TERRESTRIAL BIODIVERSITY, ANIMAL AND PLANT SPECIES COMPLIANCE STATEMENT

THE PROPOSED MIXED DEVELOPMENT ON ERF 139, ZANDHOOGTE, LOCATED NEAR GROOT BRAKRIVIER, WESTERN CAPE PROVINCE

Prepared for:

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Prepared by:

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Nicole Dealtry (Botanical Specialist and Lead Report Writer) (*Pri. Sci. Nat 130289*)

Nicole (SACNASP Pri. Sci. Nat. Botany Reg No. 130289) is a Botanical Specialist with over 5 years' experience. Nicole obtained her BSc Honours in Botany (Environmental Management) from Nelson Mandela University (NMU) in December 2018. She also holds a BSc Degree in Environmental Management (Cum Laude) from NMU. Nicole has undertaken numerous Ecological Impact Assessments for a range of developments, including Wind Energy Facilities (WEFs), mines, powerlines, housing developments, roads, amongst others, ensuring that these specialist assessments are undertaken and prepared in accordance with the Protocols for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320), Plant Species and Animal Species (GN R. 1150) whilst working closely with developers to ensure a development which is environmentally sustainable as well as financially and technically feasible. Nicole also has experience with conducting specialist assessments in other African countries, including Sierra Leone and Mozambique.

Tarryn Martin (Botanical Specialist and Report Review) (*Pri. Sci. Nat* 008745)

Tarryn has over ten years of experience working as a botanist, nine of which are in the environmental sector. She has worked as a specialist and project manager on projects within South Africa, Mozambique, Lesotho, Zambia, Tanzania, Cameroon, Swaziland and Malawi. The majority of these projects required lender finance and consequently met both in-country and lender requirements.

Tarryn has extensive experience writing botanical impact assessments, critical habitat assessments, biodiversity management plans, biodiversity monitoring plans and Environmental Impact Assessments to International Standards, especially to those of the International Finance Corporation (IFC). Her experience includes working on large mining projects such as the Kenmare Heavy Minerals Mine, where she monitored forest health, undertook botanical impact assessments for their expansion projects and designed biodiversity management and monitoring plans. She has also project managed Environmental Impact Assessments for graphite mines in northern Mozambique and has a good understanding of the Mozambique Environmental legislation and processes.

Tarryn holds a BSc (Botany and Zoology), a BSc (Hons) in African Vertebrate Biodiversity and an MSc with distinction in Botany from Rhodes University. Tarryn's Master's thesis examined the impact of fire on the recovery of C3 and C4 Panicoid and non-Panicoid grasses within the context of climate change for which she won the Junior Captain Scott-Medal (Plant Science) for producing the top MSc

of 2010 from the South African Academy of Science and Art as well as an Award for Outstanding Academic Achievement in Range and Forage Science from the Grassland Society of Southern Africa. Tarryn is a professional member of the South African Council for Natural Scientific Professionals (since 2014).

Amber Jackson (Faunal Specialist) (*Cand. Nat. Sci)*

Amber has over ten years' experience in environmental consulting and has managed projects across various sectors including mining, agriculture, forestry, renewable energy, housing, coastal and wetland recreational infrastructure. Most of these projects required lender finance and therefore met both in-country, lender and sector specific requirements.

Amber completed the IFC lead and Swiss funded programme in Environmental and Social Risk Management course in 2018. The purpose of the course was to upskill Sub-Saharan African environmental consultants to increase the uptake of E&S standards by Financial Institutions.

Amber specialises in terrestrial vertebrate faunal assessments. She has conducted large scale faunal impact assessments that are to international lender's standards in Mozambique, Tanzania, Lesotho and Malawi. In South Africa her faunal impact assessments comply with the protocols for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity and follows the SANBI Species Environmental Assessment Guideline. Her specialist input goes beyond impact assessments and includes faunal opportunities and constraints assessments, Critical Habitat Assessments, Biodiversity related Management Plans and Biodiversity Monitoring Programmes.

Amber holds a BSc (Zoology and Ecology, Environment & Conservation) and BSc (Hons) in Ecology, Environment & Conservation from WITS University and an MPhil in Environmental Management from University of Cape Town. Amber's honours focused on the landscape effects on Herpetofauna in Kruger National Park and her Master's thesis focused on the management of social and natural aspects of environmental systems with a dissertation in food security that investigated the complex food system of informal and formal distribution markets.

Declaration of Independence

Tarryn Martin (Botanical Specialist)

- I, Tarryn Martin, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;
- 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 report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Amber Jackson (Faunal Specialist)

- I, Amber Jackson, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;
- 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;
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- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Nicole Dealtry (Botanical Specialist)

- I, Nicole Dealtry, declare that, in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended and the Amended Environmental Impact Assessment Regulations, 2017;
- 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;
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- All the particulars furnished by me in this report are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Introduction

Erno van Rensburg (the Applicant) intends to develop a mixed/light industrial development on Erf 139, Zandhoogte, located near Groot Brakrivier, within the Western Cape Province. Erf 139 is approximately 18.5 ha in extent and located just north of the N2. The Erf is subdivided into four (4) portions by two tar roads, namely Sandhoogte and Sorgfontein Road, and is zoned Agriculture Zone I. The boundary of each portion is fenced. Erf 139, hereafter referred to as the 'project area', was originally utilised for agriculture (crop production) but has been left fallow since 2014.

Biodiversity Africa has been appointed to undertake the required terrestrial biodiversity, plant, and animal species specialist assessment for the proposed project area in support of an application for Environmental Authorisation (EA).

Methodology

A desktop assessment of available spatial data and resources was undertaken prior to the field survey to determine whether there are any features within the project area that are considered sensitive. A field survey was undertaken on the 23rd of April 2024 to verify the findings of the desktop assessment and DFFE Screening Report generated for the project area.

The findings of the Site Sensitivity Verification (SSV) determined the overall Site Ecological Importance (SEI) of the project area to be MEDIUM. In terms of the Protocol for the Specialist Assessment and Minimum Reporting Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020) and Terrestrial Animal and Plant Species (GN R. 1150), an applicant intending to undertake an activity on a site identified as MEDIUM sensitivity must submit either a Compliance Statement or a full Specialist Assessment. Based on the transformed and fragmented nature of the project area, as well as the anticipated low to negligible impacts associated with the proposed project activities, a compliance statement is sufficient for this project.

Results

Analysis of historical aerial imagery and Google Earth Satellite Imagery indicates that the project area was previously cleared and utilised for agricultural practises since before 1963 until around 2014 (i.e. more than 50 years) whereafter the project area has been left fallow and allowed to regenerate. According to the Species Environmental Assessment Guideline (SANBI, 2020), transformed areas, such as previously cultivated areas, cannot be regarded as 'natural habitat', even if these areas are abandoned so that some form of functional ecosystem is restored. Due to the historical clearance of vegetation over a prolonged period, and the disturbance of the soil and seedbank, these areas are unlikely to have a species composition representative of the original habitat (SANBI, 2020).

Considering the project area was utilised for agriculture for at least 50 years and then left fallow since about 2014, the vegetation of the project area has been classified as 'secondary shrubland'. This vegetation type was characterised by low (~1-1.5 m) dense (>75% cover) to open (~50-75% cover) shrubland dominated by indigenous pioneer species such as *Osteospermum moniliferum, Helichrysum cymosum, Passerina corymbosa, Euclea racemosa, Seriphium plumosum, Rubus rigidus, Selago corymbosa, Grewia occidentalis, Diospyros dichrophylla, Lycium cinereum, Dicerothamnus rhinocerotis, Searsia pallens,* with a grassy ground cover and scattered alien invasive species and

weeds including *Acacia cyclops, Acacia mearnsii Lantana camara, Tagetes minuta*, and *Nidorella ivifolia* amongst others. Species diversity was low and not representative of the historical natural vegetation types (i.e. Hartenbos Dune Thicket and Garden Route Granite Fynbos) but rather secondary vegetation dominated by pioneer and ruderal species.

Only one (1) plant SCC was recorded during the field survey, namely Hermannia lavandulifolia classified as VU under category A2c. This species was present in low densities and its distribution was restricted to the southwestern corner of the project area (near Sandhoogte Road). H. lavandulifolia is a widespread and common species, with an extent of occurrence (EOO) of 12 018 km². Its habitat typically includes clay slopes in renosterveld and valley thicket. It is declining due to significant, ongoing habitat loss and degradation. Based on the observed rate of habitat loss, a population reduction of 31% over three generations is inferred. It is therefore listed as Vulnerable under criterion A (von Staden, 2018). The loss of the entire project area (18.5 ha) would constitute a habitat loss of 0.002% for this species while the loss of the southwestern corner or the project area (2.4 ha) would constitute a habitat loss of 0.0002%. As such, the impacts on this species is considered low to negligible.

According to the desktop assessment undertaken, the project area intersects with the distribution range of twenty-seven (27) faunal SCC, including 17 mammal species and 19 bird species. Only two (2) mammal species and one (1) bird species were determined to have a high likelihood of occurrence within the project area. Impacts on these species are considered low to negligible. If present, the African Striped Weasel (NT) and Denham's bustard (VU) will likely move away from the project area when construction begins, and the development will result in a small loss of each species' habitat.

Construction activities may result in the mortality of individuals of the Fynbos Golden Mole and will result in the loss of approximately 0.07% of already degraded habitat within the AOO for this species. However, these impacts are unlikely to significantly affect the threat status and persistence of this species and as such, the impact is considered low.

Although the project area occurs within a CBA and ESA in terms of the WCBSP (2017): Mossel Bay, the features driving the CBA/ESA status are not present within the project area. As such, it is unlikely that the project will impact on the management objectives of these CBAs and ESAs.

The project footprint will not impact the functioning of any Endangered Ecosystems, Protected Areas, or NPAES Focus Areas as these features were not recorded within or surrounding the project area. Impacts associated with the Biodiversity Theme are therefore considered to be low to negligible.

The botanical SEI of the project area was determined to be VERY LOW, but the faunal SEI was determined to be MEDIUM. As such, the overall combined SEI of the project area is MEDIUM. In terms of the Guidelines for Interpreting SEI in the Context of the Proposed Development Activities (SANBI, 2020) for areas of MEDIUM SEI, development activities of medium impact are acceptable if followed by appropriate restoration activities. In the case of the project development, all impacts are expected to be low to negligible which is acceptable.

Recommendations

Recommended management actions that include mitigation measures to further reduce the impact of the project on the terrestrial biodiversity environment have been outlined in chapter 8. These

recommendations must be included in the Environmental Management Programme (EMPr) and as conditions of Environmental Authorisation (EA), if granted.

Ecological Statement and Opinion of the Specialist

Given that the project area has a very low sensitivity for the Plant Species Theme, a Medium Sensitivity for the Animal Species Theme, and a low sensitivity for the Terrestrial Biodiversity Theme and that impacts of the project on the plants, animals and biodiversity will be low to negligible, the specialists are of the opinion that the development can proceed, provided the recommendations contained in this report are implemented

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Glossary of Terms

Alien Invasive Species refers to an exotic species that can spread rapidly and displace native species causing damage to the environment

Biodiversity is the term that is used to describe the variety of life on Earth and is defined as "*the variability among living organisms from all sources including terrestrial, marine and other aquatic ecosystems, and the ecological complexes of which they are part; this includes diversity within species, between species, and of ecosystems*" (Secretariat of the Convention on Biological Diversity, 2005).

Habitat Fragmentation occurs when large expanses of habitat are transformed into smaller patches of discontinuous habitat units isolated from each other by transformed habitats such as farmland.

Natural Habitat refers to habitats composed of viable assemblages of plant and/or animal species of largely native origin and/or where human activity has not essentially modified an area's primary ecological function and species composition.

Project Area is defined as the area that will be directly impacted by project infrastructure such as the roads, solar panels and offices.

Project area of influence (PAOI) refers to the broader area around the project area that may be indirectly impacted by project activities.

Protected Area is a clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values *(IUCN Definition 2008).*

Sensitive Species are species that are sensitive to illegal harvesting. As such, their names are obscured and listed as "Sensitive species #". As per the best practice guideline that accompanies the protocol and screening tool, the name of the sensitive species may not appear in any BAR or EIA report, nor any specialist reports released into the public domain.

Species of Conservation Concern (SCC) includes all species that are assessed according the IUCN Red List Criteria as Critically Endangered (CR), Endangered (EN), Vulnerable (VU), Data Deficient (DD) or Near Threatened (NT), as well as range-restricted species which are not declining and are nationally listed as Rare or Extremely Rare [also referred to in some Red Lists as Critically Rare] (SANBI, 2021).

Acronyms

CBA	Critical Biodiversity Area
CI	Conservation Importance
CR	Critically Endangered
DFFE	Department of Forestry, Fisheries and Environment
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EN	Endangered
EOO	Extent of Occupancy
FI	Functional Integrity
GIS	Geographical Information System
GN	Government Notice
IUCN	International Union for Conservation of Nature
LC	Least Concern
NEM:BA	National Environmental Management: Biodiversity Act
NT	Near Threatened
PAOI	Project Area of Influence
PNCO	Provincial Nature Conservation Ordinance
POSA	Plants of Southern Africa
QDS	Quarter Degree Square
RR	Receptor Resilience
SA	South Africa
SANBI	South African National Biodiversity Institute
SCC	Species of Conservation Concern
SEI	Site Ecological Importance
TOPS	Threatened and Protected Species
VU	Vulnerable

Specialist Check List

The contents of this specialist report complies with the legislated requirements as described in the Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity, Plant and Animal Species (GN R. 320 of March 2020 and GN R1150 of 30 October 2020).

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN 1150			SECTION OF REPORT
5.1	The Terrestrial **Animal Species** Compliance Statement must contain, as a minimum, the following information:		
	5.3.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 2 and 3 Appendix 3 and 4
	5.3.2	A signed statement of independence by the specialist;	Page 4 and 5
	5.3.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 1.4 and 2.3
	5.3.4	A description of the methodology used to undertake the site sensitivity verification and impact assessment and site inspection, including equipment and modelling used, where relevant;	Chapter 2
	5.3.5	The mean density of observations/ number of samples sites per unit area	Section 2.3
	5.3.6	Where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;	Chapter 8
	5.3.7	A description of the assumptions made and any uncertainties or gaps in knowledge or data; and	Section 1.4
	5.3.8	Any conditions to which the compliance statement is subjected.	Chapter 8 and 9
3.2	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320			SECTION OF REPORT
5.3	The **Plant Species** Compliance Statement must contain, as a minimum, the following information:		
	5.3.1	Contact details and relevant experience as well as the SACNASP registration number of the specialist preparing the compliance statement including a curriculum vitae;	Page 2 and 3 Appendix 3 and 4
	5.3.2	A signed statement of independence by the specialist;	Page 4 and 5
	5.3.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 1.4 and 2.3
	5.3.4	A description of the methodology used to undertake the site survey and prepare the compliance statement, including equipment and modelling used where relevant;	Chapter 2
	5.3.5	Where required, proposed impact management actions and outcomes or any monitoring requirements for inclusion in the EMPr;	Chapter 8
	5.3.6	A description of the assumptions made and any uncertainties or gaps in knowledge or data;	Section 1.4
	5.3.7	The mean density of observations/ number of samples sites per unit area17; and	Section 2.3

	5.3.8	Any conditions to which the compliance statement is subjected.	Chapter 8 and 9
	A signed copy of the assessment must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		

SPECIALIST REPORT REQUIREMENTS ACCORDING TO GN R. 320			SECTION OF REPORT
4.1	The **Terrestrial Biodiversity** Compliance Statement must contain, as a minimum, the following information:		
	4.3.1	Contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae;	Page 2 and 3 Appendix 3 and 4
	4.3.2	A signed statement of independence by the specialist;	Page 4 and 5
	4.3.3	A statement of the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment;	Section 1.4 and 2.3
	4.3.4	A baseline profile description of biodiversity and ecosystems of the site;	Chapter 3, 4; 5 and 6
	4.3.5	A methodology used to verify the sensitivities of the terrestrial biodiversity features on the site, including equipment and modelling used, where relevant;	Chapter 2
	4.3.6	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;	N/A
	4.3.7	Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr;	Chapter 8
	4.3.8	A description of the assumptions made and any uncertainties or gaps in knowledge or data; and	Section 1.4
	4.3.9	Any conditions to which this statement is subjected.	Chapter 8 and 9
4.4	A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.		

1. INTRODUCTION

1.1. Project Description

Erno van Rensburg (the Applicant) intends to develop a mixed/light industrial development on Erf 139, Zandhoogte, located near Groot Brakrivier, within the Western Cape Province. Erf 139 is approximately 18.5 ha in extent and located just north of the N2. The Erf is subdivided into four (4) portions by two tar roads, namely Sandhoogte and Sorgfontein Road, and is zoned Agriculture Zone I. The boundary of each portion is fenced. Erf 139, hereafter referred to as the 'project area', was originally utilised for agriculture (crop production) but has been left fallow since 2014.

