



**THE TERRESTRIAL BIODIVERSITY COMPLIANCE  
STATEMENT FOR THE PROPOSED DELPHI  
SUBSTATION EXPANSION PROJECT**

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<b>Report Name</b>	<b>THE TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT FOR THE PROPOSED DELPHI SUBSTATION EXPANSION PROJECT</b>	
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<b>Declaration</b>	<p>The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, Amended. We have no conflicting interests in the undertaking of this activity and have no interests in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principals of science.</p>	

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## **1 Introduction**

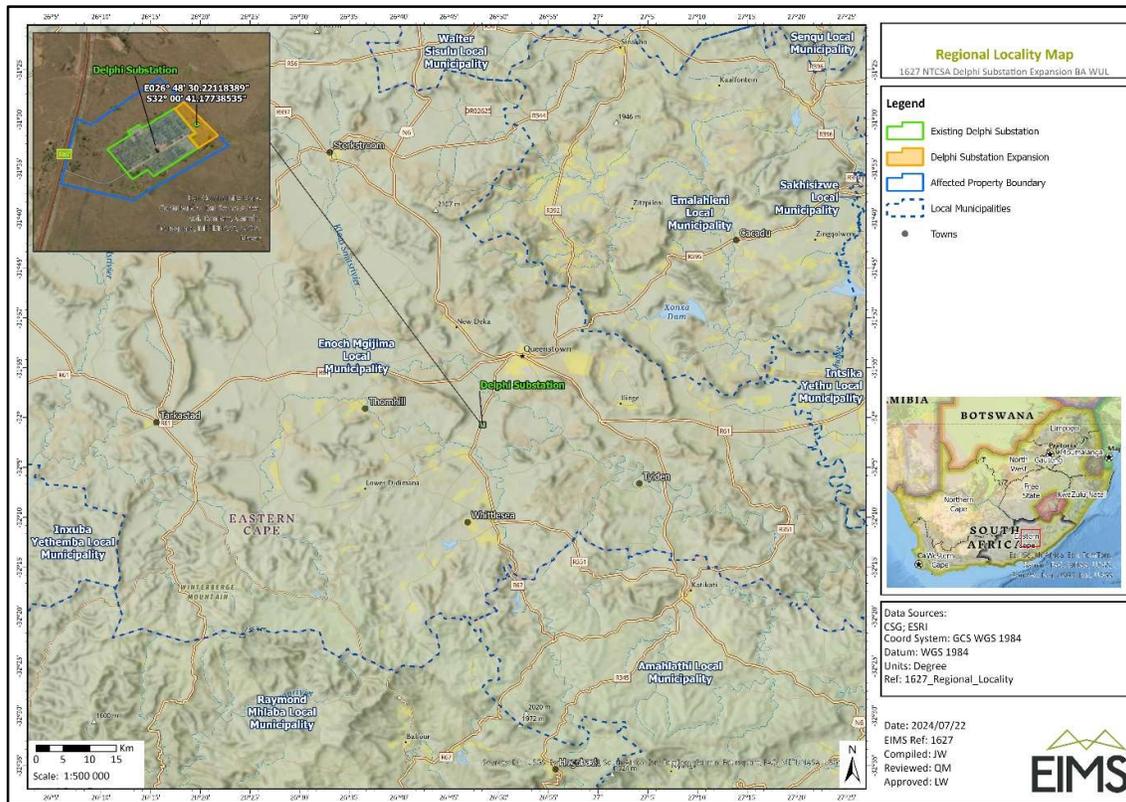
### **1.1 Background**

The Biodiversity Company was appointed to undertake a terrestrial biodiversity assessment for the proposed Delphi Substation Expansion project. The proposed project (project area) is located approximately 14 km south west of the town Komani, within the Enoch Mgijima Local Municipality, Chris Hani District Municipality, Eastern Cape Province (Figure 1-1).

To determine the baseline ecological state of the area and to present a detailed description of the receiving environment, both a desktop assessment, as well as a field survey on the 23<sup>rd</sup> of May 2024 (early winter), were conducted. Furthermore, the desktop assessment and field survey both involved the detection, identification and description of any locally relevant sensitive receptors and habitats. The manner in which these sensitive features may be affected by the proposed development was also investigated.

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations, 2014 (No. 326, 7 April 2017) of the National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998). The approach has taken cognisance of the recently published Government Notice 320 in terms of NEMA dated 20 March 2020 as well as the Government Notice 1150 in terms of NEMA dated 30 October 2020: "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation". The National Web based Environmental Screening Tool has characterised the terrestrial biodiversity theme for the area as 'Very High' sensitivity (National Environmental Screening Tool, 2023).

The purpose of conducting the specialist study is to provide relevant input into the Environmental Authorisation application process, with a focus on the proposed activities and their impacts associated with the project. This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Registered Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making as to the ecological viability of the proposed project.



**Figure 1-1** Map illustrating the regional context of the Project Area as provided by EIMS

**1.2 Project Description**

Details pertaining the proposed project, as received from Environmental Impact Management Services (EIMS, June 2024), is listed below:

The proposed works to be undertaken by Eskom Holdings SOC Ltd entails the expansion of Delphi substation.

400 kV Yard:

- Extend the 400 kV in the north easterly (NE) direction by one bay.
- Equip 1 x 400 kV transformer bay.
- Install 1 x 400/132 kV 500 MVA transformer.
- Equip 400 kV B/B 1 B/S 1.
- Equip 400 kV B/C B.

132 kV Yard:

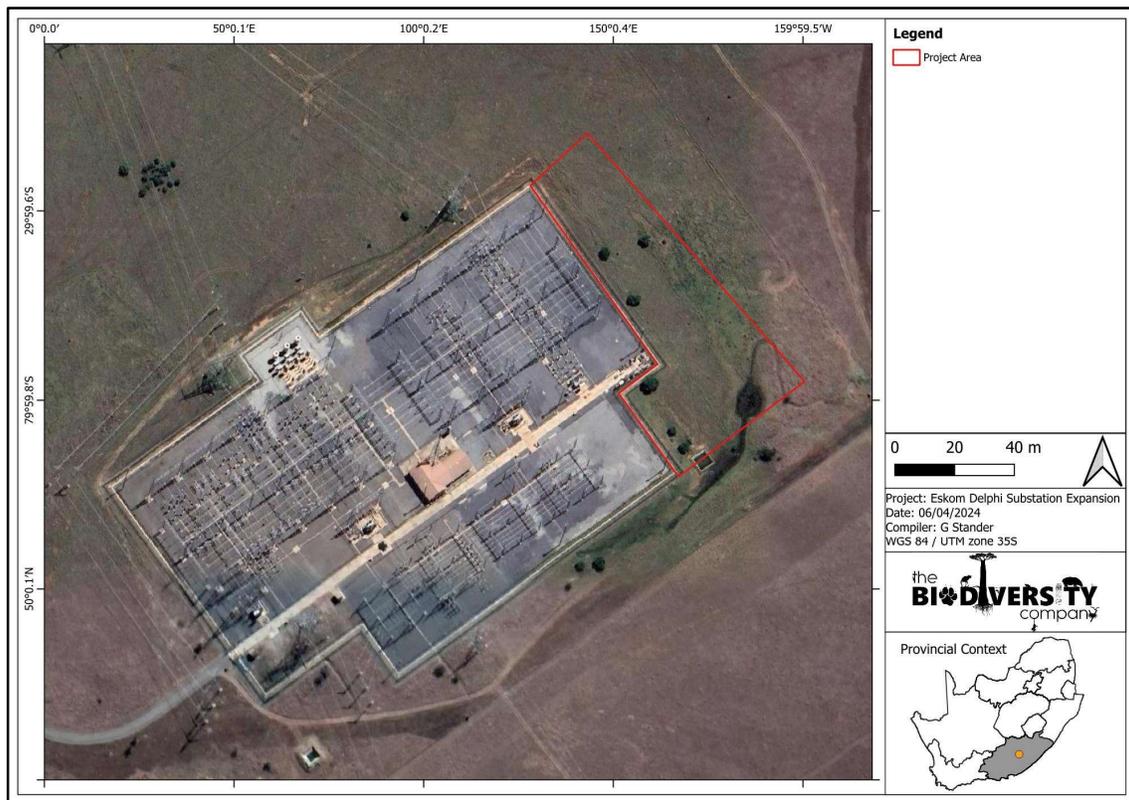
- Extend the 132 kV B/B in the NE by 7 bays.
- Equip 1 x 132 kV transformer bay.
- Equip 132 kV B/B 1 B/S 1.

