Appendix J

SITE SENSITIVTY VERIFICATION

SITE SENSITIVITY VERIFICATION REPORT – PHEFUMULA EMOYENI ONE ELECTRICAL GRID INFRASTRUCTURE, MPUMALANGA PROVINCE

1 INTRODUCTION

Phefumula Emoyeni One (Pty) Ltd proposes to develop an up to 400kV grid connection and associated infrastructure to tie in the proposed Phefumula Emoyeni One Wind Energy Facility (WEF) to the national grid, near Ermelo located in the Mpumalanga Province, South Africa.

This Site Sensitivity Verification Report forms part of the Application for Environmental Authorisation in terms of the National Environmental Management Act (Act 107 of 1998) (NEMA).

1.1 Purpose of the Report

WSP Group Africa (Pty) Ltd (WSP) has been appointed by Phefumula Emoyeni One (Pty) Ltd as the independent Environmental Assessment Practitioner (EAP) to undertake the required Scoping and Environmental Impact Assessment (S&EIA) process.

The DFFE has developed the National Web-based Environmental Screening Tool in order to flag areas of potential environmental sensitivity related to a site as well as a development footprint and produces the screening report required in terms of regulation 16 (1)(v) of the EIA Regulations (2014, as amended). The Notice of the requirement to submit a report generated by the national web-based environmental screening tool in terms of section 24(5)(h) of the NEMA, 1998 (Act No 107 of 1998) and regulation 16(1)(b)(v) of the EIA regulations, 2014, as amended (GN 960 of July 2019) states that the submission of a report generated from the national web-based environmental screening tool, as contemplated in Regulation 16(1)(b)(v) of the EIA Regulations, 2014, published under Government Notice No. R982 in Government Gazette No. 38282 of 4 December 2014, as amended, is compulsory when submitting an application for environmental authorisation in terms of regulation 19 and regulation 21 of the EIA Regulations, 2014 as of 04 October 2019.

The Screening Report generated by the National Web-based Environmental Screening Tool contains a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development footprint as well as the most environmentally sensitive features on the footprint based on the footprint sensitivity screening results for the application classification that was selected.

A screening report for the construction of the electrical grid infrastructure was generated on 18 June 2024 and is attached as Appendix D of the Draft Environmental Impact Report (DEIR). The Screening Report for the project identified various sensitivities for the site. The report also generated a list of specialist assessments that should form part of the legalisation process based on the development type and the environmental sensitivity of the site. Assessment Protocols in the report provide minimum information to be included in a specialist report to facilitate decision-making.

The Screening Report recognises that “it is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the footprint situation.” This report therefore addresses the findings of the Screening Report and provides a motivation for the proposed specialist studies identified to be conducted.

It also discusses whether the specialist studies forming part of this project are required to comply with the Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes in terms of Section 24(5)

T: +27 11 361 1380

F: +086 606 7121

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(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation ("the Protocols") (Government Notice No. 320 as published in Government Gazette No. 43110 on 20 March 2020 (GNR 320)).

2 METHODOLOGY

In line with GNR 320, the site sensitivity verification requirements have been achieved as per Table 1**Table** below.

Table 1: Site Sensitivity Verification and Minimum Report Content Requirements

Requirement	Reference
1.1. The site sensitivity verification must be undertaken by an environmental assessment practitioner or a specialist.	This Site Sensitivity Verification was compiled by Ashlea Strong, a registered Environmental Assessment Practitioner (EAP) utilising the inputs of various specialists. Details of the EAP are provided in Table 1-3 of the DEIR. The CV of the EAP and The EAP declaration of interest and undertaking is included in Appendix A and Appendix B of the DEIR.
1.2. The site sensitivity verification must be undertaken through the use of: (a) a desk top analysis, using satellite imagery; (b) a preliminary on-site inspection; and (c) any other available and relevant information.	The Site Sensitivity Verification was undertaken through the use of the following: • Available satellite imagery; • Various desktop information sources; • Site inspections by the various specialists that took place between October 2023 and February 2024 as well as between December 2024 and February 2025; and • Additional supporting information supplied by specialists.
1.3. The outcome of the site sensitivity verification must be recorded in the form of a report that-- (a) confirms or disputes the current use of the land and the environmental sensitivity as identified by the screening tool, such as new developments or infrastructure, the change in vegetation cover or status etc.;	A summary of the environmental sensitivities identified by the DFFE Screening Tool and the confirmed sensitivity is provided in **Table**. Motivation for the confirmed sensitivity rating as well as the discussion regarding the verification of the sensitivities is provided in **Section 3**.
(b) contains a motivation and evidence (e.g. photographs) of either the verified or different use of the land and environmental sensitivity; and	Motivation for the confirmed sensitivity rating is provided in **Section 3.**
(c) is submitted together with the relevant assessment report prepared in accordance with the requirements of the Environmental Impact Assessment Regulations1 (EIA Regulations).	This Site Sensitivity Verification Report is being submitted as Appendix J of the DEIR.

3 FINDINGS

3.1 Project and Site Overview

The proposed site for the Phefumula Emoyeni One electrical grid infrastructure is located approximately 16km north-west of Ermelo in the Msukaligwa Local Municipality and Gert Sibande District Municipality, in the Mpumalanga Province of South Africa. The locality of the facilities is illustrated in **Figure 1**.

The project will comprise of the following components:

- One Up to 400kV Loop-in-loop-out (LILO) grid connection;
- Three 132kV Powerlines;
- Three Distribution Substations including Operations and Maintenance (O&M) Buildings;
- One Main Transmission Substation; and
- Temporary construction camp and laydown area.

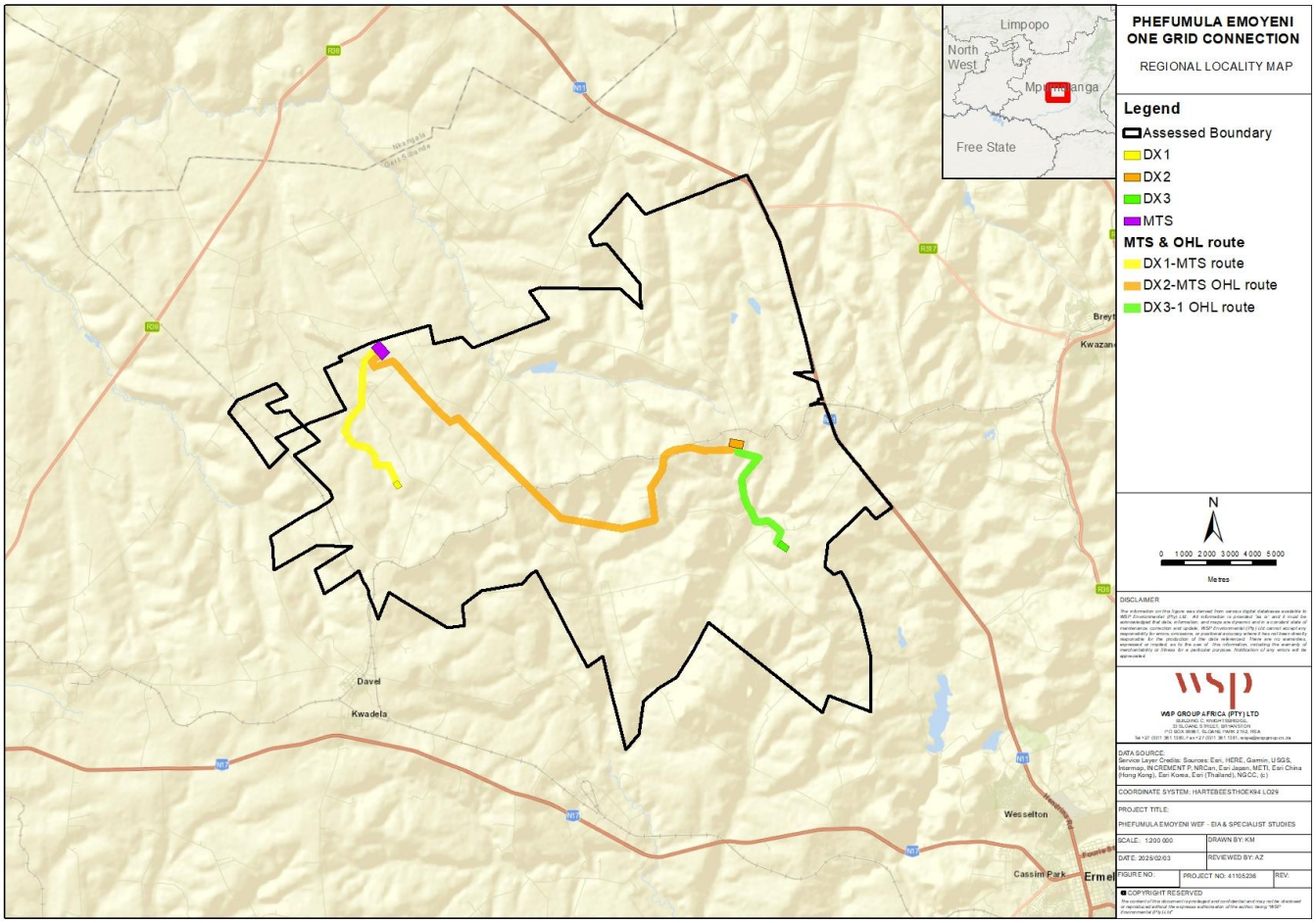


Figure 1: Regional locality map

3.2 Environmental Sensitivity

As per the Screening Tool Report (Appendix I of the DEIR), the proposed site is indicated to be located within areas ranging from low to very high sensitivity. These are identified in **Table 2**.

Table 1: Sensitivities identified in the DFFE Screening Report

Theme	Very High Sensitivity	High Sensitivity	Medium Sensitivity	Low Sensitivity
Agricultural Theme	✓			
Animal Species Theme		✓		
Aquatic Biodiversity Theme	✓			
Archaeological and Cultural Heritage Theme				✓
Civil Aviation Theme			✓	
Defence Theme				✓
Palaeontology Theme	✓			
Plant Species Theme			✓	
Terrestrial Biodiversity Theme	✓			

Based on information gathered through a desktop study and site assessment, not all of the identified sensitivities apply to the site in its current state. **Section 3.3** below serves to:

- Verify land use and sensitivities identified in the Screening Tool Report (as indicated above);
- Provide motivation and evidence of either the verified or different use of the land and environmental sensitivity; and
- Confirm / refute the need for the various specialist inputs recommended in terms of the Screening Tool Report.

3.3 Specialist Assessments

The specialist studies required for the proposed Phefumula Emoyeni One Electrical Grid Infrastructure, as identified by the DFFE Screening Tool are included in **Table 3**. The table also identifies the specialist studies commissioned and provides motivation for specialist studies not commissioned.