Biodiversity Africa has been appointed to undertake a terrestrial biodiversity, plant, and animal specialist assessment of the project area.

1.2. Reporting Requirements

In terms of the Protocol for the Specialist Assessment and Minimum Reporting Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020) and Terrestrial Animal and Plant Species (GN R. 1150), prior to the commencement of a specialist assessment, the current use of the land and the potential environmental sensitivity of the site under consideration as identified by the screening tool, must be confirmed by undertaking a site sensitivity verification. The results of the screening tool, together with the site sensitivity verification, ultimately determines the minimum report content requirements. Where the information gathered from the site sensitivity verification differs from the screening tool designation of 'very high' or 'high' and is found to be of a 'low' sensitivity, then a Compliance Statement must be submitted. However, if the site sensitivity verification confirms the findings of the Screening Report generated for this site, then a full Terrestrial Biodiversity Impact Assessment must be submitted as part of the Application for Environmental Authorisation (EA).

According to the Site Sensitivity Verification undertaken for this project, the Animal Species Theme was found to be MEDIUM, the Plant Species Theme was found to be VERY LOW, and the Terrestrial Biodiversity Theme was found to be LOW. In terms of the protocols, an applicant intending to undertake an activity on a site identified as MEDIUM sensitivity must submit either a Compliance Statement or a full Specialist Assessment. Based on the transformed and fragmented nature of the project area, as well as the anticipated low to negligible impacts associated with the proposed project activities, a compliance statement is sufficient for this project.

Figure 1.1: Location of the project area in relation to Groot Brakrivier.

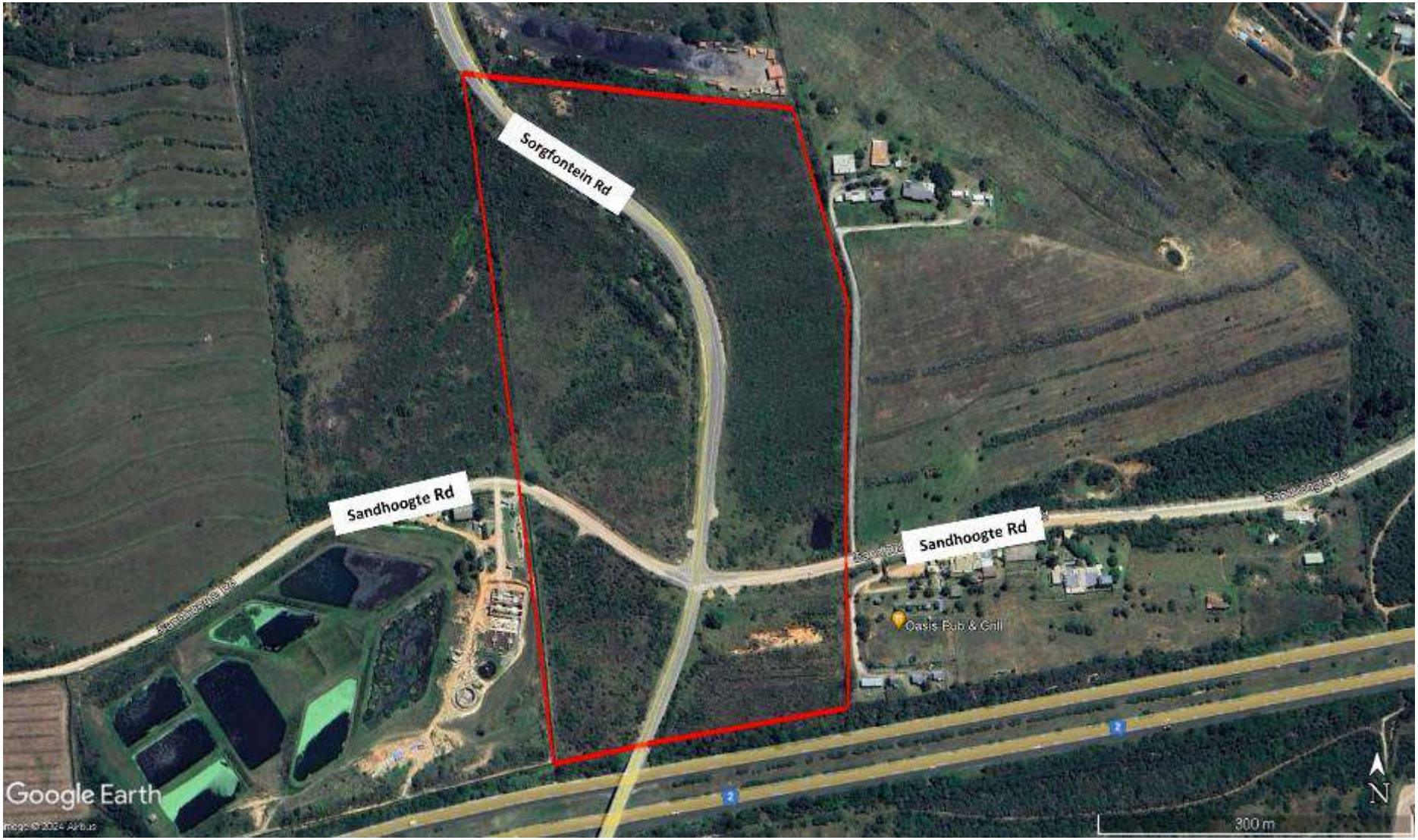

Figure 1.2: Aerial image of Erf 139.

Figure 1.3: Development plan/layout of the proposed mixed/light industrial development.

1.3. Scope, Purpose and Objectives

The purpose of this report is to assess the terrestrial biodiversity, animal, and plant species theme sensitivity of the project area as identified by the DFFE Screening Report by interrogating the sensitivity features associated with each theme.

The purpose of this report is to confirm the vegetation communities and faunal habitats present within the project area, determine if there is suitable habitat to support Species of Conservation Concern (SCC) within the project area and to assess whether these are present. Based on the findings of the above, the Site Ecological Importance (SEI) of the project area was determined. Where feasible, mitigation measures to further reduce the significance of potential impacts associated with the proposed development have been recommended.

Based on the above, the objectives and Terms of Reference (ToR) for this assessment are as follows:

- Undertake a desktop assessment of the site to determine its sensitivity and identify SCC (plants, amphibians, reptiles, mammals, birds) that could be present within the project area.
- Undertake a field survey to record the following information:
    - Species present.
    - Identification of species that are either protected (TOPS and PNCO) or considered threatened (CR, EN, VU) on the South African Red Data List.
    - Assess the level of degradation/ecological status of the project area (i.e. intact, near natural, transformed).
- Assess the SEI of the project area for the Plant and Animal Species Themes using the sensitivity analysis outlined in the Species Environmental Assessment Guideline (SANBI, 2020).
- Summarise the findings of the desktop assessment and field survey in a report.
- Where necessary, provide impact management actions (mitigation measures), or any monitoring requirements which may be required to reduce the impact of the proposed development on the environment.
- Provide a specialist statement/opinion regarding the acceptability of the proposed development in terms of the terrestrial biodiversity, plant, and animal species of the project area.

1.4. Limitations and Assumptions

This report is based on current available information and, as a result, the following limitations and assumptions are implicit:

- SCC are difficult to find and may be difficult to identify, thus species described in this report do not comprise an exhaustive list. However, every effort was made to identify SCC present in the project area during the field survey. Furthermore, a desktop assessment to identify SCC that could occur within the project area was undertaken, and the likelihood of occurrence assessed based on the species known distribution, available habitat recorded during the field

survey within the project area, and previous recorded observations in close proximity to the project area.

- Although every effort was made to identify every plant species observed within the project area, the aim of the botanical survey was not to record every plant species present within the project area but rather to determine the likelihood of occurrence of SCC and to determine whether the dominant species present are representative of the vegetation type(s) expected to occur on site in terms of the SA VEGMAP (2018).
- Sampling was carried out at one stage in the annual or seasonal cycle. The survey was conducted on the 23rd of April 2024 which falls outside of the flowering season in this region However, considering that the project area was previously ploughed and therefore transformed, it is the opinion of the specialist that the information gathered from the field survey and desktop assessment is sufficient to provide comment on the sensitivity of the project area for the purpose of the application for Environmental Authorisation (EA).
- This assessment includes plants, mammals, amphibians, reptiles, and birds. It does not include the assessment of invertebrates and/or insects.
- The faunal assessment is based on a field survey which assessed the availability of suitable habitat within the project area, coupled with a desktop assessment to determine the likelihood of occurrence of SCC.
- The assessment has been undertaken to meet the Protocol for the Specialist Assessment and Minimum Report Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320 of 2020) and Terrestrial Animal and Plant Species (GN R. 1150), as well as the Species Environmental Assessment Guidelines (2020).

2. METHODOLOGY

2.1. DFFE Screening Report

The DFFE Screening report identifies environmental sensitivities for the project area. This is based on available desktop data and requires that a suitably qualified specialist verify the findings. Of relevance to this report is the terrestrial biodiversity, plant, and animal species theme (refer to Table 2.1 below). A desktop assessment of available spatial data[1] and literature resources was undertaken to verify the sensitivity features contributing to the sensitivity rating for each of the themes and this was supplemented with data gathered during the field survey. The key resources that were consulted for each theme are summarised in Section 2.1.1 to 2.1.3 below.

Table 2.1: DFFE Screening Report theme sensitivities and features for the proposed project area.

Theme	Sensitivity	Sensitivity Features	Relevant Section of the Report
Terrestrial Biodiversity (Figure 2.1)	**VERY HIGH**	• CBA 1 & 2 (Terrestrial) • ESA 1 & 2 (restore from other land use) • Endangered (EN) Ecosystem: Hartenbos Dune Thicket • Critically Endangered (CR) Ecosystem: Garden Route Granite Fynbos	Chapter 4
Plant Species (Figure 2.2)	**MEDIUM**[2]	• Twenty-five (25) Sensitive Plant Species	Chapter 5
Animal Species (Figure 2.3)	**HIGH** [3]	• Four (4) Sensitive Bird Species	Chapter 6
	MEDIUM	• Two (2) Sensitive Insect Species • Two (2) Sensitive Mammal Species • One (1) Sensitive Invertebrate Species	

[1] Note: Only the most recent and up-to-date datasets have been used for mapping of the sensitivities within the project area.

[2] 'Medium' sensitivity does not indicate the known presence of a threatened plant within the proposed development footprint/PAOI but could indicate moderate likelihood of occurrence based on species distribution modelling, which relies on data such as habitat preferences and proximity to known locations of specific species (SANBI, 2020).

[3] 'Very high' and 'high' sensitivities defined by the screening tool indicate known presence of SCC (SANBI, 2020).

Figure 2.1: Map of the Terrestrial Biodiversity Theme Sensitivity of the project area (source: DFFE Screening Report).

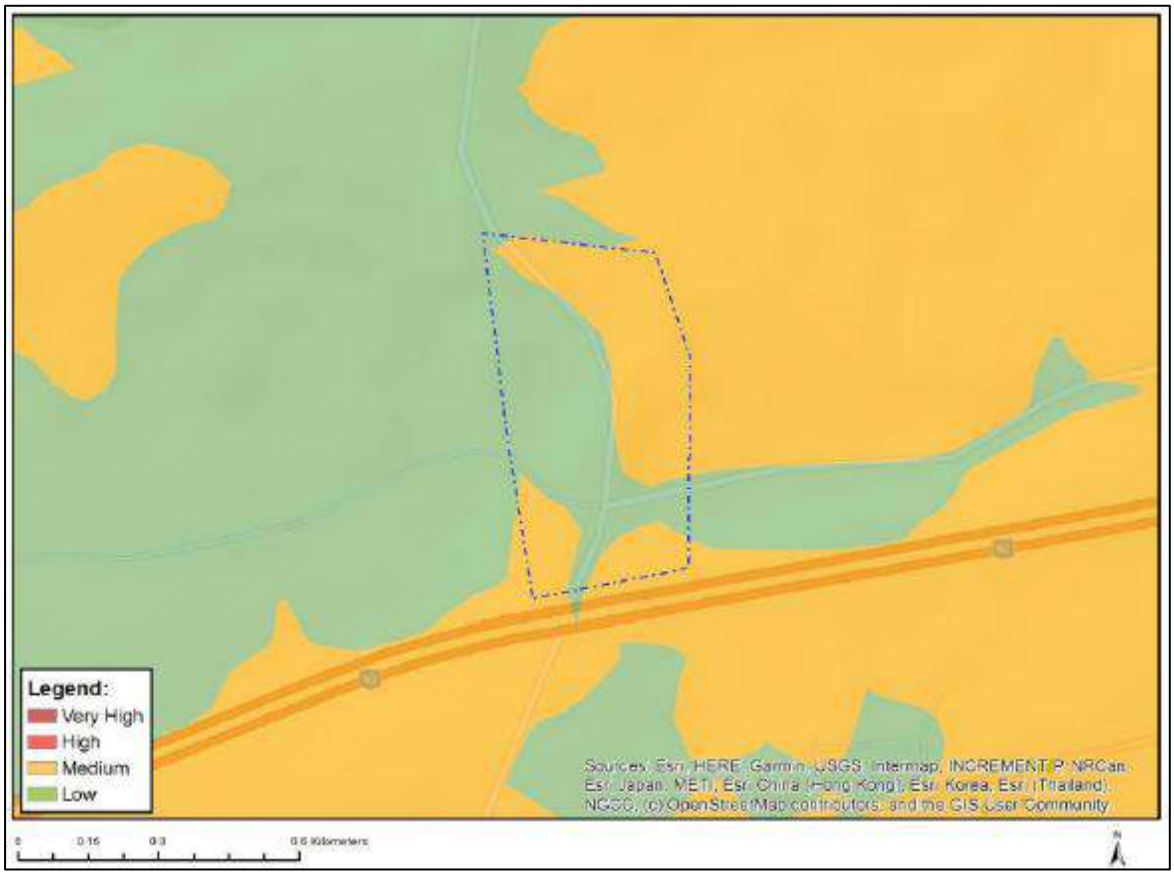

Figure 2.2: Map of the Plant Species Theme Sensitivity of the project area (source: DFFE Screening Report).

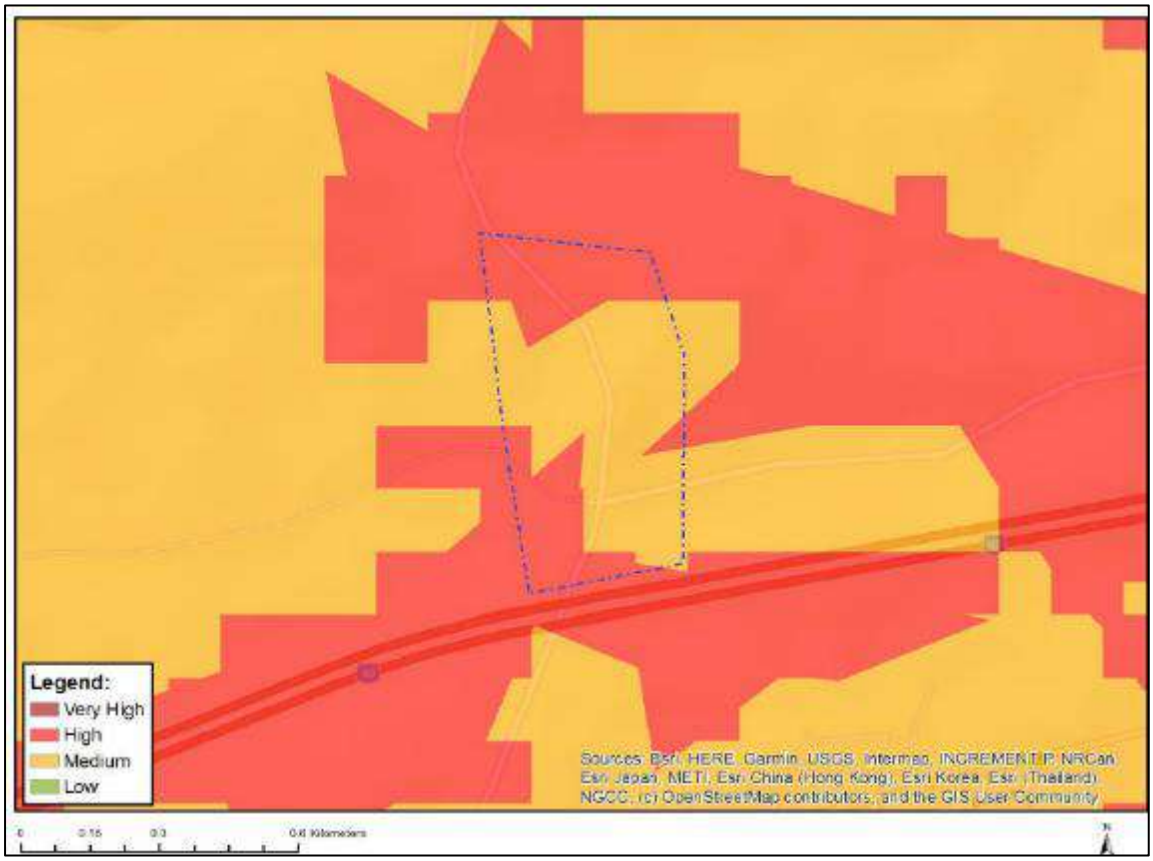

Figure 2.3: Map of the Animal Species Theme Sensitivity of the project area (source: DFFE Screening Report).