- Equip 132 kV B/C B in a new position.

Civil/Structural Requirements:

- Fence, yard terrace and road extension.
- Oil dam relocation.
- Special earthworks.
- Deviation of the existing storm water drainage.

Figure 1-2 illustrates the proposed Project Area and layout.



**Figure 1-2** Map illustrating the project layout

### 1.3 Scope of Work

The aim of the biodiversity assessment was to provide information to guide the risk of the proposed activity to the current state of the associated ecosystems within the development area. This was achieved through the following:

- Desktop assessment to identify the ecologically important features within the landscape comprising of terrestrial features;
- Desktop assessment to identify possible Species of Conservation Concern (SCC) that occur within the landscape;
- Field survey to record flora and fauna species, especially Species of Conservation Concern (SCC);

- Determination of the Site Ecological Importance (SEI), also commonly referred to as sensitivity; and
- The prescription of mitigation measures for identified risks.

#### **1.4 Assumptions and Limitations**

The following assumptions and limitations are applicable for this assessment:

- It is assumed that all information received from the client and landowner is accurate;
- All datasets accessed and utilised for this assessment are considered to be representative of the most recent and suitable data for the intended purposes;
- The assessment area (Project Area) was based on the footprint areas as provided by the client, and any alterations to the area and/or missing Geographic Information System (GIS) information pertaining to the assessment area would have affected the area surveyed and hence the results of this assessment;
- The project description was based on information provided by the client, and any alterations to the area and/or missing data pertaining to the development would have affected the area surveyed and hence the results of this assessment;
- The area was surveyed during a single site visit, therefore, this assessment does not consider temporal trends (note that the data collected is considered sufficient to derive a meaningful baseline);
- The single site visit was conducted during the early dry season (23<sup>rd</sup> of May 2024), and this means that certain flora and fauna would not have been present or observable due to seasonal constraints (note that the data collected is considered sufficient to derive a meaningful baseline);
- Whilst every effort was made to cover as much of the Project Area as possible, representative sampling was completed, and by its nature it is possible that some plant and animal species that are present within the Project Area were not recorded during the field investigations;
- This report must be considered in conjunction with the accompanying freshwater report (TBC, 2024). Delineation of water resources within this report was retrieved from the abovementioned freshwater report (TBC, 2024); and
- The Global Positioning System (GPS) used in the assessment has an accuracy of 5 m and consequently any spatial features may be offset by up to 5 m.

#### **1.5 Legislative Framework**

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity, as per Government Notice 320 published in terms of NEMA, dated 20 March 2020: "Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation" – section 3, subsection 1:

- An applicant intending to undertake an activity identified in the scope of the protocol, on a site identified on the screening tool as being of 'Very High' sensitivity for terrestrial biodiversity, must submit a Terrestrial Biodiversity Specialist Assessment; however
- Where the information gathered from the site sensitivity verification differs from the designation of 'Very High' terrestrial biodiversity sensitivity on the screening tool and it is found to be of a 'Low' sensitivity, then a Terrestrial Biodiversity Compliance Statement must be submitted.

The information obtained from a site sensitivity verification, which involved both a desktop assessment as well as a field survey, confirmed that the proposed Project Area is of a 'Low' sensitivity. Therefore, this report constitutes a Terrestrial Biodiversity Compliance Statement.

As per sections 2 and 3 of the protocol discussed above, a Terrestrial Biodiversity Compliance Statement must contain the information as presented in Table 1-1 below.

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

Information to be Included (as per GN 320, 20 March 2020)	Report Section
Methodology used to undertake the site assessment and survey, and prepare the compliance statement, including relevant equipment and modelling used	7.1
Description of the assumptions and any uncertainties or gaps in knowledge or data	1.4
A baseline profile description of biodiversity and ecosystems of the site	2.1.2 and 2.3
Site sensitivity verification: Desktop Analysis using satellite imagery and available information	2.1
A statement on the duration, date and season of the site inspection	2.1.2
Site sensitivity verification: Onsite inspection, include a description of current land use and vegetation found on-site	2.1.2
Site sensitivity verification: Photographs/evidence of environmental sensitivity	2.1.2
Screening tool confirmation/dispute: The assessment must verify the "low" sensitivity of the site, in terms of plant, animal, and terrestrial biodiversity themes	3
Proposed impact management outcomes or monitoring requirements for inclusion in the EMPr	4
Indicate whether or not the proposed development will have any impact on the terrestrial environment, animals and/or plants	5
A signed statement of independence by the specialist	7.3
Specialist details, including a CV	7.4

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

## 2 Results & Discussion

### 2.1 Desktop Assessment

#### 2.1.1 Ecologically Important Landscape Features

Table 2-1 below has been produced as a result of the spatial data collected and analysed as provided by relevant sources. It presents a summative breakdown of the ecological boundaries considered and the associated relevance that each has to the region or Project Area.

**Table 2-1 Summary of relevance of the proposed project to ecologically important landscape features**

Desktop Information Considered	Relevance	Reasoning	Section
Ecosystem Threat Status	Relevant	Project Area overlaps with a 'Least Concern' Ecosystem (RLE, 2021).	2.1.1.1
Ecosystem Protection Level	Relevant	Project Area overlaps with a 'Not Protected' Ecosystem.	2.1.1.2
Provincial Conservation Plan	Relevant	Project Area overlaps areas classified as Critical Biodiversity Area 2 (CBA 2) and Other.	<b>Error! Reference source not found.</b>
South African Protected and Conservation Areas Databases (SAPAD & SACAD)	Irrelevant	Project Area does not overlap with any SAPAD and SACAD areas. The closest protected area is Lawrence de Lange Nature Reserve, ~16 km north of the Project Area.	-
National Protected Areas Expansion Strategy (NPAES)	Irrelevant	Project Area does not overlap any Priority Focus Areas (NPAES, 2018). The closest NPAES is ~26 km east of the Project Area.	-
Important Bird & Biodiversity Areas (IBA)	Irrelevant	Project Area does not overlap with any IBAs. The closest IBA is ~49 km south of the Project Area (Amatola – Katberg Mountain).	-
South African Inventory of Inland Aquatic Ecosystems (SAIIAE)	Irrelevant	No SAIIAE river or wetland systems overlap with the Project Area or the 500 m Freshwater Regulated area.	-
National Freshwater Priority Area	Relevant	Project Area and the 500 m regulated area overlaps with NFPEA wetlands.	2.1.1.4
Strategic Water Source Area (SWSA)	Irrelevant	Does not overlap with any SWSA. The closest SWSA is ~43 km to the south of the Project Area (Amatole).	-

**2.1.1.1 Ecosystem Threat Status**

The Ecosystem Threat Status is an indicator of an ecosystem’s wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition. The revised list (known as the Red List of Ecosystems (RLE) 2022) is based on assessments that followed the International Union for Conservation of Nature (IUCN) Red List of Ecosystems Framework (version 1.1) and covers all 456 terrestrial ecosystem types described in South Africa (Mucina and Rutherford 2006; with updates described in Dayaram *et al.*, 2019). The revised list identifies 120 threatened terrestrial ecosystem types (55 Critically Endangered, 51 Endangered and 14 Vulnerable types). The revised list was published in the Government Gazette (Gazette Number 47526, Notice Number 2747) and came into effect on 18 November 2022.

According to the spatial dataset the proposed Project Area overlaps with an ‘LC’ ecosystem (Figure 2-1).



**Figure 2-1 Map illustrating the Ecosystem Threat Status dataset in relation to the Project Area**

**2.1.1.2 Ecosystem Protection Level**

This 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 with a ‘NP’ ecosystem (Figure 2-2).



