planning objectives relating to electricity transmission infrastructure.

The review indicates that there is consistent policy support for strengthening South Africa's electricity transmission network to improve energy security, support economic development and enable the integration of additional electricity generation capacity into the national grid. National, provincial and municipal planning instruments recognise electricity transmission infrastructure as essential strategic infrastructure required to support reliable service delivery, economic growth and future development. The proposed deviations form part of the authorised Pluto–Mahikeng 400 kV powerline and do not change the strategic purpose of the overall project. Instead, it provides alternative alignments to address site-specific constraints while maintaining the objectives of the approved development.

5.2.1 National Planning Framework

The proposed deviations are consistent with the objectives of the National Development Plan (NDP) 2030, which identify investment in electricity generation, transmission and distribution infrastructure as fundamental to achieving inclusive economic growth, reducing poverty and improving service delivery. The NDP recognises that expansion of the transmission network is required to accommodate additional generation capacity and improve the reliability of electricity supply.

The National Infrastructure Plan 2050 (Phase 1) further reinforces this need by identifying electricity transmission infrastructure as a national priority. The Plan recognises that strengthening transmission capacity is essential to improve network resilience, facilitate new electricity generation projects and support long-term economic development. Strategic Infrastructure Project (SIP) 10 specifically identifies electricity transmission and distribution infrastructure as critical to achieving these objectives.

The proposed deviation is therefore consistent with national infrastructure planning, as it facilitates the implementation of strategic electricity transmission infrastructure identified by government as necessary to support South Africa's future electricity requirements.

5.2.2 Provincial Planning Framework

The proposed deviations are aligned with the strategic objectives contained within the principal provincial planning documents for the North West Province.

a. The North West Office of the Premier Strategic Plan (2025–2030) promotes integrated infrastructure development to support inclusive economic growth, poverty reduction and improved service delivery. The proposed deviation contributes towards these objectives by facilitating strategic electricity transmission infrastructure.
b. Similarly, the North West Department of Public Works and Roads Strategic Plan (2025–2030) recognises infrastructure investment as an important driver of economic development and improved public services. Although primarily focused on transport infrastructure, the plan supports the provision of strategic bulk infrastructure necessary to sustain provincial development.
c. The North West Department of Economic Development, Environment, Conservation and Tourism (DEDECT) Strategic Plan (2025–2030) promotes sustainable economic development while ensuring that environmental considerations are incorporated into development planning. The proposed deviations have therefore been assessed through the Basic Assessment process and informed by specialist studies to ensure that environmental impacts are identified and appropriately mitigated.
d. The North West Spatial Development Framework (2022), prepared in terms of SPLUMA, identifies electricity transmission infrastructure as strategic provincial infrastructure while promoting the protection of biodiversity, agricultural resources and water resources. The proposed deviations are consistent with these objectives, provided that environmental sensitivities are appropriately considered through the environmental assessment process and the implementation of suitable mitigation measures.

5.2.3 District and Local Planning Framework

The proposed deviations are also consistent with the IDPs of the affected district and local municipalities.

a. The Dr Kenneth Kaunda District Municipality IDP (2022–2027, 2025/2026 Review) identifies reliable electricity supply, energy master planning and bulk energy infrastructure as strategic priorities. The proposed deviations support these objectives through the strengthening of the regional transmission network.
b. Although only a small section of the deviation traverses the Ngaka Modiri Molema District Municipality, the Draft IDP (2026/2027) similarly identifies infrastructure development and improved service delivery as key development priorities. The project contributes towards improving electricity transmission capacity and network reliability within the broader region.
c. The JB Marks Local Municipality IDP (2022–2027, 2025/2026 Review) identifies electricity network strengthening and improved supply reliability as municipal priorities. The proposed deviation supports these objectives through its contribution to the broader transmission network.
d. The Mahikeng Local Municipality Draft Third IDP Review (2025/2026) prioritises infrastructure development, reliable service delivery and local economic development. The proposed deviations contribute towards these objectives by supporting a secure electricity transmission network that enables future economic growth while creating temporary employment opportunities during construction.

5.2.4 United Nations Sustainable Development Goals

South Africa has adopted the United Nations Sustainable Development Goals (SDGs), which promote sustainable economic growth, resilient infrastructure, environmental sustainability and improved quality of life.

The proposed deviations are primarily aligned with SDG 9 (Industry, Innovation and Infrastructure), which promotes the development of resilient infrastructure. The project also contributes towards SDG 7 (Affordable and Clean Energy) through strengthening electricity transmission infrastructure required to improve energy security, and supports SDG 8 (Decent Work and Economic Growth) by facilitating infrastructure investment and temporary employment opportunities during construction.

5.3 Desirability

The desirability of the proposed deviations has been assessed in the context of the applicable planning framework and the environmental characteristics of the receiving environment.

The review indicates that the deviations are desirable as they enable the implementation of strategic electricity transmission infrastructure identified in national, provincial and municipal planning documents, while providing an opportunity to avoid or reduce site-specific environmental and technical constraints identified along the previously approved alignment. The proposed deviations have been informed by specialist assessments undertaken as part of the Basic Assessment process, which identified environmental sensitivities and recommended mitigation measures to avoid, minimise and rehabilitate potential impacts on biodiversity, water resources, agricultural land, heritage resources, visual character

and surrounding land use. The proposed deviations are therefore considered desirable as they support the strategic objectives of strengthening South Africa's electricity transmission network while ensuring that environmental considerations have informed the final alignment and associated mitigation measures. The findings of the specialist assessments are presented in Sections 8 and 10 of this report and have informed the Environmental Management Programme (EMPr).

5.4 Summary

The proposed powerline deviations are broadly aligned with the applicable provincial and municipal planning frameworks, which recognise electricity transmission infrastructure as strategic infrastructure required to support energy security, economic development and reliable service delivery. These alignments are, however, subject to the potential land use, social and environmental impacts being appropriately assessed and managed through the Basic Assessment process and associated specialist studies.

From a socio-economic perspective, the broader project will improve the reliability of electricity supply, strengthen transmission capacity and support existing and future economic development within the North West Province. The construction phase will also provide temporary employment opportunities and contribute to local economic activity.

From an environmental perspective, the proposed powerline has, where practicable, been positioned adjacent to existing farm boundaries and disturbed areas to minimise additional habitat fragmentation and cumulative impacts. However, complete avoidance of environmentally sensitive features, including CBAs and watercourses, is constrained by several factors, including the requirement for the deviation to reconnect to the authorised alignment at both ends of the approved corridor, engineering and technical design requirements, and landowner concerns identified during the servitude acquisition process. The proposed deviation therefore represents a balance between environmental, technical and socio-economic considerations.

The Basic Assessment has applied the mitigation hierarchy by identifying opportunities to avoid impacts where practicable, minimise impacts through appropriate tower placement and construction methods, and mitigate residual impacts through project-specific management measures. These measures include the implementation of avifaunal collision mitigation, rehabilitation of disturbed areas, protection of sensitive environmental features and post-construction monitoring, where applicable

6 ALTERNATIVES

This section of the report details the information required as per Section 3(1)(g) to (h) (i) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(g) a motivation for the preferred site, activity, and technology alternative.
(h) a full description of the process followed to reach the proposed preferred alternative within the site, including:
(i) details of all the alternatives considered.

6.1 A motivation for the Preferred site, Activity and Technology Alternative

In terms of the EIA Regulations, 2014 (as amended), reasonable and feasible alternatives must be considered where these are available. In the present application, however, the scope for meaningful alternatives is materially constrained by the nature of the proposed development. The proposed deviations do not constitute a new transmission line, but form part of the authorised Pluto–Mahikeng 400 kV Powerline, for which the preferred route corridor, transmission technology and project specifications were assessed during the EIA process that resulted in the EA issued in 2019. Consequently, the proposed deviations are required to reconnect to the authorised alignment at fixed tie-in points and remain compatible with the approved overhead 400 kV transmission line design. The deviations arose during detailed engineering design and servitude negotiations in response to landowner concerns encountered along the authorised alignment. Accordingly, the opportunity to identify additional site, route, layout, activity or technology alternatives is limited, and this assessment focuses on the proposed deviations and the no-go alternative.

6.2 Site and route alternatives

The proposed deviations do not constitute a new transmission line, but rather localised refinements to an already authorised alignment. Consequently, the scope for identifying alternative routes is materially constrained. Each deviation is required to reconnect to the authorised transmission line alignment at both ends and must remain compatible with the approved project design. The extent of the deviation is therefore limited to the area necessary to accommodate engineering requirements and property-specific constraints identified during detailed design and servitude negotiations. The proposed deviation can therefore be regarded as a practical alternative to the approved alignment for this section of the line, although it must still be assessed on its own merits in relation to the social and land use impacts arising within the deviation area.

6.3 Layout Alternatives

A walkdown was undertaken to optimise the micro-siting of towers within the proposed servitude. This process considered local environmental sensitivities, topography, engineering requirements and landowner constraints. Preliminary tower positions have been determined and micro-sited based on the

findings and recommendations of the specialist studies. The tower positions remain subject to further micro-siting and refinement, where required, in response to comments received from stakeholders during the public participation process.

6.4 Technology alternatives

No technology alternatives were assessed as part of this Basic Assessment. The broader Pluto–Mahikeng 400 kV Powerline was authorised as an overhead transmission line, and the proposed deviations are required to connect to the authorised infrastructure. The transmission technology and operating voltage therefore form part of the approved project and are not reconsidered as part of this application. The assessment is limited to the localised deviation of the authorised alignment.

6.5 No-go Alternative

The no-go alternative represents the option of not authorising the proposed deviations to the authorised Pluto–Mahikeng 400 kV Powerline. It provides the benchmark against which the environmental, social and economic implications of the proposed deviations can be assessed.

Unlike a greenfields transmission line application, the no-go alternative does not negate the need for the broader Pluto–Mahikeng 400 kV Powerline which has already been authorised following a full EIA process in which route alternatives, transmission technology and project design were assessed. The proposed deviations arose during detailed engineering design and servitude negotiations after it was noted that sections of the authorised alignment could not be implemented as approved due to property-specific considerations and landowner requirements. The need for transmission strengthening within the region therefore remains irrespective of whether the proposed deviations are authorised.

From an environmental perspective, implementation of the no-go alternative would avoid the direct impacts associated with constructing the proposed deviations. These include the loss and disturbance of natural vegetation, temporary disturbance of watercourses and drainage features during construction, soil disturbance, visual impacts, construction-related nuisance impacts and the potential collision and electrocution risks to avifauna associated with the proposed deviation. The no-go alternative would therefore maintain the current environmental condition within the deviation areas and avoid the localised impacts identified by the specialist assessments.

The no-go alternative would also avoid direct impacts on affected landowners associated with construction activities, including disruption to access, movement of construction vehicles, dust generation, noise, increased traffic and temporary disturbance to livestock and game farming activities. Temporary employment opportunities associated with the construction of the deviations would likewise not materialise.

However, the no-go alternative would not address the servitude constraints that necessitated the proposed deviations. As the authorised alignment cannot be implemented in these locations without modification, failure to authorise the proposed deviations may delay implementation of the affected sections of the authorised transmission line while alternative planning solutions are investigated. Such alternatives may not necessarily result in reduced environmental or social impacts and could simply transfer impacts to other properties or environmentally sensitive areas.

The no-go alternative would also delay the implementation of infrastructure that forms part of the broader Watershed Strengthening Phase 3 Project, which has been identified by NTCSA as strategically important for strengthening the transmission network supplying the North West Province. The project is intended to improve transmission capacity, enhance voltage regulation and strengthen the reliability of electricity supply within the greater Mahikeng, Lichtenburg and Vryburg areas, while also supporting the broader Botswana–South Africa transmission interconnection. Failure to implement the required deviations could therefore affect the timely implementation of these strategic network objectives.

6.6 Outcome of the specialist studies undertaken

The specialist studies concluded that the proposed deviations are unlikely to result in significant residual environmental impacts, provided that the recommended mitigation measures are implemented. The social impact assessment determined that the proposed project is likely to result in minor positive cumulative impacts at both the local and national levels through limited revenue generation and the creation of temporary employment opportunities during the construction phase. Given the relatively small scale of the proposed deviations, these positive impacts are expected to be of low significance. Potential negative social impacts are associated with the temporary influx of construction workers, possible social instability, and disruptions to existing services; however, these impacts can be reduced to acceptable levels through the implementation of the recommended mitigation measures.

The avifaunal assessment found that the proposed route deviations traverse habitat of medium to high avifaunal sensitivity due to the presence of diverse habitat types and the confirmed occurrence of Species of Conservation Concern (SCC), including collision-prone and disturbance-sensitive species. However, the implementation of targeted mitigation measures, including the installation of bird flight diverters and appropriate construction management practices, is expected to reduce the residual impacts to acceptable levels.

The aquatic assessment concluded that the first deviation traverses the perennial Mooi River and a seasonal wetland and, following the implementation of the recommended mitigation measures, the

residual impact on aquatic biodiversity is expected to be of low to moderate significance. The terrestrial biodiversity assessment determined that, although the proposed deviations traverse National Protected Area Expansion Strategy (NPAES) focus areas, Critical Biodiversity Areas (CBAs), and Ecological Support Areas (ESAs), the residual impacts can be managed through the implementation of the prescribed mitigation measures, with the overall residual impact remaining medium due to the ecological sensitivity of the receiving environment.

The heritage and palaeontological assessments concluded that the anticipated impacts are localised and can be adequately managed, with heritage impacts being of low significance following mitigation. Similarly, the agricultural assessment found that the overall agricultural sensitivity of the proposed deviations is low after mitigation, as the alignments predominantly traverse shallow soils that are better suited to grazing than cultivation. The civil aviation assessment also concluded that the proposed deviations are expected to have a low impact on aviation safety, provided that the recommended mitigation measures are implemented.

7 PUBLIC PARTICIPATION PROCESS

This section of the report details the information required as per Section 3(1) (h) (i)and (ii) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended)

h(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs. (iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them

The Public Participation Process (PPP) has been conducted in accordance with Chapter 6 of the EIA Regulations, 2014 (as amended). The PPP empowers communities and stakeholders to actively participate in the decision-making process for developments that may affect their interests, livelihoods, or the environment in which they live. The PPP for this Basic Assessment application has been designed to ensure compliance with the following key regulatory requirements:

- **Regulation 40:** All registered Interested and Affected Parties (I&APs) must be given 30 days to submit written comments on the Draft Basic Assessment Report and associated reports.
- **Regulation 41:** Notification to all I&APs must be provided by fixing notice boards at the site and at a conspicuous place in the municipality, distributing written notice to all registered I&APs, and publishing an advertisement in both a local and a national newspaper.
- **Regulation 42:** A register of all Interested and Affected Parties must be opened and maintained, updated as the project progresses, and managed in compliance with the Protection of Personal Information Act, 2013 (Act No. 4 of 2013) (POPIA).
- **Regulation 43:** All registered I&APs are entitled to comment on all reports submitted as part of the application, and the person conducting the PPP must ensure that all comments are brought to the attention of the applicant and addressed in the Comments and Responses Report.
- **Regulation 44:** The person conducting the PPP must ensure that comments of I&APs and records of meetings are accurately recorded and responded to. The Comments and Responses Report must be attached to the Final Basic Assessment Report submitted to the Competent Authority.

7.1 Methodology Adopted

The PPP is implemented in three phases, as described in the sections below. The methodology ensures that all potentially affected parties are identified, notified, and afforded a meaningful opportunity to participate in the process, in line with the requirements of Chapter 6 of the EIA Regulations and the principles of Integrated Environmental Management (IEM).

7.2 Part 1 of the Public Participation Process

7.2.1 Site Reconnaissance

A site visit was conducted by the EAP team prior to the commencement of the PPP in order to understand the social context of the project area, identify potential stakeholders and communities of interest, confirm the location of affected farms and residential properties relative to the powerline deviations, and identify suitable locations for the placement of site notices. The findings of the site visit confirmed that the deviations traverses privately owned and state land, with natural and grazing areas.

7.2.2 Stakeholder Database

A stakeholder database was compiled and maintained in accordance with Regulation 42 of the EIA Regulations and the requirements of POPIA. The database was established using the following sources:

- The landowner database developed by NTCSA during the ongoing servitude negotiation process, which provides a comprehensive list of all landowners along the powerline deviations.
- Windeed property register searches for all farm portions within the defined project area of influence.
- Prior stakeholder records from the original EIA (2019) process.
- Networking with ward councillors, Farmers' Associations, and government departments.
- Response to the site notices and notifications.

The stakeholder database includes all persons and organisations who have formally requested registration in writing, and all organs of state with jurisdiction over the project area. The stakeholder database is provided in Appendix E-6.

7.2.3 Notification

Stakeholders were notified of the proposed BA application through a combination of the following mechanisms, in compliance with Regulation 41 of the EIA Regulations:

- **Background Information Documents (BID)**: A BID was prepared describing the location of the deviations, the reasons for the deviations, the BA process to be followed, the PPP process, and the contact details for the EAP. The document was distributed electronically (by email) and by hand to all registered I&APs, affected landowners, and relevant government departments and organs of state. The distribution list and proof of distribution are provided in Appendix E-2. The stakeholders notified include South African Civil Aviation Authority (SACAA), South African Heritage Resources Agency (SAHRA), Vulpro and Birdlife.
- **Site Notices:** laminated site notices in English, Afrikaans, and Setswana were erected at prominent, publicly accessible locations along and near the deviation servitudes, including at the gates of affected farms, and at the local government offices of the relevant municipalities. Site notices were placed in May 2026. A photographic record is provided in Appendix E-3.

7.2.4 Comments and Responses – Part 1

Apart from the Interim Comments from SAHRA, no substantive written comments regarding the proposed deviations were received during Part 1 of the PPP. Several stakeholders submitted formal registration requests for inclusion in the I&AP database. All registration requests have been processed and the relevant stakeholders added to the database. A Comments and Responses Report is attached in Appendix E-5.

7.3 Part 2 of the Public Participation Process

7.3.1 Distribution of the Draft Basic Assessment Report

The Draft Basic Report (this document) and all associated specialist studies will be made available for a 30-day public review period, in accordance with Regulation 40 of the EIA Regulations. The Draft BA Report will be distributed as follows:

- Electronically (by email) to all registered I&APs and government departments on the stakeholder database.
- Uploaded to the Vhubvo website (www.vhubvo.co.za) for public access during the review period; and
- Made available in hard copy at the following designated access venues: Vhubvo offices (546, 16th Road, Midrand); Mahikeng and Lichtenburg Public Libraries.

7.3.2 Newspaper Advertisements

A public notice announcing the availability of the Draft BA Report for comment, together with the details of the designated access venues and the 30-day commenting period, has been published in a Carletonville Herald and the Noordwester newspapers on the 1st and 2nd of October 2026, informing the public of the proposed BA process, the 30-day public review period for the Draft BA Report, and the commenting procedure. Copies of the newspaper advertisements are attached to Appendix E-7.

7.3.3 Public Meetings

A pre-application meeting was held with DEDECT regarding the guidance for the Biodiversity offsets and the comments have been addressed in the Terrestrial Biodiversity Report and this report. Minutes are attached in Appendix E-8. Additional public meetings will be held during the 30-day review period, in consultation with the ward councillors of the affected wards and the area's Farmers' Associations active in the project area. Meeting venues, dates, and times will be communicated to registered I&APs via the stakeholder database.

7.3.4 Comments and Responses – Part 2

The comments received during Part 2 of the PPP will be addressed and included in the Comments and Responses Report to be attached to the Final Basic Assessment Report.

7.4 Part 3 of the Public Participation Process

The final phase of the PPP includes notification of the Competent Authority's decision to all registered I&APs, together with information regarding the applicable appeal procedures in terms of Chapter 2 of the National Appeals Regulations, 2025. Any person who wishes to appeal against the decision of the competent authority may do so in accordance with Section 43 of NEMA, as read with the applicable National Appeals Regulations promulgated thereunder. An appeal must be submitted within 20 days of notification of the decision, in the prescribed form and manner.

7.5 Conclusion

The PPP is designed to facilitate inclusive, transparent, and culturally appropriate participation, with consideration given to language and local communication structures. Consistent with the EIA Regulations, IAPs are provided with reasonable opportunities to engage with the process and contribute to environmental decision-making. The process includes the identification and registration of IAPs, comprising affected landowners, neighbouring landowners, municipal authorities, provincial and national government departments, and other relevant stakeholders. Notification of the proposed project has been undertaken through the distribution of a BID, placement of site notices at strategic and publicly accessible locations, and written notification to affected landowners and authorities. Public consultation meetings will be held with landowners, and stakeholders during the prescribed Draft BAR review period. The Draft BAR will be made available for a minimum period of 30 days, during which written comments will be invited. All comments received will be recorded in a Comments and Responses Report and addressed in this Report.

8 THE ENVIRONMENTAL ATTRIBUTES

This section of the report outlines the information required per Section 3(1)(g)(iv) of Appendix 1 to the Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(g) (iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;

This information is provided as a baseline to ensure a clear understanding of the potential environmental impacts of the proposed development. As such, aspects of the biophysical and socio-economic environment that the project could directly or indirectly impact have been discussed. This information has been sourced from existing documents, including the SDFs and IDPs for the affected local and district municipalities, the site, and the specialists' assessments. A more detailed description of each aspect of the affected environment is included in the specialist reports. The specialists commissioned are given in the table below:

Table 8-1: Details of Specialists

ORGANISATION AND NAME OF SPECIALIST	THEME	Professional Registration/ Qualification
Feathers Environmental Consulting M. Diamond	Avifauna	Pr. Sci. Nat
AfroConserva Integration A. Nhundu P. Phillip	Archaeology and Cultural Heritage	Masters Archaeology ASAPA Hons Archaeology ASAPA
GWI Aviation Advisory Jon Heeger	Civil Aviation	ECSA
Tshilimo Consulting Services (Pty) Ltd Maphaha Khuliso Collen	Freshwater Assessment	Pr. Sci. Nat
Prof JF Durand	Palaeontology	PhD Palaeontology
Enviro-Solum T. Setsipane	Soil and Land Capability	Pr. Sci. Nat
Solarys Pty Ltd Ursula Pape	Social	LLM in Constitutional, Administrative and Environmental Law
Naledzani Environmental Services M. Ramalivhana	Terrestrial Biodiversity, Plants and Animals	Pr. Sci. Nat

8.1 Meteorological Setting

Meteorological information, including primary precipitation, ambient temperature, and wind direction and speed, is essential for adequately assessing environmental impacts. Except for a few locations where stations are operational, meteorological records are rarely accessible. The project area experiences a warm-temperate,

summer-rainfall climate typical of the central interior of South Africa. According to the North West Department of Economic Development, Environment, Conservation and Tourism (NW DEDECT, 2025), mean annual precipitation across the province ranges from 250 mm in the western Kalahari to approximately 800 mm in the north-eastern Grassland, Bankenveld and Bushveld regions. Rainfall occurs predominantly during a single summer rainfall season extending from October to April. Temperatures are generally highest during summer, while winter is characterised by frequent frost, particularly in the Grassland regions.

The vegetation types traversed by the proposed powerline deviation exhibit similar climatic conditions. Carletonville Dolomite Grassland has a mean annual precipitation (MAP) of approximately 593 mm, while Klerksdorp Thornveld receives an average of 533 mm annually. Rand Highveld Grassland experiences a slightly higher MAP of approximately 654 mm (ranging from 570–730 mm), with rainfall decreasing towards the western portions of its distribution. All three vegetation types occur within warm-temperate, summer-rainfall regions characterised by hot summers and dry winters, with frequent to severe frost occurring during winter, particularly within the grassland vegetation types (Mucina & Rutherford, 2006).

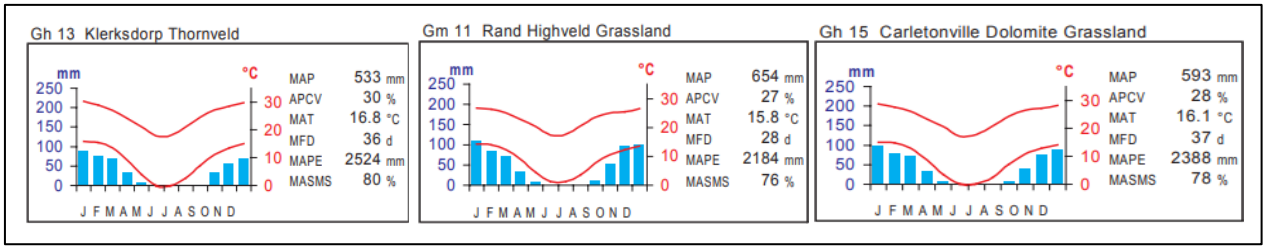


Figure 8-1: Climate Data per vegetation type (Mucina & Rutherford, 2006).

8.2 Topography

Elevation across the broader study area ranges from approximately 1 377 m to 1 742 m above mean sea level. The longer section of the deviation is positioned within the lower-lying central valley, with elevations toward the lower end of this range; the topography is at its lowest around the Mooi River crossing. The higher ground (ridges and hills) flanks the valley to the north and on either side. This low-lying valley setting concentrates surface drainage toward the Mooi River, reinforcing the hydrological sensitivity of the central section of the deviation and its susceptibility to erosion and sedimentation during construction (Tshilimo Consulting Services, 2026).

8.3 Geology

The proposed deviations are underlain by two distinct geological units. The longer deviation is entirely underlain by the Malmani Subgroup of the Chuniespoort Group (Transvaal Supergroup), comprising predominantly dolomitic rocks. These dolomites are characteristic of karst terrain, with the potential for solution features and significant groundwater storage, and are associated with the dolomite grassland vegetation occurring across the area. The consistent occurrence of the Malmani Subgroup along this alignment indicates a relatively uniform geological setting throughout the deviation. In contrast, the shorter deviation is underlain by andesitic lavas and tuffs, representing a different geological unit with contrasting lithological characteristics. The geology of the area is shown in the Figure below.

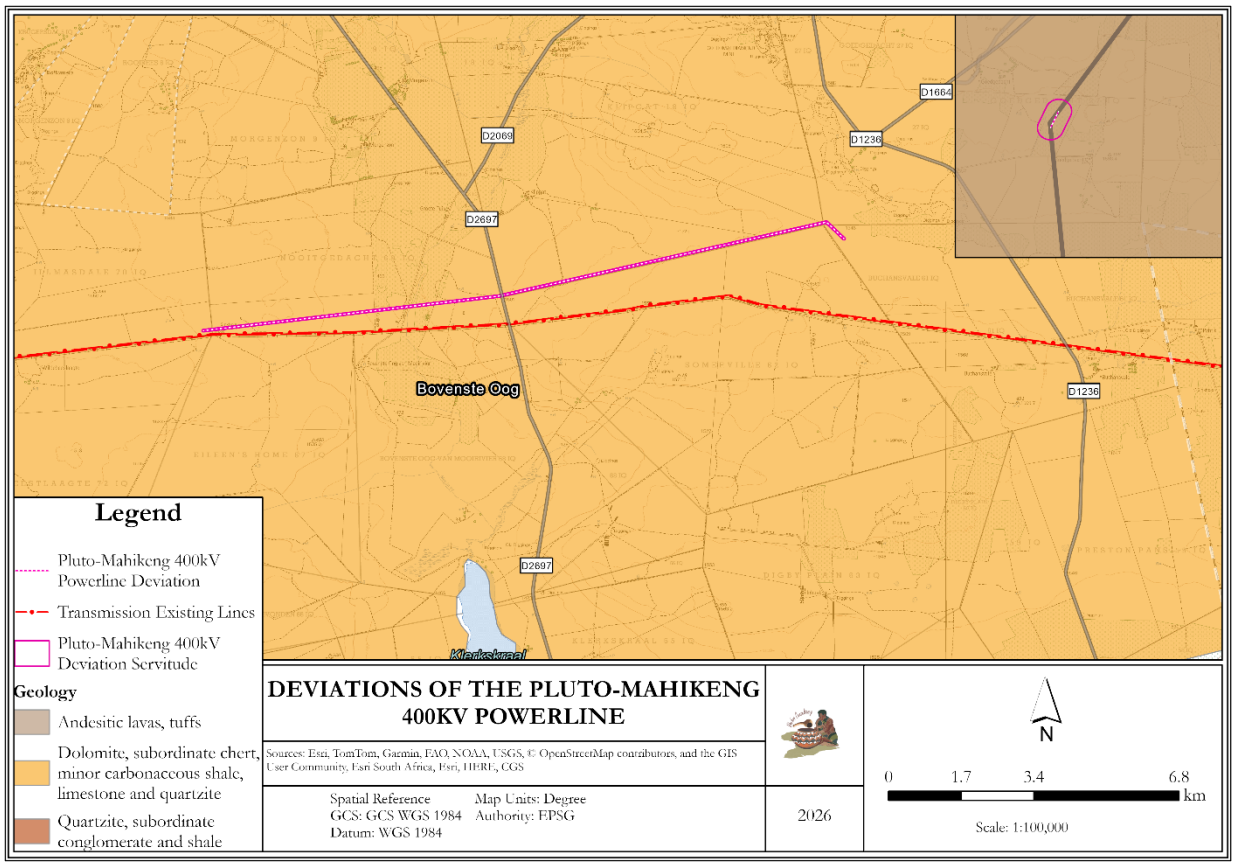


Figure 8-2: Geology of the area.

8.4 Soils and Land Capability

The soil and land capability information indicated in this section has been sourced from the Compliance Statement prepared by Enviro-Solum Consulting.

8.4.1 Land Type

According to Enviro-Solum Consulting (2026), the majority of the eastern portion of the study area is dominated by the Fa17 landtype, followed by the Ba43 landtype (Figure 8-3). The Fa landtype is characterised by pedologically young, shallow/rocky soils, with lime rare or absent throughout the landscape. The Ba landtype is characterised by Plinthic landscapes with almost no upland duplex or margalitic soils, and by widespread red soils. The western portion of the study area is characterised by the Fb4 landtype, which is also shallow, young soils (Figure 8-4).



Figure 8-3: Land type classes associated with the eastern side of the study area ((Enviro-Solum Consulting, 2026)

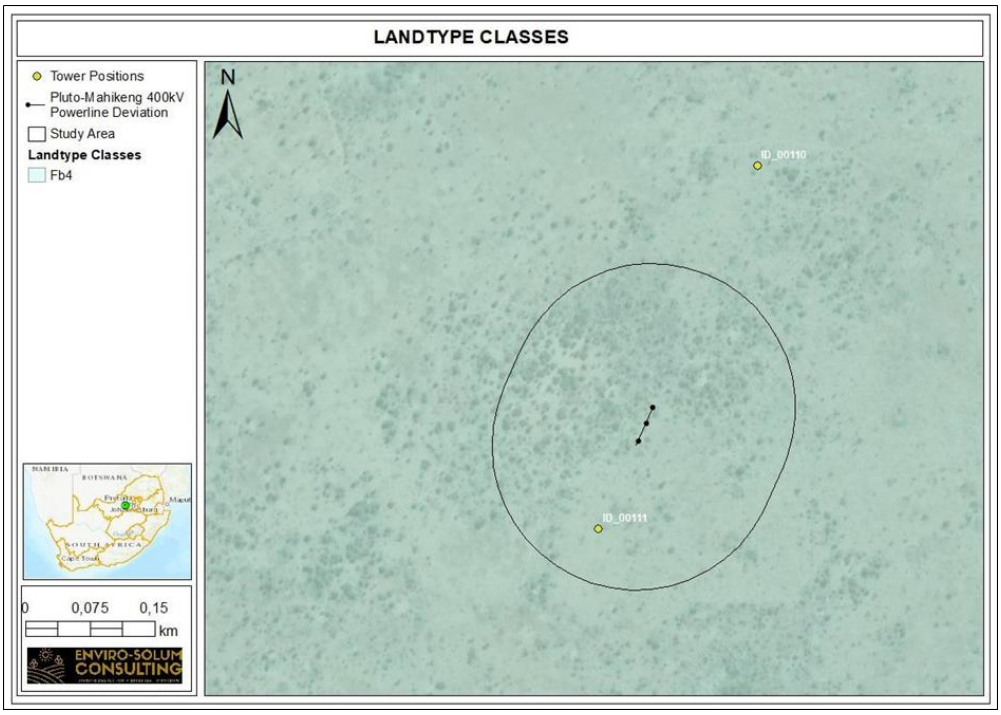


Figure 8-4: Land type classes associated with the western side of the study area (Enviro-Solum Consulting, 2026).

8.4.2 Soil pH

The soil pH in the study area ranges from 5.5 to 6.4 and 6.5 to 7.4. According to Enviro-Solum Consulting, (2026), the implications associated with these pH are as follows:

i. **5.5 – 6.4:** The pH range identified is classified as acidic. In this state, the soil may require liming to neutralise the acidity, as certain essential nutrients, particularly nitrogen, can become inaccessible to plants. This unavailability can hinder plant growth and overall health, making it crucial to address soil pH for optimal nutrient uptake.

ii. **6.5 to 7.4:** The pH range identified is classified as slightly acidic to slightly alkaline. This soil pH range is considered ideal. In this range, essential plant nutrients are at their maximum availability, enabling most crops and vegetables.

Figures 8-5 and 8-6 indicate the spatial extent of the soil pH.

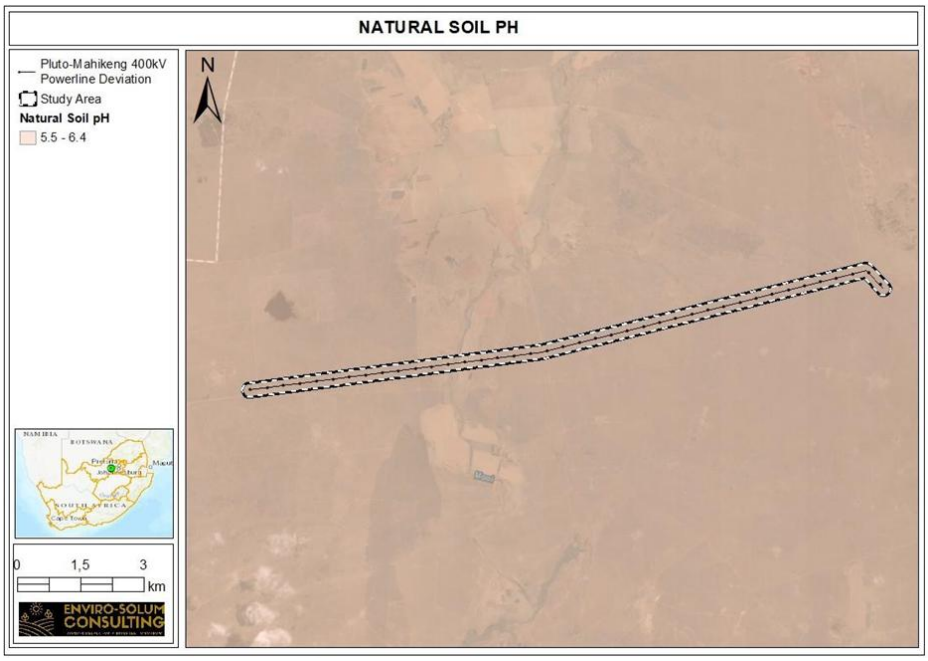


Figure 8-5: Soil pH associated with the eastern side of the study area.

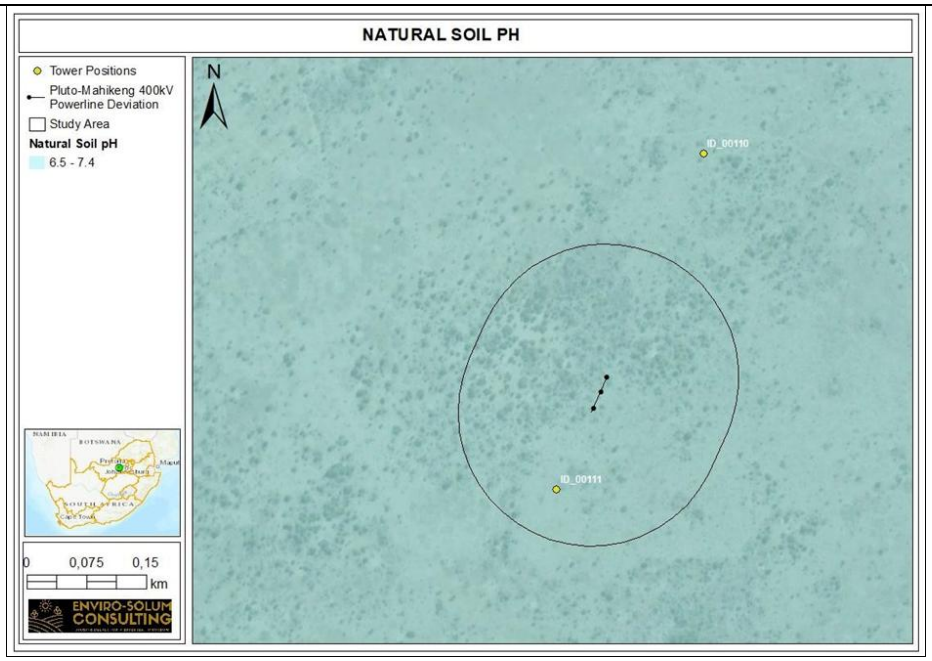


Figure 8-6: Soil pH associated with the western side of the study area (Enviro-Solum Consulting, 2026).

8.4.3 Soil And Terrain (SOTER) Dominant Soils

The majority of the eastern portion of the study area is characterised by the Eutric Leptosols, followed by the Haplic Lixisols. The eutric leptosols are severely limited to agricultural use, with plant roots confined to a small volume of soil that cannot provide adequate anchorage, water, and nutrients. These soils with root-restrictive layers can be profitably used for cropping under sustainable and/or intensive management or left for extensive grazing and wood chopping. The haplic lixisols are strongly weathered, clay-enriched soils with moderate to high base saturation, due to clays being washed down the soil profile. Agricultural suitability depends heavily on preventing topsoil degradation. When managed with organic matter incorporation and targeted fertilisation (such as phosphorus for legumes), they can successfully support crops. The western portion of the study area is dominated by petric calcisols. These soils are characterised by a cemented, hardpan layer of secondary calcium carbonate (petrocalcic horizon) within 100 cm of the surface. These base-rich soils are highly calcareous, heavily restricting root depth, and are most common in arid climates (Enviro-Solum Consulting, 2026). Figures 8-7 and 8-8 below illustrate the SOTER-dominant soils associated with the study area.

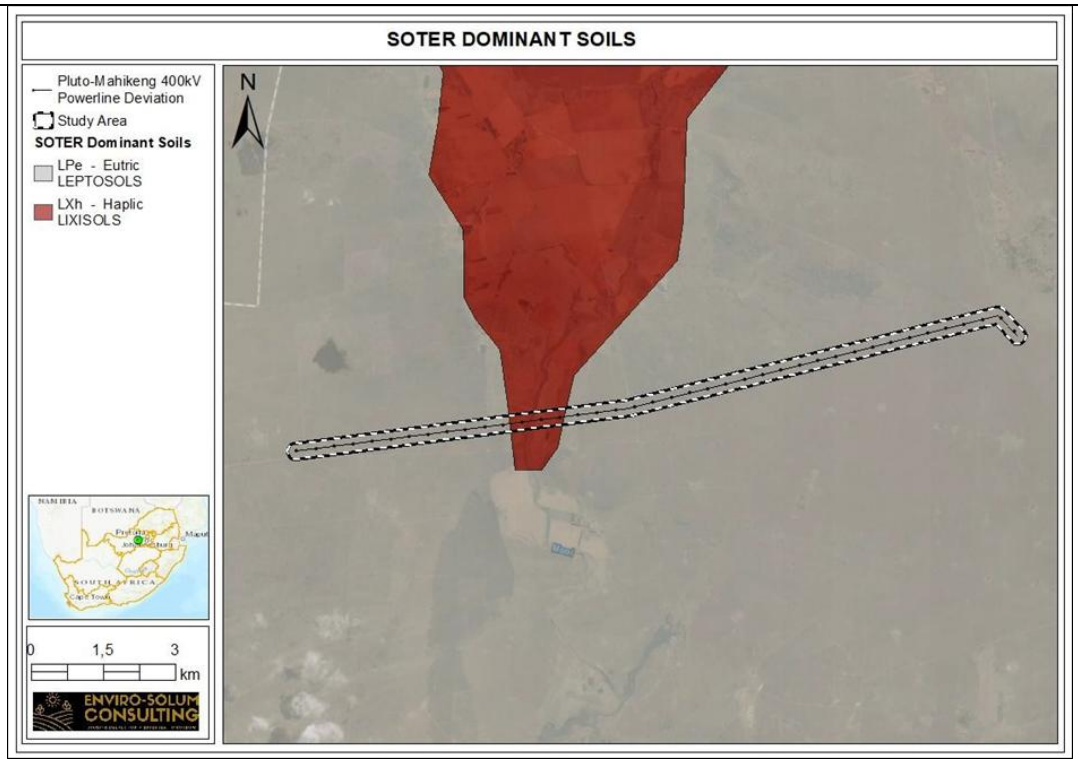


Figure 8-7: SOTER dominant soils associated with the eastern side of the study area

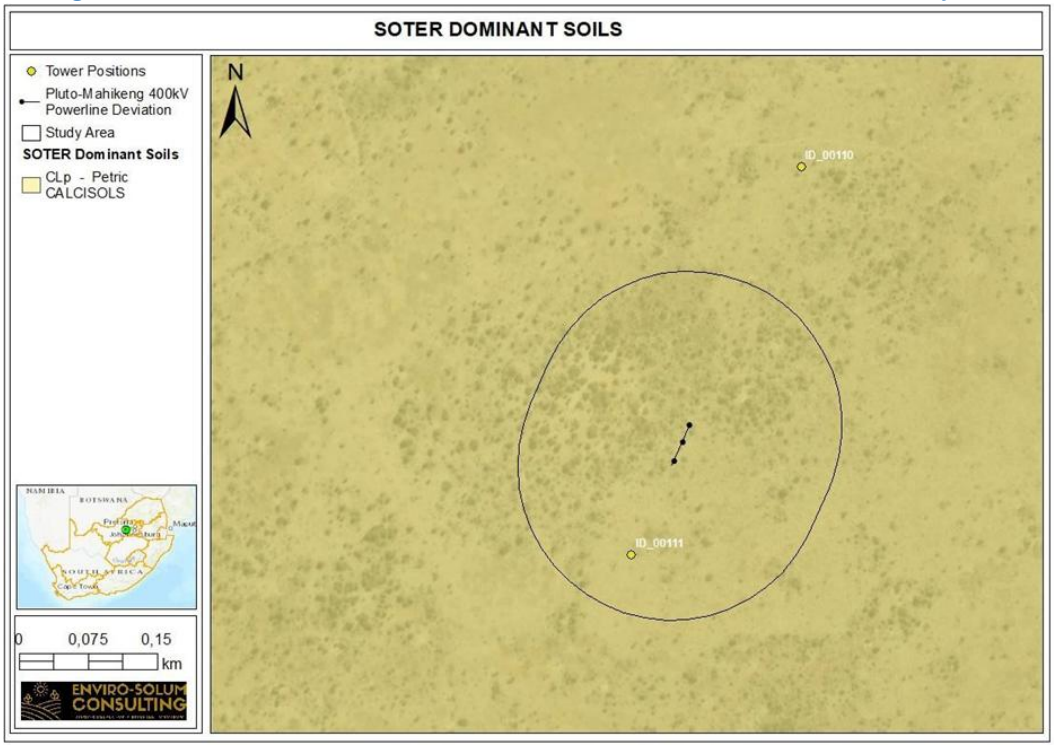


Figure 8-8: SOTER dominant soils associated with the western side study area.

8.4.4 Land Capability

The land capability of the proposed footprint was compared to the National Land Capability, which was refined between 2014 and 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 8-2), usable on a scale of 1: 50 000 to 1: 100 000 (DAFF, 2017).

Table 8-2: 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	

The land capability dataset indicates that the desktop land capability associated with the soils within the eastern portion of the study area is largely non-arable, with grazing or wildlife land of Class VII capability, and includes moderate potential arable land of Class III capability. The western portion is characterised by the marginal potential arable land of class VI capability. Figures 8-9 and 8-10 below shows this capability.

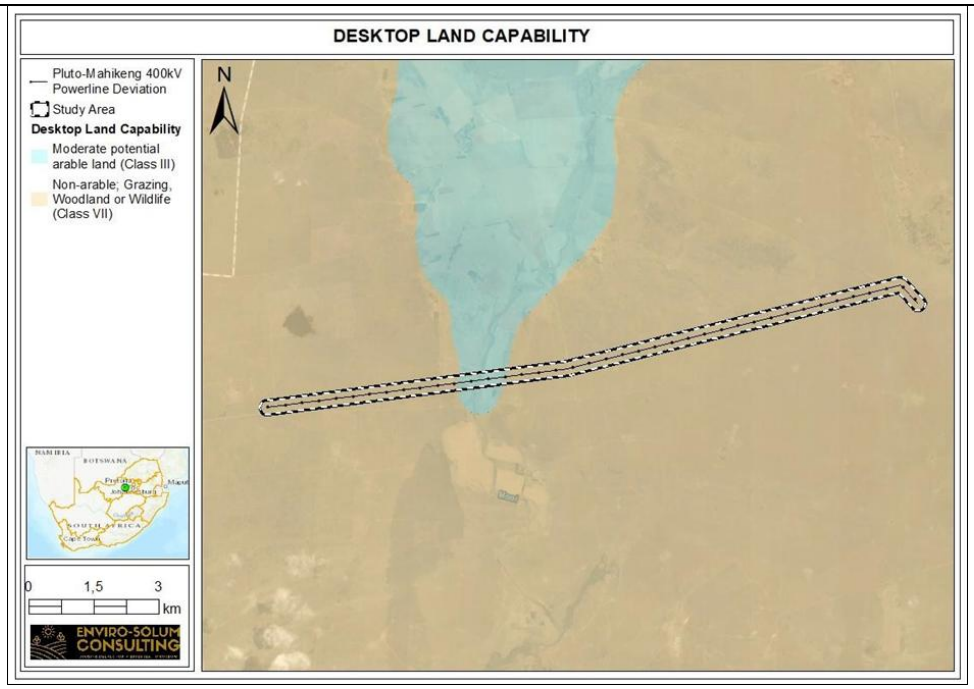


Figure 8-9: Desktop land capability associated with the eastern portion of the study area (Enviro-Solum Consulting, 2026).

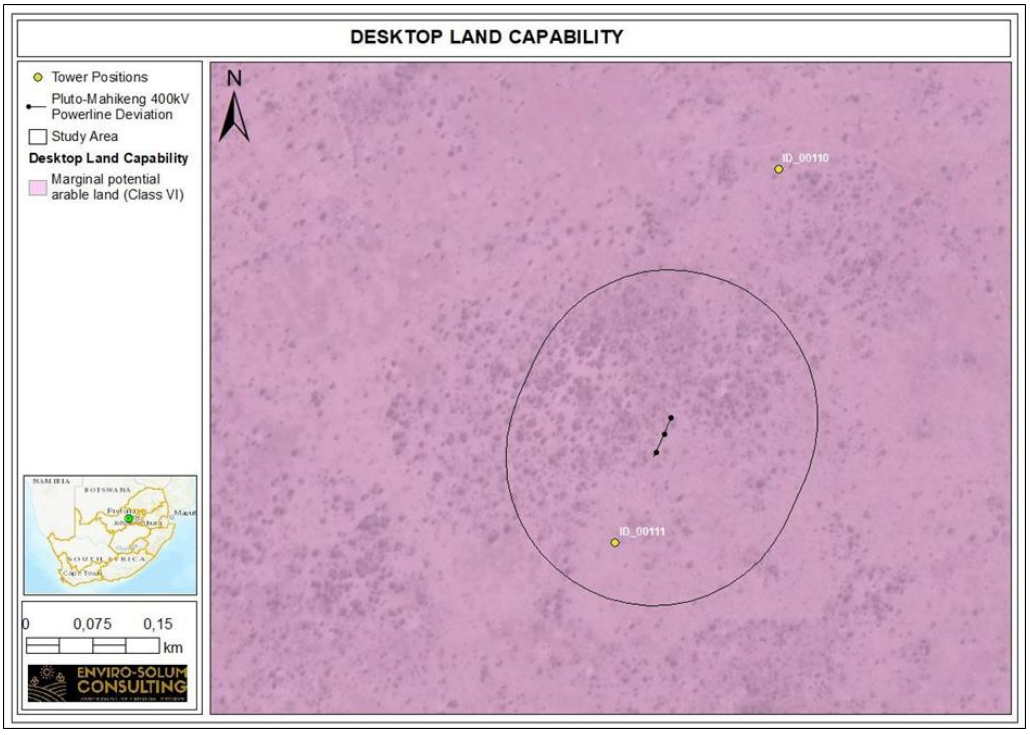


Figure 8-10: Desktop land capability associated with the western portion of the study (Enviro-Solum Consulting, 2026)

8.4.5 Protected Agricultural Areas

The Preservation and Development of Agricultural Land Act, 2024, stipulates that land under irrigation is automatically regarded as high potential, even though the soils within the study area can generally be classified as low potential soils due to their inherent physical properties (i.e., stoniness, insufficient

depth), which are generally not ideal for cultivation. This is due to the high production capacity and the potential to exponentially increase crop yields, which is of high importance for food security at the local and regional scales. In most cases, these irrigated areas indicate high capital investments made on the farm. As such, these areas are typically classified as Protected Agricultural Areas (PAA). Additionally, PAA's goal is to prevent the conversion of valuable agricultural land to non-agricultural uses, thereby promoting food security and sustainable farming practices. The proposed powerline deviations were overlaid on the dataset for PAAs, and it was noted that they do not intersect a PAA. See Figure 8-11.

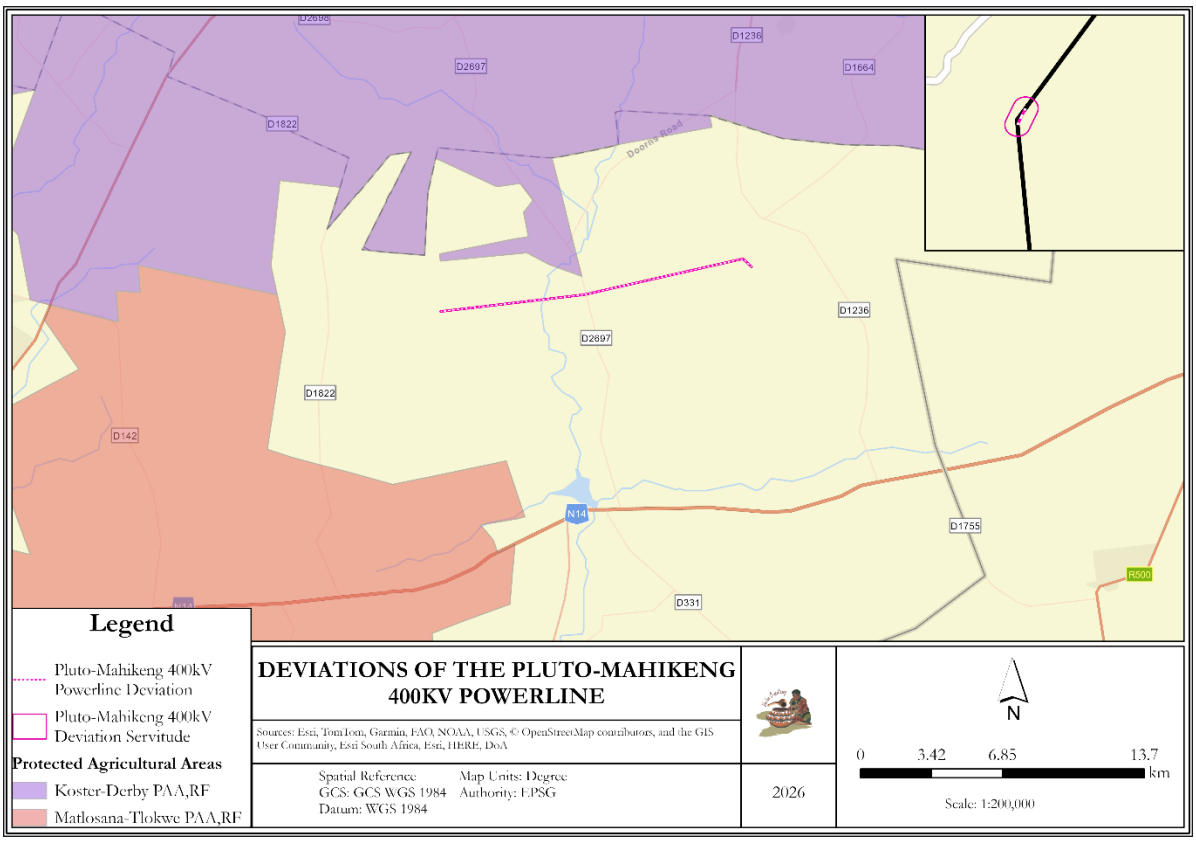


Figure 8-11: The location of the line in relation to PAAs

8.5 Water Resources

The following information was sourced from the Surface Water Assessment Report prepared by Tshilimo Consulting Services (Pty) Ltd.

8.5.1 Water Management Areas

South Africa is divided into six water management areas (WMAs), each managed by a separate water board. Each water management area (WMA) comprises quaternary catchments, which correspond to the drainage regions of South Africa, numbered from A to X (excluding O). These drainage regions are subdivided into four known divisions based on size. For example, B denotes the primary drainage catchment, A6 represents the secondary catchment, A62 represents the tertiary catchment, and A62E

represents the quaternary catchment, the lowest subdivision in the WR2005 manual. Each quaternary catchment is associated with specific hydrological parameters, including area, mean annual precipitation (MAP), and mean annual runoff (MAR), among others. The project area falls within the Vaal-Orange Water Management Area (WMA), with deviation 1 falling within the C23F and deviation 2 within the D41A quaternary catchments (Figure 8-12). Tshilimo Consulting Services, (2026) indicates that the catchment drains to the Vaal River system, which is one of the most significant hydrological regions in South Africa. The position of the deviation within the Vaal-Orange WMA underscores the regional importance of the corridor from a water-resource-management perspective and the need for compliance with the National Water Act (Act 36 of 1998), particularly in respect of Section 21(c) and (i) water uses associated with the Mooi River crossing.

