

Khanyazwe Flexpower Gas Powerplant

Terrestrial Compliance Statement

Prepared for:

Nsovo Environmental Consulting



June 2024

Report Type:	Terrestrial Compliance Statement
Project Name:	Khanyazwe Flexpower Gas Powerplant
Report Compiler:	Rudolph Greffrath (Pr. Sci. Nat. 400018/17)

DECLARATION

I, Rudolph Greffrath, in my capacity as a specialist consultant, hereby declare that I –

- Act as an independent consultant;
- 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;
- Do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Have and will not have vested interest in the proposed activity proceeding;
- Have no, and will not engage in, conflicting interests in the undertaking of the activity;
- Undertake to disclose, to the competent authority, any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the National Environmental Management Act, 1998 (Act 107 of 1998);
- Will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favorable to the applicant or not;
- As a registered member of the South African Council for Natural Scientific Professions, will undertake my profession in accordance with the Code of Conduct of the Council, as well as any other societies to which I am a member;
- Based on information provided to me by the project proponent and in addition to information obtained during the course of this study, have presented the results and conclusion within the associated document to the best of my professional ability;
- Reserve the right to modify aspects pertaining to the present investigation should additional information become available through ongoing research and/or further work in this field; 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.



Rudolph Greffrath *Pr.Sci.Nat* (400018/17, Conservation Science)

June 2024

TABLE OF CONTENTS

1	Introduction	1
1.1	Background	1
1.2	Assumptions and Limitations	1
1.3	Report Legislative Framework	2
1.4	Methods	3
1.4.1	<i>Desktop Assessment</i>	3
1.4.2	<i>Biodiversity Field Survey</i>	3
2	Results and Discussion	5
2.1	Desktop Assessment	5
2.1.1	<i>Ecologically Important Landscape Features</i>	5
3	Biodiversity Field Survey	5
3.1	Transformed Areas	5
3.2	Ecological Sensitivity	10
3.3	Screening Tool Comparison	11
4	Impact Management and Mitigation measures	15
5	Cumulative Impacts	20
6	Conclusion	20
7	Terrestrial Site Ecological Importance Method	20
7.1	CV	1
7.2	SACNASP	3
7.3	Specialist Declaration of Independence	4

LIST OF FIGURES

Figure 1-1: Field Tracks and Points	4
Figure 1-2: Field Tracks and Points, Wider area	4
Figure 3-1: PAOI current condition, Transformed Area	6
Figure 3-2: PAOI current condition, Transformed Area	7
Figure 3-3: PAOI current condition, Transformed Area and adjacent natural area (North)	8
Figure 3-4: PAOI current condition, Transformed Area and adjacent natural area (South)	9

Figure 3-5: Map illustrating the habitats of the Project Area of Influence (Pink = Transformed)	10
Figure 3-6: Map illustrating the Terrestrial Theme Sensitivity of the Project Area of Influence	11
Figure 3-7: Terrestrial Plant Theme Sensitivity for the Project Area (National Environmental Screening Tool, 2024)	12
Figure 3-8: Terrestrial Animal Theme Sensitivity for the Project Area (National Environmental Screening Tool, 2023)	13
Figure 3-9: Terrestrial Biodiversity Theme Sensitivity for the Project Area (National Environmental Screening Tool, 2023)	14

LIST OF TABLES

Table 1-1: Terrestrial Biodiversity Compliance Statement information requirements as per the relevant protocol, including the location of the information within this report	2
Table 2-1: Summary of the spatial relevance of the project area to local ecologically important landscape features	5
Table 3-1 : Summary of SEI of habitat types delineated within the Project Area of Influence	10
Table 3-2 : Summary of the screening tool vs specialist assigned sensitivities	14
Table 4-1: The project management measures for the terrestrial biodiversity during the construction phase	16
Table 4-2: The project management measures for the terrestrial biodiversity during the operational phase	18
Table 8-1 Summary of Conservation Importance (CI) criteria	20
Table 8-2 Summary of Functional Integrity (FI) criteria	21
Table 8-3 Matrix used to derive Biodiversity Importance (BI) from Functional Integrity (FI) and Conservation Importance (CI)	21
Table 8-4 Summary of Resource Resilience (RR) criteria	22
Table 8-5 Matrix used to derive Site Ecological Importance from Receptor Resilience (RR) and Biodiversity Importance (BI)	22
Table 8-6 Guidelines for interpreting Site Ecological Importance in the context of the development activities	22