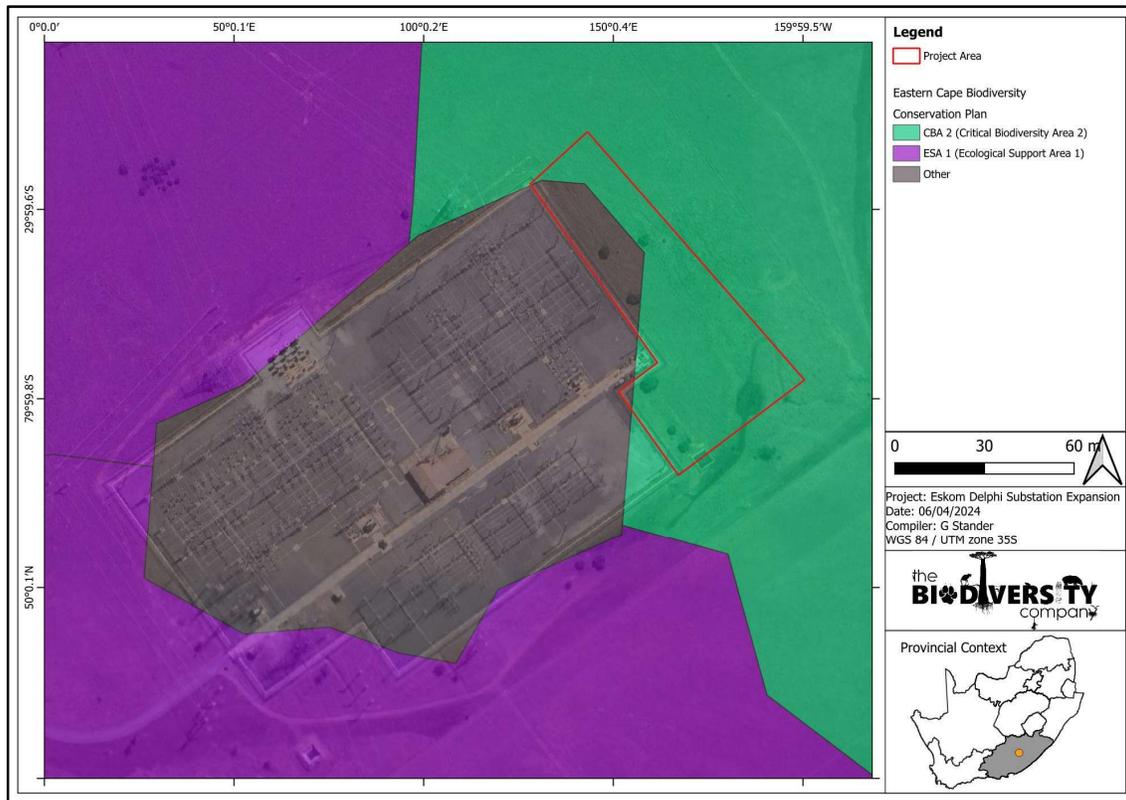
**Figure 2-2** Map illustrating the Ecosystem Protection Status dataset in relation to the Project Area

**2.1.1.3 Critical Biodiversity Areas and Ecological Support Areas**

The conservation of CBAs is crucial, in that if these areas are not maintained in a natural or near-natural state, biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (SANBI-BGIS, 2017).

The purpose of the Eastern Cape Biodiversity Conservation Plan (2018) is to inform land-use planning and development on a provincial scale and to aid in natural resource management. One of the outputs is a map of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). These are classified into different categories, namely Protected Areas, CBA1 areas, CBA2 areas, ESA1 areas, ESA2 areas, Other Natural Areas (ONAs) and areas with No Natural Habitat Remaining (NNR) based on biodiversity characteristics, spatial configuration, and requirements for meeting targets for both biodiversity patterns and ecological processes.

Figure 2-3 shows the Project Area superimposed on the Eastern Cape Biodiversity Conservation Plan. The Project Area overlaps with a CBA 2 and Other areas.



**Figure 2-3** Map illustrating the Project Area superimposed on the Eastern Cape Biodiversity Conservation Plan

**2.1.1.4 National Freshwater Ecosystem Priority Areas**

The National Freshwater Ecosystem Priority Areas (NFEPA) database forms part of a comprehensive approach for the sustainable and equitable development of South Africa's scarce water resources. This database provides guidance on how many rivers, wetlands and estuaries, and which ones, should remain in a natural or near-natural condition to support the water resource protection goals of the NWA. This directly applies to the NWA, which feeds into Catchment Management Strategies, water resource classification, reserve determination, and the setting and monitoring of resource quality objectives (Nel et al. 2011). The NFEPA's are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the National Environment Management Biodiversity Act's biodiversity goals (Act No.10 of 2004) (NEM:BA), informing both the listing of threatened freshwater ecosystems and the process of bioregional planning provided for by this Act (Nel et al., 2011).

According to the NFEPA database, two (2) Flat wetland types are expected to overlap with the 500 m Freshwater Regulated area (Figure 2-4).



**Figure 2-4** Map illustrating the Project Area and Freshwater Regulated Area in relation to the NFEPA and NWM5 datasets

### 2.1.2 Fauna Species of Conservation Concern

The Screening Tool indicates that one (1) avifauna SCC is predicted to occur in the general area (Table 2-2). The likelihood of occurrence within the Project Area is included here, however, its presence was not confirmed, for the site during, the site assessment. Likelihood of occurrence is considered moderate as suitable grassland habitat occurs within the Project Area. However, *Neotis denhami* is not expected to be resident within the Project Area.

**Table 2-2** *Threatened fauna species that are expected to occur within the project area NT = Near Threatened, VU = Vulnerable*

Scientific name	Common name	Regional Threat Status	Global Treat Status	Screening Tool Sensitivity	Likelihood of Occurrence
<i>Neotis denhami</i>	Denham's bustard	VU	NT	High	Moderate

### 2.1.3 Flora Species of Conservation Concern

The Screening Tool indicates that two (2) flora SCC are predicted to occur in the general area (Table 2-3). The likelihood of occurrence within the Project Area are included here, none have been confirmed for the site during the site assessment and likelihood of occurrence is considered low due to a lack of suitable habitat within the Project Area.

As per the best practise guideline that accompanies the protocol and screening tool, please, remember that the name of the sensitive species may not appear in the final EIA report nor any of the specialist reports released into the public domain. It should be referred to as sensitive plant or sensitive animal and its threat status may be included, e.g. critically endangered sensitive plant or endangered sensitive animal.

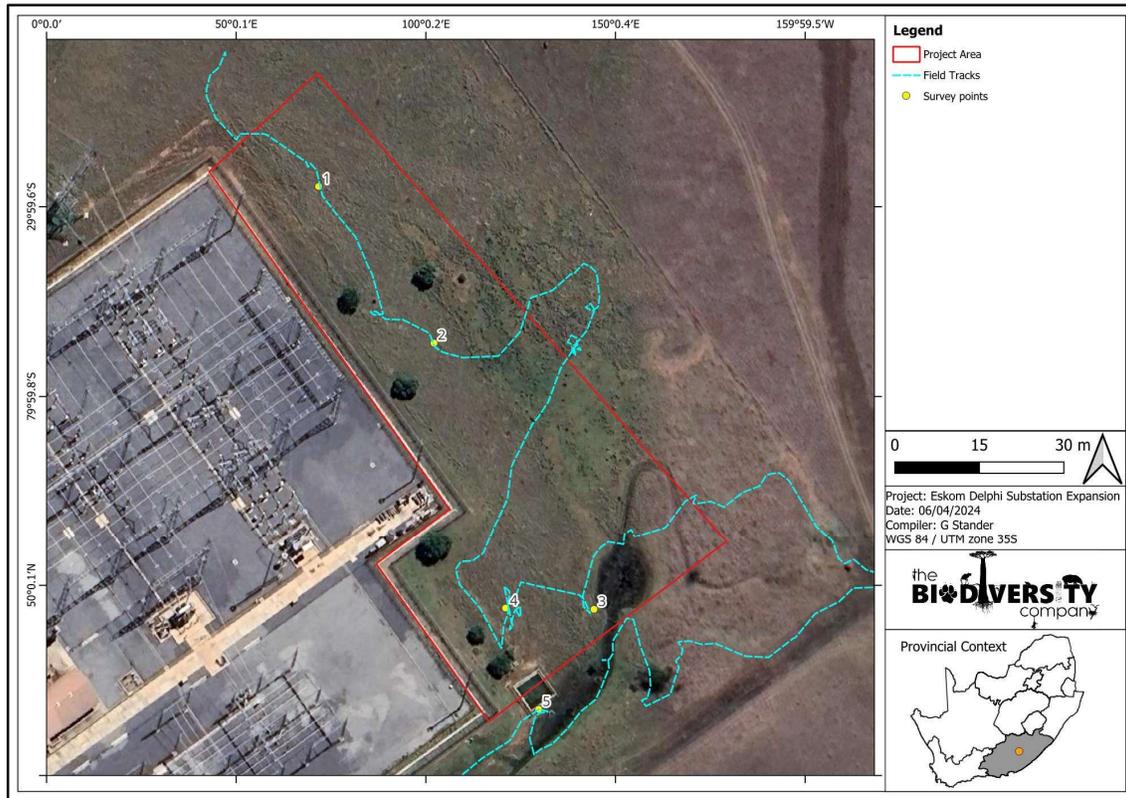
**Table 2-3** *Threatened fauna species that are expected to occur within the project area EN = Endangered and VU = Vulnerable*