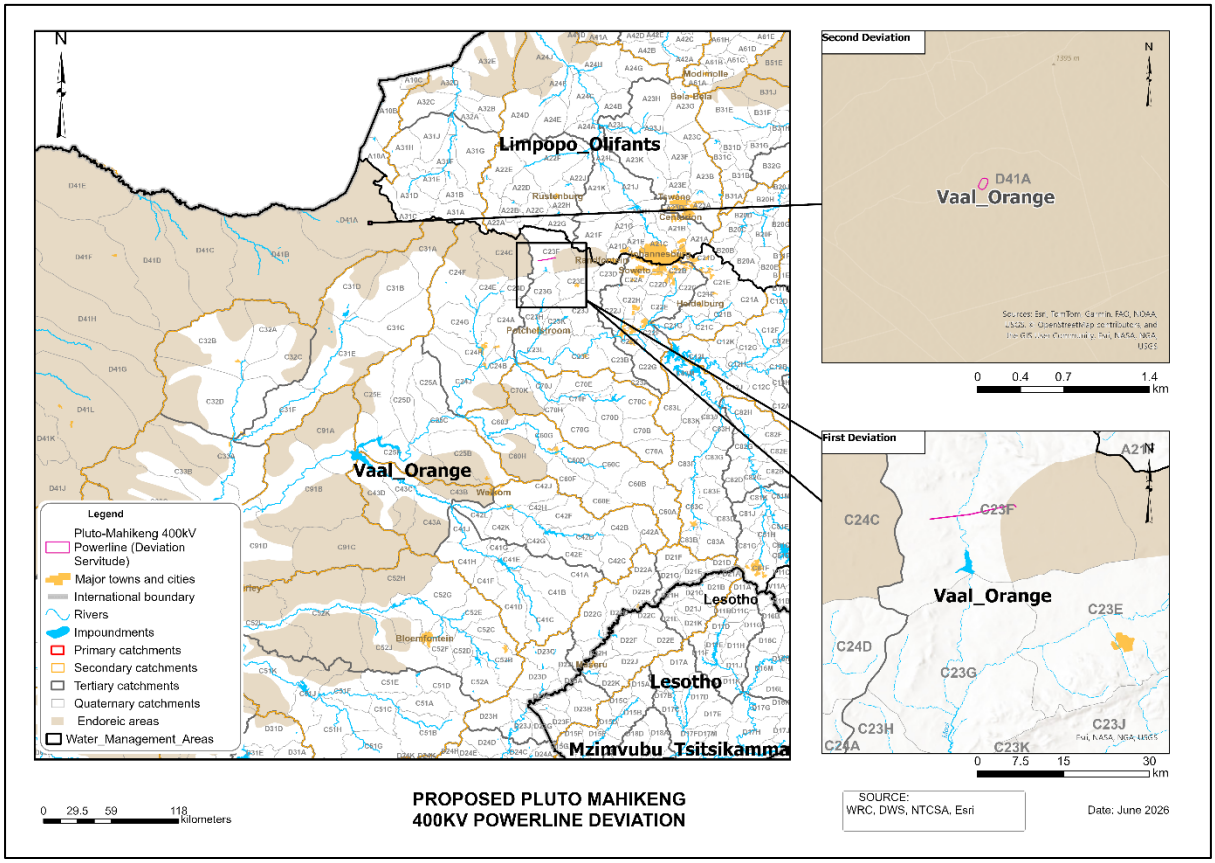


Figure 8-12: Vaal-Orange WMA and the affected quaternary catchment

8.5.2 Strategic Water Source Areas (SWSA)

Rainfall is unequal nationwide, and locations with significant rainfall and surface water production are crucial. Given the shortage of surface water, South Africa also relies on groundwater resources, making locations with substantial groundwater recharge strategically important. SWSAs are natural water-source locations that provide disproportionately large amounts of water per unit area and are deemed crucial to national water security from a planning perspective, whether for surface water, groundwater, or both. SWSAs may be described as "water factories" that support growth and development needs, often a long

distance away from the SWSAs. SWSAs are national ecological infrastructure assets essential for water security and underpin national development goals, such as inclusive growth, employment creation, and poverty reduction. According to the SWSAs of South Africa, Lesotho, and Swaziland, the two deviations intersect the Ventersdorp/Schoonspruit Karst Belt and Bo-Molopo Karst Belt groundwater SWSA. Reference is made to Figure 8-13. More than 60% of both of these Karst Belt SWSAs is rated as having a high vulnerability to surface pollution and a further 14% of the Bo-Molopo and 27% of the Ventersdorp/Schoonspruit are rated as moderate vulnerability. No areas were rated as having very high vulnerability. About 82% of the Bo-Molopo is rated as having a low to moderate drought vulnerability and the balance is moderate, compared with 97% and 3% respectively for the Ventersdorp/Schoonspruit SWSA (Le Maitre, et al., nd).

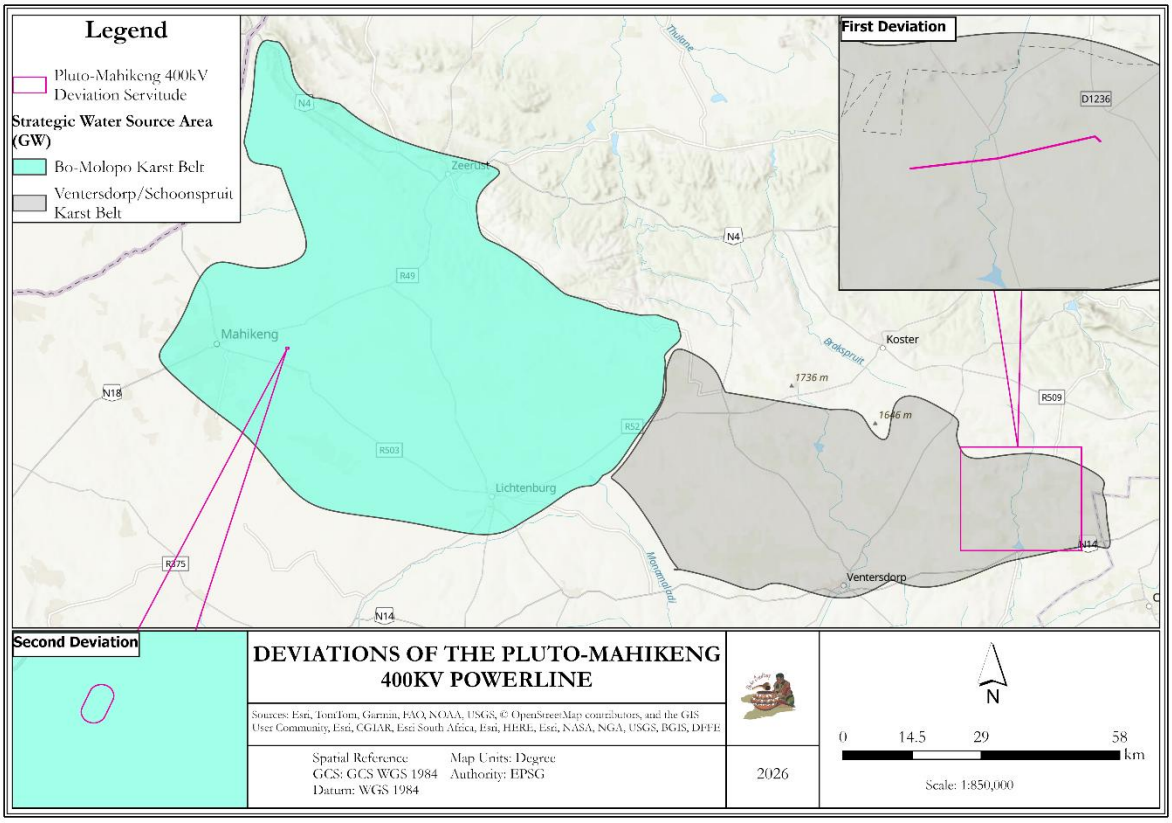


Figure 8-13: SWSAs intersected by the deviations

8.5.3 The National Biodiversity Assessment

The National Biodiversity Assessment (NBA) was completed in collaboration with SANBI, the DEA, and other stakeholders, including scientists and biodiversity management experts, across the country over three years. The purpose of the NBA is to assess the state of South Africa's biodiversity to understand trends over time and inform policy and decision-making across a range of sectors (Van Deventer et al., 2019). This spatial dataset is part of the South African Inventory of Inland Aquatic Ecosystems (SAIIAE),

released as part of the National Biodiversity Assessment (NBA) 2018. National Wetland Map 5 encompasses inland wetlands and estuaries, as well as river line data and other datasets within the South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (2018). According to the SAIIAE dataset, the Project Area of Influence (PAOI) overlaps a seep wetland classified as Critically Endangered as well as a major river, Mooi River. See Figure 8-14.

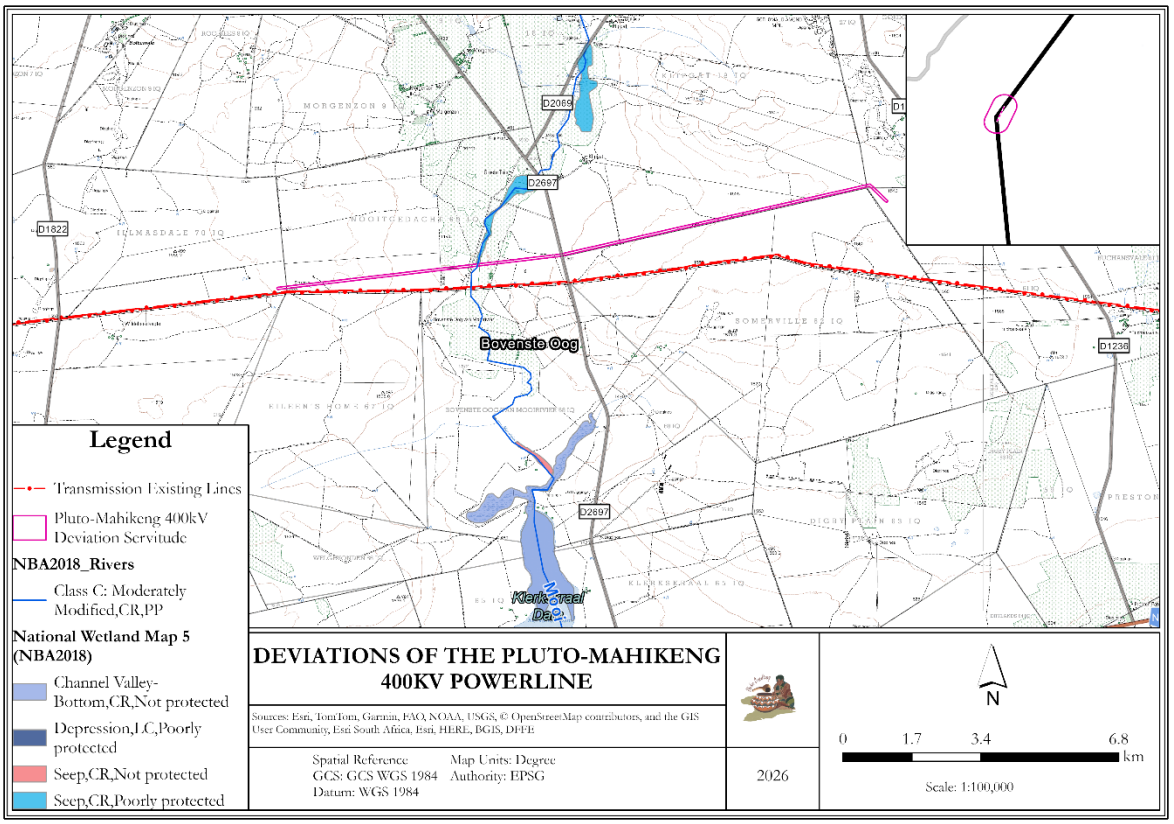


Figure 8-14: Water Resources per the National Biodiversity Assessment 2018

8.5.4 National Freshwater Ecosystem Priority Areas

The National Freshwater Ecosystem Priority Areas (NFEPA) database forms part of a comprehensive approach to the sustainable and equitable development of South Africa's scarce water resources. This database guides how many rivers, wetlands, and estuaries there are and which ones should remain natural or near-natural to support the water resource protection goals of the National Water Act (Act 36 of 1998) (NWA). This directly applies to the NWA, which feeds into Catchment Management Strategies, water resource classification, reserve determination, and the setting and monitoring resource quality objectives (Nel et al., 2011). The NFEPAs are intended to be conservation support tools and are envisioned to guide the effective implementation of measures to achieve the biodiversity goals of the National Environment Management Biodiversity Act (NEM:BA) (Act 10 of 2004), informing both the listing of threatened freshwater ecosystems and the process of bioregional planning provided for by this Act (Nel et al., 2011).

Fish sanctuaries are rivers essential for protecting threatened and near-threatened freshwater fish indigenous to South Africa. A goal of NFEPA is to keep further freshwater species from becoming threatened and to prevent those fish species that are already threatened or near threatened from going extinct. The PAOI intersects the Mooi River (Figure 8-15), which is identified as a NFEPA river and is classified as Ecological Category (EC) C (moderately modified). The PAOI also intersects a channelled valley-bottom wetland, which is classified as a seep in the National Biodiversity Assessment (NBA).Conserving water quality, riverine and wetland habitats, and associated ecological functions within the project area and its catchments will help protect aquatic species throughout the catchment and maintain water quality for both aquatic and terrestrial biota downstream of the project area.

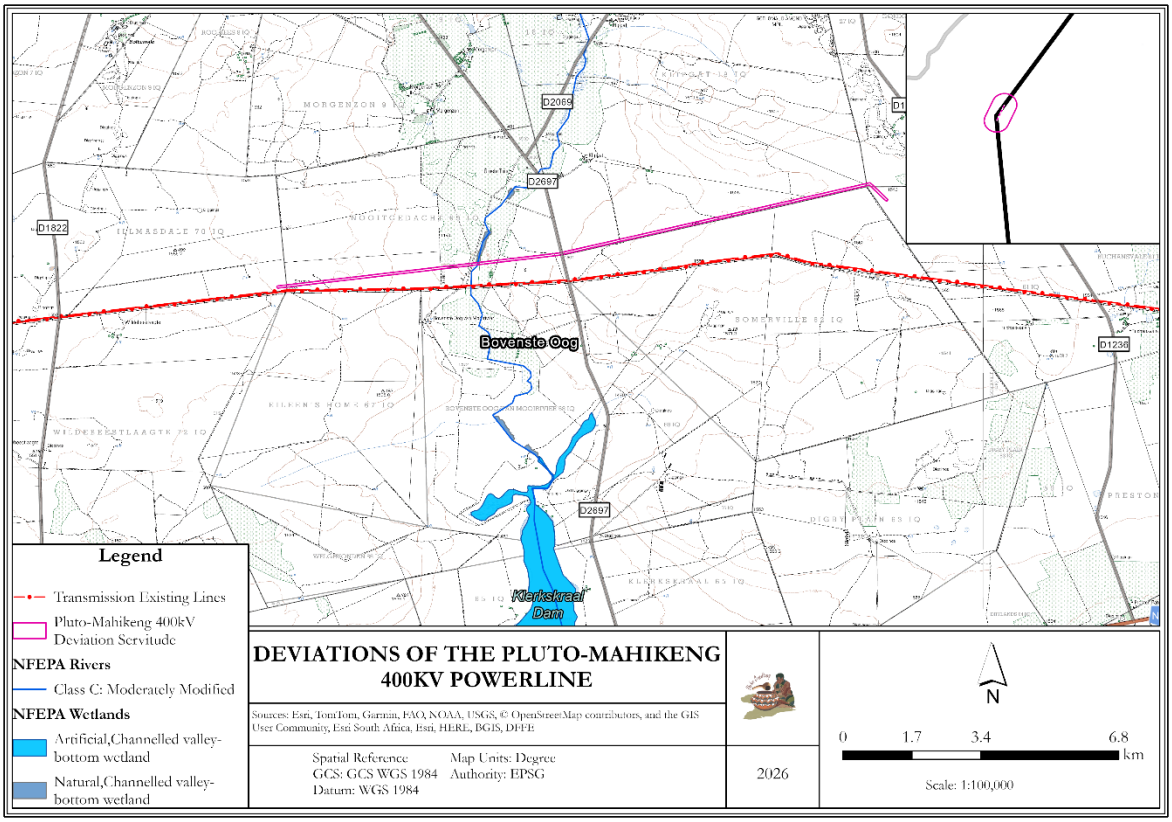


Figure 8-15: National Freshwater Ecosystem Priority Areas (NFEPA) Datasets

8.6 North West Critical Biodiversity Areas and Ecological Support Areas

Critical Biodiversity Areas (CBAs) are required to meet biodiversity targets for ecosystems, species, and ecological processes, as identified in a systematic biodiversity plan. Ecological Support Areas (ESAs) are not essential for meeting biodiversity targets; however, they play a crucial role in supporting the ecological functioning of Critical Biodiversity Areas and protected areas, as well as in delivering ecosystem services. (Skowno, et al 2019)

A Critical Biodiversity Area Map is a spatial plan for ecological sustainability. It identifies a set of biodiversity priority areas, CBAs and ESAs, which, together with Protected Areas, are essential for the

persistence of a viable representative sample of all ecosystem types and species as well as the long-term ecological functioning of the landscape (SANBI 2017b as cited in Skowno et al 2019). These maps serve as a strategic planning tool for the natural environment, providing a coherent and systematically identified set of geographic priorities to inform planning, action, and decision-making in support of sustainable development. The powerline corridor was overlaid on the North West Biodiversity Sector Plan (2025) to verify whether the powerline deviation traverses CBAs and ESAs. It was noted that in terms of the terrestrial realm, the Project Area overlaps with ESA1, CBA2, and CBA1. See

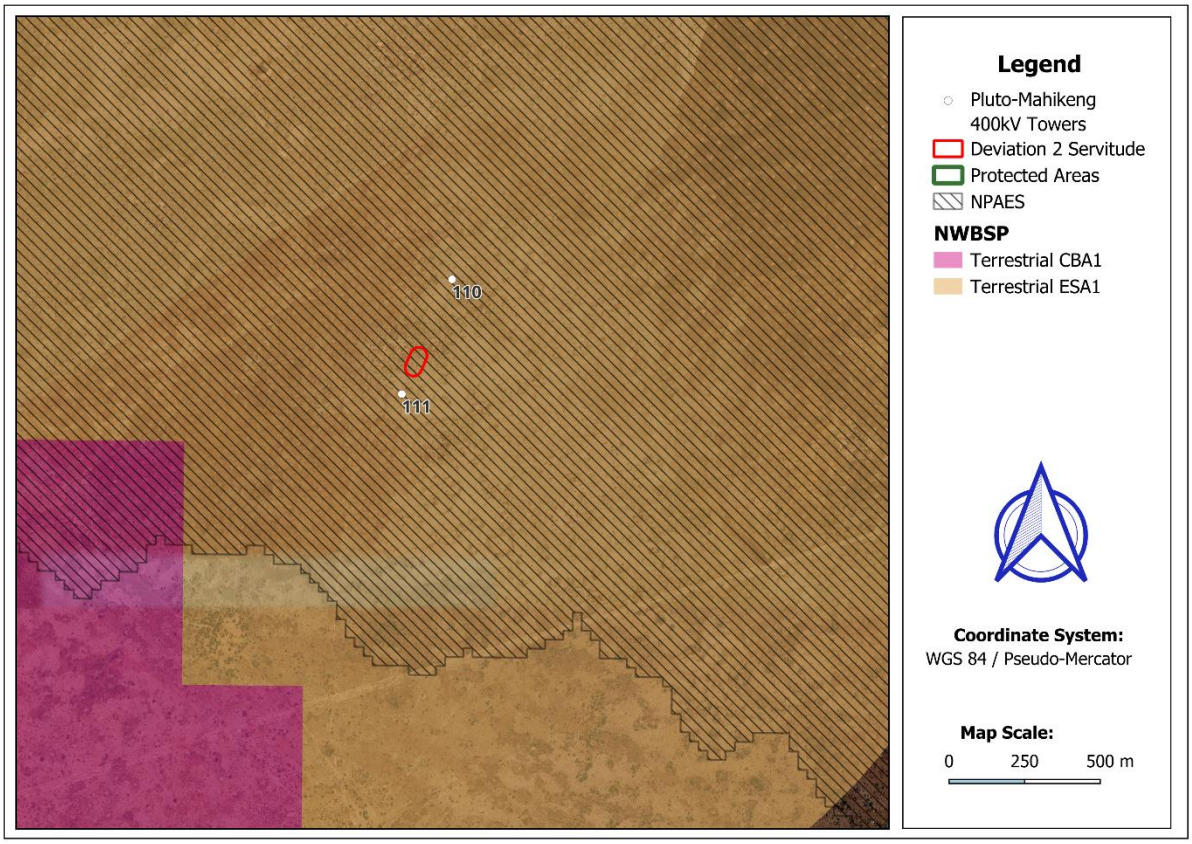


Figure 8-17. The proposed deviations will require the clearance of approximately 3 ha of vegetation within the NPAES, 6.58 ha within Critical Biodiversity Areas (CBAs), and 1.69 ha within Ecological Support Areas (ESAs). This will be for the establishment of a 3.5m access road and at tower positions. The combined footprint of these sensitive biodiversity features amounts to approximately 11% of the total servitude area.

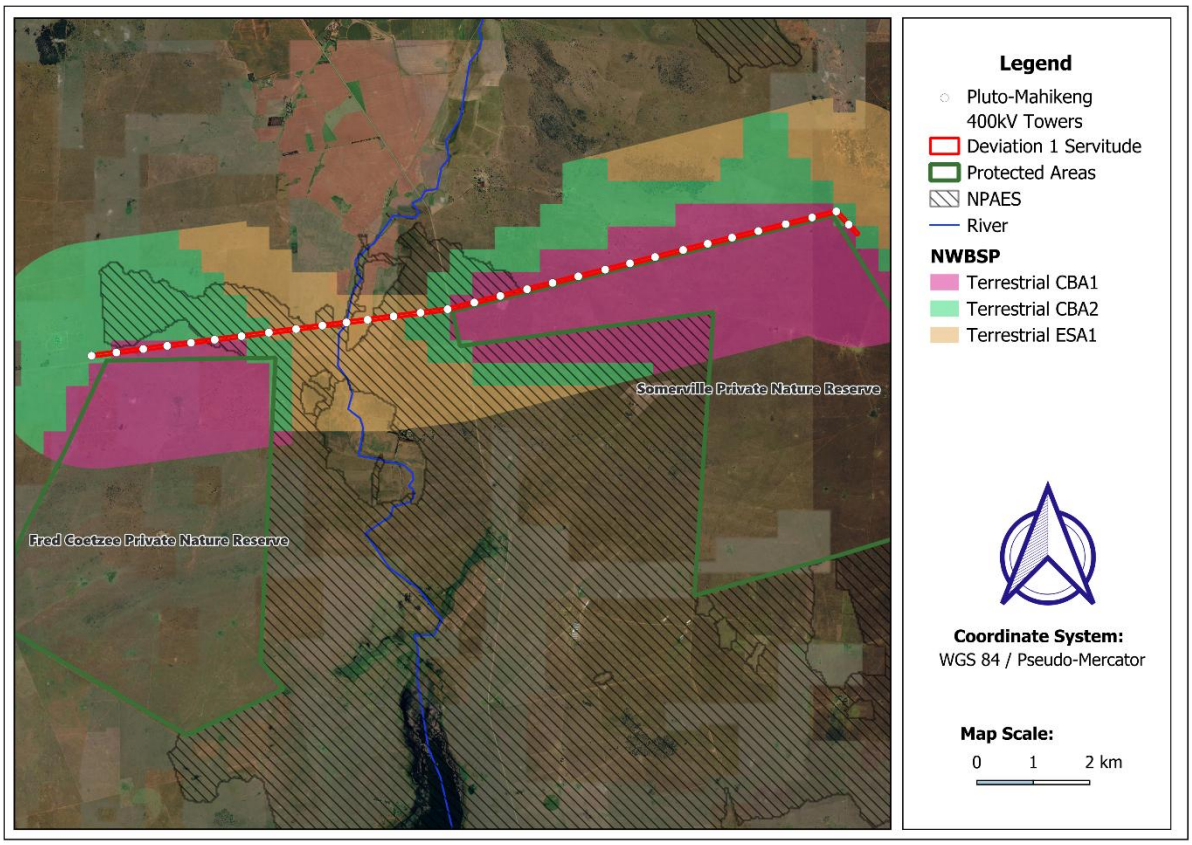


Figure 8-16: Terrestrial CBA and ESAs within Deviation 1

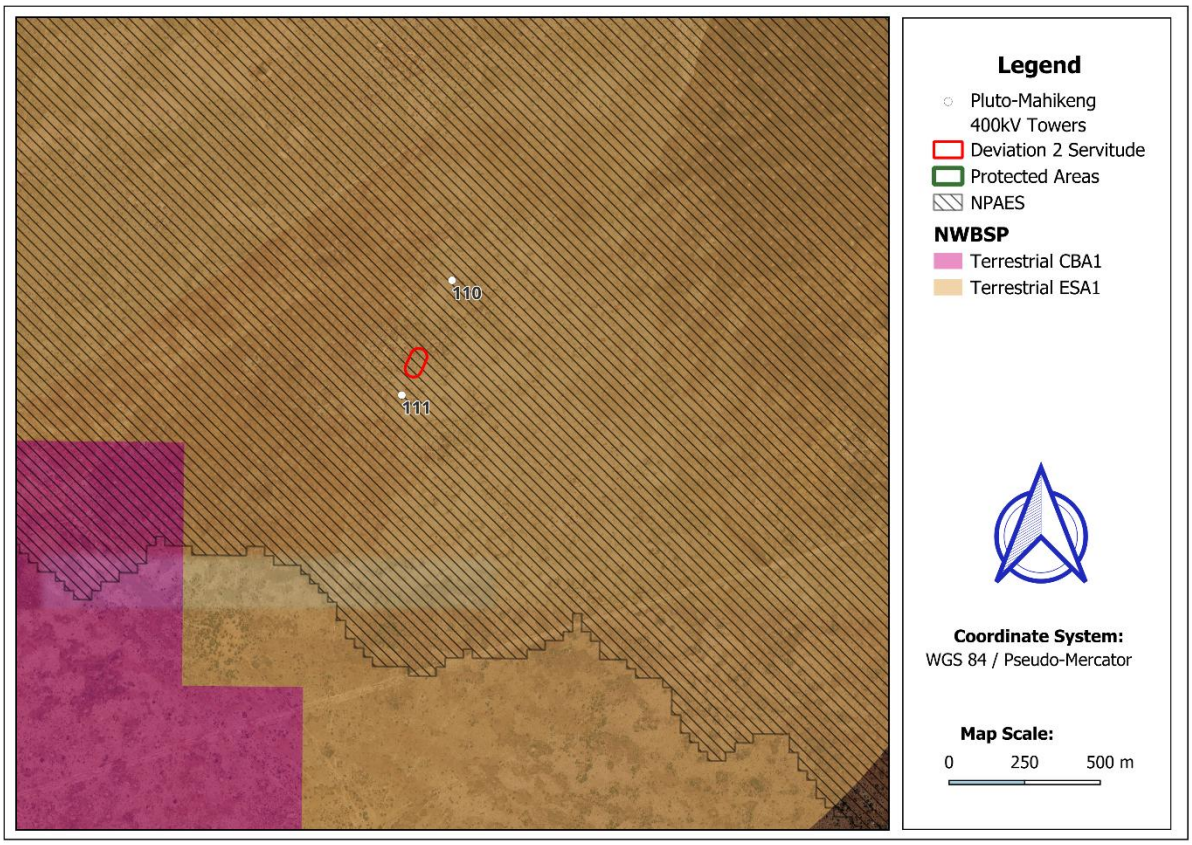


Figure 8-17: Terrestrial CBA and ESAs within Deviation 2

In terms of the aquatic realm, the deviations traverse the CBA2, ESA1 and ESA2 with CBA2 confined to the Mooi River. See Figure 8-18.

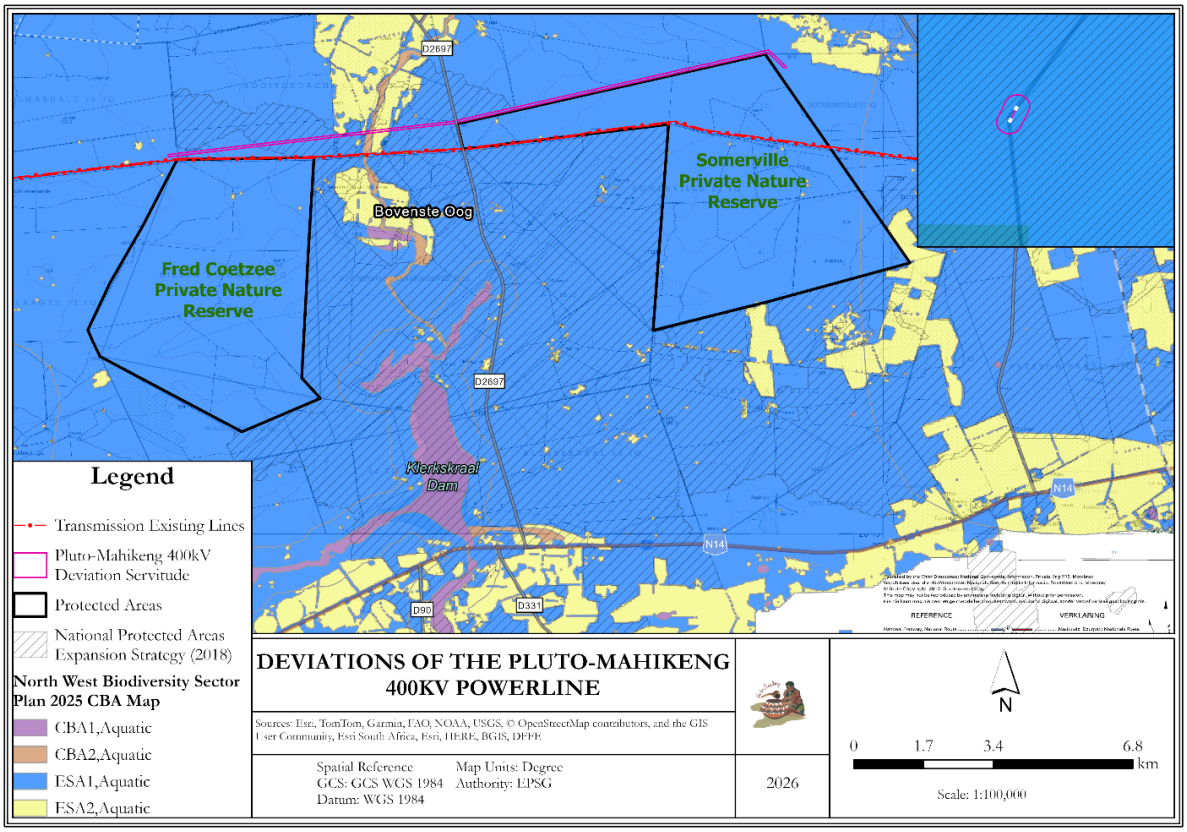


Figure 8-18: Aquatic CBA and ESAs within the deviation servitudes

8.7 Terrestrial Biodiversity

The following information was sourced from the Terrestrial Biodiversity Impact Assessment Report for the proposed development, prepared by Naledzani Environmental Services.

8.7.1 Protected Areas and Protected Area Expansion Strategy

Protected Areas are defined as geographical national assets (land and sea) that serve as nodes in South Africa's ecological infrastructure network. They are recognised by various legislature or other effective means to manage and conserve biodiversity. Protected areas maintain key habitats that ensure natural processes are maintained across the land or seascape, protecting ecosystems that deliver important services to people, such as the production of clean water, flood moderation, and erosion prevention (NBA, 2018). DFFE maintains a spatial database of Protected and Conservation Areas which classifies South Africa's protected areas (South Africa Protected Areas Database (SAPAD)) and conservation areas (South Africa Conservation Areas Database (SACAD)) into types and subtypes.

South Africa's protected area network currently falls far short of representing all ecosystems and maintaining healthy functioning ecological processes. In this context, the NPAES aims to achieve cost-effective protected area expansion, thus enabling better ecosystem representation, ecological sustainability, and resilience to climate change. A comprehensive set of priority areas was compiled based on the priorities identified by provincial and other agencies in their respective protected area expansion strategies. These focus areas are generally large, intact, and unfragmented, and are therefore of high importance for biodiversity, climate resilience, and freshwater protection (DFFE, 2022b).

The project footprint was overlaid on the South African Conservation Areas Database (SACAD, Quarter 4 2025), the South African Protected Areas Database (SAPAD, Quarter 4 2025), and the National Protected Area Expansion Strategy (NPAES) dataset. The assessment indicates that the proposed 400 kV powerline deviations traverse an area identified as a priority for protected area expansion under the NPAES and the first deviation is located adjacent to the northern boundaries of the Fred Coetzee and Sommerville Private Nature Reserves (Figure 8-16), nationally proclaimed nature reserves. Deviation 2 occurs approximately 3km east of Mafikeng Game Reserve, a provincially proclaimed protected area. Based on findings by Feathers Environmental Services, (2026), the diversity of habitats within the reserve supports a rich and representative avifaunal assemblage characteristic of the Kalahari–Bushveld ecotone, including several species of conservation interest.

8.7.2 Red List Ecosystems

Ecosystem threat status is an indicator of the degree to which ecosystems are still intact or losing vital aspects of their structure, function, or composition (Skowno & Monyeki, 2021; https://iucnrle.org/; NBA, 2018). These ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Least Concern (LC) based on quantitative criteria and thresholds linked to ecosystem extent and condition (NBA 2018). The National Biodiversity Assessment (2018) published the threat status for all the realms in the country. The Red List of Threatened Ecosystems was first published and gazetted in 2011, following a series of assessments to evaluate the risks to these ecosystems. This was undertaken to determine whether ecosystems are still intact or are losing vital aspects of their structure, function, or composition, concerning a series of thresholds set. In 2021, the Minister of Forestry, Fisheries, and the Environment published the Revised National List of Threatened Terrestrial Ecosystems in Government Gazette 7526 (Notice No. 2747) in terms of the National Environmental Management: Biodiversity Act (NEMBA, Act No. 10 of 2004). The list was revised according to the International Union for Conservation of Nature (IUCN) standard, and 456 terrestrial ecosystem types described in South Africa (Mucina and Rutherford, 2006; with updates described in Dayaram et al., 2019) were evaluated. The revised list identified 120 threatened terrestrial ecosystem types (51 Critically Endangered, 55 Endangered, and 14 Vulnerable).

The original extent of the vegetation types indicates that the proposed powerline deviations overlap ecosystems classified as Vulnerable and Least Concern. However, the 2025 Red List of Ecosystems (RLE)

remnant ecosystem spatial dataset indicates that no remnant areas of the Rand Highveld Grassland ecosystem, which is classified as Vulnerable, occur within the powerline deviation servitude. This suggests that the deviation does not affect the remaining extent of this threatened ecosystem. Refer to Figure 8-19.

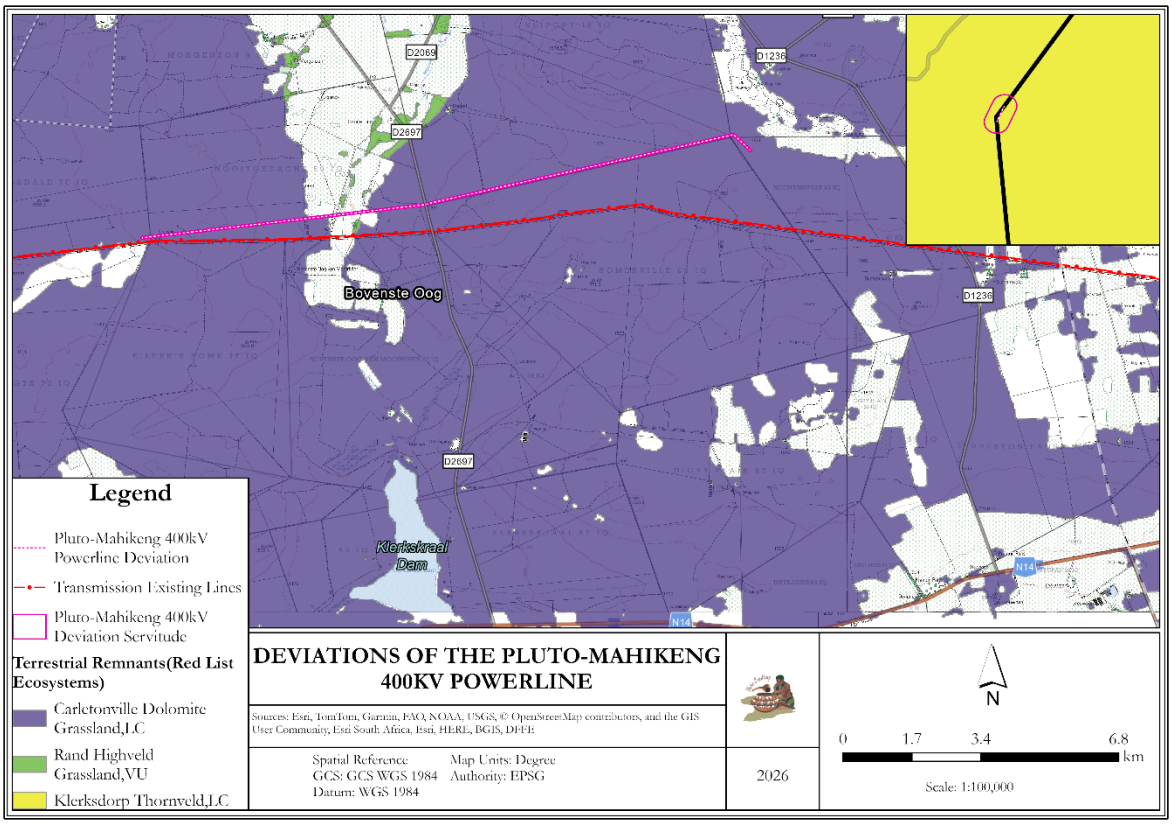


Figure 8-19: Remnants of Vegetation overlapping the project area

8.7.3 Ecosystem Protection Level

Ecosystem Protection Level (EPL) is an indicator of the extent to which ecosystems are adequately protected or under-protected. Ecosystem types are categorised as Well Protected (WP), Moderately Protected (MP), Poorly Protected (PP), or Not Protected (NP) based on the proportion of the biodiversity target for each ecosystem type that is included within one or more protected areas. NP, PP or MP ecosystem types are collectively referred to as under-protected ecosystems. The Project Area overlaps PP ecosystems (Figure 8-20).

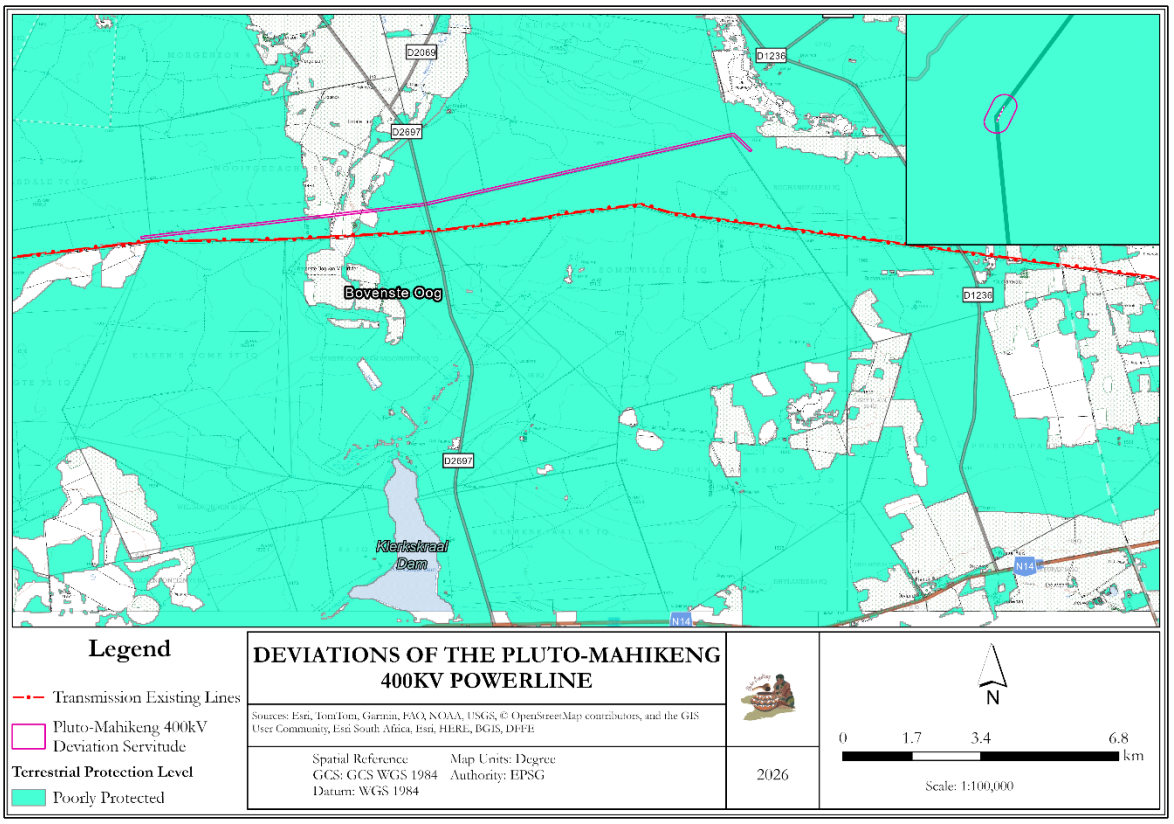


Figure 8-20: Ecosystem Protection Level

8.7.4 Vegetation

The site is located within the Grassland Biome, which covers approximately one-third of South Africa's land surface. The biome extends from the Eastern Cape and KwaZulu-Natal, across the Great Escarpment and onto the central plateau, spanning seven provinces and encompassing a wide range of socio-economic settings and land-use contexts. While the majority of South Africa's grasslands occur within the Grassland Biome, isolated patches of grassland vegetation also occur within other biomes, where they form mosaics with adjacent vegetation types, such as the Indian Ocean Coastal Belt along the Eastern Cape and KwaZulu-Natal coastline (SANBI, 2013). In terms of bioregions, the deviation powerline servitudes intersect the Dry Highveld Grassland Bioregion and Mesic Highveld Grassland Bioregion.

To determine the vegetation types within the grassland biome traversed by the 400 kV powerline deviations, the terrestrial dataset compiled for the Red List of Ecosystems (RLE) in 2025 was overlaid on the project area. It was noted that the project area falls within three vegetation types: Carletonville Dolomite Grassland (Gh15), Rand Highveld Grassland (Gm11) and Klerksdorp Thornveld (Gh13). The dominant vegetation type is the Carletonville Dolomite Grassland. See Figure 8-19. The vegetation types are discussed below, as per Mucina & Rutherford (2006).

(i) **Carletonville Dolomite Grassland (Gh15):** The majority of the proposed servitude is situated within this vegetation type, which occurs predominantly in Gauteng and the North West Province,

with smaller occurrences in the Free State. It comprises species-rich grasslands associated with gently undulating dolomitic plains and rocky ridges, and is characterised by a diverse assemblage of perennial grasses, forbs, geophytes, shrubs and geoxylic suffrutices. Dominant grass species include Themeda triandra, Heteropogon contortus, Loudetia simplex, Schizachyrium sanguineum and Eragrostis chloromelas. According to Mucina and Rutherford (2006), Carletonville Dolomite Grassland is classified as Vulnerable (VU) and has a national conservation target of 24%. However, the more recent Red List of Ecosystems (RLE) assessment classifies the ecosystem as Least Concern (LC), and it is not included in the Revised National List of Ecosystems that are Threatened and in Need of Protection (2022). Despite this, the vegetation type remains poorly represented within the protected area network, with extensive historical transformation resulting from agriculture, urban development, mining and associated infrastructure. The proposed establishment of a 3.5 m-wide access road within the 55 m servitude will result in the permanent clearance of approximately 4.41 ha of Carletonville Dolomite Grassland.

(ii) **Klerksdorp Thornveld (Gh13):** A short section of the second powerline deviation (approximately 45 m) traverses the Klerksdorp Thornveld (Gh13) vegetation type. This vegetation type is restricted to the North West Province, where it occurs on plains and gently undulating landscapes characterised by dry grassland interspersed with open to dense thornveld dominated by Vachellia karroo (formerly Acacia karroo). Characteristic species include Vachellia karroo, Vachellia caffra, Celtis africana, Themeda triandra, Heteropogon contortus, Eragrostis lehmanniana and a diverse assemblage of shrubs, grasses and forbs. According to Mucina and Rutherford (2006), Klerksdorp Thornveld is classified as Vulnerable, with a national conservation target of 24%. However, the more recent RLE classifies the vegetation type as LC, and it is not listed in the Revised National List of Ecosystems that are Threatened and in Need of Protection (2022). Given the limited extent of the proposed deviation within Klerksdorp Thornveld, the associated vegetation clearance is expected to be minimal and is unlikely to result in a measurable change to the overall extent or ecological integrity of this vegetation type.

(iii) **Rand Highveld Grassland (Gm11):** A small portion of the proposed servitude intersects the mapped extent of the Rand Highveld Grassland (Gm11) vegetation type, which occurs across Gauteng, North West, Free State and Mpumalanga provinces. This vegetation type is characterised by species-rich sour grasslands associated with sloping plains and rocky ridges, with characteristic species including Themeda triandra, Heteropogon contortus, Eragrostis chloromelas, Schizachyrium sanguineum and Elionurus muticus. According to Mucina and Rutherford (2006), Rand Highveld Grassland is classified as Endangered, with a national conservation target of 24%. However, it is poorly represented within the protected area network and has undergone extensive transformation due to cultivation, urban development and other land uses. Although the mapped original extent of Rand Highveld Grassland overlaps a small section of the proposed servitude, the RLE remnant ecosystem dataset indicates that no intact

remnant of this vegetation type remains within the development footprint. This is supported by the site assessment, which confirmed that the area has been extensively disturbed and transformed by historical cultivation, particularly in the vicinity of the Mooi River. Consequently, no natural Rand Highveld Grassland was identified within the proposed servitude, and the development will not result in the loss of any remaining remnant of this Endangered vegetation type.

8.8 Avifauna

The information below regarding avifauna has been obtained from Feathers Environmental Services, (2026).

8.8.1 Key Biodiversity Areas

A new set of Key Biodiversity Areas (KBAs) specific to South Africa has been identified using the Global Standard for the Identification of Key Biodiversity Areas, version 1.2 (IUCN, 2016), applied to South African species and ecosystems. KBAs are critical sites that play a vital role in maintaining global biodiversity, serving as essential habitats for various species. Identifying KBAs enables governments and civil society to pinpoint key locations crucial to species and their habitats worldwide. This understanding facilitates collaborative efforts to manage and conserve these areas, thereby safeguarding global biological diversity and supporting international biodiversity objectives.

Unlike the Important Bird Areas (IBAs), which primarily focus on birds, the KBA framework encompasses a broader spectrum of biodiversity, including mammals, amphibians, plants, and other taxa. BirdLife South Africa (BLSA), in consultation with the KBA National Coordination Group, has opted to retire IBAs and integrate KBAs into its conservation strategy. This strategic shift acknowledges the need to invest resources effectively to protect avian and other macroecological elements at the site level within a comprehensive framework of biodiversity conservation (KBA NCG, 2024). According to the KBA dataset, the Magaliesburg and Cradle of Humankind KBAs are situated approximately 25km north and 40km north-east of the Pluto-Mahikeng 400kV Powerline route deviation 1 respectively and within 180kms of Deviation 2 (Figures 8-21 and 8-22).

According to Feathers Environmental Services, (2026), Magaliesberg is a large protected terrestrial site, mainly savanna dominated, with tree and shrub layers. This site qualifies as a Key Biodiversity Area of international significance that meets the thresholds for four criteria described in the Global Standard for the Identification of KBAs. The KBA trigger species at this site include birds (i.e. Cape Vulture Gyps coprotheres), mammals, plants, and reptiles. Similarly, the Cradle of Humankind KBA is a large terrestrial site. Most of the landscape is slightly undulating plains dissected by prominent rocky chert ridges, dominated by a complex mosaic of species-rich grasslands. The rocky habitats show a high diversity of woody species, which occur in the form of scattered shrub groups or solitary small trees. Three threatened plant species and one reptile species meet the KBA criteria for this site.

8.8.2 Important Bird Areas

An IBA is a site identified as being of international significance for the conservation of bird species and their habitats. IBAs are designated using globally standardised criteria developed by BirdLife International and implemented locally by BirdLife South Africa. These areas are selected based on factors such as the presence of threatened species, large congregations of birds, range-restricted species, or species representative of specific biomes. While IBAs are not necessarily legally protected, they are recognised as priority areas for conservation and are widely used to inform environmental planning, impact assessments, and biodiversity management. The proposed *Powerline* route deviations do not traverse IBAS; however, the Magaliesburg (SA025) IBA occurs 20km north of the proposed Deviation 1 and approximately 144kms east of proposed Deviation 2 ((Figures 8-21 and 8-22). The most important trigger species in this IBA is the globally threatened Cape Vulture*, which breeds at* Nooitgedacht and at Skeerpoort (Feathers Environmental Services, 2026). Feathers Environmental Services, (2026), further indicates that though the proposed powerline deviations are not expected to directly impact these IBAs, their presence increases the regional avifaunal sensitivity since wide-ranging and mobile SCC, particularly large-bodied and flocking species such as vultures, flamingos, cranes, and bustards, may utilise the broader landscape between these sites, thereby increasing the potential risk of collision with powerline infrastructure.

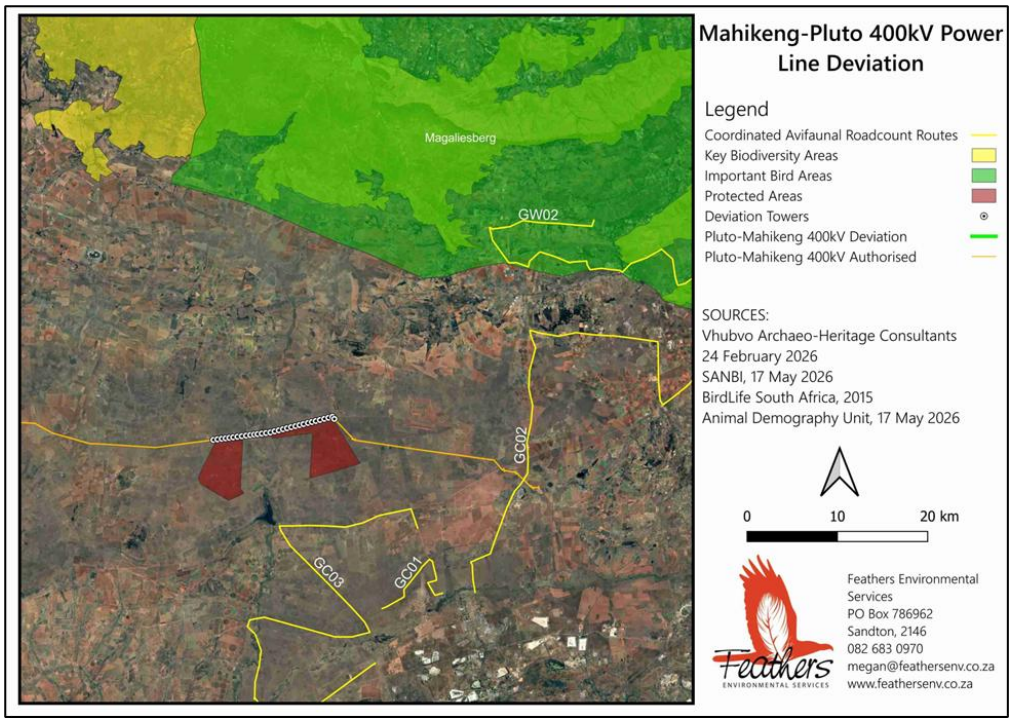


Figure 8-21: KBAs and IBAs & CAR Routes in relation to Deviation 1 of the Pluto-Mahikeng 400kV Powerline (Feathers Environmental Services, 2026)

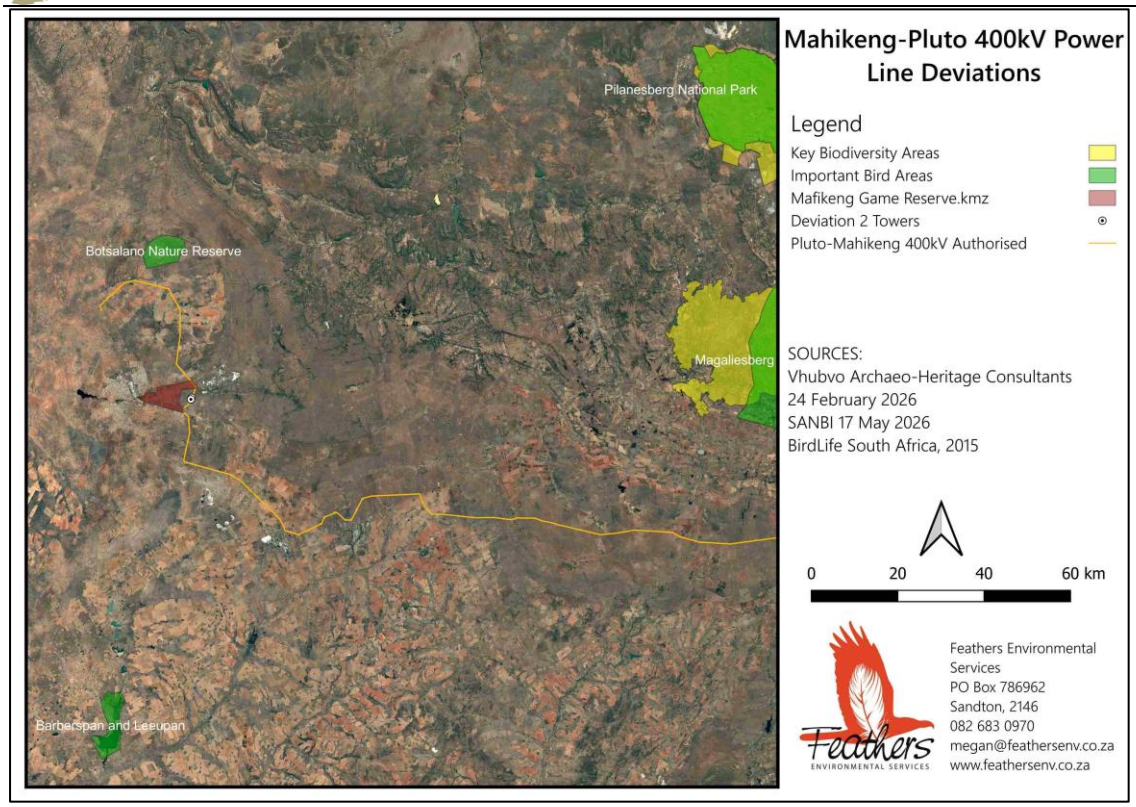


Figure 8-22: Protected Area, KBAs, IBAs in relation to Deviation 2 of the *Pluto-Mahikeng 400kV Powerline* (Feathers Environmental Services, 2026)

8.8.3 Vulture Colonies, Nest Locations and Roosts

According to Feathers Environmental Services, (2026), the North West Province supports regionally important breeding, foraging and roosting habitat for several threatened vulture species. The specialist notes that regionally significant Cape Vulture breeding colonies occur in the Magaliesberg to the north of the proposed deviation, while breeding populations of White-backed Vultures occur within the broader province, including the Mahikeng, Zeerust, Vryburg, Stella and Madikwe areas. Figures 8-23 and 8-24 records numerous vultures roosting on the existing transmission line infrastructure adjacent to proposed deviation 1 while a smaller number were observed on the existing 88kV powerline near Deviation 2, confirming that the corridor forms part of an established movement and roosting area. These observations reinforce the sensitivity of the area to additional transmission infrastructure, particularly with respect to collision risk and disturbance of established roosting behaviour (Feathers Environmental Services, 2026).