List of Abbreviations

ADU	Animal Demography Unit
CARA	Conservation of Agricultural Resources Act, 1993 (Act 43 of 1983)
CC	Closed Corporation
CBA	Critical Biodiversity Area
C-Plan	Conservation Plan
CR	Critically Endangered
DD	Data Deficient
DEA	Department of Environmental Affairs
DM	District Municipality
DMR	Department of Mineral Rights
DWAF	Department of Water Affairs and Forestry
DWS	Department of Water and Sanitation
ECBCP	Eastern Cape Biodiversity Conservation Plan
EBA	Endemic Bird Area
ESA	Ecological Support Areas
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMP	Environmental Management Plan
EN	Endangered
EW	Extinct in the Wild
EX	Extinct
Ha	Hectares
HL	Habitat linkage
HR	Habitat requirements
HS	Habitat status
IBA	Important Birding Area
IFC	International Finance Corporation
IUCN	International Union for the Conservation of Nature
IPP	Independent Power Plant
km	Kilometres
km ²	Square kilometres
LC	Least Concern
m	Meters
mm	Millimetres

NBSAP	National Biodiversity Strategy and Acton Plan
NE	Not Evaluated
NEMA	National Environmental Management Act,1998 (Act 107 of 1998)
NEMBA	National Environmental Biodiversity Act, 2004 (Act 10 of 2014)
NFEPA	National Freshwater Ecosystem Priority Areas
No	Number
NPAES	National Protected Areas Expansion Strategy
NT	Near Threatened
ONA	Other Natural Areas
PAOI	Project Area of Influence
PES	Present Ecological Status
PRECIS	Pretoria Computerised Information System
PS	Performance Standard
TMS	Timed Meander Searches
QDS	Quarter Degree Square
RE	Remainder Extend
SABAP	South African Bird Atlas Project
SACNASP	South African Council for Natural Scientific Professions
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SEI	Site Ecological Importance
VU	Vulnerable

1 Introduction

1.1 Background

Nsovo Environmental was appointed to undertake a terrestrial biodiversity (fauna and flora) baseline assessment for the proposed Khanyazwe Flexpower Gas Power Plant project.

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 were conducted during June 2024, with the site assessment having taken place on the 28th of May 2024. Furthermore, the desktop assessment and field survey both involved the detection, identification and description of any locally relevant sensitive receptors and habitats, and the way 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 'Low' 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.

1.2 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- The fieldwork was conducted during the dry season which means that certain flora would not have been present or observable due to seasonal constraints;
- 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 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);
- This report does not comment on the Avifauna of the project area, pls refer to separate specialist report;
- The single site visit was conducted during the dry season, and this means that certain flora and fauna would not have been present or observable due to seasonal constraints, however, most species have likely been recorded;
- Whilst every effort was made to cover as much of the Project Area as possible, representative sampling is 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; and
- The GPS used in the assessment has an accuracy of 5 m and consequently any spatial features may be offset by up to 5 m.
- The assessment only considered terrestrial habitat; and
- The assessment only comprised of a general habitat assessment and did not include a detailed fauna assessment.

1.3 Report 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”

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
Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae	7
A signed statement of independence by the specialist	7
A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	1.4
A baseline profile description of biodiversity and ecosystems of the site	2
The methodology used to verify the sensitivities of the terrestrial biodiversity features on the site including the equipment and modelling used where relevant;	1.4

In the case of a linear activity, confirmation from the terrestrial biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase	-
Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr	4
A description of the assumptions made as well as any uncertainties or gaps in knowledge or data	1.2
Any conditions to which this statement is subjected	6

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

1.4 Methods

1.4.1 Desktop Assessment

The desktop assessment was principally undertaken using a Geographic Information System (GIS) to access the latest available spatial datasets to determine if any are applicable to the site. These datasets and their respective dates of publishing are provided below.