2.2. Desktop Assessment

2.2.1. Terrestrial Biodiversity Theme

A desktop assessment was undertaken prior to the site visit to determine whether there are any terrestrial biodiversity features within the project area that are considered sensitive. The vegetation communities present within the project area and, where applicable, key features driving the CBA status of the project area were identified and assessed during the field survey. Key resources consulted include:

- The DFFE screening report for the project area (March, 2024).
- The South African Vegetation Map (SANBI, 2018).
- The 2017 Western Cape Biodiversity Spatial Plan (WCBSP) for Mossel Bay.
- The Red List of Ecosystems for South Africa: Remnants Spatial Dataset (SANBI, 2021).
- The Revised National List of Ecosystems that are Threatened and in need of Protection (DFFE, 2022).
- National Protected Area Expansion Strategy (NPAES) (2010 & 2018).
- The South African Protected Areas Database (SAPAD, Q3, 2023) and the South African Conservation Areas Database (SACAD, Q3, 2023).

2.2.2. Plant Species Theme

A species list was compiled for the project area and the likelihood of occurrence assessed for species listed as CR, EN, VU and Near Threatened (NT). Key resources consulted include:

- The DFFE screening report for the project area (March, 2024).
- The Plants of Southern Africa (POSA) database.
- iNaturalist.
- The Red List of South African Plants (2023).

Species threat status was checked against the South African Red Data List.

2.2.3. Animal Species Theme

The known diversity of the vertebrate fauna in the project area was determined by a literature review. Species known from the region, or from adjacent regions, whose preferred habitat(s) were known to occur within the study area, were also included. Literature sources included:

- Amphibians –Du Preez & Carruthers (2017), FrogMap (Patrick Institute of African Ornithology, 2024).
- Reptiles – Branch (1998), ReptileMap (Patrick Institute of African Ornithology, 2024).
- Mammals – Stuart & Stuart (2014), MammalMap (Patrick Institute of African Ornithology, 2024).
- SABAP 2 (*http://sabap2.adu.org.za*).
- IUCN (2024).
- iNaturalist (2024).
- The DFFE screening report (March 2024).

To establish which of those species identified in the literature review are SCC, the following sources were consulted:

- Atlas and Red List of Reptiles of South Africa, Lesotho and Swaziland (Bates *et al*., 2014).
- Atlas and Red List of Frogs of South Africa, Lesotho and Swaziland (Minter *et al*., 2004).
- Red List of Mammals of South Africa, Swaziland and Lesotho.
- Red Data book of Birds of South Africa, Lesotho and Swaziland (Taylor et al., 2015).

2.3. Field Survey

A field survey was undertaken during autumn, on the 23rd of April 2024 (i.e. one day) to confirm the current land use, vegetation types, and faunal habitat present. Given the transformed nature of the project area, the information gathered from the field survey was sufficient to determine the sensitivity of the site. Figure 2.4 indicates the sample sites and tracks. A total of eleven (11) sample site were surveyed within the 18.5 ha project area (i.e. 1.7 sample sites per hectare).

2.3.1. Terrestrial Biodiversity and Plant Species Theme

The purpose of the botanical survey was to assess the site-specific botanical state of the Project Area of Influence (PAOI) by recording the species present (both indigenous and alien invasive species), identifying sensitive plant communities such as vegetation associated with rocky outcrops, riparian

areas, or areas with Species of Conservation Concern (SCC), and identifying the current land use.

The project area was driven and walked, and sample plots were analysed by determining the dominant species in each plot, as well as any alien invasive species and potential SCC (Figure 2.1). Each sample plot was sampled until no new species were recorded. Vegetation communities were then described according to the dominant species recorded from each type, and these were mapped and assigned a sensitivity score.

2.3.2. Animal Species Theme

The purpose of the faunal survey was to determine the types of faunal habitats present within the project area supplemented with a desktop assessment to determine the likelihood of occurrence of SCC present within available habitat. Faunal habitat within the project area was recorded and mapped by the faunal specialist which provided sufficient information to draw conclusions on the likelihood of occurrence of SCC.

Observations of both plants and animals were uploaded onto iNaturalist: https://www.inaturalist.org/observations?nelat=-34.05241964638247&nelng=22.19454540713097&place_id=any&subview=table&swlat=-34.063583640337725&swlng=22.18278660280968&user_id=nicole_wienand&verifiable=any

2.4. Site Sensitivity Assessment

The Species Environmental Assessment Guideline (SANBI, 2020) was applied to assess the Site Ecological Importance (SEI) of the project area. The habitats and the SCC in the project area were assessed based on their conservation importance (CI), functional integrity (FI), and receptor resilience (RR) (Table 2.2). The combination of these resulted in a rating of SEI and interpretation of mitigation requirements based on the ratings.

Table 2.2: Criteria for establishing Site Ecological Importance and description of criteria.

Criteria	Description
Conservation Importance (CI)	*The importance of a site for supporting biodiversity features of conservation concern present e.g. populations of Threatened and Near-Threatened species (CR, EN, VU & NT), Rare, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.*
Functional Integrity (FI)	*A measure of the ecological condition of the impact receptor as determined by its remaining intact and functional area, its connectivity to other natural areas and the degree of current persistent ecological impacts.*
Biodiversity Importance (BI) is a function of Conservation Importance (CI) and the Functional Integrity (FI) of a receptor.	
Receptor Resilience (RR)	*The intrinsic capacity of the receptor to resist major damage from disturbance and/or to recover to its original state with limited or no human intervention.*
Site Ecological Importance (SEI) is a function of Biodiversity Importance (BI) and Receptor Resilience (RR)	

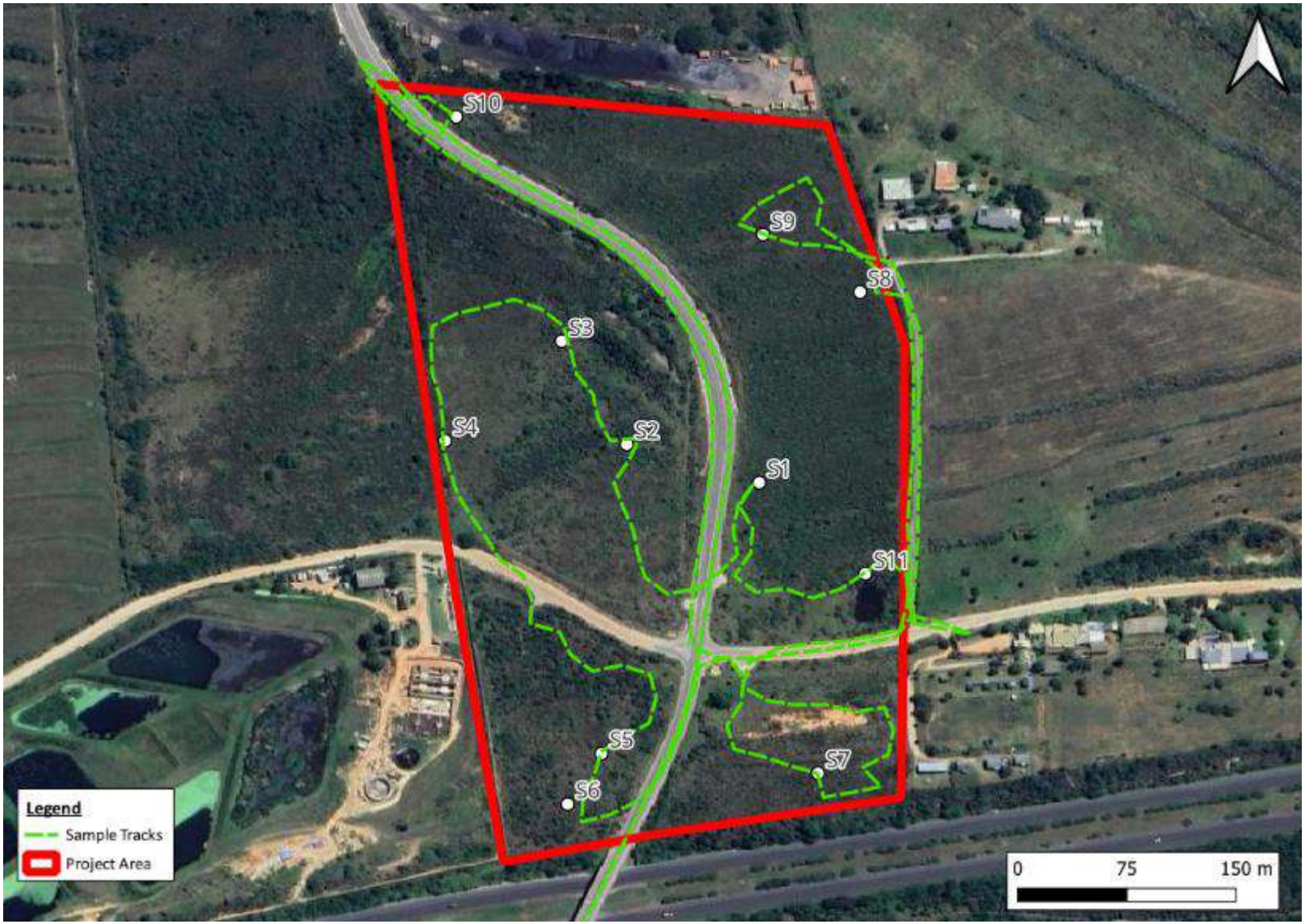

Figure 2.4: Map showing sample sites and tracks in relation to the project area.

3. BIOPHYSICAL DESCRIPTION OF THE PROJECT AREA

3.1. Biophysical Description of the Project Area

The project area is situated on the south coast of South Africa near Groot Brakrivier in the Western Cape Province. This region experiences a Mediterranean-type climate characterised by mild temperatures with warm, dry summers and cool, wet winters. The average temperature is 17°C. Rainfall occurs throughout the year, with an average of 534 mm received per annum.

Temperatures during the summer months (December to February) rise to around 25-30°C. However, the proximity to the ocean ensures that temperatures seldom reach extreme highs. Temperatures during the winter months (June to August) are cooler, averaging around 10-15°C. Rainfall is more prevalent during this time.

The proximity of the Indian ocean to the south and the Outeniqua Mountains to the north have a significant influence on the climate of the project area. Frost is rare but snow does occasionally fall on the mountain peaks. During winter, the prevailing winds are westerly and during summer, the prevailing winds are easterly.

The geology underlying the project area forms part of the Cape Fold Belt and consists of layers of sedimentary rock, specifically mudstone, sandstone, and shale of the Kirkwood Formation. The weathering of these underlying geologies give rise to nutrient-poor acidic soils. The soils of the project area are sandy, with a marked clay accumulation and strong structure.

The topography of the project area is gently sloping, dipping towards the south (77-136 m asl) (Figure 3.2).

Figure 3.1: Photograph (facing north) illustrating the topography of the Project Area.

Figure 3.2: Elevation profile of the project area from north to south.

3.2. Current and historical land use

The project area is zoned Agriculture Zone I and was utilised for agriculture until around 2014 (Figure 3.3). Analysis of historical aerial imagery suggests that the agricultural land use of the project area predates 1963 (Figure 3.3). The site was left fallow since 2014 which allowed for the re-establishment of some native pioneer plant species until 2020, when the southeastern corner (1.8-2.5 ha) of the project area was cleared for sand mining (Figure 3.4). Since the clearing in 2020, the vegetation has naturally started to re-establish. During the field survey, most of the previously cleared corner had reverted to an open shrubland (Figure 3.5), resembling the secondary vegetation found throughout the rest of the project area. However, a small central portion still showed signs of previous excavation. In this area, the vegetation was predominantly composed of ruderal and weedy plant species (Figure 3.6). Refer to Section 4.1.3 for a description of the vegetation of the project area.

Although no livestock was observed during the field survey, evidence of grazing was apparent on site (feeding troughs, cow dung, and the general structure of the vegetation).

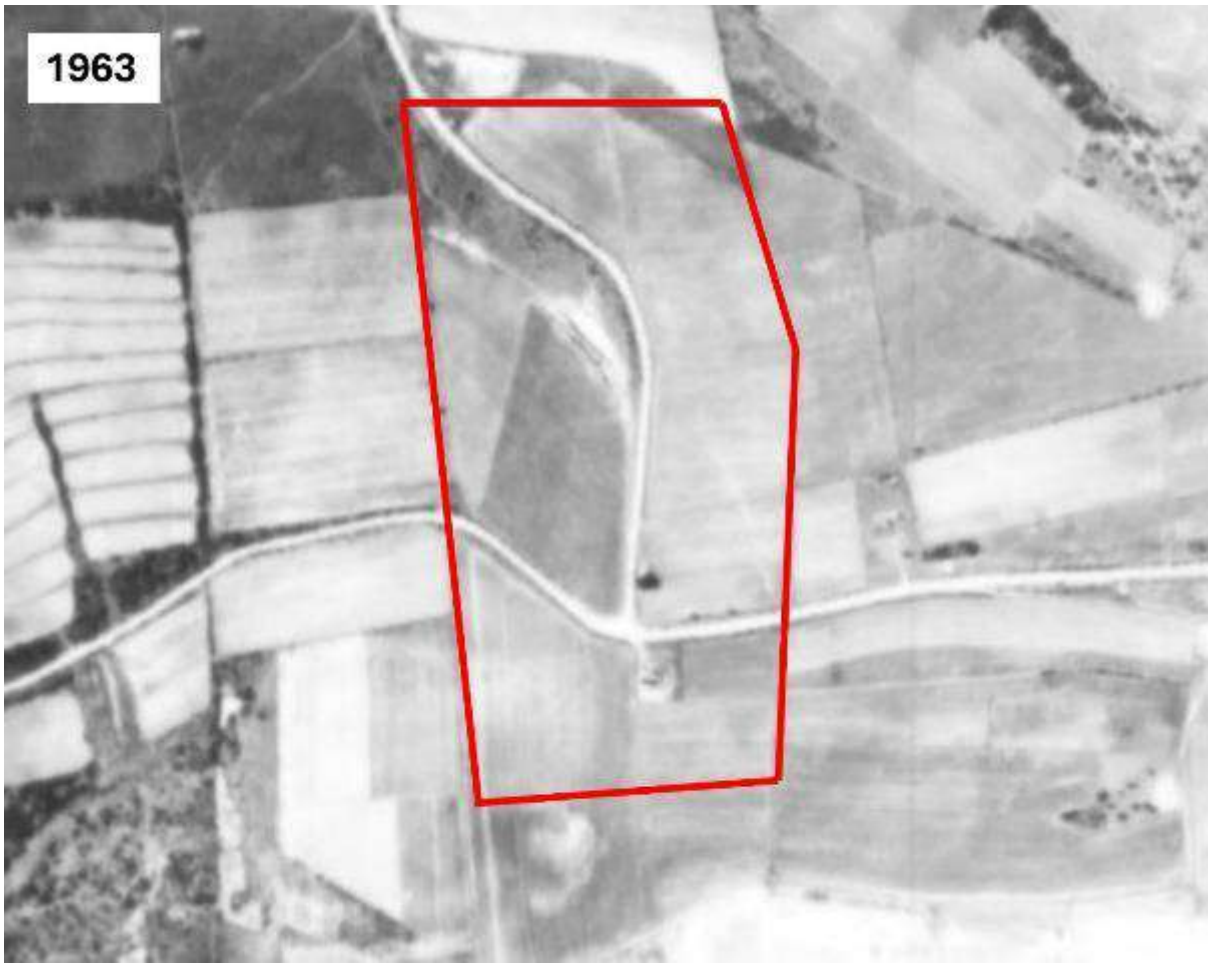

Figure 3.3: Aerial images from 1963 illustrating the historical agricultural land use.