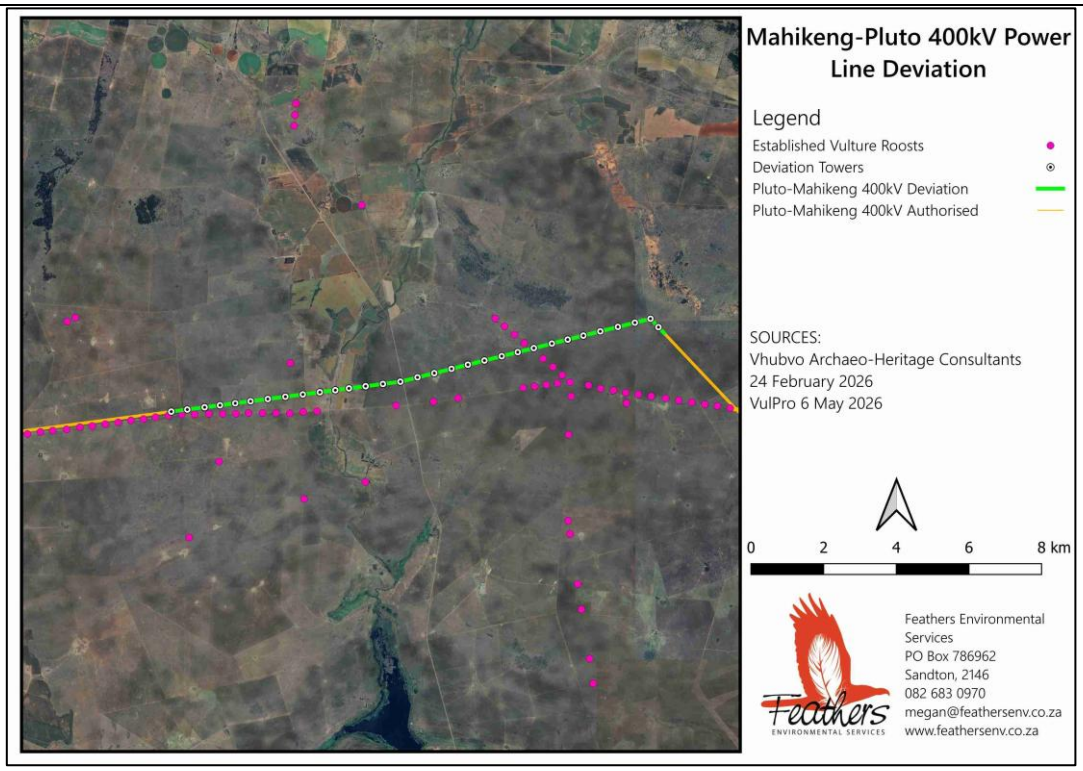


Figure 8-23: Established vulture roosts in relation to Deviation 1 of the Pluto - Mahikeng 400kV Powerline route deviation (Feathers Environmental Services, 2026)

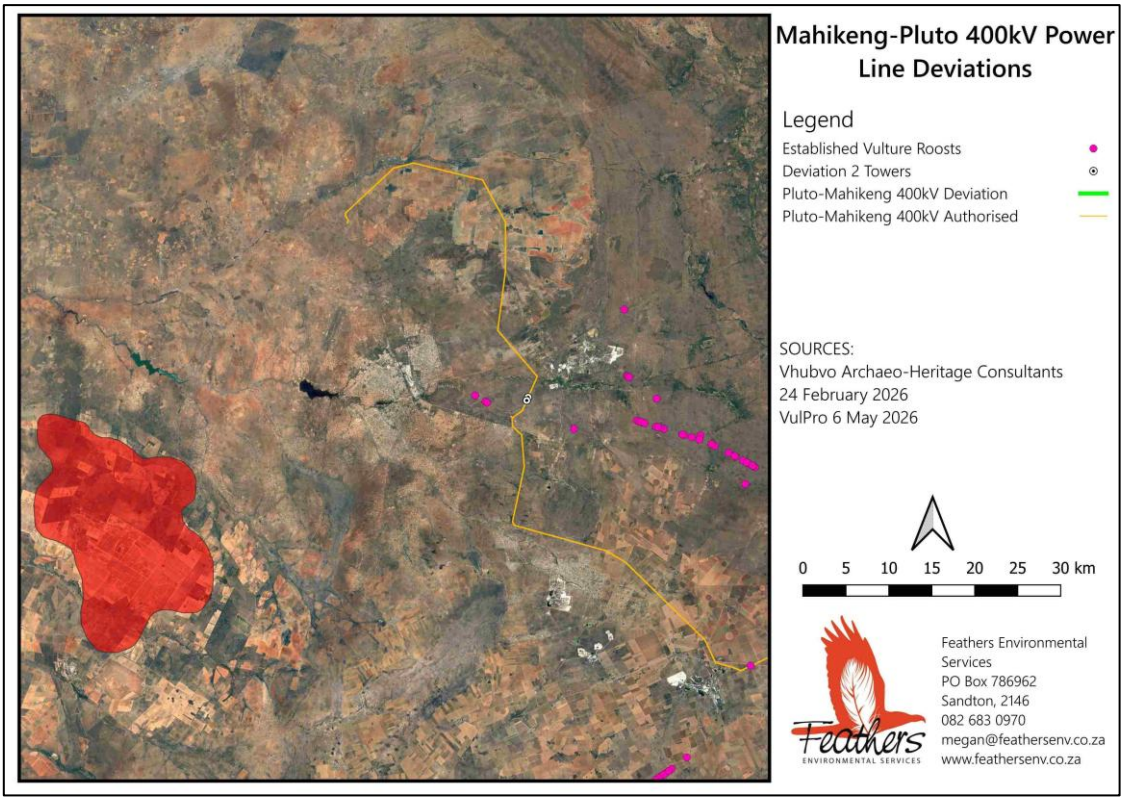


Figure 8-24: Established vulture nests & roosts in relation to Deviation 2 of the Pluto-Mahikeng 400kV Powerline (Feathers Environmental Services, 2026)

8.8.4 Coordinated Waterbird Counts (CWAC)

A Coordinated Waterbird Count (CWAC) site is any body of water, other than the oceans, which supports a significant number (typically ~500 individual waterbirds, irrespective of species composition) of birds utilising the site for feeding, breeding, and/or roosting (Harrison et al., 2004). Figures 8-21and 8-22, shows that there are no CWAC sites located within the confines of the powerline route deviations; however, four CWAC sites occur within approximately 25km of the proposed deviation 1. The significance of these sites reinforces the importance of the surrounding landscape for supporting high concentrations of waterbirds, including SCC (Feathers Environmental Services, 2026).

8.8.5 Coordinated Avifaunal Roadcounts

The Coordinated Avifaunal Roadcounts (CAR) project monitors the populations of 36 species of large terrestrial birds in agricultural habitats, in addition to gamebirds, raptors and corvids along 350 fixed routes covering over 19 000km. Although CAR counts do not give an absolute count of all the individuals in a population, they do provide a measure of relative abundance in a particular area. CAR routes GC01, GC02 and GC03 occur within 20km of the *Pluto-Mahikeng 400kV Powerline* route deviation (Feathers Environmental Services, 2026).

8.9 Fauna

The broader Pluto-Mahikeng 400 kV powerline traverses through extensive areas of open dolomite and sandy grassland which provide suitable habitat for a variety of mammal species as well as a variety of bushveld types. The project area is likely to support 2 mammal species of conservation concern; Mammalia – Hydrictis maculicollis (Spotted-necked Otter), and Mammalia –Crocidura maquassiensis (Maquassie Musk Shrew). Likewise, the Mooi river and seeps provide suitable habitat for near-threatened taxa that are wetland-dependant (e.g. shrew taxa of the genus Crocidura, the Cape Clawless Otter Aonyx capensis and Serval Leptailurus serval).

8.10 Land use

The project area is predominately characterised by grassland and a small section of cultivated area confined to the Mooi River area. The proposed powerline does not traverse directly past any farmstead or settlement. The closest resident is approximately 700m north of the line with Klerkskraal being approximately 10 km south of the proposed first deviation. Reference is made to Figure 8-25. NTCSA has negotiated servitudes with landowners for the affected farms.

8.10.1 Transport Network

The proposed powerline deviation crosses the district road D2696 with the National Road N14 being approximately 10km from the first deviation. NTCSA will engage with the relevant road authorities to indicate the exact crossing and acquire the necessary approvals to cross or run parallel to the roads.

8.10.2 Powerlines

There are several other existing, distribution and transmission powerlines within the project area. The distribution and transmission line voltages are comprised of 132 kV and 275 kV. The Pluto-Watershed and Hera-Watershed 1 275 kV powerlines are within a 1 km radius and traverse the Fred Coetzee and the Sommerville Nature Reserves.

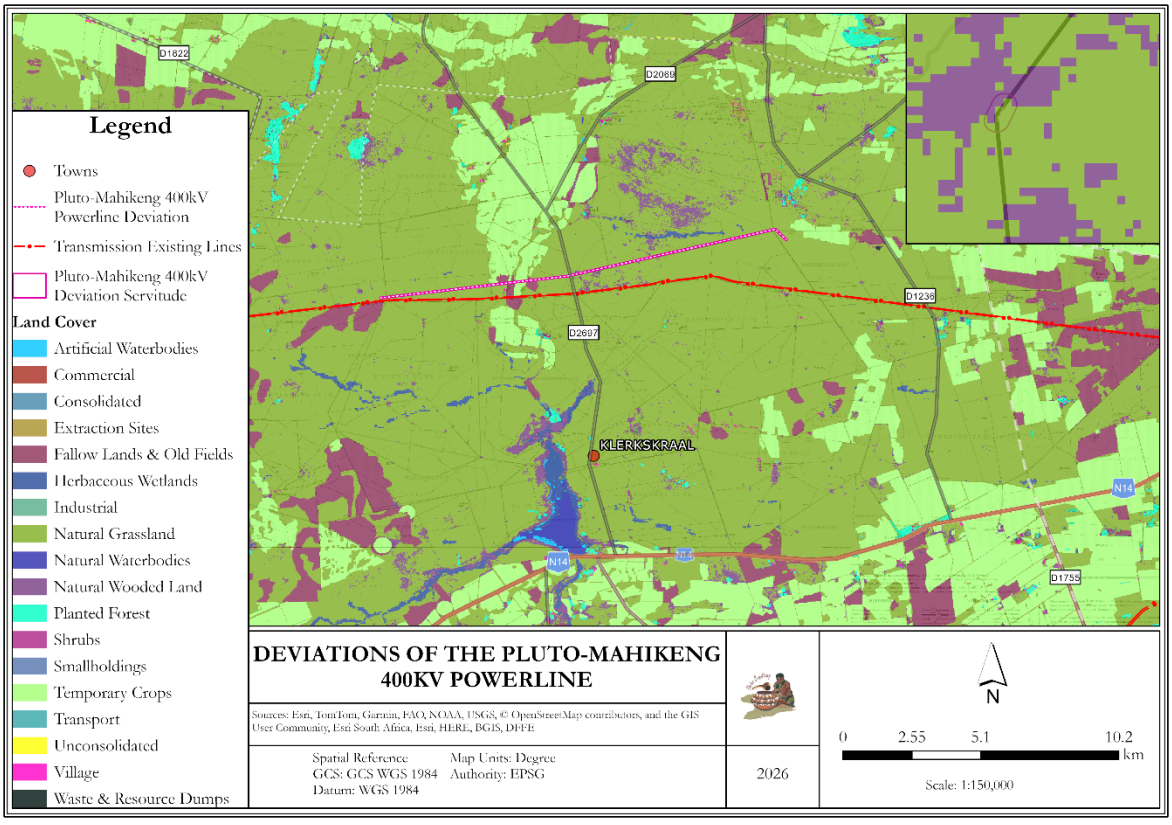


Figure 8-25: Land-use map

8.11 Social Economic Profile

This section provides an outline of the socio-economic context in which the proposed project will be developed. Baseline data in this section were sourced from the Social Impact Assessment Report compiled by Solarys (Pty) Ltd, 2026. Solarys sourced the demographic and social services data from Statistics South Africa's 2022 Census.

8.11.1 Institutional arrangements

Table 8-3 provides a brief overview of the institutional arrangements of the various local municipalities within the proposed development area's footprint.

Table 8-3: Institutional arrangements (local municipalities within the proposed development area)

Municipality	System of governance	Number of wards
Dr Kenneth Kaunda District Municipality	Executive Mayor and Council	84
JB Marks Local Municipality	Executive Mayoral System	34
Ngaka Modiri Molema District	Executive Mayor and Council	103
Mahikeng Local Municipality	Executive Mayor and Mayoral Committee	35

Source: Municipal Demarcation Board Website and Independent Electoral Commission Website

8.11.2 Population, race and gender profile

The Stats SA Census 2022 data (Table 8-4) indicates population growth at provincial and district level, but with different trends at local municipal level. Between 2011 and 2022, the population of North West Province increased by about 8.4%, Dr Kenneth Kaunda District by about 5.5%, and Ngaka Modiri Molema District by about 11.3%. Mahikeng Local Municipality recorded stronger growth, increasing from 291 527 people in 2011 to 354 504 in 2022, or about 21.6%. By contrast, JB Marks Local Municipality declined by about 3.1% over the same period. This indicates that demographic change across the broader study area is uneven, with Mahikeng functioning as a growing local centre within the Ngaka Modiri Molema District, while JB Marks shows localised population decline within the Dr Kenneth Kaunda District context .

The age structure shows a consistent shift across all five areas. The proportion of young children declined between 2011 and 2022, while the working-age and elderly shares generally increased. In Ngaka Modiri Molema, the child population declined from 33.3% to 30.6%, while the working-age population increased from 60.8% to 63.1% and the elderly population increased from 5.9% to 6.3%. In Mahikeng, the same pattern is evident, with young children declining from 30.8% to 28.9%, the working-age population increasing from 64.4% to 66.0%, and the elderly population increasing from 4.8% to 5.2%. This points to a gradually maturing population profile, although both Mahikeng and Ngaka Modiri Molema still retain a sizeable child and youth component.

The dependency ratio remains highest in Ngaka Modiri Molema District at 58.5, compared with 51.6 in Mahikeng, 52.7 in North West Province, 49.7 in Dr Kenneth Kaunda District and 47.0 in JB Marks. This indicates a comparatively higher dependent population relative to the working-age population in Ngaka Modiri Molema, which is relevant to social vulnerability, household support needs and expectations relating to service delivery and economic opportunities. Mahikeng's dependency ratio is lower than the

district average, but still slightly higher than Dr Kenneth Kaunda District and JB Marks (Solarys (Pty) Ltd, 2026).

Table 8-4: Population demographics data

Population demographics	North West Province	Dr Kenneth Kaunda District	JB Marks Local Municipality	Ngaka Modiri Molema District Municipality	Mahikeng Local Municipality
Total population (2022)	3 804 548	734 203	212 670	937 723	354 504
% change since 2011	8.4%	5.5%	-3.1%	11.3%	21.6%
% young children (0–14 years)	28.3%	26.8%	25.4%	30.6%	28.9%
% change since 2011	-4.4%	-6.0%	-7.3%	-8.1%	-6.2%
% working-age population (15–64 years)	65.5%	66.8%	68.0%	63.1%	66.0%
% change since 2011	1.2%	1.2%	1.8%	3.8%	2.5%
Elderly (65+ years)	6.2%	6.5%	6.5%	6.3%	5.2%
% change since 2011	10.7%	18.2%	12.1%	6.8%	8.3%
Dependency ratio	52.7	49.7	47.0	58.5	51.6
Sex ratio	98.2	93.9	93.3	95.7	96.6

Source: Stats SA, 2022

8.11.3 Housing and living conditions

The Stats SA Census 2022 data (Table 8-5) shows growth in household numbers at provincial, district and Mahikeng level, but a slight decline in JB Marks Local Municipality. Between 2011 and 2022, the number of households increased by 7.5% in North West Province, 5.8% in Dr Kenneth Kaunda District, 13.5% in Ngaka Modiri Molema District and 24.2% in Mahikeng Local Municipality. By contrast, JB Marks declined slightly by 0.6%, which is broadly consistent with the population decline already identified for that municipality.

Average household size remains relatively stable across the study areas, although Ngaka Modiri Molema and Mahikeng have slightly larger household sizes than JB Marks. In 2022, the average household size was 3.6 in Ngaka Modiri Molema District and 3.4 in Mahikeng, compared with 3.3 in North West Province and Dr Kenneth Kaunda District and 3.2 in JB Marks. This suggests that household structures in the Ngaka

Modiri Molema and Mahikeng context remain somewhat larger than those in the Dr Kenneth Kaunda and JB Marks context.

The data points to a general improvement in formal housing across all five geographic areas. In 2022, formal dwellings accounted for 93.5% of households in Mahikeng and 91.1% in Ngaka Modiri Molema District, which is higher than the provincial average of 88.0% and higher than JB Marks at 84.4%. This suggests that, despite broader service-delivery constraints, Mahikeng and Ngaka Modiri Molema have relatively high levels of formal dwelling provision.

Access to sanitation and refuse removal is more uneven. In 2022, flush toilets connected to sewerage were available to 50.8% of households in Mahikeng and 47.7% in Ngaka Modiri Molema District, compared with 88.3% in Dr Kenneth Kaunda District and 80.2% in JB Marks. Weekly refuse disposal was also substantially lower in Mahikeng and Ngaka Modiri Molema, at 34.6% and 31.0% respectively, compared with 78.7% in Dr Kenneth Kaunda District and 75.1% in JB Marks. These indicators suggest that formal sanitation and municipal refuse removal remain important service-delivery constraints in the Ngaka Modiri Molema and Mahikeng context.

Access to piped water in the dwelling has improved since 2011 but remains lower in Ngaka Modiri Molema District and Mahikeng than in Dr Kenneth Kaunda District and JB Marks. In 2022, access to piped water in the dwelling was 38.3% in Ngaka Modiri Molema District and 44.2% in Mahikeng, compared with 58.4% in Dr Kenneth Kaunda District and 57.7% in JB Marks. Access to electricity for lighting is, however, comparatively high across all areas, reaching 94.5% in Ngaka Modiri Molema and 97.0% in Mahikeng. Overall, the data reflects improved housing formality and strong household electrification, but also highlights persistent localised service-delivery gaps in relation to piped water, sanitation and refuse removal (Solarys (Pty) Ltd, 2026).

Table 8-5: Housing and living conditions

Housing and living conditions	North West Province	Dr Kenneth Kaunda District	JB Marks Local Municipality	Ngaka Modiri Molema District Municipality	Mahikeng Local Municipality
Number of households	1 141 291	220 146	66 719	257 552	104 648
% change since 2011	7.5%	5.8%	-0.6%	13.5%	24.2%
Average household size	3.3	3.3	3.2	3.6	3.4
% change since 2011	0.0%	0.0%	-3.0%	-2.7%	-2.9%
Formal dwellings	88.0%	89.3%	84.4%	91.1%	93.5%
% change since 2011	15.5%	9.7%	7.5%	10.2%	7.1%
Flush toilets connected to sewerage	58.5%	88.3%	80.2%	47.7%	50.8%

% change since 2011	28.9%	1.8%	6.4%	51.9%	57.3%
Weekly refuse disposal service	53.5%	78.7%	75.1%	31.0%	34.6%
% change since 2011	9.9%	4.5%	31.5%	-12.4%	-42.1%
Access to piped water in the dwelling	43.3%	58.4%	57.7%	38.3%	44.2%
% change since 2011	47.8%	21.9%	18.0%	52.0%	43.0%
Electricity for lighting	93.9%	92.1%	89.8%	94.5%	97.0%
% change since 2011	11.8%	4.0%	2.7%	17.5%	14.8%

Source: Stats SA Census 2022

8.11.4 Education and employment levels

The Stats SA Census 2022 data (Table 8-6) indicates a general improvement in basic educational attainment across the broader study area between 2011 and 2022. In all five areas, the proportion of adults aged 20 years and older with no schooling declined. In Ngaka Modiri Molema District Municipality, the proportion declined from 17.0% in 2011 to 10.6% in 2022, while in Mahikeng Local Municipality it declined from 10.3% to 7.0%. This indicates a reduction in extreme educational deprivation, although Ngaka Modiri Molema District still records the highest share of adults with no schooling among the areas compared.

The picture for higher education is generally positive, although not uniform. The proportion of adults aged 20 years and older with higher education increased from 7.9% to 8.5% in Ngaka Modiri Molema District Municipality and from 12.2% to 13.6% in Mahikeng Local Municipality. Mahikeng therefore has the strongest higher-education profile among the local municipalities included in the comparison, exceeding JB Marks at 11.0% and the district and provincial averages. This is consistent with Mahikeng's role as a provincial administrative and service centre.

By contrast, Ngaka Modiri Molema District Municipality remains closer to the provincial profile, with higher education at 8.5% compared with 7.5% in North West Province and 9.2% in Dr Kenneth Kaunda District. This suggests that while educational outcomes have improved at district level, the broader district remains more educationally vulnerable than Mahikeng itself.

From a social baseline perspective, the data suggests that Mahikeng Local Municipality has a comparatively stronger skills base and lower levels of adult educational deprivation than the broader Ngaka Modiri Molema District. However, the district-level figures indicate that educational vulnerability remains relevant in the broader regional context. This is important when considering employment expectations, skills availability and the likely need for realistic local labour and procurement commitments during project implementation.

Table 8-6: Education levels progress since the last Census

Education levels	North West Province	Dr Kenneth Kaunda District	JB Marks Local Municipality	Ngaka Modiri Molema District Municipality	Mahikeng Local Municipality
No schooling (20+ years)	7.9%	6.9%	6.3%	10.6%	7.0%
% change since 2011	-33.1%	-31.0%	-33.0%	-37.6%	-32.0%
Higher education (20+ years)	7.5%	9.2%	11.0%	8.5%	13.6%
% change since 2011	1.4%	1.1%	-5.2%	7.6%	11.5%

Source: Stats SA Census 2022

The labour force data (Table 8-7) points to a mixed but generally improved picture in North West Province between Quarter 4 (Q4) 2024 and Q4 2025. The working-age population (15-64 years) increased modestly at both national and provincial level, rising from 41.561 million to 42.068 million in South Africa and from 2.817 million to 2.851 million in North West. This means the labour market had to absorb a slightly larger working-age population over the period.

In employment terms, the national picture was relatively flat, with the number of employed persons increasing only marginally from 17.078 million to 17.099 million. By contrast, North West recorded a stronger improvement, with employment increasing from 935 000 to 973 000, a year-on-year gain of 38 000 jobs. This translated into an increase in the provincial absorption rate from 33.2% to 34.1%, although this remained well below the national absorption rate of 40.6% in Q4 2025.

The most notable improvement is reflected in the official unemployment rate. Nationally, the unemployment rate declined slightly from 31.9% to 31.4%, while North West showed a much larger decline, from 41.3% to 35.1%, representing a 6.2 percentage-point improvement over the year. This suggests that labour market conditions in North West improved materially over the period. However, the province still recorded an unemployment rate that was substantially higher than the national average, which indicates that unemployment remains a serious structural challenge in the province.

It is also important to interpret the North West improvement with some caution. Although employment increased, the provincial labour force declined from 1.593 million to 1.500 million, while the number of people outside the labour force increased from 1.224 million to 1.352 million. This suggests that the improved unemployment rate reflects not only more employment, but also a growing number of working-age people who were no longer counted within the labour force. In other words, the labour market position improved, but the province still appears to have relatively weak labour market participation compared with the country as a whole (Solarys (Pty) Ltd, 2026).

Table 8-7: Labour force characteristics (Q4:2025)

	RSA Q4 2024	North West Q4 2024	RSA Q4 2025	North West Q4 2025	Year-on-year change (North West)
Population of working age (15-64 years)	41 561	2 817	42 068	2 851	+35 (+1.2%)
Number of employed persons	17 078	935	17 099	973	+38 (+4.1%)
Unemployment rate (official definition)	31.9%	41.3%	31.4%	35.1%	-6.2 pp
Brief analysis:					

Source: Stats SA Quarterly Labour Force Survey Q4: 2025 and Census 2022

8.11.5 Safety and security

Safety and security are recognised as important baseline considerations across the study area, with district and local municipal planning documents identifying crime, perceived safety, infrastructure condition and municipal service delivery as closely interrelated. The Dr Kenneth Kaunda District Municipality IDP highlights low perceptions of safety after dark and supports community-based crime prevention initiatives, while the JB Marks Local Municipality IDP links safety concerns to inadequate lighting, deteriorating infrastructure, illegal dumping, cable theft, poor road maintenance and the need for visible policing. Similarly, the Ngaka Modiri Molema District Municipality Draft IDP identifies security, disaster management and municipal asset protection as key risks, with crime statistics indicating an increase in contact crimes despite a decline in sexual offences. The Mahikeng Local Municipality IDP also identifies crime as a major community concern, emphasising improved policing, lighting, public-space maintenance and community safety initiatives. Overall, while the proposed powerline deviation is not expected to result in significant safety impacts, construction activities should be carefully managed through controlled site access, protection of property and infrastructure, effective contractor management and communication with affected landowners to avoid exacerbating existing safety and security concerns (Solarys (Pty) Ltd, 2026).

9 ENVIRONMENTAL IMPACT ASSESSMENT METHODOLOGY

This section of the report details the information required as per Section 3(1)**(h)(**v) -(xi), **(i)** and **(j)** of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(h) (v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration, and probability of the impacts, including the degree to which these impacts—

(aa) can be reversed.

(bb) may cause irreplaceable loss of resources; and

(cc) can be avoided, managed or mitigated.

(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.

(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.

(viii) the possible mitigation measures that could be applied and level of residual risk.

(ix) the outcome of the site selection matrix.

(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such.

(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity.

(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including—

(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process.

(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures.

(j) an assessment of each identified potentially significant impact and risk, including—

(i) cumulative impacts.

(ii) the nature, significance and consequences of the impact and risk.

(iii) the extent and duration of the impact and risk.

(iv) the probability of the impact and risk occurring.

(v) the degree to which the impact and risk can be reversed.

(vi) the degree to which the impact and risk may cause irreplaceable loss of resources.

(vii) the degree to which the impact and risk can be avoided, managed, or mitigated;

Potential environmental impacts have been identified based on the following:

- A review of the proposed activity; and
- The nature of the receiving environment.

Risks and critical issues were identified internally based on similar developments and site visits. Reference is made to the Table below for the environmental aspects used to identify the significant impacts:

Table 9-1: Identification of Significant Impacts

Environmental Feature	Component	Possible Construction effect envisaged?	Possible post-construction effect	Main effect?	Likely Significant Effect?	Comments/reason for inclusion or exclusion from further consideration
BIODIVERSITY (Flora and Fauna)	Habitat types	Y	Y	Y	Y	Loss of habitats
	Plant communities	Y	Y	Y	Y	Clearing of vegetation, including protected/species of conservation concern
	Animal communities	Y	Y	Y	Y	Habitat transformation can displace animal and avifauna species.
	Conservation	Y	Y	Y	Y	Potential effects on conservation-protected species.
SOIL/LAND	Erosion	Y	Y	Y	N	Earthworks to be carried out.
	Ground contamination	Y	Y	Y	N	Mainly caused by the spillage of hazardous substances.
	Soils /agricultural land quality	Y	Y	Y	Y	Loss of agricultural land and movement of soils.
LAND-USE	Agriculture	Y	Y	Y	Y	Loss/fragmentation of agricultural land

Environmental Feature	Component	Possible Construction effect envisaged?	Possible post-construction effect	Main effect?	Likely Significant Effect?	Comments/reason for inclusion or exclusion from further consideration
	Grassland	Y	Y	Y	Y	Construction and operation will occur in the grassland.
WATER	Surface water quality	Y	Y	Y	Y	Pollution during construction and run-off from cleared areas
	Groundwater quality	Y	Y	Y	Y	Pollution during construction and run-off from cleared areas
WASTE	Waste management	Y	N	N	N	Waste generated during construction will need to be managed
	Waste characteristics	Y	N	N	N	Waste generated changes from agricultural waste in some areas to construction waste.
AIR	Local air quality	Y	N	N	N	Increased emissions of NO_2 and PM10 on the local road network.
	Particulates and dust	Y	N	N	N	Dust is generated during earthworks.
	Odor	Y	N	N	N	Odour is expected from waste and sanitation systems during construction.
ARCHAEOLOGY	Burial areas	Y	Y	Y	Y	Destruction/ damage of graves close to the servitude.

Environmental Feature	Component	Possible Construction effect envisaged?	Possible post-construction effect	Main effect?	Likely Significant Effect?	Comments/reason for inclusion or exclusion from further consideration
	Objects/buildings more than 60 years old	Y	N	N	N	Potential for buildings/ objects within the corridor.
VISUAL	Landscape character	Y	Y	Y	Y	The introduction of towers in highly sensitive landscapes negatively impacts their character.
	Landscape quality	Y	Y	Y	Y	Eroding of landscape quality by inappropriate developments.
	Land-cover	Y	Y	N	N	Removal of vegetation
NOISE	Noise	Y	N	N	N	Noise will be generated during earthworks and construction. Corona is expected during the operation.
	Vibration	Y	N	N	N	Potential for vibration.
SOCIO-ECONOMIC	Employment	Y	N	Y	Y	The development will create jobs within the local and regional areas.
	Public health and safety	Y	N	Y	N	The influx of workers may introduce diseases, and the construction activities will result in accidents and thefts.
	Local environment amenity	Y	Y	Y	Y	The influx of construction workers may cause minimal

Environmental Feature	Component	Possible Construction effect envisaged?	Possible post-construction effect	Main effect?	Likely Significant Effect?	Comments/reason for inclusion or exclusion from further consideration
						constraints on local amenities.
	Standard of living	Y	N	Y	Y	The standard of living within the area may improve during the construction phase.

Key: Y=Yes N=No

The detailed impact assessment of the significant impacts is indicated in the Sections below.

9.1 EIA Methodology

Identifying and assessing environmental impacts is a multifaceted process that draws on both quantitative and qualitative methods. It involves applying scientific measurements and professional judgment to determine the significance of environmental impacts associated with the proposed project. The process involves consideration of, among other things, the project's purpose and need, the views and concerns of interested and affected parties, social and political norms, and the general public interest.

The methodology for assessing impacts associated with the proposed project follows the philosophy of environmental impact assessments, as described in the booklet Impact Significance, Integrated Environmental Management Information Series 5 (DEAT, 2002b). The following extracts summarise the philosophy:

"The impact magnitude [or intensity] and significance should, as far as possible, be determined by reference to legal requirements, accepted scientific standards or social acceptability. If no legislation or scientific standards are available, the EIA practitioner can evaluate impact magnitude using clearly defined criteria. Except for exceeding standards set by law or scientific knowledge, the description of significance is largely judgmental, subjective, and variable. However, generic criteria can be used systematically to identify, predict, evaluate, and determine the significance of impacts." (DEAT, 2002b).

"*Determining significance [of impacts] is ultimately a judgment call. Judgmental factors can be applied rigorously and consistently by displaying information related to an issue in a standard worksheet format."* (Haug et al., 1984, taken from DEAT, 2002b).



The purpose of undertaking an impact assessment is to ensure that the project proactively considers environmental issues throughout the project life cycle, including project planning and decision-making.

9.1.1 The Impact Rating System

The impact assessment methodology (Table 9-2) applied in this assessment is consistent with that used during the previous EIA. To ensure continuity and enable a direct comparison of impact ratings, the same assessment criteria, significance rating system, and weighting (Table 9-3) assigned to the various impact parameters have been retained.

Table 9-2: Impact Assessment Methodology

Probability: This describes the likelihood of the impact actually occurring
Improbable: The possibility of the impact occurring is very low, due to the circumstances, design or experience.
Probable: There is a probability that the impact will occur to the extent that provision must be made, therefore.
Highly Probable: It is most likely that the impact will occur at some stage of the development.
Definite: The impact will take place regardless of any prevention plans and there can only be relied on mitigatory measures or contingency plans to contain the effect.
Duration: The lifetime of the impact
Short-Term: The impact will either disappear with mitigation or will be mitigated through natural processes in a time span that is as long as the activity
Medium - Term: The impact will last up to the end of the phases, where after it will be negated.
Long - Term: The impact will last for the entire operational phase of the project, but will be mitigated by direct human action or by natural processes thereafter.
Permanent: The impact is non-transitory. Mitigation either by man or natural processes will not occur in such a way or in such a time span that the impact can be considered transient.
Scale: The physical and spatial size of the impact
Local: The impacted area extends only as far as the activity, e.g. the footprint.
Site: The impact could affect the whole, or a measurable portion of the above-mentioned properties.
Regional: The impact could affect the area including the neighbouring district areas.
Magnitude / Severity: Does the impact destroy the environment, or alter its function?
Low: The impact alters the affected environment in such a way that natural processes are not affected.
Medium: The affected environment is altered, but functions and processes continue in a modified way.
High: Function or process of the affected environment is disturbed to the extent where it temporarily or permanently ceases.



Significance: This is an indication of the importance of the impact in terms of both physical extent and time scale, and therefore indicates the level of mitigation required

Negligible: The impact is non-existent or unsubstantial and is of no or little importance to any stakeholder and can be ignored.

Low: The impact is limited in extent, has low to medium intensity; whatever its probability of occurrence is, the impact will not have a material effect on the decision and is likely to require management intervention with increased costs.

Moderate: The impact is of importance to one or more stakeholders, and its intensity will be medium or high; therefore, the impact may materially affect the decision, and management intervention will be required.

High: The impact could render development options controversial or the project unacceptable if it cannot be reduced to acceptable levels; and/or the cost of management intervention will be a significant factor in mitigation.

Table 9-3:Weights assigned to each attribute

Aspect	Description	Weight
Probability	Improbable	**1**
	Probable	**2**
	Highly Probable	**4**
	Definite	**5**
Duration	Short-term	**1**
	Medium-term	**3**
	Long-term	**4**
	Permanent	**5**
Scale	Local	**1**
	Site	**2**
	Regional	**3**
Magnitude / Severity	Low	**2**
	Medium	**6**
	High	**8**
Reversibility	With no time and cost	**1**
	With little time and cost	**2**
	With significant time and cost	**3**
	With prohibitively high time and cost	**4**

	Irreversible	**5**
Significance	**SUM (Duration, Scale, Magnitude) x Probability**	
	Negligible Impact	**≤ 20**
	Low Impact	**> 20 ≤ 40**
	Moderate Impact	**> 40 ≤ 60**
	High Impact	**> 60**

9.2 The Assessment of Environmental Impacts and Risks

The proposed powerline deviations will result in both positive and negative impacts. Mitigation measures and enhancements have been put in place to address the identified negative and positive impacts. The mitigation measures should be implemented in line with the mitigation hierarchy described by the DEA (2013). Refer to Figure 9-1 below for the mitigation hierarchy. This section is based primarily on specialists' recommendations and the EAP's experience with similar projects.

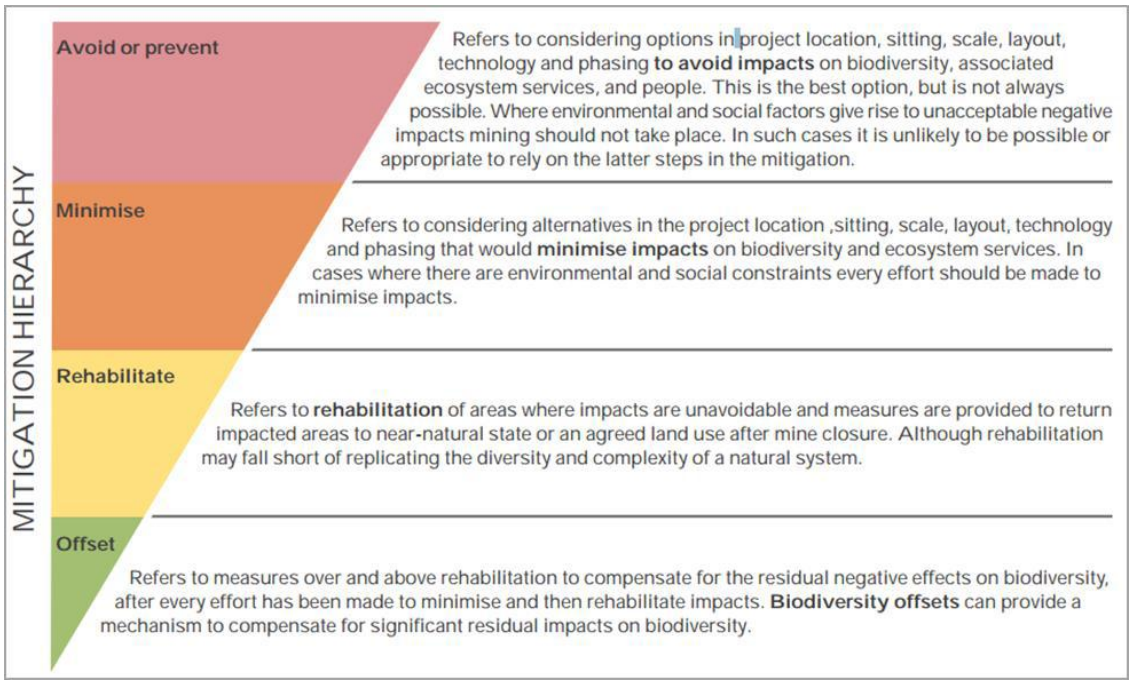


Figure 9-1: Mitigation Hierarchy as described by the DEA (2013)

The environmental impacts/risks have been grouped according to the phase of the project as follows:

- Pre-construction.
- Construction.
- Operational.



- Closure/decommissioning.

The table below links the anticipated impacts to the listed activities for which applications were submitted. A detailed assessment of the impacts is given in the subsequent tables.

Table 9-4: Summary of anticipated impact, significance and listed activities

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
CONSTRUCTION PHASE						
LN1: 12(ii)(a),(c) & 19; LN2: Activity 9; LN3: 12h,iv,vi & 14ii(a),(c),h, iv, vi	**Avifauna**	Vegetation clearance and construction activities. Movement of heavy machinery.	Displacement of SCC and non-SCC priority species as a result of habitat loss & transformation.	- Limit vegetation clearance to the minimum footprint required. - Rehabilitate disturbed areas progressively. - Schedule clearance outside sensitive breeding seasons where practicable.	**Low (-)**	**Negligible (-)**
LN1: 12(ii)(a),(c) & 19; LN2: Activity 9; LN3: 12h,iv,vi & 14ii(a),(c),h, iv, vi	**Avifauna**	Vegetation clearance and construction activities. Movement of heavy machinery.	Displacement of SCC and non-SCC priority species as a result of disturbance.	- Restrict construction activity and vehicle movement to designated access routes and working areas. - Minimise night-time construction activity/lighting near identified priority habitat.	**Moderate (-)**	**Low (-)**
LN1: 12(ii)(a),(c) & 19; LN3:	**Archaeology**	Excavation.	Disturbance or destruction of graves, archaeological remains,	- Implement a chance-find procedure;	**Low (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
12h,iv,vi & 14ii(a),(c)h,iv,vi			buildings and public monuments.	- Halt work immediately. - If heritage material is exposed and notify SAHRA qualified archaeologist and all construction activities within a minimum radius of 10 metres of the find must cease until further assessment is conducted.		
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Palaeontology**	Excavation.	Destruction of palaeontological resources.	- Implement a palaeontological chance-find procedure during excavation.	**Low (-)**	**Low (-)**
LN2: Activity 9; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Agriculture, Soil**	Construction of powerline, pylons and access roads. Construction of construction camps and layout areas.	Soil compaction, erosion, land degradation and soil contamination.	- Strip and stockpile topsoil separately for reinstatement. - Limit vehicle movement to designated routes to reduce compaction.	**Moderate (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
		Potential leaks or spillage (hydrocarbons). Mixing of soil. Removal of vegetation for support infrastructure.		- Implement erosion control on disturbed/sloped areas. - Manage hydrocarbons per the Spill Response Procedure.		
LN2: Activity 9; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Agriculture, Soil**	Construction of powerline, pylons and access roads. Construction of construction camps and layout areas. Potential leaks or spillage (hydrocarbons). Mixing of soil.	Introduction or spread of livestock diseases.	- Implement biosecurity protocols including vehicle/equipment disinfection at farm boundaries and coordination with landowners on livestock movement schedules.	**Moderate (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
		Removal of vegetation for support infrastructure.				
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Freshwater (Aquatic)**	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction. Civil works.	Localised erosion and sedimentation near the Mooi riparian zone due to construction movement and disturbed soil surfaces.	- Restrict construction activities outside demarcated buffer areas. - Implement erosion and sediment control measures. - Rehabilitate disturbed surfaces immediately after construction.	**Moderate (-)**	**Low (-)**
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Freshwater (Aquatic)**	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction. Civil works.	Accidental hydrocarbon contamination from construction vehicles and machinery.	- Implement spill prevention measures. - Store hazardous substances outside sensitive areas. - Maintain spill kits onsite.	**Low (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Freshwater (Aquatic)**	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction. Civil works.	Disturbance of riparian vegetation (Mooi) adjacent to access routes.	- Clearly demarcate no-go areas. - Restrict unnecessary vegetation clearing and vehicle movement.	**Moderate (-)**	**Low (-)**
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Freshwater (Aquatic)**	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction. Civil works.	Temporary disturbance to adjacent dryland vegetation and soils near the wetland buffer area.	- Restrict activities outside demarcated wetland buffer areas. - Implement standard construction environmental controls.	**Low-Moderate (-)**	**Low (-)**
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Freshwater (Aquatic)**	Site clearing and preparation. Earthworks and vehicle movement.	Dust generation from construction movement in adjacent dryland areas.	- Apply dust suppression (water spraying) on access roads and exposed soil surfaces during dry, windy conditions.	**Low (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
		Powerline construction. Civil works.				
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Terrestrial Biodiversity**	Clearance of vegetation. Excavations. Construction activities.	Removal/disturbance of vegetation within the footprint, overlapping Critical Biodiversity Areas (CBA1, CBA2).	- Limit vegetation clearance strictly to the approved servitude/tower footprints; - Micro-site towers and access roads away from CBA1 areas where feasible; - Implement a Vegetation Clearance and Rehabilitation Plan under ECO supervision.	**High (-)**	**Moderate (-)**
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h, iv, vi	**Terrestrial Biodiversity**	Clearance of vegetation. Excavations. Construction activities.	Soil erosion following vegetation clearance.	- Progressively rehabilitate cleared areas with indigenous seed mix; - Install erosion control measures (brush packing, silt fencing) on exposed slopes.	**Moderate (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h,iv,vi	**Terrestrial Biodiversity**	Clearance of vegetation. Excavations. Construction activities.	Destruction of SCCs and/or protected plant geophytes species.	- Implement a search-and-rescue/translocation protocol under a specialist botanist prior to clearance, in accordance with the relevant provincial permit.	**Moderate (-)**	**Low (-)**
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h,iv,vi	**Terrestrial Biodiversity**	Clearance of vegetation. Excavations. Construction activities.	Establishment and spread of weeds.	- Implement an Alien and Invasive Plant Management Plan, including clean-vehicle protocols and follow-up monitoring/control of disturbed areas.	**High (-)**	**Moderate (-)**
LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h,iv,vi	**Terrestrial Biodiversity**	Clearance of vegetation. Excavations. Construction activities	Faunal impacts.	- Implement a fauna protection protocol including pre-clearance walk-throughs, safe removal/relocation of slow-moving fauna, and speed restrictions on access roads.	**Moderate (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
LN3: 12h,iv & 14ii,h,iv (CBA/protected area)	**Protected Areas and NPAES**	Clearance of vegetation. Excavations. Construction activities.	Ecological integrity of the Fred Coetzee and Sommerville Private Nature Reserves, i.e., edge effects (dust, noise, disturbance, alien spread) from Deviation 1 adjacent to their northern boundary.	- Implement boundary buffers, dust and alien-plant control, restriction of construction to daylight hours and prohibition of access into the reserves.	**Moderate (-)**	**Low (-)**
LN3: 12h,iv & 14ii,h,iv (CBA/protected area)	**CBA and ESA**	Construction activities.	Habitat fragmentation of CBA and ESA	- Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, must under no circumstances be fragmented or disturbed further. - Progressive rehabilitation using indigenous vegetation.	**High (-)**	**Moderate (-)**
LN2: Activity 9	**Waste**	Construction activities.	Contamination of land, water and soil due to	- Implement a Waste Management Plan including	**Moderate (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
			inadequate waste management practices.	designated waste storage areas, regular removal to a licensed facility, and separation of hazardous waste (e.g. hydrocarbons) from general waste.		
LN2: Activity 9; LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h,iv,vi	**Visual**	Earthworks and construction activities.	Impact on the visual quality of the landscape due to the presence of foreign elements and loss of vegetation cover.	- If practically possible, locate construction camps in areas that are already disturbed. - Utilise existing screening features such as dense vegetation stands or topographical features to place the construction camps and lay-down yards. - Screen the construction camp and lay-down yards.	**Moderate (-)**	**Low (-)**
LN2: Activity 9; LN1: 12(ii)(a),(c) & 19; LN3:	**Visual**	Earthworks and construction activities.	Construction camp and laydown yard may cause	As above	**Moderate (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
12h,iv,vi & 14ii(a),(c)h,iv,vi			unsightly views for residents and motorists.			
LN2: Activity 9; LN1: 12(ii)(a),(c) & 19; LN3: 12h,iv,vi & 14ii(a),(c)h,iv,vi	**Visual**	Earthworks and construction activities.	Construction camp and laydown yard may cause unsightly views for tourists.	As above	**Low (-)**	**Low (-)**
LN2: Activity 9	**Social**	Site preparation; site establishment; construction of infrastructure; site rehabilitation.	Creation of employment, skills development, procurement and business opportunities.	- Employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria to the extent possible. - Recruitment and employment practices must be in accordance with all labour legislation in South Africa.	**Low (+)**	**Moderate (+)**
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure;	Increased demand for low-cost housing and municipal services.	- Prioritise employment of local people. - All applicable land-use agreements must be in place	**Negligible (-)**	**Negligible (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
		Site rehabilitation.		before construction commences. - Adequate arrangements for daily transport to and from the construction site must be provided.		
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Strain on community health & safety services.	- Prioritise employment of local people from the District and Local Municipalities. - The Applicant and contractor should agree and implement an HIV/AIDS/TB awareness programme.	**Low (-)**	**Low (-)**
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Influx of jobseekers.	- Prioritise employment of local people from the various communities in the affected District Municipalities.	**Negligible (-)**	**Negligible (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Disruption to agricultural operations, including livestock and game management.	- Construction activities must be planned in consultation with the affected land user. - Gates must be kept closed.	**Low (-)**	**Negligible (-)**
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Access control, farm security and conflict with land users/occupiers.	- Access routes and entry points must be agreed before construction commences. - Only approved gates, tracks and access points may be used. A site access register must be maintained where appropriate. - Contractors must be inducted on access rules.	**High (-)**	**Negligible (-)**
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Damage to farm infrastructure and property.	- Sensitive infrastructure must be identified before construction. - Work areas and no-go areas must be clearly demarcated.	**Low (-)**	**Negligible (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
				- Any damage caused by construction must be repaired or replaced promptly.		
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Safety risks associated with construction vehicles and plant movement on farms and access roads.	- Vehicle speeds must be controlled in accordance with site rules and land user requirements. - Drivers must be inducted on route restrictions and farm safety protocols.	**Low (-)**	**Negligible (-)**
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Dust and general construction nuisance.	- Implement dust suppression measures (water spraying) on active work areas and access roads during dry/windy conditions.	**Low (-)**	**Negligible (-)**
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure;	Fire risk.	- A fire prevention and response plan must be prepared and implemented.	**Low (-)**	**Negligible (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
		Site rehabilitation.		- Construction personnel must be inducted on fire prevention requirements.		
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Non-compliance with approved servitude.	- The approved alignment, tower positions, work areas and access routes must be pegged or otherwise clearly identified prior to construction.	**Low (-)**	**Negligible (-)**
LN2: Activity 9	**Social**	Site preparation; site establishment; Construction of infrastructure; Site rehabilitation.	Inadequate communication during construction.	- A designated contact person must be available for land-related queries and complaints. - Advance notice of construction activities must be provided where relevant.	**Low (-)**	**Negligible (-)**
LN2: Activity 9	**Noise**	Earthworks and construction activities.	Elevated noise.	- Use noise barriers and low-noise equipment. - A noise control plan must be prepared and implemented.	**Negligible (-)**	**Negligible (-)**
OPERATIONAL PHASE						

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
LN2: Activity 9	**Avifauna**	Operation and maintenance of the transmission line.	Mortality of SCC and non-SCC priority species due to collision with the 400 kV powerline conductors/earthwires.	- Install bird flight diverters on the earth wire across identified high-risk spans, in line with the Eskom–EWT Strategic Partnership guidelines; monitor collision incidents and adapt marking as required.	**High (-)**	**Low (-)**
LN2: Activity 9	**Soil**	Routine inspection and maintenance.	Soil compaction, soil erosion, land degradation and soil contamination.	- Limit maintenance activities to the minimum area required to prevent unnecessary disturbance of soil and vegetation. - Rehabilitate any disturbed areas following maintenance activities to prevent erosion and the spread of invasive species.	**Moderate (-)**	**Low (-)**
LN2: Activity 9	**Freshwater (Aquatic)**	Maintenance and operation of infrastructure, including the	Occasional disturbance associated with maintenance access.	- Restrict maintenance vehicle access to designated existing access routes;	**Low (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
		movement of maintenance vehicles.		- Avoid unnecessary access through riparian/wetland buffer areas.		
LN2: Activity 9	**Freshwater (Aquatic)**	Maintenance and operation of infrastructure, including the movement of maintenance vehicles.	Minor vegetation disturbance beneath conductors during maintenance activities.	- Limit vegetation control beneath conductors to the minimum required for line safety clearances. - Avoid removal of indigenous SCC species where identified.	**Low (-)**	**Low (-)**
LN2: Activity 9	**Social**	Operation and maintenance of the transmission line. Routine inspection and maintenance.	Creation of employment, skills development, procurement and business opportunities.	- Prioritise local labour and service providers for routine maintenance contracts where feasible.	**Negligible (+)**	**Negligible (+)**
LN2: Activity 9	**Social**	Operation and maintenance of the transmission line. Routine inspection and maintenance.	Strengthening energy supply.	- No mitigation required — beneficial impact. Maintain the line per NTCSA operational standards to sustain the benefit.	**Moderate (+)**	**Moderate (+)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
LN2: Activity 9	**Terrestrial Biodiversity, plants and animals**	Maintenance activities and the operation of the powerline. Movement of vehicles.	Removal of alien species.	- Continue routine alien and invasive plant control within the servitude as a positive ongoing management action.	**Low (+)**	**Low (+)**
LN2: Activity 9	**Terrestrial Biodiversity, plants and animals**	Maintenance activities and the operation of the powerline. Movement of vehicles.	Bush encroachment.	- Implement a routine vegetation management/clearing programme within the servitude in accordance with the line's safety clearance requirements.	**Moderate (-)**	**Low (-)**
LN2: Activity 9	**Visual**	Presence of built infrastructure, i.e. powerlines.	Impact on the visual quality of the landscape due to the presence of a Transmission line.	- Use standard/self-coloured (galvanised) tower finishes appropriate to the landscape context; align route with existing infrastructure corridors where possible to reduce cumulative visual disturbance.	**High (-)**	**Moderate (-)**
LN2: Activity 9	**Visual**	Presence of built infrastructure, i.e. powerlines.	The presence of a transmission line intrudes on existing views and spoils the open panoramic views of	- As above; retain vegetation screening along the servitude	**Moderate (-)**	**Low (-)**

Listed Activity	Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
			the landscape for residents and motorists.	edge where safety clearances allow.		
LN2: Activity 9	**Visual**	Presence of built infrastructure, i.e. powerlines.	The presence of a powerline intrudes on existing views and spoils the open panoramic views of the landscape for tourists.	- As above.	**Low (-)**	**Low (-)**

9.3 Impact Assessment During Pre-Construction Phase

9.3.1 Inadequate environmental planning and design.

Impact: Inadequate environmental planning and design.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Permanent	High	Definite	4	Moderate
Yes	Negative	Local	Medium-term	Medium	Probable	3	Low

Mitigation Measures:

- Finalise the powerline alignment and associated infrastructure to avoid or minimise impacts on identified sensitive avifaunal habitats and Species of Conservation Concern (SCC).
- Incorporate the recommendations of the specialist studies into the final design and Environmental Management Programme (EMPr).
- Ensure that all construction personnel receive environmental induction prior to commencing work, including information on environmental sensitivities and site-specific mitigation requirements.

9.3.2 Disturbance of the sub-surface environment

Impact: Disturbance of the sub-surface environment (Geotechnical)

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Short-term	High	Probable	2	Moderate
Yes	Negative	Local	Short-term	Low	Probable	2	Low

Mitigation Measures:

- Towers and associated infrastructure must be located and constructed in geotechnically stable areas, taking into account the findings of site-specific geotechnical investigations.

9.3.3 Failure to demarcate no-go and sensitive areas before construction.

Impact: Failure to demarcate no-go and sensitive areas before construction.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Medium-term	Medium	Probable	2	Moderate



Yes	Negative	Local	Short-term	Low	Probable	2	Low

Mitigation Measures

- Clearly demarcate all no-go areas, sensitive habitats, riparian zones, and other environmentally sensitive features prior to the commencement of construction.
- Ensure the demarcated areas are maintained throughout the construction period and only accessed with proper authorisation.
- Brief all contractors and site personnel on the location and significance of no-go areas during environmental induction.
- Monitor compliance with demarcated exclusion zones through regular inspections by the Environmental Control Officer (ECO).

9.4 Impact Assessment During Construction Phase

9.4.1 Impacts on Avifauna

Impact: Displacement of SCC and non-SCC priority species as a result of habitat loss & transformation

Disturbance will be largely confined to tower positions and narrow access routes, resulting in a relatively small overall footprint. While some localised loss of foraging, roosting, or breeding habitat may occur, leading to temporary or permanent displacement, these impacts are expected to be limited in extent.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Medium term	Medium	Probable	2	Low
Yes	Negative	Local	Medium term	Low	Probable	2	Negligible

Impact: Displacement of SCC and non-SCC priority species as a result of disturbance

Excavation and construction activities associated with the proposed Pluto-Mahikeng 400 kV Powerline route deviation will introduce elevated levels of disturbance, primarily due to the presence of machinery, increased human activity, and associated noise over the construction period. For most bird species, this is expected to result in temporary disruption to normal behaviours such as foraging and roosting. In more sensitive cases, particularly where disturbance coincides with critical breeding periods, there is potential for reduced breeding success, including temporary breeding failure or, in extreme instances, nest abandonment,

No	Negative	Site	Short-term	High	Highly Probable	2	Moderate

Yes	Negative	Site	Short-term	Medium	Highly Probable	2	Low

Mitigation Measures

- It is recommended that Bird Flight Diverters (BFDs) be installed on the earth wires between the towers 491 and 521 (Deviation 1) and towers 110-111 (Deviation 2) as detailed in the Pluto-Mahikeng 400kV Powerline Mitigation Matrix, dated 15 May 2026.
- Bird Flight Diverters (BFDs) must be installed ten metres apart, on the earth wires in an alternating black and white/yellow pattern. BFDs must be installed on the entire length of the earth wire span to ensure maximum collision protection for the movement of vultures when roosting on the towers. BFDs must be installed on the earth wires as soon as possible after stringing.
- The installation of bird guards, in accordance with the Eskom Transmission Bird Perch Guidelines Unique Identifier 41-332, above the insulator strings of Towers 491 to 521 and Towers 110-111 is highly recommended.
- Should a raptor nest be identified within or in close proximity to the deviation alignments prior to or during construction, all construction activities in the immediate vicinity (500m) must be temporarily halted. The Environmental Control Officer (ECO) must appoint a suitably qualified avifaunal specialist to assess the nest and provide site-specific management recommendations, including appropriate buffer distances and activity restrictions. Implementation of these measures may necessitate a delay or rescheduling of construction activities to avoid disturbance, particularly where the nest is active.
- Avoid removal of sensitive vegetation types. The recommendations of the botanical CEMPr must be strictly implemented, especially as far as limitation of the construction footprint and rehabilitation of disturbed areas is concerned.
- Construction activity should be restricted to the immediate footprint of the Pluto-Mahikeng 400kV Powerline infrastructure within the proposed deviation routes. This is especially relevant to vegetation clearing undertaken to facilitate access during construction, which should be carefully managed to prevent inadvertent disturbance or loss of nesting habitat.
- All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment.
- All temporary disturbed areas should be rehabilitated according to the site's rehabilitation plan, following construction.
- Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.