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

- Terrestrial Critical Biodiversity Area for Free State (DESTEA, 2015);
- 2018 National Biodiversity Assessment (NBA, 2018) (Skowno et al., 2019);
- Red List of Ecosystems (RLE) 2021 (Skowno & Monyeki, 2021);
- Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018);
- South Africa Protected and Conservation Areas Databases, 2023 (DFFE, 2023a & DFFE, 2023b);
- National Protected Areas Expansion Strategy, 2016 (DEA, 2016);
- Important Bird and Biodiversity Areas, 2015 (Marnewick et al., 2015);

1.4.2 Biodiversity Field Survey

A single season field survey was undertaken on the 14th of June 2023, which constitutes a 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 and access. This site visit is considered sufficient for the project. The survey tracks and points can be seen in Figure 1-1.



Figure 1-1: Field Tracks and Points

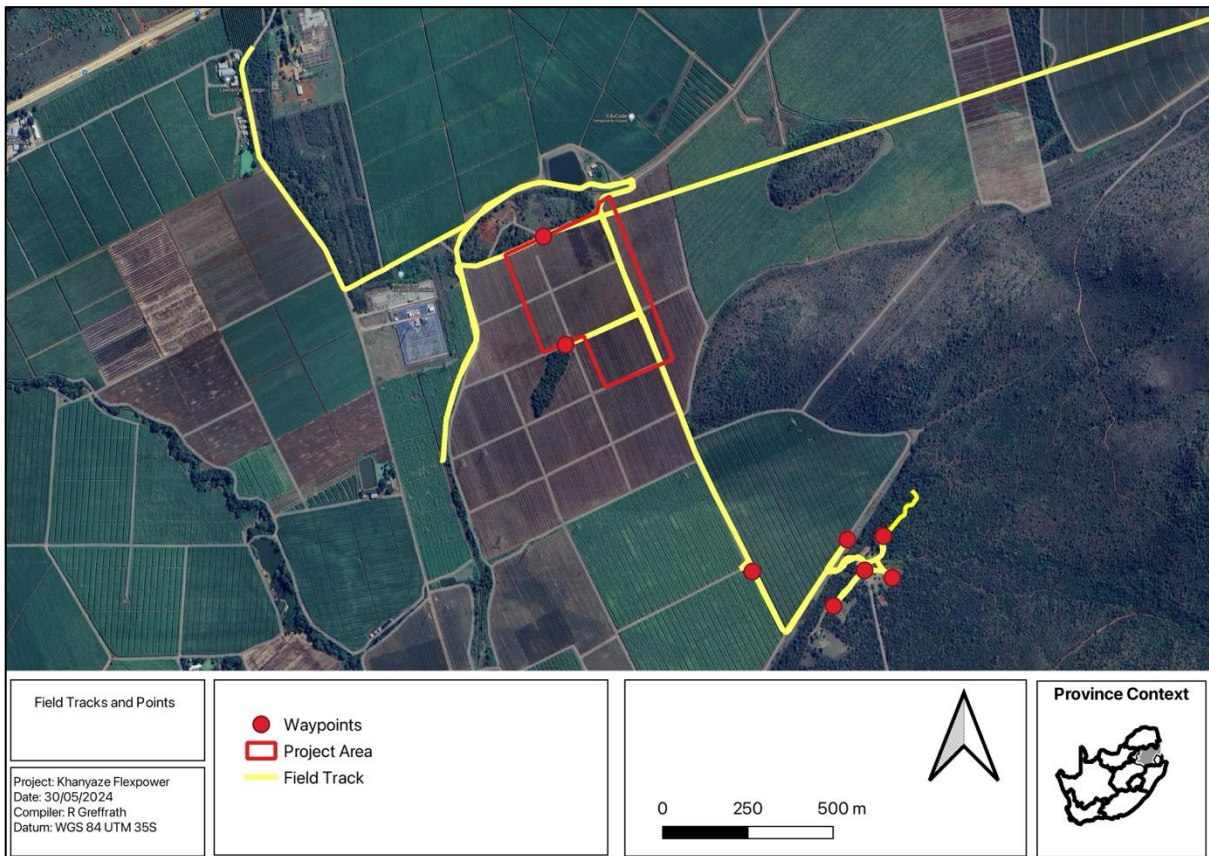


Figure 1-2: Field Tracks and Points, Wider area

2 Results and Discussion

2.1 Desktop Assessment

2.1.1 Ecologically Important Landscape Features

Table 2-1 below has been produced because of the spatial data collected and analysed (as provided by various sources such as the national and provincial environmental authorities and SANBI). It presents a summative breakdown of the ecological boundaries considered and the associated relevance that each has to the region or Project Area. Where a feature is regarded as relevant it is considered an ecologically important landscape feature and discussed further as part of the sub-sections that follow.

Table 2-1: Summary of the spatial relevance of the project area to local ecologically important landscape features

Desktop Information Considered	Relevance	Reasoning
Provincial Conservation Plan	Yes	Project Area overlaps with a ESA 1, as well as Heavily Modified
NBA 2018: Ecosystem Threat Status	No	Project Area is situated in a 'Least Concerned' ecosystem
NBA 2018: Ecosystem Protection Level	No	Project Area is situated in a 'Well Protected' ecosystem
Red List of Ecosystems (2021)	No	Project Area is situated in a 'Least Concern' ecosystem
Protected and Conservation Areas (SAPAD & SACAD)	No	The nearest protected area is the Kruger National Park situated 3 km north of the Project Area
National Protected Areas Expansion Strategy (NPAES)	No	Project Area does not fall within a 'Priority Focus Area'

3 Biodiversity Field Survey

The following sections discuss the results from the field survey that was conducted for the proposed project, which was undertaken on the 28th of May 2024. Each sample point is described in