Table 3: Specialist Studies identified by the DFFE Screening Tool

Specialist Study Identified	Specialist Study Commissioned	Specialist and Report Reference	Motivation
Agricultural Impact Assessment	Yes	• Johann Lanz (Independent) • Appendix G.7 of the FSR • Appendix G-8 of the DEIR	N/A
Landscape/Visual Impact Assessment	Yes	• Johan Bothma (WSP) • Appendix G.5 of the FSR • Appendix G-6 of the DEIR	N/A
Archaeological and Cultural Heritage Impact Assessment	Yes	• Jaco van de Walt (Beyond Heritage Consulting) • Appendix G.8 of the FSR • Appendix G-11 of the DEIR	N/A
Palaeontology Impact Assessment	Yes	• Prof Marion Bamford • Appendix G.8 of the FSR • Appendix G-11 of the DEIR	N/A
Avifaunal Impact assessment	Yes	• Albert Froneman (AfriAvian Environmental) • Appendix G.4 of the FSR • Appendix G-4 of the DEIR	N/A
Terrestrial Biodiversity Impact Assessment	Yes	• Andrew Zinn (Hawkhead)	N/A

Specialist Study Identified	Specialist Study Commissioned	Specialist and Report Reference	Motivation
		• Appendix G.3 of the FSR • Appendix G-3 of the DEIR	
Plant Species Assessment	Yes	• Andrew Zinn (Hawkhead) • Appendix G.3 of the FSR • Appendix G-3 of the DEIR	N/A
Animal Species Assessment	Yes	• Andrew Zinn (Hawkhead) • Appendix G.3 of the FSR • Appendix G-3 of the DEIR	N/A
Aquatic Biodiversity Impact Assessment	Yes	• Stephen van Staden and Paul da Cruz (Scientific Aquatic Services (SAS) (Pty) Ltd) • Appendix G.2 of the FSR • Appendix G-2 of the DEIR	N/A
Civil Aviation Assessment	No	N/A	A formal Civil Aviation Assessment will not be undertaken as part of the S&EIA Process. Nevertheless, the relevant Authorities have been included on the project stakeholder database. As of the 1st of February 2022, ATNS has been appointed as the new Obstacle application Service Provider for Wind Farms. Their responsibility would pertain to the assessments, maintenance, and all other related matters in respect to Wind Farm assessments. A wind turbine Obstacles application has

Specialist Study Identified	Specialist Study Commissioned	Specialist and Report Reference	Motivation
			been submitted to ATNS for the project and the required permits will be obtained prior to the development of the project. The SACAA has been included on the project stakeholder database. They will be informed of the proposed Project, and comment will be sought. This theme has been identified as being of medium sensitivity, and a compliance statement has been undertaken by the EAP.
Defence Assessment	No	N/A	The Department of Defence has been included on the project stakeholder database. They will be informed of the proposed Project, and comment will be sought. As this theme has been identified as a low sensitivity, no compliance statement is required.
RFI Assessment	No	N/A	An RFI Study will not be undertaken. The SAWS and relevant telecommunications stakeholders will be engaged with as part of the Public Participation Process.
Geotechnical Assessment	Yes - Desktop Assessment	• Heather Davis (WSP) • Appendix G.1 of the FSR • Appendix G-1 of the DEIR	A detailed Geotechnical Assessment will not be undertaken as this will be undertaken during the design phase.
Socio-Economic Assessment	Yes	• Steve Horack (WSP) • Appendix G.6 of the FSR • Appendix G-7 of the DEIR	N/A

Specialist assessments were conducted in accordance with the Procedures for the Assessment and Minimum Criteria for Reporting on identified Environmental Themes, which were promulgated in Government Notice No. 320 of 20 March 2020 and in Government Notice No. 1150 of 30 October 2020 (i.e. “the Protocols”), or Appendix 6 of the EIA Regulations, depending on which legislation apply to the assessment under consideration. A summary of the DFFE screening tool, the applicable legislation as well as the specialist sensitivity verification are detailed in **Table 4** below. The motivation for the site sensitivity verification for each environmental theme is discussed in **Section 3.4** below:

Table4: Assessment Protocols and Site Sensitivity Verifications

Specialist Assessment	Assessment Protocol	DFFE Screening Tool Sensitivity	Specialist Sensitivity Verification
Agricultural Impact Assessment	Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources by onshore wind and/or solar photovoltaic energy generation facilities where the electricity output is 20 megawatts or more	Very High Sensitivity	Confirmed High and Medium Sensitivity.
Landscape/Visual Impact Assessment	Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed	No sensitivity identified by the screening tool	Confirmed Medium to High Sensitivity.
Archaeological and Cultural Heritage Impact Assessment	Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed	Low Sensitivity	Confirmed Medium to High Sensitivity.
Palaeontology Impact Assessment	Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed	Very High Sensitivity	Confirmed Low to High sensitivity.
Terrestrial Biodiversity Impact Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity	Very High Sensitivity	Very High in Mixed Dry Grassland, Rocky Shrubland and Moist Grassland designated as CBA Irreplaceable and CBA Optimal. High in other areas of areas of Mixed Dry Grassland, Rocky Shrubland and Moist Grassland, Very Low in Old Lands, Cultivated Fields and Alien Tree Plantations.
Aquatic Biodiversity Impact Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Aquatic Biodiversity	Very High Sensitivity	Confirmed Very High Sensitivity Conversely, the designation of catchments of wetlands in the central and south-eastern parts of the study area as very high is disputed.

Specialist Assessment	Assessment Protocol	DFFE Screening Tool Sensitivity	Specialist Sensitivity Verification
			Although certain catchment areas of wetlands in this part of the study and investigation area consist of residual natural grassland, many areas are transformed primarily by crop cultivation and the sensitivity of these catchment areas is a lower sensitivity
Civil Aviation Assessment	Protocol For The Specialist Assessment And Minimum Report Content Requirements For Environmental Impacts On Civil Aviation Installations	Medium Sensitivity	Confirmed Low Sensitivity.
Defence Assessment	Protocol For The Specialist Assessment And Minimum Report Content Requirements For Environmental Impacts On Defence installations	Low Sensitivity	Confirmed Low Sensitivity.
Geotechnical Assessment	Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed	No sensitivity identified by the screening tool	N/A
Socio Economic Assessment	Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed	No sensitivity identified by the screening tool	N/A
Plant Species Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Plant Species	Medium Sensitivity	Confirmed Medium Sensitivity. Medium in areas of Mixed Dry Grassland, Rocky Shrubland and Moist Grassland.
Animal Species Assessment	Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Animal Species	High Sensitivity	Confirmed High Sensitivity. High in areas of Mixed Dry Grassland, Rocky Shrubland and Moist Grassland.
Avifauna Assessment	Site Sensitivity Verification Requirements where a specialist Assessment is required but no Specific Assessment Protocol has been prescribed	No sensitivity identified by the screening tool. However, the Animal species theme was identified as High Sensitivity.	Confirmed High Sensitivity.

3.4 Specialist Site Sensitivity Verification Motivation

Agricultural Impact Assessment

The output of the DFFE Screening Tool for the Agriculture Theme is illustrated in **Figure 2** and indicates that the site is classified as Very High Sensitivity.

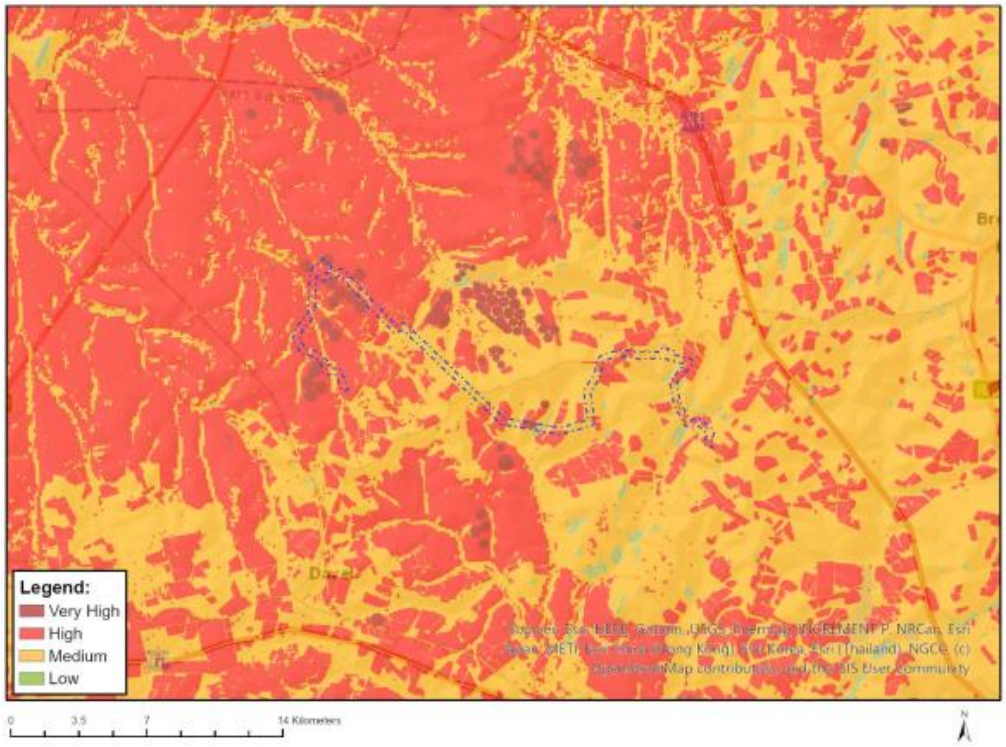


Figure 2: Map of Agriculture Sensitivity

(Source: DFFE Screening Report)

Agricultural sensitivity is an indication of the capability of the land for agricultural production, based only on its climate, terrain, and soil capabilities and its agricultural land use. The different categories of agricultural sensitivity indicate the priority by which land should be conserved as agricultural production land. However, the screening tool's agricultural sensitivity is often of very limited value for assessing agricultural impact. What is of importance to an agricultural assessment, rather than the site sensitivity verification, is its assessment of the cropping potential and its assessment of the impact significance, both of which are not necessarily correlated with sensitivity.

The screening tool classifies agricultural sensitivity according to two independent criteria, from two independent data sets, both of which may be indicators of the land's agricultural production potential but are limited in that the first is outdated and the second is fairly course, modelled data. The two criteria are:

- whether the land is classified as cropland or not on the field crop boundary data set (Crop Estimates Consortium, 2019),
- its land capability rating on the land capability data set (DAFF, 2017).

All classified cropland is, by definition, either high or very high sensitivity. Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. It is rated by the Department of Agriculture's updated and refined, country-wide land capability mapping (DAFF, 2017). The higher land capability values (≥8 to 15) are likely to indicate suitability as arable land for crop production, while lower values (<8)

are likely to only be suitable as non-arable grazing land. The direct relationship between land capability rating, agricultural sensitivity, and rain-fed cropping suitability is shown in **Table 5**.

Table 5: Relationship between land capability, agricultural sensitivity, and rain-fed cropping suitability.

Land Capability Value	Agricultural Sensitivity	Rain-Fed Cropping Suitability
1 - 5	low	Unsuitable
6 - 8	medium	Unsuitable to marginally suitable
9 - 10	high	Suitable
11 - 15	very high	Suitable

The agricultural sensitivity of the site, as classified by the screening tool, is shown in **Figure 3**. However, the screening tool sensitivity requires specialist verification because of the limitations of the data sets on which it is based.