9.4.2 Impact on Archaeological Resources

Impact:

- Destruction of archaeological remains during clearance along the servitude.
- Disturbance of buried archaeological remains during deep excavation for tower foundations.
- Stamping of archaeological remains by the movement of heavy construction vehicles.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Permanent	Medium	Improbable	4	Low
Yes	Negative	Site	Permanent	Low	Improbable	4	Low

Mitigation Measures

- In the event that any archaeological material is accidentally discovered during the construction phase, PHRA must be notified immediately, and all construction activities within a minimum radius of 10 metres of the find must cease until further assessment is conducted.
- Prior to the commencement of construction, contractors and site personnel should undergo heritage awareness training to enable them to identify and appropriately respond to potential archaeological remains encountered during construction.
- Implement Chance Find Procedure.

9.4.3 Impact on Palaeontological Resources

Impact: Potential disturbance of paleontological resources

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Permanent	Low	Probable	4	Low
Yes	Negative	Site	Permanent	Marginal	Probable	4	Low

Mitigation Measures

The following procedure must be considered in the event that previously unknown fossils or fossil sites are exposed or found during construction of the powerline:

- Surface excavations should continuously be monitored by the ECO and any fossil material be unearthed the excavation must be halted.
- If fossiliferous material has been disturbed during the excavation process it should be put aside to prevent it from being destroyed.
- The ECO then has to take a GPS reading of the site and take digital pictures of the fossil material and the site from which it came.

- The ECO then should contact a palaeontologist and supply the palaeontologist with the information (locality and pictures) so that the palaeontologist can assess the importance of the find and make recommendations.
- If the palaeontologist is convinced that this is a major find an inspection of the site must be scheduled as soon as possible in order to minimise delays to the development.
- From the photographs and/or the site visit the palaeontologist will make one of the following recommendations:
  - The material is of no value so development can proceed, or:
  - Fossil material is of some interest and a representative sample should be collected and put aside for further study and to be incorporated into a recognised fossil repository after a permit was obtained from SAHRA for the removal of the fossils, after which the development may proceed, or:
  - The fossils are scientifically important and the palaeontologist must obtain a SAHRA permit to excavate the fossils and take them to a recognised fossil repository, after which the development may proceed.
- If any fossils are found then a schedule of monitoring will be set up between the developer and palaeontologist in case of further discoveries.

9.4.4 Impacts on Soil, Land Capability and Agricultural Activities

Impact: Soil compaction, soil erosion, land degradation and soil contamination.

- The disturbance of original soil profiles and horizon sequences during earthworks may increase susceptibility to soil erosion and represents a measurable deterioration of the soil resource. This impact is considered to be localised within the development footprint.
- Soil chemical pollution caused by potential oil and fuel spillages from vehicles is considered a moderate deterioration of the soil resource.
- Soil compaction will occur due to the movement of heavy vehicles on existing roads and newly constructed access roads, which aim to increase access to pylon positions.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	Medium	Probable	2	Moderate
Yes	Negative	Local	Short-term	Low	Probable	2	Low

Mitigation Measures

- Vegetation clearance must be restricted to areas authorised for development.

- Land clearing and preparation may only be undertaken immediately before construction activities and within authorised areas.
- Strip and stockpile topsoil separately for reinstatement.
- Limit vehicle movement to designated routes to reduce compaction; implement erosion control on disturbed/sloped areas.
- Manage hydrocarbons per the Spill Response Procedure.
- Manage the location of topsoil stripping stockpiling, demarcate topsoil stockpiles, and prevent stockpile erosion and contamination. This can protect the topsoil stockpiles to keep them viable for rehabilitation purposes.
- Make use of existing roads or upgrade tracks before new roads are constructed. The number and width of internal access routes must be kept to a minimum.
- Implementation of embedded controls, such as geotextiles and gabion baskets, can effectively control soil erosion on-site.
- Losses of fuel and lubricants from vehicles are to be contained during construction and the powerline maintenance processes. Use biodegradable fluids where possible, and avoid waste disposal in uncontained areas.
- Associated infrastructure foundations for the pylons or towers must be (preferably) located in already disturbed areas where possible;
- 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
- The proposed development shall not result in obstruction in the natural flow pattern of run-off water on the affected farm units.
- The disturbance or denuding of soil caused by the proposed development shall be restored as close as possible to its natural state.
- Existing access roads shall be used where possible to avoid the unnecessary loss of land available for agricultural production.

Impact: Introduction or spread of livestock diseases.

The movement of construction vehicles, personnel, and equipment across agricultural farms may result in the introduction or spread of livestock diseases (e.g. Foot-and-Mouth Disease), potentially leading to infection, livestock losses, production disruptions, and associated economic impacts on affected farms.

Mitigation measures	**Impact rating criteria**						**Significance**
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Long-term	High	Probable	3	Moderate
Yes	Negative	Local	Short-term	Medium	Probable	1	Low

Mitigation Measures

- Compile and implement a Biosecurity Management Method Statement for the construction phase, aligned with Department of Agriculture requirements.
- Restrict construction access to approved routes only, avoiding unnecessary movement between farms.
- Ensure all vehicles and equipment entering and exiting farms are cleaned and disinfected at designated wash-down points.
- Construction personnel must comply with farm biosecurity protocols, including footwear and equipment disinfection where required.
- Construction activities must be scheduled in consultation with landowners, particularly during high-risk disease periods.
- A register of vehicle movements between farms must be maintained to enable traceability should an outbreak occur.
- Any suspected disease incidents must be reported immediately to the landowner and relevant authorities, and construction activities in affected areas must cease if required.

9.4.5 Impacts on Freshwater Resources (Aquatic Biodiversity)

Mooi River crossing

Impact: Localised erosion and sedimentation near the riparian zone due to construction movement and disturbed soil surfaces.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	High	Highly Probable	2	Moderate
Yes	Negative	Local	Short-term	Medium	Probable	2	Low

Mitigation Measures

- Restrict construction activities to areas outside the demarcated buffer areas.
- Implement erosion and sediment control measures.
- Rehabilitate disturbed surfaces immediately after construction.

Impact: Accidental hydrocarbon contamination from construction vehicles and machinery.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	

No	Negative	Local	Short-term	Medium	Improbable	3	Low
Yes	Negative	Local	Short-term	Low	Improbable	2	Low

Mitigation Measures

- Implement spill prevention measures.
- Store hazardous substances outside sensitive areas.
- Maintain spill kits onsite.

Impact: Disturbance of riparian vegetation adjacent to access routes.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	High	Definite	2	Moderate
Yes	Negative	Local	Short-term	Low	Probable	2	Low

Mitigation Measures

- Clearly demarcate no-go areas.
- Restrict unnecessary vegetation clearing and vehicle movement.

Seasonal Wetland (Tower 493)

Impact: Temporary disturbance to adjacent dryland vegetation and soils near the wetland buffer area.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	Low	Probable	3	Low-Moderate
Yes	Negative	Local	Short-term	Low	Probable	2	Low

Mitigation Measures

- Restrict activities outside demarcated wetland buffer areas.
- Implement standard construction environmental controls.

Impact: Dust generation from construction movement in adjacent dryland areas.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	Low	Probable	2	Low

Yes	Negative	Local	Short-term	Low	Probable	2	Low

Mitigation Measures

- Apply dust suppression where required;
- Limit unnecessary vehicle movement.

9.4.6 Impacts on Terrestrial Biodiversity

Impact: Removal and disturbance of vegetation within the development footprint, including areas overlapping CBAs and ESAs.

The construction of the powerline would inevitably require the removal of vegetation for access roads, servitudes and the pylon footprint. Areas where structures are stored would flatten vegetation, which could be detrimental to the persistence of the vegetation. In addition, the illegal disposal of construction materials, such as oil and cement, could destroy natural vegetation.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Regional	Permanent	High	Definite	3	High
Yes	Negative	Local	Permanent	Medium	Highly Probable	3	Moderate

Mitigation Measures

- An independent Ecological Control Officer (ECO) should be appointed to oversee construction.
- Areas designated for vegetation clearing should be identified and visibly marked off.
- Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed development footprint only, i.e. the confirmed servitude and access road.
- A temporary fence or demarcation must be erected around the construction area (including the servitude, construction camps, areas where material is stored, and the actual footprint of the development) to prevent access to sensitive environments.
- Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.
- No open fires are permitted within naturally vegetated areas.
- Formalise access roads and make use of existing roads, including farm roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.
- A vegetation rehabilitation plan should be implemented. Grass can be removed as sods and stored within transformed vegetation. However, alien invasive vegetation should be removed prior to storing grassland sods in transformed areas. Smaller shrubs and bulbs should also be removed and used

for rehabilitation. The plants must preferably be removed during the winter months and be replanted by spring at the latest. The grass sods should not be stacked on top of each other. Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they have been removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the following 2 weeks.

- Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.

Impact: Increased soil erosion following vegetation clearance

The removal of surface vegetation will expose soils to erosion during rainfall events, potentially resulting in sediment being transported into moist grasslands along the route alignment. In addition, indigenous vegetation communities are unlikely to colonise eroded soils successfully, and seeds from proximate alien invasive plants can spread easily into these eroded soils.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Permanent	Medium	Highly Probable	2	Moderate
Yes	Negative	Local	Permanent	Medium	Probable	2	Low

Mitigation Measures

- Do not allow erosion to develop on a large scale before taking action.
- Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas.
- Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction/earthworks in that area.
- Runoff from roads must be managed to avoid erosion and pollution problems.
- Remove only the vegetation that is essential for construction, and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.
- Colonisation of the disturbed areas by plant species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.
- Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resulting from activities within and adjacent to the construction camp and work areas.

Impact: Destruction of SCCs and/or protected plant and geophytes species

Construction of the powerline may result in the removal of plant species of conservation concern and may affect their habitat, pollinators, and long-term persistence, thereby placing further pressure on already declining populations. This could put further strain on the already declining populations.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Permanent	Medium	Highly Probable	4	Moderate
Yes	Negative	Local	Permanent	Medium	Probable	1	Low

Mitigation Measures

- The plants of conservation concern should be removed by a suitably qualified specialist prior to construction. This may only be undertaken by a suitably qualified specialist and with the necessary permit from the relevant conservation authority (DEDECT). Once construction is complete, the plants should be reused as part of the rehabilitation of the disturbed areas and replanted where they were removed.
- Where possible, construction activities must be restricted to previously disturbed areas.
- Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from construction activities, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction (Note, these plants may only be removed with the necessary permit from the provincial authority).
- Adhere to the walkdown mitigations.
- Construction workers may not tamper with or remove these plants, and neither may anyone collect seed from the plants without permission from the local authority.
- Cordon off the sensitive vegetation that houses the protected plant species and the plants of conservation concern, and protect them from construction activities and vehicles.
- Slight deviations of access road/pylon alignments must be permitted to avoid plant populations of conservation concern (DWAF, 2005).

Impact: Establishment and spread of declared weeds and alien invasive species

The seeds of alien invasive plant species present on and in the vicinity of construction areas could spread into the disturbed and stockpiled soil. Also, the construction vehicles and equipment were likely used on various other sites. They could introduce alien invasive plant seeds or indigenous plants not belonging to this vegetation unit to the construction site.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Long-term	High	Definite	2	High

Yes	Negative	Site	Short-term	High	Highly Probable	2	Moderate

Mitigation Measures

- Alien invasive species identified within the study area, particularly along the final route alignment, should be removed prior to construction-related soil disturbances. By removing these species, the spread of seeds into disturbed soils will be prevented, which could have a positive impact on the surrounding natural vegetation.
- All alien seedlings and saplings must be removed as they become evident for the duration of construction.
- Manual/mechanical removal is preferred to chemical control.
- All construction vehicles and equipment, as well as construction material, should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access to the construction areas. The ECO should verify this.
- Adhere to the alien and invasive management developed for the project at all times.

Impact: Disturbance to the ecological integrity of the Fred Coetzee and Sommerville Private Nature Reserves through edge effects, including dust, noise, disturbance, and the spread of alien species associated with Deviation 1 adjacent to the northern boundary.

Protected Areas are legally designated for the long-term conservation of biodiversity, ecosystem services, and ecological processes whilst PAES represent strategically important landscapes for achieving national biodiversity targets. Vegetation clearance within the servitude in the priority PAES areas and near nature reserves can result in the following impacts that undermine the ecological integrity and conservation objectives of the protected area, particularly where sensitive or irreplaceable habitats are affected:

i. Direct loss of natural habitat.
ii. Fragmentation of intact ecosystems.
iii. Disruption of ecological connectivity within and between protected areas.
iv. Construction dust, noise, disturbance of fauna and spread of alien plants

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Long-term	Medium	Highly Probable	4	Moderate
Yes	Negative	Local	Medium-term	Low	Probable	3	Low

Faunal Impacts

Ongoing displacement, direct mortalities and disturbance of faunal community due to habitat loss and disturbances (such as collisions, dust and noise). Sensitive and shy fauna would move away from the area

during the construction phase as a result of the noise and human activities present, while some slow-moving species would not be able to avoid the construction activities and might be killed. Some mammals and reptiles would also be vulnerable to illegal collection or poaching. In addition, the introduction of diseases by construction vehicles and workers may result in wildlife deaths.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Permanent	Medium	Highly Probable	3	Moderate
Yes	Negative	Site	Short-term	Medium	Probable	2	Low

Mitigation Measures

- The walk-through of the powerline corridor conducted in March-April 2026 to identify areas of faunal sensitivity must be adhered to at all times.
- Any fauna threatened by construction activities should be removed to safety by the ECO or other suitably qualified person.
- Existing roads and access routes should be used wherever possible.
- During construction all vehicles should adhere to demarcated tracks or roads and the speed limit should not exceed 40 km/h on larger roads and should be 20-30 km/h on smaller access tracks.
- Night driving should not be permitted. Where unavoidable, night driving must be strictly limited and all applicable speed limits adhered to.
- A clause must be included in contracts for ALL construction personnel (i.e. including contractors) working on site stating that: “no wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass.” A clause relating to fines, possible dismissal and legal prosecution must be included should any of the above transgressions occur, especially for SCC.
- All construction staff should undergo environmental induction before construction commences in order to raise awareness and reduce potential faunal impacts.
- To avoid impacts on amphibians, all spills of hazardous material should be cleared in the appropriate manner according to the nature and identity of the spill and all contaminated soil removed from the site.
- Avoid sensitive faunal habitats such as drainage lines and wetlands where possible.
- No fires should be allowed within the site as there is a risk of runaway veld fires.
- Any faunal species that may die as a result of construction must be recorded (i.e. be photographed, GPS co-ordinates taken) and the records uploaded to iNaturalist.

- All machinery, vehicles, and earth-moving equipment must be properly maintained, and associated noise emissions must comply with applicable noise-control requirements.
- A trained snake handler must be onsite during construction or on call to remove any snakes within construction areas.
- If any parts of site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs) as far as practically possible, which do not attract insects and which should be directed downwards.
- All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.
- Ensure that cables and connections are insulated successfully to reduce electrocution risk.
- Any exposed parts must be covered (insulated) to reduce electrocution risk.

Impact: Habitat loss and fragmentation within CBAs and impacts on ecological functioning and connectivity

Mitigation measures	**Impact rating criteria**						**Significance**
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Regional	Permanent	High	Highly Probable	3	High
Yes	Negative	Site	Short-term	Medium	Highly Probable	3	Moderate

Mitigation Measures

- Areas designated for vegetation clearing should be identified and visibly marked off.
- Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed development footprint only, i.e. the confirmed servitude and access road.
- A temporary fence or demarcation must be erected around the construction area (including the servitude, construction camps, areas where material is stored, and the actual footprint of the development) to prevent access to sensitive environments.
- Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.
- No open fires are permitted within naturally vegetated areas.
- Formalise access roads and make use of existing roads, including farm roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.
- Implement the vegetation clearance and rehabilitation measures specified above for impacts associated with vegetation removal and disturbance.

Rehabilitation

- Monitor cleared areas on a regular basis (monthly during construction and three-monthly during operation) for emergent seedlings of invasive alien species and remove these (hand pulling or chemical control).
- All areas of exposed soil should immediately be protected by placing packed brush on the slope, or creating erosion control barriers using branches, sticks or logs placed horizontally across the slope at 1 m intervals (the steeper the slope the closer the barriers should be placed to one another). If topsoil has been lost, rehabilitation of indigenous vegetation will be a difficult and expensive process.
- If the soil remains relatively undisturbed and the area has some indigenous vegetation left intact, the natural regeneration process of the indigenous vegetation on the site should be managed. This involves regular follow-up to remove emerging invasive alien plants and protecting the area from other forms of disturbance (heavy grazing, trampling, disturbance by vehicles, etc.) while the vegetation re-establishes naturally.
- If required, indigenous vegetation can be planted on the cleared areas. This can be in the form of a seed mix or plants rescued from previous clearing.

9.4.7 Inadequate Waste Management

Impact: Inadequate handling, storage and disposal of sewage, domestic and industrial waste resulting in odour, soil, surface, and groundwater pollution.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Short-term	Medium	Definite	2	Moderate
Yes	Negative	Local	Short-term	Low	Probable	1	Low

Mitigation Measures

- The management hierarchy should be implemented when managing waste generated. The waste management Hierarchy is indicated below.



Waste Management Hierarchy



The Hierarchy indicates that:

- Avoidance and Reduction: Materials and products must be designed to minimise the use of natural resources, reduce waste components, and minimise waste generated during production and after consumption.
- Re-use: Materials can be used for different or similar purposes without changing their properties or shape. This approach seeks to re-use a product or material when it is no longer in use. In this way, it becomes an input for new materials and products.
- Recycling: This includes separating materials from the waste stream and processing them as raw materials or products.
- Recovery: Recycle specific materials or components, or use them as fuel.
- Treatment and disposal: This is a 'last resort' within the waste hierarchy. Treatment refers to the alteration of the physical properties of waste or the destruction of the toxic constituents of waste. Disposal refers specifically to the burial or disposal of waste in or on the land. For example, landfill disposal.
- Formal waste management and sewerage systems must be put in place for contractors.
- Contractors and construction crews conducting the works on site must be informed about approved waste disposal facilities.
- Waste management must be a priority, and all waste must be collected and stored effectively.
- All waste generated on-site during construction must be adequately managed. The separation and recycling of different waste materials must be supported.
- The dumping of litter, rubble, or cleared vegetation on-site must not be permitted. Infrastructure materials and rubble generated or removed as a result of construction activities must be reduced, reused, or recycled where practicable, with disposal to landfill undertaken only as a last resort.
- No temporary dump sites must be allowed in areas with natural vegetation. Waste disposal containers and bins must be provided for all construction rubble and general waste during the construction phase.
- Vegetation cuttings must be carefully collected and disposed of at a separate waste facility.
- The burial of any waste, including rubble, domestic waste, and empty containers, on-site must be strictly prohibited.
- Where a registered disposal facility is not available in the project area, the Contractor shall provide a method statement for waste management.
- Solid waste must be effectively managed and disposed of at an authorised solid waste disposal facility and must comply with relevant legislation.
- Confirmation must be obtained from the municipality/ service provider that there is sufficient disposal capacity to accommodate additional waste generated by the proposed development.

- All hazardous waste must be stored in a demarcated area and disposed of using professional waste disposal contractors. All documents relating to volumes and types of waste stored must be kept on site for inspection.
- NTCSA must obtain and file disposal certificates from service providers that will dispose of the general and hazardous waste, as evidence that the waste has been disposed of at an appropriate, licensed waste disposal facility.
- A complaints register must be kept on site specifying the date, time, and nature of complaints and how each complaint was addressed and resolved.

9.4.8 Landscape Impact

Impact: Reduction in the visual quality of the landscape due to the introduction of foreign elements and the loss of vegetation cover.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Permanent	Medium	Highly Probable	2	Moderate
Yes	Negative	Local	Medium-term	Medium	Probable	1	Low

Mitigation Measures

- Where areas are going to be disturbed through the destruction of vegetation, for example the establishment of the construction camp, the vegetation occurring in the area to be disturbed must be salvaged and kept in a controlled environment such as a nursery, for future re-planting in the disturbed areas as a measure of rehabilitation.
- If practically possible, locate construction camps in areas that are already disturbed or where it is not necessary to remove established vegetation such as naturally bare areas.
- Utilise existing screening features such as dense vegetation stands or topographical features to place the construction camps and lay-down yards out of view of sensitive visual receptors.
- Keep the construction sites and camps neat, clean and organised in order to portray a tidy appearance.
- Screen the construction camp and lay-down yards by enclosing the entire area with a dark green or black shade cloth at least 2m height.
- Keep the construction camps away from existing residents and especially lodges and tourist venues.

9.4.9 Viewer Sensitivity

Impact: Visual intrusion associated with construction camps and laydown yards.

Residents: The study area is sparsely populated and comprises small rural settlements, farmsteads, moderately populated towns, and informal settlements. Klerkskraal is the closest settlement to the proposed deviation of the line. The proposed powerline does not traverse directly past any farmstead or settlement. The closest resident is approximately 700 m north of the line. The rural settlements and farming communities are normally situated along main transportation routes, near agricultural areas or adjacent rivers or water resources. A relatively small number of viewers are expected to be affected across the study area. The cleared site, construction camp and material lay-down yards will appear unsightly and out of character.

Tourists: Besides residents, tourists are among the most sensitive viewers. Potential views of the project may occur from residential properties, tourist destinations, and nature conservation areas. Tourism activities are mostly linked with the private game farms that occur across the study area. No tourist establishments were identified within the study area of the proposed deviation of the powerline. However, their exposure to potentially unsightly views of the construction camps and associated activities is expected to be minimal and localised.

Motorists: The main road in the study area is the N14 connecting Krugersdorp to Ventersdorp. The N14 is approximately 10 km south of the proposed deviation; therefore, motorists using the N14 are unlikely to be visually affected. The secondary road network in the study area carries a much lower volume of motorists. Views experienced by motorists will be temporary, and the resulting visual intrusion is expected to be low.

Residents

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Medium-term	Medium	Probable	1	Low
Yes	Negative	Local	Medium-term	Low	Probable	1	Low

Tourists

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Temporary	Low	Probable	1	Low
Yes	Negative	Local	Temporary	Low	Probable	1	Low

Motorists

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Temporary	Medium	Probable	1	Moderate



Yes	Negative	Local	Temporary	Low	Probable	1	Low

Mitigation Measures

- If practically possible, locate construction camps in areas that are already disturbed or where it is not necessary to remove established vegetation, such as naturally bare areas.
- Utilise existing screening features such as dense vegetation stands or topographical features to place the construction camps and laydown yards out of the view of sensitive visual receptors;
- Keep the construction sites and camps neat, clean and organised to portray a tidy appearance;
- Screen the construction camp and lay-down yards by enclosing the entire area with a dark green or black shade cloth of no less than 2 m height;
- Utilise existing access roads whenever possible.
- Where new access roads are required, the disturbance area should be kept as small as possible. A two-track dirt road is the preferred option.
- Locate access routes to limit modification to the topography and to avoid the removal of established vegetation;
- Access routes should be located on the perimeter of disturbed areas, such as cultivated or fallow lands, to avoid fragmenting intact vegetated areas.
- If it is necessary to clear vegetation for a road, avoid doing so in a continuous straight line. Alternatively, curve the road to reduce the visible extent of the cleared corridor; and
- Avoid a continuous linear path of cleared vegetation that would strongly contrast with the surrounding landscape character. Feather the edges of the cleared corridor to avoid a clearly defined line through the landscape.

9.4.10 Impact on the Socio-economic environment

Impact: Creation of employment, skills development, procurement and business opportunities.

The construction phase is expected to create a limited number of temporary employment opportunities, together with associated procurement and business opportunities for local suppliers and service providers.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Positive	Local	Short-term	Low	Probable	1	Low
Yes	Positive	Local	Short-term	Medium	Highly Probable	1	Moderate

Mitigation / Enhancement Measures

- Prioritise employment of local people from the District, particularly for semi and unskilled job categories as far as possible.

- Employment of Black African people; women; and youth should be prioritised.
- Implement training and on-the-job skills development programmes for temporary employees where feasible.
- Employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria to the extent possible.
- Recruitment and employment practices must be in accordance with all labour legislation in South Africa.
- Vacancies should be advertised in the local media when they become available.

Impact: Increased demand for low-cost housing and municipal services.

A temporary increase in demand for low-cost accommodation and basic municipal services may arise if construction workers are brought in from outside the immediate area. However, given the relatively limited workforce expected for this deviation and the short-term nature of the construction phase, this impact is assessed as Negligible negative before mitigation and remains Negligible negative after mitigation.

No	Negative	Local	Medium-term	Low	Negligible	1	Negligible
Yes	Negative	Local	Short-term	Low	Negligible	1	Negligible

Mitigation Measures

- Prioritise employment of local people.
- Provide suitable housing and living arrangements if temporary employees are brought in to undertake construction activities. Accommodation provided must not compromise safety of employees and surrounding communities. All applicable land-use agreements must be in place before construction commences.
- Adequate arrangements for daily transport to and from the construction site must be in place before commencement of construction phase activities.
- All non-local low and semi-skilled workers should be assisted with transport to return home when they are not required on site (i.e. weekends, etc.).
- All non-local construction workers should be assisted with transport back to their place of residence within one week of their temporary employment contracts coming to an end.

Impact: Strain on community health & safety services

While local community members could take up most unskilled and semi-skilled work opportunities, the remainder of the available positions need to be filled by non-local temporary construction workers. Workers recruited from local communities' form part of the local family and social structure. These locally resident workers are not likely to increase the social ills listed above beyond the levels already prevailing in the study area. Furthermore, the presence of non-local construction workers residing in a local community also serves to emphasise the lack of local skills, leading to discontent, tension and conflict.



No	Negative	Local	Long-term	High	Probable	2	Low
Yes	Negative	Local	Long-term	High	Improbable	1	Low

Mitigation Measures

- Prioritise employment of local people from the District and Local Municipalities.
- The Applicant as well as any contractors that are appointed to undertake the construction phase activities should develop and agree a code of conduct which sets standards for acceptable behaviour and outlines behaviour and activities which could constitute grounds for dismissal. Any employee or contractor appointed by the Applicant to undertake construction phase activities that is found to be in breach of the code of conduct should be dismissed after following due process in accordance with prevailing labour legislation. Criminal activities should be reported to SAPS immediately for investigation and further action.
- The Applicant and contractor should agree and implement an HIV/AIDS/TB awareness programme.
- The Applicant should develop and implement an appropriate method of communication with the local community. A community liaison officer should be appointed during the construction phase to engage with local community members regarding any issues, complaints or grievances that they may have.

Impact: Influx of job seekers

In-migration of job seekers can be anticipated where there is a possibility of employment creation. While the proposed project on its own is not likely to be the primary driver of influx in the area, the simultaneous establishment of other development initiatives could cumulatively encourage people to seek employment and settle in the area. Negative impacts associated with an influx of job seekers could include the following:

- Increased demand for affordable housing.
- Non-local job seekers are often willing to accept a lower wage for various reasons, creating a situation of unfair competition for scarce jobs.
- An increase in the number of unemployed people in the area places strain on local communities and the surrounding municipalities.

No	Negative	Regional	Short-term	Low	Improbable	1	Negligible
Yes	Negative	Local	Short-term	Low	Improbable	1	Negligible

Mitigation Measures

- Prioritise employment of local people from the various communities in the affected District Municipalities.
- Employment for 'walk-in' temporary / casual labourers at the proposed construction site should not be permitted.

Impact: Disruption to agricultural operations, including livestock and game management.

No	Negative	Site	Short-term	High	Probable	1	Low
Yes	Negative	Site	Short-term	Medium	Improbable	1	Negligible

Mitigation Measures

- Construction activities must be planned in consultation with the affected land user.
- Temporary work areas must be kept to the minimum required.
- Temporary fencing or stock-control measures must be installed where necessary.
- Gates must be kept closed.
- Personnel must not interfere with, chase or disturb livestock or game.
- Disturbed farming areas must be reinstated as soon as practicable.

Impact: Access control, farm security and conflict with land users / occupiers.

No	Negative	Site	Short-term	High	Definite	2	High
Yes	Negative	Site	Short-term	Low	Improbable	1	Negligible

Mitigation Measures

- Access routes and entry points must be agreed before construction commences.
- Only approved gates, tracks and access points may be used. A site access register must be maintained where appropriate.
- Contractors must be inducted on access rules.
- Occupiers / tenants must be informed in advance where relevant.
- A clear grievance and complaint procedure must be implemented and maintained throughout construction.

Impact: Damage to farm infrastructure and property.

No	Negative	Site	Short-term	High	Probable	3	Low
Yes	Negative	Site	Short-term	Low	Improbable	2	Negligible

Mitigation measures

- Sensitive infrastructure must be identified before construction.
- Work areas and no-go areas must be clearly demarcated.
- Vehicles and equipment must remain within approved work areas and access routes.
- Any damage caused by construction must be repaired or replaced promptly.

Impact: Safety risks associated with construction vehicles and plant movement on farms and access roads.

No	Negative	Site	Short-term	High	Probable	2	Low
Yes	Negative	Site	Short-term	Medium	Improbable	1	Negligible

Mitigation measures

- Vehicle speeds must be controlled in accordance with site rules and land user requirements.
- Drivers must be inducted on route restrictions and farm safety protocols.
- Construction traffic must use approved routes only.
- Unnecessary vehicle trips must be avoided.
- Construction traffic must be supervised where activities interface with normal farm movement or sensitive areas.

Impact: Dust and general construction nuisance.

No	Negative	Site	Short-term	Medium	Probable	1	Low
Yes	Negative	Site	Short-term	Low	Improbable	1	Negligible

Mitigation Measures

- Dust suppression measures must be applied where necessary and appropriate, especially on frequently used access routes and disturbed areas.
- Vehicle speeds must be limited.
- Disturbance footprints must be minimised.
- Complaints relating to dust or construction nuisance must be recorded and responded to promptly.

Impact: Fire risk

No	Negative	Site	Short-term	Medium	Probable	3	Low
Yes	Negative	Site	Short-term	Low	Improbable	1	Negligible

Mitigation Measures

- A fire prevention and response plan must be prepared and implemented.
- Construction personnel must be inducted on fire prevention requirements.
- Smoking, hot works and ignition sources must be strictly controlled.
- Appropriate firefighting equipment must be available on site.
- Construction activities must be adjusted or suspended under high fire danger conditions where necessary.
- Any fire-related damage caused by construction must be addressed in accordance with applicable legal and contractual obligations.



Impact: Non-compliance with approved servitude							
No	Negative	Site	Short-term	High	Improbable	3	Low
Yes	Negative	Site	Short-term	Low	Improbable	1	Negligible
Mitigation Measures ▪ The approved alignment, tower positions, work areas and access routes must be pegged or otherwise clearly identified prior to construction. ▪ Contractors must be briefed on all footprint constraints. ▪ No construction activity may take place outside the approved footprint unless separately authorised. ▪ Compliance with footprint limits must be monitored throughout construction.							
Impact: Inadequate communication during construction.							
No	Negative	Site	Short-term	High	Improbable	1	Low
Yes	Negative	Site	Short-term	Low	Improbable	1	Negligible
Mitigation Measures ▪ A designated contact person must be available for land-related queries and complaints. ▪ Advance notice of construction activities must be provided where relevant. ▪ Regular communication must be maintained with affected land users and occupiers during active construction. ▪ Complaints, incidents and agreed actions must be recorded and tracked to closure.							

9.4.11 Noise

Impact: Noise due to the movement of vehicles and construction activities.							
Mitigation measures	**Impact rating criteria**						**Significance**
	Nature	**Extent**	**Duration**	**Magnitude**	**Probability**	**Reversibility**	
No	Negative	Local	Short-term	Low	Definite	1	Negligible
Yes	Negative	Local	Short-term	Low	Highly Probable	1	Negligible
Mitigation Measures ▪ Use noise barriers and low-noise equipment. ▪ A noise control plan must be prepared and implemented. ▪ Site vehicles and equipment should be regularly serviced and maintained in good working order.							

- Where occupational noise exposure requires it, appropriate hearing protection must be provided to construction personnel.

9.5 Impact Assessment During Operation Phase

9.5.1 Impact on Avifauna

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
Impact: Mortality of SCC and non-SCC priority species due to collision with the 400kV powerline conductors/earthwires.							
No	Negative	Regional	Long-term	High	Definite	2	High
Yes	Negative	Regional	Long-term	Medium	Probable	2	Low

Mitigation Measures

- *NTCSA* Line and Servitude Managers must report all bird collisions encountered during routine line patrols of the *Pluto-Mahikeng 400kV Powerline* to the *Eskom-Endangered Wildlife Trust Strategic Partnership,* who will provide additional site-specific mitigation recommendations, if required.
- All Bird Flight Diverters must be maintained for the duration of the operational lifespan of the *Pluto-Mahikeng 400kV Powerline*.
- Should raptor nests be identified during the operational phase, *NTCSA* Line and Servitude Managers must report these to the Environmental Manager, who will in turn notify the *Eskom-Endangered Wildlife Trust Strategic Partnership* for site-specific guidance. Recommendations provided must be implemented, including the delineation of appropriate buffer distances and the postponement/rescheduling of maintenance activities, where required, to prevent disturbance-related nest abandonment or breeding failure.
- While it is not illegal to remove an unoccupied nest that is posing a quality of supply risk, the removal of nests that contain eggs, chicks or adult birds will require a permit to do so. *Eskom* are requested to notify the *Eskom-Endangered Wildlife Trust Strategic Partnership* in these instances to arrange for the translocation or removal of the nest.
- All bird guards should be maintained for the duration of the operational lifespan of the *Pluto-Mahikeng 400kV Powerline*.
- *NTCSA* Line and Servitude Managers are requested to report all bird-related faulting on the *Pluto-Mahikeng 400kV Powerline* infrastructure to the *Eskom-Endangered Wildlife Trust Strategic Partnership,* who will provide site-specific mitigation recommendations if required.
- Mitigation requirements detailed in the site-specific botanical OEMPr report must be strictly implemented to ensure minimal habitat impact.

- Existing roads must be used as far as possible for access during the operational lifespan of the project.
- All operational activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment.

9.5.2 Impact on Soil

Impact: Soil compaction, soil erosion, land degradation and soil contamination.

- Disturbance of original soil profiles and horizon sequences may result in measurable soil deterioration and increased susceptibility to erosion.
- Soil chemical pollution may occur where pollutants leach into subsurface soil horizons from improperly stored waste or leaking maintenance vehicles.
- Soil compaction may occur as a result of vehicle movement over soil surfaces, including access roads.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	Medium	Probable	1	Moderate
Yes	Negative	Local	Short-term	Low	Probable	1	Low

Mitigation Measures

- Restrict maintenance vehicles to existing access roads and established tracks, and avoid unnecessary off-road driving.
- Limit maintenance activities to the minimum area required to prevent unnecessary disturbance of soil and vegetation.
- Rehabilitate any disturbed areas following maintenance activities to prevent erosion and the spread of invasive species.
- Inspect access roads and areas around tower foundations regularly for signs of soil erosion or land degradation, and implement appropriate erosion control measures where required.
- Maintain natural drainage patterns and ensure that maintenance activities do not impede surface water flow.
- Prevent contamination of soil through the proper storage, handling and disposal of fuels, oils, lubricants, and other hazardous substances during maintenance activities.
- Ensure that spill kits are available during maintenance activities, and clean up any spills immediately in accordance with the EMPr.
- Dispose of all waste generated during maintenance at licensed waste disposal facilities and prohibit the dumping or burning of waste on site.

- Minimise vegetation clearing during maintenance and restrict vegetation management to that required to maintain statutory electrical clearances.
- Monitor rehabilitated areas during routine inspections and implement corrective measures where evidence of ongoing erosion or degradation is observed.

9.5.3 Impact on Freshwater Resources

Impact: Occasional disturbance associated with maintenance access.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	Low	Improbable	1	Low
Yes	Negative	Local	Short-term	Low	Improbable	1	Low

Mitigation Measures

- Restrict maintenance access to existing tracks where possible.

Impact: Minor vegetation disturbance beneath conductors during maintenance activities.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	Low	Probable	1	Low
Yes	Negative	Local	Short-term	Low	Probable	1	Low

Mitigation Measures

- Implement controlled vegetation management practices.

9.5.4 Impact on the Socio-Economic Environment

Impact: Creation of employment, skills development, procurement and business opportunities.

The operational phase is not expected to create significant new employment opportunities, as routine operation and maintenance activities will largely be undertaken by existing NTCSA personnel and established service providers. Any additional employment, skills development, procurement or business opportunities are therefore expected to be limited in scale. Where opportunities do arise, they should be allocated in a manner that continues to prioritise local participation, fair labour practices and, where feasible, the involvement of local B-BBEE-compliant enterprises.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Positive	Local	Short-term	Low	Improbable	5	Negligible
Yes	Positive	Local	Short-term	Low	Improbable	5	Negligible

Enhancement Measures

- Prioritise employment of local people from Dr Kenneth Kaunda District, particularly for semi and unskilled job categories as far as possible.
- Employment of Black African people, women, and youth should be prioritised.
- Implement training and on-the-job skills development programmes for temporary employees where feasible.
- Employ local contractors that are compliant with Broad-Based Black Economic Empowerment (B-BBEE) criteria to the extent possible.
- Recruitment and employment practices must comply with all applicable South African labour legislation.
- Vacancies should be advertised in the local media when they become available.

Impact: Strengthening energy supply

The most significant positive operational-phase impact is the role of the proposed deviation in supporting the broader transmission function of the Pluto-Mahikeng line and thereby contributing to a more stable and reliable electricity supply.

No	Positive	Regional	Long-term	High	Highly probable	5	Moderate
Yes	Positive	Regional	Long-term	High	Highly probable	5	Moderate

Enhancement Measure

- The proposed development, once approved and operational, will support efforts to increase and stabilise electricity supply, thereby helping to reduce instances of electricity disruptions and associated negative socio-economic impacts.

9.5.5 Impacts on Terrestrial Biodiversity

Impact: Alien invasive plants

Alien invasive plants could spread into the soils disturbed by the construction. In addition, the invasive species could out-compete natural vegetation, displace natural grassland, and lead to a species-poor transformed landscape. By removing alien vegetation along the route alignment, the number of alien



species, as well as the potential for these plants to spread into disturbed soil, is reduced, provided that rehabilitation is successful.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Local	Short-term	High	Probable	3	Low
Yes	Negative	Local	Medium-term	Medium	Probable	2	Low

Enhancement Measures

- Compile and implement an alien invasive monitoring plan to remove alien invasive plant species along the chosen route alignments, prior to construction.
- Rehabilitate all areas cleared of invasive plants as soon as practically possible, utilising specified methods and species.
- Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. Monitoring should continue for at least two years after construction is complete.
- Follow the manufacturer's instructions when using chemical control methods, particularly regarding application rates and timing.
- Ensure that only appropriately trained personnel handle and make use of chemicals.
- Dispose of the eradicated plant material at an approved solid waste disposal site.
- Only indigenous plant species naturally occurring in the area should be used during the rehabilitation of the areas affected by the construction activities.

Impact: Bush Encroachment

The vegetation along the constructed powerline may degrade over time if the disturbed soils are not properly rehabilitated. Furthermore, maintenance work and vehicles could damage the vegetation along the route, which could lead to soil erosion, habitat modification, trampling of vegetation, as well as the destruction of protected plants and plants of conservation concern.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Site	Medium-term	High	Highly Probable	2	Moderate
Yes	Negative	Local	Medium-term	Medium	Probable	2	Low

Mitigation Measures

- After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.
- Ensure that maintenance work does not take place haphazardly, but according to a fixed plan.
- Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.
- Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.
- Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.

9.5.6 Landscape Impact

Impact: Reduction in the visual quality of the landscape due to the presence of the transmission line.

Surface disturbances created during construction may remain visible for an extended period during the operational phase. These residual effects can be reduced through appropriate rehabilitation during and immediately following construction. An additional visual impact will result from the presence of the completed powerline, particularly the evenly spaced transmission towers. The industrial character and substantial vertical scale of the towers (approximately 30 m for the proposed 400 kV transmission line) may not be readily absorbed into the relatively flat landscape character prevailing across much of the study area.

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Regional	Permanent	Medium	Definite	4	High
Yes	Negative	Regional	Permanent	Low	Definite	4	Moderate

Mitigation Measures

- Rehabilitate disturbed areas around pylons as soon as practically possible after construction. This should be done to restrict extended periods of exposed soil.

9.5.7 Viewer Sensitivity

Impact: The presence of a powerline intrudes on existing views and spoils the open panoramic views of the landscape.

Residents: There are few residents of the farming communities along the proposed corridor of the powerline that may experience a low degree of visual intrusion. Few residents within farming communities along the proposed powerline corridor are expected to experience visual intrusion. The presence of existing powerlines may reduce the degree of visual contrast, as similar infrastructure already forms part of the receiving landscape.

Tourists: The entire study area is considered to have low tourism and recreational potential. There are private game farms, but no large national parks in the area. The proposed deviation of the powerline does not cross any major road to other prominent holiday destinations. Few tourists may be affected during their visit to the study area. The visual impact of the powerline would be greatest for tourists in close proximity to the infrastructure, particularly along transport routes and at tourism destinations such as game farms and lodges.

Motorists: The majority of the line is located along secondary roads carrying relatively low traffic volumes. The speed at which motorists travel has a moderating effect on the severity of the visual impact and further reduces visual exposure. Existing powerlines within the receiving landscape may reduce the visual contrast associated with the proposed infrastructure.

Residents

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Regional	Permanent	Medium	Definite	5	Moderate
Yes	Negative	Regional	Permanent	Low	Probable	5	Low

Tourists

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Regional	Permanent	Low	Probable	4	Low
Yes	Negative	Regional	Permanent	Low	Probable	4	Low

Motorists

Mitigation measures	Impact rating criteria						Significance
	Nature	Extent	Duration	Magnitude	Probability	Reversibility	
No	Negative	Regional	Permanent	Medium	Definite	4	Moderate
Yes	Negative	Regional	Permanent	Low	Probable	4	Low

Mitigation Measures

- Rehabilitate disturbed areas around pylons as soon as practically possible after construction. This should be done to restrict extended periods of exposed soil.
- As far as possible, limit the number of maintenance vehicles allowed to access the site and ensure that they use the established, constructed access roads whenever possible.
- Where possible, avoid placing lights on tower structures.
- Non-reflective surfaces should be utilised where possible.

9.6 Assessment of Cumulative Impacts

Cumulative impacts are assessed within the context of the proposed PAOI, other developments and activities in the area (existing and proposed) and general environment. The impacts of projects are often assessed by comparing the post-project situation to a pre-existing baseline. Projects can be considered in isolation, which provides a suitable method of assessing a project's impact. However, in areas where baselines have already been affected or where future development will continue to add to the impacts in an area or region, it is appropriate to consider the cumulative effects of development or disturbance activities. This is similar to the concept of shifting baselines, which describes how the environmental baseline at a specific point in time may represent a significant change from the system's original state.

The role of the cumulative assessment is to test whether impacts are relevant to the proposed project in the proposed location (i.e., whether the addition of the proposed project in the area will increase the impact). This section addresses whether the construction of the proposed development will result in:

- Unacceptable risk.
- Unacceptable loss.
- Complete or whole-scale changes to the environment.
- Unacceptable increase in impacts.

The process applied in this assessment is illustrated in the figure below and comprises the following seven steps.

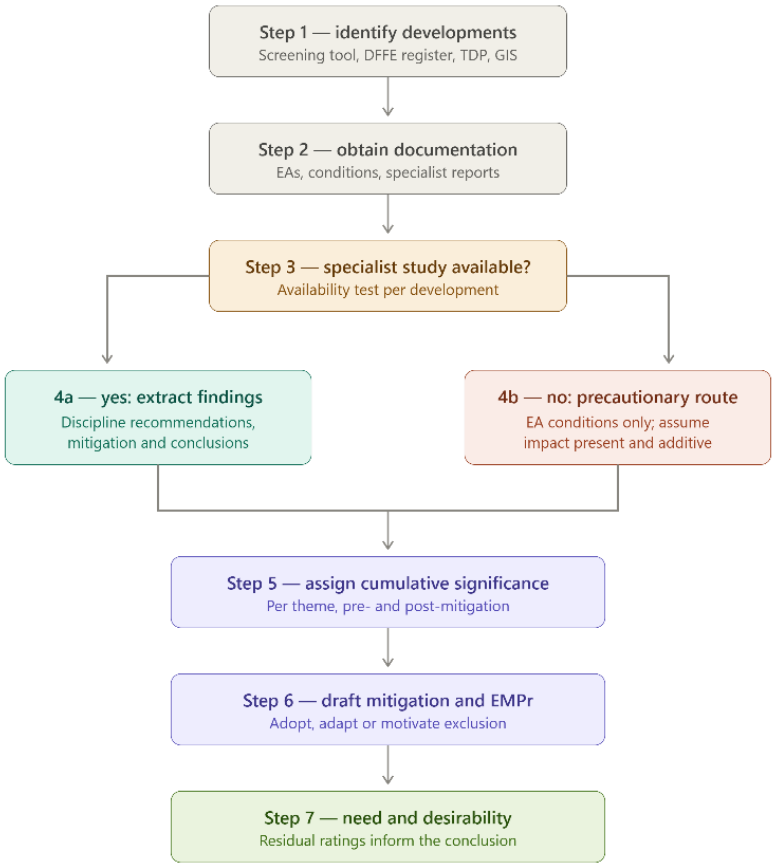


Figure 9-2: CIA Process Flow

- **Step 1:** Identification of past, present and reasonably foreseeable developments within the 30 km regional area of influence, using the DFFE Screening Tool, the DFFE renewable energy project database, the NTCSA Transmission Development Plan (2024), municipal IDPs and SDFs, GIS analysis, and issues raised through the public participation process.
- **Step 2:** Retrieval of available documentation for each identified development, comprising environmental authorisations and conditions of approval, environmental reports, and underlying specialist studies where obtainable.
- **Step 3:** Availability test applied to each development to determine whether the underlying specialist studies could be obtained.
- **Step 4a:** Where specialist studies were available, the discipline-specific findings, recommendations, mitigation measures and conclusions were extracted and recorded against the corresponding cumulative theme.
- **Step 4b:** Where specialist studies could not be obtained, conditions of approval associated with the environmental authorisation were treated as the codified expression of that project's specialist mitigation, and a precautionary approach was applied as set out under Limitations below.



- **Step 5:** Integration of the extracted findings into the cumulative significance rating for each environmental theme, pre- and post-mitigation.
- **Step 6:** Compiling of cumulative mitigation measures, in which measures applied on surrounding developments were adopted, adapted to the circumstances of this project, or expressly excluded with reasons, and carried into the EMPr.
- **Step 7:** Feedback of the residual significance ratings into the conclusion on the need for and desirability of the proposed development.

9.6.1 Spatial Boundary

The direct footprint includes the proposed powerline deviation, access roads and temporary construction areas. Dimensions of the infrastructure and servitude are indicated in Section 2. The local area of influence is 55 m, while the regional area of influence extends to a 30 km radius from the deviation.

9.6.2 Temporal Boundaries

The temporal scope of this CIA encompasses:

- **Past (baseline):** Historical land use and development activities over the preceding 20–30 years.
- **Present:** Existing projects in operation, under construction, or with valid environmental authorisations at the time of this assessment.
- **Reasonably foreseeable future:** Projects that are planned, announced, or for which applications have been submitted, within the foreseeable planning horizon (typically 10–20 years consistent with the TDP and NDP).

9.6.3 Potential environmental resources to be considered in the Cumulative Impact Assessment

When determining the resources and impacts assessed, the feedback from the stakeholders, applicable legislation and plans as well as a review of the previous EIA documents have been considered in the identification of the socio-economic and environmental themes. In addition, the Terms of Reference for the specialists also specify the need to undertake a cumulative impact assessment for the respective environmental attributes. This is augmented by the issues raised during the public meetings. The following aspects have been deemed to be significant:

i. Vegetation and CBAs.
ii. Avifauna.
iii. Agriculture.
iv. Freshwater
v. Socio-economic (jobs).
vi. Visual resources.

9.6.4 Methodology

All past, present and reasonably foreseeable projects and activities within the CIA study area will be identified through:

- Review of the DFFE renewable energy projects database and the Screening Tool.
- Desktop review of NTDP, IDP, SDF and other planning frameworks.
- Public participation process and I&AP submissions.
- GIS analysis of the study area.
- Specialist study reports.

9.6.5 Project Inventory Table

The table below indicates the projects identified and considered during the cumulative impact assessment. In addition, the significant environmental issues typically identified for these projects are listed.

Table 9-5: Projects within the 30km radius

DEVELOPMENTS	STATUS	ANTICIPATED ENVIRONMENTAL ISSUES THAT COULD BE CUMULATIVE
25 Renewable Energy (RE) Plants (Solar PV)	Proposed (Authorised)	1,2,5, 6, 9
2 Transmission Powerlines (400 kV -765 kV)	Planned	1, 2, 5
11 Distribution and Transmission Powerlines (88kV – 400 kV)	Existing	1, 2, 5
PPC Cement Slurry	Operational	All
Agricultural activities	Ongoing	1,7, 9
Utilities Infrastructure (roads and pipelines)	Ongoing maintenance	1, 9
Source of Information DFFE, Google Earth NTCSA (Transmission Development Plan, 2022), Stakeholders	**Issues** 1. Vegetation 5. Visual Resources 9. Socio-economic 2. Animals 6. Surface Water 3. Air 7. Cultural Resources 4. Agriculture 8. Land use	

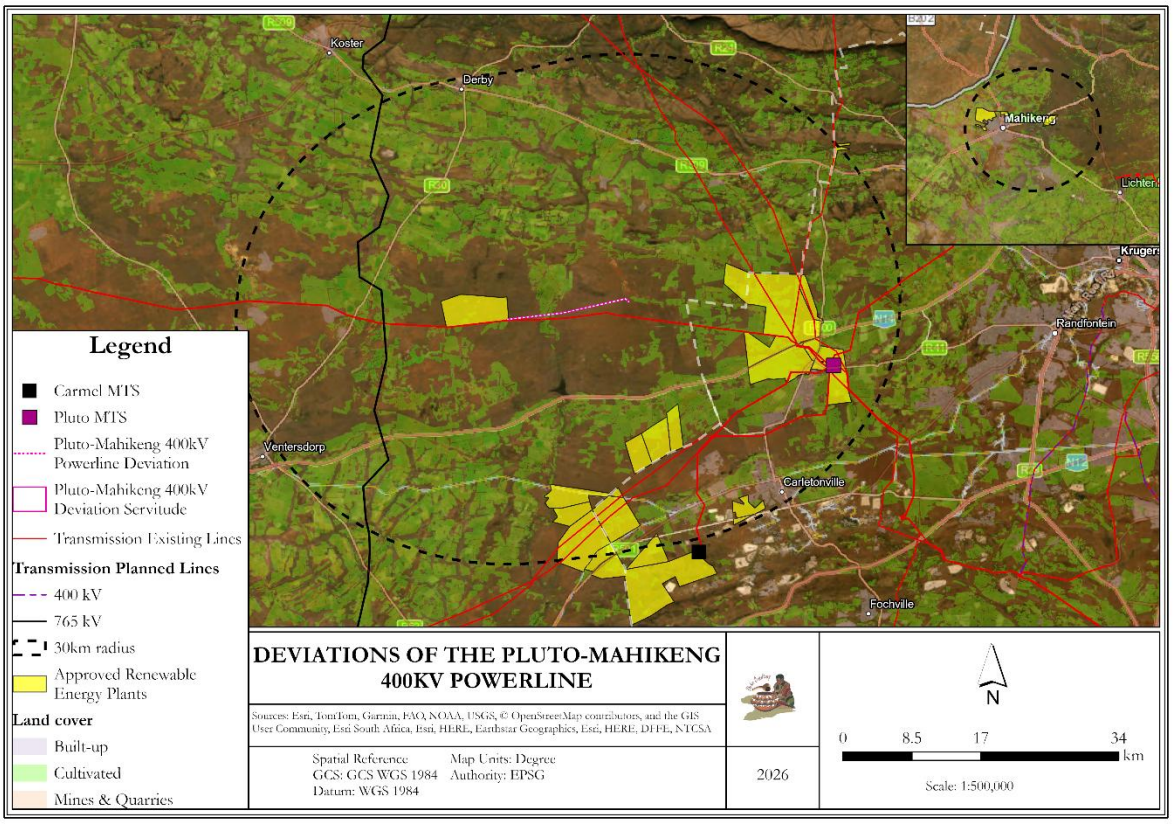


Figure 9-3: Infrastructure and activities with a 30km radius

9.6.6 Cumulative Impact Assessment

Avifauna

From a cumulative impact perspective, the Mahikeng–Pluto 400 kV Powerline route deviations have an approximate length of 14 km and 40 m respectively and form part of the authorised Mahikeng–Pluto 400 kV Powerline and an already well-established transmission network within the region (30 km radius), which includes existing high-voltage, medium-voltage, and distribution infrastructure extending across a wide area. The landscape remains sensitive to cumulative avifaunal impacts, particularly for collision-prone SCC such as large terrestrial species, vultures, raptors and water-dependent species which move across wide ranges and are vulnerable to multiple infrastructure interactions. While the addition of a single powerline does not, in itself, result in unacceptable cumulative impact, it contributes incrementally to an already present risk profile associated with overhead transmission infrastructure in open landscapes. On this basis, the cumulative impact of the authorised Pluto-Mahikeng 400 kV Powerline route deviation is considered to be Medium in isolation, largely due to alignment within an already influenced corridor, but the broader regional cumulative exposure to high-voltage powerlines and similar infrastructure remains High, reflecting the additive nature of risk across the wider landscape rather than the project alone.