One (1) primary terrestrial habitat type was delineated within the PAOI:

- Transformed.

Based on the criteria provided in Section 7 of this report, the habitat within the PAOI were allocated a sensitivity category. The sensitivities of the habitat type delineated is discussed and illustrated below.

3.1 Transformed Areas

The dominant land use in the general project area (Malalane) was found to be sugar cane farming. The cultivating of this crop requires complete removal of indigenous vegetation from an area to accommodate planting, and after harvesting the remaining foliage is burnt. The PAOI was found to be post harvesting and in the process of burning (Figure 3-1).



Figure 3-1: PAOI current condition, Transformed Area



Figure 3-2: PAOI current condition, Transformed Area



Figure 3-3: PAOI current condition, Transformed Area and adjacent natural area (North)



Figure 3-4: PAOI current condition, Transformed Area and adjacent natural area (South)



Figure 3-5: Map illustrating the habitats of the Project Area of Influence (Pink = Transformed)

3.2 Ecological Sensitivity

Based on the criteria provided in section 1.4.3 of this report, the habitat within the Project Area were assigned a sensitivity category, i.e., a SEI category. The Project Area was categorised as possessing a single habitat ‘Very Low’ SEI (Table 3-1). This indicates that the findings of this assessment are contrary to the Screening Tool with respect to the Combined Terrestrial, Plant and Animal Species Theme sensitivity.

Table 3-1: Summary of SEI of habitat types delineated within the Project Area of Influence

Habitat	Conservation Importance	Functional Integrity	Biodiversity Importance	Receptor Resilience	Site Ecological Importance	Site Ecological Importance (SEI) Guidelines for interpreting SEI in the context of the proposed development activities
Transformed	Low < 50% of receptor contains natural habitat with limited potential to support SCC.	Very Low Several major current negative ecological impacts.	Very Low	High Habitat that can recover relatively quickly	Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.



Figure 3-6: Map illustrating the Terrestrial Theme Sensitivity of the Project Area of Influence

3.3 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes (Figure 3-7, Figure 3-8 and Figure 3-9) are either disputed or validated for the overall PAOI in Table 3-2 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.