Scientific name	Treat Status	Habitat	Screening Tool Sensitivity	Likelihood of Occurrence
<i>Indigofera ovina</i>	VU	It occurs on summits of rocky hills.	Medium	Low
<i>Sensitive species 1248</i>	VU		Medium	Low

## 2.2 Biodiversity Field Survey

A single season field survey was undertaken on the 23<sup>rd</sup> of May 2024, which constitutes an early dry season survey, to determine the presence of any local SCC and to achieve the delineation of local habitat types and their associated sensitivities. Effort was made to cover all the different habitat types within the Project Area, within the limits of time, access and security. This site visit is considered sufficient for the project.

Points and tracks of the site visit are indicated in Figure 2-5.



**Figure 2-5** Map illustrating the location of the survey field tracks and site reference points

## 2.3 Habitat Assessment

Three (3) main habitat types were identified across the Project Area and include:

- Degraded Grassland;
- Artificial wetland; and
- Modified.

The habitat units for the Project Area can be seen delineated in Figure 2-6. Descriptions of the habitat units can be found in Table 2-4.



**Figure 2-6** Habitats identified within the Project Area

**Table 2-4** Table providing descriptions of the habitat types delineated for the Project Area

Habitat	Description and Condition	Survey Point	Photos
Degraded Grassland	<p>This grassland habitat is disturbed due to human infringement, as it is located adjacent to the existing and active substation. This habitat is dominated by grasses and herbs, such as <i>Hyparrhenia hirta</i>, <i>Aristida</i> sp. and <i>Nidorella podocephala</i>.</p> <p>No fauna or flora SCC were observed, and none are expected for the habitat unit.</p>	<p>Point 1                      Date:                      23/05/2024                      -32.0108000,                      26.8078328</p>	

Degraded  
Grassland

This grassland habitat is disturbed due to human infringement, as it is located adjacent to the existing and active substation. This habitat is dominated by grasses and herbs, such as *Hyparrhenia hirta*, *Aristida* sp. and *Nidorella podocephala*.

Point 2  
Date:  
23/05/2024

-32.0113039,  
26.8082692

No fauna or flora SCC were observed, and none are expected for the habitat unit.



Degraded  
Grassland

This grassland habitat is disturbed due to human infringement, as it is located adjacent to the existing and active substation. This habitat is dominated by grasses and herbs, such as *Hyparrhenia hirta*, *Aristida* sp. and *Nidorella podocephala*.

Point 4  
Date:  
23/05/2024

-32.0113039,  
26.8082692

No fauna or flora SCC were observed, and none are expected for the habitat unit.



Artificial  
Wetland

This wetland habitat has been identified as artificial by the wetland specialist (TBC, 2024). Additional information regarding this habitat unit may be found in the accompanying freshwater assessment (TBC, 2024).

Point 3  
Date:  
23/05/2024

-32.0119115,  
26.8088618

No fauna or flora SCC were observed, and none are expected for the habitat unit.



Modified Areas that have little to no remaining natural vegetation due to land transformation. The modified area identified within the Project Area consist of an oil holding dam. No SCC were recorded or are expected.

Point 5  
Date:  
14/09/2023  
-28.738922,  
31.801892

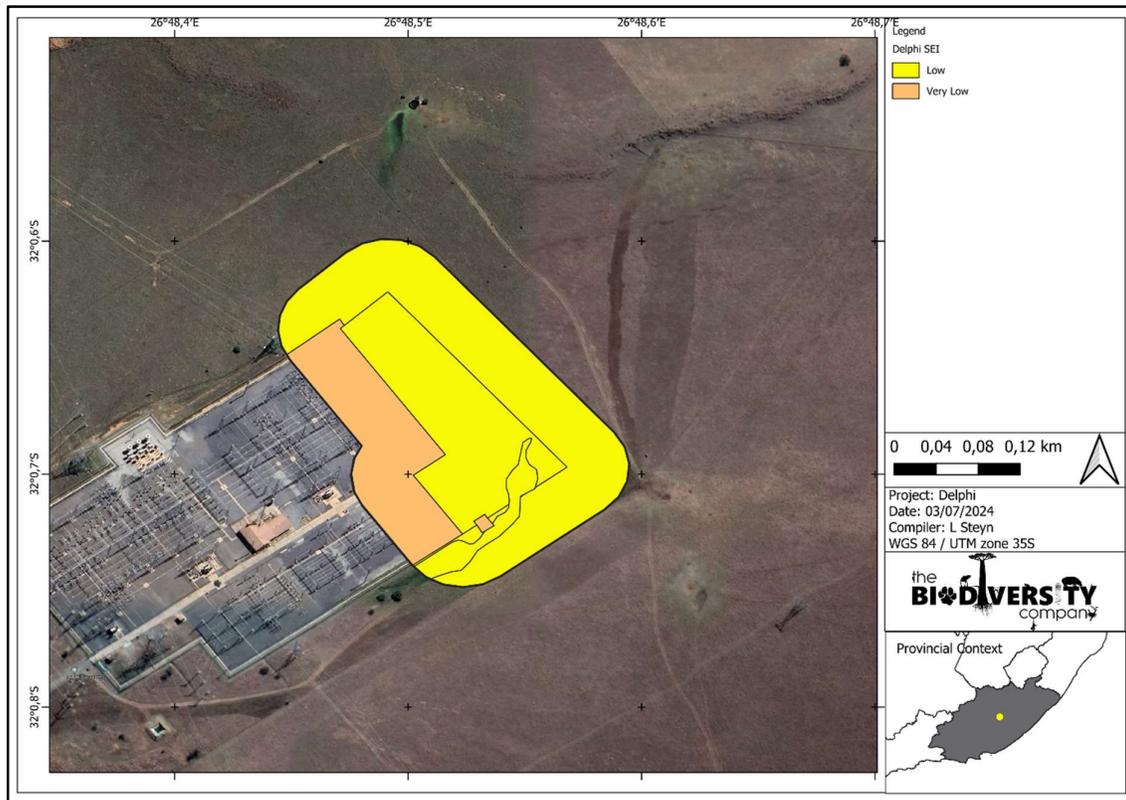


**2.4 Site Ecological Importance**

Based on the criteria provided in Appendix B of this report, all habitats within the Project Area were assigned a sensitivity category, i.e., a SEI category. The Project Area was categorised as possessing habitats with areas ranging from ‘Very Low’ to ‘Low’ SEI (Table 2-5 and Figure 2-7).

**Table 2-5 Summary of habitat types delineated within the Project Area**

Habitat Type	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance Guidelines
<b>Degraded Grassland</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>	<b>Medium</b>	<b>Low</b>
	No confirmed or highly likely populations of SCC	Several major current negative ecological impacts.		Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities
<b>Wetland</b>	<b>Low</b>	<b>Low</b>	<b>Low</b>	<b>Medium</b>	<b>Low</b>
	No confirmed or highly likely populations of SCC	Several major current negative ecological impacts.		Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities
<b>Modified</b>	<b>Very Low</b>	<b>Low</b>	<b>Very Low</b>	<b>Very High</b>	<b>Very Low</b>
	No confirmed and highly unlikely populations of SCC.	Several minor and major current negative ecological impacts		Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.