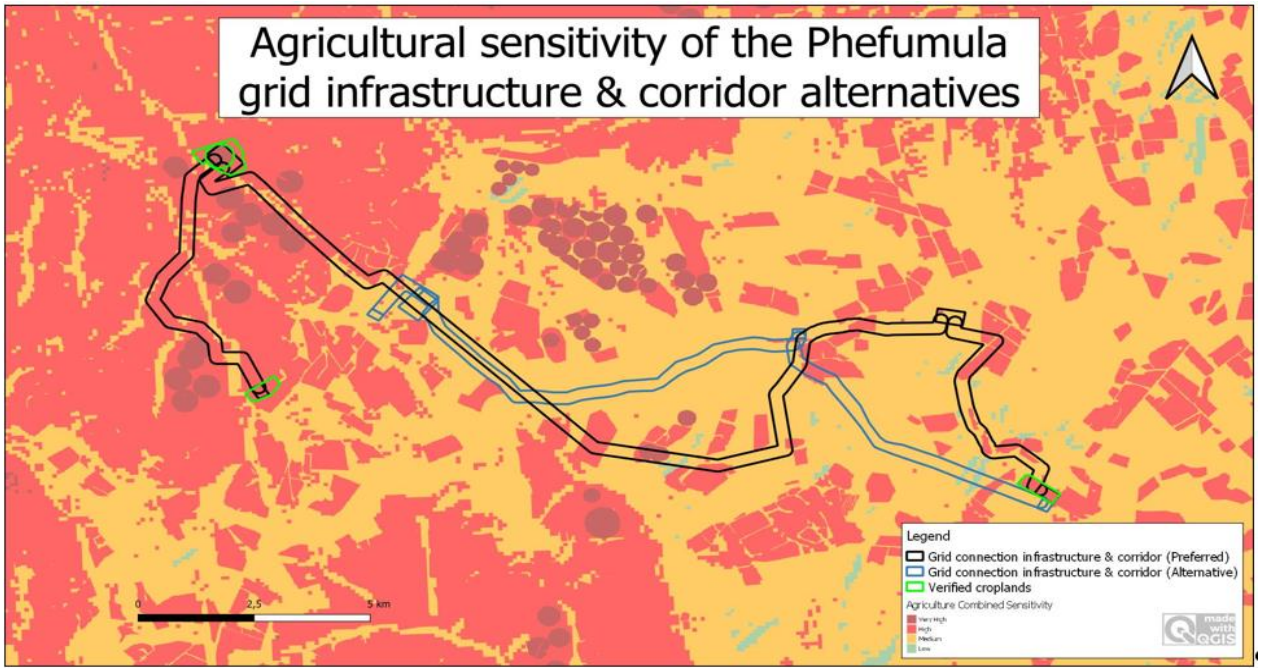


Figure 3: The preferred and alternative assessed corridors, MTS' and the verified rainfed & irrigated croplands overlaid on agricultural sensitivity, as given by the screening tool (green = low; yellow = medium; red = high; dark red = very high). Note that three of the MTS' of the preferred layout are on land verified as being of high & very high agricultural sensitivity.

This verification of sensitivity addresses both components that determine it, namely cropping status and land capability. The screening tool classifies the assessed area as ranging from low to high agricultural sensitivity. The high sensitivity classification is due to a combination of some land being classified as cropland and some being classified with a land capability of 9. This assessment confirms the high sensitivity rating by the screening tool that is based on cropping status.

The classified land capability of the site ranges from 4 to 9. The rating of land capability used by the screening tool is determined by an average soil capability value attributed to each land type. However, there are a range of soil capabilities within each land type, the detail of which the land capability data is unable to take account of and map. On the ground, the soils (and therefore the land capability) vary in a complex pattern across the landscape, which is not reflected at the scale of the land capability data. The most reliable indication of soil cropping potential or soil capability at a landscape scale in this environment is current and historical land use. The suitable versus the unsuitable soils have been identified over time through trial and error. In an agricultural environment like the one being assessed, all

the suitable soils are generally cropped. Cropped soils have a real land capability of ≥8 because the relationship between land capability and agricultural production potential is such that a land capability of ≥8 should denote land that is suitable for viable rainfed crop production. Uncropped soils can fairly reliably be considered to have limitations that make them unsuitable for crop production with the result that their real land capability is less than 8.

In conclusion, this assessment confirms the high and very high sensitivity of the screening tool. The verified areas of high sensitivity across the site differ somewhat from those classified as high sensitivity by the screening tool. This assessment verifies those parts of the site on which there are currently viable croplands, as being of high and very high agricultural sensitivity and the rest of the site as being of medium agricultural sensitivity with a land capability of <8. Three preferred substation footprints are verified as being of very high agricultural sensitivity.

Archaeological and Cultural Heritage Impact Assessment

The output of the DFFE Screening Tool for the Archaeological and Cultural Heritage Theme is illustrated in **Figure 4** and indicates that the site is classified as Low Sensitivity.

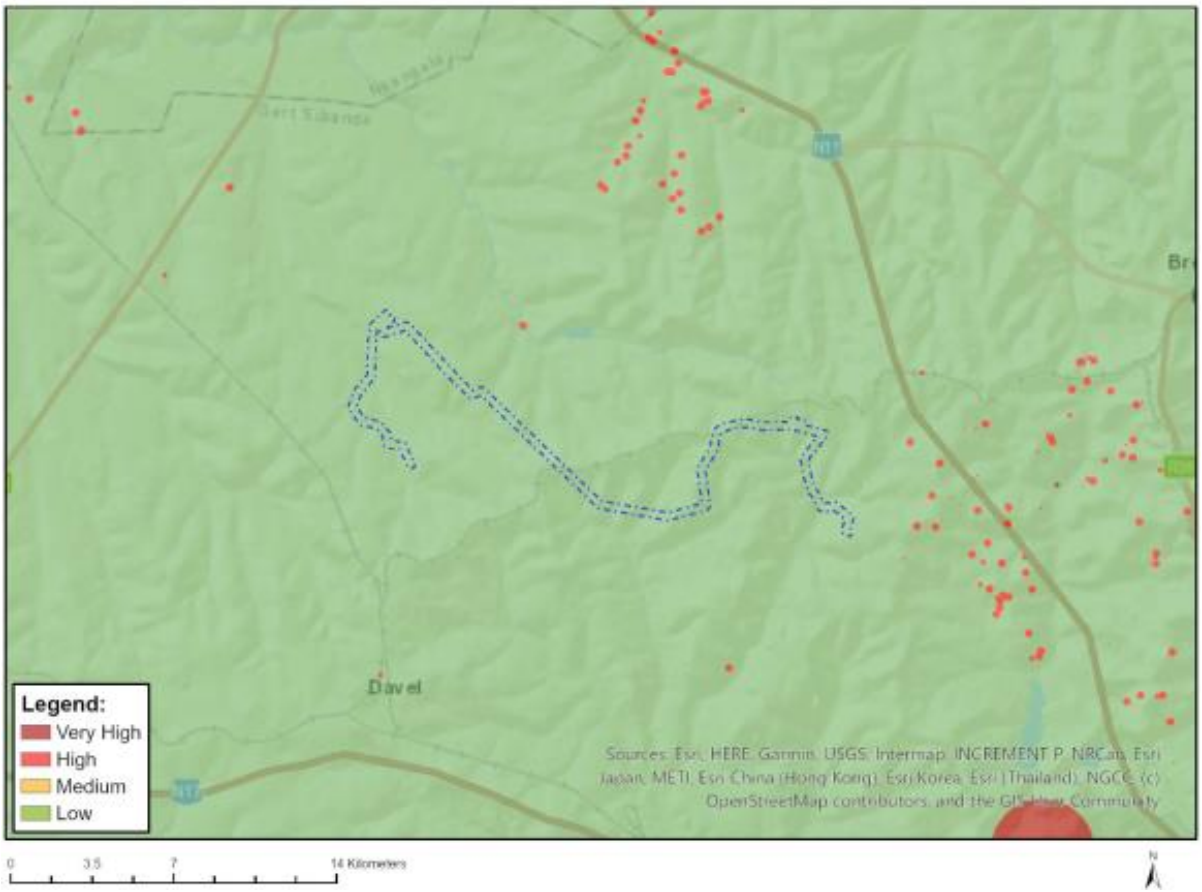


Figure 4: Map of Archaeological and Cultural Heritage Sensitivity

(Source: DFFE Screening Report)

Burial sites are indicated by the Genealogical Society of South Africa (GSSA) just outside of the study area and additional burial sites were recorded during the field survey. These sites would have a field rating of Grade IIIA. Burial sites are of high social significance and should be avoided in the development. Recorded sites of low and medium significance include stone packed features, farmsteads and structural remains (**Figure 5** and **Table 6**).

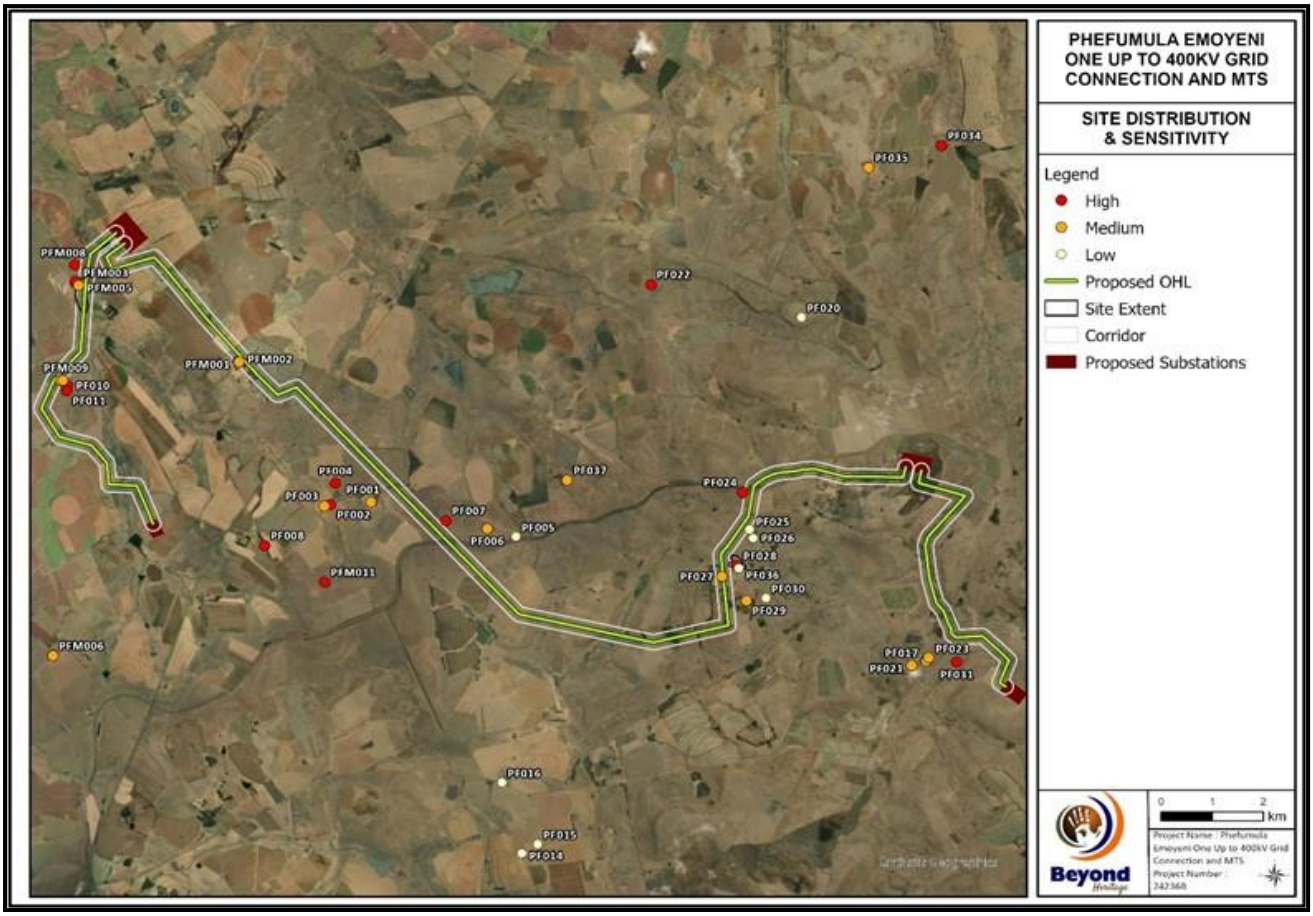


Figure 5: Verified Heritage Sensitivities (Phefumula OHL) – Cultural Heritage

Table 6. Recorded observations and sensitivity ratings.