Impact Description	Nature	Extent	Duration	Probability	Magnitude	Significance (w/o Mit.)	Residual Significance
Additive collision risk from the broader regional 132 kV/275 kV/400 kV powerline network within 30 km of the alignment	Negative	Regional	Permanent	Probable	High	High	High
Mitigation	Monitor and implement adaptive management measures in consultation with avifauna-related conservation bodies.						

Biodiversity

The study area is subject to high cumulative biodiversity pressure from extensive manganese and iron ore mining, existing powerline infrastructure, grazing, and now the expanding renewable energy development footprint within 30 km. The NWBSP (2025) identifies several CBA1, CBA2 and ESA within or adjacent to the PAOI. The cumulative footprint of all developments in the region represents a material and increasing pressure on the Carletonville Dolomite Grassland ecosystem. The powerline's contribution to this cumulative pressure is assessed as moderate at the project and regional levels.

Impact Description	Nature	Extent	Duration	Probability	Magnitude	Significance (w/o Mit.)	Residual Significance
Additive loss and fragmentation of Carletonville Dolomite Grassland/CBA habitats from mining, RE developments and powerline network within	Negative	Regional	Permanent	Highly Probable	Medium	Moderate	Moderate



30 km (2025 NW Biodiversity Sector Plan context)							
Mitigation	Align servitude with existing cleared corridors where technically feasible.						

Freshwater

The Mooi River system is subject to cumulative pressures from agricultural water abstraction and road infrastructure crossings. The Pluto-Mahikeng powerline adds a further crossing point but is a single linear infrastructure element with a narrow servitude footprint. Cumulative impacts on the FEPA Sub-catchment are likely to be localised and manageable through the application of standard crossing design and buffer maintenance measures. Monitoring of erosion and sedimentation at river crossings is recommended.

Impact Description	Nature	Extent	Duration	Probability	Magnitude	Significance (w/o Mit.)	Residual Significance
Additive pressure on the riparian zone and flow regime from agricultural activities, roads and the proposed powerline	Negative	Regional	Long-term	Probable	Medium	Low	Low
Mitigation	▪ Maintain the 50m and 100 m buffers recommended by the specialist. ▪ Avoid instream disturbance. ▪ Specialist design and supervision.						

Social

The cumulative impacts of the proposed deviation are expected to be concentrated mainly in relation to temporary economic opportunities, potential pressure on housing and services during construction, and community health, safety, and security risks associated with overlapping construction activity. Given the relatively limited scale and localised nature of the deviation itself, the project is unlikely, on its own, to generate major cumulative social effects. However, where construction or operation overlaps spatially or

temporally with other infrastructure or energy developments in the area, the overall magnitude of certain impacts may increase.

Impact Description	Nature	Extent	Duration	Probability	Magnitude	Significance (w/o Mit.)	Residual Significance
Employment, skills and economic opportunities.	Positive	Regional	Short-term	Probable	Low	Low	Low
Influx, housing and demand for municipal services.	Negative	Local	Short-term	Definite	Medium	Moderate	Low
Community health, safety and security.	Negative	Local	Short-term	Probable	Low	Low	Low
Mitigation measures	▪ Continued prioritisation of local employment where feasible, targeted support for local procurement, and transparent recruitment practices that improve access to project-related opportunities for affected and surrounding communities. ▪ Prioritise local recruitment, avoid uncontrolled 'walk-in' labour, provide appropriate accommodation and transport arrangements for non-local workers, and maintain ongoing communication with relevant authorities where cumulative service pressures may reasonably be anticipated. ▪ Implement a contractor code of conduct, continue to use a grievance mechanism, carefully manage access, communicate with affected landowners and occupiers, and appropriately induct workers on health, safety, and community conduct requirements.						

Soil and Land Capability (Agriculture)

The key cumulative risk is the interaction between powerline construction access tracks and grazing land management, which can be mitigated through fencing reinstatement and rehabilitation. The cumulative impacts from the proposed powerline are considered low because agricultural activities can continue below the powerlines. Therefore, no net loss of future agricultural production is anticipated due to the low powerline density within a 30 km radius. Disruption of agricultural activities, such as grazing and cultivation, will be limited in scale and duration during the construction period; post-construction, all grazing and cultivation activities will continue under the proposed powerlines.

Impact Description	Nature	Extent	Duration	Probability	Magnitude	Significance (w/o Mit.)	Residual Significance
Cumulative loss of agricultural land capability from powerline servitude combined with renewable energy plants and other linear infrastructure	Negative	Regional	Permanent	Probable	Low	Low	Low
Mitigation	- Implement a cumulative engagement plan that recognises the pressures associated with multiple concurrent developments affecting the same group of landowners.						

Visual

The area within 30 km of the deviations includes distribution and transmission powerlines, planned renewable energy plants and associated infrastructure, and mining operations. The cumulative visual impact of the proposed powerline, when considered within this existing visual context, is assessed as Moderate, consistent with the project-level assessment.

Impact Description	Nature	Extent	Duration	Probability	Magnitude	Significance (w/o Mit.)	Residual Significance
Additive visual degradation of the landscape from agriculture, existing powerlines, RE projects and the proposed alignment in the	Negative	Regional	Long-term	Highly Probable	Medium	Moderate	Moderate

Impact Description	Nature	Extent	Duration	Probability	Magnitude	Significance (w/o Mit.)	Residual Significance
30 km study area.							
Mitigation	- Retain natural vegetation adjacent to the servitude wherever possible; re-establish endemic vegetation where removed. - Coordinate tower placement with existing infrastructure corridors to consolidate visual impact.						

9.6.7 Concluding Statement on Cumulative Impacts

Following mitigation, residual negative impacts are low in respect of freshwater systems and agricultural land capability; moderate in respect of cumulative visual degradation, and habitat loss and fragmentation; and high in respect of cumulative avifaunal collision risk. The cumulative positive impact associated with employment, skills, and economic opportunities is rated low.

The need for the electrical infrastructure arises from the Transmission Development Plan and from the requirement to increase network capacity, improve voltage regulation and strengthen the reliability and security of electricity supply within the North West Province. It is material that the generation capacity giving rise to this need is itself a substantial component of the cumulative environment assessed above. The density of authorised renewable energy development within the 30 km area of influence is both a principal driver of cumulative habitat, servitude, and visual impacts and a principal justification for the transmission infrastructure required to connect that generation capacity. Withholding the transmission capacity would not remove the cumulative impact of the authorised generation; it would only prevent that generation from delivering the benefit for which it was authorised.

The high cumulative avifaunal collision rating is driven by the transmission network sharing the receiving environment rather than by the generation it serves. That rating is not disposed of by the need-and-desirability case but by the mitigation and monitoring regime: line marking, micro-siting informed by the pre-construction avifaunal walkthrough, and post-construction monitoring. On that basis the residual collision risk, while high, is manageable and does not constitute a fatal flaw.

The cumulative assessment accordingly confirms both the need for and the desirability of the proposed development at the proposed location, subject to the mitigation measures proposed by the specialists being included in the EMPrs and effectively implemented.

9.7 Impact Assessment for the Decommissioning / Closure Phase

The proposed powerline is anticipated to stay operational for many decades before decommissioning. During the decommissioning phase, various impacts will occur, some of which will be similar to the current ones and need to be mitigated. The decommissioning phase must comply with all applicable legislation at the time.

9.8 The possible mitigation measures that could be applied and the level of residual risk.

The possible mitigation measures that must be applied are included in Sections 9.3-9.5 and the EMPr attached in Appendix F.

9.9 If no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such.

The proposed deviations do not constitute a new transmission line but form part of the authorised Pluto–Mahikeng 400 kV Powerline, for which the preferred route corridor, transmission technology and project specifications were assessed during the EIA process that culminated in the Environmental Authorisation issued in 2019. Consequently, the proposed deviations are required to reconnect with the authorised alignment at fixed tie-in points and remain compatible with the approved overhead 400 kV transmission line design. The deviations arose during detailed engineering design and servitude negotiations in response to technical constraints, environmental considerations and landowner concerns encountered along the authorised alignment. Accordingly, the opportunity to identify additional site, route, layout, activity, or technology alternatives is limited. The assessment therefore focuses on the proposed deviations and the no-go alternative.

9.10 A concluding statement indicating the preferred alternatives, including preferred location of the activity.

As indicated in Sections 6 and 9.9 above, the proposed deviations are required to reconnect with the authorised alignment at fixed tie-in points and remain compatible with the approved overhead 400 kV transmission line design. Accordingly, a single location alternative was assessed for each of the two deviations. The specialist assessments have identified a range of potential positive and negative impacts associated with the proposed deviations and concluded that the deviations may proceed, subject to the implementation of the recommended mitigation measures. The proposed deviation alignments are therefore identified as the preferred alternatives and preferred locations for the activity, subject to the implementation of all recommended mitigation measures and conditions contained in the EMPr.

10 SUMMARY OF THE FINDINGS AND IMPACT MANAGEMENT MEASURES IDENTIFIED IN ANY SPECIALIST REPORT

This section of the report details the information required as per Section 3(1)(k) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report

10.1 Screening Report

The identification and commissioning of the specialist studies were based on the preliminary site inspection undertaken by Vhubvo and the Proponent (NTCSA) to verify the environmental theme sensitivities as indicated in the Screening Reports generated for the proposed development. The site sensitivity verification was undertaken in accordance with the Gazetted General Requirement Assessment Protocols. Reference is made to the Site Sensitivity Verification Report attached in Appendix D-1.

10.2 Site Sensitivity Verification Requirements

The Specialist studies have been undertaken in accordance with the Gazetted Protocols published in 2020. Where no protocol exists for a specific theme, the assessment and reporting of impacts on that feature or proposed development area were conducted in accordance with Appendix 6 of the amended NEMA EIA Regulations, Government Notice R982 of 2014, as amended. The requirements per theme are as follows:

10.2.1 Agriculture Assessment

The Screening Tool Report generated for the powerline indicates that the overall sensitivity rating of the agricultural theme is high. According to Enviro-Solum (2026), the dominant soil forms within the study area comprise Mispah/Glenrosa, Katspruit (associated with the watercourse), and Lichtenburg soils. Most of these soils do not meet the key requirements for high agricultural suitability, including adequate soil depth (>60 cm) for root development, favourable soil structure for root penetration and water retention, sufficient extent of high-quality soils to support a viable agricultural unit, and optimal climatic conditions for a wide range of crops. Consequently, the study area is generally characterised by low agricultural potential.

The Agricultural protocol, Government Gazette 43110, Government Notice No. 320, indicates that a site identified as very high or high will require an Agricultural Agro-Ecosystem Specialist Assessment unless a site sensitivity verification disputes the rating and lowers it to medium or low; an Agriculture Compliance Statement must be submitted. Furthermore, a Compliance Statement can be compiled if the impact on agricultural resources is from an electricity pylon; or a site is found to be of a “medium” or “low” sensitivity

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, can be returned to the current land capability within two years of the completion of the construction phase. Based on the verified sensitivity, a Compliance Statement was compiled by a registered specialist. The Terms of Reference for the Compliance Statement are indicated in Table 1, Section 3, of the Protocols and also include the following:

- A review of available desktop information about the study area site and compile various maps illustrating the desktop data;
- Discussion of the relevant desktop literature;
- Conduct a soil classification survey covering the study area according to the South African Soil Classification System: A Natural and Anthropogenic System for South Africa (Soil Classification Working Group, 2018);
- Determination of the current (baseline) soil physical, climatic conditions, and land uses, as well as the current land capabilities and agricultural sensitivity associated with the identified soil forms present in the study area;
- Identification and assessment of the potential impacts of the different project phases on the baseline soil, land use, and land capability properties as a result of the proposed development.

The Table below summarises the verification and output assessment requirements.

INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/ PLAN OF STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Medium-High	Low	Agricultural Compliance Statement	Table 1: Sections 1.3 and 3 of the Agricultural Protocol, Government Notice No. 320 of 20 March 2020.

10.2.2 Landscape/ Visual Impact Assessment

The screening tool does not assign a sensitivity rating to the visual resources; however, the project area is considered to have medium landscape character sensitivity due to its extensive open grasslands, limited settlements, moderate visual quality, and low tourism value. A Visual Impact Assessment has been conducted as recommended and the Terms of Reference for the study are:

(i) A desktop study to determine the visual characteristics of the area surrounding the proposed development.

(ii) Represent the visual impacts spatially using maps.

(iii) Describe and evaluate the specific visual impacts of the proposed development, taking into consideration the following:

- Critical viewpoints



- Extent and spatial scale
- Intensity and Severity
- Magnitude and Significance

(iv) Recommend mitigation measures to reduce the potential visual impacts generated by the proposed development.

10.2.3 Archaeological and Cultural Impact Assessment

The site sensitivity verification conducted by the archaeologist supports the low archaeological sensitivity classification of the proposed powerline deviations, as no archaeological resources were identified within the deviation servitude. Nevertheless, in accordance with SAHRA's interim comments, an Archaeological and Cultural Heritage Assessment is required. The Terms of Reference of the Phase 1 Archaeological Impact Assessment per the Minimum Standards: Archaeological and Palaeontological Components of Impact Assessment Reports are:

- Identify archaeological and cultural heritage sites.
- Assess their significance.
- Comment on the impact of the development.
- Make recommendations for their mitigation or conservation.

The table below summarises the verification and output assessment requirements.

INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/ STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Low	Low	- Archaeological and Cultural Heritage Impact Assessment.	- Section 7.2. SAHRA Requirements. - SAHRA Interim Comments.

10.2.4 Palaeontological Impact Assessment

The STR assigned the palaeontological theme, a very high sensitivity due to the presence of geological formations considered to have very high palaeontological sensitivity. However, the site sensitivity verification undertaken by the specialist disputed this sensitivity rating and verified the site as having low palaeontological sensitivity, as the occurrence of cave fills containing Plio-Pleistocene fossils and intact stromatolite structures within the proposed deviations is considered unlikely. The Terms of Reference are:

- Consultation of geological maps, literature, palaeontological databases, published and unpublished records to determine the likelihood of fossils occurring in the affected areas.

- Undertake site visits to locate any fossils and assess their importance (not applicable to this assessment);
- Where appropriate, collection of unique or rare fossils with the necessary permits for storage and curation at an appropriate facility (not applicable to this assessment); and
- Determination of fossils' representativity or scientific importance to decide if the fossils can be destroyed or a representative sample collected (not applicable to this assessment).

The table below summarises the verification and output assessment requirements.

INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	OVERALL VERIFIED SENSITIVITY	OUTCOME STATEMENT/ STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Very High	Low	- Palaeontological Impact Assessment.	- Section 7.2. SAHRA Requirements. - Notification of Intent to Develop

10.2.5 Aquatic Biodiversity Assessment

The STR for the powerline corridor has assigned the aquatic sensitivity as Very High. Following site sensitivity verification, Deviation 1 was reduced to High due to the Mooi River being moderately modified, while Deviation 2 was verified as Low as no watercourses are present. Section 1.1.1 of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity, Government Notice No. 320 of 20 March 2020, indicates that where a "high sensitivity" is indicated, an Aquatic Biodiversity Specialist Assessment must be undertaken per Section 2 in Table 1. The table below summarises the verification.

INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/ PLAN OF STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Very High	Low-High	Aquatic Biodiversity Assessment	Section 2 of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity, Government Notice No. 320

10.2.6 Terrestrial Animals

10.2.6.1 Animal

The site surveys conducted to determine the presence or likely presence of the animals indicated in the STR indicated that there is a potential presence of vulnerable and endangered species and a suitable habitat within the study area, hence the medium sensitivity for deviation 1 was maintained. The low sensitivity indicated for deviation 2 was also maintained since it comprises a relatively small area with limited habitat diversity. The assessment of terrestrial animal species has been addressed in the Terrestrial Biodiversity Assessment Report. The table below summarises the verification.

INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/ PLAN OF STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Low-Medium	Low-Medium	Included in the Terrestrial Biodiversity Impact Assessment Report.	Table 1: Sections 1.2 and 4 of the amended Animal Species Protocol, Government Notice No. 1150 of 30 October 2020. Species Environmental Assessment guidelines, 2020.

10.2.6.2 Avifauna

The overall sensitivity rating for the powerline indicated in the STR is high due to the occurrence of SCC species. The site sensitivity verification undertaken by the specialist confirmed this sensitivity rating, verifying the presence of suitable habitat and the confirmed and potential occurrence of several SCC species within the proposed deviations. Since the protocol for avifauna is specifically for wind energy projects, the Avifauna Terms of Reference were guided by the Species Environmental Assessment guidelines and the Protocol for Terrestrial Animal Species. In summary, the Terms of Reference for the assessment entailed the following:

(i) Desktop assessment to identify the relevant ecologically important geographical features within the PAOI and the surrounding landscape;

(ii) Desktop assessment to compile an expected species list and possible avifauna Species of Conservation Concern (SCC) that potentially occur within the PAOI;

(iii) Field work to determine the density and composition of species in the PAOI;

(iv) Description of the baseline avifauna species and Functional Feeding Guild (FFG) composition assemblage within the PAOI;

(v) Delineate site sensitivity or sensitivities i.e., the Site Ecological Importance (SEI) within the context of the avifauna species assemblage of the PAOI;

(vi) Identify the manner in which the proposed development impacts the avifauna community and evaluate the level of risk of these potential impacts; and

(vii) Provide mitigation measures to prevent or reduce the possible impacts.

The table below summarises the verification.

INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/ PLAN OF STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Medium-High	Medium-High	Avifauna Specialist Assessment Report	Table 1: Sections 1.2 and 2 of the amended Animal Species Protocol, Government Notice No. 1150 of 30 October 2020. Species Environmental Assessment Guidelines, 2020.

10.2.7 Terrestrial Plant Species

Section 1.2 of the amended Plant Species Protocol (Government Notice No. 1150 of 30 October 2020) requires that an applicant proposing an activity on a site identified by the Environmental Screening Tool Report (STR) as having medium terrestrial plant species sensitivity must submit either a Terrestrial Plant Species Specialist Assessment Report or a Terrestrial Plant Species Compliance Statement, subject to the findings of a site inspection. For the proposed deviations, the STR assigned a low terrestrial plant species sensitivity, which was confirmed for deviation 2. However, the low sensitivity was disputed for deviation 1 since three provincially protected geophytes were recorded. These have been classified as declining and warrant careful consideration. The rating was therefore verified to be of medium sensitivity. The plant species have been addressed in the Terrestrial Biodiversity Assessment Report. The table below summarises the verification.



INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	OVERALL VERIFIED SENSITIVITY	OUTCOME STATEMENT/ PLAN OF STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Low	Low - Medium	Plant species addressed in the Terrestrial Biodiversity Report.	Section 4 of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Plant Species, Government Notice No. 1150 of 30 October 2020.

10.2.8 Terrestrial Biodiversity

The Terrestrial Biodiversity theme has been assigned a very high sensitivity for the deviations because it overlaps Critical Biodiversity Areas (CBA 1 and 2), Ecological Support Areas (ESA 1), National Protected Areas Expansion Strategy (NPAES), and Vulnerable ecosystem. Based on the ecological condition, conservation importance, and presence of sensitive biodiversity features, the Site Ecological Importance (SEI) ranges from High to Low across the study area. The medium to high ecological importance is associated with the CBA areas and the Mooi River watercourse and riparian corridor, while transformed and previously cultivated areas are of lower ecological importance. The assessment followed the requirements of the high sensitivity. The table below summarises the verification.

INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	OVERALL VERIFIED SENSITIVITY	OUTCOME STATEMENT/ PLAN OF STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Very High	Low-High	Terrestrial Biodiversity Impact Assessment Report.	Section 3 (2) of the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity, Government Notice No. 320 of 20 March 2020.

10.2.9 Civil Aviation

The Civil Aviation Site Sensitivity Verification (CASSV) concluded that the proposed transmission line deviations present a low civil aviation sensitivity and are unlikely to result in significant impacts on aviation operations or infrastructure. No aerodromes, obstacle limitation surfaces, or significant ground-based aviation infrastructure will be affected, and the only nearby aviation feature is the Magalies-Orient Glider advisory area, where the proposed infrastructure will not penetrate the applicable advisory airspace.



According to Section 1.1.2 (Table 1) of the Civil Aviation Installations, Government Notice No. 320 of March 2020, if site sensitivity verification differs from the designation of "very high", "high", or "medium" sensitivity on the screening tool and it is found to be of a "low" sensitivity, no further assessment requirements are identified. No further assessment has, therefore, been done. The summary is given in the table below.

INFRASTRUCTURE	SCREENING TOOL SENSITIVITY	VERIFIED SENSITIVITY	OUTCOME STATEMENT/ PLAN OF STUDY	RELEVANT SECTION MOTIVATING VERIFICATION AND TERMS OF REFERENCE
Powerline	Low	Low	No further assessment. SACAA is registered as a stakeholder; hence, all reports will be submitted for their comments.	Table 1 Section 1.1.1 of Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Civil Aviation Installations, Government Notice No. 320 of March 2020

10.2.10RFI and EMI Assessment

The Astronomy Geographic Advantage (AGA) Act of 2007 and its regulations protect areas suitable for astronomy studies by, among others, regulating radio and electrical interference. Radio frequency interference (RFI) from 400 kV transmission lines is generated by corona discharge, the same mechanism responsible for audible noise. Sensitive receptors identified within and adjacent to the corridor include scattered farm homesteads, Sentech HPTB facilities (the nearest of which is located more than 20 km from the deviations), and mobile and fixed telecommunications infrastructure (which operates in frequency bands not susceptible to 400 kV RFI). None of these receptor categories presents a sensitivity that cannot be adequately managed through the adopted design criterion. NTCSA has adopted a binding audible noise design criterion of 53.1 Db(A) L50 wet at the servitude edge for 400 kV transmission lines. Compliance with this criterion, to be demonstrated through corona performance calculations at the detailed design stage, constitutes the primary and sufficient control measure for RFI impacts. A standalone specialist RFI assessment is accordingly not required.

10.2.11Geotechnical

Though a Geotechnical Investigation has been recommended in the STR, no sensitivity rating has been applied to this theme. It has been noted that the STR recommends a geotechnical investigation where infrastructure is being constructed. The soil investigation (soil type nomination) is performed during

construction, where the prevailing soil or rock type classification is determined, and a suitable foundation system is selected. These investigations allow foundations to be designed more precisely for the type of soil or rock encountered rather than adopting a conservative design approach for foundations. Soil nominations will be performed by suitably qualified professionals appointed by the contractor to reduce the risk of foundation failure due to inappropriate selection. Foundations will be designed for soil classifications as defined by TRMSCAAC6.

10.2.12 Social Assessment

This study has not been indicated as a requirement in the STR, and no specific protocol has been formulated for this theme. The Social Impact Assessment (SIA) has been undertaken to determine the direct and indirect benefits and costs of how the proposed powerline deviation affects the communities and the local municipalities. The approach to the SIA is based on the Guidelines for Social Impact Assessment prepared by Balfour (2007) on behalf of DEA&DP. The key activities undertaken as part of the SIA process, as embodied in the guidelines, included:

- Consider the applicable policy and legal framework.
- Outline of the baseline socio-economic environment, placing emphasis on local communities that may be directly affected by the proposed project.
- Describe and assess potential impacts of the proposed project on the livelihoods, income, access to health care, and other social aspects relevant to project affected people. The assessment considers the United Nations Sustainable Development Goals (SDGs).
- Assess whether any project alternatives will have differing impacts on local communities and recommend a preferred alternative, if applicable.
- Consider comments and inputs submitted by interested and affected parties (I&APs) during the public participation process conducted by Vhubvo as part of the Basic Assessment, to identify key issues, concerns, potential impacts, and possible mitigation measures.
- Engage with other specialists whose studies may have a bearing on the updated SIA.
- Identify and assess mitigation measures to avoid or minimise potential negative impacts and optimise positive impacts.
- Following guidance as outlined in the Guideline on Need and Desirability, Department of Environmental Affairs; provide a reasoned opinion on the acceptability of the proposed development and its alternatives; whether it should be authorised; and under what conditions.

The report has been compiled as per Appendix 6 of the NEMA Environmental Impact Assessment (EIA) Regulations, Government Notice R (GNR) 982 of 2014, as amended, as no theme protocol exists for Social Impact Assessment.

10.3 Summary of Specialist Studies

Summaries of the commissioned studies are given in Tables 10.3.1 to 10.3.8, while the detailed reports are attached in Appendix D. The summaries are excerpts from the specialist assessment report.

10.3.1 Soil and Land Capability (Agriculture) Compliance Statement

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included
Methodology The assessment of the Study Area's agricultural potential was based on a combination of desktop studies to gather general information, site visits for status quo assessment, soil classification and characterisation, and validation of the information generated from the desktop studies. The methodology is briefly discussed below: i. **Desktop Study and Literature Review:** Before beginning the field assessment, a literature review and background study were conducted to gather the study area's predetermined soil, land use, and land capability data. The data was sourced from the Soil and Terrain (SOTER) database and the Natural Agricultural Atlas of South Africa Version 3. ii. **Site Survey and Sensitivity Verification:** A desktop assessment was followed by a field investigation to validate the predetermined soil results obtained at the desktop level. The field survey was conducted during the walkdown in March 2026. During that time, soil auger tests were conducted, and soils were classified into soil forms according to the Soil Classification System: A Natural and Anthropogenic System for South Africa Soil Classification System (2018). It must be noted that the season has no bearing on the soil's morphological properties over a short-term period. iii. **Land Capability Classification:** A land capability class is an interpretive grouping of land units with similar potential and containing limitations or hazards for long-term intensive use of land for rainfed farming determined by the interaction of climate, soil, and terrain. It is a more general term than land suitability and is more conservation-oriented	Refer to Sections 8, 9, 11 and 14 of this report and Section C of the EMPr attached as Appendix F.

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included
iv. **DFFE Screening Tool:** The Agricultural Agro-Ecosystem Assessment protocol provides the criteria for assessing and reporting impacts on agricultural resources for activities requiring Environmental Authorisation (EA). The assessment requirements of this protocol are associated with a level of environmental sensitivity determined by the national web-based environmental screening tool, which, for agricultural resources, is based on the most recent land capability evaluation values provided by the Department of Forestry, Fisheries, and the Environment (DFFE). The information in the report aims to enable the Competent Authority (CA) to draw sound conclusions and recommendations on the proposed project and its potential impacts with a specific focus on food security. Findings The following findings were identified or noted during the assessment: ▪ **Land Uses within the Study Area:** The study area was primarily grassland, with a mixture of woody plants. The land uses primarily include livestock farming and cultivation practices. Signs of soil degradation were observed within the study area. Figure 10-1 depicts the different land uses identified within the study area. ▪ **Soil Forms in the Study Area**: The photos below shows the identified soil forms in the study area. Figures 10-2 and 10-3 present the spatial distribution of the identified soil forms within each study area, while Table 10-1 presents a summary table that depicts the area of coverage for each identified soil form**.** Furthermore, the section below discusses the soil forms.	



Figure 10-1: Land uses associated with the study area.

i. **Mispah/Glenrosa:** These soils are typically shallow. The shallow depth can be attributed to limited rock weathering and convex topographical conditions at the crest or scarp of the landscape, resulting in soil removal and, in some instances, leaving rocky outcrops behind (see photos below). These types of soils are usually avoided for intensive use and are thus left for grazing, forestry, and wildlife land uses, unless intense management strategies are employed, such as breaking the lithic/saprolite layer. The Mispah/Glenrosa soil forms are classified under the Grazing (Class VI) land capability class as they are primarily suited for perennial vegetation and have limitations that prevents cultivation.

ii. **Katspruit:** These soils are characterised by long periods of saturation, leading to the formation of Gley properties in the subsoil. These conditions are often influenced by the slope conditions and the high clay content of the gleyed horizon. The gleyed horizon is characterised by a high clay content, which may impede root penetration and thus create anaerobic conditions not suitable for

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included
most cultivated crops. Consequently, these soils are classified as having low agricultural value and as Watercourse (Class V) land capability. iii. **Lichtenburg:** The Glencoe soil form is characterised by the presence of the uniformly coloured red oxides of iron (hematite) in the subsoil. It has a structure weaker than moderate in a moist state (as depicted in the photos). The presence of hematite in soils is usually associated with environmental conditions such as relatively high rainfall, high temperatures with high evaporation, and mid lying topographical conditions in the landscape. The occurrence of the hard plinthic horizon below the red apedal horizon at a somewhat shallower depth acts as a water table to facilitate the storage and build-up of water in the soil profile. This renders the Lichtenburg soil form ideal for crop cultivation, although it has some limitations due to well-drained conditions, good aeration, and a weakly apedal structure that favours root penetration. The Lichtenburg soil forms are classified under the Arable (Class III) land capability.	

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included



Shallow Mispah/Glenrosa soil form.



Katspruit soil forms.



Red apedal horizons associated with the Lichtenburg/Clovelly soil formation

Table 10-1: Soil forms in hectares (ha) occurring within the study area.

Soil Forms	Area (Ha)	Percentage (%)	Land Capability	Agricultural Potential	DAFF (2017) Classification
Western Portion of the Study Area					
Lichtenburg	13.39	3.1	Arable (Class III)	High	10. Moderate to High
Katspruit	1.35	0.3	Watercourse (Class V)	Low	3. Very Low to Low
Mispah/Glenrosa	410.91	96.5	Grazing (Class VI)	Moderately Low	6. Low to Moderate
Total Enclosed	425.65	100			
Eastern Section					
Mispah/Glenrosa	8.4	100	Grazing (Class VI)	Moderately Low	6. Low to Moderate
Total Enclosed	8.4	100			

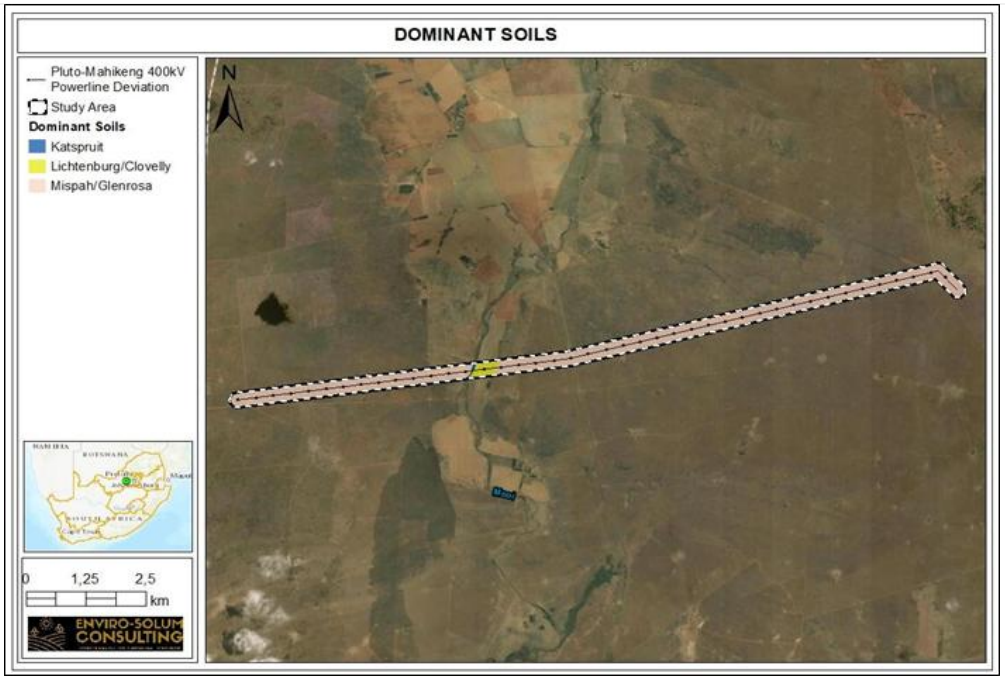


Figure 10-2: Dominant soils form within the western portion of the study area.

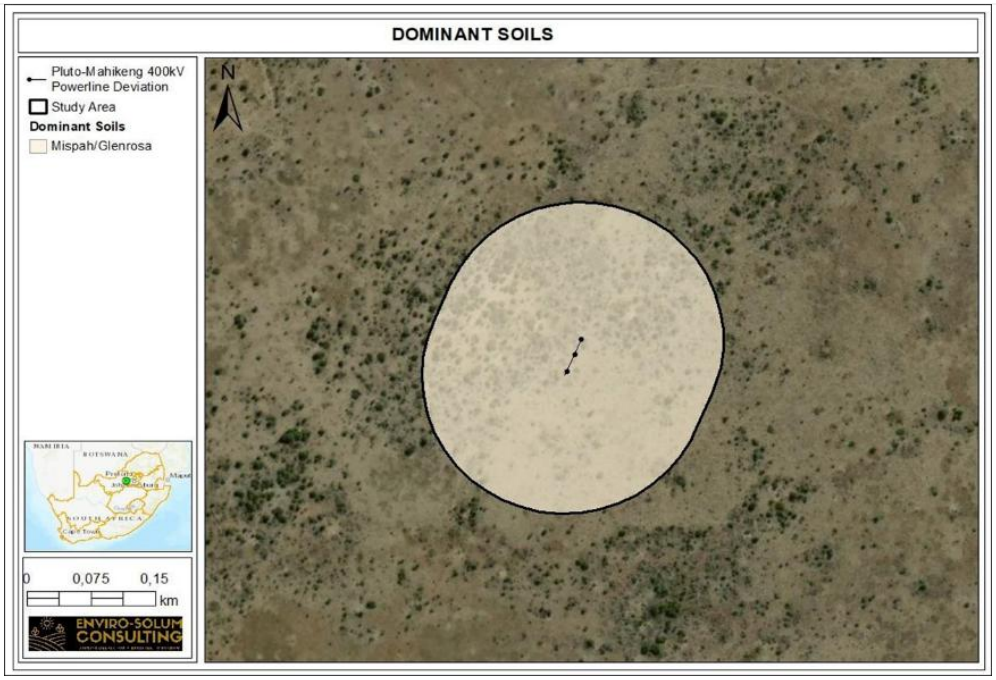


Figure 10-3: Dominant soils form within the western portion of the study area.

- **Land Capability and Agricultural Potential:** Land Capability is defined as the most intensive long-term use of land for rainfed farming, determined by the interaction of climate, soil, and terrain. The soil physical properties with which the agricultural potential for this assessment, agricultural sensitivity, were inferred were in consideration of observed limitations to land use due to physical soil properties and prevailing climatic conditions. Figures 10-4 and 10-5 depicts the land capability associated with the study area, while Figure 10-6 depicts the agricultural potential.

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included

a)



b)

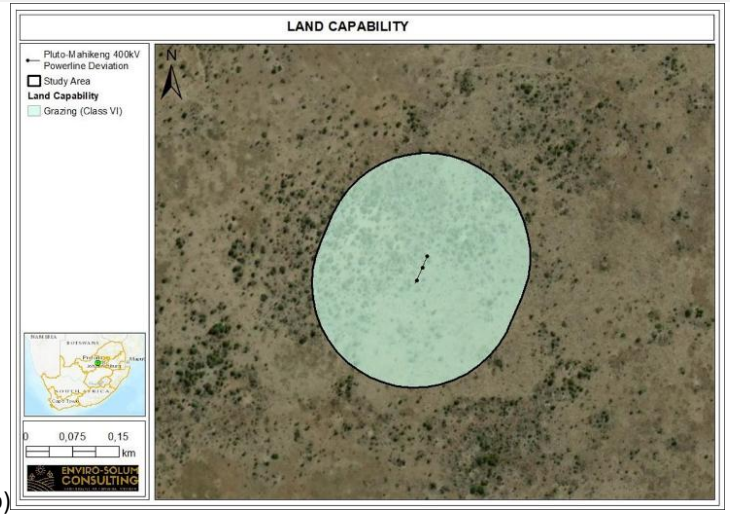
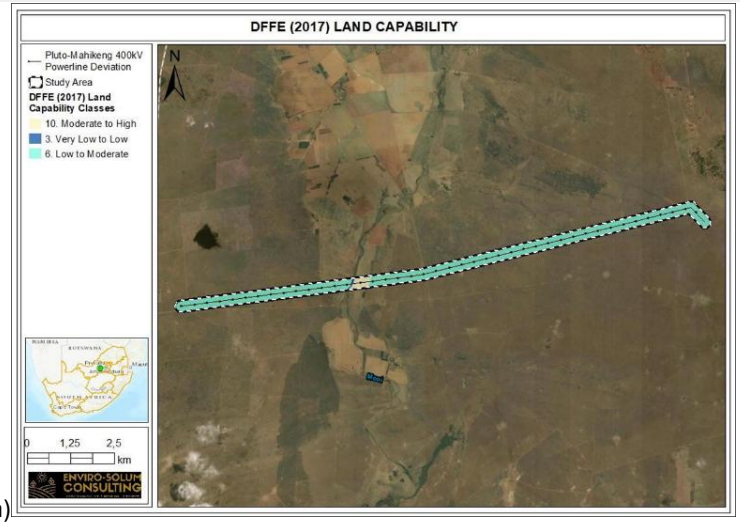


Figure 10-4: Map depicting the land capability of soils within the (a) western portion of the study area and (b) of the western section of the study area.

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included

a)



b)

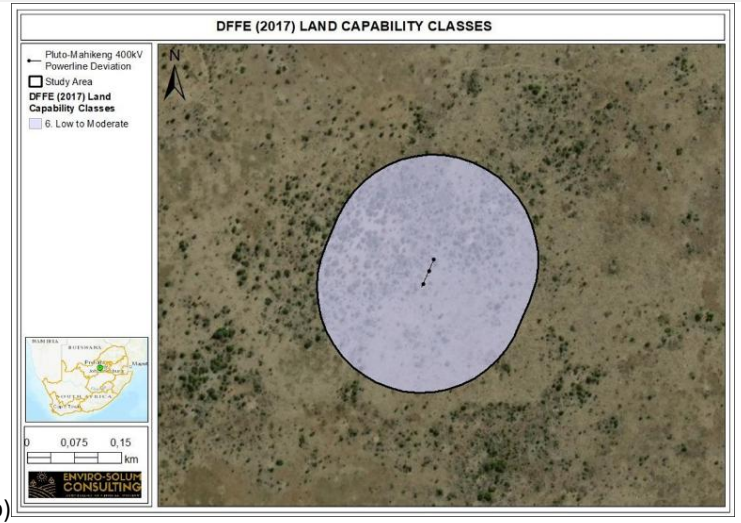
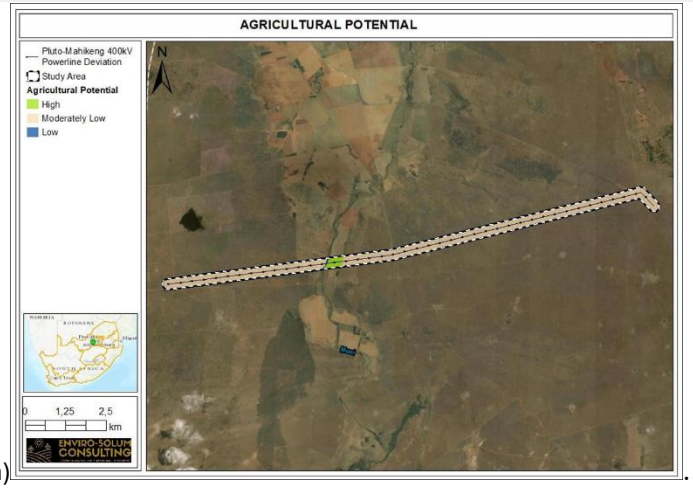


Figure 10-5: DFFE (2017) land capability classes associated with the a) western section, b) eastern portion of the study area.

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included

a) 

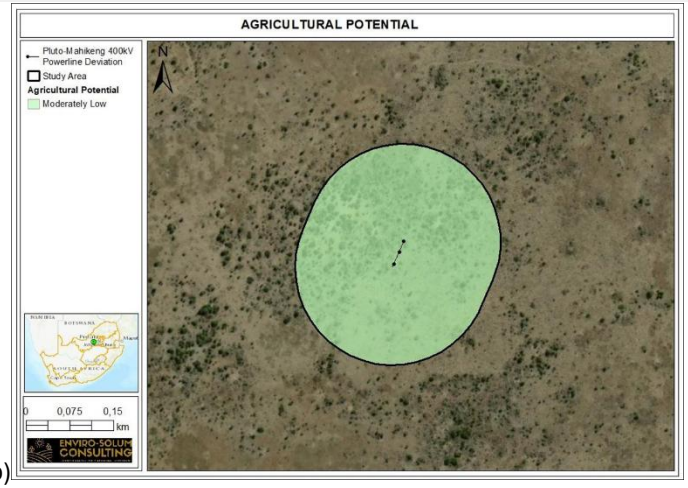
b) 

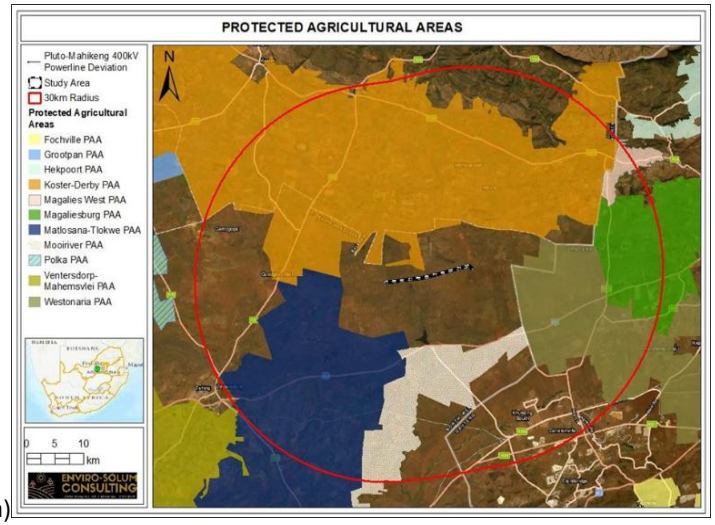
Figure 10-6: Agricultural potential for soils associated with the (a) western portion and (b) eastern section of the study area.

- **Protected Agricultural Areas:** The Protected Agricultural Areas (PAAs) have been mapped based on their agricultural potential within the North West Province (Department of Agriculture, Land Reform and Rural Development, 2022). These protected agricultural areas are classified into two categories: irrigated (IR) and rainfed (RF) production systems. According to the Department of Agriculture, Land Reform and Rural Development DALRRD (2022) database, the proposed project does NOT encroach on PAAs and thus will not impact the local, regional, and provincial agricultural production as well as the food security and safety due to the presence of cultivated areas within the project footprint.

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included

Figure 10-7 below presents these major classes to provide a high-level overview of available PAAs for planning purposes. This is in line with the Preservation and Development of Agricultural Land Act (PDALA), Act. No 39 of 2024, as well as the Conservation of Agricultural Resources Act (CARA) 1983 (Act No. 43 of 1983), which advocates for the protection of scarce agricultural resources of the Republic of South Africa.

a)



b)

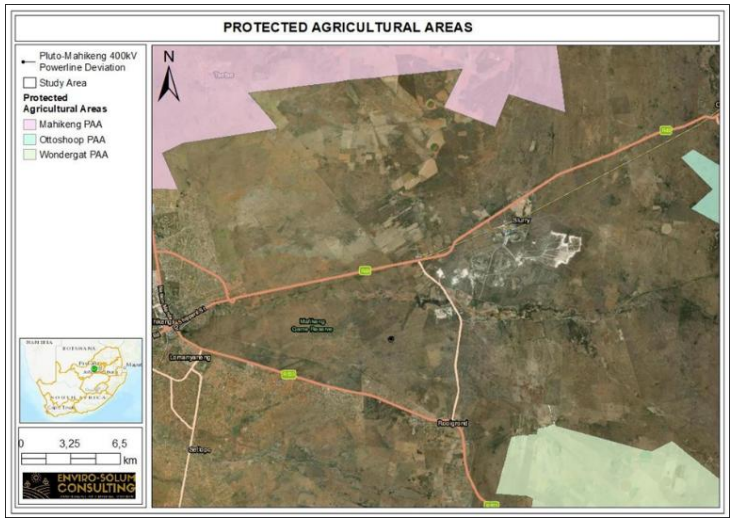


Figure 10-7: Protected Agricultural Areas associated with the (a) western portion and (b) eastern section of the study area.

Conclusion

The agricultural assessment found that approximately 96.5% of the assessment corridor comprises shallow soils with low agricultural potential that are more suitable for grazing, while only 3.1% consists of arable soils. The assessment concluded that the proposed overhead

Excerpt from the Soil and Land Capability Compliance Statement	Section of the report where the information is included
powerline is not expected to significantly affect agricultural production, as farming activities can continue beneath the line, with only minor, localised impacts associated with pylon placement and temporary construction-related soil disturbance. These impacts can be effectively mitigated through the implementation of the EMPr, resulting in a very low agricultural impact and low cumulative effects, with no anticipated net loss of future agricultural production. Consequently, from an agricultural perspective, the proposed powerline deviation is considered acceptable. The impact assessment is included in Section 9 with mitigation measures outlined in Sections 9 and 12, as well as the EMPr attached in Appendix F.	

10.3.2 Aquatic (Surface water) Biodiversity Assessment

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included
Methodology i. **Desktop Assessment:** A desktop assessment was undertaken for both deviation spans using the various data sources such as the DFFE National Web-Based Environmental Screening Tool, 1:50,000 topographical mapping and digital elevation model (DEM) data, National geology, soils (SOTERSAF), vegetation (SANBI), biome and bioregion datasets, National Freshwater Ecosystem Priority Areas (NFEPA) database, Critical Biodiversity Area (CBA) and Ecological Support Area (ESA) mapping, and the National Protected Area Expansion Strategy (NPAES); and High-resolution satellite imagery. ii. **Field Verification and UAV (Drone) Survey:** Site access for both deviation spans was assessed prior to the walkdown. Where direct ground access was constrained by terrain, land use, or landowner access arrangements, a UAV (drone) aerial survey was used as the primary field verification method, supplemented by ground-based observation at accessible points. iii. **Aquatic Feature Delineation:** Watercourses and wetlands within and adjacent to each deviation footprint were delineated with reference to the definition of a watercourse under Section 1 of the National Water Act, and the wetland indicators set out in the DWS Guideline for the Delineation of Wetlands and Riparian Areas. Delineation relied on a combination of terrain (DEM-derived drainage and sub-basin) analysis; soil form and wetness indicators, where field-verifiable; vegetation indicators observed during the UAV survey; and desktop hydrological (NFEPA, river line) datasets. iv. **Assessment of Significance:** Potential impacts were assessed in terms of nature, extent, duration, intensity, and probability, from which an overall significance rating was derived using Tshilimo Consulting Services' standard impact assessment methodology, consistent with the requirements of the 2014 EIA Regulations (as amended).	Refer to Sections 8, 9, 11 and 14 of this report and Section C of the EMPr attached as Appendix F.

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included

v. **DWS Risk Assessment Matrix:** The risk associated with the proposed Section 21(c) and 21(i) water uses at each deviation span was assessed using the applicable DWS Risk Assessment Matrix (RAM) methodology in accordance with the current General Authorisation requirements under the National Water Act.

Findings

Deviation 1 (Towers 491-521)

- The walkdown confirmed that the majority of the Towers 491-521 deviation traverses dryland with no aquatic features present. Where aquatic features do occur, they comprise a seasonal wetland and a major perennial river crossing, summarised below together with the method by which each was confirmed.

Table 10-2: Confirmed aquatic features - Towers 491-521.

Tower No.	Watercourse / Wetland	100 m	500 m	Verification Method
493	Seasonal wetland	Yes	Yes	Desktop delineation only – no field access (NWM6 / NFEPA / aerial imagery)
500-501	Mooi River (major perennial crossing)	Yes	Yes	Field-verified; drone (UAV) photography

- The photographs (Figures 10-8 and 10-9) confirm a sinuous, channelled perennial river set within a broad valley-bottom wetland of reeds and seasonally saturated grassland, bordered by cultivated lands, consistent with a sensitive aquatic system. The seasonal wetland at Tower 493 was delineated using desktop methods (NWM6, NFEPA, and high-resolution

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included
aerial imagery) due to access restrictions, however the desktop delineation is considered adequate for screening and impact-assessment purposes.  Figure 10-8: UAV aerial view of the Mooi River crossing (Towers 500-501), showing the perennial channel within its valley-bottom wetland, bordered by cultivated land.	



Figure 10-9: Closer UAV view of the Mooi River, showing the defined channel, riparian fringe vegetation, and the adjacent cultivated field boundary.

- The revised tower alignment avoids the mapped wetland buffer area associated with Tower 493, and no direct impact on the identified wetland feature is anticipated. Furthermore, there are no additional natural watercourses or wetlands were identified at the remaining tower positions within the Towers 491-521 deviation.
- Tables 10-3 and 10-4 indicate the classification of the aquatic features identified within Deviation 1 servitude.

Table 10-3: Classification of identified aquatic features.

Feature	HGM Unit	Hydrological Regime	Sensitivity Class
Seasonal wetland (Tower 493)	Depression / seasonal wetland	Seasonal to semi-permanent	Moderate

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included

Mooi River (Towers 500–501)	Channelled watercourse (river)	Perennial	Very High

Table 10-4: PES, EIS, HIA and REC assessment results.

Feature	PES	EIS	HIA	REC	Justification
Seasonal wetland (Tower 493)	C	Moderate	Moderate	C	Typical seasonal wetland system retaining moderate ecological function.
Mooi River (Towers 500–501)	C	High	High	B/C	Perennial river with strong ecological and hydrological function; moderate modification.

- Representative grassland cover away from the two confirmed aquatic features, illustrating the dryland character of the remainder of the Towers 491-521 span as well as dolomitic outcrop with associated rock cover and thicket vegetation were also confirmed along the corridor away from the aquatic features. These are consistent with the mapped Malmani dolomite geology typical of the area (Figures 10-10 to 10-12) .

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included



Figure 10-10: Representative open Carletonville Dolomite Grassland away from the confirmed aquatic features, Towers 491-521 span.



Figure 10-11: Further representative grassland cover with farmstead visible in the distance, Towers 491-521 span.



Figure 10-12: Dolomitic rock outcrop with thicket clumps along the Towers 491-521 corridor.

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included
Deviation 2 ▪ **Towers 110-111:** Desktop screening of the Towers 110-111 footprint returned a Very High aquatic biodiversity sensitivity rating (ESA1) and Very High terrestrial biodiversity rating (CBA1, CBA2, NPAES). However, no watercourse or wetland feature was identified within or adjacent to the Towers 110-111 deviation footprint during the field (walkdown) and UAV verification survey. The UAV survey confirmed sparse, open Klerksdorp Thornveld dominated by scattered low thorn shrubs over short grass cover on Kalahari sand substrate, with no standing or flowing surface water, and no hydrophilic vegetation, hydromorphic soil indicators, or defined channel observed within the surveyed area (Figures 10-13 to 10-15).  Figure 10-13: UAV aerial view of representative Klerksdorp Thornveld cover, Towers 110-111 deviation area, showing scattered thorn shrub clusters over short grassland with no aquatic feature indicators.  Figure 10-14: Close-range UAV view of Kalahari sand substrate with sparse shrub cover, confirming the CLp soil mapping unit and the absence of wetness or hydromorphic indicators.	



Figure 10-15: UAV view showing thornveld cover adjacent to a road servitude near the Towers 110-111 corridor.

- On the basis of the desktop and field findings, the Towers 110-111 deviation is confirmed as a dryland footprint with no watercourse or wetland feature requiring delineation. The Very High aquatic and terrestrial biodiversity sensitivity ratings returned by the national screening tool for this footprint reflect regional CBA/ESA/NPAES mapping rather than a confirmed, site-specific aquatic feature, and are addressed from a terrestrial biodiversity and vegetation perspective rather than as a watercourse-proximity risk in the sections that follow.

DWS Risk Assessment Matrix (RAM)

The DWS Risk Assessment Matrix (RAM) was applied to assess the potential risks associated with Section 21(c) and 21(i) water uses for the identified deviation sections. The assessment considered the revised tower locations provided following the freshwater walkdown assessment and alignment optimisation process. The revised tower positions were adjusted to avoid direct

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included

encroachment into identified aquatic features and associated buffer areas. As a result, the likelihood and consequence of direct impacts on aquatic resources have been significantly reduced.

- **Towers 491-521:** The Towers 491-521 deviation includes the broader vicinity of the Mooi River crossing and a mapped seasonal wetland near Tower 493. However, the revised tower positions avoid direct disturbance within the delineated aquatic features and associated buffer areas. Potential impacts are therefore considered indirect and limited primarily to temporary construction-related disturbance adjacent to regulated areas. The revised alignment significantly reduces the potential for direct impacts on aquatic systems. No tower foundations are located within confirmed river channels, wetland areas, or delineated riparian habitat. Provided that standard construction environmental controls are implemented, including erosion control, spill prevention, demarcation of no-go areas, and rehabilitation of disturbed surfaces, the anticipated residual aquatic risk remains Low. Refer to Table 10-5 for the RAM.

Table 10-5: DWS RAM assessment - Towers 491-521

Water Use Activity	Aquatic Feature	Likelihood	Consequence	Risk Rating	Risk Class
Construction activities adjacent to the Mooi River crossing (Towers 500-501)	Mooi River (perennial river)	Low	Low	Low	Low Risk
Construction activities adjacent to mapped wetland buffer areas (Tower 493)	Seasonal wetland	Low	Low	Low	Low Risk

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included

General tower construction within dryland areas outside aquatic buffers	No confirmed aquatic feature	Very Low	Very Low	Low	Low Risk

- **Towers 110-111:** The Towers 110-111 deviation was confirmed during the field walkdown and UAV verification to represent a dryland footprint with no wetlands, drainage lines, riparian habitat, or watercourses identified within or adjacent to the deviation footprint. No Section 21(c) or 21(i) water uses are therefore anticipated for this deviation section. Based on the findings of the freshwater walkdown assessment and revised tower placement, the Towers 110-111 deviation is not anticipated to result in impacts on freshwater resources. Overall, both deviation sections are considered acceptable from a freshwater risk perspective, provided that standard environmental management measures and construction controls are implemented throughout the construction phase. Refer to Table 10-6 below for the RAM for Deviation 2.

Table 10-6: DWS RAM assessment – Towers 110-111.