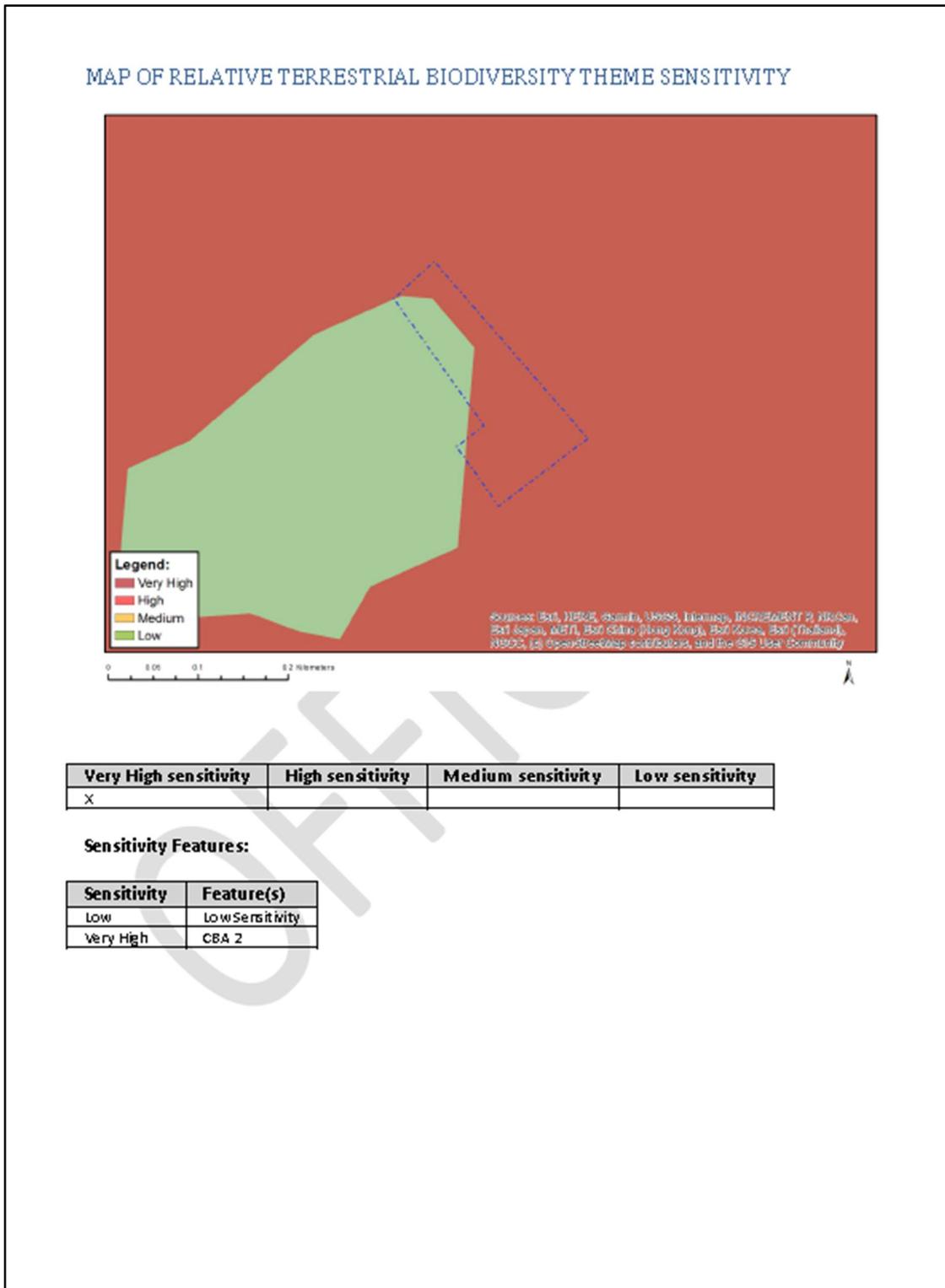
**Figure 2-7** Map illustrating the site ecological importance Project Area