Label	Description	Sensitivity	Location
PF001	Historical farmstead	Medium	29°50'9.33"E 26°23'13.73"S
PF005	Ruins/ stone packed foundations	High	29°47'53.13"E 26°21'31.13"S
PF017	Two stone packed graves	Low	29°47'58.84"E 26°21'54.99"S
PF018	Stone packed ruins	Low	29°48'1.64"E 26°22'0.51"S
PF021	Ruins – Remnants of a circular stone	Medium	29°47'40.90"E 26°22'26.23"S
PF023	Stone packed ruins/Circular stone packed walling and enclosures	High	29°47'51.12"E 26°22'18.92"S
PF024	Burial site	Medium	29°47'58.85"E 26°22'41.36"S

Label	Description	Sensitivity	Location
PF025	Ruins/Broken down structure	Low	29°48'12.50"E 26°22'39.17"S
PF026	Degraded school building/ recent	High	29°50'29.24"E 26°23'15.85"S
PF027	Large historical farmstead	Low	29°47'52.40"E 26°22'20.52"S
PF028	Burial site containing two stone packed graves and metal grave markers	High	29°43'30.73"E 26°21'46.70"S
PF029	Historical farmstead	Medium	29°41'53.31"E 26°20'19.15"S
PF030	Large historical stone packed kraal	High	29°42'57.77"E 26°21'50.46"S
PF031	Burial site	High	29°39'55.61"E 26°19'31.87"S
PF036	Large broken down and degraded informal settlement.	Medium	29°39'57.81"E 26°19'33.50"S
PFM001	Small fenced off burial site	Medium	29°39'50.10"E 26°23'34.28"S
PFM002	Large Historical farmstead with various structures	High	29° 39' 54.4"E 26° 19' 20.3"S
PFM003	Small burial site	Low	29° 39' 47.5"E 26° 20' 35.4"S
PFM004	Large fenced off burial site	High	29° 39' 49.2"E S26° 20' 35.4"S
PFM005	Large broken down informal settlement near the river	High	29°39'49.21"E 26°20'35.40"S
PFM006	The site consists of stone masoned historical structures	Medium	29°47'53.13"E 26°21'31.13"S
PFM008	Cemetery with 25 graves. 17 stone packed graves, 2 brick packed graves and 6 marble graves	High	29°47'58.84"E 26°21'54.99"S
PFM009	PFM008 is an old windmill and PFM009 is a 10x20m sandstone foundation that is overgrown and only partially visible	Low	29°48'1.64"E 26°22'0.51"S
PFM010		Low	29°47'40.90"E 26°22'26.23"S
PFM011	Possible grave	Medium	29°47'51.12"E 26°22'18.92"S

The area has historically been occupied and although the cultural landscape attests to more recent occupation, heritage resources such as structures (including farmsteads/ruins and associated burial sites) and associated landscape elements older than 60 years are of importance and are protected by Section 34 & 36 of the NHRA. Iron Age stone walled settlements and Rock Art sites also occur in the study area and surrounding area and is protected by Section 35 of the NHRA. There are no fatal flaws and high significance sites are localised and can be mitigated.

Palaeontology Impact Assessment

The output of the DFFE Screening Tool for the Palaeontology Theme is illustrated in **Figure 6** and indicates that the site is classified as Very High Sensitivity.

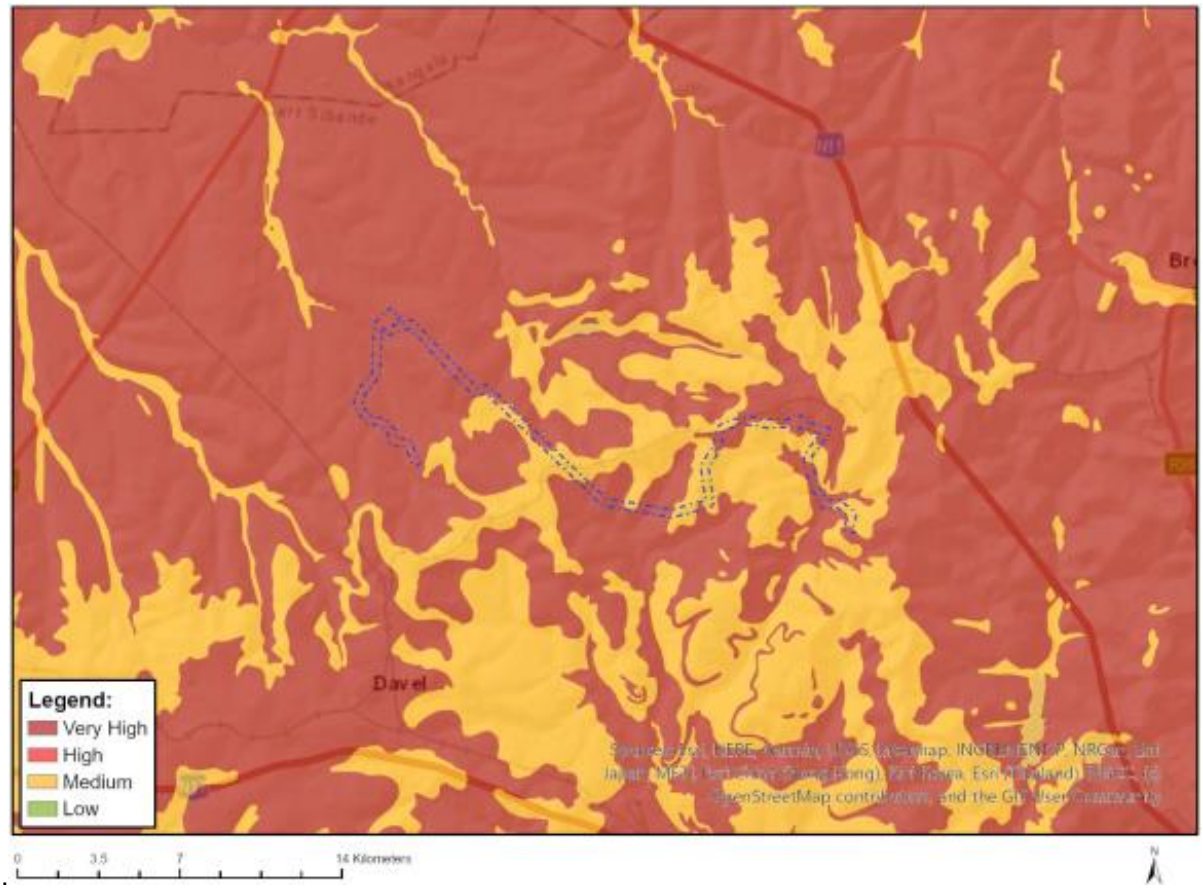
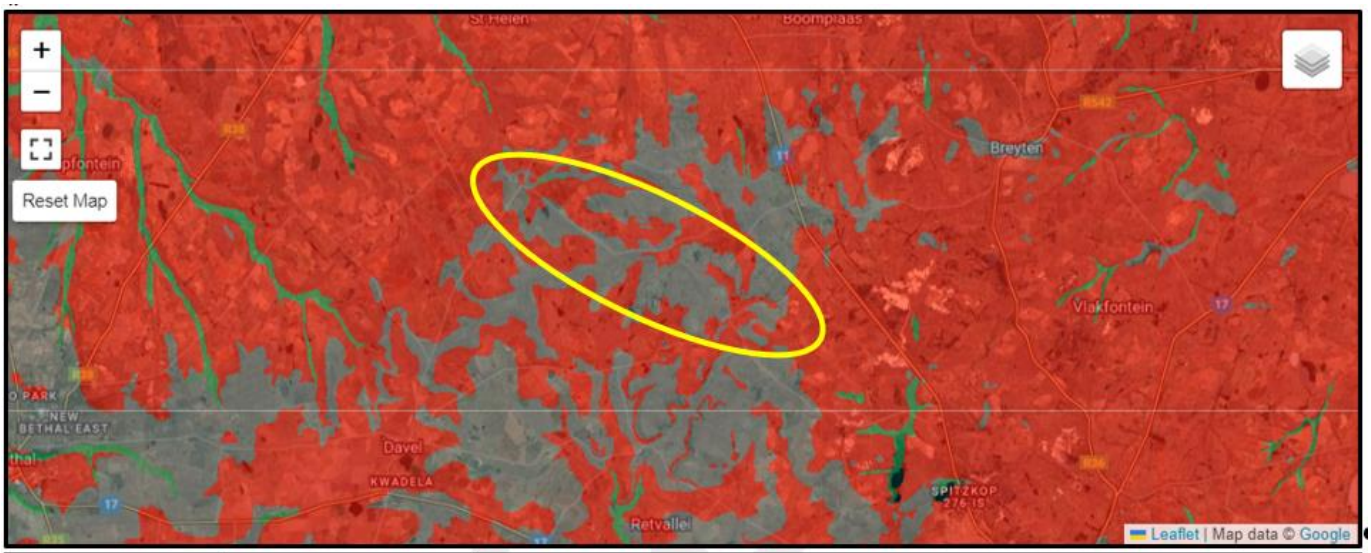


Figure 6: Map of Palaeontology Sensitivity

(Source: DFFE Screening Report)

The study area is of insignificant and very high palaeontological sensitivity based on the SAHRA Paleontological Sensitivity Map (**Figure 7**) and further studies will be required in the EIA phase. An independent study was commissioned for this aspect (Bamford 2024). Bamford (2024) concluded that the proposed route and site lie on the potentially very highly sensitive Vryheid Formation (Ecca Group, Karoo Supergroup) that might preserve fossil plants of the Glossopteris flora so a site visit walkdown and verification was carried by palaeontologists. They confirmed that there were no fossils visible on the land surface which is covered by soils and vegetation or has been ploughed for agriculture. Based on the site visit walkdown, experience and the lack of any previously recorded fossils from the area, it is extremely unlikely that any fossils would be preserved in the overlying soils of the Quaternary. There is a very small chance that fossils may occur in below the soils in the unweathered mudstones, siltstones and shales of the Vryheid Formation (Ecca Group, Karoo Supergroup) so a Fossil Chance Find Protocol should be added to the EMPr.