Water Use Activity	Aquatic Feature	Likelihood	Consequence	Risk Rating	Risk Class
Tower construction and associated activities	No aquatic feature present	Very Low	Very Low	Very Low	Negligible to Low Risk

Buffer Zone And No-Go Areas

The freshwater walkdown assessment identified sensitive aquatic features associated with the Towers 491-521 deviation, namely the Mooi River crossing and a mapped seasonal wetland near Tower 493. Following the walkdown findings and environmental

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included
recommendations, the tower positions were revised to avoid direct encroachment into delineated aquatic features and associated buffer areas. **Towers 491-521 - Mooi River (Towers 500-501):** The Mooi River crossing represents the highest aquatic sensitivity within the deviation corridor due to the presence of a perennial river channel and associated riparian habitat. The revised tower positions have been adjusted outside the delineated aquatic buffer area associated with the Mooi River crossing. No tower foundations are proposed within the river channel, riparian zone, or wetland area. The following no-go requirements shall apply during construction: ▪ No construction activities shall occur within the delineated aquatic feature; ▪ No stockpiling, batching, refuelling, or servicing of equipment shall occur within or adjacent to the aquatic buffer area; ▪ Construction access shall be restricted to approved routes only; ▪ Temporary disturbance outside the demarcated work areas shall be prohibited. ▪ The aquatic buffer area shall be clearly demarcated onsite prior to commencement of construction activities. **Seasonal Wetland (Tower 493):** A mapped seasonal wetland feature occurs within the broader vicinity of Tower 493. The revised tower alignment avoids direct disturbance within the wetland and associated buffer area. No tower infrastructure or permanent construction footprint is proposed within the wetland area. The following controls shall apply: ➢ The wetland buffer area shall be treated as a no-go area during construction; ➢ Construction personnel and vehicles shall remain within approved construction areas and access routes; ➢ No excavation, vegetation clearing, or dumping shall occur within the wetland buffer area. Given the revised tower positioning outside the regulated area, direct impacts on the wetland are not anticipated. **Towers 110-111:** The Towers 110-111 deviation was confirmed during the field walkdown and UAV verification to contain no wetlands, riparian habitat, drainage lines, or watercourses. No aquatic buffer zones or freshwater no-go areas are therefore required	

Excerpts from the Aquatic (Surface water) Biodiversity Assessment	Section of the report where the information is included
for this deviation section. Standard construction environmental controls shall nevertheless be implemented to minimise unnecessary vegetation disturbance and soil erosion within the dryland environment. Conclusion Based on the revised tower positions, the proposed deviations are not anticipated to result in direct impacts on freshwater features. Potential impacts are expected to be limited to temporary and localised construction-related disturbance adjacent to regulated areas. The DWS Risk Assessment Matrix indicates that the anticipated freshwater risks associated with both deviation sections are Low, provided that standard environmental management measures and construction controls are implemented during construction activities. From a freshwater and aquatic ecological perspective, the revised deviation alignments are therefore considered environmentally acceptable. **The impact assessment and mitigation measures are outlined in Sections 9 and 12, as well as the EMPr attached in Appendix F.**	

10.3.3 Archaeological Impact Assessment

Excerpt from the Archaeological Impact Assessment	Section of the report where the information is included
Methodology The study method refers to the SAHRA Policy Guidelines for impact assessment, 2012. As part of this impact assessment, the following processes were followed: ▪ **Literature Review:** The desktop study was undertaken through SAHRIS for previous Cultural Heritage Impact Assessments conducted in the region of the proposed development, and for research that has been carried out in the area over the past years, as well as historical aerial maps located in the Deeds Office. These literatures were used to screen the proposed area and to understand the baseline of heritage sensitivities. ▪ **Physical survey:** The field survey was undertaken on the 19th of March 2026. An archaeologist from Afro Conserva Integration conducted the survey. ▪ **Documentation:** The general project area was documented. This documentation included taking photographs using cameras, a 10.1 mega-pixel Sony Cybershort Digital Camera. Plotting of finds was done by a Garmin etrex Venture HC. Findings i. **Early Stone Age (ESA):** The North West Province contains evidence of Early Stone Age occupation dating from approximately 1.7 million to 300,000 years ago. This period is represented by early hominin stone tool industries, including handaxes and cleavers, with the internationally significant Taung Child fossil providing evidence of early human evolution in the region. ii. **Middle Stone Age (MSA):** The Middle Stone Age (approximately 200,000–40,000 years ago) is characterised by technological advances in stone tool production associated with the emergence of modern humans (Homo sapiens).	Refer to Sections 8, 9, 11 and 14 of this report and Section C of the EMPr attached as Appendix F.

Excerpt from the Archaeological Impact Assessment	Section of the report where the information is included
Although MSA communities occupied the broader region, no confirmed Middle Stone Age deposits have been recorded within the immediate study area. iii. **Later Stone Age (LSA):** The Later Stone Age (approximately 40,000–2,000 years ago) is associated with Khoi-San hunter-gatherer communities and is represented by microlithic stone tools, rock art, and engravings within the province, demonstrating long-term occupation and cultural use of the landscape. iv. **Iron Age:** Iron Age communities introduced agriculture, livestock husbandry, pottery production, and ironworking to the region, establishing permanent settlements along rivers and fertile landscapes. The archaeological record includes later Tswana stone-walled settlements, reflecting complex social organisation and long-term settlement patterns. **Archaeological Context** ▪ The proposed Pluto–Mahikeng 400 kV Powerline Deviation is located within a landscape that has been occupied from the Early Stone Age through the Historical Period. The archaeological record demonstrates the potential for heritage resources associated with multiple periods of human occupation, highlighting the need for appropriate heritage management during the planning and implementation of the proposed development. ▪ However, the Phase I Heritage Impact Assessment conducted for the proposed approximately 14 km deviation of the 400 kV Pluto–Mahikeng Powerline, including towers 491–521 and towers 110–111, did not identify any archaeological or cultural heritage resources within the footprint of the surveyed deviated alignment. Consequently, no significant heritage constraints were identified within the proposed development area, and the development is unlikely to result in adverse impacts on heritage resources.	

Excerpt from the Archaeological Impact Assessment	Section of the report where the information is included
Conclusion and Recommendations ▪ Based on the findings of this assessment, no archaeological or cultural heritage resources of significance were identified within the footprint of the surveyed deviated alignment. ▪ The study area is considered to have low heritage sensitivity. There are therefore no significant heritage-related constraints that would prevent the proposed deviated alignment from proceeding. It is recommended that the development be allowed to proceed, subject to compliance with the recommendations outlined in the report. The following conditions of authorisation as must be strictly adhered to: ○ Implementation of Chance Find Procedure during construction. The mitigation measures are indicated in Sections 9 and 12, and the EMPr attached in Appendix F.	

10.3.4 Avifauna Impact Assessment

Excerpt from Avifauna Impact Assessment Report	Section of the report where the information is included
Methodology The methodology comprised of the following: a desktop review of available avifaunal databases, including South African Bird Atlas Project 2 (SABAP2) records and other relevant datasets, combined with GIS and Google Earth analyses to identify sensitive habitats. These findings were verified through field surveys conducted on 17 March, 26 March and 2 April 2026, supplemented by previous surveys undertaken between September 2017 and March 2018. Incidental bird observations were recorded to confirm species occurrence and ground-truth desktop	Refer to Sections 8, 9, 11 and 14 of this report and Section C of the EMPr attached as Appendix F.

Excerpt from Avifauna Impact Assessment Report	Section of the report where the information is included
findings. Potential construction and operational impacts were then assessed using a quantitative impact assessment methodology, and appropriate mitigation and management measures were developed for inclusion in the Environmental Management Programme (EMPr). Findings The desktop assessment findings are provided in Section 8 of this Basic Assessment Report. This section summarises the field survey observations, including the verification of sensitive habitats and avifaunal species recorded during the site assessment. South African Bird Atlas Project 2 Data ▪ A combined total of 238 bird species were recorded within the relevant Deviation 1 and Deviation 2 pentads during the SABAP2 atlassing period to date. ▪ Of the 238 recorded species, 65 species are identified as powerline-sensitive, largely comprising large terrestrial birds, raptors, and wetland-associated species, all of which are known to be vulnerable to collisions with overhead powerline cables and earthwires. ▪ Eleven are classified as SCC (Lee et al., 2025), with a further ten listed as Near Threatened. Each powerline sensitive species' potential for occurring in a specific habitat class, in addition to the type of impact that could potentially affect each species, specific to the location of this project. (Species are recorded in Table 5 in the Avifauna Impact Assessment Report attached in Appendix D-3). Survey Observations ▪ A site-specific walk down of the authorised Pluto-Mahikeng 400 kV Powerline including the proposed deviations was conducted over a nine-day period from 16-26 March 2026.	

Excerpt from Avifauna Impact Assessment Report	Section of the report where the information is included
▪ The site visit yielded a total of 63 bird species, including a two SCC, namely Cape Vulture and White-backed Vulture and two Near Threatened species i.e. Black-winged Kite Elanus caeruleus and Yellow-billed Duck Anas undulata. ▪ The avifaunal community was dominated by common passerines and larger terrestrial species typically associated with the broader assessment area. Notable observations included Amur Falcon Falco amurensis, a Palearctic migrant occurring in southern Africa during the non-breeding season. These records reflect the seasonal and opportunistic use of the landscape by both resident and migratory raptors. Refer to Appendix 1 of the Avifauna Impact Assessment Report attached in Appendix D-3. Avifaunal Habitats ▪ Though much of the distribution and abundance of bird species can be attributed to the broad vegetation types present in an area, it is the smaller micro habitats that are determined by factors other than vegetation, such as topography, land use, food availability, and various anthropogenic factors all of which will either attract or deter birds. ▪ Micro habitats are critically important in mapping the site in terms of avifaunal sensitivity and ultimately informing mitigation requirements. ▪ Assessment of the Mahikeng–Pluto 400 kV Powerline route deviations revealed five broadly described avifaunal micro habitats i.e. rivers, bushveld, grassland, agriculture and high voltage powerlines. These habitat types are consistent with those identified in the initial 2018 avifaunal assessment are discussed below. (i) **River and riparian habitat:** Deviation 1 crosses the Mooi River (Figure 10-16), which provides an important movement, foraging and breeding corridor for water-dependent and riparian bird species. The well-developed riparian vegetation supports a diverse avifaunal community, including species such as the Saddle-billed Stork, Yellow-billed Stork, Hamerkop, Great Egret and Yellow-billed Duck, while also functioning as an important ecological corridor within the landscape.	



Figure 10-16: Mooi river

Bushveld habitat: Deviation 2 is situated within the Stella Bushveld vegetation type, comprising open savanna with scattered trees and shrubs. This habitat provides suitable foraging, nesting, and roosting opportunities for a range of bushveld and grassland-associated bird species, including raptors that utilise the scattered trees as perching sites. Despite historical disturbance, the habitat remains ecologically functional and contributes to habitat connectivity within the region.



Figure 10-17: Bushveld vegetation (Deviation 2)

Grassland habitat: Deviation 1 is located within the Carletonville Dolomite Grassland vegetation type, which supports a high diversity of grassland-dependent bird species. Suitable habitat is present for several SCC, including the Melodious Lark, White-bellied Korhaan, Secretarybird, Lesser Kestrel, African Marsh Harrier, and Marsh Owl. These species are particularly susceptible to habitat transformation, disturbance, and collisions with powerline infrastructure.



Figure 10-18: Typical grassland habitat (Deviation 1)

Cultivated land: Cultivated areas (Figure 10-19) are largely confined to the vicinity of the Mooi River and provide supplementary foraging habitat for several bird species. These areas are likely to be utilised by the Lesser Kestrel and a range of common opportunistic species that forage within cultivated and fallow fields.

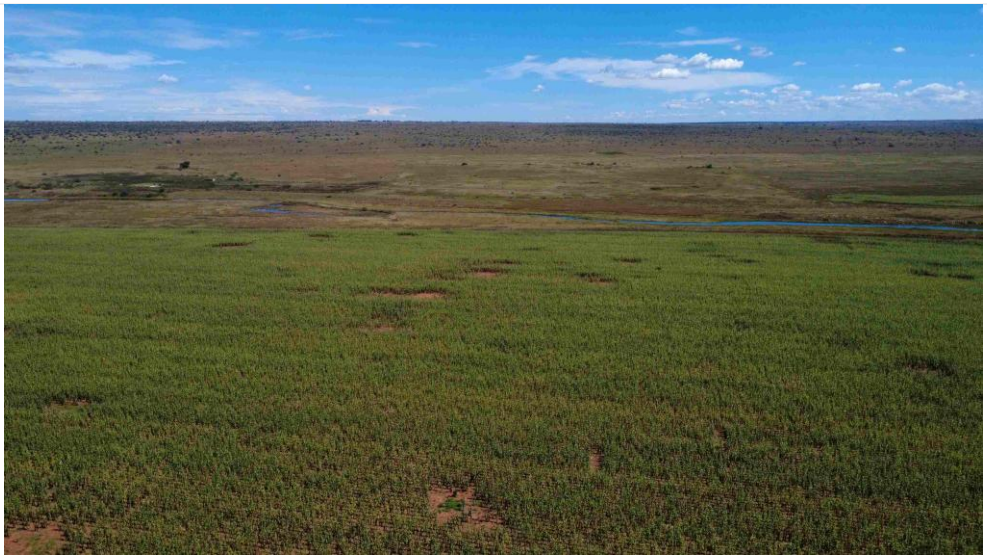


Figure 10-19: Cultivated lands adjacent to the Mooi River (Deviation 1)

Existing powerline infrastructure: Existing high-voltage powerlines provide roosting and perching opportunities for large soaring birds, particularly vultures, but also increase the risk of bird collisions and electrocutions for powerline-sensitive species.

Overall, the specialist confirmed that the combination of rivers, grasslands, bushveld, and existing powerline infrastructure supports suitable habitat for several SCC and other collision-prone bird species. The presence of the Mooi River, intact grassland habitat and nearby vulture roosts justifies the assigned High and Medium avifaunal sensitivities within the assessment area, with collision with overhead conductors identified as the primary operational impact and temporary habitat disturbance the main construction-phase impact. With the implementation of the recommended mitigation measures, the residual impacts on avifauna are expected to be reduced to acceptable levels.

Excerpt from Avifauna Impact Assessment Report	Section of the report where the information is included
Sensitivity Determination ▪ Based on the range of habitats present within the assessment area, including rivers, bushveld and grasslands as well as the proximity of regionally important avifaunal areas i.e. vulture roosts, the DFFE screening sensitivity of HIGH and MEDIUM is considered appropriate and defensible. Areas of HIGH sensitivity are supported by the confirmed and likely presence of SCC, particularly large-bodied and powerline-vulnerable species such as Cape Vulture and White-backed Vulture as well as the likely presence of Lappet-faced Vulture, Secretarybird, White-bellied Korhaan and various water-dependent species, in combination with habitat features that facilitate their use of the landscape (e.g. Mooi River, open grassland and vulture roost sites). ▪ In contrast, areas classified as MEDIUM sensitivity are primarily informed by the availability of suitable habitat for SCC based on historical records, rather than confirmed recent occurrences. The assessment area retains ecological characteristics that may support SCC intermittently or opportunistically, even if such species were not recorded during recent surveys. Collectively, this reflects a landscape that supports both confirmed and potential SCC presence, thereby justifying the assigned HIGH and MEDIUM sensitivity ratings within the development area. Identification of Impacts Poorly sited or designed infrastructure may adversely affect sensitive bird species, habitats and ecological processes. Habitat loss and disturbance during construction, and bird collisions with overhead conductors during operation, are the primary impacts on Species of Conservation Concern (SCC) and other powerline-sensitive species. Additionally, avifauna also impact the quality of the electrical supply. The impact assessment is indicated in Section 9 of this Basic Assessment Report.	

Excerpt from Avifauna Impact Assessment Report	Section of the report where the information is included
Conclusion ▪ The assessment has concluded that the avifaunal habitat within which the proposed route deviation is situated is considered to range from high to medium sensitivity, reflecting the presence of diverse habitat types and the confirmed and potential occurrence of SCC, including several collision-prone and disturbance-sensitive taxa. ▪ The construction of the authorised Pluto-Mahikeng 400 kV Powerline within the proposed route deviation is expected to result in localised impacts of high to medium significance on avifauna occurring in the vicinity of the infrastructure. These impacts are primarily associated with an increased risk of collision in open landscapes in addition to displacement impacts associated with disturbance and, to a lesser extent, habitat transformation during construction. These impacts can be effectively reduced through the implementation of appropriate mitigation measures, including targeted collision mitigation and construction-phase management controls. ▪ It is anticipated that the Pluto-Mahikeng 400 kV Powerline can be constructed and operated, within the proposed route deviation, with acceptable levels of residual impact on the resident and mobile avifauna, provided that recommended mitigation measures are implemented. The mitigation measures are indicated in Sections 9 and 12, and the EMPr attached in Appendix F.	

10.3.5 Civil Aviation Site Sensitivity Verification

Excerpts from the Civil Aviation Site Sensitivity Verification (CASSV) Report	Section of the report where the information is included
Methodology	Refer to Sections 11 and 14 of this report and

Excerpts from the Civil Aviation Site Sensitivity Verification (CASSV) Report	Section of the report where the information is included
▪ The assessment was undertaken in accordance with the DFFE Protocol, with reference to applicable SACAA guidelines, including the Technical Guidance Material for Conducting Aeronautical Studies or Risk Assessments (2022) and the 2025 amendments to the Civil Aviation Regulations. ▪ Relevant International Civil Aviation Organization (ICAO) Standards and Recommended Practices (SARPs), as well as applicable US Federal Aviation Administration (FAA) guidance, were considered. ▪ The assessment comprised the following key stages: o Project initiation and identification of potential aviation-related risks. o Technical analysis of the proposed deviations. o Compliance assessment against applicable aviation legislation and standards. o Risk assessment, including risk estimation, evaluation, and identification of mitigation measures where required. o Development of monitoring and management measures, where applicable. ▪ A high-level obstacle assessment was undertaken to evaluate potential impacts on Obstacle Limitation Surfaces (OLSs) associated with nearby aerodromes. ▪ An airspace analysis was conducted using SACAA, Aeronautical Information Publication (AIP), and Air Traffic and Navigation Services (ATNS) data to assess potential impacts on aircraft operations in both controlled and uncontrolled airspace. ▪ A radar, navigation, and radio frequency interference assessment was undertaken to determine whether the proposed transmission line deviations could affect aviation radar, navigational aids, or other civil aviation infrastructure.	Section C of the EMPr attached as Appendix F.

Excerpts from the Civil Aviation Site Sensitivity Verification (CASSV) Report	Section of the report where the information is included
Findings ▪ The main project comprises a 400 kV transmission line of approximately 254km from a proposed new substation near Mahikeng, via the Watershed substation, to the Pluto substation, near Roodepoort. ▪ The proposed 14km deviation ends 23.75km west of Watershed substation in the North-West Province, as it passes through rural farming areas, more than 15km from any aerodromes or other aviation infrastructure (Figure 10-20). ▪ The 45m deviation is approximately 46.8km from the proposed Mahikeng substation where the line is very close to the edge of the approved corridor and has thus been slightly re-aligned (Figure 10-21).	

Excerpts from the Civil Aviation Site Sensitivity Verification (CASSV) Report	Section of the report where the information is included

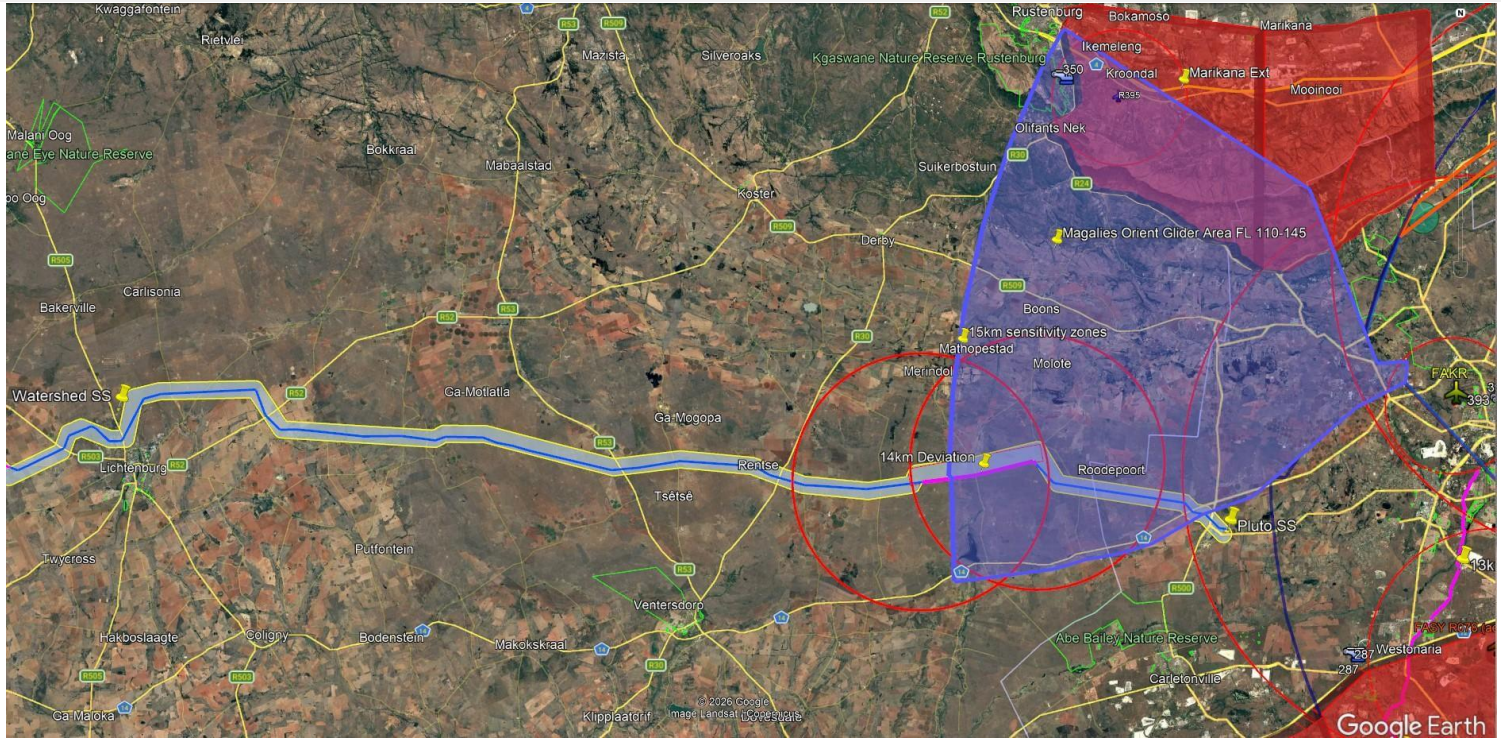


Figure 10-20: Transmission Line Route from Watershed to Pluto SS showing 14km Deviation

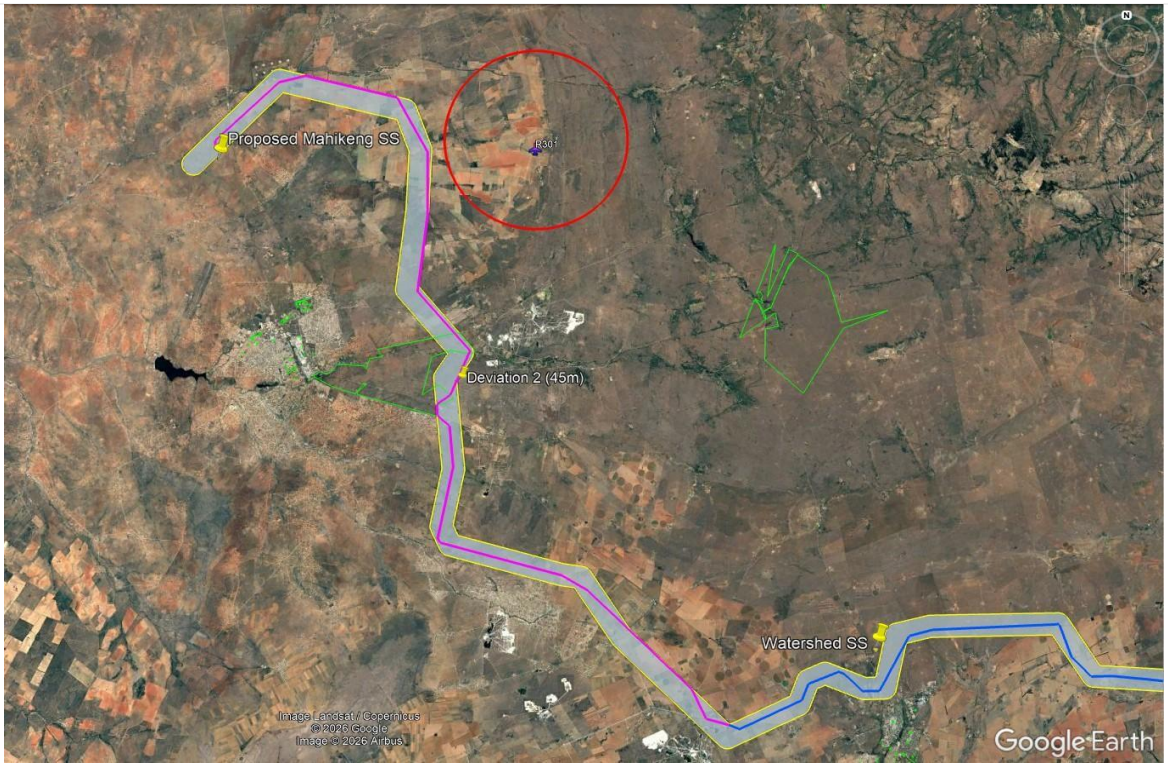


Figure 10-21: Deviation 2 of 45m near Wondergat

Obstacle Limitation Surfaces (OLS)

(i) **Aerodrome Classification:** There are no aerodromes or significant ground-based aviation infrastructure affected by the proposed deviations, and the only airspace likely to be impacted is the Magalies-Orient Glider area, in respect of which an 'advisory' to aviators is applicable from Flight Level 110-145 (i.e., 11000ft above mean sea level to 14500ft amsl).

(ii) **Risk Assessment Matrix:** Based on the tables 10-7 and 10-8, and additional guidance from Appendix 7.3 of the SSVR, obstacle related risk of OLS penetrations has been classified as '1A', which is considered acceptable. Operational risk

Excerpts from the Civil Aviation Site Sensitivity Verification (CASSV) Report	Section of the report where the information is included

mitigation in terms of SA-CATS 139.30 may include the control and marking (including illumination) of construction equipment, transmission lines, pylons and other obstacles and the issue of Aeronautical Information Circulars (AICs) or NOTAMs. For aircraft such as crop-sprayers operating under special authorisations near the transmission line, standard operating procedures (PANS/OPS) already provide for risk mitigation in the event of aircraft emergencies, especially for operations under Part 91 of the SACARS. It should be emphasised, however, that these mitigations are more of an operational nature than environmental, and the environmental impact of the proposed deviation on civil aviation activities is considered low.

Table 10-7: Risk Assessment Matrix

RISK PROBABILITY		RISK SEVERITY				
		Catastrophic A	Hazardous B	Major C	Minor D	Negligible E
Frequent	5	5A	5B	5C	5D	5E
Occasional	4	4A	4B	4C	4D	4E
Remote	3	3A	3B	3C	3D	3E
Improbable	2	2A	2B	2C	2D	2E
Extremely Improbable	1	1A	1B	1C	1D	1E

Table 10-8: Risk Tolerability Matrix

TOLERABILITY LEVEL	ASSESSED RISK INDEX	SUGGESTED CRITERIA
Intolerable	5A, 5B, 5C, 4A, 4B, 3A	Unacceptable in the existing circumstances
Tolerable	5D, 5E, 4C, 4D, 4E, 3B, 3C, 3D, 2A, 2B, 2C	Acceptable based on risk mitigation – may require a Management decision
Acceptable	3E, 2D, 2E, 1A, 1B, 1C, 1D, 1E	Acceptable

Airspace Analysis, Radar and Communications Assessment

- The Screening Tool identified no sensitivities relating to airspace apart from the proximity of the Magalies-Orient glider area, in respect of which there is a SACAA advisory from flight levels 110-145. In practice, this only applies 1808m above ground level along the route of the 14km deviation
- The rules of the air (RSA AIP 1.1-1) are that no aircraft shall be flown over built-up areas at a height less than 1000ft (305m) above the highest obstacle, within a radius of 2 000ft (610m) from the aircraft. When flown elsewhere, no aircraft shall be flown at a height less than 500 ft (152m) above the ground or water, unless flight can be made without hazard or nuisance to persons or property on the ground. The rule of 500ft applies to aircraft overflying the proposed transmission line beyond 15km from any aerodrome. Once the transmission line is in place, the 500ft rule (above the highest obstacle i.e., the critical pylon) will remain applicable, with no impact on aviation safety.
- The closest ground-based navigational equipment is beyond 35km away from the line.
- Ground-level safeguarding of a circle radius of 91 metres centred on the base of the main aerial tower (or equivalent structure). Additionally, from an elevation of 9 metres on this circle, a 2% (1:50) slope out to a radius of 610 metres. Reference has also been made to Eskom Guidelines on servitude width, and the impact of the EM effects of powerlines. Doc 240-170000623 (controlled disclosure but available from Eskom). Based on this, the impact of the development on nearby civilian radar and EM installations is considered low and risk is assessed as **'1D'**, which is deemed **'Acceptable'.**

Conclusion

- The proposed deviations will not materially impact civilian radar, navigation, or communications infrastructure in the environs, nor present any material new risks.
- The conclusion of the CASSV is that the environmental sensitivity status of the proposed project remains 'low'.
- Should an Environmental Authorisation be granted and the project proceeds to construction, all new obstacles must comply with the height limits specified and the SACAA Obstacle Approval process per CA139.27 and associated SA-CATS complied with.

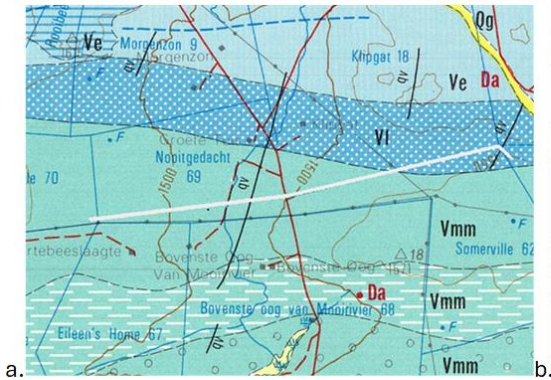
Excerpts from the Civil Aviation Site Sensitivity Verification (CASSV) Report	Section of the report where the information is included
▪ Operational mitigation measures arising from any abnormal conditions or special operations identified in consultation with the SACAA during construction will need to be implemented and such conditions appropriately recorded in the Aeronautical information Publication (AIP), Aeronautical Information Circulars (AIC) and/or Notices to Airmen (NOTAMs) from time to time. The mitigation measures are indicated in Section 12, and the EMPr attached in Appendix F.	

10.3.6 Palaeontology Impact Assessment

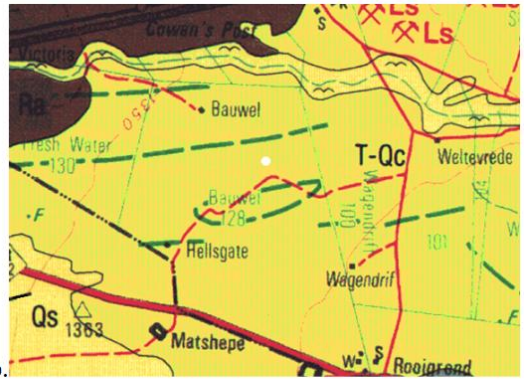
Excerpts from the Palaeontology Impact Assessment Report	Section of the report where the information is included
Methodology The desktop assessment was comprised of the following: (i) Consultation of geological maps, literature, palaeontological databases, published and unpublished records to determine the likelihood of fossils occurring in the affected areas. Sources included records housed at the Evolutionary Studies Institute at the University of the Witwatersrand and SAHRA databases, e.g. https://sahris.sahra.org.za/map/palaeo (ii) Where necessary, site visits by a qualified palaeontologist to locate any fossils and assess their importance (not applicable to this assessment). (iii) Where appropriate, collection of unique or rare fossils with the necessary permits for storage and curation at an appropriate facility (not applicable to this assessment). (iv) Determination of fossils' representativity or scientific importance to decide if the fossils can be destroyed or a representative sample collected (not applicable to this assessment). **Findings**	Refer to Sections 8, 9, 11 and 14 of this report and Section C of the EMPr attached as Appendix F..

Excerpts from the Palaeontology Impact Assessment Report		Section of the report where the information is included
Geological Context		
Deviation 1	The deviation is situated on farmland between Ventersdorp and Randfontein north of the N14 in Northwest Province  Figure 10-22: Location of deviation 1 The project area is predominantly underlain by dolomite of the Malmani Subgroup within the Chuniespoort Group of the Transvaal Supergroup. These rocks overlie the Black Reef Formation, which was deposited within ancient river channels eroded into the older Ventersdorp Supergroup. The Chuniespoort Group comprises chemical and biochemical sedimentary rocks, including stromatolitic carbonates and banded ironstone, deposited in a shallow marine environment approximately 2.67–2.46 billion years ago. The carbonate succession was subsequently dolomitised	

Excerpts from the Palaeontology Impact Assessment Report		Section of the report where the information is included
	and partially silicified, while the broader Transvaal Supergroup includes a variety of sedimentary and volcanic rock types that reflect deposition across diverse alluvial, fluvial, deltaic, coastal, and deep marine environments.	
Deviation 2	The second deviation is north of Rooigrond between the R49 and the R 503.  Figure 10-23: Location of deviation 2 The area is underlain by calcrete. The calcrete of the study site is part of pedocrete development that took place over a much larger area in the interior during the Triassic.	



a.



b.

	Lithology	Stratigraphy				Age
	River sand, alluvium					Quaternary
Qs	Superficial deposits					
Qg	Gravel, diamondiferous in places					
T-Qc	Calcrete					Tertiary
Ve	Chert-rich dolomite, chert and remnants of chert breccia of the Rooihoogte Fmn.	Eccles Formation	Malmani Subgroup	Chuniespoort Group	Transvaal Supergroup	Vaalian
Ve	Chert-rich dolomite, chert					
Vl	Dark chert-poor dolomite	Lyttelton Formation				
Vmm	Chert-rich dolomite	Monte Christo Formation				
Vmm	Chert-rich dolomite, interbedded with banded chert					
Vmm	Chert-rich dolomite, interbedded with oolitic chert					
Ra	Andesitic to basaltic lava, minor tuff	Allan Ridge Formation			Ventersdorp Supergroup	Randian

Figure 10-24: Geology for deviation 1 (a) and deviation 2 (b)

Excerpts from the Palaeontology Impact Assessment Report	Section of the report where the information is included
Palaeontological Context **Deviation 1** ▪ The study area is underlain by the Malmani Subgroup dolomites, which are assigned a Very High Palaeontological Sensitivity (Figure 10-25) due to their association with the fossil-rich dolomitic cave systems of the Cradle of Humankind. These formations have yielded significant Plio-Pleistocene fossil assemblages, including hominin remains, although no fossil sites have been recorded in the area between Magaliesburg and Ventersdorp. The dolomites also contain stromatolites, representing fossilised cyanobacterial mats that are of exceptional scientific importance for understanding the evolution of early life and Earth's oxygen-rich atmosphere. Field investigations (Figures 10-26 to 10-30) found the geology to be largely obscured by soil and vegetation, with only limited dolomite and chert-rich dolomite outcrops observed, and no fossils were identified during the survey. Nevertheless, the potential remains for previously undiscovered fossil material to be exposed during excavation activities, necessitating the implementation of appropriate chance-find procedures during construction. ▪ The impact on the palaeontology of the study site is considered to be low which implies that, although the Plio-Pleistocene fossils and stromatolites are scientifically very important, the chances of finding fossils are low. The effect of the impact will be mitigated in the unlikely event of exposing bone fossils or well-preserved stromatolites during development.	

Excerpts from the Palaeontology Impact Assessment Report	Section of the report where the information is included



KEY		
COLOUR	SENSITIVITY	REQUIRED ACTION
Red	Very High	Field assessment and protocol for finds are required.
Orange	High	Desktop study is required and based on the outcome of the desktop study, a field assessment is likely.
Green	Moderate	Desktop study is required.
Blue	Low	No palaeontological studies are required however a protocol for finds is required.

Figure 10-25: SAHRIS Palaeosensitivity Map



Figure 10-26: Site (26°09'56.49"S 27°09'28.07"E)



Figure 10-27: Chert-rich dolomite exposed at: 26°10'00.81"S 27°05' 47.45"E



Figure 10-28: Study site seen from: 26°09'56.57"S 27°09'29.32"E



Figure 10-29: Dolomite exposed at: 26°09'57.04"S 27°09'30.55"E



Figure 10-30: Chert-rich dolomite exposed at: 26°09'14.90"S 27°10' 52.93"E

Deviation 2

- The Tertiary-aged calcrete of the study area may contain fossil pollen, root casts and termitaria, rare bones, ostrich shell fragments, tortoise shell fragments, mollusc shells and freshwater stromatolites. These fossils are rare and unevenly distributed in the Cenozoic deposits of the interior.
- It is highly improbable that anything will be encountered during development at this site. The effect of the impact will be mitigated in the unlikely event of exposing bone fossils or well-preserved stromatolites during development, if the Chance Find Procedures are followed.

Conclusion

Deviation 1 is predominantly underlain by dolomite of the Malmani Subgroup, which has a high palaeontological sensitivity due to the potential occurrence of scientifically important Plio-Pleistocene fossil deposits. Although no fossil sites were identified during the field assessment and none are known from the immediate area, there remains a possibility that previously undiscovered fossil

Excerpts from the Palaeontology Impact Assessment Report	Section of the report where the information is included
material may be encountered during excavation activities. Deviation 2 is underlain by Tertiary-aged calcrete and Quaternary soils and sands, which have a low likelihood of containing significant fossil material. Given the limited extent of the deviation (approximately 45 m), the nature of the proposed development, and the absence of previously recorded fossil occurrences, the probability of encountering fossils within this section is considered to be very low. Nevertheless, appropriate chance-find procedures should be implemented during construction. The mitigation measures are indicated in Sections 9 and 12, and the EMPr attached in Appendix F.	

10.3.7 Social Impact Assessment

Excerpts from the Social Assessment Report	Section of the report where the information is included
Solarys (Pvt) Ltd compiled the Social Impact Assessment in accordance with the Terms of Reference set out in Section 10.2. As the study deals with the project's alignment with international, national, provincial, and local development plans, legislation, and guidelines, as well as the baseline socio-economic environment of the affected areas, the findings and assessment have been incorporated in various Sections (5, 8, 9, 11 and 14) of the BAR. As such, this section only discusses the conclusion. Conclusion The assessment concludes that the proposed deviation is consistent with the applicable legal, policy and planning framework and is socially acceptable, provided that the recommended mitigation measures are implemented. The main adverse social impacts	Refer to Sections 5, 8, 9, 11 and 14 of this report and Section C of the EMPr attached as Appendix F.

are expected during construction and are largely localised to affected properties, but can be reduced to acceptable levels through appropriate management, contractor controls, stakeholder engagement and landowner-specific measures. While construction will provide limited short-term employment opportunities, the primary long-term benefit is improved electricity transmission reliability. It is therefore recommended that the project-specific mitigation measures be incorporated into Section C of the Generic EMPr for Powerlines to address the identified land use and social sensitivities.	

10.3.8 Terrestrial Biodiversity Assessment

Excerpts from the Terrestrial Biodiversity Assessment Report	**Section of the report where the information is included**
Methodology The information provided in this terrestrial biodiversity report is based mainly on the observations that were made during the field survey and a review of the available reports that contain known and predicted biodiversity and ecological information regarding the two deviations. The various approaches used and aspects taken into account are detailed below: ▪ A desktop survey utilising aerial images and photography was undertaken to assemble background information regarding the different features and vegetation type present within the proposed project footprint, including the buffer area. ▪ The site was assessed as part of the walkdown from the 16th to the 20th of March 2026 and continued from 23rd to the 27th of March 2026 in order to record the true floristic and faunal reflection of the sites. ▪ The PRECIS list of plants recorded in the quarter-degree grid squares was obtained from SANBI. This list was consulted to verify the record of occurrence of the plant species seen on the site. A desktop study of the habitats of the red-listed and orange-listed species known to occur in the area was done prior to site assessment.	Refer to Sections 8, 9, 11 and 14 of this report and Section C of the EMPr attached as Appendix F.

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included
▪ Fauna survey: The majority of mammals and reptiles are either very secretive, nocturnal, hibernate (reptiles), migrate (birds), or prefer specific habitats, so sampling and identification were limited. Records of all faunal species recorded in the affected quarter-degree grid squares were obtained from the Virtual Museum (VM) website of the Animal Demographic Unit of the University of Cape Town before the site visits. Findings *Protected Species* ▪ The following provincially protected geophytes species were recorded within the powerline deviation 1: *Boophane disticha, Gladiolus sericeovillosus* and *Hypoxis hemerocallidea*. Boophane disticha species is regarded as declining by the South African National Biodiversity Institute (SANBI) Red List of South African Plants. According to the North West Provincial Orange list Gladiolus sericeovillosus and *Hypoxis hemerocallidea* is classified as Declining and is protected in the province. Both protected plant species were recorded within deviation 1 of the powerline.	



Figure 10-31: *Boophane disticha*

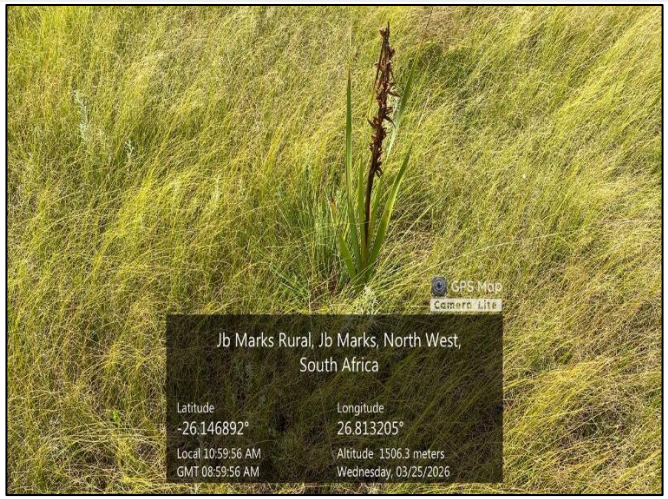


Figure 10-32: *Gladiolus sericeovillosus*

Vegetation

The vegetation along the proposed route for the construction of the powerline resembles a typical grassland biome characterised by well-developed grasses, shrubs, and tree layers. The assessment revealed that the proposed powerline is located within private and state land.

Deviation 1: Deviation 1 is characterised by natural grassland, secondary grassland, vegetation associated with the watercourse (by the Mooi river), cultivated area and the outcrop. The plant species recorded include *Salix mucronata, Searsia lancea, Typha capensis, Phragmites australis,* Cyperus *rupestris, Melia azedarach, Zea mays, Ziziphus mucronata, Gymnosporia buxifolia, Asparagus laricinus, Senecio inornatus, Andropogon eucomus, Eragrostis plana, Panicum coloratum, Setaria incrassate, Searsia lancea, Vachellia tortilis, and Acacia hebeclada. Tagetes minuta, Aloe Zebrina, Prosopis glandulosa, Asparagus densiflorus, Melinis repens, Trichanthecium natalense, Lasiosiphon cuneifolius, Hermannia depressa, Pentzia dentata, Themenda triandra, Panicum*

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included
coloratum, Sporobolus africanus, Andropogon eucomus, Andropogon appendiculatus, Urochloa panicoides, Digitaria eriantha, Eragrostis plana, Hyparrhenia hirta, Eragrostis lehmanniana, Cynodon dactylon, Vigna vexillate, Lippia javanica, Eucomis autumnalis, Gladiolus sericeovillosus, Chrysocoma ciliata, Entada elephantina, Heteropogon contortus and Boophane disticha	



Figure 10-33: Aerial view of deviation 1



Figure 10-34: Crossing along the Mooi river



Figure 10-35: Stoebe plumosa

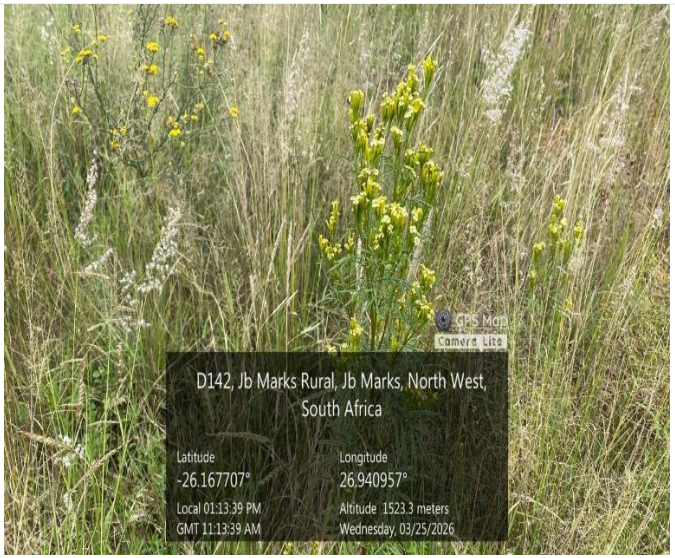


Figure 10-36: Tagetes minuta and Melinis repens

Deviation 2: The entire section of the deviation is still in a natural state and plants recorded include *Eriosema distinctum, Vachellia karoo, Vachellia tortilis, Ziziphus mucronata, Diospyros lycioides, Phoenicaulis cheiranthoides*, *Searsia lancea*, Stoebe plumosa, Asparagus laricinus, Tephrosia capensis, *Grewia occidentalis*. The grass species include *Melinis repens, Themenda triandra, Panicum coloratum, Sporobolus africanus, Andropogon eucomus, and Urochloa panicoides.*

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included



Figure 10-37: Aerial view of deviation 2 (Tower 110-111)



Figure 10-38: Grass layer within the deviation

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included



Figure 10-39: Vachellia tortilis

- **Protected trees and geophytes:** From the site-based findings, no nationally protected trees were identified onsite. However, the *Boophane disticha* (Figure 10-38), which is provincially protected was recorded within deviation 1. This species is regarded as declining by the South African National Biodiversity Institute (SANBI) Red List of South African Plants. Furthermore, Gladiolus sericeovillosus (Figure 10-39) and Hypoxis hemerocallidea also provincially protected are classified as Declining per the North West Provincial Orange list. Both protected geophytes were recorded within deviation 1 of the powerline. No protected geophytes can be cleared, cut or disturbed without a flora permit from the North West Department of Economic Development, Environment, Conservation and Tourism (NW DEDECT).

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included



Figure 10-40: Boophane disticha



Figure 10-41: Gladiolus sericeovillosus

- Alien invasive plants: Declared weeds and invaders tend to dominate or replace the herbaceous layer of natural ecosystems, thereby transforming the structure, composition and function of natural ecosystems. Therefore, it is important that all these transformers be eradicated and controlled using an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species (Henderson, 2001). According to the published Alien and Invasive Species regulations in terms of section 97(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), four categories of problem plants are identified as:
  - Category 1a plants are high-priority emerging species requiring compulsory control. All breeding, growing, moving and selling are banned.

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included

- Category 1b plants are widespread invasive species controlled by a management programme.
- Category 2 plants are invasive species controlled by area. Can be grown under permit conditions in demarcated areas. All breeding, growing, moving, and selling are banned without a permit.
- Category 3 plants are ornamental and other species that are permitted on a property but may no longer be planted or sold.

- Numerous alien plant species were recorded in the study area at the time of the survey; most notably, the extensive invasions by species such as *Acacia mearnsii al*so have the potential to form dense stands. Table 10-9 lists the alien species as well as the various NEMBA categories for the alien species recorded during the survey.

Table 10-9: Alien invaders within the deviations

Scientific name	Common name	NEMBA Category
Argemone Mexicana	Mexican prickly poppy	1b
Arundo donax	Giant reed	1b
Campuloclinium macrocephalum	Pom-pom weed	1b
Datura ferox	Large apple thorn	1b
Datura Stramonium	Downy thorn apple	1b
Melia azedarach	Syringa	1b
Solanum mariantanum	Bug weed	1b
Verbena bonariensis	Wild Verbena	1b
Cosmos bipinnatus	Cosmos	1b

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included



Figure 10-42: Cosmos bipinnatus as one of the invaders

- **Protected Areas and National Protected Area Expansion Strategy:** The powerline deviation overlaps with ESA1, CBA2, and CBA1. The proposed deviations will require the clearance of approximately 3 ha of vegetation within the NPAES, 6.58 ha within Critical Biodiversity Areas (CBAs), and 1.69 ha within Ecological Support Areas (ESAs), see Table 10-10. This will be for the establishment of a 3.5m access road and at tower positions. In terms of the aquatic realm, the deviations traverse the CBA1, CBA2, andESA1 with CBA2 confined to the Mooi River.

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included

Table 10-10: Quantification of the CBA and ESA on site

No.	CBA Category	Exclusive area in servitude (ha)	Road Footprint (ha)	Tower clearance
1	CBA1	48.84	3.11	2.02
2	CBA2	12.31	0.78	0.67
3	ESA1	16	1.02	0.67
TOTAL (= servitude footprint)		**77.15**	**4.91**	**3.36**

Site Ecological Importance (SEI) Of The Deviation Areas

- Site Ecological Importance (SEI) is derived following the accepted SANBI Species Environmental Assessment framework, in which SEI is a function of Biodiversity Importance (BI) and Receptor Resilience (RR), where BI is itself a function of Conservation Importance (CI) and Functional Integrity (FI). CI captures the presence of biodiversity features of concern (Species of Conservation Concern, threatened ecosystems, CBAs, protected-area expansion priorities); FI captures the ecological condition and connectivity of the receptor; and RR captures the intrinsic capacity of the receptor to recover from disturbance. The deviation footprints were delineated into ecologically homogeneous habitat units and each was rated as summarised in Table 10-11.

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included

Table 10-11: Site Ecological Importance of the deviation habitat units (CI = Conservation Importance; FI = Functional Integrity; BI = Biodiversity Importance; RR = Receptor Resilience).

Habitat unit	CI	FI	BI	RR	SEI
Deviation 1 –Carletonville Dolomite Grassland within CBA1, CBA2 and PAES, with SCC geophytes and rocky outcrops	High	Medium	High	Low	**Medium-High**
Deviation 1 – Mooi River watercourse and riparian fringe (aquatic CBA2; SWSA recharge; faunal movement)	High	Medium	High	Low	**High**
Deviation 1 – Secondary grassland, old, cultivated lands and transformed/alien-dominated areas	Low	Low	Low	High	**Low**
Deviation 2 – Intact Klerksdorp Thornveld within ESA (no SCC recorded; ~3 km from Mafikeng Game Reserve)	Medium	High	High	Low	**Medium**

SEI class	Development implication (mitigation-hierarchy guidance)

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included

High	Avoidance and minimisation preferred. Development should proceed only where no feasible alternative exists; footprint must be minimised, no-go buffers demarcated, and rehabilitation/offset investigated for any unavoidable loss.
Medium	Minimise footprint and rehabilitate. Development is acceptable subject to strict application of the mitigation hierarchy and site-based restoration.
Low	Development acceptable with limited restrictions and standard construction controls.

- The intact grassland habitat units of deviation 1 rate as Medium-High SEI. This is driven by their location within Critical Biodiversity Areas including CBA1 and CBA2; the presence of provincially protected geophytes and other SCC in Deviation 1 (notably Boophane disticha, Eucomis autumnalis, Aloe zebrina and Gladiolus sericeovillosus), the dolomitic/karst substrate, and the low receptor resilience of species-rich dolomite grassland, whose forb and geophyte diversity recovers only slowly and incompletely after disturbance. The Mooi River riparian corridor in Deviation 1 is rated High SEI given its watercourse status, aquatic CBA2 designation and role in groundwater recharge and faunal movement. Deviation 2 rates Medium: it is entirely natural and well connected toward the Mafikeng Game Reserve, but no SCC were recorded, moderating its Conservation Importance. Transformed, cultivated and alien-dominated portions of Deviation 1 rate Low SEI.
- As the most sensitive habitat units are characterised by High Site Ecological Importance (SEI), the mitigation hierarchy (avoid → minimise → rehabilitate → offset) must be rigorously applied throughout the planning, construction and operational phases of the project. Notwithstanding the high ecological sensitivity, the additional biodiversity exposure associated with

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included
the proposed deviations is relatively limited and spatially confined. The deviations will result in the clearance of approximately 6.6 ha within Critical Biodiversity Areas (CBAs), 1.7 ha within Ecological Support Areas (ESAs), and 3 ha within the National Protected Area Expansion Strategy (NPAES) priority area. ▪ Where residual impacts on CBAs cannot be avoided, the project may trigger the requirement for a biodiversity offset in accordance with the NWBSP (2025) and the National Biodiversity Offset Guideline (2023). The necessity, scope and implementation requirements of any offset must be determined through consultation with the relevant provincial conservation authority during the environmental authorisation process. Subject to the implementation of the recommended avoidance, minimisation and rehabilitation measures, together with any offset requirements identified by the competent authority, the residual impacts on terrestrial biodiversity are expected to be reduced to Moderate to Low, which is considered acceptable from an environmental impact assessment perspective. Ecological Plan ▪ The development of the 400-kV Powerline, if properly managed from construction to operational stage, will have almost insignificant impact on the existing ecosystem (especially during operation). In most cases, ecological management plans are designed for once-off projects. ▪ With the existence of waterbodies in the project area, it would be advisable to develop an ecological monitoring schedule and/or system to frequently check and advise on the condition of the ecologically-sensitive parts in the peripheries of the project, e.g. water quality of the water-way and drainage system. ▪ The area requires development of an active ecological buffer zone which should be managed with an active invasive species eradication, monitoring and management plan.	

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included
▪ Waste management issues, handling of hydrocarbons, storm-water management systems and invasive species management will require attention. ▪ Mechanical and biological removal of invasive species will be recommended, but monitoring of the latter should be ensured as this might result in abnormal population skewing of certain species in an ecosystem. Rehabilitation Plan ▪ The rehabilitation should not be postponed until decommissioning; it must continue as a simultaneous effort from construction all the way to operation and decommissioning. Following every construction step/phase, the impacted site needs to be free of debris and restored to the ECO's approval. The zone must be drained to reduce water stagnation throughout construction and operation. ▪ All impacted areas within the project development site must be restored to their original condition prior to development to harmonize the new environment with the existing one. The project budget typically encompasses planning for rehabilitation and associated expenses. ▪ This report describes rehabilitation as the restoration of areas temporarily disrupted by project development (specifically “construction or construction-related activities”) to a state similar to conditions before the disturbance. Undisturbed systems ought not to be restored unless 400 kV powerline operations greatly impact the system in question. ▪ The ECO will help pinpoint regions that may need rehabilitation and incorporate them into the process to guarantee that all project footprints (external) are considered. These extra factors will influence the budget and should be anticipated. In development planning, rehabilitation expenses must remain adaptable.	

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included
▪ The Powerline project (building and functioning) consists of three phases that will all affect the environment, thus necessitating conservation management and rehabilitation strategies. The recognized development stages for the Powerline project are as follows: ◦ Phase One: Clearing of the area where construction will be active. ◦ Phase Two: Construction of the infrastructure and all related features. ◦ Phase Three: operation of all the developed infrastructure and factories. ▪ Rehabilitation around the construction footprint must take place immediately after disturbance to limit detrimental effects resulting from, e.g., rainfall events after removal or clearing of the existing material (especially storm-water drainage towards the existing waterbodies and/or road drainage systems). This rehabilitation plan will assist in this. Rehabilitation measures must blend well with the existing ecological buffer of the area. It is imperative that rehabilitation of disturbed areas takes places after each construction phase. This will minimise costs and time. ▪ Erosion and siltation should be minimised by construction of silt-traps and/or gabion rock blocks for surface run-off draining from service roads around the active portions of the project; this will be anchored or supported with soil binding grass. ▪ An active invasive species monitoring and management plan will form part of this rehabilitation. ▪ The final stage of rehabilitation requires that local and/or indigenous plant species be planted to enable the area to naturally recover (natural succession), as well as blend with the existing natural vegetation in the area. Sloping areas will be terraced or benched and top-soil covered (at least 30cm) to assist in encouraging natural growth of plants. A local agricultural expert will be consulted to assist in the determination of what plant species seed-mix should be applied. Proper care and maintenance should be carried out with independent supervision from the ECO. Monitoring of the rehabilitation process from each phase should be emphasised and the ECO must assist with blending mechanisms as promulgated in this report.	