### 3 Screening Tool

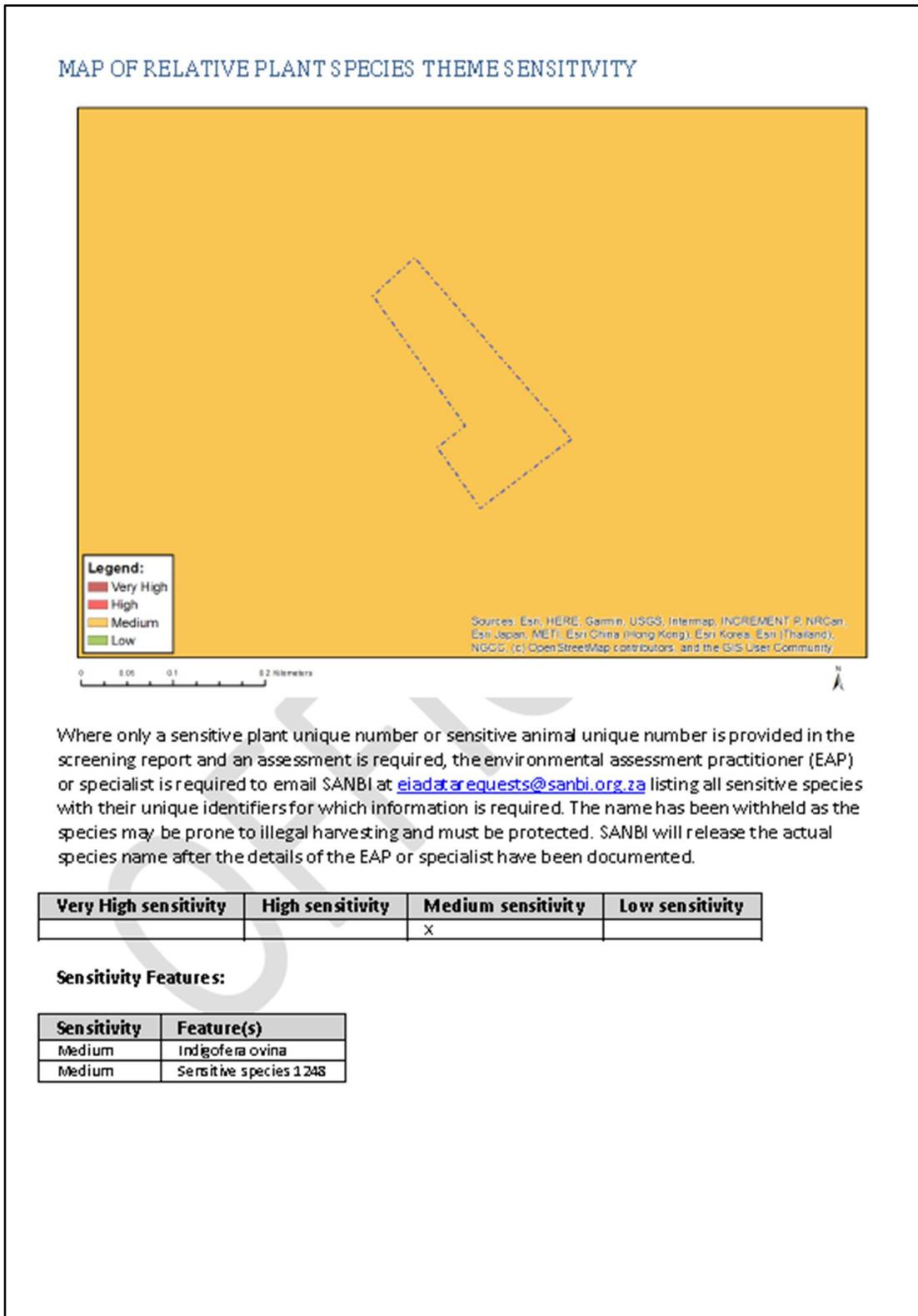
#### 3.1 Screening Tool Comparison

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

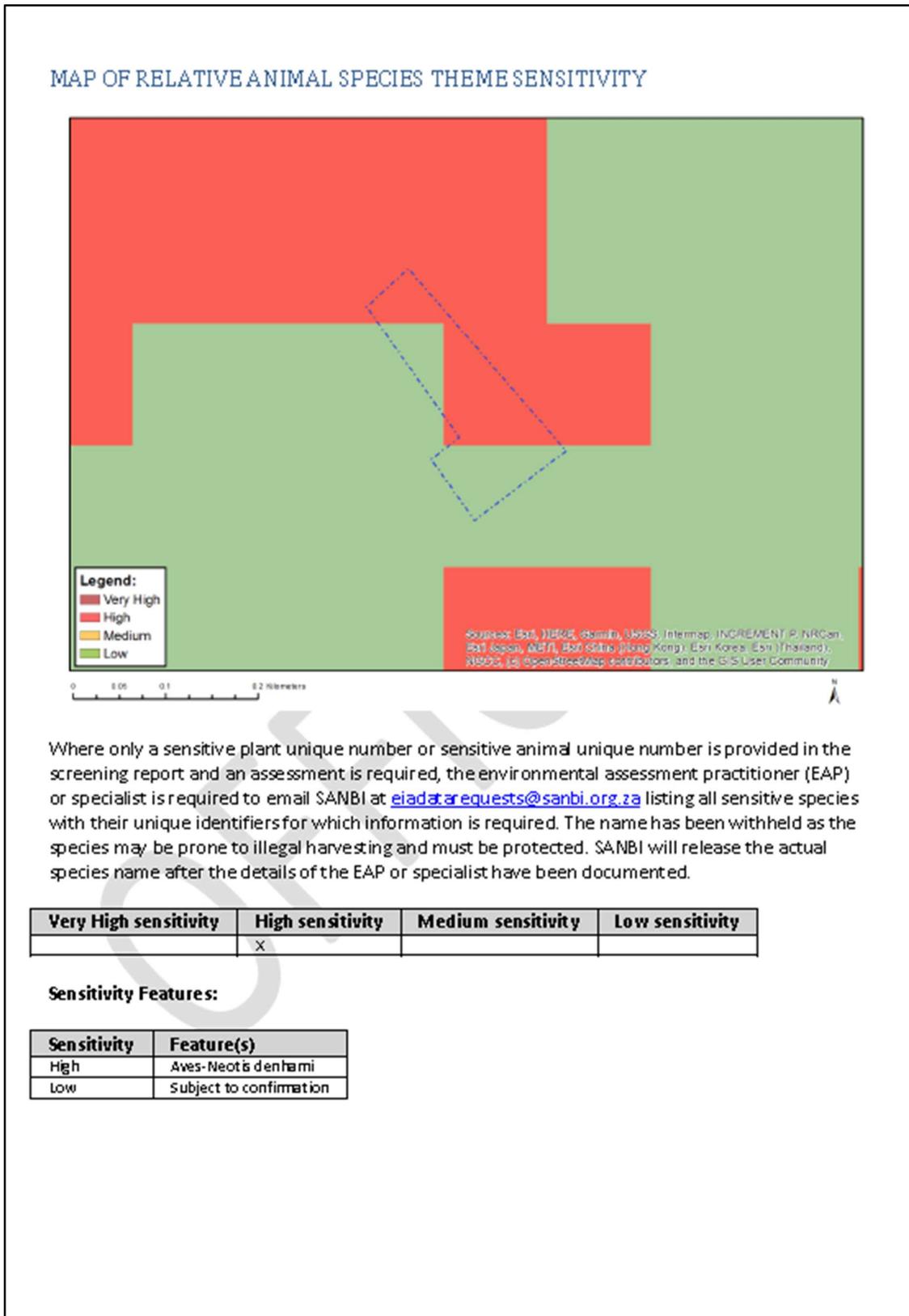
- Terrestrial Biodiversity Theme sensitivity is Very High for the proposed Project Area, due to it overlapping with the CBA 2 area (Figure 3-1);
- Plant Species Theme sensitivity is Medium for the proposed development area, due to two (2) Medium sensitivity plants possibly occurring within the Project Area (Figure 3-2); and
- Animal Species Theme sensitivity is High for sections of the Project Area, due to one (1) High sensitivity avifauna species possibly occurring within the Project Area (Figure 3-3).



**Figure 3-1 Terrestrial Biodiversity Theme Sensitivity**



**Figure 3-2 Plant Species Theme Sensitivity**



**Figure 3-3 Animal Species Theme Sensitivity**

The allocated sensitivities for each of the relevant themes are either disputed or validated for the overall Project Area in Table 3-1 below. A summative explanation for each result is provided as relevant. The specialist-assigned sensitivity ratings are based largely on the SEI process followed in the previous section, and consideration is given to any observed or likely presence of SCC or protected species. A map illustrating the overall SEI allocations for the Project Area can be seen in Figure 2-7.

**Table 3-1** *Summary of the screening tool vs specialist assigned sensitivities*

Screening Tool Theme	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Animal Theme	Medium	Low	Disputed – Habitat exists in a disturbed state due to anthropogenic disturbance. No SCC observed and unlikely to occur.
Plant Theme	Medium	Low	Disputed – Habitat exists in a disturbed state due to anthropogenic disturbance. No SCC observed and unlikely to occur.
Terrestrial Theme	Very High	Low	Disputed – Habitat exists in a disturbed state due to anthropogenic disturbance and has therefore lost some ecosystem functionality. No SCC observed and unlikely to occur

#### 4 Impact Management and Mitigation Plan

Impact management actions as contained in the pre-approved generic Environmental Management Programme Report (EMPr) is deemed sufficient for the avoidance, management and mitigation of impacts and risks for the proposed project.

## **5 Conclusion**

The Project Area exists in a predominantly disturbed state, having been subjected to anthropogenic impacts such as human and vehicle ingress and the edge effects associated with the existing Delphi substation.

The Project Area is classified as having a 'Very High' terrestrial biodiversity theme sensitivity as allocated by the National Environmental Screening Tool. This sensitivity is based on the Project Area overlapping a CBA 2 area. However, historic and current anthropogenic activities have disturbed and modified the Project Area with disturbances observed. Completion of the terrestrial biodiversity assessment led to the dispute of the 'Very High' classification. The Project Area is instead assigned an overall terrestrial sensitivity of 'Low'.

No significant impacts from a terrestrial ecology perspective are expected, subject to the implementation of the recommended mitigation measures.

### **5.1 Impact Statement**

The location, state and size of the ecosystem suggests that it is unlikely that any functional habitat or SCCs will be lost as a result of the impacts arising from the proposed activities. However, these assumptions pertain to the terrestrial habitat only and the recommendations and mitigations presented in the accompanying freshwater assessment must be strictly adhered to.

### **5.2 Specialist Opinion**

It is the opinion of the specialist that the proposed development is favourable only if all mitigation measures provided in this and freshwater assessment report are implemented. It is recommended that care be taken during construction to adhere to mitigation measures. An AIP management plan must be implemented as a priority to prevent the spread and proliferation of AIP species to the surrounding natural areas.