This site sensitivity verification was undertaken by *Ruan van der Merwe* from *Beyond Heritage on 7 June 2024.*



Colour¤	Sensitivity¤	Required·Action¤
RED¤	VERY·HIGH¤	Field·assessment·and·protocol·for·finds·is·required¤
ORANGE/YELLOW¤	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¤
GREY¤	INSIGNIFICANT/ZERO¤	No·palaeontological·studies·are·required¤
WHITE/CLEAR¤	UNKNOWN¤	These·areas·will·require·a·minimum·of·a·desktop·study.·As·more·information·comes·to·light,·SAHRA·will·continue·to·populate·the·map¤

Figure 7: Preliminary verified sensitivities – Palaeontology.

Terrestrial Biodiversity Impact Assessment

The Terrestrial Biodiversity site sensitivity verification report relates to the Screening Tool Report completed for the site. A site visit was conducted by the specialist on 22-26 January 2024 to inform the specialist reports required for the proposed project and confirm the site sensitivity.

The output of the DFFE Screening Tool for the Terrestrial Biodiversity Theme is illustrated in **Figure 8** and indicates that the site is classified as Vey High Sensitivity due to its overlap with land mapped as 'Critical Biodiversity Area' (CBA) 1 and 2 by the Mpumalanga Biodiversity Sector Plan, 2019. Primary grassland and wetland habitat comprise Eastern Highveld Grassland and Soweto Highveld Grassland, which are listed as threatened ecosystems. Many of these areas are also CBAs and Priority Focus Areas for protected area expansion.

Secondary grasslands and modified habitats cannot contribute to provincial conservation targets, which is the intention of CBAs.

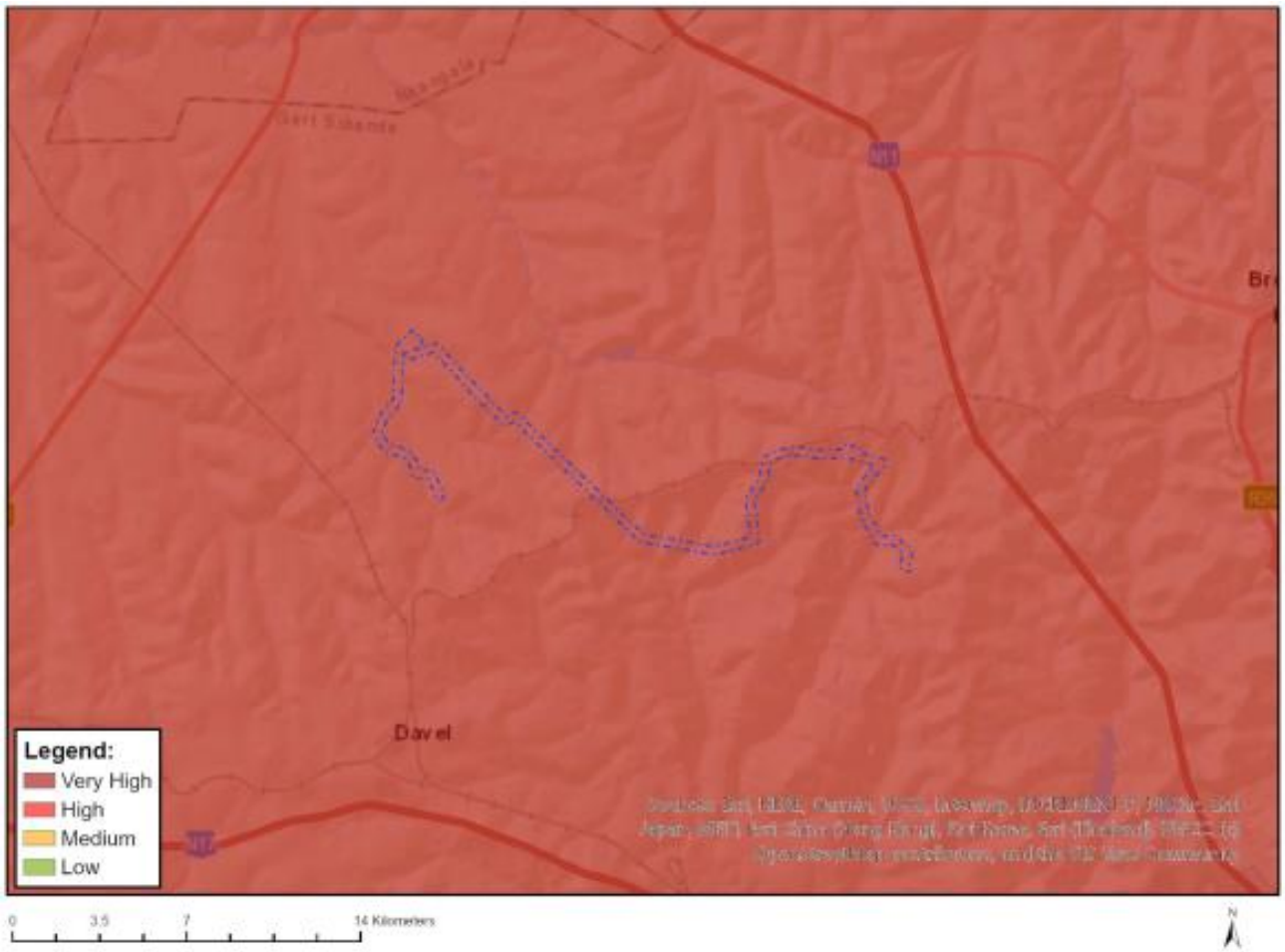


Figure 8: Map of Terrestrial Biodiversity Sensitivity

(Source: DFFE Screening Report)

The sensitivity is confirmed to be Very High in Mixed Dry Grassland, Rocky Shrubland and Moist Grassland designated as CBA Irreplaceable and CBA Optimal. High in other areas of areas of Mixed Dry Grassland, Rocky Shrubland and Moist Grassland, and Very Low in Old Lands, Cultivated Fields and Alien Tree Plantations.

A field programme, comprising flora and fauna surveys, was conducted of the larger Phefumula Emoyeni One study area in which the proposed Project's grid connection infrastructure will be located. The results of the field surveys indicated that the study area, including most of the assessment corridor/footprints, comprises large tracts of natural habitat, with localised patches of modified habitat (e.g., Cultivated Fields, Alien Tree Plantations).

The Mpumalanga Biodiversity Sector Plan (MBSP) (2022) maps most patches of natural habitat in the proposed Project's assessment corridor/footprints as Critical Biodiversity Areas (CBA) Irreplaceable and CBA Optimal. These areas comprise mostly Soweto Highveld Grassland, which is listed as Vulnerable, and small patches of Eastern Highveld Grassland, which is listed as Endangered. In conjunction with adjacent natural habitat, natural habitat within the proposed Project's assessment corridor/footprints supports a rich fauna and flora community and plays an important role in various regional- and landscape-scale ecological processes.

Pursuant to these findings, the National Web Based Screening Tool's rating of 'Very High' sensitivity for the Terrestrial Biodiversity theme is confirmed, and a Terrestrial Biodiversity Specialist Assessment Report will be compiled for the proposed Project, as per the applicable protocol.

Aquatic Biodiversity Impact Assessment

The output of the DFFE Screening Tool for the Aquatic Biodiversity Theme is illustrated in **Figure 9** and indicates that the site is classified as Very High Sensitivity due to the presence of wetland features in and around the study area.

Certain parts of the study area and investigation area of the Phefumula Emoyeni One grid connection have been designated as areas of very high aquatic/ freshwater biodiversity significance. The Screening Tool has designated these areas as being of very high freshwater sensitivity due to numerous factors:

A sub-catchment (quinary catchment) of the C11F catchment in the south-eastern part of the study area is delineated as a Phase 1 FEPA catchment and has accordingly been designated as very high freshwater sensitivity. In addition, various other designations have triggered areas of very high sensitivity:

- CBA: Aquatic rivers
- CBA: Wetlands
- ESA: Important sub-catchments
- ESA: Wetlands
- Rivers: PES AB - D
- Wetlands in the Mesic Highveld Grassland Bioregion

The remainder of the study area has been designated as low aquatic biodiversity sensitivity.

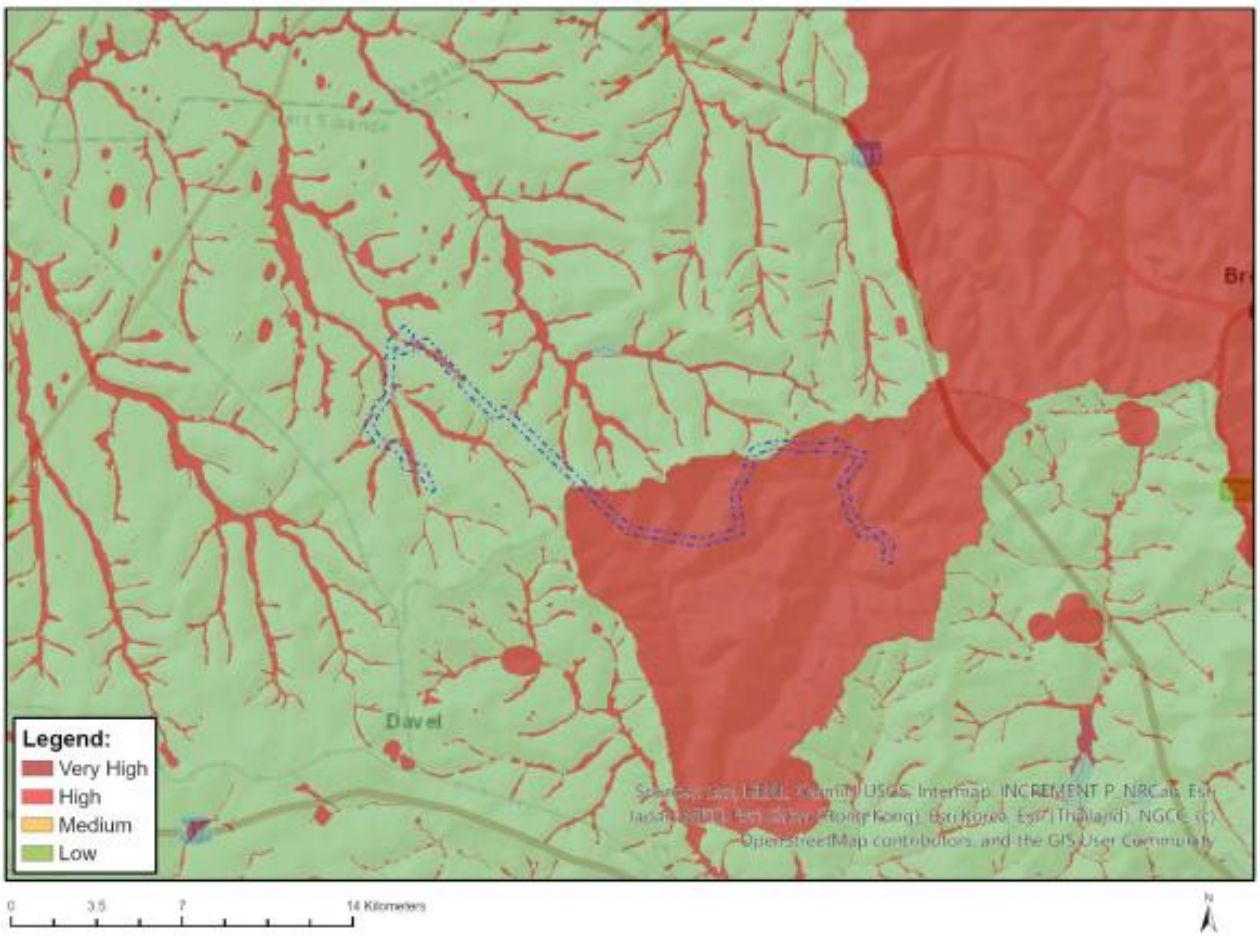


Figure 9: Map of Aquatic Biodiversity Sensitivity *(Source: DFFE Screening Report)*

Based on the site verification undertaken by Scientific Aquatic Services and the findings thereof presented in this report, the designation of very high sensitivity to all freshwater features in the wider area by the DFFE Screening Tool has been supported through the findings of the freshwater assessment that has confirmed the very high sensitivity of all freshwater ecosystems (wetlands) that are present within the study and investigation areas.