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

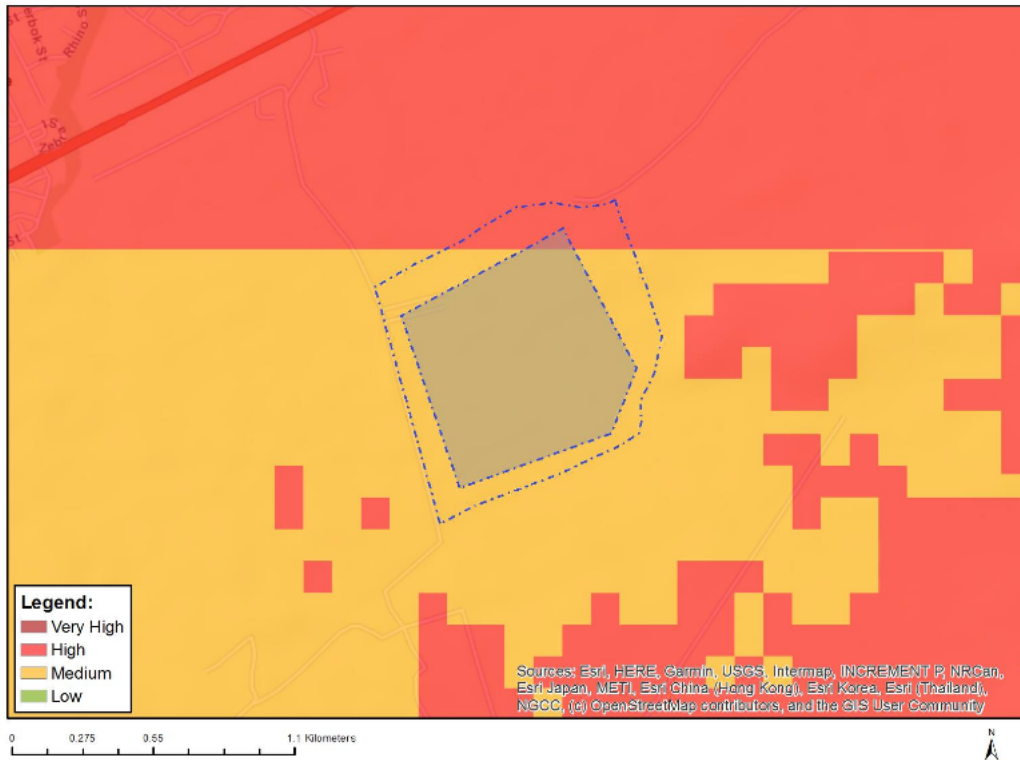
Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 1252
Medium	Caesalpinia rostrata
Medium	Sensitive species 274
Medium	Sensitive species 1204

Figure 3-7: Terrestrial Plant Theme Sensitivity for the Project Area (National Environmental Screening Tool, 2024)

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Bucorvus leadbeateri
High	Sensitive species 21
High	Aves-Gorsachius leuconotus
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Lycaon pictus

Figure 3-8: Terrestrial Animal Theme Sensitivity for the Project Area (National Environmental Screening Tool, 2023)

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	ESA: Protected Area buffer
Very High	SANParks (Buffer)_Kruger National Park

Figure 3-9: Terrestrial Biodiversity Theme Sensitivity for the Project Area (National Environmental Screening Tool, 2023)

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

Screening Tool Theme	Screening Tool	Specialist	Screening Tool Validated or Disputed by Specialist - Reasoning
Animal Theme	Medium	Low	Disputed– Habitat is transformed, and no SCC are expected.
Plant Theme	Medium	Low	Disputed– Habitat is transformed, and no SCC are expected.
Terrestrial Theme	Very High	Low	Disputed – The area is transformed but is still important to the KNP and ESA buffer zone.