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included
Conclusion ▪ The proposed deviations traverse areas of low to high ecological sensitivity. Deviation 1 is of particular significance: it lies within a landscape characterised by CBA1, CBA2 and ESA1, it abuts the northern boundary of the Fred Coetzee and Sommerville Private Nature Reserves, and it crosses the Mooi River, a watercourse designated as an aquatic CBA2 and forming part of the recharge system of the Ventersdorp/Schoonspruit and Bo-Molopo Karst Belt Groundwater Strategic Water Source Areas. Deviation 2 traverses intact Klerksdorp Thornveld within a CBA mosaic, approximately 3 km from the Mafikeng Game Reserve. ▪ The walkdown recorded provincially protected geophytes: Boophane disticha, Hypoxis hemerocallidea and Gladiolus sericeovillosus together with sensitive rocky outcrops and the Mooi River riparian zone. Their removal or relocation accordingly requires a provincial flora permit from the North West conservation authority. No protected tree species listed under the National Forests Act were recorded within the deviation footprints. Should any such species be identified, a DFFE licence would be required. ▪ Because the deviation corridor is characterised by CBA1, avoidance of CBA1 by re-siting is not feasible. After full application of the mitigation hierarchy; footprint minimisation to a 3.5 m access road and discrete tower bases, spanning of sensitive features, use of existing tracks, no-go demarcation and rehabilitation; an unavoidable residual negative impact of moderate significance on CBA2 biodiversity remains, amounting to approximately 5.1 ha of CBA1 and 1.5 ha of CBA2 clearance. In terms of the National Biodiversity Offset Guideline, 2023 (GN 3569, GG 48841), this residual may trigger a biodiversity offset. Accordingly, consultation with the relevant provincial Department is recommended to obtain guidance on whether a biodiversity offset is required and whether the proposed mitigation measures are considered adequate for the nature and scale of the development. It does not, however, constitute a fatal flaw: the affected ecosystem (Carletonville Dolomite	

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included
Grassland) is of Least Concern status and remains extensive, so ecologically equivalent like-for-like habitat is securable, and a narrow linear overhead-line footprint does not prevent the CBA biodiversity target from being met. ▪ Impacts on the Fred Coetzee and Sommerville Private Nature Reserves are indirect only. No clearing, tower placement or access is proposed within either reserve, or both are designated no-go areas in terms of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003). The anticipated impact is edge effect across the shared boundary, i.e., dust, noise, faunal disturbance and the spread of alien invasive plants which reduces to Negligible significance with boundary buffers, dust suppression, alien plant control, restriction of construction to daylight hours, and a strict prohibition on construction access into the reserves. ▪ The Mooi River crossing is to be achieved by spanning the watercourse and its riparian zone, with no tower placement within the channel or the riparian buffer. Construction within the regulated area of the watercourse must be authorised under the National Water Act, 1998 (General Authorisation or WULA for sections 21(c) and (i)), and managed in accordance with the risk-based approach of GN 4167 of 2023. Given the karst substrate and the high vulnerability of the underlying Strategic Water Source Areas to surface pollution, hazardous materials storage, refuelling and concrete batching must be excluded from the riparian zone and from the vicinity of sinkholes and springs. ▪ To minimise the direct and cumulative loss of these sensitive ecosystems, the micro-siting of tower positions and access to avoid rocky outcrops, riparian habitat and SCCs subpopulations wherever a feasible position exists. Where rehabilitation or active restoration is required, it must use indigenous plant species, preferably of local provenance and representative of the habitat types typical of the ecological landscape. ▪ In the specialist's opinion, the proposed deviations can be authorised, provided that all recommendations and mitigation measures are strictly implemented, that the required provincial flora permits and water use authorisation are obtained, and	

Excerpts from the Terrestrial Biodiversity Assessment Report	Section of the report where the information is included
that the provincial department be consulted with regards to the biodiversity offset requirement in terms of the National Biodiversity Offset Guideline (2023). **The rehabilitation and alien invasive management measures are discussed in Sections 9.4, 9.5 and 11.7.**	

10.3.9 Visual Impact Assessment

Excerpts from the Visual Impact Assessment Report	Section of the report where the information is included
Methodology The methodology consisted of the following: ▪ The extent of the study area is determined. ▪ The project components and activities are described and assessed as potential elements of visual and landscape impacts. ▪ The receiving environment is described in terms of its prevailing landscape- and visual character. ▪ Landscape- and visual receptors that may be affected by the proposed project are identified and described. ▪ Mitigation measures are proposed to reduce adverse impacts. Findings Before assessing the impact of the proposed powerline on the environment, the following aspects were determined. Landscape and visual impacts may result from changes to the landscape. A distinction should be made between impacts on the visual resource	Refer to Sections 8, 9, 11 and 14 of this report and Section C of the EMPr attached as Appendix F.

Excerpts from the Visual Impact Assessment Report	Section of the report where the information is included
(landscape) and on the viewers. The former are impacts on the physical landscape that may result in changes to landscape character while the latter are impacts on the viewers themselves and the views they experience. **A. Visual Resource** Visual resources are an encompassing term relating to the visible landscape and its recognizable elements, which through their co-existence, result in a particular landscape character. i. **Landscape Character:** The study area consists generally of open grassland landscapes, used for grazing and small sections of crop cultivation. Rocky ridges are found within the grassland landscape. The broad-scale vegetation type is Carletonville Dolomite Grassland. The proposed deviation crosses through a small section of Rand Highveld Grassland. This grassland type may consist of endangered species and more common species such as *Themeda triandra* and *Hyparrhenia hirta*. There are very few trees and mostly clusters of small Searsia and Ziziphus trees are found in the study area. Farm homesteads are scattered throughout the study area, and the landscape is generally degraded around these settlements. The landscape character does not change considerably through the study area. The study area is divided into distinct landscape types, which are areas within the study area that are relatively homogenous in character (Swanwick, 2002). Landscape types are distinguished by differences in topographical features, vegetation communities and patterns, land use, and human settlement patterns.	

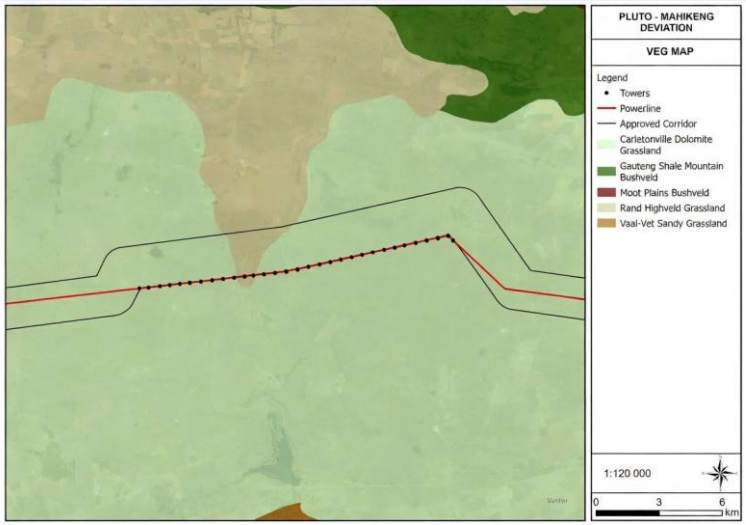


Figure 10-43: Vegetation Map

ii. **Visual Character:** Visual character is based on human perception and the observer's response to the relationships between and composition of the landscape, the land uses, and identifiable elements in the landscape. The overall landscape is a gently sloping open grassland landscape with rocky ridges. The dominant land uses are livestock farming and crop cultivation. A few farmsteads are found in the study area. Small towns serve the farming communities and are surrounded by higher density informal settlements. The small towns and surrounding areas are often degraded and vary from quaint towns to towns that are not visually pleasing, desolate and degraded (Figure 10-44).

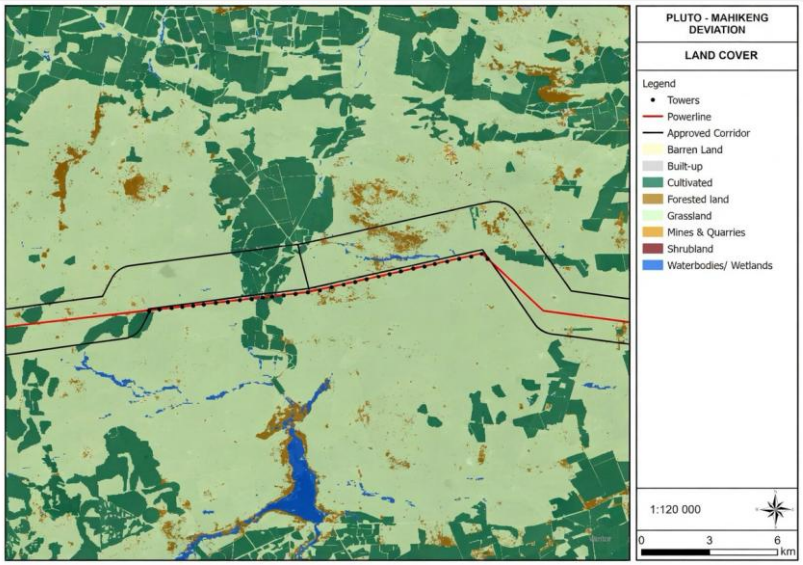


Figure 10-44: Land cover map

- **Visual value:** The region is known for the grassland landscapes and gently sloping landscape, with few rocky ridges. The general vegetation is low-growing, and few trees exist providing little to no screening for the proposed development. Most parts of the study area have undergone little or no change due to human intervention but remain under constant pressure by over-grazing and infrastructure expansion. The landscape cannot be described as an unspoilt, pristine landscape.
- **Visual Quality:** The moderately low visual quality can be attributed to the large expanses of undeveloped landscapes but with signs of environmental degradation.
- **Visual absorption capacity:** The VAC of the study area is considered low and does not provide good overall screening capacity for this project. The low VAC relates to the gently sloping topography with low growing vegetation. The regular forms and associated vertical posture of the proposed powerline will not be easily absorbed into the landscape and

Excerpts from the Visual Impact Assessment Report	Section of the report where the information is included
topography. The less prominent project components such as access roads are expected to be visually absorbed to a large degree in the landscape. Reference is made to the Photos below.  *Intersection at N14 and secondary road – view towards north to site*  Landscape character – grassland and small shrubby trees	

Excerpts from the Visual Impact Assessment Report	Section of the report where the information is included



Existing powerlines in grassland landscape 700m south of proposed line



Proposed crossing of deviation line on secondary road



View towards the east of existing powerline.



View towards the west of the existing powerline

Excerpts from the Visual Impact Assessment Report	Section of the report where the information is included
B. Viewers i. **Residents –** The study area has a low population with small rural settlements and farmsteads with moderately populated towns and informal settlements. Klerkskraal is the closest settlement to the proposed deviation of the line. The proposed powerline does not traverse directly past any farmstead or settlement. The closest resident is approximately 700m north of the line. The rural settlements and farming communities are normally situated along main transportation routes, near agricultural areas or adjacent rivers or water resources. There will be a low number of affected viewers across the study areas. ii. **Motorists –** The main road in the study area is the N14 connecting Krugersdorp to Ventersdorp. Public views to the proposed powerline deviation are along the main public roads but the N14 is approximately 10 km to the south of the road and motorists will not be visually affected. The secondary road network in the study area carries a much lower volume of motorists. Their duration of views will be temporary, and it is expected that the visual intrusion that they will experience will be low. The majority of the line traverses along secondary roads, with low volumes of traffic and motorists. The speed at which motorists travel has a moderating effect on the severity of the visual impact and further reduces visual exposure. Regular users and viewers are accustomed to existing powerlines which also mitigates the visual impact of the new proposed powerlines. iii. **Tourist Facilities, Game Farms and Nature Reserves** – The most sensitive viewers looking onto the powerlines besides residents, are tourists and the views to the project from residential properties, tourist destinations, and natural conservation areas. Tourism is an industry based primarily on the subjective perspectives of visitors to an area. In destinations where tourism is focused on outdoors or based on natural elements, the tourism value rests largely on the experience which can be provided. Tourism activities are mostly linked with the private game farms that occur across the study area. No tourist establishments were identified within the study area of the proposed deviation of the powerline. The	

Excerpts from the Visual Impact Assessment Report	Section of the report where the information is included
entire study area is considered to have low tourism and recreational potential. There are private game farms, but no large national parks in the area. The proposed deviation of the powerline does not cross any main thoroughfare road to other prominent holiday destinations. Few tourists may be affected during their visit to the study area. Visibility Analysis The Zone of Visual Influence (ZVI) assessment, undertaken using a Geographic Information System (GIS), identified the areas within a 5 km radius of the proposed powerline deviation from which the infrastructure may be visible. The analysis indicates that visual intrusion is expected to be greatest within 1 km of the alignment, with the magnitude of visual impacts decreasing progressively with increasing distance. Landscape characteristics, including topography and vegetation, play a significant role in reducing visual exposure by screening views, while more complex landscapes generally have a greater capacity to absorb the visual presence of transmission infrastructure. The GIS visibility analysis was based on a digital elevation model (DEM) and line-of-sight modelling,	

representing a conservative worst-case scenario that considers topography only and does not account for the screening effects of vegetation. Consequently, actual visibility on site is likely to be lower where vegetation provides additional visual screening.

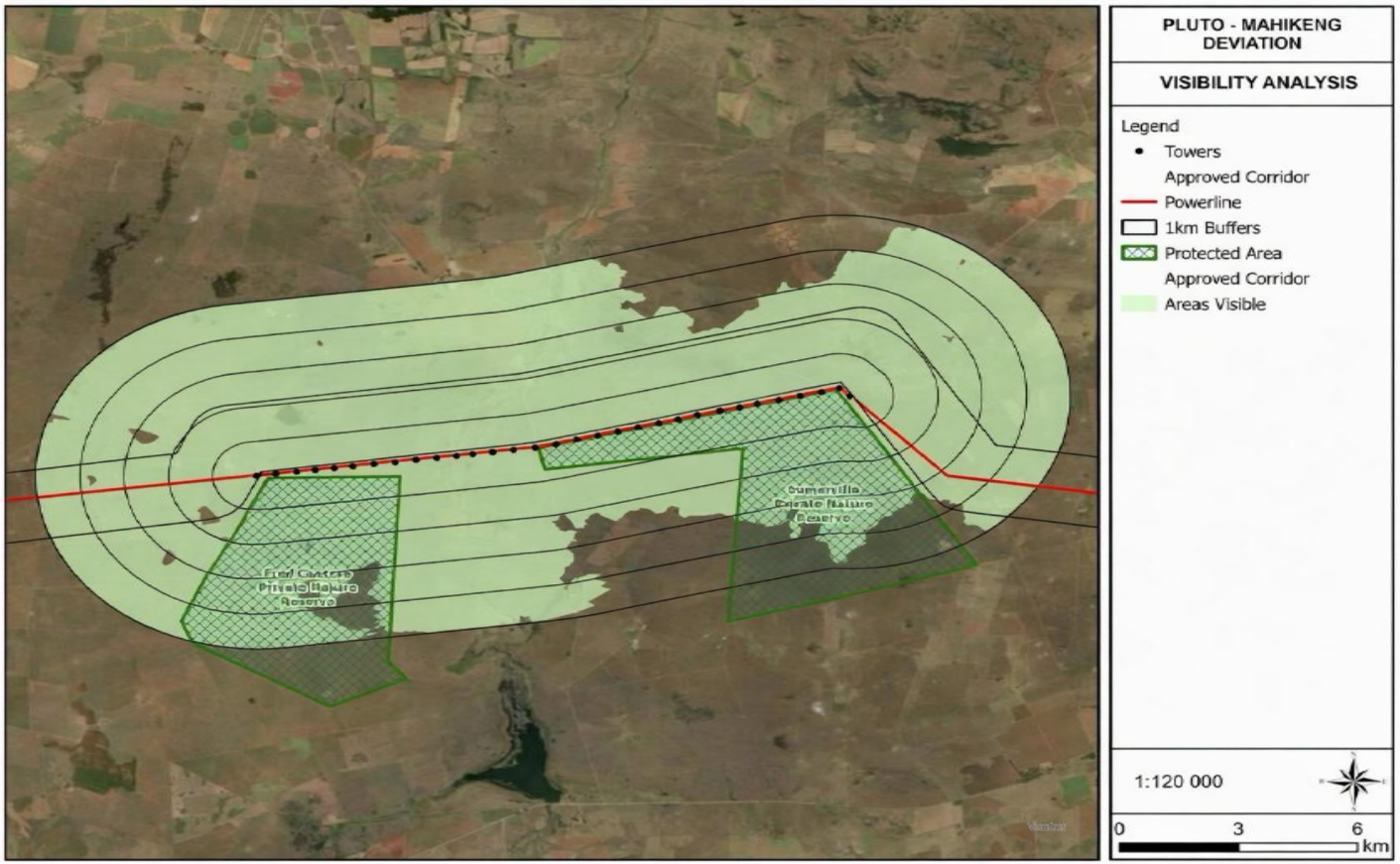


Figure 10-45: Visibility Analysis: Pluto-Mahikeng 400 kV Powerline Deviation

Conclusion

Excerpts from the Visual Impact Assessment Report	Section of the report where the information is included
▪ The impact of the proposed activities on visual receptors varies between residents, tourists and motorists. The proposed new powerline traverses' gently sloping landscape with little ability to absorb the visual impact. The landscape has relatively few residents that will be impacted as the majority of the line follows through agricultural land and open areas. Very few tourists visit the area and motorists mainly pass through. ▪ If the mitigation measures are implemented and the recommendations are adhered to, the visual impact can be minimised.	

11 IMPACT MANAGEMENT MEASURES FROM SPECIALIST REPORTS FOR INCLUSION IN THE EMPR

This section of the report details the information required as per Section 3(1)(m) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr;

The following impact management measures from specialist reports for inclusion into the EMPr.

11.1 Archaeology and Cultural Heritage Assessment

The following general mitigation measures are recommended:

Pre-construction education and awareness training

- Prior to construction, contractors should be given training on how to identify and protect archaeological remains that may be discovered during the project. The pre-construction training should include some limited site recognition training for the types of archaeological sites that may occur in the construction areas. Below are some of the indicators of archaeological site that may be found during construction:
  - Flaked stone tools, bone tools and loose pieces of flaked stone;
  - Ash and charcoal;
  - Bones and shell fragments;
  - Artefacts (e.g., beads or hearths);
  - Packed stones which might be uncounted underground, and might indicate a grave or collapse stone walling.
- In the event that any of the above are unearthed, all construction within a radius of at least 10m of such indicator should cease and the area be demarcated by a danger tape. Accordingly, a professional archaeologist or PHRA officer should be contacted immediately.
- In the meantime, it is the responsibility of the contractor to protect the site from publicity (i.e., media) until a mutual agreement is reached. Noteworthy that any measures to cover up the suspected archaeological material or to collect any resources is illegal and punishable by law. In the same manner, no person may exhume or collect such remains, whether of recent origin or not, without the endorsement by PHRA.

11.1.1 Chance Finds Procedure

The following procedures must be followed when heritage resources are encountered during the operational or construction phase:



- All construction/clearance activities in the vicinity of the heritage resources found by accident on site must cease immediately to avoid further damage to the chance finds
- Immediately report the chance finds to the supervisor/site manager or if they are unavailable, report to the project Environmental Officer (EO) who will provide further instructions.
- Record (note taking, photograph with a scale, GPS coordinates) of all the chance find exposed during the activity.
- All remains are to be stabilised in situ.
- Secure (e.g., barricade) the area to prevent further disturbance on heritage resources.
- The EO must contact the qualified archaeologist registered with the association for Association for Southern African Professional Archaeologist (ASAPA) or South African Heritage Resources Agency (SAHRA).
- The project archaeologist will conduct the inspection and assess the significance of the chance finds under SAHRA guidelines, give recommendation and mitigation measures.

11.2 Avifauna Impact Assessment

11.2.1 Site-Specific Construction (CEMPr)

- It is recommended that Bird Flights Diverters (BFDs) be installed on the earth wires between the towers 491 and 521 (Deviation 1) and towers 110-111 (Deviation 2) as detailed in the Pluto-Mahikeng 400 kV Powerline Mitigation Matrix, dated 15 May 2026.
- Bird Flight Diverters (BFDs) must be installed ten metres apart, on the earth wires in an alternating black and white/yellow pattern. BFDs must be installed on the entire length of the earth wire span to ensure maximum collision protection for the movement of vultures when roosting on the towers. BFDs must be installed on the earth wires as soon as possible after stringing.
- The installation of bird guards, in accordance with the Eskom Transmission Bird Perch Guidelines Unique Identifier 41-332, above the insulator strings of Towers 491 to 521 and Towers 110-111 is highly recommended.
- Should a raptor nest be identified within or in close proximity to the deviation alignments prior to or during construction, all construction activities in the immediate vicinity (500m) must be temporarily halted. The Environmental Control Officer (ECO) must appoint a suitably qualified avifaunal specialist to assess the nest and provide site-specific management recommendations, including appropriate buffer distances and activity restrictions. Implementation of these measures may necessitate a delay or rescheduling of construction activities to avoid disturbance, particularly where the nest is active.
- Avoid removal of sensitive vegetation types. The recommendations of the botanical CEMPr must be strictly implemented, especially as far as limitation of the construction footprint and rehabilitation of disturbed areas is concerned.



- Construction activity should be restricted to the immediate footprint of the Mahikeng-Puto 400 kV Powerline infrastructure within the proposed deviation routes. This is especially relevant to vegetation clearing undertaken to facilitate access during construction, which should be carefully managed to prevent inadvertent disturbance or loss of nesting habitat.
- All construction activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment.
- All temporary disturbed areas should be rehabilitated according to the site's rehabilitation plan, following construction.
- Maximum use should be made of existing access roads and the construction of new roads should be kept to a minimum.

11.2.2 Site-Specific Operational (OEMPr)

- *NTCSA* Line and Servitude Managers are requested to report all bird collisions encountered during routine line patrols of the *Pluto-Mahikeng 400 kV Powerline* to the *Eskom-Endangered Wildlife Trust Strategic Partnership,* who will provide additional site-specific mitigation recommendations, if required.
- All Bird Flight Diverters must be maintained for the duration of the operational lifespan of the *Pluto-Mahikeng 40 0kV Powerline*.
- Should raptor nests be identified during the operational phase, *NTCSA* Line and Servitude Managers must report these to the Environmental Manager, who will in turn notify the *Eskom-Endangered Wildlife Trust Strategic Partnership* for site-specific guidance. Recommendations provided must be implemented, including the delineation of appropriate buffer distances and the postponement/rescheduling of maintenance activities, where required, to prevent disturbance-related nest abandonment or breeding failure.
- While it is not illegal to remove an unoccupied nest that is posing a quality of supply risk, the removal of nests that contain eggs, chicks or adult birds will require a permit to do so. *Eskom* are requested to notify the *Eskom-Endangered Wildlife Trust Strategic Partnership* in these instances to arrange for the translocation or removal of the nest.
- All bird guards should be maintained for the duration of the operational lifespan of the *Pluto-Mahikeng 400 kV Powerline*.
- *NTCSA* Line and Servitude Managers are requested to report all bird-related faulting on the *Pluto-Mahikeng 400 kV Powerline* infrastructure to the *Eskom-Endangered Wildlife Trust Strategic Partnership,* who will provide site-specific mitigation recommendations if required.
- Mitigation requirements detailed in the site-specific botanical OEMPr report must be strictly implemented to ensure minimal habitat impact.



- Existing roads must be used as far as possible for access during the operational lifespan of the project.
- All operational activities should be strictly managed according to generally accepted environmental best practice standards, so as to avoid any unnecessary impact on the receiving environment.

11.2.3 Proposed Monitoring Actions

- NTCSA powerline servitude staff to include avifaunal monitoring during routine inspections of the Pluto-Mahikeng 400 kV Powerline and record the number of mortalities, nesting activity and faecal matter fouling and determine the effectiveness of the mitigation actions taken.

11.3 Civil Aviation

- Should an Environmental Authorisation be granted and the project proceeds to construction, all new obstacles must comply with the height limits specified and the SACAA Obstacle Approval process per CA139.27 and associated SA-CATS complied with.
- Operational mitigation measures arising from any abnormal conditions or special operations identified in consultation with the SACAA during construction will need to be implemented and such conditions appropriately recorded in the Aeronautical information Publication (AIP), Aeronautical Information Circulars (AIC) and/or Notices to Airmen (NOTAMs) from time to time.

11.4 Aquatic Biodiversity (Freshwater) Assessment

Construction Phase

- A Water Use Licence Application should be lodged for the Towers 491-521 span in respect of Section 21(c) and (i) water uses at the Mooi River crossing (Towers 500-501) and the Tower 493 seasonal wetland, supported by a full wetland delineation report if requested by DWS during the application process.
- Demarcate and peg the no-go buffers for the Mooi River and the Tower 493 wetland prior to the start of construction, and maintain demarcation for the duration of construction;
- Restrict all construction vehicle movement, stockpiling, and laydown areas to outside the no-go buffers at both confirmed aquatic features;
- Install temporary sediment control measures (silt fencing, berms) on the downslope side of any earthworks within the outer buffer at the Mooi River crossing, to prevent sediment ingress into the river;
- Time construction activities within the outer buffer at the Mooi River crossing to avoid the peak wet season where practicable, to reduce erosion and sedimentation risk;

- Store all hydrocarbons, lubricants, and construction chemicals at least 100 m from the Mooi River or the Tower 493 wetland, on bunded and lined surfaces, with a spill kit available on site at all times;
- Rehabilitate all disturbed areas within the outer buffers immediately upon completion of construction activity at that location, using indigenous, locally sourced grass, sedge, and groundcover species appropriate to riparian or wetland conditions;
- At Towers 110-111, limit vegetation clearance to the minimum footprint required, given the overlap with mapped Critical Biodiversity Areas (CBA1, CBA2) and the National Protected Area Expansion Strategy (NPAES) area, notwithstanding the absence of a watercourse;
- Appoint an Environmental Control Officer (ECO) to monitor compliance with buffer and mitigation conditions at the Mooi River crossing, the Tower 493 wetland, and the Towers 110-111 vegetation footprint throughout construction.

Operational Phase

- Restrict ongoing maintenance access at Towers 491-521 to designated tracks, avoiding repeated disturbance of riparian and wetland vegetation at the Mooi River and Tower 493 outside the established footprint;
- Monitor the Mooi River crossing annually for evidence of erosion, sedimentation, or invasive alien plant establishment associated with the disturbed footprint, for a minimum of three years post-construction;
- Monitor the Tower 493 wetland for evidence of altered surface flow paths or wetness regime following construction;
- Control and remove any alien invasive vegetation establishing within the disturbed footprint or buffer areas at the Mooi River, the Tower 493 wetland, and the Towers 110-111 thornveld footprint as part of routine maintenance.

Decommissioning Phase

- Should the powerline infrastructure be decommissioned, rehabilitate all disturbed areas to a condition consistent with surrounding undisturbed vegetation, with particular attention to restoring riparian function at the Mooi River crossing and wetland function at Tower 493.

11.5 Palaeontological Impact Assessment

The following procedure must be considered in the event that previously unknown fossils or fossil sites are exposed or found during construction of the powerline:

1. Surface excavations should continuously be monitored by the ECO and any fossil material be unearthed the excavation must be halted.

2. If fossiliferous material has been disturbed during the excavation process it should be put aside to prevent it from being destroyed.
3. The ECO then has to take a GPS reading of the site and take digital pictures of the fossil material and the site from which it came.
4. The ECO then should contact a palaeontologist and supply the palaeontologist with the information (locality and pictures) so that the palaeontologist can assess the importance of the find and make recommendations.
5. If the palaeontologist is convinced that this is a major find an inspection of the site must be scheduled as soon as possible in order to minimise delays to the development.
6. From the photographs and/or the site visit the palaeontologist will make one of the following recommendations:
    a. The material is of no value so development can proceed, or:
    b. Fossil material is of some interest and a representative sample should be collected and put aside for further study and to be incorporated into a recognised fossil repository after a permit was obtained from SAHRA for the removal of the fossils, after which the development may proceed, or:
    c. The fossils are scientifically important and the palaeontologist must obtain a SAHRA permit to excavate the fossils and take them to a recognised fossil repository, after which the development may proceed.
7. If any fossils are found then a schedule of monitoring will be set up between the developer and palaeontologist in case of further discoveries.

11.6 Soil and Land Capability (Agriculture)

Management of Loss of Land Capability

- Direct surface disturbance of the identified arable soils can be avoided where possible to minimise loss of arable soils;
- Avoid construction on the active agricultural soils where feasible;
- Minimise the development footprint within the actively cultivated soils;
- The footprint areas should be lightly ripped to alleviate compaction;
- Limit removal of vegetation to demarcated areas only;
- Limit earthworks and vehicle movement to demarcated paths and areas.

Soil Compaction Management

- Soil Compaction is usually greatest when soils are moist, so soils should be stripped when moisture content is as low as possible;
- Heavy equipment movement over replaced soils must be minimised;
- Minimise compaction during smoothing of replaced soils by using dozers rather than graders; and

- Following placement, compacted soils must be ripped to full rooting depth (30cm as the bare minimum seedbed) to allow penetration of plant root.

Soil Contamination Management

- Contamination prevention measures must be addressed in the Environmental Management Programme (EMPr) for the proposed development, and this must be always implemented and made available and accessible to the contractors and construction crew conducting the works on site for reference;
- A spill prevention and emergency spill response plan, as well as dust suppression, and fire prevention plans must also be compiled to guide the construction works;
- An emergency response contingency plan must be put in place to address clean-up measures must a spill and/or a leak occur, as well as preventative measures to prevent contamination; and
- Burying of any waste including rubble, domestic waste, empty containers on the site must be strictly prohibited and all construction rubble waste must be removed to an approved disposal site.

Soil Erosion and Dust Management

- Removal of vegetation must be avoided until such time as soil stripping is required and similarly exposed surfaces, must be re-vegetated or stabilised as soon as is practically possible;
- All excavation/construction vehicles must be in good condition and inspected regularly to ensure there are no chemical spills (diesel/oil) which will negatively impact the receiving environment;
- After the powerline installation, the ground must be seeded with an indigenous grass or other native cover;
- Vegetation clearance and commencement of construction activities can be scheduled to coincide with low rainfall conditions when the erosive stormwater and wind are anticipated to be low whenever possible;
- Avoid vegetation clearance prior to periods of prolonged inactivity;
- All disturbed areas adjacent to the proposed development areas must be re-vegetated with an indigenous grass mix or vegetation mix, if necessary, to re-establish a protective cover, to minimise soil erosion;
- Temporary erosion control measures must be used to protect the disturbed soils during the construction phase until adequate vegetation has established.

11.7 Terrestrial Biodiversity

Destruction of natural vegetation

- An independent Ecological Control Officer (ECO) should be appointed to oversee construction.
- Areas designated for vegetation clearing should be identified and visibly marked off.

- Vegetation clearing in natural areas should be kept to a minimum and restricted to the proposed development footprint only, i.e. the confirmed servitude and access road.
- A temporary fence or demarcation must be erected around the construction area (including the servitude, construction camps, areas where material is stored, and the actual footprint of the development) to prevent access to sensitive environments.
- Prohibit vehicular or pedestrian access into natural areas beyond the demarcated boundary of the construction area.
- No open fires are permitted within naturally vegetated areas.
- Formalise access roads and make use of existing roads, including farm roads and tracks where feasible, rather than creating new routes through naturally vegetated areas.
- A vegetation rehabilitation plan should be implemented. Grass can be removed as sods and stored within transformed vegetation. However, alien invasive vegetation should be removed prior to storing grassland sods in transformed areas. Smaller shrubs and bulbs should also be removed and used for rehabilitation. The plants must preferably be removed during the winter months and be replanted by latest springtime. The grass sods should not be stacked on top of each other. Once construction is completed, these sods should be used to rehabilitate the disturbed areas from where they have been removed. In the absence of timely rainfall, the sods should be watered well after planting and at least twice more over the next 2 weeks.
- Construction workers may not remove flora and neither may anyone collect seed from the plants without permission from the local authority.

Exposure to erosion

- Do not allow erosion to develop on a large scale before taking action.
- Make use of existing roads and tracks where feasible, rather than creating new routes through grassland areas.
- Retain vegetation and soil in position for as long as possible, removing it immediately ahead of construction/earthworks in that area.
- Runoff from roads must be managed to avoid erosion and pollution problems.
- Remove only the vegetation that is essential for construction, and do not allow any disturbance to the adjoining natural vegetation cover. The grassland can be removed as sods and re-established after construction is completed.
- Colonisation of the disturbed areas by plant species from the surrounding natural vegetation must be monitored to ensure that vegetation cover is sufficient within one growing season. If not, then the areas need to be rehabilitated with a grass seed mix containing species that naturally occur within the study area.
- Protect all areas susceptible to erosion and ensure that there is no undue soil erosion resulting from activities within and adjacent to the construction camp and work areas.

Destruction, further loss and fragmentation of the of habitats, ecosystems and vegetation community

- All very high sensitivity areas must be avoided and declared an outright "No-go" area. All high sensitivity areas should be cautiously considered. Should development take place in the high sensitivity areas, the pole spacing should be extended to reduce the number of poles in these areas. The footprint area must be minimised and clearing must also be restricted to the direct impact area and the 55m corridor may not be cleared as a whole.
- Drainage lines must be avoided for pole placement and access roads, and a no-go buffer as indicated in the freshwater report must be applied around them.
- Areas of indigenous vegetation, even secondary communities outside of the direct pylon footprint, should under no circumstances be fragmented or disturbed further. Clearing of vegetation should be minimized and avoided where possible. All activities must be restricted to flat areas as far as possible. No further loss (unnecessary) of very high/high sensitivity areas should be permitted. It is recommended that areas to be developed be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. All structure footprints to be rehabilitated and landscaped after installation is complete. Rehabilitation of the disturbed areas existing in the project area must be made a priority. Topsoil must also be utilised, and any disturbed area must be re-vegetated with plant and grass species which are endemic to this vegetation type.
- Existing access routes, especially roads must be made use of. The development areas and access roads should be specifically demarcated so that during the construction phase, only the demarcated areas may be impacted upon

Destruction of listed and or protected plant species

- The plants of conservation concern should be removed by a suitably qualified specialist prior to construction. This can only be done if authorised by the local conservation authority (DEDECT) using a permit. Once construction is complete, the plants should be reused as part of the rehabilitation of the disturbed areas and replanted where they were removed.
- Where possible, construction activities must be restricted to previously disturbed areas.
- Implement a Plant Rescue and Rehabilitation Plan: Where the plants of conservation concern are deemed to be under threat from the construction activity, the plants should be removed by a suitably qualified specialist and replanted as part of vegetation rehabilitation after the construction (Note, these plants may only be removed with the permission of the provincial authority - permit).

- Adhere to the walkdown mitigations.
- Construction workers may not tamper with or remove these plants, and neither may anyone collect seed from the plants without permission from the local authority.
- Cordon off the sensitive vegetation that houses the protected plant species and the plants of conservation concern, and protect them from construction activities and vehicles.
- Slight deviations of access road/pylon alignments must be permitted to avoid plant populations of conservation concern (DWAF, 2005).

Faunal Impacts

- The walk-through of the powerline corridor conducted in March-April 2026 to identify areas of faunal sensitivity must be adhered to at all times.
- Any fauna threatened by construction activities should be removed to safety by the ECO or other suitably qualified person.
- Existing roads and access routes should be used wherever possible.
- During construction all vehicles should adhere to demarcated tracks or roads and the speed limit should not exceed 40km/h on larger roads and should be 20-30km/h on smaller access tracks.
- No night driving should be permitted, if unavoidable, this must be restricted, and speed limits adhered to.
- A clause must be included in contracts for ALL construction personnel (i.e. including contractors) working on site stating that: “no wild animals will be hunted, killed, poisoned or captured. No wild animals will be imported into, exported from or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass.” A clause relating to fines, possible dismissal and legal prosecution must be included should any of the above transgressions occur, especially for SCC
- All construction staff should undergo environmental induction before construction commences in order to raise awareness and reduce potential faunal impacts.
- To avoid impacts on amphibians, all spills of hazardous material should be cleared in the appropriate manner according to the nature and identity of the spill and all contaminated soil removed from the site.
- Avoid sensitive faunal habitats such as drainage lines and wetlands where possible.
- No fires should be allowed within the site as there is a risk of runaway veld fires.
- Any faunal species that may die as a result of construction must be recorded (i.e. be photographed, GPS co-ordinates taken) and the records uploaded to iNaturalist.
- All machinery, vehicles and earth moving equipment must be maintained and the noise these create must meet industry minimum standards. e.g. the sound generated by a machine must be below a certain decibel as prescribed in the relevant noise control regulations.



- A trained snake handler must be onsite during construction or on call to remove any snakes within construction areas.
- If any parts of site such as construction camps must be lit at night, this should be done with low-UV type lights (such as most LEDs) as far as practically possible, which do not attract insects and which should be directed downwards.
- All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill.
- Ensure that cables and connections are insulated successfully to reduce electrocution risk.
- Any exposed parts must be covered (insulated) to reduce electrocution risk.

Establishment and spread of declared weeds

- Alien invasive species identified within the study area, particularly along the final route alignment, should be removed prior to construction-related soil disturbances. By removing these species, the spread of seeds into disturbed soils will be prevented, which could have a positive impact on the surrounding natural vegetation.
- All alien seedlings and saplings must be removed as they become evident for the duration of construction.
- Manual/mechanical removal is preferred to chemical control.
- All construction vehicles and equipment, as well as construction material, should be free of plant material. Therefore, all equipment and vehicles should be thoroughly cleaned prior to access to the construction areas. The ECO should verify this.
- Adhere to the alien and invasive management developed for the project at all times.

Positive impact by removing alien invasive plants

- Compile and implement an alien invasive monitoring plan to remove alien invasive plant species along the chosen route alignments, prior to construction.
- Rehabilitate all areas cleared of invasive plants as soon as practically possible, utilising specified methods and species.
- Monitor all sites disturbed by construction activities for colonisation by exotics or invasive plants and control these as they emerge. Monitoring should continue for at least two years after construction is complete.
- Follow manufacturer's instruction when using chemical methods, especially in terms of quantities, time of application etc.
- Ensure that only properly trained people handle and make use of chemicals.
- Dispose of the eradicated plant material at an approved solid waste disposal site.

- Only indigenous plant species naturally occurring in the area should be used during the rehabilitation of the areas affected by the construction activities.

Deterioration of natural vegetation

- After construction, the land must be cleared of rubbish, surplus materials, and equipment, and all parts of the land must be left in a condition as close as possible to that prior to construction.
- Ensure that maintenance work does not take place haphazardly, but according to a fixed plan.
- Cordon off areas that are under rehabilitation as no-go areas using danger tape and steel droppers. If necessary, these areas should be fenced off to prevent vehicular, pedestrian and livestock access.
- Delay the re-introduction of livestock (where applicable) to all rehabilitation areas until an acceptable level of re-vegetation has been reached.
- Maintenance workers may not trample natural vegetation and work should be restricted to previously disturbed footprint. In addition, mitigation measures as set out for the construction phase should be adhered to.

Rehabilitation

Vegetation Clearing

- Restrict vegetation clearing to the mapped engineering design pegging, as spelt in the planning stage.
- Where some concrete structures are removed, disturb as little vegetation as possible.
- Soil clearing to establish proper foundation for the structures and stockpiling areas should be done by clearing topsoil and separating stockpiling for later use during rehabilitation.
- It is advisable not to store the removed structures, stockpiles and material for use in ecologically-sensitive areas like riparian belts, watercourses and ecological buffer areas.
- Where vegetation removal is imminent, remove it with roots and parts of their structures to ensure replanting on disturbed portions. If the area will be re- used to construct the new structures, temporary measures to prevent topsoil wash-out during rainfall must be implemented.
- Reseed using seed-mix of indigenous species on the affected zones.
- Minimise uncontrolled slope attenuation and heavy erosion by constructing storm-water control berms, gabion rock blocks as velocity dissipaters, and installing culverts to spread the flowing surface run-off especially on service routes. Rehabilitation should be assisted by ripping compacted soil and sowing a tree species naturally occurring in the savannah biome of the same area. Ripping should be done to a depth of 250mm in two directions at right angles to the slope; this aids in loosening soil and allowing seed germination.

Soil Compaction

- Do not rip and/or scratch areas under wet conditions, as the soil will not break up and compaction will be worsened.
- Do not permit vehicular or pedestrian access into natural or seasonally wet areas during and immediately after rainy periods, until that soil has dried out (DAWF, 2005).
- Areas where soil has been compacted should be ripped to encourage vegetation growth.

Removal of vegetation for new drainways

- Where possible, remove vegetation as turfs or territories that can be replanted as part of the rehabilitation of vegetation around the exact portions of the footprint.
- Where soils are removed, topsoil and subsoil must be stockpiled separately in low heaps of less than 2m high. Top soil is a valuable resource for rehabilitation and vegetation of disturbed areas. After construction, compacted areas should be ripped and topsoil replaced from the areas where it was removed.
- All sloped areas must be re-vegetated by using removed plant tufts or by seeding with a grass-mix containing species naturally occurring in the area. Sloped areas where vegetation has been removed or destroyed should be replanted immediately after completion of construction to avoid erosion.
- Areas with minimal disturbance can be ripped and allowed to naturally re- vegetate. This excludes sloped areas and re-vegetation must be monitored to ensure that alien invasive plant species do not colonies the disturbed areas.
- If natural re-vegetation is unsuccessful, corrective action should be taken, including seeding and planting by a specialist as stipulated in the EMPr.

Release of pollutants

- In case of emergencies or unforeseen events, the problem must be remediated immediately and any spillage into any watercourses be reported to the Department of Water Affairs. The soil must be stabilized (import additional topsoil if necessary) and re-vegetated as soon as possible. Re-vegetation should include seeds from the adjacent grassland and any rescued protected plants and/or plants of conservation concern that might have been impacted.
- Remove all project-related material/support equipment immediately on completion of any construction phases.

Invasive and alien species spreading

- Appoint a specialist in invasive species control, eradication, management and monitoring. Identified invasive species should be removed prior to construction. This will prevent seed spreading into disturbed soils or to downstream areas.

- Mechanical removal is the preferred control mechanism using machinery depending on how congested the area is and this should be a continuous Programme. Biological eradication mechanisms will work, but requires an ecological specialist for population blooming management.
- A register of the methods used, dates undertaken, and herbicides (if used) and dosage used must be kept and available on site. The register must include incidents of poisoning or spillage.

11.8 Visual Impact Assessment

General

- Where areas are going to be disturbed through the destruction of vegetation, for example the establishment of the construction camp, the vegetation occurring in the area to be disturbed must be salvaged and kept in a controlled environment such as a nursery, for future re-planting in the disturbed areas as a measure of rehabilitation.

Transmission Towers

- The preferred type of tower is the compact cross-rope suspension tower. This tower type is the most permeable and creates an extremely low degree of visual obstruction.
- Avoid changing the alignment's direction too often in order to minimise the use of the self-supporting strain tower. This tower type is the most visually intrusive as the steel lattice structure is denser than the other two tower types, hence creating more visual obstruction.
- Rehabilitate disturbed areas around pylons as soon as practically possible after construction. This should be done to restrict extended periods of exposed soil.

Access Routes

- Make use of existing access roads where possible.
- Where new access roads are required, the disturbance area should be kept to a minimum. A two-track dirt road will be the most preferred option.
- Locate access routes so as to limit modification to the topography and to avoid the removal of established vegetation.
- Avoid crossing over or through ridges, rivers, pans or any natural features that have visual value. This also includes centres of floral endemism and areas where vegetation is not resilient and takes extended periods to recover.
- Maintain no or minimum cleared road verges.
- Access routes should be located on the perimeter of disturbed areas such as cultivated/fallow lands as not to fragment intact vegetated areas.
- If it is necessary to clear vegetation for a road, avoid doing so in a continuous straight line. Alternatively, curve the road in order to reduce the visible extent of the cleared corridor.

Cleared Servitudes

- Locate the alignment and the associated cleared servitude so as to avoid the removal of established vegetation.
- Avoid a continuous linear path of cleared vegetation that would strongly contrast with the surrounding landscape character. Feather the edges of the cleared corridor to avoid a clearly defined line through the landscape.

Construction Camps and Lay Down Yards

- If practically possible, locate construction camps in areas that are already disturbed or where it is not necessary to remove established vegetation like for example naturally bare areas.
- Utilise existing screening features such as dense vegetation stands or topographical features to place the construction camps and lay-down yards out of the view of sensitivity visual receptors.
- Keep the construction sites and camps neat, clean and organised in order to portray a tidy appearance.
- Screen the construction camp and lay-down yards by enclosing the entire area with a dark green or black shade cloth of no less than 2m height.
- Keep the construction camps away from existing residents and especially lodges and tourist venues.

11.9 Social Assessment

- A property-specific access protocol must be prepared for each affected property before any site works commence. The protocol must record approved access routes, approved gates, lock / key arrangements where relevant, no-go areas, property-specific movement restrictions, and any agreed conditions relating to stock, crops, game, fencing or sensitive infrastructure. No contractor access may occur until the protocol has been confirmed and communicated to site personnel.
- No access to affected state-owned land may occur until the relevant state representative has been contacted and lawful occupiers / tenants who may be affected have been informed of the proposed works, timing, access arrangements and grievance contact details. Where required, a sensitisation meeting or equivalent notification process must be undertaken prior to construction.
- A farm-specific livestock / game management method statement must be prepared where works may affect livestock or game. This must include temporary stock-control measures where required, gate discipline, restrictions on worker movement outside approved areas, arrangements for stock movement through or around active work areas, and procedures prohibiting the chasing, harassment or disturbance of livestock or game.
- Before any clearing, excavation or foundation works commence, the approved centreline, tower positions, temporary work areas and access routes must be pegged and verified against negotiated servitude constraints. Any property-specific limitation relating to offset from



boundaries, exclusion of pylons, or gate location must be reflected on the construction layout. No deviation from the agreed footprint may occur unless separately approved.

- In addition to the general fire prevention measures in the Generic EMPr, a deviation-specific veldfire readiness protocol must be prepared for the construction phase. This must identify local emergency contacts, property-specific response arrangements where relevant, communication steps in the event of fire, and the conditions under which high-risk activities must be suspended during periods of elevated fire danger. Where required by site conditions, dedicated firefighting capability must be immediately available during active works in velded areas.
- A joint pre-construction walkdown and condition verification must be undertaken with the affected landowner / occupier representative before works commence on each property. The walkdown must identify fences, gates, tracks, pipelines, water points, culverts and other relevant infrastructure or sensitive features within or near the work area, and record their condition photographically.
- On completion of works on each property, a joint property close-out inspection must be undertaken with the affected landowner / occupier representative to confirm reinstatement of disturbed areas, the condition of gates, fencing, tracks and other infrastructure, and closure of any outstanding complaints or damage claims. Any outstanding corrective action must be recorded with agreed timeframes.
- A simple operational access procedure must be adopted for the deviation section. For planned maintenance, affected landowners / occupiers should receive reasonable advance notice of intended access. Maintenance teams must use agreed gates and routes. Where emergency access is required, landowners / occupiers must be informed as soon as reasonably practicable after access is taken.

12 ENVIRONMENTAL IMPACT STATEMENT

This section of the report details the information required as per Section 3(1)(l) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(l) an environmental impact statement which contains—
(i) a summary of the key findings of the environmental impact assessment.
(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and
(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives.

The proposed development comprises two deviations to the authorised Pluto–Mahikeng 400 kV powerline, located within the JB Marks and Mahikeng Local Municipalities of the North West Province. The Pluto–Mahikeng powerline and the associated Mahikeng Main Transmission Substation (MTS) are identified in NTCSA's Transmission Development Plans (2016–2025, 2019–2028 and 2025–2034) as strategic transmission infrastructure required to increase network capacity, improve voltage regulation, and strengthen the reliability and security of electricity supply in the Province. The powerline further forms part of NTCSA's Botswana–South Africa (BOSA) Transmission Interconnection Project, a 210 km link extending from the Mahikeng MTS to Isang in Botswana that is required to strengthen regional transmission infrastructure and support cross-border energy security. The infrastructure was assessed through a Scoping and Environmental Impact Assessment culminating in Environmental Authorisation 14/12/16/3/3/2/1051, issued on 4 February 2019 and extended to 2029. However, during the line design process, adjustments were required to accommodate landowner requirements. Consequently, two sections of the required 55 m servitude extend beyond the approved 2 km corridor and fall outside the area assessed during the original EIA process, necessitating this application, since the Environmental Authorisation permits no deviation from the approved project description without the prior written approval of the competent authority.

The deviations constitute listed activities that trigger the requirement for environmental authorisation. Although the capacity of the powerline falls within Listing Notice 2 of Government Notice R984 of 2014 (as amended), which would ordinarily require a Scoping and Environmental Impact Assessment, Government Notice 113 of 16 February 2018 provides that where the greater part of a pre-negotiated transmission powerline route falls within one or more Strategic Transmission Corridors, the Basic Assessment process contemplated in Regulations 19 and 20 of the EIA Regulations, 2014 (as amended) applies. As the deviations fall within the central and northern Strategic Transmission Corridors, they have been assessed through a Basic Assessment on their own merits, while recognising their relationship to the broader

authorised Pluto–Mahikeng project. The scope for alternatives is materially constrained by this relationship: the deviations do not constitute a new line but form part of the authorised powerline, for which the route corridor, transmission technology and design were assessed in the 2019 process, and they are therefore required to reconnect to the authorised alignment at fixed tie-in points and to remain compatible with the approved overhead 400 kV design. Impact avoidance has accordingly been pursued through the micro-siting of towers to avoid the sensitive features identified during the specialist walk-down, rather than through re-routing.

The receiving environment governs the significance of the assessed impacts. The first deviation, 14 km in length and located approximately 24 km north-west of the Pluto MTS, traverses' semi-arid vegetation showing evidence of grazing, is classified as Critical Biodiversity Areas and Ecological Support Areas, and crosses the Mooi River and its associated wetlands. The second deviation, a lateral movement of the span between towers 110 and 111, falls within the Klerksdorp Thornveld and is located approximately 15 km south-east of Mahikeng and 3 km east of the Mafikeng Nature Reserve. The principal potential impacts arising from these sensitivities are avifaunal collision and electrocution, disturbance to the Mooi River and its wetland buffers, and the loss or disturbance of terrestrial biodiversity within the Critical Biodiversity and Ecological Support Areas, with the operational phase carrying the greatest residual risk.

Various specialist studies were commissioned to determine the significance of these impacts, as guided by the Screening Tool report. The assessment concluded that the deviations align with national, provincial and local development plans, and that the identified impacts can be reduced to acceptable levels through the recommended mitigation, including the fitting of bird flight diverters along the whole deviation alignment, the fitting of bird guards, the placement of towers outside the freshwater buffers, and strict adherence to the Environmental Management Programme. On this basis, all specialist assessments concluded that there are no fatal flaws provided the recommended mitigation measures are effectively implemented. The conclusions of the specialist assessments are set out below.

Archaeology: The assessment concludes that the proposed deviations will not result in significant impacts on archaeological or cultural heritage resources. As no heritage resources of significance were identified within the development footprint, the overall heritage impact is considered low. Subject to compliance with the recommended mitigation measures, no archaeological constraints or fatal flaws were identified that would preclude the proposed development.

Avifauna: The assessment concludes that, while the proposed deviations traverse areas of medium to high avifaunal sensitivity, no fatal flaws were identified that would prevent the development from proceeding. The predicted impacts on resident and migratory avifauna can be effectively managed through the implementation of the recommended mitigation measures, particularly collision mitigation and

construction-phase controls. Subject to these measures, the proposed Pluto–Mahikeng 400 kV Powerline deviations are considered environmentally acceptable from an avifaunal perspective, with residual impacts expected to be within acceptable limits.

Aquatic Biodiversity: The freshwater assessment identified the Mooi River crossing and an adjacent seasonal wetland within Deviation 1 as the primary aquatic sensitivity features. Following the freshwater walkdown, the alignment was refined through micro-siting to avoid direct impacts on these aquatic features and their associated buffer areas. Deviation 2 is located entirely within dryland habitat and does not intersect any wetlands, watercourses, riparian habitat, or drainage features. Consequently, anticipated impacts are limited to temporary, localised construction-related disturbance adjacent to regulated areas. With the implementation of recommended mitigation measures, including the establishment of aquatic buffers and erosion and sediment control measures, residual freshwater impacts are expected to be low. Based on the desktop assessment, field verification and revised tower placement, the specialist concluded that the proposed deviation alignments are environmentally acceptable from a freshwater perspective.

Civil Aviation: The CASSV determined that the proposed deviations are compliant with applicable civil aviation requirements and will not materially affect aviation safety, airspace operations, or aviation infrastructure. The overall civil aviation impact significance is low, and no fatal flaws or aviation-related constraints to the proposed development were identified. Although consultation with the SACAA is not required at the environmental authorisation stage, an Obstacle Approval Application must be submitted following the granting of Environmental Authorisation to determine the final marking and lighting requirements for the transmission line infrastructure in accordance with the South African Civil Aviation Regulations (SACARs).

Palaeontology: The assessment concludes that the proposed deviations are not expected to result in significant impacts on palaeontological heritage resources. While Deviation 1 traverses a geologically sensitive formation, no fossil resources were identified during the field assessment, and the likelihood of encountering fossil material is low. The potential impact can be effectively managed through the implementation of a chance-find procedure during earthworks. From a palaeontological perspective, no fatal flaws were identified, and the proposed development is considered acceptable subject to the recommended mitigation measures.

Soil and Agricultural Potential: The assessment concludes that the proposed deviations will not result in a significant loss of agricultural potential or compromise ongoing farming activities. Construction-related impacts, such as topsoil disturbance, land degradation, and minor constraints around pylon locations, are considered low and can be adequately managed through the implementation of the prescribed mitigation

measures. From an agricultural perspective, no fatal flaws were identified, and the proposed development is considered acceptable.

Terrestrial Biodiversity, Animal and Plant Species: The assessment concludes that the residual impact on habitat will be low to moderate, and that the proposed deviations are environmentally acceptable, provided that the recommended mitigation measures are implemented. These measures include limiting vegetation clearance, demarcating work areas and the implementation of a biodiversity offset, where required, in accordance with the National Biodiversity Offset Guideline (2023) and the requirements of the relevant provincial conservation authority.

Visual Assessment: The assessment concludes that the visual impacts associated with the proposed deviations are acceptable and can be minimised through the implementation of the recommended mitigation measures. Given the predominantly agricultural setting, low density of sensitive visual receptors, and adherence to mitigation measures, no significant visual constraints or fatal flaws were identified that would prevent the proposed development from being implemented.