The ecological and hydrological functionality of the freshwater ecosystems in a study area context in the context of their designation of many of these as both FEPAs and CBAs renders them as ecologically very sensitive. Thus for areas in which freshwater ecosystems fall into an area of very high freshwater designation, the designation is supported. Conversely, the designation of catchments of wetlands in the central and south-eastern parts of the study area as very high is disputed. Although certain catchment areas of wetlands in this part of the study and investigation area consist of residual natural grassland, many areas are transformed primarily by crop cultivation and the sensitive of these catchment areas is a lower sensitivity

Civil Aviation Assessment

The output of the DFFE Screening Tool for the Civil Aviation Theme is illustrated in **Figure 10** and indicates that the site is classified as Medium Sensitivity. The Screening Tool indicates that there is a civil aviation aerodrome within 8-15km of the site.

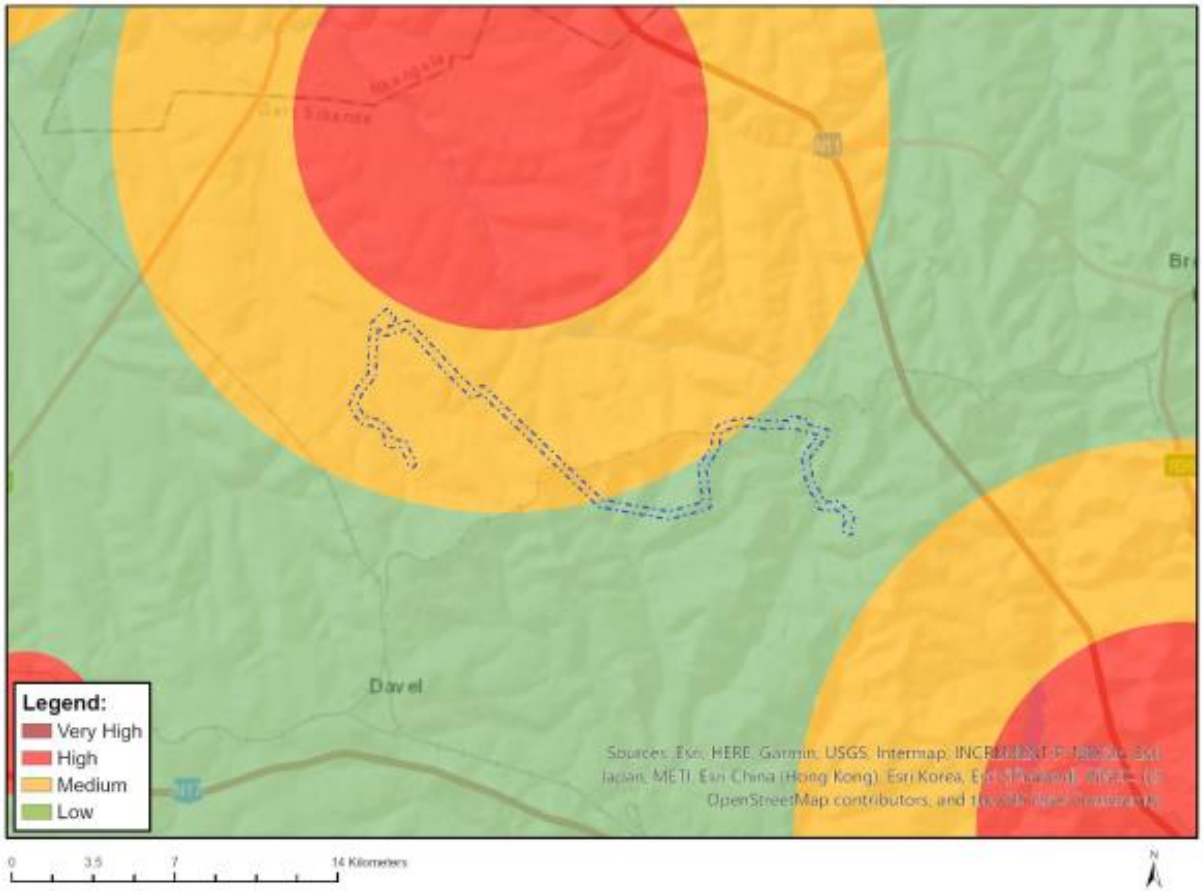


Figure 10: Map of Civil Aviation Sensitivity

(Source: DFFE Screening Report)

A formal Civil Aviation Assessment will not be undertaken as part of the S&EIA Process. Nevertheless, the relevant Authorities have been included on the project stakeholder database. A wind turbine Obstacles application has been submitted to ATNS for the project and the required permits will be obtained prior to the development of the project. The SACAA has been included on the project stakeholder database. They will be informed of the proposed Project, and

comment will be sought. Their responsibility would pertain to the assessments, maintenance, and all other related matters in respect to Windfarms, as this grid connection is associated with a proposed wind farm.

The sensitivity of the civil aviation theme can be seen as low due to the nature of the civil aviation aerodrome in the area. The Ermelo Airfield – FAEO, is a 10m asphalt strip, which will likely cater for small scale aircraft.

Defence Assessment

The output of the DFFE Screening Tool for the Defence Theme is illustrated in **Figure 11** and indicates that the site is classified as Low Sensitivity. The defence theme is considered to be of low sensitivity and therefore a compliance statement is not required. However, the relevant stakeholders have been included on the project stakeholder database i.e. Department of Defence and no comment has been received to date.

Figure 11: Map of Defence Sensitivity

(Source: DFFE Screening Report)

Animal and Plant Species Assessment

The output of the DFFE Screening Tool for the Animal Species Theme is illustrated **Figure 12** and indicates that the site is classified as High Sensitivity. The findings of the specialist study indicate that the study area is rated ‘High Sensitivity’ with respects to terrestrial animals. No ‘no go’ areas were identified with respects to terrestrial animals.

The output of the DFFE Screening Tool for the Plant Species Theme is illustrated in **Figure 13** and indicates that the site is classified as Medium Sensitivity. This rating is confirmed by the findings of the study.

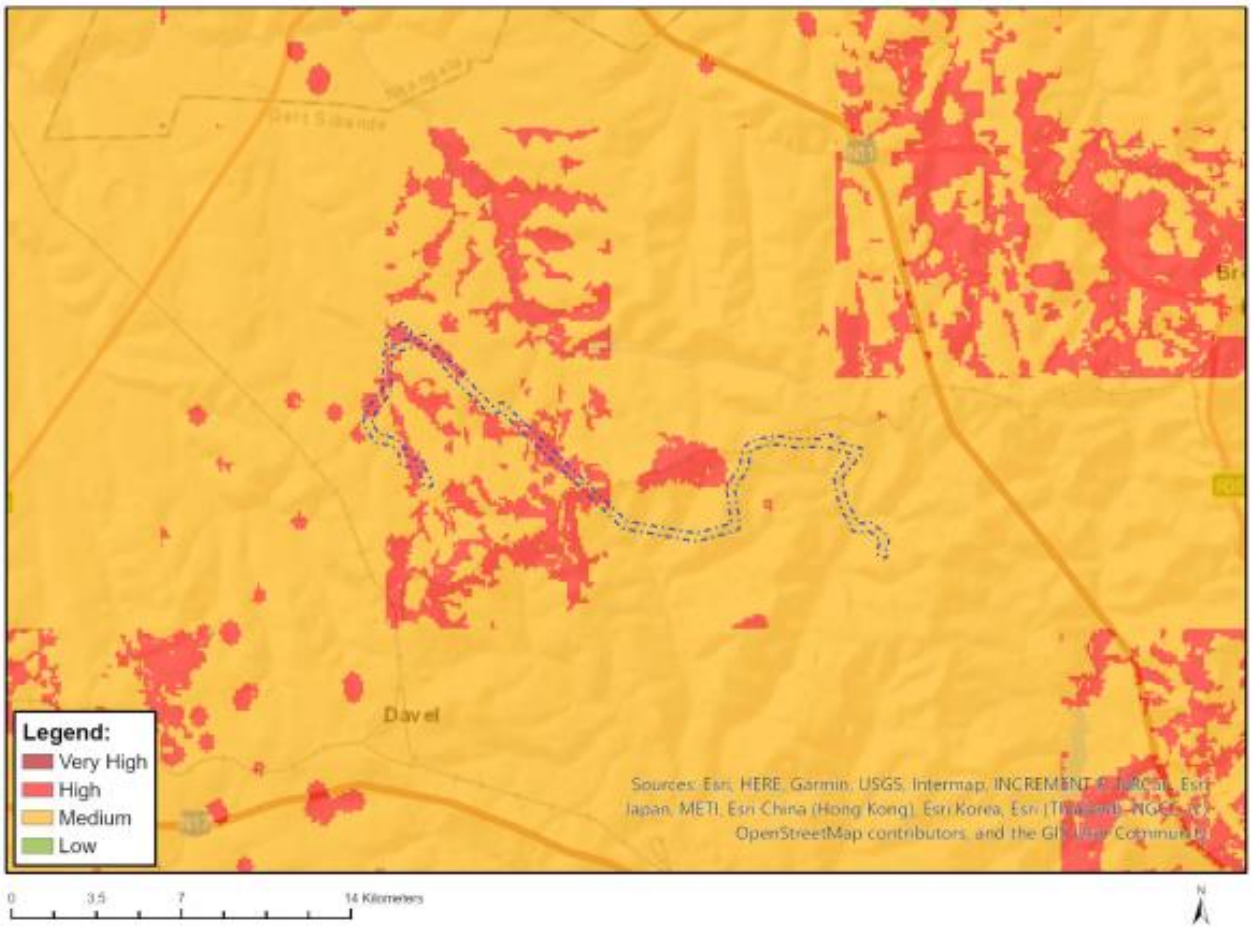


Figure 12: Map of Animal Species Sensitivity

(Source: DFFE Screening Report)

Several fauna species of conservation concern were observed on-site, including inter alia the following mammals: Mountain Reedbuck (*Redunca fulvorufula fulvorufula*) – Endangered, Cape Clawless Otter (*Aonyx capensis*) – Near Threatened and Serval (*Leptailurus serval*) - Near Threatened, and it is likely that several other SCC, including some of those highlighted by National Web Based Screening Tool, may be present on-site.