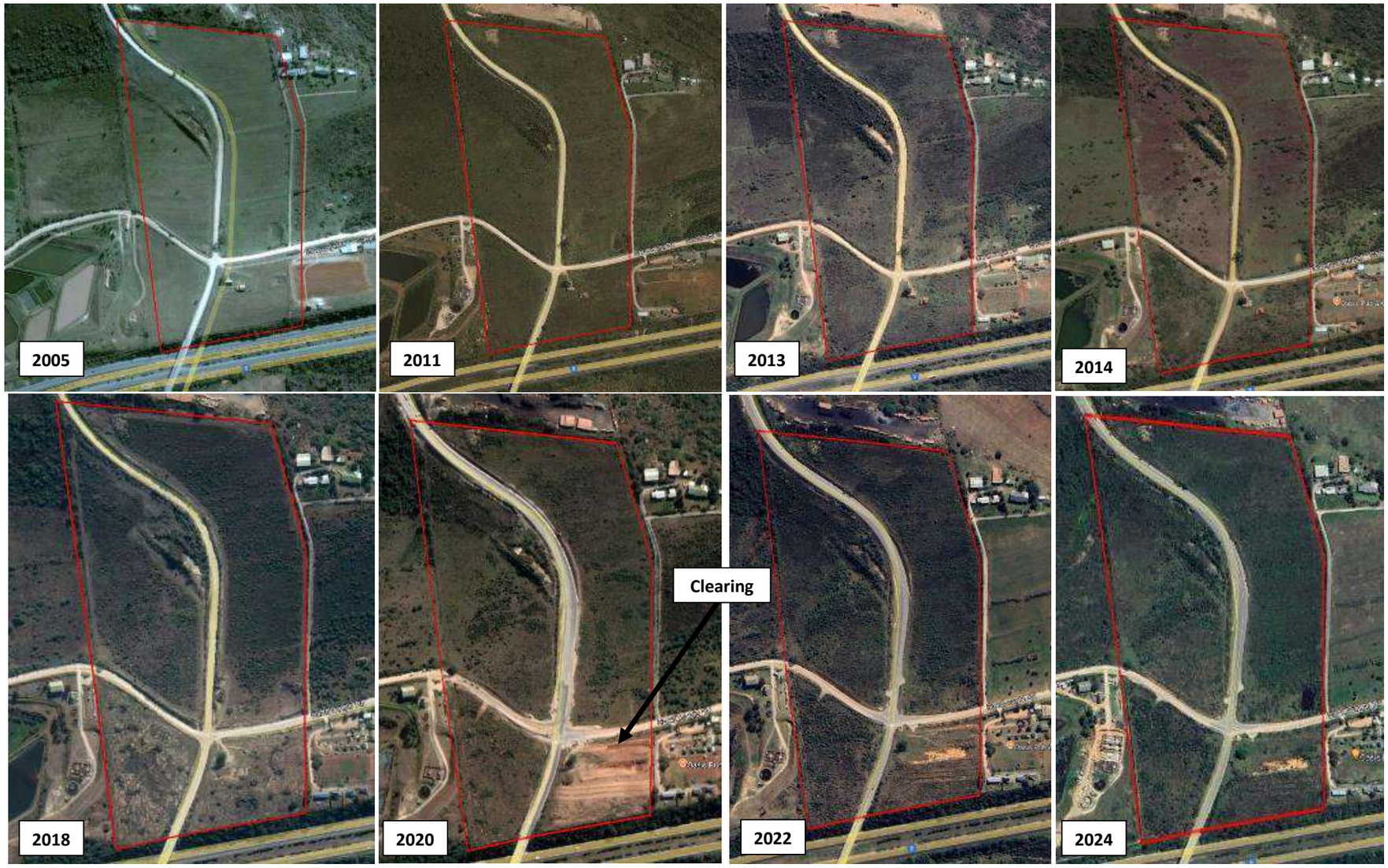

Figure 3.4: Google Earth Satellite Imagery from 2005-2024 illustrating the regeneration of vegetation within the project area.

Figure 3.5: Secondary vegetation within the southeastern portion of the project area which has passively re-established after clearance in 2020.

Figure 3.6: Evidence of excavation observed in the southern corner of the project area which was cleared in 2020. Vegetation characterised by ruderal and weedy plant species.

4. TERRESTRIAL BIODIVERSITY THEME

The DFFE Screening Report classifies the Terrestrial Biodiversity Theme Sensitivity of the project area as VERY HIGH due to the following sensitivity features:

- Critically Endangered (CR) Ecosystem - Garden Route Granite Fynbos (Refer to Section 4.1)
- Endangered (EN) Ecosystem – Hartenbos Dune Thicket (Refer to section 4.1)
- CBA 1 & 2 (Terrestrial) - Refer to Section 4.2
- ESA 1 & 2 (Restore from other land use) – Refer to Section 4.2

This chapter reviews the spatial planning tools associated with each of these features and provides comment on the implication development will have on these features.

4.1. Ecosystems (Vegetation Types) Expected to Occur

According to the National Vegetation Map (2018), which was compiled to provide a greater level of detail for floristically based vegetation units in South Africa, the project area occurs within two (2) vegetation types, namely Hartenbos Dune Thicket (EN) and Garden Route Granite Fynbos (CR) (Figure 4.1). However, consultation of the Red List of Ecosystems (RLE): Remnants Spatial Dataset (SANBI, 2021), which maps the current remaining extent of terrestrial ecosystems in South Africa based on historical aerial imagery and the South African National Land Cover (SA NLC) Map (2020), suggests that only a portion of these vegetation types remain in the northwestern and southwestern corners of the project area (Figure 4.2). These vegetation types have been described below for reference.

4.1.1. Garden Route Granite Fynbos (CR)

This vegetation type occurs on moderately undulating hills on the coastal foreland south of the Outeniqua Mountains, from Botterberg in the west to Wilderness in the east and Hoogekraal Pass in the north. It is characterised by proteoid and graminoid fynbos, with ericaceous fynbos dominant in seeps (Mucina *et al*., 2011; Government of South Africa, 2022). Garden Route Granite Fynbos is narrowly distributed with high rates of habitat loss of the past 28 years, placing this ecosystem at risk of collapse. Only 37% (184 km^2) of the historical extent (498 km^2) remains (Government of South Africa, 2022).

4.1.2. Hartenbos Dune Thicket (EN)

Hartenbos Dune Thicket is narrowly distributed with evidence of ongoing biotic disruption from invasive species. Approximately 79% (514 km^2) of the historical extent (650.7 km^2) remains. It occurs along the coastal stretch from Duiwenhoks River Mouth to Glentana near Groot Brakrivier. Hartenbos Dune Thicket features low (1-3 m) thickets, found in small clusters dominated by small trees and woody shrubs, amidst a mosaic of low (1-2 m) asteraceous fynbos. These thickets thrive in fire-protected dune slacks, while the fynbos shrubland predominates on the upper slopes and crests of the dunes. Succulent plants are found along bands of mudstone and shale within the area (Mucina *et al*., 2011; Government of South Africa, 2022).

Figure 4.1: SA VEGMAP (2018) of the project area.

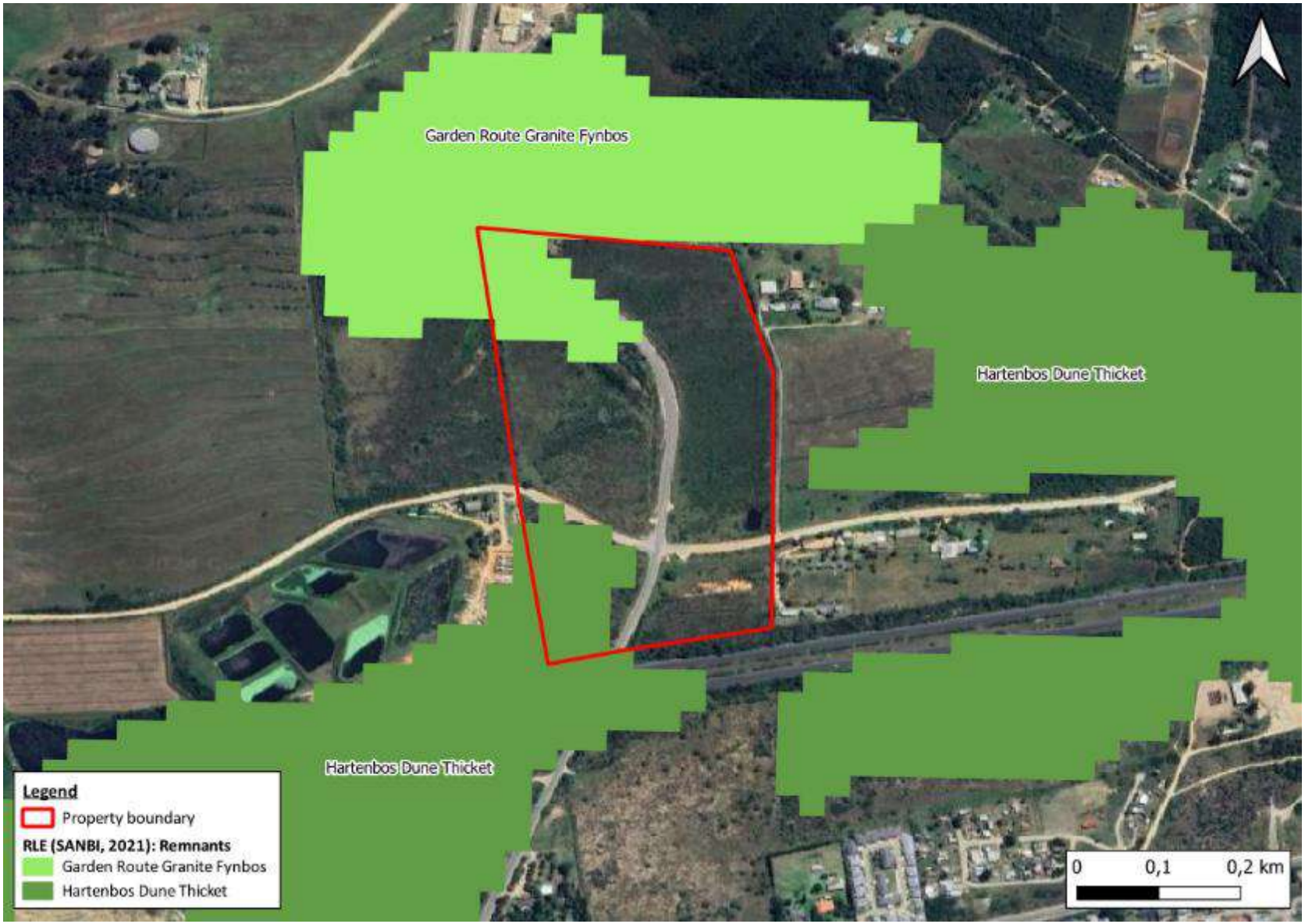

Figure 4.2: Map of the remaining extent of threatened ecosystems within the project area as per the RLE: Remnants (SANBI, 2021) Spatial Dataset.

4.1.3. Vegetation recorded within the project area

Consultation of historical aerial imagery and Google Earth Satellite imagery prior to the site visit indicated that the project area was previously plough and utilised for agriculture (refer to Section 3.2). According to the Species Environmental Assessment Guideline (SANBI, 2020), transformed areas, such as previously cultivated areas, cannot be regarded as 'natural habitat', even if these areas are abandoned so that some form of functional ecosystem is restored. Due to the historical clearance of vegetation over a prolonged period, and the disturbance of the soil and seedbank, these areas are unlikely to have a species composition representative of the original habitat (SANBI, 2020).

Considering the project area was utilised for agriculture for at least 50 years and then left fallow since about 2014, the vegetation of the project area has been classified as 'secondary shrubland'. This vegetation type was characterised by low (~1-1.5 m) dense (>75% cover) to open (~50-75% cover) shrubland dominated by indigenous pioneer species such as *Osteospermum moniliferum*, *Helichrysum cymosum, Passerina corymbosa, Euclea racemosa, Seriphium plumosum, Rubus rigidus, Selago corymbosa, Grewia occidentalis, Diospyros dichrophylla, Lycium cinereum, Dicerothamnus rhinocerotis, Searsia pallens*, with a grassy ground cover and scattered alien invasive species and weeds including *Acacia cyclops, Acacia mearnsii Lantana camara, Tagetes minuta,* and *Nidorella ivifolia* amongst others (Figure 4.3-4.6). Species diversity was low and not representative of the historical natural vegetation types (i.e. Hartenbos Dune Thicket and Garden Route Granite Fynbos) but rather secondary vegetation dominated by pioneer and ruderal species.

Figure 4.3: Photograph of the shrubland vegetation (dominated by *Passerina corymbosa*) within the northwestern corner of the project area.

Figure 4.4: Photograph of the shrubland vegetation within the southwestern corner of the project area dominated by *Osteospermum moniliferum*.

Figure 4.5: Photograph of the shrubland vegetation within the northeastern corner of the project area dominated by *Metalasia acuta*.

Figure 4.6: Photograph of the shrubland vegetation within the southeastern corner of the project area.

4.2. Biodiversity Priority Areas

According to the DFFE Screening Report, the proposed project area occurs within a Critical Biodiversity Area (CBA) 1 & 2 and an Ecological Support Area (ESA) 1 & 2. These biodiversity priority areas contribute to the very high terrestrial biodiversity theme sensitivity of the project area.

The 2017 Western Cape Biodiversity Spatial Plan (WCBSP: Mossel Bay) was consulted to verify the biodiversity priority areas present within the project area. This spatial plan is a tool that includes a map of biodiversity importance for the Western Cape Province, covering both the terrestrial and freshwater realms, as well as major coastal and estuarine habitats. The WCBSP map delineates biodiversity priority features which require safeguarding to ensure the continued existence and functioning of species and ecosystems, including the delivery of ecosystem services. The accompanying WCBSP handbook also presents a set of land use guidelines that are required to conserve biodiversity.

CBAs are areas of high biodiversity and ecological value that are required to meet biodiversity targets for species, ecosystems or ecological processes and infrastructure. The management objectives for CBAs are to maintain these areas as natural or near-natural state, with no further loss of habitat or species. Degraded areas should be rehabilitated to natural or near-natural condition. Only low-impact, biodiversity sensitive land uses are appropriate.

ESAs are areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of Protected Areas (PA) or CBAs. Often these areas play a vital role for delivering ecosystem services and support landscape connectivity, encompass the ecological infrastructure from which ecosystem goods and services flow, and strengthen resilience to climate change. They include features such as regional climate adaptation corridors, water source and recharge areas, riparian habitat surrounding rivers or wetlands, and Endangered vegetation.

A distinction is made between **ESA 1** (areas that are in a natural, near-natural, or moderately degraded condition and are still likely to be functional) and **ESA 2** (areas that are severely degraded or have no natural cover remaining and therefore require restoration). The management objectives for ESAs are to maintain these areas in a functional/natural state so that they continue to function as intended. Some limited habitat loss may be acceptable subject to the applicable authorisation process.

According to the WCBSP (2017): Mossel Bay, the western half of the project area occurs within an ESA 1 with a small portion of CBA 1 in the northwestern corner of the project area. Only a small portion of CBA 2 and ESA 2 occur along the southeastern boundary of the project area (Figure 4.7).

The underlying reasons triggering the CBA and ESA status of the project area were identified and interrogated to determine if the proposed development would impact on the management objectives of the CBA and ESA present in the project area (Table 4.1 below). Of the five identified features, the field survey confirmed that three of these features (Bontebok, Groot Brak Dune Strandveld, and Coastal Protection) are not present within the project area and two features, related to the aquatic environment, are unlikely to be affected if the mitigation hierarchy is implemented, although the aquatic specialist will need to confirm this. Given that the underlying features are not present or will not be impacted by development, the development is unlikely to impact on the management objectives of the CBA and ESA within the project area.

Table 4.1: Reasons for CBA/ESA classification relevant to the project area.

Reason for CBA/ESA classification	Comment
Threatened Vertebrate: Bontebok Extended Distribution Range	This species is not present within the project area and is unlikely to occur within the project area as it is largely confined to protected areas.
Threatened Vegetation Type: Groot Brak Dune Strandveld	This vegetation was not recorded within the project area.
Coastal Resource Protection	These are areas along the coastline where changes in land use may affect the ecological functioning and/or the resilience of the coast to withstand impacts that may arise as the result of climate change and impact on coastal processes e.g. erosion and deposition, as well as supporting the functioning of PAs or CBAs. The project area is located approximately 1.2 km from the coastline. Given its position north of the N2, it is unlikely that the project area contributes significantly to coastal resource protection.
Watercourse protection – Southern Coastal Belt	Comment on the aquatic features must be obtained from an aquatic specialist.
South Strandveld Western Strandveld Channelled Valley Bottom Wetland	If wetlands are present, development will avoid placing infrastructure in these areas and as such, they will remain intact and unaffected by the development.

Figure 4.7: Map of the biodiversity priority areas within the project area (WCBSP, 2017: Mossel Bay).

4.3. Protected Areas and National Protected Area Expansion Strategy

The project area does not occur within any protected areas or within 5km of a protected area (SAPAD, Q3 2023). Furthermore, it does not occur within a National Protected Area Expansion Strategy (NPAES) Area (2010; 2018). However, it does occur within a conservation area, the Gouritz Cluster Biosphere Reserve (Figure 4.8).

According to UNESCO, biosphere reserves serve as learning grounds for sustainable development, offering opportunities for interdisciplinary research and management of social-ecological systems. They address global challenges through local solutions, encompassing various ecosystems—terrestrial, marine, and coastal. Each reserve seeks to balance biodiversity conservation with sustainable use. Designated by national governments, biosphere reserves remain under state jurisdiction and are recognized internationally. Sites are nominated and approved through the MAB Programme, ensuring their status as globally significant areas for conservation and development.

Considering the transformed nature of the project area and the fact that the project area is zoned for agricultural use, it is unlikely that the proposed development will affect the biosphere reserve.