4 Impact Management and Mitigation measures

The assessment of impact significance considers pre-mitigation as well as implemented post-mitigation scenarios. Two phases were considered for the impact assessment, with the infrastructure assumed to be permanent (> 20 years) and no decommissioning phase required:

- Construction Phase; and
- Operational Phase.

The purpose of the management measures is to inform on the mitigations required to lower the risk of the impacts associated with the proposed activity, provide measures for improving the conservation value of the property and to be able to be inserted into the Environmental Management Programme (EMPr). The mitigation actions required to reduce the significance of the impacts associated with the development are provided in Table 4-1 and Table 4-2.

Table 4-1: The project management measures for the terrestrial biodiversity during the construction phase

Environmental Theme: Vegetation and Habitats (Fauna)

Impact Management Outcome: Protection of the vegetation and habitat to ensure adequate ecological functioning

Phase: Construction

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Avoidance of any natural areas surrounding the PAOI, specifically to the south and north, with a corresponding recommendation for the location of the proposed infrastructure to an area of ‘Very Low’ SEI. Roads and Transmission lines construction must only be considered in transformed habitat. Adhering to existing roads and servitudes.	Contractor/ Environmental Officer	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	Avoided features
Areas to be developed/disturbed, including transmission lines, be specifically demarcated so that during the construction/activity phase, only the demarcated areas be impacted upon. Areas of indigenous vegetation outside of the direct project footprint, should under no circumstances be fragmented or disturbed further. The construction area must be fenced off and no ingress into other areas allowed.	Contractor/ Environmental Officer	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	Avoided features
Areas that have been disturbed during construction, but will not undergo development, must be revegetated with indigenous vegetation dominant in the area.	Contractor/ Environmental Officer	Implement a rehabilitation plan	Construction Phase	Environmental Officer	Throughout phase	Rehabilitation implemented

Make use of existing access routes as much as possible, before new routes are considered. Any selected “new” route must be authorized, minimizing disturbances to undisturbed areas.	Contractor	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	All routes authorised
Minimize unnecessary clearing of vegetation beyond the development footprints	Contractor/ Environmental Officer	Visibly demarcate authorised working areas	Construction Phase	Environmental Officer	Throughout phase	Clearance is minimised
The use of herbicides is not recommended (opt for mechanical removal).	Contractor/ Environmental Officer	Demarcate buffer area	Construction Phase	Environmental Officer	Throughout phase	Avoided buffer area
Make sure all excess consumables are removed from site and deposited at an appropriate waste facility	Contractor/ Environmental Officer	Restrict to designated working/storage/service areas	Construction Phase	Environmental Officer	Throughout phase	Restricted to demarcated area
Appropriately contain any generator diesel storage tanks, machinery spills (e.g. accidental spills of hydrocarbons oils, diesel etc.) or construction materials on site (e.g. concrete) in such a way as to prevent them leaking	Contractor/ Environmental Officer	Restrict to designated working/storage/service areas	Construction Phase	Environmental Officer	Throughout phase	Restricted to demarcated area
Provide appropriate sanitation facilities for workers during construction and service them regularly	Contractor	Provide service ablation for contractors/labour	Construction Phase	Environmental Officer	Throughout phase	Ablution facilities provided and serviced
The Contractor should supply sealable and properly marked domestic waste collection bins and all solid waste collected must be disposed of at a licensed disposal facility	Contractor	Implement waste management plan	Construction Phase	Environmental Officer	Throughout phase	Plan is implemented
The Contractor must be in possession of an emergency spill kit that must always be complete and available on site	Contractor	Implement spill response plan	Construction Phase	Environmental Officer	Throughout phase	Spill kits are available

Impact Management Outcome: Avoiding Alien Invasive plant infestation
Phase: Construction

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
The footprint area of the construction should be kept to a minimum. The footprint area must be clearly demarcated to avoid unnecessary disturbances to adjacent areas thereby causing further encroachment of invasive species.	Contractor/ Environmental Officer	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	Avoided features
An Invasive Alien Plant Management Plan must be compiled and implemented. This should regularly be updated to reflect the annual changed in IAP composition	Contractor/ Environmental Officer	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	Avoided features
Areas that have been disturbed during construction, but will not undergo development, must be revegetated with indigenous vegetation dominant in the area.	Contractor/ Environmental Officer	Implement a rehabilitation plan	Construction Phase	Environmental Officer	Throughout phase	Rehabilitation implemented