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## 7 Appendix Items

### 7.1 Appendix A: Methods

#### 7.1.1 Desktop Dataset Assessment

##### 7.1.1.1 Ecologically Important Landscape Features

Existing ecologically relevant data layers were incorporated into a GIS to establish how the proposed development might interact with any ecologically important entities. Emphasis was placed around the following spatial datasets:

- National Biodiversity Assessment 2018 (Skowno *et al*, 2019) - The purpose of the National Biodiversity Assessment (NBA) is to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors. The NBA deals with all three components of biodiversity: genes, species and ecosystems; and assesses biodiversity and ecosystems across terrestrial, freshwater, estuarine and marine environments. The two headline indicators assessed in the NBA are:
- Ecosystem Threat Status – indicator of an ecosystem's wellbeing, based on the level of change in structure, function or composition. Ecosystem types are categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Near Threatened (NT) or Least Concern (LC), based on the proportion of the original extent of each ecosystem type that remains in good ecological condition.
- Ecosystem Protection Level – 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. Not Protected, Poorly Protected or Moderately Protected ecosystem types are collectively referred to as under-protected ecosystems.
- Red List of Ecosystems (RLE) 2021 – The list was first published in 2011 and has since been substantially revised by authors Dr Andrew Skowno and Mrs Maphale Monyeki (SANBI, 2022). This list is based on assessments that followed the International Union for Conservation of Nature (IUCN) Red List of Ecosystems Framework (version 1.1) and covers all 456 terrestrial ecosystem types described in South Africa by Mucina and Rutherford (2006). A total of 120 of the 456 terrestrial ecosystem types assessed are categorised as threatened and together make up approximately 10% of the remaining natural habitat in the country. Of these 120 ecosystem types, 55 are Critically Endangered (CR), 51 Endangered (EN) and 14 are Vulnerable (VU). The remainder are categorised as Least Concern (LC) (SANBI, 2022; Skowno & Monyeki, 2021).
- Protected areas:
- South Africa Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD) (DFFE, 2023a) – The South African Protected Areas Database (SAPAD) and South Africa Conservation Areas Database (SACAD) contains spatial data for the conservation of South Africa. It includes spatial and attribute information for both formally protected areas and areas that have less formal protection. The database is updated on a continuous basis and forms the basis for the Register of Protected Areas which is a legislative requirement under the National Environmental Management: Protected Areas Act, Act 57 of 2003.

- National Protected Areas Expansion Strategy (NPAES) (DFFE, 2022b) – The National Protected Area Expansion Strategy (NPAES) provides spatial information on areas that are suitable for terrestrial ecosystem protection. These focus areas are large, intact and unfragmented and are therefore, of high importance for biodiversity, climate resilience and freshwater protection.
- Conservation/Biodiversity Sector Plans:
- The Eastern Cape Biodiversity Conservation Plan (2019) classifies areas within the province on the basis of their contributions to reaching the associated conservation targets within the province. These areas are primarily classified as either Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs). These biodiversity priority areas, together with protected areas, are important 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 as a whole.
  - Critical Biodiversity Areas (CBAs) – CBAs are areas of the landscape that need to be maintained in a natural or near-natural state to ensure the continued existence and healthy functioning of important species and ecosystems and the delivery of ecosystem services. Thus, if these areas are not maintained in a natural or near natural state then provincial biodiversity targets cannot be met (SANBI, 2017).
  - Ecological Support Areas (ESAs) - ESAs are areas that are not essential for meeting biodiversity representation targets but play an important role in supporting the ecological functioning of ecosystems as well as adjacent Critical Biodiversity Areas, and/or in delivering ecosystem services that support socio-economic development (SANBI, 2017).
  - Provincial CBAs and ESAs are often further classified into sub-categories, such as CBA1 and CBA2 or ESA1 and ESA2. These present fine scale habitat and biodiversity area baseline requirements and associated land management objectives or outcomes. The highest categorisation level is often referred to as a CBA1 ‘Irreplaceable Critical Biodiversity Area’ which usually represents pristine natural habitat that is very important for conservation.
  - The terrestrial CBA maps categories include:
    - Protected Areas (PA);
    - Critical Biodiversity Areas (CBA);
    - Ecological Support Areas (ESA);
    - Other Natural Areas (ONA); and
    - No Natural Habitat remaining (NNR).
- Important Bird and Biodiversity Areas (BirdLife South Africa, 2015) – Important Bird and Biodiversity Areas (IBAs) constitute a global network of over 13 500 sites, of which 112 sites are found in South Africa. IBAs are sites of global significance for bird conservation, identified through multi-stakeholder processes using globally standardised, quantitative and scientifically agreed criteria; and
- Freshwater Ecology:
- Strategic Water Source Areas (SWSAs) (Le Maitre *et al*, 2018) – SWSAs are defined as areas of land that supply a quantity of mean annual surface water runoff in relation to their size and

therefore, contribute considerably to the overall water supply of the country. These are key ecological infrastructure assets and the effective protection of surface water SWSAs areas is vital for national security because a lack of water security will compromise national security and human wellbeing.

- South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Van Deventer *et al.*, 2018) – A South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the National Biodiversity Assessment of 2018. It is a collection of data layers that represent the extent of river and inland wetland ecosystem types as well as pressures on these systems.
- National Freshwater Ecosystem Priority Area (NFEPA) (Nel *et al.*, 2011) – The NFEPA database provides strategic spatial priorities for conserving the country's freshwater ecosystems and associated biodiversity as well as supporting sustainable use of water resources.

## 7.2 Appendix B: Terrestrial Site Ecological Importance

The different habitat types within the Project Area were delineated and identified based on observations made during the field survey, and information from available satellite imagery. These habitat types were assigned Ecological Importance (EI) categories based on their ecological integrity, conservation value, the presence of SCC and their ecosystem processes.

Site Ecological Importance (SEI) is a function of the Biodiversity Importance (BI) of the receptor (e.g., SCC, the vegetation/fauna community or habitat type present in the Project Area) and Receptor Resilience (RR) (its resilience to impacts).

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor. The criteria for the CI and FI ratings are provided in Table 7-1 and Table 7-2 respectively.

**Table 7-1 Summary of Conservation Importance (CI) criteria**

Conservation Importance	Fulfilling Criteria
<b>Very High</b>	Confirmed or highly likely occurrence of Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Extremely Rare or CR species that have a global extent of occurrence (EOO) of < 10 km <sup>2</sup> . Any area of natural habitat of a CR ecosystem type or large area (> 0.1% of the total ecosystem type extent) of natural habitat of an EN ecosystem type. Globally significant populations of congregatory species (> 10% of global population).
<b>High</b>	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EOO of > 10 km <sup>2</sup> . IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A. If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining. Small area (> 0.01% but < 0.1% of the total ecosystem type extent) of natural habitat of EN ecosystem type or large area (> 0.1%) of natural habitat of VU ecosystem type. Presence of Rare species. Globally significant populations of congregatory species (> 1% but < 10% of global population).
<b>Medium</b>	Confirmed or highly likely occurrence of populations of Near Threatened (NT) species, threatened species (CR, EN, VU) listed under Criterion A only and which have more than 10 locations or more than 10 000 mature individuals. Any area of natural habitat of threatened ecosystem type with status of VU. Presence of range-restricted species. > 50% of receptor contains natural habitat with potential to support SCC.
<b>Low</b>	No confirmed or highly likely populations of SCC. No confirmed or highly likely populations of range-restricted species. < 50% of receptor contains natural habitat with limited potential to support SCC.
<b>Very Low</b>	No confirmed and highly unlikely populations of SCC. No confirmed and highly unlikely populations of range-restricted species. No natural habitat remaining.

**Table 7-2 Summary of Functional Integrity (FI) criteria**

Functional Integrity	Fulfilling Criteria
<b>Very High</b>	Very large (> 100 ha) intact area for any conservation status of ecosystem type or > 5 ha for CR ecosystem types. High habitat connectivity serving as functional ecological corridors, limited road network between intact habitat patches. No or minimal current negative ecological impacts, with no signs of major past disturbance.
<b>High</b>	Large (> 20 ha but < 100 ha) intact area for any conservation status of ecosystem type or > 10 ha for EN ecosystem types. Good habitat connectivity, with potentially functional ecological corridors and a regularly used road network between intact habitat patches. Only minor current negative ecological impacts, with no signs of major past disturbance and good rehabilitation potential.
<b>Medium</b>	Medium (> 5 ha but < 20 ha) semi-intact area for any conservation status of ecosystem type or > 20 ha for VU ecosystem types. Only narrow corridors of good habitat connectivity or larger areas of poor habitat connectivity and a busy used road network between intact habitat patches. Mostly minor current negative ecological impacts, with some major impacts and a few signs of minor past disturbance. Moderate rehabilitation potential.
<b>Low</b>	Small (> 1 ha but < 5 ha) area. Almost no habitat connectivity but migrations still possible across some modified or degraded natural habitat and a very busy used road network surrounds the area. Low rehabilitation potential. Several minor and major current negative ecological impacts.
<b>Very Low</b>	Very small (< 1 ha) area. No habitat connectivity except for flying species or flora with wind-dispersed seeds. Several major current negative ecological impacts.