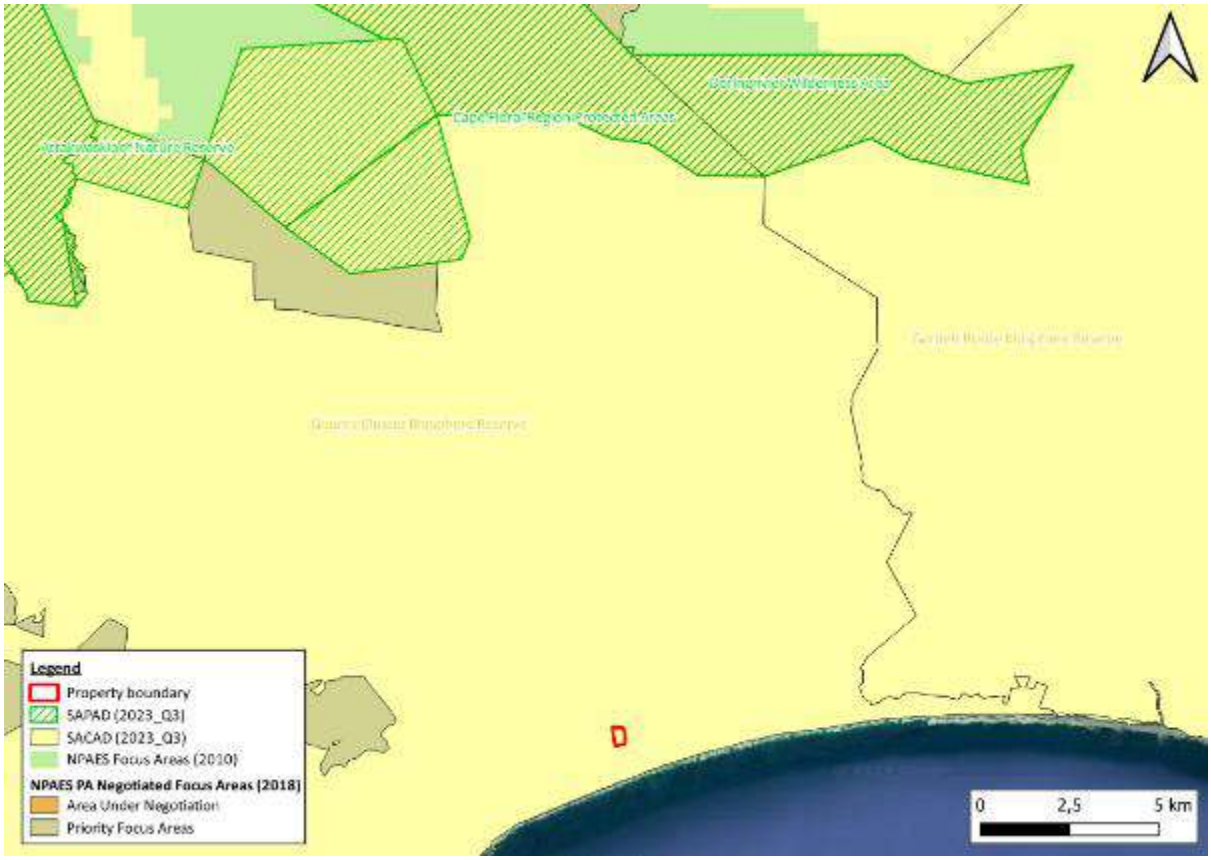

Figure 4.8: Map illustrating the project area in relation to protected areas, conservation areas, and NPAES Focus Areas.

4.4. Impacts Associated with the Terrestrial Biodiversity Theme

Impacts associated with the Terrestrial Biodiversity Theme will be low to negligible given that the development is not situated within an Endangered or Critically Endangered Ecosystem or within a Protected Area or NPAES. Furthermore, the field survey confirmed that the underlying features that

drive the CBA and ESA status of a portion of the project area, are not present, and therefore development within this area will not impact on the management of these features. Impacts on the CBA and ESA are therefore low to negligible.

5. PLANT SPECIES THEME

5.1. Floristics

The plant species diversity of the project area was relatively low, and the vegetation cover was largely dominated by a few pioneer shrub species (namely *Osteospermum moniliferum*, *Helichrysum cymosum, Passerina corymbosa*, *Dicerothamnus rhinocerotis, Searsia pallens*) interspersed with herbs and other shrubs with a lower percentage cover.

Seventy-three (73) plant species were recorded during the field survey, of which sixty (60) are indigenous and twelve (12) are exotic (refer to Section 5.3 below for more detail). The Asteraceae family had the highest number of species (15 species) followed by the Poaceae family (10 species). The Apocynaceae, Fabaceae, Scrophulariaceae and Solanaceae families were each represented by three (3) species. The remainder of the families each had one (1) to two (2) species.

Table 5.1: Summary of the floristics of the project area.

FAMILY	NO. OF SPECIES	FAMILY	NO. OF SPECIES
Asteraceae	15	Celastraceae	1
Poaceae	10	Commelinaceae	1
Apocynaceae	3	Cyperaceae	1
Fabaceae	3	Ebenaceae	1
Scrophulariaceae	3	Gentianaceae	1
Solanaceae	3	Iridaceae	1
Aizoaceae	2	Lobeliaceae	1
Anacardiaceae	2	Moraceae	1
Asparagaceae	2	Oleaceae	1
Campanulaceae	2	Plantaginaceae	1
Crassulaceae	2	Polygonaceae	1
Geraniaceae	2	Pteridaceae	1
Malvaceae	2	Rosaceae	1
Oxalidaceae	2	Rubiaceae	1
Amaranthaceae	1	Santalaceae	1
Asphodeloideae	1	Verbenaceae	1
Bignoniaceae	1	**TOTAL No. of Species**	**72**
Pittosporaceae	1		

5.2. Plant Species of Conservation Concern

The DFFE Screening Report classifies the plant species theme of the project area as medium, with Twenty-five (25) Sensitive Plant Species identified. Medium sensitivity does not indicate the known presence of a threatened plant(s) within the proposed development footprint/PAOI but could indicate moderate likelihood of occurrence based on species distribution modelling, which relies on data such as habitat preferences and proximity to known locations of specific species (SANBI, 2020).

Only one (1) plant SCC was recorded during the field survey, namely *Hermannia lavandulifolia* classified as VU under category A2c. This species was present in low densities and its distribution was restricted to the southwestern corner of the project area (near Sandhoogte Road). *H. lavandulifolia*

is a widespread and common species, with an extent of occurrence (EOO) of 12 018 km². Its habitat typically includes clay slopes in renosterveld and valley thicket. It is declining due to significant, ongoing habitat loss and degradation. Based on the observed rate of habitat loss, a population reduction of 31% over three generations is inferred. It is therefore listed as Vulnerable under criterion A (von Staden, 2018).

No other SCC were recorded during the field survey. Although species such as *Euchaetis albertiniana* and *Agathosma macrocarpa* have been recorded in remnant patches of natural vegetation nearby, considering the transformed nature of the project area, the botanist is of the opinion that the likelihood of occurrence of these and any additional SCC is moderate to low.

5.3. Alien Invasive Plant Species

Twelve (12) exotic plant species were recorded within the project area (Table 5.2), five (5) of which are categorised in terms of the National Environmental Management: Biodiversity Act (NEM:BA) (Act No. 10 0f 2004) and/or the Conservation of Agricultural Resources Act (CARA) (Act No. 43 of 1983). The management requirements for categorised species are summarised in section 5.3.1 and 5.3.2 below. For the purposes of this development, all Category 1b and 2 species listed under NEM:BA and all Category 1 and 2 species listed under CARA need to be removed, and ongoing follow up measures implemented to ensure that individuals do not return.

Table 5.2: Exotic plant species recorded within the project area.

Family	Species	Status	NEM:BA	CARA
Amaranthaceae	*Atriplex semibaccata*	NE	-	-
Asparagaceae	*Agave americana*	NE	Category 3	-
Asteraceae	*Schkuhria pinnata*	NE	-	-
Asteraceae	*Tagetes minuta*	NE	-	-
Fabaceae	*Acacia cyclops*	NE	-	-
Fabaceae	*Acacia mearnsii*	NE	Category 2	Category 2
Moraceae	*Ficus elastica*	NE	-	-
POACEAE	*Arundo donax*	NE	-	Category 1
Poaceae	*Cortaderia selloana*	NE	Category 1b	Category 1
Poaceae	*Paspalum dilatatum*	NE	-	-
Polygonaceae	*Persicaria lapathifolia*	NE	-	-
Verbenaceae	*Lantana camara*	NE	Category 1b	Category 1

5.3.1. The Conservation of Agricultural Resources Act (Act No. 43 of 1983)

The Conservation of Agricultural Resources Act (CARA) (Act No. 43 of 1983) was promulgated in 1984 and amended in 1985 and again in 2001. The Act intends to provide for control over the utilization of the natural agricultural resources of the Republic, to promote the conservation of the soil, the water sources, and the vegetation, and the combating of weeds and invader plants. CARA includes a list of 198 species which are classified as weeds or invader plants according to three categories:

- **Category 1**: Invader plants must be removed & destroyed immediately. No trade in these plants.
- **Category 2**: Invader plants must be controlled and removed.
- **Category 3**: Invader plants may no longer be propagated or sold. Existing plants do not need to be removed.

5.3.2. The National Environmental Management: Biodiversity Act (NEM:BA) (Act No. 10 0f 2004)

The Alien and Invasive Species Lists (2020) published under the National Environmental Management: Biodiversity Act (NEM:BA) (Act No. 10 of 2004) includes a list of 383 plant species which are assigned for four categories:

- **Category 1b:** Invasive Species must be controlled.
- **Category 2:** Invasive species mist be controlled and removed.
- **Category 3:** Category 3 listed invasive species are subject to certain exemptions in terms of section 70 (1)(a) of the NEMBA Act, which applies to the listing of alien invasive species.
    - Any plant species identified as Category 3 Listed Invasive Species that occurs in riparian areas must be considered to be a Category 1b Listed Invasive Species and must be managed as such.

5.4. Impacts Associated with the Plant Species Theme

Impacts associated with the Plant Species Theme will be low to negligible despite the presence of *Hermannia lavandulifolia* (VU) as this species is present in low densities and confined to the southwestern corner of the project area. Furthermore, this species is fairly widespread throughout the broader area. The loss of the entire project area (18.5 ha) would constitute a habitat loss of 0.002% for this species while the loss of the southwestern corner or the project area (2.4 ha) would constitute a habitat loss of 0.0002%. Impacts of the development on this species is therefore considered to be low.

6. ANIMAL SPECIES THEME

The DFFE Screening Report classifies the Animal Species Theme of the project area as HIGH due to the known presence of four (4) sensitive bird species and MEDIUM due to the possible occurrence of two (2) sensitive insect species, two (2) sensitive mammal species, and one (1) sensitive invertebrate species. This report only assesses mammals, reptiles, amphibians, and birds.

6.1. Faunal Species with a distribution that coincides with the project area

The Western Cape hosts approximately 62 amphibian species, 155 reptile species, 172 mammal species, and 608 bird species (Birss, 2017; Shaw & Waller, 2017; Turner & Villiers, 2017). The project area occurs within, or partly within, the distribution range of 20 amphibian species, 70 reptile species, 114 mammal species, and 458 bird species (IUCN, 2022). Of these species, 17 mammal species and 19 bird species are listed as threatened (CR, EN and VU) or near threatened (NT) species which are collectively referred to as SCC. No reptile or amphibian SCC have a distribution range that includes the project area.

It is important to note that although an area may be within a species distribution range, the species may no longer inhabit the area or may not inhabit it permanently. For example, the African Bush Elephant has a distribution which includes the project area, but these animals no longer occur outside of reserves and private game farms nor is there suitable habitat present within the project area to support this species. Both the QDS (16,331ha) and pentad (7,083ha) may include habitat features that are not present within the project area or within the PAOI, therefore, a species may occur in the broader area where habitat is available, but since its preferred habitat is not present in the project area, it is unlikely to occur there.

6.2. Faunal Habitat Present

To determine the likelihood of occurrence of SCC, an assessment of the habitats available within the project area is required. Habitats are defined as the natural environment or place where faunal species *live, breed and/or forage*. Each habitat type has different environmental conditions and structure which influences a species' distribution range.

The vegetation of the project area is fairly uniform probably as a result of having been previously cultivated. It is therefore not surprising that there is a limited diversity of faunal habitats. The following habitat types were identified within the project area:

- Open to dense shrubland with grassy ground cover and scattered alien trees (please refer to section 4.1.3 for a description of the vegetation type).
- Artificial wetlands/dams (Figure 6.1). These areas were largely devoid of riparian vegetation except for a few sedges.

Figure 6.1: Artificial wetland/dam in the southeastern corner of the project area.

6.3. Faunal Species of Conservation Concern

6.3.1. Amphibians and Reptiles

No amphibian or reptile SCC were identified for the project area. All amphibian and reptile species with a distribution that coincides with the project area are classified as Least Concern (LC).

6.3.2. Mammals

The project area intersects with the distribution range of seventeen (17) mammal SCC, two (2) of which have a high likelihood of occurrence within the project area. Six (6) SCC are large mammals that are unlikely to occur outside of protected areas and have therefore not been included in the likelihood of occurrence assessment in Table 6.1 below. Furthermore, the project area is fenced so it is unlikely that large mammals could enter the project even if they were present (except for a section along the northeastern boundary where the fence has collapsed). Nine (9) SCC have a low likelihood of occurrence (Table 6.1).

6.3.3. Birds

The project area intersects with the distribution range of nineteen (19) bird SCC, one (1) of which has a high likelihood of occurrence, two (2) of which have a moderate likelihood of occurrence, and sixteen (16) of which have a low likelihood of occurrence due to the lack of suitable habitat(Table 6.2). [*Note: Coastal/seashore birds have not been included in the assessment in Table 6.2 as the project area does not contain suitable breeding or foraging habitat for these species*).

Table 6.1: Mammal Species of Conservation Concern and their likelihood of occurrence within the study area.

Species	Threat Status	Species Distribution and Habitat	Known Occurrence	Likelihood of Occurrence
African striped weasel (*Poecilogale albinucha)*	NT	This species occurs along the west coast from Garies southward to the top of the escarpment into the western and southern Cape coastal belt, east and northeast Northern Cape, and all other provinces. It has a wide habitat tolerance including fynbos (with dense grass), lowland rainforest, semi-desert grassland, pine plantations and agricultural fields but is mainly found in savanna and grassland. Highest population densities have been recorded in moist grassland (Child *et al*., 2016)	Although this species has been recorded within the same QDS as the project area (FitzPatrick Institute of African Ornithology, 2024), no observations of this species within the broader project area have been recorded on iNaturalist (2024).	**HIGH** Suitable habitat is available.
Fynbos golden mole (*Amblysomus corriae*)	NT	This species is endemic to South Africa. Its distribution range includes the Western Cape Province from Groot Winterhoek Wilderness Area (near Porterville) in the north, south-eastwards along the southern Cape mountains to Hawequas Forest and Limietberg Mountains (near Worcester), and then westwards through Paarl and Stellenbosch to the coastal plain and slopes of the Langeberg Mountains in the Riversdale district, then north-eastwards along the coastal plain and slopes of the Outeniqua, Kouga and Baviaanskloof mountain ranges from the vicinity of George to Humansdorp (Eastern Cape). Its Extent of Occurrence (EOO) is >20,000 $km^{2,}$ however, it is only known from 16 locations and its Area of Occupancy (AOO) is only 500 km^2. Its habitat requirements include moist, soft sandy soils or loams typically associated with fynbos, Afromontane forest, moist Savanna (Southern Cape Coast) and renosterveld in the south-west Cape. However, it has also been found in transformed	No observations of this species have been recorded within or near the project area (FitzPatrick Institute of African Ornithology, 2024; iNaturalist, 2024).	**HIGH** Suitable habitat present and evidence of mole hills observed on the site that could belong to this species.