Table 4-2: The project management measures for the terrestrial biodiversity during the operational phase

Environmental Theme: Vegetation and Habitats (Fauna)						
Impact Management Outcome: Protection of the vegetation and habitat to ensure adequate ecological functioning						
Phase: Operation						
Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
Make use of existing access routes as much as possible, before new routes are	Contractor	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	All routes authorised

considered. Any selected “new” route must be authorized, minimizing disturbances to undisturbed areas.						
Minimize unnecessary clearing of vegetation beyond the development footprints	Contractor/ Environmental Officer	Visibly demarcate authorised working areas	Construction Phase	Environmental Officer	Throughout phase	Clearance is minimised
The use of herbicides is not recommended (opt for mechanical removal).	Contractor/ Environmental Officer	Demarcate buffer area	Construction Phase	Environmental Officer	Throughout phase	Avoided buffer area

**Impact Management Outcome: Avoiding Alien Invasive plant infestation
Phase: Operation**

Impact Management Actions	Implementation			Monitoring		
	Responsible person	Method of implementation	Timeframe for implementation	Responsible person	Frequency	Evidence of compliance
An Invasive Alien Plant Management Plan must be compiled and implemented. This should regularly be updated to reflect the annual changed in IAP composition	Contractor/ Environmental Officer	Design engineer to consider this for final layout	Construction Phase	Environmental Officer	Throughout phase	Avoided features

5 Cumulative Impacts

The quantitative impact of the proposed project in isolation on terrestrial biodiversity is anticipated to be "Low" due to the transformed nature of the environment and due to the absence of "High" sensitive areas. The project area has undergone historic and current modification, like the disturbances that the local area has undergone.

After implementation of the mitigation measures as stipulated above the integrity and functionality of the natural habitat is not expected to deteriorate further because of the proposed development and no irreplaceable loss of terrestrial biodiversity is anticipated.

6 Conclusion

The terrestrial biodiversity SEI for the proposed development areas was confirmed to be 'Very Low'. The PAOI is regarded as suitable, due to no natural habitat remaining in these areas, however the proximity to the KNP as well as ESA buffer zone must be taken into consideration.

It is the specialist's opinion that the proposed developability of the PAOI is as follows:

- Minimisation mitigation (Very Low SEI Habitats) – development activities of medium to high impact acceptable and restoration activities may not be required.

It is recommended that all infrastructure be placed in areas categorised as 'Very Low' SEI areas following the completion of the site assessment field work. Additionally, the infrastructure layout should consider habitat connectivity to avoid fragmentation, the proximity to the KNP as well as ESA buffer zone must be considered.

7 Terrestrial Site Ecological Importance Method

The different habitat types within the project area were delineated and identified based on observations during the field assessment, and available satellite imagery. These habitat types were assigned Ecological Importance (EI) categories based on their ecological integrity, conservation value, the presence of species of conservation concern 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 on the site) and Receptor Resilience (RR) (its resilience to impacts) as follows.

BI is a function of Conservation Importance (CI) and the Functional Integrity (FI) of the receptor as follows. 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
Very High	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 (EEO) of < 10 km ² . 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).
High	Confirmed or highly likely occurrence of CR, EN, VU species that have a global EEO of > 10 km ² . IUCN threatened species (CR, EN, VU) must be listed under any criterion other than A.