BI can be derived from a simple matrix of CI and FI as provided in Table 7-3.

**Table 7-3 Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)**

Biodiversity Importance		Conservation Importance				
		Very High	High	Medium	Low	Very Low
Functional Integrity	Very High	Very High	Very High	High	Medium	Low
	High	Very High	High	Medium	Medium	Low
	Medium	High	Medium	Medium	Low	Very Low
	Low	Medium	Medium	Low	Low	Very Low
	Very Low	Medium	Low	Very Low	Very Low	Very Low

The fulfilling criteria to evaluate RR are based on the estimated recovery time required to restore an appreciable portion of functionality to the receptor, as summarised in Table 7-4.

**Table 7-4 Summary of Receptor Resilience (RR) criteria**

Resilience	Fulfilling Criteria
Very High	Habitat that can recover rapidly (~ less than 5 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a very high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
High	Habitat that can recover relatively quickly (~ 5–10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a high likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Medium	Will recover slowly (~ more than 10 years) to restore > 75% of the original species composition and functionality of the receptor functionality, or species that have a moderate likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Low	Habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~ less than 50% of the original species composition and functionality of the receptor functionality, or species that have a low likelihood of: (i) remaining at a site even when a disturbance or impact is occurring, or (ii) returning to a site once the disturbance or impact has been removed.
Very Low	Habitat that is unable to recover from major impacts, or species that are unlikely to: (i) remain at a site even when a disturbance or impact is occurring, or (ii) return to a site once the disturbance or impact has been removed.

After the determination of BI and RR, the SEI can be ascertained using the matrix as provided in Table 7-5.

**Table 7-5 Matrix used to derive Site Ecological Importance from Receptor Resilience (RR) and Biodiversity Importance (BI)**

Site Ecological Importance		Biodiversity Importance				
		Very High	High	Medium	Low	Very Low
Receptor Resilience	Very Low	Very High	Very High	High	Medium	Low
	Low	Very High	Very High	High	Medium	Very Low
	Medium	Very High	High	Medium	Low	Very Low
	High	High	Medium	Low	Very Low	Very Low
	Very High	Medium	Low	Very Low	Very Low	Very Low

Interpretation of the SEI in the context of the proposed project is provided in Table 7-6.

**Table 7-6** *Guideline for interpreting Site Ecological Importance in the context of proposed activities*

Site Ecological Importance	Interpretation in relation to proposed development activities
<b>Very High</b>	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not acceptable/not possible (i.e., last remaining populations of species, last remaining good condition patches of ecosystems/unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
<b>High</b>	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted, limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
<b>Medium</b>	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
<b>Low</b>	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
<b>Very Low</b>	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

The SEI evaluated for each taxon can be combined into a single multi-taxon evaluation of SEI for the assessment area. Either a combination of the maximum SEI for each receptor should be applied, or the SEI may be evaluated only once per receptor but for all necessary taxa simultaneously. For the latter, justification of the SEI for each receptor is based on the criteria that conforms to the highest CI and FI, and the lowest RR across all taxa.

### 7.3 Appendix C: Specialist Declaration of Independence

I, Grietjie Stander, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Grietjie Stander

Ecologist

The Biodiversity Company

June 2024

I, Candyce Areington, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Dr. Candyce Areington

Ecologist

The Biodiversity Company

June 2024

I, Andrew Husted, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Andrew Husted

Ecologist

The Biodiversity Company

June 2024

7.4 Appendix D: Specialist CVs

# Grietjie Stander

M.Sc. – Zoology

(Certified Natural Scientist)

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Identity Number: 9309140150083

Date of birth: 14 September 1993



**Profile Summary**

Working experience in South Africa, Mozambique, Angola and Mauritius.

Experience with infrastructure development, road development, renewable energy, mining, and prospecting.

Specialist expertise include terrestrial ecology and wetland delineation.

**Areas of Interest**

Ornithology, Zoology, Biodiversity and Conservation.

Research publication with a conservation influence.

Renewable Energy & Mining, Farming and Sustainability

**Key Experience**

- Terrestrial Ecological Assessments
- Wetland Delineation and Ecological Assessments
- Invasive Species Plans
- Water Use License Applications

**Countries worked in**

- South Africa
- Mozambique
- Mauritius
- Angola

**Nationality**

South African

**Languages**

- English – Proficient
- Afrikaans – Proficient
- Setswana – Limited proficiency
- French – Elementary proficiency

**Qualifications and Courses**

- MSc Zoology
- BSc Hons Environmental Sciences (Aquatic Health)
- BSc Zoology and Geography
- WetRest (2023) – Wetland Introduction and Delineation course
- Africa Land – Use Training (2024) – Grass Identification and Veld Management
- Cert Sci Nat (162039)

Signed

Grietjie Stander

## Dr Candyce Areington

### PhD Plant Ecophysiology and Biotechnology

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Email: [candyce@thebiodiversitycompany.com](mailto:candyce@thebiodiversitycompany.com)

Identity Number: 9112090106083

Date of birth: 9 December 1991



#### Profile Summary

Working experience throughout KwaZulu-Natal (South Africa).

Environmental Control Officer (ECO).

Specialist expertise in Climate Change and Plant Ecophysiology and Biochemistry.

#### Areas of Interest

Plant Ecophysiology, Biochemistry and Biochemistry.

Abiotic Stress.

Air Pollution.

Sustainability and Conservation.

Landscape rehabilitation.

Experimental Design.

#### Key Experience

- Vegetation Assessments
- Rehabilitation Plans Development and Implementation
- Monitoring programmes
- Field work and research

#### Country Experience

South Africa

#### Nationality

South African

#### Languages

English – Proficient

Afrikaans – Conversational

#### Qualifications

- PhD Biological Sciences, University of KwaZulu-Natal
- MSc Biological Sciences (*Cum laude*), University of KwaZulu-Natal
- BSc (Hons) Biological Sciences (*Cum laude*), University of KwaZulu-Natal
- BSc Environmental Science, University of KwaZulu-Natal
- Snake Awareness, first aid for snakebites and venomous snake handling (ASI-January 2024)

## Andrew Husted

M.Sc Aquatic Health (*Pr Sci Nat*)

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Date of birth: 19 April 1979



### Profile Summary

Working experience throughout South Africa, West and Central Africa and also Armenia & Serbia.

Specialist experience in exploration, mining, engineering, hydropower, private sector and renewable energy.

Experience with project management for national and international multi-disciplinary projects.

Specialist guidance, support and facilitation for the compliance with legislative processes, for in-country requirements, and international lenders.

Specialist expertise include Instream Flow and Ecological Water Requirements, Freshwater Ecology, Terrestrial Ecology and also Ecosystem Services.

### Areas of Interest

Sustainability and Conservation.

Instream Flow and Ecological Water Requirements.

Publication of scientific journals and articles.

### Key Experience

- World Bank, Equator Principles and the International Finance Corporation requirements
- Environmental, Social and Health Impact Assessments (ESHIA)
- Environmental Management Programmes (EMP)
- Ecological Water Requirement determination experience
- Wetland delineations and ecological assessments
- Rehabilitation Plans and Monitoring
- Fish population structure assessments
- The use of macroinvertebrates to determine water quality
- Aquatic Ecological Assessments
- Aquaculture

### Country Experience

Angola, Botswana, Cameroon  
 Democratic Republic of Congo  
 Ghana, Ivory Coast, Lesotho  
 Liberia, Mali, Mauritius, Mozambique  
 Nigeria, Republic of Armenia,  
 Senegal, Serbia, Sierra Leone, South Africa  
 Tanzania

### Nationality

South African

### Languages

English – Proficient

Afrikaans – Conversational

German - Basic

### Qualifications

- MSc (University of Johannesburg) – Aquatic Health.
- BSc Honours (Rand Afrikaans University) – Aquatic Health
- BSc Natural Science
- Pr Sci Nat (400213/11)
- Certificate of Competence: Mondri Wetland Assessments
- Certificate of Competence: Wetland WET-Management
- SASS 5 (Expired) – Department of Water Affairs and Forestry for the River Health Programme
- EcoStatus application for rivers and streams

Signed:



Andrew Husted