		habitats such as agricultural areas, golf courses and gardens (Bronner and Mynhardt, 2016).		
Spectacled dormouse *(Graphiurus ocularis)*	NT	The Spectacled Dormouse is endemic to South Africa occurring in the Northern Cape, Eastern Cape, and Western Cape provinces. Although widespread, it is considered uncommon. This solitary species inhabits sandstone formations and is associated with crevices in shrubland areas. However, it has also been recorded in the crevices of man-made features such as stone kraals, buildings and rockpiles (Wilson *et al*., 2016)	No observations of this species have been recorded within the project area (FitzPatrick Institute of African Ornithology, 2024; iNaturalist, 2024).	**LOW** No suitable habitat recorded within the project area.
African clawless otter *(Aonyx capensis)*	NT	This species is widespread throughout South Africa, Lesotho and Swaziland. It is predominantly aquatic and seldom found far from permanent water. Freshwater is an essential requirement, but they can occupy rivers with high pollution and eutrophication levels. The are generally found in marine habitats where there is access to freshwater, rocky shores, and thick vegetation with an abundant food supply, but they have been recorded in rivers provided suitable sized pools persist (Okes *et a*l., 2016).	Observations of this species have been recorded within the broader area (near Hartenbos and Brandwacht) however, these observations have all been on the banks of rivers.	**LOW** No suitable habitat present within the project area. The nearest river is located 2.2 km north of the project area.
Grey rhebok *(Pelea capreolus)*	NT	The Grey Rhebok is endemic to South Africa, Lesotho and Swaziland. This species is associated with rocky hills, grassy mountain slopes, plateau grasslands, rocky hills in mountain fynbos and the Little Karoo. They feed predominantly on ground-hugging forbs (browsers) and are largely water independent (they obtain their water requirements from their food) (Taylor *et al*., 2016).	No observations of this species have been recorded within the project area (FitzPatrick Institute of African Ornithology, 2024; iNaturalist, 2024).	**LOW** No suitable habitat available and no records to suggest this species has been recorded within the broad project area.
African marsh rat *(Dasymys incomtus)*	VU	This species is endemic to eastern South Africa and Swaziland (EOO 104,281 km^2; AOO 13,823 km^2). It is found in a variety of habitat types, but they require intact wetlands where they occur in reed beds or semi-aquatic grasses. They have not been recorded in agricultural areas or near dams (Pillay *et al*., 2016).	No observations of this species have been recorded within the project area (FitzPatrick Institute of African Ornithology, 2024; iNaturalist, 2024).	**LOW** No suitable habitat available (the project area was previously ploughed and does not contain intact natural wetlands only artificial dams). Additionally,

				there are no records to suggest this species has been recorded within the broad project area.
Serval *(Leptailurus serval)*	NT	This species has specific habitat requirements, including reed beds or riparian vegetation boarding water sources such as wetlands, marshland, rank grass and vleis as well as well-watered savannah with long grass. However, they can tolerate agricultural areas provided sufficient cover is available and they do occasionally pass through grasslands. Servals prey on small mammals, birds, reptiles, fish, and rarely invertebrates. Their main diet consists of Vlei Rats (Otomys sp.) and Striped Mice (Rhabdomys pumilio) (Ramesh et al., 2016).	No observations of this species have been recorded within the project area (FitzPatrick Institute of African Ornithology, 2024; iNaturalist, 2024).	**LOW** No suitable habitat available and no records to suggest this species has been recorded within the broad project area.
Leopard *(Panthera pardus)*	VU	Leopards are widely distributed throughout southern Africa, typically occurring in densely wooded and rocky areas although they have been shown to have a wide habitat tolerance (grassland savannah, coastal scrub, shrubland, rugged mountainous regions and semidesert) (Swanepoel *et al*., 2016).	Although this species has been recorded within the same QDS as the project area (FitzPatrick Institute of African Ornithology, 2024), no observations of this species have been recorded on iNaturalist (2024).	**LOW** Limited habitat available and the project area occurs adjacent to a busy road network. This species is unlikely to utilize the site for breeding or foraging.
Sensitive Species 8	VU	In South Africa, this species is confined to the evergreen coastal and scarp forests and thickets of the east coast, from iMfolozi River in norther KZN southwards to the eastern parts of the Western Cape Province. They have been found to occupy modified habitats and frequent open areas but they require dense underbrush to take cover (Venter *et al*., 2016).	This species has been recorded within the same QDS as the project area (FitzPatrick Institute of African Ornithology, 2024) and one observation of this species has been recorded on iNaturalist but within the surrounding broader area (2024).	**LOW** Although there is some suitable habitat for this species in the project area, the majority of the project area, except for the northeastern corner has been fenced in. Furthermore, the project area is traversed and surrounded by a busy network of roads, industrial development, and agricultural land.
Long-tailed Forest Shrew *(Myosorex longicaudatus)*	EN	The distribution of this species ranges from the Langeberg Mountains in the Western Cape to the Lottering Forest in the Eastern Cape (EOO 2,214 km^2;	No observations of this species have been recorded within the project area (FitzPatrick Institute	**LOW**

		AOO 691 km^2). It occurs in moist microhabitats in pristine primary montane and temperate forests, forest edges, fynbos, and moist grassland. They do not occur in degraded/transformed areas. Their long tails suggest and arboreal lifestyle (Baxter *et al.,* 2016).	of African Ornithology, 2024; iNaturalist, 2024).	No suitable habitat available and no records to suggest this species has been recorded within the broad project area.
Duthie's golden mole *(Chlorotalpa duthieae)*	VU	The distribution of this species includes a narrow coastal band approximately 275 km long, from Wilderness (Western Cape) to Port Elizabeth (Eastern Cape) (EOO 14,000 km^2; AOO 144 km^2). Its habitat includes alluvial sands and sandy loams in the southern Cape Afrotemperate Forests, Fynbos, and Moist Savanna. This species thrives in cultivated areas and gardens and up to 4 individuals / hectare have been trapped on the same night, suggesting that population densities are relatively high in areas of suitable habitat (Bronner and Bennett, 2016).	No observations of this species have been recorded within the project area (FitzPatrick Institute of African Ornithology, 2024; iNaturalist, 2024).	**LOW** The project area occurs outside of the known distribution of this species.

Table 6.2: Bird Species of Conservation Concern and their likelihood of occurrence within the study area.

Species	Threat Status	Species Distribution and Habitat	Known Occurrence	Likelihood of Occurrence
Denham's Bustard *(Neotis denhami)*	VU	In South Africa, this species occurs in isolated populations from the Overberg in Western Cape through the Eastern Cape and KZN to the high lying areas of Mpumalanga. An outlier population has also been recorded in the Limpopo Province. Inhabits grasslands, shrubland, woodlands, scrub plains, dried marsh, sour grassveld, agricultural fields and pastures as well as *Acacia*-studded dunes. It preys on insects and small vertebrates and feeds on plant material (Taylor *et al*., 2015).	A number of observations of this species have been recorded within the surrounding broader area. The nearest observation is located 5 km northwest of the project area.	**HIGH** Suitable habitat available. Likely that it uses the project area for foraging.
Martial Eagle *(Polemaetus bellicosus)*	EN	This species is widespread throughout South Africa. It occurs in a variety of habitats but shows a preference for arid and mesic savanna, forest edges and open shrubland. They nest in tall trees or pylons. It rarely occurs in mountainous areas (Taylor *et al*., 2015).	A number of observations of this species have been recorded within the surrounding broader area. The nearest observation is located 13.3 km northwest of the project area near Brandwacht.	**MODERATE** Suitable habitat available for foraging but not for nesting as there is a lack of tall trees.
African Marsh Harrier *(Circus ranivorus*)	EN	In South Africa, this species occurs in high rainfall coastal regions from Zululand down to the Western Cape. It has also been recorded in the Mpumalanga, Gauteng, Limpopo and North West Provinces (AOO 3 172 km^2). It is dependent on permanent wetlands for breeding, feeding, and roosting. It also forages over floodplains, grasslands, croplands and fynbos (Taylor *et al.*, 2015).	No observations of this species have been recorded within the project area (iNaturalist).	**MODERATE** No suitable habitat present for roosting and breeding but the project area may be used for foraging.
Secretary bird *(Sagittarius serpentarius)*	VU	This species is widely distributed throughout South Africa (AOO 437 818 km^2). Its habitat includes open grassland and scrub with ground cover shorter than 50 cm with sufficient scattered trees for roosting and nesting. It is absent from mountain fynbos, forest,	A number of observations of this species have been recorded within the	**LOW** No suitable habitat available. The project area is characterised by open

		dense woodland, and very rocky, hilly, or mountainous woodland (Taylor *et al*., 2015).	surrounding broader area.	to dense shrubland (> 1 m) dominated by pioneer species.
Verreaux's Eagle *(Aquila verreauxii)*	VU	This species is widely distributed throughout Africa. In South Africa, its distribution largely associated with mountainous terrain in Fynbos, Grassland, Savanna, Nama-Karoo and Succulent Karoo and closely related to the presence of Rock Hyrax (*Procavia capensis*). They build their nests on rocky outcrops, cliffs, trees and pylons (Taylor *et al*., 2015).	No observations of this species have been recorded within the project area (iNaturalist).	**LOW** No Suitable habitat present.
Lanner Falcon *(Falco biarmicus)*	VU	This species is widely distributed throughout south Africa, but the highest densities are recorded in the Western Cape and KwaZulu-Natal. Their habitat preference includes open grassland, cleared woodland and agricultural areas. The nest and roost on cliffs but will also utilise pylons, trees, and buildings (Taylor *et al*., 2015).	This species has been recorded in an agricultural field approximately 2.4 km west of the project area.	**LOW** No suitable habitat present for nesting. The project area contains open to dense shrubland dominated by pioneer species and not open grassland, cleared woodland or agricultural land preferred by this species for foraging.
Greater Flamingo *(Phoenicopterus roseus)*	NT	In South Africa, this species has been recorded in KwaZulu-Natal, North West, Northern Cape and the Western Cape. Its habitat includes endorheic pans, wetlands, and manmade impoundments such as sewage works, saltworks and large dams (Taylor *et al*., 2015).	This species has been recorded along the Grootbrak River, 2.77 km east of the project area.	**LOW** No suitable habitat present in the project area.
Lesser Flamingo *(Phoeniconaias minor)*	NT	In South Africa, the non-breeding distribution of this species is largely concentrated around the central Highveld, but it also occurs along the West and South Coasts. Its habitat includes shallow, eutrophic saline or alkaline wetlands, salt pans, coastal lagoons, and estuaries. They nest on flooded pans (Taylor *et al*., 2015).	The nearest observation of this species is located near Hartenbos Lagoon (8.6 km south west of the project area).	**LOW** No suitable habitat present in the project area.
Black Harrier *(Circus maurus)*	EN	This is a range restricted species which is largely confined to the Fynbos biome of the south-western South Africa. However, peripheral population extend	This species has been recorded in the mountainous areas near	**LOW** Suitable habitat not present.

		to the southern reaches of the Karoo and Grassland biome. It has a preference for strandveld, renosterveld and montane fynbos but it also forages in high-altitude grasslands, alpine meadows, Karoo Scrub, semi-desert, marshy flood plains, and less commonly, croplands (Taylor *et al*., 2015).	Friemersheim and near Brandwacht (16 km west of the project area) (iNaturalist).	
Half-collared Kingfisher *(Alcedo semitorquata)*	NT	In South Africa, this species is widespread but sparsely distributed throughout high-rainfall areas of the east and extreme south. Its habitat is restricted to waterbodies with fast flowing, clear water and dense riparian vegetation which provides cover. It has also been found along the banks of lakes, dams, estuaries and coastal lagoons with dense vegetation (Taylor *et al*., 2015)	This species has been recorded in the mountainous areas near Friemersheim approximately 12.9 km northwest of the project area.	**LOW** Suitable habitat not present.
Agulhas Long-billed Lark *(Certhilauda brevirostris)*	NT	This species is endemic to the WC restricted to the Agulhas Plain and Overberg wheatbelt and has a patchy distribution. Where is does occur it is considered fairly common, most common near Bredasdorp and west of Mosselbay. Avoids Mountain ranges. It inhabits sparse shrubland dominated by Renosterbos and dwarf karoo shrubland on clay soils. Also found in recently ploughed fields and fallow land while less common in coastal fynbos favouring sandy areas dominated by Restios. AOO: 16 418 km^2; Population: 9 000 mature individuals	This species has been recorded west of Brandwacht (17 km west of the project area).	**LOW** This species typically occurs west of Mossel Bay. As such, the project area occurs outside of its known distribution.
European Roller *(Coracias garrulus)*	NT	Within South Africa, this species typically occurs in the upper-middle Limpopo River Drainage, the Lowveld Region of Mpumalanga and Limpopo and coastal KwaZulu-Natal. It occasionally visits the Eastern Cape and Western Cape Provinces. Its habitat includes savanna and open woodland where it nests in holes in trees (Taylor *et al*., 2015).	Seven (7) observations of this species have been recorded within the surrounding broader area. The nearest observation is located 12 km northeast of the project area.	**LOW** This species prefers open woodland where it nests in holes in trees. The vegetation of the project area consist of low open to dense shrubland dominated by pioneer species.
Black Stork	VU	In South Africa, this species is largely restricted to the southern and eastern provinces and avoids the drier	Five (5) observations of this species have been	**LOW**

(Ciconia nigra)		interior and the western provinces (AOO 193 128 km^2). It nests on cliffs. Fish is its main food source, so it is absent from waterbodies where fish are absent (Taylor *et al.,* 2015).	recorded on iNaturalist however, these observations are concentrated around water bodies just west of Brandwacht (~13 km west of the project area) and Friemersheim (~13 km northwest of the project area).	Suitable habitat not present.
Knysna Warbler *(Bradypterus sylvaticus)*		This species inhabits dense understorey vegetation along riverbanks in fynbos, forest patches, riverine woodland, and afromontane forest and has even adapted to thickets of non-native brambles (e.g. Rubus). Breeds from August and December coinciding with the greatest abundance of invertebrate species. This species was recorded on iNaturalist in Groot Brak in Feb 2020 which could suggest a range expansion	This species has been recorded 2.6 km southwest of the project area.	**LOW** The project area does not contain suitable habitat for this species (i.e. dense understorey vegetation along riverbanks).
Knysna Woodpecker *(Campethera notata)*	NT	This species is endemic to South Africa where is it is found along the coastal plain of the Western Cape and Eastern Cape Provinces and marginally in southern KwaZulu-Natal. Its habitat includes coastal bush and Milkwood trees, climax Afromontane Forest, dry thornveld, wooded valleys and gorges, Euphorbia thickets, scrub forest, tall Protea stands, and stands of alien trees. It nests in holes in trees (Taylor et al., 2015).	Five (5) observations of this species have been recorded within the surrounding broader area (iNaturalist). However, the locations of these observations are obscured.	**LOW** This species preferred habitat is not present within the project area.
Crowned Eagle *(Stephanoaetus coronatus)*	VU	This species is largely restricted to the east of South Africa, with regional strongholds in the Eastern Cape and KwaZulu-Natal Provinces. Its habitat includes forest, woodland, forested gorges in savanna and grassland (Taylor *et al*., 2015).	Seven (7) observations of this species have been recorded within the surrounding broader area. The nearest observation is located west of Brandwacht, approximately 14 km	**LOW** The project area does not contain suitable habitat for this species (i.e. forest, woodland, forested gorges).

			west of the of project area.	
Fynbos Buttonquail *(Turnix hottentottus)*	EN	This species is endemic to the EC and WC Fynbos biome. It occurs in restio-dominated Fynbos, in both coastal and mountain localities, on flat to fairly steeply sloping ground, reaching its highest densities in short (20-40 cm high) Restionaceous Plateau Fynbos, typically in areas that were burnt within the previous 4-5 years (Ryan and Hockey 1995 in Taylor et al., 2015). It is highly dependent on the structure of vegetation, preferring less dense vegetation (e.g., fire cycle 2-5 years, <10 years). Found solitary or in pairs during the breeding season (September-December).	Eleven (11) observations of this species have been recorded within the surrounding broader area. The nearest observation is located west of Brandwacht, approximately 16.6 km west of the project area. Most of the observations appear to be located within intact fynbos.	**LOW** The project area does not contain the preferred habitat of this species. The vegetation of the project area is secondary in nature and characterised by open to dense shrubland dominated by pioneer species.
African Finfoot *(Podica senegalensis)*	VU	In South Africa, this species occurs throughout low-lying parts of the northern and eastern part of the country and along the coast. It is fairly widespread but highly localised, with a fragmented distribution largely due to the specialised habitat requirements. Its habitat includes secluded, shady areas within riparian vegetation, mangroves, dense papyrus beds lining clear, perennial rivers and streams, as well as vegetated verges of dams. It avoids stagnant and fast-flowing turbulent water. They feed on aquatic invertebrates and small vertebrates (Taylor et al., 2015).	Two (2) observations of this species have been recorded west of Friemersheim, approximately 12.7 km northwest of the project area.	**LOW** The project area does not contain suitable habitat for this species.
Striped Flufftail *(Sarothrura affinis)*	VU	This species requires dense cover with clear ground for foraging and inhabits small streams and marshy patches in dry upland or montane grassland with long or short grass, bracken, brambles, or Protea, and near forest edges, in fields of crops. Generally, sedentary and territorial. EOO: 4,280,000km^2 (BirdLife International, 2021).	Two (2) observations of this species have been recorded west of Friemersheim, approximately 13 km northwest of the project area.	**LOW** The project area does not contain suitable habitat for this species.

6.4. Impacts Associated with the Animal Species Theme

Impacts associated with the Animal Species Theme will be low to negligible and are assessed within context of the degraded nature of the habitat that is already highly fragmented. Although there is a high likelihood of occurrence of two mammal SCC and one bird SCC, impacts of the development on these species are likely to be low. If present, the African Striped Weasel (NT) and Denham's bustard will likely move away from the project area when construction begins, and the development will result in a relatively small loss of each species' habitat.

For the Fynbos Golden Mole, construction activities may result in the mortality of individuals and will result in the loss of approximately 0.07% of already degraded habitat within the AOO for this species. However, these impacts are unlikely to significantly affect the threat status and persistence of this species and as such, the impact on this species is considered low.