The 'High' Sensitivity for the Animal Species theme is therefore confirmed, and an Animal Species Specialist Assessment Report will be compiled for the proposed Project, as per the applicable protocol.

Figure 13: Map of Plant Species Sensitivity

(Source: DFFE Screening Report)

No national Red List species were recorded during the field survey. But *Kniphofia ensifolia* subsp. *ensifolia* (Near Threatened, MP) and several flora species that are listed as protected in Mpumalanga Province were recorded in the study area. It is possible that other SCC, including some of those highlighted by National Web Based Screening Tool, may be present on-site.

The 'Medium' Sensitivity rating for the Plant Species theme is therefore confirmed, and a Plant Species Specialist Assessment Report will be compiled for the proposed Project, as per the applicable protocol.

Avifauna Assessment

The output of the DFFE Screening Tool for the Avian Theme is illustrated **Figure 14** and indicates that the site is classified as High sensitivity.

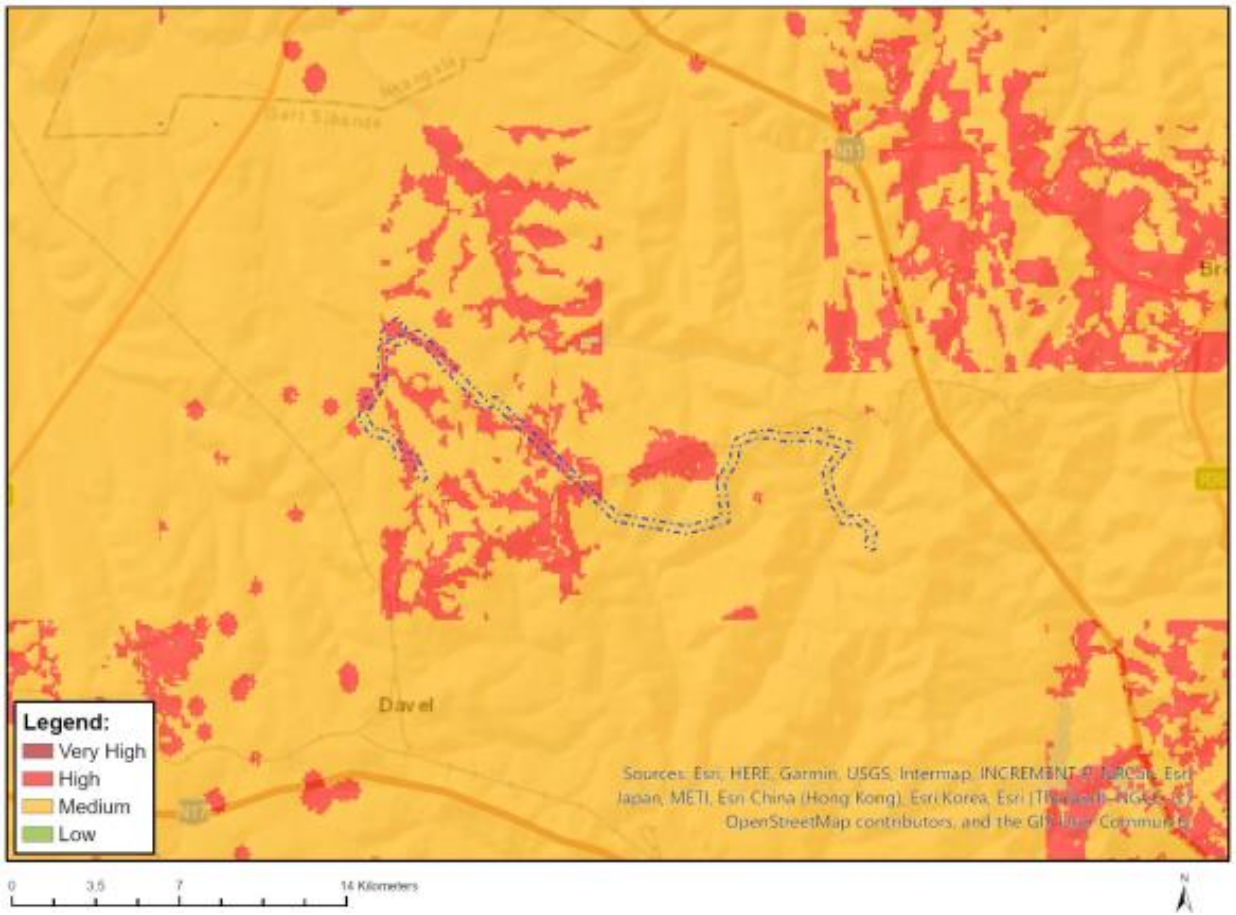


Figure 14: Map of Animal Sensitivity (inclusive of avifauna)

(Source: DFFE Screening Report)

The Project area is situated in the Grassland Biome, in the Mesic Highveld Grassland Bioregion (Mucina & Rutherford 2006). Vegetation on site consists predominantly of Soweto Highveld Grassland and Eastern Highveld Grassland Soweto Highveld Grassland is found on gently to moderately undulating landscapes and consists of short to medium-high, dense, tufted grassland dominated almost entirely by *Themeda triandra* and accompanied by a variety of other grasses. In places that are not disturbed, scattered small wetlands, narrow stream alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover. Eastern Highveld Grassland is found on undulating grassland plains, with small, scattered patches of dolerite outcrops in areas, low hills, and pan depressions. The vegetation is comprised of a short, closed grassland cover, largely dominated by a dense *Themeda triandra* sward, often severely grazed to form a short lawn (Mucina & Rutherford 2006).

The First Southern African Bird Atlas Project (SABAP1) recognises six primary vegetation divisions (biomes) within South Africa, namely (1) Fynbos (2) Succulent Karoo (3) Nama Karoo (4) Grassland (5) Savanna and (6) Forest (Harrison *et al.* 1997). The criteria used by the authors to amalgamate botanically defined vegetation units, or to keep them separate were (1) the existence of clear differences in vegetation structure, likely to be relevant to birds, and (2) the results of published community studies on bird/vegetation associations. Using this classification system, the natural vegetation in the Project Site is classified as Grassland (Harrison *et al*. 1997).

The proposed Phefumula Emoyeni One Electrical Grid Infrastructure Project area is situated on the gently undulating plains of the Mpumalanga Highveld countryside. The avian habitat features in the Phefumula Emoyeni One Electrical Grid Infrastructure Project area were identified as:

(i) Grassland
(ii) Woodland and Alien Trees
(iii) Drainage Lines and Wetlands
(iv) Dams

(v) Agriculture
(vi) High Voltage Power Lines

The Project area and immediate environment is classified as Medium and High sensitivity for bird species according to the Animal Species Theme (**Figure 15**). The Medium and/or High Sensitivity classification is linked to the potential occurrence of Denham's Bustard *Neotis denhami* (Globally Near-Threatened and Regionally Vulnerable), Secretarybird *Sagittarius serpentarius* (Globally Endangered and Regionally Vulnerable), Southern Bald Ibis *Geronticus calvus* (Globally and Regionally Vulnerable), African Grass Owl *Tyto capensis* (Regionally Vulnerable), Martial Eagle *Polemaetus bellicosus* (Globally and Regionally Endangered), White-bellied Bustard *Eupodotis senegalensis* (Regionally Vulnerable), and Caspian Tern *Hydroprogne caspia* (Regionally Vulnerable).

The Project area contains confirmed habitat for Species of Conservation Concern (SCC), primarily for African Grass Owl and Secretarybird (Globally Endangered and Regionally Vulnerable), as defined in the Protocol for the specialist assessments and minimum report content requirements for environmental impacts on terrestrial animal species (Government Gazette No 43855, 30 October 2020).

Twelve (12) SCC were recorded during the on-site field surveys namely, African Marsh Harrier (Regionally Endangered), Black Harrier (Globally and Regionally Endangered), Black Stork (Regionally Vulnerable), Black-winged Pratincole (Globally and Regionally Near-Threatened), Blue Crane (Globally Vulnerable and Regionally Near-Threatened), Cape Vulture (Globally Vulnerable and Regionally Endangered), Denham's Bustard, Lanner Falcon (Regionally Vulnerable), Martial Eagle, Pallid Harrier (Globally and Regionally Near-Threatened), Secretarybird and Southern Bald Ibis.

Based on the Site Sensitivity Verification survey and the integrated pre-construction monitoring conducted at the associated Phefumula Emoyeni One WEF, the classification of High Sensitivity for avifauna is supported for the Phefumula Emoyeni One Grid Connection Project area.

Figure 15 below is a preliminary sensitivity map, indicating avifaunal sensitivity areas identified for development to date.

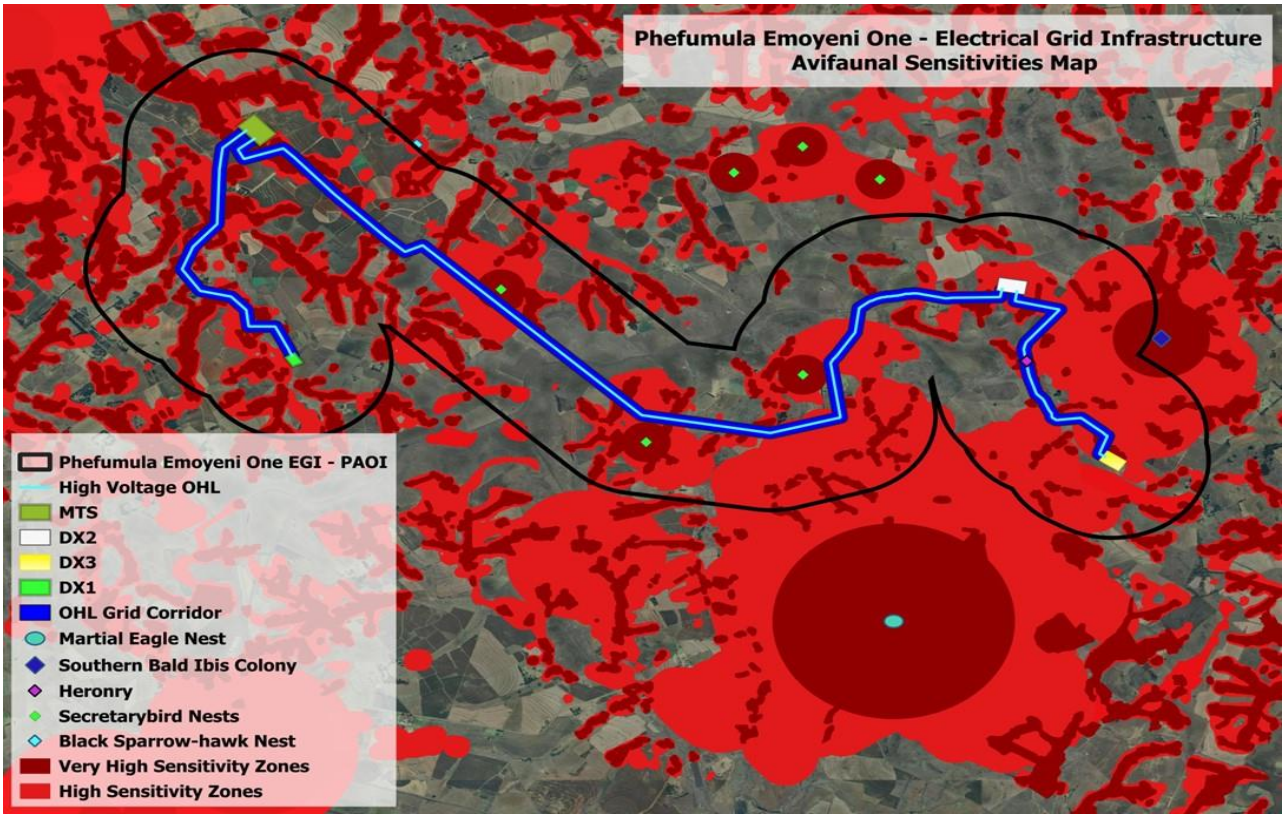


Figure 15:Avifaunal Sensitivities Map for the Phefumula Emoyeni One Electrical grid infrastructure. The entire project area is considered a high sensitivity zone from a collision impact and electrocution impact perspective.