	<p>If listed as threatened only under Criterion A, include if there are less than 10 locations or < 10 000 mature individuals remaining.</p> <p>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.</p> <p>Presence of Rare species.</p> <p>Globally significant populations of congregatory species (> 1% but < 10% of global population).</p>
Medium	<p>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.</p> <p>Any area of natural habitat of threatened ecosystem type with status of VU.</p> <p>Presence of range-restricted species.</p> <p>> 50% of receptor contains natural habitat with potential to support SCC.</p>
Low	<p>No confirmed or highly likely populations of SCC.</p> <p>No confirmed or highly likely populations of range-restricted species.</p> <p>< 50% of receptor contains natural habitat with limited potential to support SCC.</p>
Very Low	<p>No confirmed and highly unlikely populations of SCC.</p> <p>No confirmed and highly unlikely populations of range-restricted species.</p> <p>No natural habitat remaining.</p>

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

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

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 (BI)		Conservation Importance (CI)				
		Very high	High	Medium	Low	Very low
Functional Integrity (FI)	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 Resource 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.

Subsequent to the determination of the 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 (BI)				
		Very high	High	Medium	Low	Very low
Receptor Resilience (RR)	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 project is provided in Table 7-6.

Table 7-6 Guidelines for interpreting Site Ecological Importance in the context of the development activities

Site Ecological Importance	Interpretation in relation to development activities
Very High	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.
High	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.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.

Site Ecological Importance	Interpretation in relation to development activities
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	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.

7.1 CV

Rudolph Greffrath, Pr.Sci.Nat.

Biodiversity and Ecology

Rudolph's role is that of a terrestrial ecologist, with specific reference to fauna, flora and biodiversity management. He has been involved in numerous EIA and ESIA projects across Africa in the extractive and energy sectors as technical specialist as well as project manager. In this regard he has extensive experience in the quantification and management of the terrestrial ecological environment, the various biotic and abiotic specialist components and how these are impacted on by a project. He has experience in post impact environmental planning, rehabilitation management and monitoring of projects. He specialises in Biodiversity management where he has designed biodiversity land management plans for project areas, including advising, planning and designing biodiversity strategies.

Experience: 16 years' experience in extractive industries from a biodiversity perspective.

Education

- 2005-2006: B-Tech Degree in Nature Conservation, Nelson Mandela Metropolitan University (NMMU).
- 2001- 2004: National Diploma in Nature Conservation, Nelson Mandela Metropolitan University (NMMU).

Professional Affiliations and Registrations

- South African Council for Natural Scientific Professions, Professional Natural Scientist in the field of practice Conservation Science, registration number, 400018/17;
- IAIA, International Association for Impact assessments (Membership No. 6384);
- Botanical Society of South Africa;
- The Land Rehabilitation Society of Southern Africa, LARSA (Membership No. 0085);
- Grassland Society of Southern Africa;
- Southern African Wildlife Management Association.

Languages

- English and Afrikaans, native speaker

Fields of Competence

- Environmental Impact Assessments (EIAs), Basic Assessments and Environmental Management Plans (EMPs) for environmental authorisations in terms of the South African National Environmental Management Act (NEMA), 1998 (Act 107 of 1998);
- Environmental pre-feasibility studies;
- Environmental off-Set studies.
- Large Mammal Monitoring Projects;
- Biodiversity Assessments including Mammalia, Avifauna, Herpetofauna and Arthropoda;
- Geographic Information Systems (GIS), frequent use of ArcGIS, QGIS.
- Biodiversity Action Plan, design and Implementation;
- Biodiversity and Land Management Programs;
- Protected plant species management;
- Monitoring of rehabilitation;
- Environmental auditing of rehabilitated areas;
- Project management of ecological specialist studies;

- Planning and design of Rehabilitation off-set strategies.

Key Industry Sectors

- Extractive Industry;
- Renewable Energy;
- Construction.

7.2 SACNASP



herewith certifies that
Rudolph Johannes Greffrath
Registration Number: 400018/17
is a registered scientist

in terms of section 20(3) of the Natural Scientific Professions Act, 2003
(Act 27 of 2003)
in the following field(s) of practice (Schedule 1 of the Act)
Conservation Science (Professional Natural Scientist)

Effective **25 January 2017**

Expires **31 March 2025**



Chairperson

Chief Executive Officer



To verify this certificate scan this code

7.3 Specialist Declaration of Independence

I, Rudolph Greffrath, 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.



Rudi Greffrath

Ecologist

May 2024