7. SITE ECOLOGICAL IMPORTANCE

The results from the desktop assessment and field survey have been used to calculate the SEI for the vegetation and faunal habitat present within the project area in line with evaluation of SEI outlined in the Species Environmental Assessment Guideline (SANBI, 2020).

7.1. Site Ecological Importance - Flora

The presence of one (1) SCC, namely *Hermannia lavandulifolia* classified as VU under criterion A, contributes to the medium Conservation Importance (CI) of the project area. However, given the major ecological impacts within the project area and historical agricultural land use, the Functional Integrity (FI) of the project area was also rated as low and the Receptor Resilience (RR) was rated as High as the vegetation will quickly return to its current state. The overall SEI for the project area is thus very low (Table 7.1).

7.2. Site Ecological Importance - Fauna

The CI of the project area to the African striped weasel (NT) and Fynbos Golden Mole (NT) occurring in Secondary Shrubland Vegetation is MEDIUM. The FI has been rated as low due to the fragmentation caused by the existing fence lines and tarred roads, as well as the history of agricultural land use which has resulted in habitat that is degraded with minor to major ecological impacts present. The RR was classified as LOW as these species will have a low likelihood of returning to the project area once the disturbance has ceased. The combination of these factors resulted in an overall SEI of MEDIUM.

The CI of the project area to the Denhams Bustard (VU) is classified as HIGH but due to the fragmentation caused by the existing fence lines and tarred roads, as well as the history of agricultural land use, the FI has been determined to be LOW. The RR was classified as MEDIUM as although the species will likely remain in the broader project area, the development will result in the permanent loss of approximately 16 ha of the individual's habitat that is used for foraging. The combination of these factors resulted in an overall SEI of MEDIUM.

The overall faunal SEI is thus MEDIUM (Table 7.2).

Table 7.1: Sensitivity assessment for each vegetation type within the project area.

Habitat / Species	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience	SEI
Secondary Shrubland Vegetation	**MEDIUM** Confirmed occurrence of one (1) SCC, namely *Hermannia lavandulifolia* classified as VU under criterion A. This species is still fairly widespread and common (EOO 12 018 km²). Less than 50% of the receptor contains natural habitat[4] with limited potential to support SCC.	**LOW** Although the project area is not devoid of vegetation, it is subdivided into four (4) portions by two tarred roads. Furthermore, these portions are fenced. As such, habitat connectivity is poor except for some plant species that rely on wind dispersed species. Several minor and major ecological impacts i.e. the project site has previously been cultivated and scattered alien invasive species have established.	LOW	**HIGH** Receptor resilience is based on the specific project activities. In this instance the project occurs on land that was previously cultivated but left fallow from 2014. As such, it has taken 10 years for the vegetation to reach its current state (i.e. habitat can recover relatively quickly to restore more than 75% if the original species composition and functionality of the receptor). Furthermore, the project area is surrounded by agricultural land to the north, east and west and urban development to the south.	**VERY LOW**

[4] This excludes areas of transformed habitat within a defined ecosystem even if these are partially restored, e.g. Highveld grasslands that have been converted to maize fields and then abandoned so that some form of functional grassland is restored; this is not natural habitat as it does not and will not in the future have species composition representative of the original natural habitat (SANBI, 2020).

Table 7.2: Sensitivity assessment for faunal species within the project area.

Habitat / Species	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience	SEI
African striped weasel (NT) and Fynbos Golden Mole (NT) occurring in Secondary Shrubland Vegetation	**MEDIUM** Highly likely occurrence of two NT mammal species.	**LOW** Although the project area is not devoid of vegetation, it is subdivided into four (4) portions by two tarred roads. Furthermore, these portions are fenced. As such, there are only narrow corridors of habitat connectivity with a busy road network between 'intact' patches. Several minor and major ecological impacts i.e. the project site has previously been cultivated and scattered alien invasive species have established.	**LOW**	**LOW** Receptor resilience is based on the specific project activities. In this instance the entire project area will be transformed resulting in the permanent loss of habitat. Species will have a low likelihood of returning to the project area once the disturbance has ceased.	**MEDIUM**
Denham's Bustard	**HIGH**	**LOW**	**MEDIUM**	**MEDIUM**	**MEDIUM**

Habitat / Species	Conservation Importance (CI)	Functional Integrity (FI)	Biodiversity Importance (BI)	Receptor Resilience	SEI
	Highly likely occurrence of one VU bird species.	Although the project area is not devoid of vegetation, it is subdivided into four (4) portions by two tarred roads. Furthermore, these portions are fenced. As such, there are only narrow corridors of habitat connectivity with a busy road network between 'intact' patches. Several minor and major ecological impacts i.e. the project site has previously been cultivated and scattered alien invasive species have established.		If this species uses the project area it is likely used for foraging. Although the species will likely remain in the broader project area, the development will result in the permanent loss of approximately 16ha of the individuals habitat that is used for foraging.	

7.3. **Combined SEI**

According to the Species Environmental Assessment Guideline (SANBI, 2020), the SEI evaluated for each taxon/receptor should be combined into a single multi-taxon/receptor evaluation of SEI for the project area to allow the component authority to evaluate the SEI for the entire project area rapidly and at a single glance. As such, the highest overall SEI rating has been applied to each habitat type assessed in terms of the faunal and botanical sensitivity. The botanical SEI of the project area was determined to be VERY LOW, but the faunal SEI was determined to be MEDIUM. As such, the overall combined SEI of the project area is MEDIUM.

7.4. Management Guidelines

In terms of the Guidelines for Interpreting SEI in the Context of the Proposed Development Activities (SANBI, 2020) for areas of **MEDIUM SEI,** development activities of medium impact are acceptable if followed by appropriate restoration activities. In the case of the project development, all impacts are expected to be low to negligible which is acceptable.

8. PROPOSED MANAGEMENT ACTIONS

The development is located in an area of very low sensitivity for the Plant Species Theme, medium sensitivity for the Animal Species Theme and a low sensitivity for the Terrestrial Biodiversity Theme (refer to the discussion in section 9.2 below). Although the project area has a medium SEI for the Animal Species Theme, impacts associated with populations of the three SCC identified as having a high likelihood of occurrence within the project area, will be low given the small footprint of the project area (18.5ha) and its location within a highly fragmented environment, bisected by a busy road network, in an area that has experienced major ecological impacts.

As such, a compliance statement is sufficient for this development. However, it is good practice to implement mitigation measures to further reduce impacts on the environment. Therefore, the following management actions are recommended and must be included as conditions in the Environmental Management Programme (EMPr) as well as the conditions of the Environmental Authorisation (EA), if granted.

8.1. Mitigation measures

8.1.1. Vegetation and Plant Species

- Permits for the removal and/or translocation of protected species must be obtained prior to the clearance of vegetation. These species can be used for rehabilitation/landscaping of disturbed areas that do not form part of the development footprint. The following species are protected in terms of Schedule 4 of the WC Nature Conservation Law Amendment Act, 2000 and therefore require permits for removal and/or translocation:
    - *Carpobrotus deliciosus* (LC)
    - *Ruschia sp*. –
    - *Aloe maculata* (LC)
    - *Bobartia robusta* (LC)
    - *Strelitzia nicolai* (LC)
- Construction must be confined to the approved development footprint. Construction must not encroach into surrounding properties.
- Only indigenous species must be used for rehabilitation outside of the development footprint.
- All impacted areas that do not form part of the development must be rehabilitated using indigenous vegetation.
- Employees must be prohibited from making open fires during the construction phase to prevent uncontrolled run-away fires.
- Employees must be prohibited from collecting plants. It is recommended that spot checks of pockets and bags are done on a regular basis to ensure that no unlawful harvesting of plant species is occurring.
- The site must be checked regularly for the presence of alien invasive species. When alien invasive species are found, immediate action must be taken to remove them. Removal of alien invasive species must be undertaken in accordance with best practice guidelines, specifically the Working for Water Program (2007).
- An Alien Invasive Management Method Statement for the site must be compiled and implemented during construction.
- Use existing access roads and upgrade these where necessary.

- An Erosion Method Statement should be compiled and implemented during the construction phase to prevent the erosion and the loss of topsoil.

8.1.2. Faunal Habitat and Species

- Golden moles exhibit a heightened sensitivity to noise and vibrations which may prompt them to vacate an area. To prevent mortality of individuals during the construction phase and facilitate the relocation of individuals from the project area, it is recommended that vegetation clearance takes place gradually, commencing from the one side of the site (preferably adjacent to the road) and methodically advancing towards the opposite side of the site.
- All construction and construction related activities (including parking of vehicles and machinery) must remain within the approved development footprint.
- No construction and construction related activities are permitted to encroach on neighbouring properties. A fine system must be put in place for transgressions by the developer and included in contractual agreements with all staff and contractors.
- Microhabitats (e.g. rock stacks and logs) in the clearing footprint must be relocated to the same habitat immediately adjacent to the removal site. E.g. Rock stacks should be restacked.
- Rehabilitation efforts outside of the development must provide habitat for faunal species by placing logs and rocks at strategic sites to provide shelter for small mammals and reptiles.
- A clause must be included in contracts for ALL construction personnel (i.e. including contractors) working on site stating that: “no wild animals will be hunted, killed, poisoned, or captured. No wild animals will be imported into, exported from or transported in or through the province. No wild animals will be sold, bought, donated and no person associated with the development will be in possession of any live wild animal, carcass or anything manufactured from the carcass.” A clause relating to fines, possible dismissal and legal prosecution must be included should any of the above transgressions occur, especially for SCC.
- The ECO should appoint a member of staff to walk ahead of construction machinery directly prior to vegetation clearance. Should any faunal species be identified during the walk through, these should be allowed to move out of harm’s way prior to vegetation clearance.
- Dust suppression measures must be implemented in the dry and/or windy months.
- All machinery, vehicles and earth moving equipment must be maintained and the noise these create must meet industry minimum standards. e.g. the sound generated by a machine must be below a certain decibel as prescribed in the relevant noise control regulations.
- No construction night lighting must be allowed. If required, minimise lighting in open space areas within development and any external lights must be down lights placed as low as possible and installation of low UV emitting lights, such as most LEDs.
- Any external lights required during the operational phase must be down lights, with low UV emittance. Lights should not be pointed outward or towards the sky.
- Development must be designed to allow unencumbered movement, especially of small faunal species. e.g.
    - Permeable internal and external fences/walls (if any) must be implemented to allow for the movement of fauna through the development. These must have ground level gaps of 10cm x 10cm at 10m intervals. These gaps must be kept free of obstructions, including plant growth and debris.
    - All guttering and kerbstones must be sloped i.e. must be less than 450 on either side or kerbstones should be slanted or lowered (less than 10cm) at 10m intervals to allow for easy movement of toads

    - Steep sided drains, gutters, canals and open pits/trenches must be covered with mesh (5mm x 5mm) to prevent fauna falling in and getting stuck. No unnecessary structures that would act as pitfall traps for animals must be constructed
    - If there are retaining walls, steps should be formed to allow for toads to move over them. These must be vegetated with plant species that offer cover.
- Speed restrictions must be implemented on all vehicles within the development footprint (40km/h is recommended) to reduced faunal mortalities on the project roads.
- The contact details of a trained snake handler should be kept within the site office should any snakes be encountered on site. No persecution of any faunal species is permitted.
- All decommissioning related activities (including parking of vehicles and machinery) must remain within the approved development footprint.

9. CONCLUSIONS

9.1. Conclusions and Recommendations

The SEI analysis indicates that the project area has an overall sensitivity of MEDIUM.

Only one (1) plant SCC, namely *Hermannia lavandulifolia* classified as VU under category A2c, was recorded within the project area. However, impacts associated with the Plant Species Theme will be low to negligible despite the presence of *H. lavandulifolia* (VU) as this species is present in low densities and confined to the southwestern corner of the project area. Furthermore, this species is fairly widespread throughout the broader area. The loss of the entire project area (18.5 ha) would constitute a habitat loss of 0.002% for this species while the loss of the southwestern corner or the project area (2.4 ha) would constitute a habitat loss of 0.0002%.

Impacts associated with the Animal Species Theme will be low to negligible. Although there is a high likelihood of occurrence of two mammal SCC and one bird SCC, impacts of the development on these species are likely to be low. If present, the African Striped Weasel (NT) and Denham's bustard (VU) will likely move away from the project area when construction begins, and the development will result in a small loss of each species' habitat.

Construction activities may result in the mortality of individuals of the Fynbos Golden Mole and will result in the loss of approximately 0.07% of already degraded habitat within the AOO for this species. However, these impacts are unlikely to significantly affect the threat status and persistence of this species and as such, the impact is considered low.

Although the project area occurs within a CBA and ESA in terms of the WCBSP (2017): Mossel Bay, the features driving the CBA/ESA status are not present within the project area. As such, it is unlikely that the project will impact on the management objectives of these CBAs and ESAs.

The project footprint will not impact the functioning of any Endangered Ecosystems, Protected Areas, or NPAES Focus Areas as these features were not recorded within or surrounding the project area. Impacts associated with the Biodiversity Theme are therefore considered to be low to negligible.

Although impacts are low to negligible, the applicant still has a duty of care to the environment. As such, recommended management actions that include mitigation measures to further reduce the impact of the project on the terrestrial biodiversity, plant and animal species have been outlined in chapter 8. These recommendations must be included in the Environmental Management Programme (EMPr) and as conditions of EA if granted.

9.2. Comment on the DFFE Screening Tool Report

9.2.1. Animal Species Theme

The DFFE Screening Report classifies the Animal Species Theme of the project area as HIGH due to the known presence of four (4) sensitive bird species and MEDIUM due to the possible occurrence of two (2) sensitive insect species, two (2) sensitive mammal species, and one (1) sensitive invertebrate species. This report only assesses mammals, reptiles, amphibians, and birds and as such only comment on these groups have been provided.

According to the desktop assessment undertaken, the project area intersects with the distribution range of twenty-seven (27) faunal SCC, including 17 mammal species and 19 bird species. Only two (2) mammal species and one (1) bird species were determined to have a high likelihood of occurrence within the project area. Despite the high likelihood of occurrence of these species, the overall faunal SEI was determined to be MEDIUM (refer to Section 7.2). As such, it is the opinion of the specialist that the animal species theme sensitivity should be reclassified as MEDIUM rather than HIGH.

9.2.2. Plant Species Theme

The DFFE screening tool report identified the Plant Species Theme as medium due to the likely presence of twenty-five (25) SCC.

Only one (1) plant SCC was recorded during the field survey, namely *Hermannia lavandulifolia* classified as VU under category A2c. Only one or two individuals of this species were observed, and their distribution was restricted to the southwestern corner of the project area (near Sandhoogte Road). No other SCC were observed.

Despite the presence of *H. lavandulifolia* which contributes to the medium conservation importance (CI) of the project area, the overall botanical SEI was determined to be very low. As such, the specialist disagrees with the medium sensitivity rating of the DFFE screening report and is of the opinion that it should be reclassified as very low.

9.2.3. Terrestrial Biodiversity Theme

The DFFE screening tool report identified the Terrestrial Biodiversity Theme as Very High due to the presence of the following features:

- Critically Endangered (CR) Ecosystem - Garden Route Granite Fynbos
- Endangered (EN) Ecosystem – Hartenbos Dune Thicket
- CBA 1 & 2 (Terrestrial)
- ESA 1 & 2 (Restore from other land use)

The field survey and desktop analysis confirmed that the underlying features on which the CBA and ESA status are based, are not present within the project area. Furthermore, the vegetation present is not representative of Garden Route granite Fynbos or Hartenbos Dune Thicket. As such, the specialist disagrees with the DFFE screening tool report and is of the opinion that the sensitivity should be low rather than very high.

9.3. Ecological Statement and Opinion of the Specialist

Given that the project area has a very low sensitivity for the Plant Species Theme, a Medium Sensitivity for the Animal Species Theme, and a low sensitivity for the Terrestrial Biodiversity Theme and that impacts of the project on the plants, animals and biodiversity will be low to negligible, the specialists are of the opinion that the development can proceed, provided the recommendations contained in this report are implemented.