3.5 Consolidated Site Sensitivity

Figure 16 below shows the consolidated site sensitivities for the scoping phase, with the preliminary WEF and Electrical Grid Infrastructure layout overlain. The sensitivity inputs and findings from all the appointed specialists have been combined and utilised to prepare this preliminary layout. **Figure 18** illustrates the sensitivities associated with the grid corridor.

These sensitive areas identified will be utilised going forward into the EIA phase in order to plan and further refine the grid layout development to avoid all sensitive areas accordingly and minimise the impacts of the proposed project on in the area.

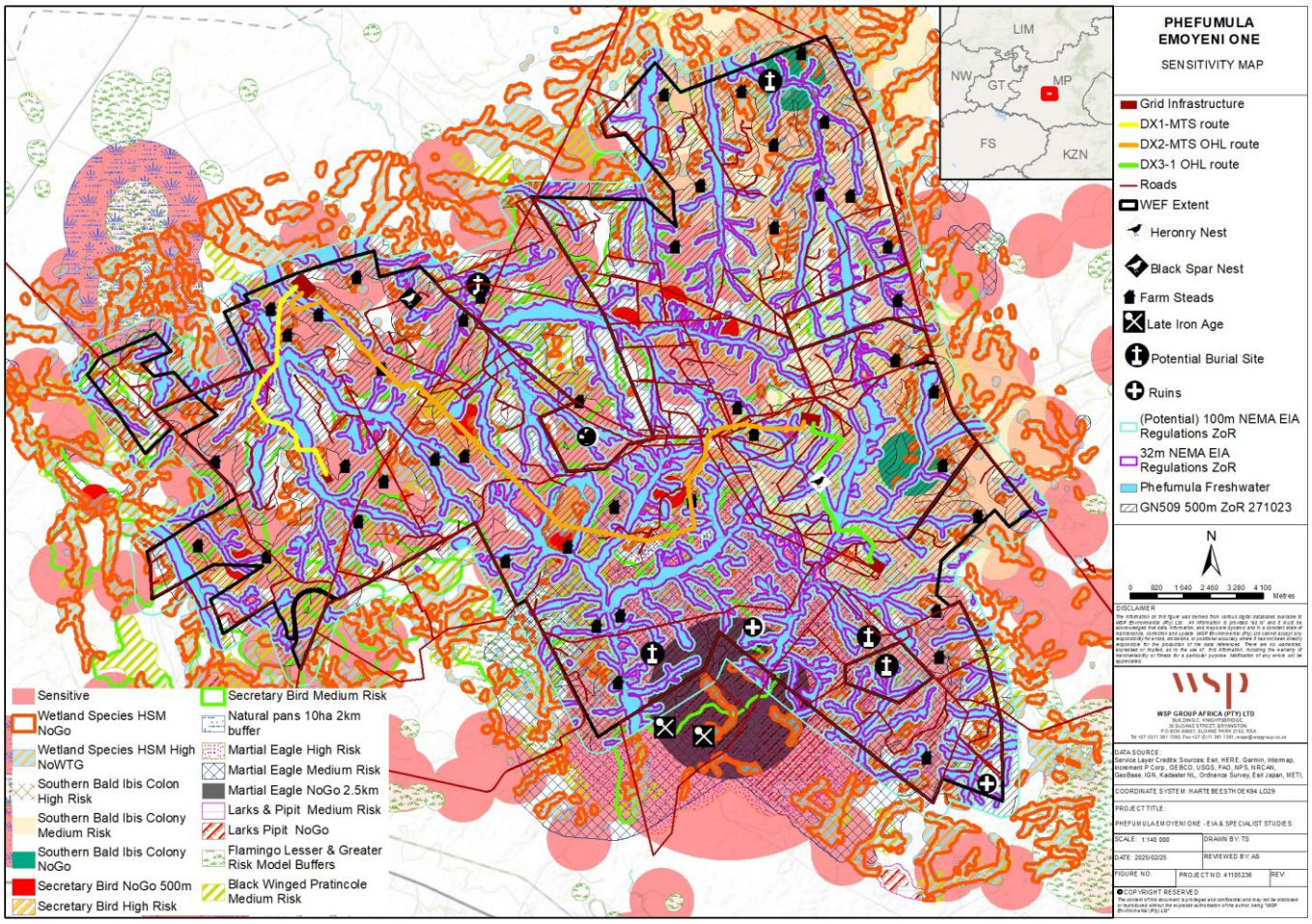


Figure 16: Consolidated site sensitivity map

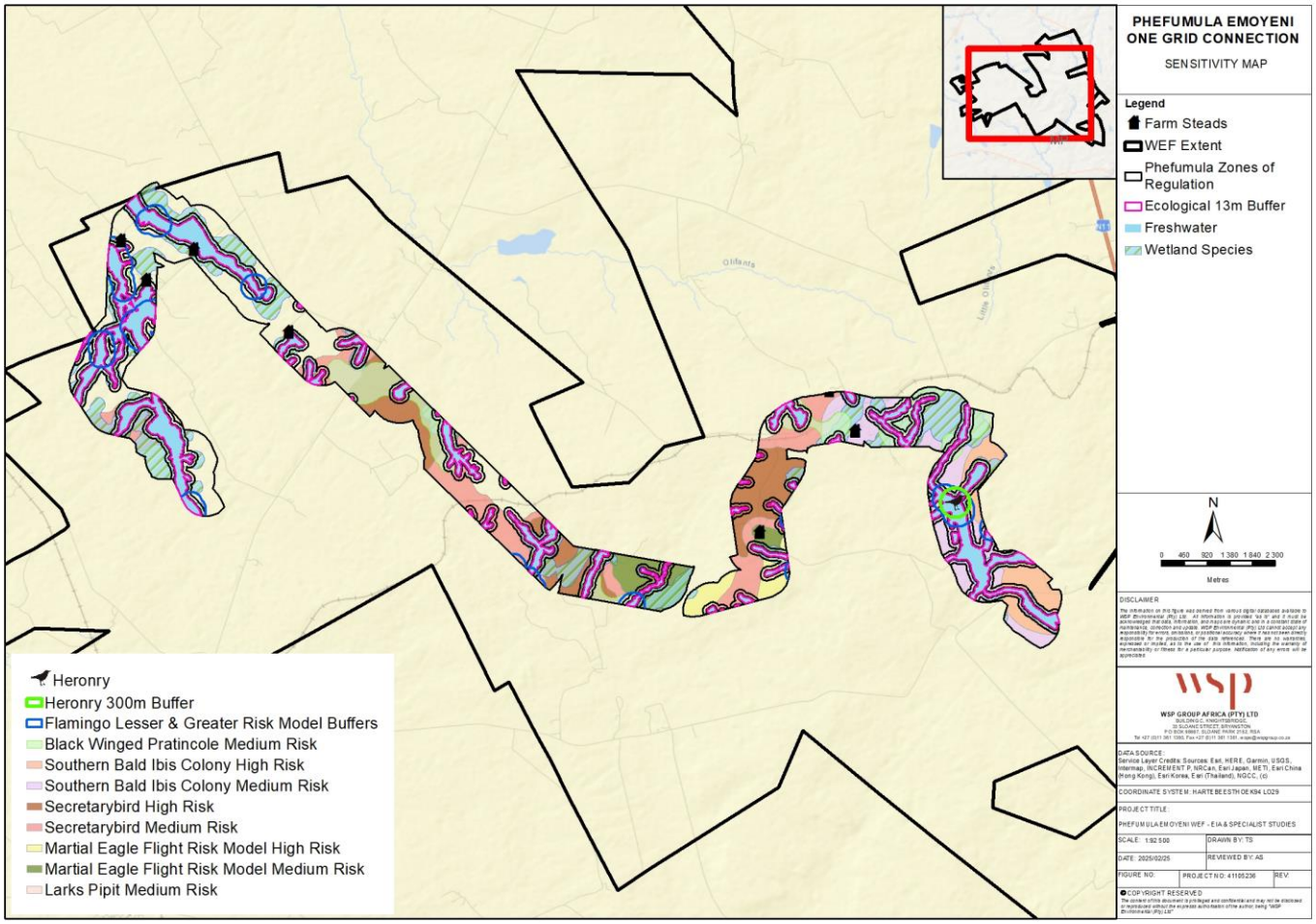


Figure 17: Consolidated site corridor sensitivity map

4 CONCLUSION

The EAP hereby confirms the following environmental themes where sensitivity was confirmed to coincide with or be higher than the DFFE Screening Tool Rating:

- Terrestrial Biodiversity (confirmed very high sensitivity)
- Plant Species Assessment (confirmed medium sensitivity)
- Avifauna Assessment (confirmed high sensitivity)
- Aquatic Biodiversity (confirmed very high sensitivity)
- Animal Species (confirmed high sensitivity)
- Archaeological and Cultural Heritage (confirmed medium to high sensitivity)
- Defence (Confirmed low sensitivity)

The following environmental themes were disputed against the DFFE Screening Tool Rating, and found to be a lower sensitivity than what was identified by the DFFE Screening Tool:

- Agricultural Impact Assessment (confirmed medium to high sensitivity)

- Landscape/Visual (confirmed medium to high sensitivity)
- Civil Aviation (confirmed low sensitivity)
- Palaeontology (confirmed low to high sensitivity)

Kind Regards,

Digitally signed by Ashlea Strong
DN: cn=Ashlea Strong, c=ZA, o=WSP Group Africa, ou=Earth and Environment, email=ashlea.strong@wsp.com
Date: 2025.03.03 06:31:55 +02'00'

Ashlea Strong

Registered EAP