Social: The assessment concludes that the social impacts associated with the proposed deviation are generally low to moderate in significance and can be reduced to acceptable levels through the implementation of the recommended mitigation measures. No significant social constraints or fatal flaws were identified that would prevent the proposed development from being implemented. Although cumulative impacts may arise where other developments occur concurrently, these are expected to remain manageable through effective communication, local recruitment, access control, contractor management, and ongoing stakeholder engagement. From a social perspective, the proposed deviation is considered acceptable and should not prevent the project from proceeding.

Summaries of the assessed impacts, their significance, and the advantages and disadvantages are provided in Tables 11-1 and 11-2. The sensitive areas identified during the assessment are shown in Figures 12-1 to 12-8. In addition, specialist recommendations have been included in Sections 9 and 11, as well as Section C of the Generic EMPr, attached in Appendix F.

Table 12-1: Summary of assessed impacts.

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
CONSTRUCTION					
Avifauna	Vegetation clearance and construction activities. Movement of heavy machinery.	Displacement of SCC and non-SCC priority species as a result of habitat loss & transformation.	- Limit vegetation clearance to the minimum footprint required. - Rehabilitate disturbed areas progressively. - Schedule clearance outside sensitive breeding seasons where practicable.	**Low (-)**	**Negligible (-)**
Avifauna	Vegetation clearance and construction activities. Movement of heavy machinery.	Displacement of SCC and non-SCC priority species as a result of disturbance.	- Restrict construction activity and vehicle movement to designated access routes and working areas. - Minimise night-time construction activity/lighting near identified priority habitat.	**Moderate (-)**	**Low (-)**
Archaeology	Excavation.	Disturbance or destruction of graves, archaeological remains, buildings and public monuments.	- Implement a chance-find procedure; halt work immediately. - If heritage material is exposed and notify SAHRA/a qualified archaeologist and all construction activities within a minimum radius of 10 metres of the find must cease until further assessment is conducted.	**Low (-)**	**Low (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Palaeontology	Excavation.	Destruction of palaeontological resources.	- Implement a palaeontological chance-find procedure during excavation.	**Low (-)**	**Low (-)**
Agriculture, Soil	Construction of powerline, pylons and access roads. Construction of construction camps and layout areas. Potential leaks or spillage (hydrocarbons). Mixing of soil. Removal of vegetation for support infrastructure.	Soil compaction, erosion, land degradation and soil contamination.	- Strip and stockpile topsoil separately for reinstatement. - Limit vehicle movement to designated routes to reduce compaction. - Implement erosion control on disturbed/sloped areas. - Manage hydrocarbons per the Spill Response Procedure.	**Moderate (-)**	**Low (-)**
Agriculture, Soil	Construction of powerline, pylons and access roads. Construction of construction camps and layout areas.	Introduction or spread of livestock diseases.	- Implement biosecurity protocols including vehicle/equipment disinfection at farm boundaries and coordination with landowners on livestock movement schedules.	**Moderate (-)**	**Low (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
	Potential leaks or spillage (hydrocarbons). Mixing of soil. Removal of vegetation for support infrastructure.				
Freshwater (Aquatic)	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction. Civil works.	Localised erosion and sedimentation near the Mooi riparian zone due to construction movement and disturbed soil surfaces.	- Restrict construction activities outside demarcated buffer areas. - Implement erosion and sediment control measures. - Rehabilitate disturbed surfaces immediately after construction.	**Moderate (-)**	**Low (-)**
Freshwater (Aquatic)	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction.	Accidental hydrocarbon contamination from construction vehicles and machinery.	- Implement spill prevention measures. - Store hazardous substances outside sensitive areas. - Maintain spill kits onsite.	**Low (-)**	**Low (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
	Civil works.				
Freshwater (Aquatic)	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction. Civil works.	Disturbance of riparian vegetation (Mooi) adjacent to access routes.	- Clearly demarcate no-go areas. - Restrict unnecessary vegetation clearing and vehicle movement.	**Moderate (-)**	**Low (-)**
Freshwater (Aquatic)	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction. Civil works.	Temporary disturbance to adjacent dryland vegetation and soils near the wetland buffer area.	- Restrict activities outside demarcated wetland buffer areas. - Implement standard construction environmental controls.	**Low-Moderate (-)**	**Low (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Freshwater (Aquatic)	Site clearing and preparation. Earthworks and vehicle movement. Powerline construction. Civil works.	Dust generation from construction movement in adjacent dryland areas.	- Apply dust suppression (water spraying) on access roads and exposed soil surfaces during dry, windy conditions.	**Low (-)**	**Low (-)**
Terrestrial Biodiversity	Clearance of vegetation. Excavations. Construction activities.	Removal/disturbance of vegetation within the footprint, overlapping Critical Biodiversity Areas (CBA1, CBA2).	- Limit vegetation clearance strictly to the approved servitude/tower footprints; micro-site towers and access roads away from CBA1 areas where feasible; implement a Vegetation Clearance and Rehabilitation Plan under ECO supervision.	**High (-)**	**Moderate (-)**
Terrestrial Biodiversity	Clearance of vegetation. Excavations. Construction activities	Soil erosion following vegetation clearance.	- Progressively rehabilitate cleared areas with indigenous seed mix; install erosion control measures (brush packing, silt fencing) on exposed slopes.	**Moderate (-)**	**Low (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Terrestrial Biodiversity	Clearance of vegetation. Excavations. Construction activities	Destruction of SCCs and/or protected plant geophytes species.	- Implement a search-and-rescue/translocation protocol under a specialist botanist prior to clearance, in accordance with the relevant provincial permit.	**Moderate (-)**	**Low (-)**
Terrestrial Biodiversity	Clearance of vegetation. Excavations. Construction activities	Establishment and spread of weeds.	- Implement an Alien and Invasive Plant Management Plan, including clean-vehicle protocols and follow-up monitoring/control of disturbed areas.	**High (-)**	**Moderate (-)**
Terrestrial Biodiversity	Clearance of vegetation. Excavations. Construction activities	Faunal impacts.	- Implement a fauna protection protocol including pre-clearance walk-throughs, safe removal/relocation of slow-moving fauna, and speed restrictions on access roads.	**Moderate (-)**	**Low (-)**
Protected Areas and NPAES	Clearance of vegetation. Excavations. Construction activities.	Ecological integrity of the Fred Coetzee and Sommerville Private Nature Reserves, i.e., edge effects (dust, noise, disturbance, alien spread)	- Implement boundary buffers, dust and alien-plant control, restriction of construction to daylight hours and prohibition of access into the reserves	**Moderate (-)**	**Low (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
		from Deviation 1 adjacent to their northern boundary.			
CBA and ESA	Construction activities.	Habitat fragmentation of CBA and ESA	- Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, must under no circumstances be fragmented or disturbed further. - Progressive rehabilitation using indigenous vegetation.	**High (-)**	**Moderate (-)**
Waste	Construction activities.	Contamination of land, water and soil due to inadequate waste management practices.	- Implement a Waste Management Plan including designated waste storage areas, regular removal to a licensed facility, and separation of hazardous waste (e.g. hydrocarbons) from general waste.	**Moderate (-)**	**Low (-)**
Visual	Earthworks and construction activities.	Impact on the visual quality of the landscape due to the presence of foreign elements and loss of vegetation cover.	- If practically possible, locate construction camps in areas that are already disturbed. - Utilise existing screening features such as dense vegetation stands or topographical	**Moderate (-)**	**Low (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
			features to place the construction camps and lay-down yards. - Screen the construction camp and lay-down yards.		
Visual	Earthworks and construction activities.	Construction camp and laydown yard may cause unsightly views for residents and motorists.	As above	**Moderate (-)**	**Low (-)**
Visual	Earthworks and construction activities.	Construction camp and laydown yard may cause unsightly views for tourists.	As above	**Low (-)**	**Low (-)**
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Creation of employment, skills development, procurement and business opportunities.	- Employ local contractors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria to the extent possible. - Recruitment and employment practices must be in accordance with all labour legislation in South Africa.	**Low (+)**	**Moderate (+)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Increased demand for low-cost housing and municipal services.	- Prioritise employment of local people. - All applicable land-use agreements must be in place before construction commences. - Adequate arrangements for daily transport to and from the construction site must be provided.	**Negligible (-)**	**Negligible (-)**
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Strain on community health & safety services.	- Prioritise employment of local people from the District and Local Municipalities. - The Applicant and contractor should agree and implement an HIV/AIDS/TB awareness programme.	**Low (-)**	**Low (-)**
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Influx of jobseekers.	- Prioritise employment of local people from the various communities in the affected District Municipalities.	**Negligible (-)**	**Negligible (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Disruption to agricultural operations, including livestock and game management.	- Construction activities must be planned in consultation with the affected land user. - Gates must be kept closed.	**Low (-)**	**Negligible (-)**
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Access control, farm security and conflict with land users/occupiers.	- Access routes and entry points must be agreed before construction commences. - Only approved gates, tracks and access points may be used. A site access register must be maintained where appropriate. - Contractors must be inducted on access rules.	**High (-)**	**Negligible (-)**
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Damage to farm infrastructure and property.	- Sensitive infrastructure must be identified before construction. - Work areas and no-go areas must be clearly demarcated. - Any damage caused by construction must be repaired or replaced promptly.	**Low (-)**	**Negligible (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Safety risks associated with construction vehicles and plant movement on farms and access roads.	- Vehicle speeds must be controlled in accordance with site rules and land user requirements. - Drivers must be inducted on route restrictions and farm safety protocols.	**Low (-)**	**Negligible (-)**
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Dust and general construction nuisance.	- Implement dust suppression measures (water spraying) on active work areas and access roads during dry/windy conditions.	**Low (-)**	**Negligible (-)**
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Fire risk.	- A fire prevention and response plan must be prepared and implemented. - Construction personnel must be inducted on fire prevention requirements.	**Low (-)**	**Negligible (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Non-compliance with approved servitude.	- The approved alignment, tower positions, work areas and access routes must be pegged or otherwise clearly identified prior to construction.	**Low (-)**	**Negligible (-)**
Social	Site preparation. Site establishment. Construction of infrastructure. Site rehabilitation.	Inadequate communication during construction.	- A designated contact person must be available for land-related queries and complaints. - Advance notice of construction activities must be provided where relevant.	**Low (-)**	**Negligible (-)**
Noise	Earthworks and construction activities.	Elevated noise.	- Use noise barriers and low-noise equipment. - A noise control plan must be prepared and implemented.	**Negligible (-)**	**Negligible (-)**
OPERATION					

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Avifauna	Operation and maintenance of the transmission line.	Mortality of SCC and non-SCC priority species due to collision with the 400 kV powerline conductors/earthwires.	- Install bird flight diverters on the earth wire across identified high-risk spans, in line with the Eskom–EWT Strategic Partnership guidelines; monitor collision incidents and adapt marking as required.	**High (-)**	**Low (-)**
Soil	Routine inspection and maintenance.	Soil compaction, soil erosion, land degradation and soil contamination.	- Limit maintenance activities to the minimum area required to prevent unnecessary disturbance of soil and vegetation. - Rehabilitate any disturbed areas following maintenance activities to prevent erosion and the spread of invasive species.	**Moderate (-)**	**Low (-)**
Freshwater (Aquatic)	Maintenance and operation of infrastructure, including the movement of maintenance vehicles.	Occasional disturbance associated with maintenance access.	- Restrict maintenance vehicle access to designated existing access routes; - Avoid unnecessary access through riparian/wetland buffer areas.	**Low (-)**	**Low (-)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Freshwater (Aquatic)	Maintenance and operation of infrastructure, including the movement of maintenance vehicles.	Minor vegetation disturbance beneath conductors during maintenance activities.	- Limit vegetation control beneath conductors to the minimum required for line safety clearances. - Avoid removal of indigenous SCC species where identified.	**Low (-)**	**Low (-)**
Social	Operation and maintenance of the transmission line. Routine inspection and maintenance.	Creation of employment, skills development, procurement and business opportunities.	- Prioritise local labour and service providers for routine maintenance contracts where feasible.	**Negligible (+)**	**Negligible (+)**
Social	Operation and maintenance of the transmission line. Routine inspection and maintenance.	Strengthening energy supply.	- No mitigation required — beneficial impact. Maintain the line per NTCSA operational standards to sustain the benefit.	**Moderate (+)**	**Moderate (+)**
Terrestrial Biodiversity, plants and animals	Maintenance activities and the operation of the powerline. Movement of vehicles.	Removal of alien species.	- Continue routine alien and invasive plant control within the servitude as a positive ongoing management action.	**Low (+)**	**Low (+)**

Theme	Activity	Impact Description	Mitigation Measures	Sig. Without Mitigation	Sig. With Mitigation
Terrestrial Biodiversity, plants and animals	Maintenance activities and the operation of the powerline. Movement of vehicles.	Bush encroachment.	- Implement a routine vegetation management/clearing programme within the servitude in accordance with the line's safety clearance requirements.	**Moderate (-)**	**Low (-)**
Visual	Presence of built infrastructure, i.e. powerlines.	Impact on the visual quality of the landscape due to the presence of a Transmission line.	- Use standard/self-coloured (galvanised) tower finishes appropriate to the landscape context; align route with existing infrastructure corridors where possible to reduce cumulative visual disturbance.	**High (-)**	**Moderate (-)**
Visual	Presence of built infrastructure, i.e. powerlines.	The presence of a transmission line intrudes on existing views and spoils the open panoramic views of the landscape for residents and motorists.	- As above; retain vegetation screening along the servitude edge where safety clearances allow.	**Moderate (-)**	**Low (-)**
Visual	Presence of built infrastructure, i.e. powerlines.	The presence of a powerline intrudes on existing views and spoils the open panoramic views of the landscape for tourists.	As above.	**Low (-)**	**Low (-)**

The table below summarises the positive and negative environmental impacts the proposed project will have.

Table 12-2: Positive and Negative Impacts of the proposed project

Aspect	Rating (Negative / Positive)	Impact Description
Positive and Negative Impacts if the Powerline Is Constructed.		
Job creation	Positive	The proposed project will provide employment opportunities during its various phases, including planning and design, pre-construction, construction, operation, and decommissioning
Macro-economic benefit	Positive	NTCSA has indicated that the proposed project is required to improve transmission capacity, enhance voltage regulation, and strengthen the reliability of electricity supply within the greater Mahikeng, Lichtenburg, and Vryburg areas. The project will also support the broader Botswana–South Africa transmission interconnection, thereby benefiting users at regional and national levels.
Terrestrial Biodiversity	Negative	The proposed powerline deviations traverse environmentally sensitive areas, including CBAs, ESAs, NPAES focus areas, and land adjacent to nature reserves. Although the study area has been disturbed by grazing activities, it continues to function as a natural ecosystem and retains ecological value. The construction and operation of the proposed powerline deviations are anticipated to result in a Moderate negative residual impact on terrestrial biodiversity. In contrast, residual impacts on plant and animal species are expected to be Low following mitigation.

Aspect	Rating (Negative / Positive)	Impact Description
		Appropriate mitigation measures have been recommended to minimise the direct, indirect, and cumulative loss or degradation of sensitive ecosystems and to reduce impacts on species of conservation concern.
Heritage	Negative	No archaeological resources were identified within the servitude. The residual impact is therefore rated Low. However, a Chance Find Procedure must be implemented should archaeological resources be discovered during project implementation.
Palaeontology	Negative	It is unlikely that Plio-Pleistocene fossils, stromatolites, well-preserved vertebrate bones, termitaria, ostrich shells fragments and mollusc shells will be found within the deviation servitudes. In the unlikely event that fossil bones or well-preserved stromatolites are exposed during development, the impact can be appropriately managed through implementation of the Chance Find Procedure. The residual impact on palaeontological heritage is therefore rated Low.
Aquatic	Negative	The deviations traverse the Mooi River and a wetland. The potential impacts are primarily of Low to Moderate significance, provided that construction activities avoid direct encroachment into sensitive watercourses and the mitigation measures outlined in the specialist report are implemented.
Avifauna	Negative	Vulture restaurants and colonies occur within the project area; consequently, the area is classified as highly sensitive from an

Aspect	Rating (Negative / Positive)	Impact Description
		avifaunal perspective, with regional cumulative impacts rated High
Visual impact	Negative	Following implementation of the recommended mitigation measures, the residual visual impact of the 400 kV powerline is rated Moderate.
Soil and land capability	Negative	The proposed project may result in soil compaction and erosion; however, following mitigation, the overall residual impact is rated Low.
Traffic	Negative	The construction of the proposed powerline deviation is expected to result in a temporary increase in construction traffic on local roads. As existing roads will be utilised where possible, traffic volumes will be relatively low and confined to the construction period. With the implementation of appropriate traffic management measures, the residual impact on local roads is anticipated to be negligible.
Waste	Negative	he proposed project will generate various waste streams. If not adequately managed, these waste streams may result in on-site pollution. Mitigation measures have been identified to reduce the potential impact.
Noise	Negative	Noise will be generated by the movement of construction vehicles and equipment and may affect fauna, residents, and tourists. The residual impact is rated Low and can be managed through the implementation of the recommended mitigation measures.
Social	Positive	Benefits to the local economy, including short-term socio-economic opportunities, skills development for local workers, and improvements in the stability of electricity

Aspect	Rating (Negative / Positive)	Impact Description
		supply, are anticipated over the project life cycle. Enhancement measures have been recommended to maximise these positive impacts
	Negative	Potential negative social impacts include an influx of job seekers, unauthorised access to private property, community health and safety risks, and potential effects on property values. Mitigation measures have been recommended to minimise these impacts during project implementation.
Positive and Negative Impacts if the No-Go Alternative Is Implemented		
No job creation	Negative	If the proposed deviations are not authorised, the employment opportunities associated with their construction will not be realised.
No provision of additional power in the North West Province and Botswana	Negative	The transmission-network benefits associated with the proposed development would not be realised, potentially constraining the additional transmission capacity required to support planned development
Delay in Project Implementation	Negative	The authorised alignment cannot be implemented in these locations without modification. Failure to authorise the proposed deviations may therefore delay implementation of the affected sections of the authorised transmission line while alternative engineering or planning solutions are investigated. Such alternatives may not necessarily result in reduced environmental or social impacts and could instead transfer impacts to other properties or environmentally sensitive areas.

Aspect	Rating (Negative / Positive)	Impact Description
Undisturbed environment	Positive	If the proposed 400 kV powerline deviations are not authorised, the existing environment within the deviation footprints would remain undisturbed by the proposed works. The no-go alternative would therefore avoid the localised impacts on water resources, agricultural resources, fauna, avifauna, flora, soils, heritage resources, CBAs, and ESAs identified by the specialist assessments.

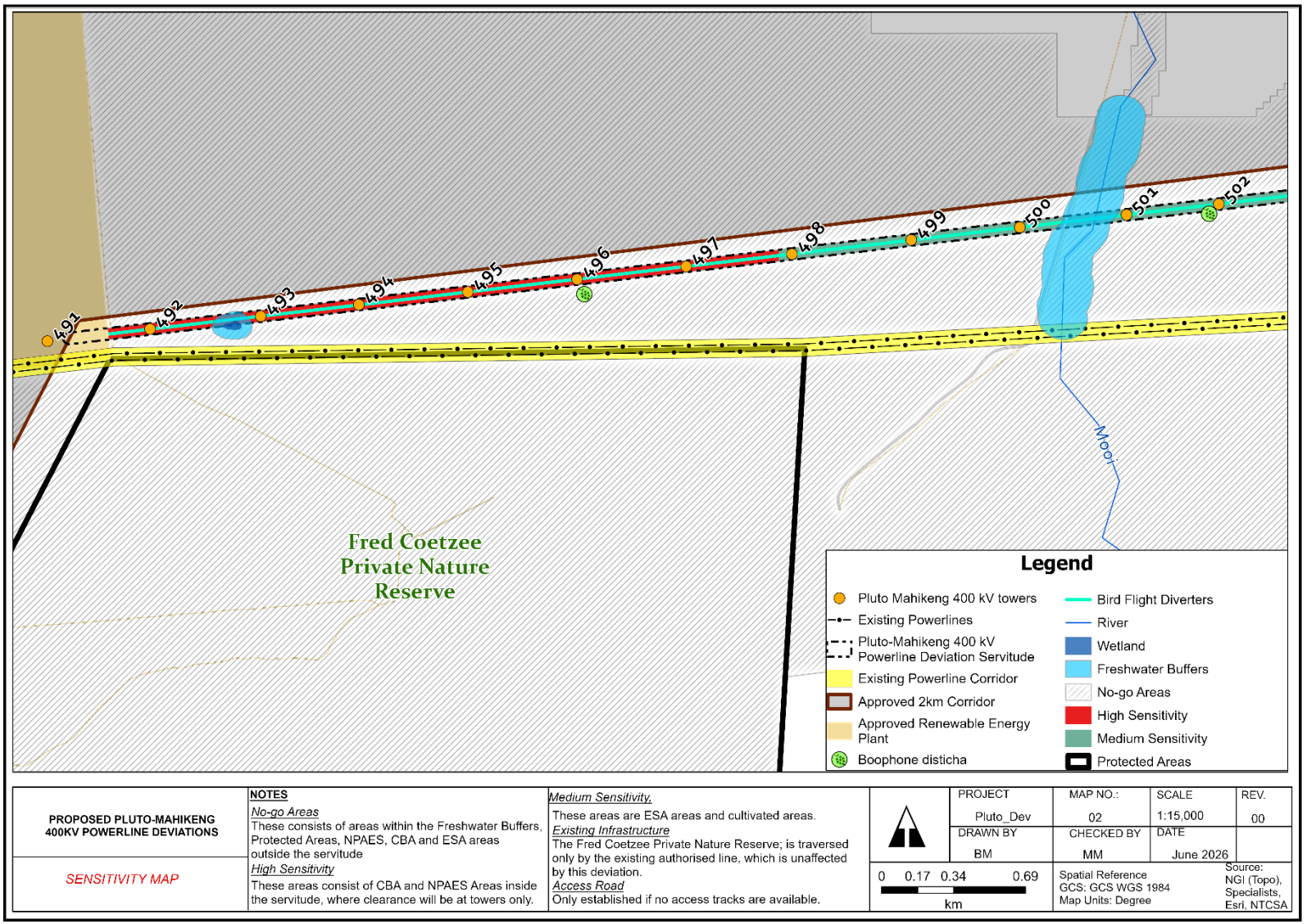


Figure 12-1: First Section of the First Deviation (Towers 491-502)

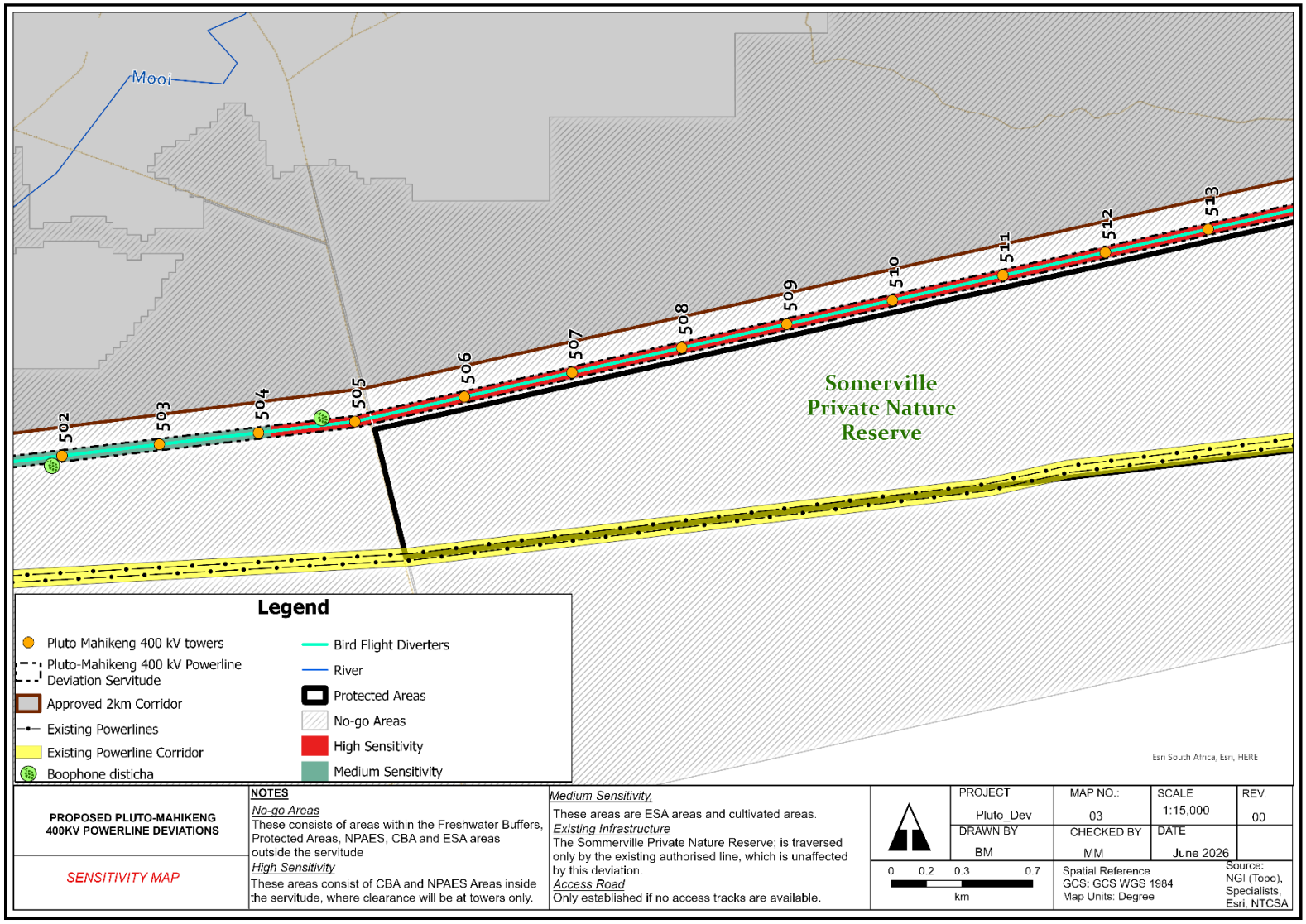


Figure 12-2: Mid-Section of the first deviation (Towers 503-514)

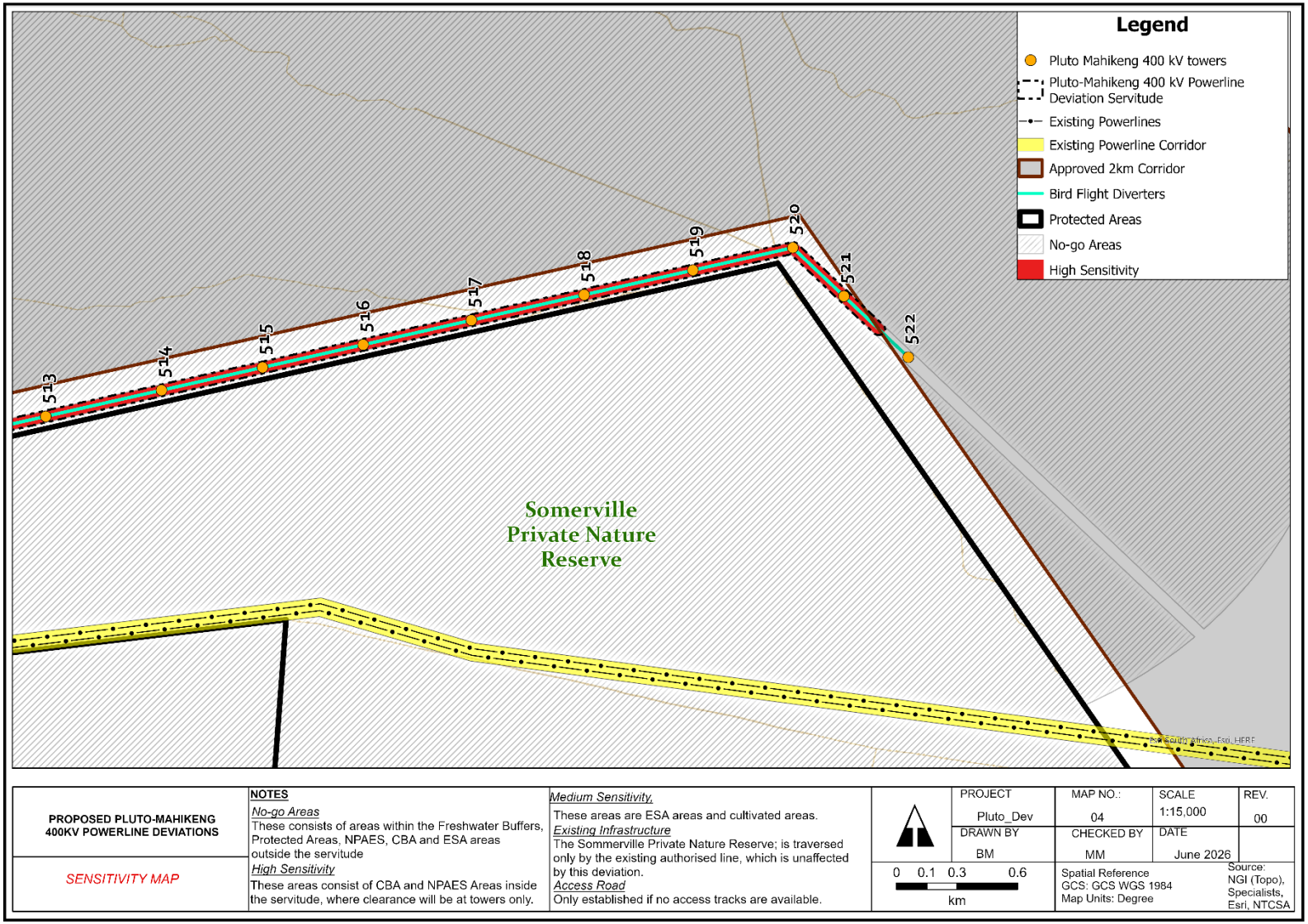


Figure 12-3: Last section of Deviation 1 (Towers 512-522)

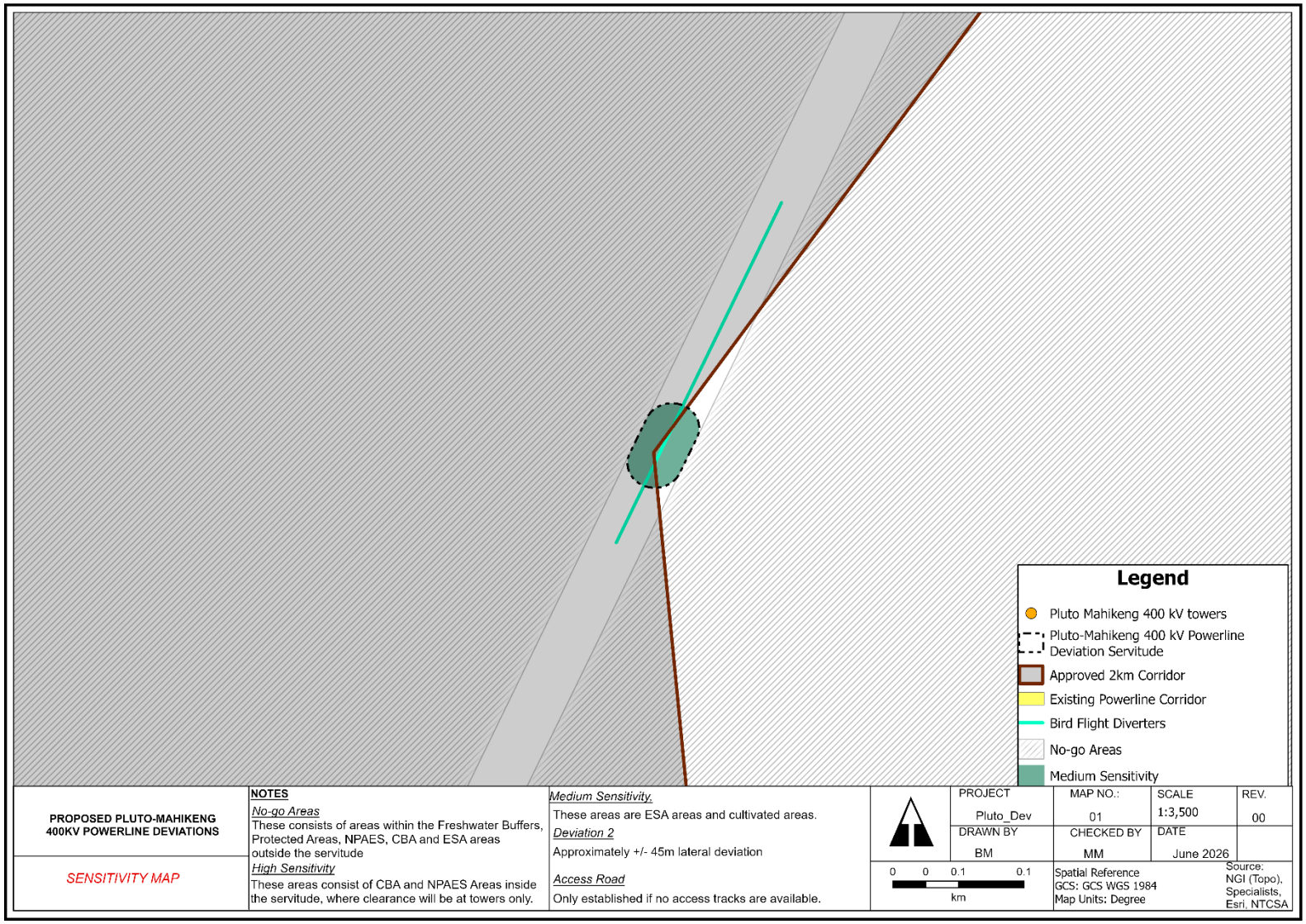


Figure 12-4: Deviation 2 (Span between tower 110 and 111)

13 ANY ASPECTS WHICH WERE CONDITIONAL TO THE FINDINGS OF THE ASSESSMENT, EITHER BY THE EAP OR SPECIALIST, WHICH ARE TO BE INCLUDED AS CONDITIONS OF AUTHORISATION

This section of the report details the information required as per Section 3(1)(n) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(n) any aspects which were conditional to the findings of the assessment, either by the EAP or specialist, which are to be included as conditions of authorisation.

An application for an obstacle assessment must be submitted to Air Traffic and Navigation Services (ATNS) before construction. As the results and recommendations are not included in this document or the EMPr, the EAP recommends that these be implemented to ensure flight safety.

14 ASSUMPTIONS, UNCERTAINTIES, AND GAPS IN KNOWLEDGE WHICH RELATE TO THE ASSESSMENT AND MITIGATION MEASURES PROPOSED

This section of the report details the information required as per Section 3(1)(o) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed.

The assumptions, uncertainties and gaps in knowledge specified are as follows:

14.1 Environmental Assessment Practitioner

- It is assumed that NTCSA has provided adequate details concerning the activities to be carried out and the processes to be followed during the project life cycle.
- This study was carried out with the information available to the EAP when executing the study within the available timeframe and budget. The sources consulted are not exhaustive, and additional information may exist that could strengthen arguments or contradict the information presented in this report.
- The EAP compiled the BAR using information sourced from multiple sources, including specialist studies. The EAP relied on the specialist reports on the basis that the respective specialists are knowledgeable and suitably qualified in their fields of expertise. Accordingly, the EAP has relied on the accuracy and professional integrity of their findings, and no independent review or verification of the specialist information has been undertaken.
- An exact commencement date for the construction phase is unknown.

- The exact location of construction camps and material laydown areas has not yet been specified. It is, therefore, assumed that the camps will be in disturbed areas with existing infrastructure/ buildings.
- For the majority of the developments listed in Table 8-3, the full environmental reports and underlying specialist studies are not in the public domain and could not be obtained despite reasonable effort. The information available for these developments was therefore limited to screening-level project descriptions, authorisation status, and where issued the environmental authorisation and its conditions of approval.
- Where project-specific specialist findings could not be verified, a precautionary approach was adopted in accordance with section 2(4)(a)(vii) of NEMA. Specifically:
  - The impacts of the affected developments were assumed to be present, fully realised, and additive with those of the proposed development.
  - Where uncertainty existed as to the magnitude or extent of a contributing impact, the higher of the credible pre-mitigation ratings was applied.

14.2 Avifauna Specialist

The avifaunal specialist assumed that the sources of information used for this assessment are reliable. However, it must be noted that there are limiting factors and these may potentially detract from the accuracy of the predicted results.

- The report is the result of a short-term study and is based on a two-day field survey of the development area. No long-term, seasonal monitoring was conducted by the avifaunal specialist. This assessment relies upon previous survey secondary data sources with regards to bird occurrence and abundance such as the SABAP2, KBA and IBA projects. These comprehensive datasets provide a valuable baseline against which any changes in species presence, abundance, and distribution can be monitored. However, primary information on bird habitat and avifaunal species occurrence collected during the site visit and together with professional judgement, based on extensive field experience since 2006, was used directly in determining which species of conservation importance are likely to occur within suitable avifaunal habitat types along the route deviation. Based on these findings, the specialist was able to identify and assess the anticipated impacts and provide recommendations for mitigation;
- The focus of this assessment is primarily on the potential impacts on regional SCC and non-SCC powerline sensitive species i.e., species that are vulnerable to the displacement and collision impacts associated with the construction and operation of the Pluto-Mahikeng 400 kV Powerline; and
- Predictions in this study are based on experience of these and similar species in different parts of South Africa, through the authors' experience working in the avifaunal specialist field since 2006. However, bird behaviour cannot be reduced to formulas that will hold true under all



circumstances. It must also be noted that, it is often not possible to eliminate the risk of the disturbance and displacement impacts associated with the construction and operational activities. Our best possible efforts can probably not ensure zero impact on birds. Assessments such as this attempt to minimise the risk as far as possible, and although the displacement impacts, associated with the construction and operation of the Pluto-Mahikeng 400 kV Powerline along the route deviation, will be unavoidable, they are likely to be temporary and of moderate to low significance following mitigation.

14.3 Archaeology and Cultural Heritage Specialist

- It is important to note that the assessment was limited to a cultural heritage assessment and did not include any form of subsurface investigation.
- As with any surface survey, archaeological materials may exist below ground level and therefore remain undetected during the assessment process. Such materials may, however, be exposed during construction activities.
- Consequently, should any archaeological material and/or grave sites be uncovered during the construction phase, a heritage specialist and/or the relevant Provincial Heritage Resources Authority (PHRA) must be notified immediately. It remains the responsibility of the contractor to ensure that the site is protected from unnecessary publicity (e.g., media exposure) until the required assessments and investigations have been completed.

14.4 Aquatic Biodiversity (Freshwater) Assessment

- The assessment is based on the tower positions and deviation geometry as supplied at the time of reporting; any subsequent change in tower position or alignment will require re-assessment.
- The UAV survey was conducted during the period stated in Appendix 12 F and reflects surface water conditions at that time only; seasonal variation in flow and wetland extent should be considered when interpreting the findings.
- Species-level sensitivity features flagged by the national screening tool but withheld pending SANBI confirmation (Section 5) have been assessed at the level of sensitivity indicated, without confirmed species identity.

14.5 Civil Aviation

While the scope of the study is to undertake the CASSV based on the requirements of the DFFE Protocol 320 of 2020, it also references various standards and recommended practices of the ICAO, the SACAA and other authorities, which impose various limitations and publish numerous Standards and Recommended practices, and National Airspace data, as applicable at the dates noted. These include:

- The Civil Aviation Act No. 13 of 2009.
- Draft White Paper on Civil Aviation Policy, 2017.
- ICAO Annex 14, Volume 1, 2018: Aerodrome Design and Operations.

- SA Civil Aviation Regulations (SACARS): Part 139 – Aerodromes and Heliports, February 2025.
- SA Civil Aviation Technical Standards: SA-CATS 139.01.30 (up to 31st Amendment, February 2025)
- Obstacle Limitations and Markings Outside Aerodromes or Heliports.
- Associated provisions of SA-CATS 139.02.2 – Aerodrome Design Requirements
- ATNS Database of civil aviation airspace in South Africa, February 2025.
- The SACAA Aeronautical Information Publication (AIP), July 2025.

14.6 Agricultural (Soil and Land Capability)

- It is assumed that the infrastructure components will remain as indicated on the layout and that the activities for the construction and operation of the infrastructure are limited to that typical for a project of this nature;
- The soil survey was confined to the study area outline with consideration of various land uses outside the study area;
- During the site assessment and compilation of the report, employment figures pertaining to the study area could not be sourced, and
- Soil profiles were observed using a 1.5m hand-held soil auger; thus, a description of the soil characteristics deeper than 1.5m cannot be given.

14.7 Terrestrial Biodiversity

- This report relied most on the walkdown survey that was undertaken in 2026.
- The entire length of the deviations was walked on foot and the specialist sampled representative and accessible areas during the walkdown.
- All species included in the plant species list (Appendix A) were observed and recorded in the study area.
- Any comments or observations made in this regard are based on observations, literature review, the expert knowledge and relevant professional experience of the specialist; and
- Naledzani Environmental Services reserves the right to amend this report, recommendations and/or conclusions at any stage should any additional or otherwise significant information come to light.

14.8 Visual Impact Assessment

The assessment was undertaken during the conceptual stage of the project and is based on information available at the time.

- The exact alignment of the proposed line and position of the pylons have been determined. The visibility results have been generated from the positions of the pylon alignment as provided.
- This level of assessment excludes surveys to establish viewer preference and thereby their sensitivity. Viewer sensitivity is determined by means of a commonly used rating system.

- The visual impact assessment is rated with a general confidence level of 6. This rating indicates that the author's general confidence in the accuracy of the findings is high. Where the confidence level of specific findings is not regarded as high, it is noted in the last column of each impact assessment table.

14.9 Social Impact Assessment

While every reasonable effort was made to prepare an SIA that addresses the key social issues associated with the proposed deviation, the study is subject to certain limitations.

- The assessment is desktop-based and has relied on the project information and records available at this stage of the BA process.
- Five draft specialist field studies were completed, covering freshwater ecology, avifauna, archaeological and cultural heritage, visual impact, and civil aviation site sensitivity. Field surveys were conducted between February and March 2026. The impact assessment, the EMPr site-specific measures, and the cumulative impact assessment should accordingly be read in conjunction with those specialist reports. In particular, at the time of preparation of this report, a preliminary development footprint has been specified.
- In addition, the public consultation process for the current BA is still underway, and further issues may emerge through that process which should be taken into account in finalising the SIA.

15 REASONED OPINION AS TO WHETHER THE PROPOSED ACTIVITY SHOULD OR SHOULD NOT BE AUTHORISED

This section of the report details the information required as per Section 3(1)(p) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;

The Basic Assessment process has been undertaken in accordance with Section 24 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (as amended). The process has identified and assessed the potential environmental and socio-economic impacts associated with the proposed deviation, incorporated specialist investigations, implemented the mitigation hierarchy to avoid, minimise, rehabilitate and manage the identified impacts, and included a public participation process conducted in accordance with the Regulations.

The assessment has been informed by the environmental management principles set out in Section 2 of NEMA. Sustainable development has been integrated into the decision-making process by balancing the need for the proposed deviation against the protection of environmental resources and the interests of

present and future generations. The consideration of alternatives is constrained by the nature of the proposal: the deviation forms part of a broader authorised route, and its alignment is further limited by landowner conditions. Technical and layout alternatives are therefore limited, and impact avoidance has consequently been pursued through the micro-siting of towers to avoid the sensitive features identified during the specialist walk-down, rather than through re-routing. Where impacts could not be avoided, they have been reduced through the mitigation measures and environmental management commitments contained in the Environmental Management Programme (EMPr). A precautionary approach has been applied by identifying environmental sensitivities through specialist investigation, evaluating cumulative impacts, and recommending monitoring and adaptive management where uncertainty remains. The proposed deviation has been assessed against the principles of pollution prevention, ecological integrity, biodiversity conservation and the efficient use of natural resources. The assessment therefore demonstrates that the sensitive environmental features can be adequately protected through compliance with the recommended mitigation measures, the environmental monitoring requirements and the applicable legislation. Interested and affected parties will be afforded a reasonable opportunity to participate throughout the process, and all comments received will be considered in refining the assessment and the proposed mitigation.

The impact assessment indicates that several impacts may be of moderate to high significance prior to the implementation of mitigation measures, particularly during the operational phase. The implementation of the recommended mitigation measures, including the installation of bird flight diverters along the entire deviation alignment, the fitting of bird guards, the placement of towers outside prescribed freshwater buffers, and strict adherence to the Environmental Management Programme (EMPr), will reduce these impacts to acceptable levels. The terrestrial biodiversity assessment, however, identified a moderate residual impact on Critical Biodiversity Areas (CBAs) and the proliferation of invasive species. In accordance with the National Biodiversity Offset Guideline (2023), ongoing consultation with the North West DEDECT is underway to determine whether a biodiversity offset will be necessary. Comments received during the public review period will guide the process further.

Accordingly, provided that all recommended mitigation measures are implemented, including any biodiversity offset requirements arising from the consultation process with the provincial conservation authority, the residual impacts are anticipated to be of low to moderate significance. The specialist assessments have therefore concluded that the proposed development is acceptable from an environmental perspective and that there are no fatal flaws that would prevent the authorisation of the proposed powerline deviation.

Having considered the findings of the Basic Assessment, the specialist studies, the public participation process undertaken to date, the applicable legislation, the environmental management principles set out

in Section 2 of NEMA, and the objectives of Section 24 of NEMA, it is the reasoned opinion of the Environmental Assessment Practitioner that the Competent Authority may grant Environmental Authorisation for the proposed deviations, subject to appropriate conditions of authorisation, implementation of the approved Environmental Management Programme, compliance with all applicable legislation, and any further conditions the Competent Authority considers necessary. Furthermore, the following conditions must also be included in the EA:

- Permits (Water Use, Tree, Civil Aviation Obstructions, Threatened or Protected Species) required by the National Transmission Company South Africa SOC Ltd from other competent authorities must be obtained before the commencement of the activity, and all stated conditions must be implemented unless the respective authority has issued permission to deviate.
- A suitably qualified and experienced Environmental Control Officer (ECO) must be appointed prior to commencement of construction to monitor compliance with the EMPr and the conditions of this Authorisation.
- All permits, licences and authorisations required from other organs of state (including but not limited to any water use authorisation under the National Water Act, and heritage permits under the National Heritage Resources Act) must be obtained prior to the commencement of the relevant activities.
- Bird flight diverters must be fitted along the entire length of the deviation alignment as recommended by the avifaunal specialist, prior to or immediately upon energising of the line.
- Bird guards/ anti-perching or insulation measures must be fitted as specified by the avifaunal specialist to reduce the risk of electrocution and nesting on tower structures.
- Post-construction avifaunal monitoring must be undertaken in accordance with the avifaunal specialist's recommendations, and the results used to inform adaptive management, including the retrofitting of additional mitigation should collision or electrocution incidents be recorded.
- Vegetation clearance must be limited to the minimum footprint necessary for construction and must avoid Critical Biodiversity Areas, Ecological Support Areas and the buffers of the adjacent protected areas (including the Fred Coetzee and Somerville Private Nature Reserves) as far as reasonably practicable.
- The chance find procedures contained in the archaeological and palaeontological specialist reports and the EMPr must be implemented. Should any heritage, archaeological or palaeontological material be encountered during construction, work in the affected area must cease and the South African Heritage Resources Agency (SAHRA) must be notified, and no such material may be disturbed, damaged or removed without the necessary permit.
- The stipulations and provisions of the attached Environmental Management Programmes in Appendix F must be communicated to and familiarised with the contractor and workers responsible for construction.

- An integrated waste management approach must be implemented that is based on waste minimisation and incorporates reduction, reuse, and disposal where appropriate. Any solid waste must be disposed of at a landfill licensed in terms of Section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).

16 THE PERIOD FOR WHICH THE ENVIRONMENTAL AUTHORISATION IS REQUIRED

This section of the report details the information required as per Section 3(1)(q) of Appendix 1 of Environmental Impact Assessment (EIA) Regulations, Government Notice R982 of 2014 (as amended).

(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised

The Environmental Authorisation will be required for ten (10) years.

17 AN UNDERTAKING UNDER OATH OR AFFIRMATION BY THE EAP

I, **Brenda S. Makanza**, the undersigned, , in my capacity as the Environmental Assessment Practitioner (EAP) for the Basic Assessment Application for the proposed deviations of the Pluto-Mahikeng 400 kV powerline, hereby declare that:

- I act as the independent Environmental Assessment Practitioner in this application.
- I have expertise in conducting Environmental Impact Assessments, including knowledge of the relevant legislation, regulations and guidelines applicable to this application.
- I have no vested financial, personal, or other interest in the proposed development other than fair remuneration for work performed in connection with this application.
- I have no conflicting interests in the undertaking of this activity and will perform my work in an objective manner, even if the results may not be favourable to the applicant.
- I will comply with all applicable legislation, including the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment Regulations, 2014 (as amended).
- I have considered all relevant factors and information in preparing this application and will disclose to the competent authority any information that may have the potential to influence the decision of the competent authority.
- I have ensured that the information provided in this application is, to the best of my knowledge, true, accurate, and complete.
- I have ensured that all specialists appointed for this application are independent, have the necessary expertise, and have provided declarations of independence; and
- I will ensure that the application is undertaken in a manner that is transparent and includes appropriate public participation in accordance with the applicable regulations.

I hereby confirm that I am responsible for the information contained in this application and that this declaration is made in accordance with the requirements of the Environmental Impact Assessment Regulations, 2014 (as amended).

Signed: _____  _____ Date: 01.10.2026

EAP Name: Brenda S. Makanza

EAPASA Registration No.: 2019/1542

SACNASP Registration No.: 400016/17



18 ANY SPECIFIC INFORMATION THAT MAY BE REQUIRED BY THE COMPETENT AUTHORITY

The EAP is not aware of any specific information that the Competent Authority may require.

19 ANY OTHER MATTERS REQUIRED IN TERMS OF SECTION 24 (4) (A) AND (B) OF THE ACT

None.

20 CONCLUSION

The independent EAP has undertaken the Basic Assessment process for the proposed project as per the legislation. The project poses positive and negative impacts on the environment. Specialist reports were prepared and recommendation for mitigation of the impacts have been provided. The Public Participation Process is being done in accordance with Chapter 6 of the EIA Regulations and comments and input received to date have been addressed and incorporated in this report. Based on the outcome of the specialist assessments, the continuous engagement with the I&APs, authorities and landowners, the EAP recommends that the project be approved provided that the mitigation measures outlined in this report and the EMPrs are implemented.

21 REFERENCES

AfroConserva Intergration. (2026). *Phase I Cultural Heritage Impact Assessment (HIA) for the Proposed Deviation of the Pluto-Mahikeng 400 kV Powerline within The JB Marks and Mahikeng Local Municipalities in the North-West.* Midrand: AfroConserva Intergration.

DEA. (2017). *Guideline on Need and Desirability.* Pretoria: Department of Environmental Affairs.

Department of Environment, Forestry and Fisheries. (2019). *Strategic Environmental Assessment for the Expansion of Electricity Grid Infrastructure Corridors in South Africa. CSIR Report Number: CSIR/SPLA/EMS/ER/2019/0076/B. ISBN Number: ISBN 978-0-7988-5648.* Department of Environment, Forestry and Fisheries.

Department of Environmental Affairs . (2017). *Guideline on Need and Desirability.* Pretoria: DEA.

Durand, J. F. (2026). *Palaeontological Impact Assessment: Proposed construction of Pluto-Mahikeng 400 kV powerline deviation, Northwest Province.* Johannesburg: Durand, J F.

Enviro-Solum Consulting. (2026). *Site Sensitivity Verification and Soil, Land Use, and Agricultural Compliance Statement: For the Proposed Powerline Deviation for the Pluto-Mahikeng 400 kV Powerline within the JB Marks and Mahikeng Local Municipalities within the North West Province.* Johannesburg: Enviro-Solum Consulting.

Eskom. (2003). *Standard for bush clearance and maintenance within Overhead powerline.* Johannesburg: Eskom.

Eskom. (2020). *Transmission Development Plan (2020-2029).*

Eskom Distribution. (2011). *Distribution Guide – Part 19: Building line restrictions, servitude widths, line separations and clearances from powerlines.* Eskom.

Eskom NTCSA. (2024). *Transmission Development Plan (TDP) 2025-2034.* Johannesburg: Eskom NTCSA.

Eskom Transmission. (2004). *Transmission line towers and line construction. Eskom Transmission.* Eskom Transmission.

Feathers Environmental Services. (2026). *Avifaunal Impact Assessment Report for the Pluto-Mahikeng 400kv Powerline Deviation .* Johannesburg: Feathers Environmental Services.

GWI Aviation Advisory. (2026). *Civil Aviation Site Sensitivity Verification Report for the Deviation of the 400kV Pluto-Mahikeng Powerline within JB Marks Local Municipality under the Dr. Kenneth Kaunda District Municipality and Mahikeng Local Municipality.* Midrand: GWI Aviation Advisory.

IFC World Bank Group. (2013). *Good Practice Handbook Cumulative Impact Assessment and Management: Guidance for the Private Sector in Emerging Markets. .* IFC World Bank Group.

Le Maitre, D., Seyler, H., Holland, M., Smith-Adao, L., Maherry, A., Nel, J., & Witthusser, K. (nd). *Strategic Water Sources Areas: Vital for South Africa's Water, Food and Energy Security.* Pretoria: Water Research Commission.

Naledzani Environmental Services. (2026). *Terrestrial Biodiversity Assessment Report: The Proposed Deviations of the 1x 400kv Pluto-Mahikeng Powerline within JB Marks Local Municipality and Mahikeng Local Municipality within the NorthWest Province.* Johannesburg: Naledzani Environmental Services.

NW DEDECT. (2025). *North West Biodiversity Sector Plan 2025.* Mahikeng: North West Provincial Government.

Outline Landscape Architects. (2026). *Visual Impact Assessment for the proposed Pluto-Mahikeng 400kV Powerline Deviation.* Pretoria: Outline Landscape Architects.

Pachnoda Consulting CC. (2018). *Avifauna and Fauna Report for the Proposed Mahikeng Main Transmission Substation and a Proposed 400kv Pluto-Mahikeng Powerline within Gauteng Province and North West Province.* Pretoria: Pachnoda Consulting CC.

SANBI. (2013). *Grasslands Ecosystem Guidelines: landscape interpretation for planners and managers. Compiled by Cadman, M., de Villiers, C., Lechmere-Oertel, R. and D. McCulloch.* Pretoria: South African National Biodiversity Institute.

Skowno, A. P.-A. (2019). *National Biodiversity Assessment 2018: The status of South Africa's ecosystems and biodiversity. Synthesis Report.* Pretoria: South African National Biodiversity Institute, an entity of the Department of Environment, Forestry and Fisheries .

Solarys (Pty) Ltd. (2026). *Social Impact Assessment for the Proposed 14km Deviation of the 1x 400KV Pluto-Mahikeng Powerline, JB Marks and Mahikeng Local Municipalities, North West Province,.* Randburg: Solarys.

Tshilimo Consulting Services. (2026). *Freshwater (Aquatic) Walkdown Assessment Report: Deviation Section (Tower 491 – Tower 521),Proposed Pluto-Mahikeng 400 kV Transmission Powerline and Associated Infrastructure.* Johannesburg: Tshilimo Consulting Services.