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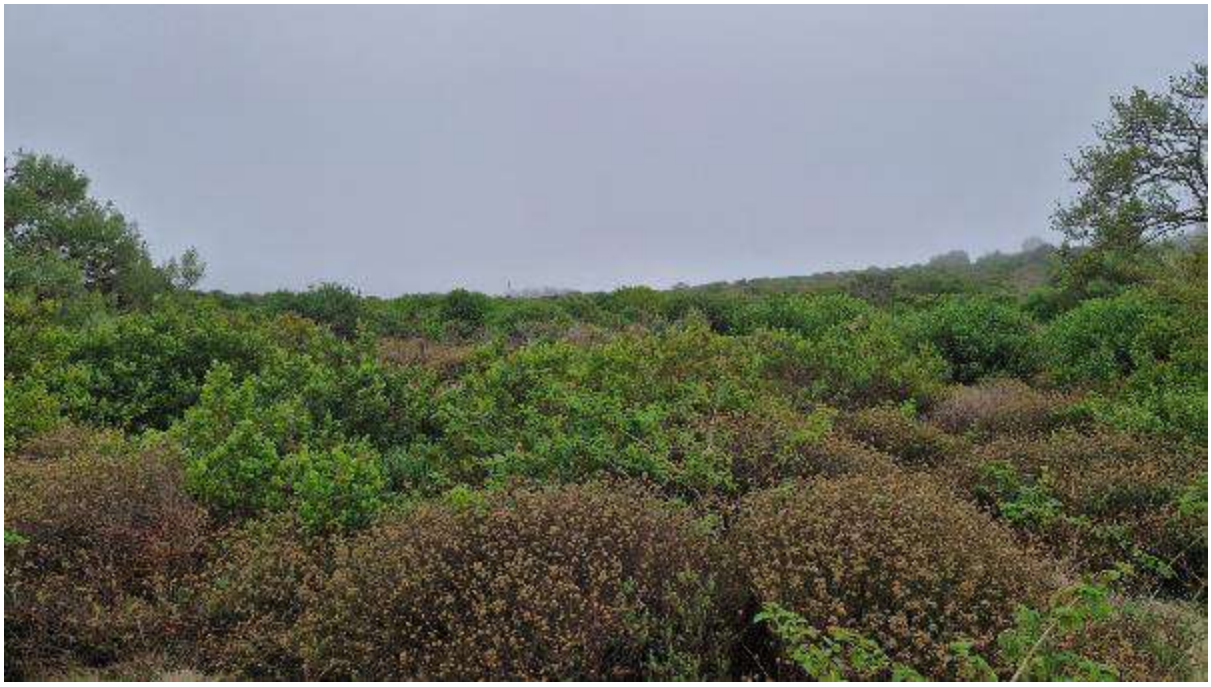
APPENDIX 1: PHOTOGRAPHS OF THE SAMPLE SITES SURVEYED

Sample Site 1

GPS Coordinate:	34° 3'29.31"S; 22°11'25.16"E
Description:	Low (~1-1.5 m), dense shrubland (>75% cover) dominated by *Helichrysum cymosum*, *Searsia pallens*, *Rubus rigidus*, *Acacia cyclops*, *Osteospermum moniliferum, Lantana camara* and weeds (Low species diversity) on southern facing slope. Sandy soils with clay accumulation.



Sample Site 2

GPS Coordinate:	34° 3'28.28"S; 22°11'21.61"E
Description:	Tall (~2-3m), dense (75% cover) vegetation lining drainage line (not riparian) dominated by *Searsia pallens, Acacia mearnsii, Lantana camara, Dicerothamnus rhinocerotis, Passerina corymbosa,* and weeds (Low species diversity) on southern facing slope. Sandy soils with clay accumulation.

Sample Site 3

GPS Coordinate:	34° 3'25.52"S; 22°11'19.86"E
Description:	Open (~50% cover) to dense (>75% cover) shrubland (~1-1.5 m in height) dominated by shrubs including *Osteospermum moniliferum, Diospyros dichrophylla, Acacia mearnsii*, in a grassy matrix dominated by *Cynodon dactylon* on southern facing slope. Sandy soils with clay accumulation.

Sample Site 4

GPS Coordinate:	34° 3'28.19"S; 22°11'16.73"E
Description:	Open shrubland (~50% cover) dominated by *Helichrysum cymosum* and *Osteospermum moniliferum*, with a grassy matrix dominated by *Cenchrus caudatus*, *Chloris virgata, Cynodon dactylon, Megathyrsus maximus, Melinis repens,* Paspalum dilatatum, and *Sporobolus africanus*. Sandy soils with clay accumulation.

Sample Site 5

GPS Coordinate:	34° 3'36.57"S; 22°11'20.93"E
Description:	Open shrubland (~50% cover) dominated by *Osteospermum moniliferum* in a grassy matrix dominated by *Cenchrus caudatus*, *Chloris virgata, Cynodon dactylon, Megathyrsus maximus, Melinis repens, Paspalum dilatatum*, and *Sporobolus africanus*. Northern facing slope. Sandy soils with clay accumulation.

Sample Site 6

GPS Coordinate:	34° 3'37.93"S; 22°11'20.02"E
Description:	Dense shrubland (>75% cover) dominated by *Osteospermum moniliferum, Tecomaria capensis, Acacia cyclops,* with grassy understory dominated by *Cenchrus caudatus*, *Chloris virgata, Cynodon dactylon, Megathyrsus maximus, Melinis repens, Paspalum dilatatum*, and *Sporobolus africanus*. Northern Facing Slope. Sandy soils with clay accumulation.

Sample Site 7

GPS Coordinate:	34° 3'37.10"S; 22°11'26.74"E
Description:	Open shrubland (50-75% cover) dominated by *Osteospermum moniliferum* (taller shrubs) with low growing shrubs including *Metalasia acuta, Felicia sp., Helichrysum cymosum* and grasses such as *Cenchrus caudatus*, *Chloris virgata, Cynodon dactylon, Megathyrsus maximus, Melinis repens, Paspalum dilatatum*, and *Sporobolus africanus.* Northern facing slope. Sandy soils with clay accumulation.

Sample Site 8

GPS Coordinate:	34° 3'24.20"S; 22°11'27.86"E
Description:	Low (1-1.5 m) dense (>75% cover) shrubland dominated by *Metalasia acuta, Helichrysum cymosum, Dicerothamnus rhinocerotis, Passerina corymbosa* Osteospermum moniliferum and grassy understory dominated by *Cenchrus caudatus*, *Chloris virgata, Cynodon dactylon, Megathyrsus maximus, Melinis repens,* and *Sporobolus africanus.* Southern facing slope. Sandy soils with clay accumulation.

Sample Site 9

GPS Coordinate:	34° 3'22.66"S; 22°11'25.26"E
Description:	Low (1-1.5 m) open (50%) to dense (>75% cover) shrubland dominated by *Metalasia acuta, Helichrysum cymosum, Osteospermum moniliferum* and *Searsia pallens*, with a grassy understory dominated by *Cenchrus caudatus*, *Chloris virgata, Cynodon dactylon, Megathyrsus maximus, Melinis repens,* and *Sporobolus africanus.* Southern facing slope. Sandy soils with clay accumulation.

Sample Site 10

GPS Coordinate:	34° 3'19.51"S; 22°11'17.03"E
Description:	Northern boundary of the project area dominated by *Osteospermum moniliferum, Acacia mearnsii, Bobartia robusta, Dicerothamnus rhinocerotis* and *Sporobolus africanus* on southern facing slope with sandy soils with clay accumulation.

Sample Site 11

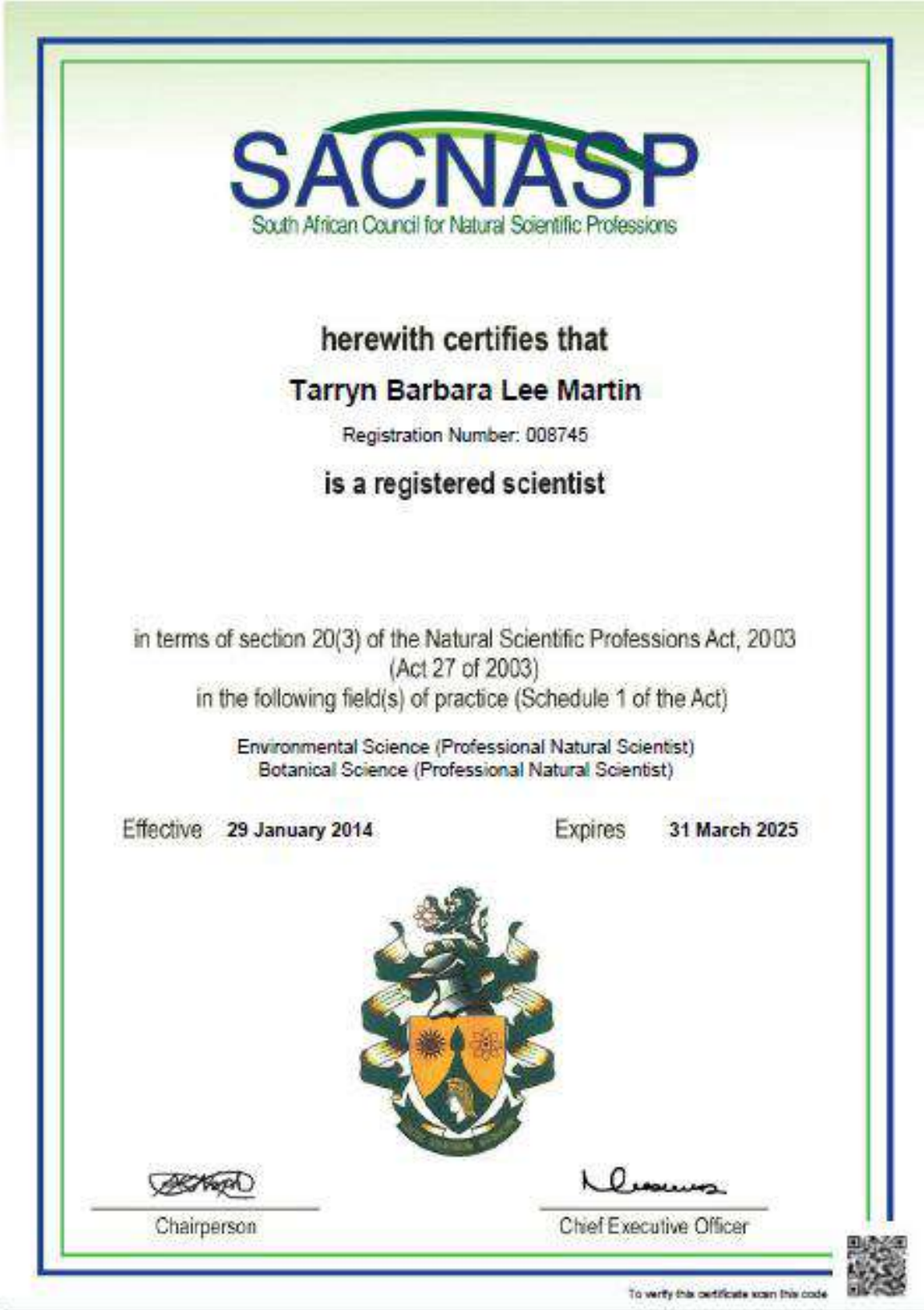
GPS Coordinate:	34° 3'31.75"S; 22°11'28.00"E
Description:	Wetland in the southern eastern boundary of the project area (north of Sandhoogte Road). Very little riparian vegetation. Vegetation dominated by shrubs including *Acacia cyclops, Osteospermum moniliferum, Nidorella ivifolia, Searsia pallens, Lantana camara* with an understorey dominated by grasses, herbs, and sedges, including *Cynodon dactylon, Cyperus congestus, Lobelia erinus, and Wahlenbergia undulata*. Sandy soils with clay accumulation.

APPENDIX 2: PLANT SPECIES RECORDED DURING THE FIELD SURVEY

Family	Species	Status	TOPS 2023	WC Nature Conservation Law Amendment Act, 2000	List of Protected Trees (2021)
Aizoaceae	*Carpobrotus deliciosus*	LC	-	Schedule 4	-
Aizoaceae	*Ruschia sp.*		-	Schedule 4	-
Amaranthaceae	*Atriplex semibaccata*	NE	-	-	-
Anacardiaceae	*Searsia crenata*	LC	-	-	-
Anacardiaceae	*Searsia pallens*	LC	-	-	-
Apocynaceae	*Cynanchum obtusifolium*	LC	-	-	-
Apocynaceae	*Gomphocarpus physocarpus*	LC	-	-	-
Apocynaceae	*Secamone alpini*	LC	-	-	-
Asparagaceae	*Agave americana*	NE	-	-	-
Asparagaceae	*Albuca sp.*		-	-	-
Asphodeloideae	*Aloe maculata*	LC	-	Schedule 4	-
Asteraceae	*Arctotheca prostrata*	LC	-	-	-
Asteraceae	*Athanasia juncea*	LC	-	-	-
Asteraceae	*Dicerothamnus rhinocerotis*	LC	-	-	-
Asteraceae	*Felicia sp.*		-	-	-
Asteraceae	*Helichrysum cymosum*	LC	-	-	-
Asteraceae	*Helichrysum petiolare*	LC	-	-	-
Asteraceae	*Metalasia acuta*	LC	-	-	-
Asteraceae	*Nidorella ivifolia*	LC	-	-	-
Asteraceae	*Oedera genistifolia*	LC	-	-	-
Asteraceae	*Oedera imbricata*	LC	-	-	-
Asteraceae	*Osteospermum moniliferum*	LC	-	-	-
Asteraceae	*Schkuhria pinnata*	NE	-	-	-
Asteraceae	*Senecio burchellii*	LC	-	-	-
Asteraceae	*Seriphium plumosum*	LC	-	-	-
Asteraceae	*Tagetes minuta*	NE	-	-	-
Bignoniaceae	*Tecomaria capensis*	LC	-	-	-
Campanulaceae	*Lobelia erinus*	LC	-	-	-
Campanulaceae	*Wahlenbergia undulata*	LC	-	-	-
Celastraceae	*Gymnosporia buxifolia*	LC	-	-	-
Commelinaceae	*Commelina africana*	LC	-	-	-
Crassulaceae	*Crassula nudicaulis*	LC	-	-	-
Crassulaceae	*Crassula tetragona*	LC	-	-	-
Cyperaceae	*Cyperus congestus*	LC	-	-	-
Ebenaceae	*Diospyros dichrophylla*	LC	-	-	-
Fabaceae	*Acacia cyclops*	NE	-	-	-

Fabaceae	*Acacia mearnsii*	NE	-	-	-
Fabaceae	*Lotononis pungens*	LC	-	-	-
Gentianaceae	*Chironia baccifera*	LC	-	-	-
Geraniaceae	*Pelargonium alchemilloides*	LC	-	-	-
Geraniaceae	*Pelargonium elongatum*	LC	-	-	-
Iridaceae	*Bobartia robusta*	LC	-	Schedule 4	-
Lobeliaceae	*Monopsis unidentata*	LC	-	-	-
Malvaceae	*Grewia occidentalis*	LC	-	-	-
Malvaceae	*Hermannia lavandulifolia*	VU	-	-	-
Moraceae	*Ficus elastica*	NE	-	-	-
Oleaceae	*Olea europaea*	LC	-	-	-
Oxalidaceae	*Oxalis sp.*		-	-	-
Oxalidaceae	*Oxalis ciliari*	LC	-	-	-
Plantaginaceae	*Plantago lanceolata*	LC	-	-	-
Pittosporaceae	*Pittosporum viridiflorum*	LC			
Poaceae	*Arundo donax*	NE	-	-	-
Poaceae	*Cenchrus caudatus*	LC	-	-	-
Poaceae	*Chloris virgata*	LC	-	-	-
Poaceae	*Cortaderia selloana*	NE	-	-	-
Poaceae	*Cynodon dactylon*	LC	-	-	-
Poaceae	*Eragrostis capensis*	LC	-	-	-
Poaceae	*Megathyrsus maximus*	LC	-	-	-
Poaceae	*Melinis repens*	LC	-	-	-
Poaceae	*Paspalum dilatatum*	NE	-	-	-
Poaceae	*Sporobolus africanus*	LC	-	-	-
Polygonaceae	*Persicaria lapathifolia*	NE	-	-	-
Pteridaceae	*Cheilanthes viridis*	LC	-	-	-
Rosaceae	*Rubus rigidus*	LC	-	-	-
Rubiaceae	*Anthospermum aethiopicum*	LC	-	-	-
Santalaceae	*Viscum capense*	LC	-	-	-
Scrophulariaceae	*Buddleja saligna*	LC	-	-	-
Scrophulariaceae	*Chaenostoma caeruleum*	LC	-	-	-
Scrophulariaceae	*Selago corymbosa*	LC	-	-	-
Solanaceae	*Lycium cinereum*	LC	-	-	-
Solanaceae	*Solanum linnaeanum*	LC	-	-	-
Solanaceae	*Solanum lycopersicum*		-	-	-
Strelitziaceae	*Strelitzia nicolai*	LC	-	Schedule 4	-
Thymelaeaceae	*Passerina corymbosa*	LC	-	-	-
Verbenaceae	*Lantana camara*	NE	-	-	-

APPENDIX 3: PROOF OF SACNASP REGISTRATION AND HIGHEST QUALIFICATION



SACNASP
South African Council for Natural Scientific Professions

herewith certifies that

Tarryn Barbara Lee Martin

Registration Number: 008745

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)

Environmental Science (Professional Natural Scientist)
Botanical Science (Professional Natural Scientist)

Effective 29 January 2014 Expires 31 March 2025

Chairperson

Chief Executive Officer

To verify this certificate scan this code

RHODES UNIVERSITY

THIS IS TO CERTIFY THAT

TARRYN BARBARA LEE MARTIN

WAS THIS DAY AT A CONGREGATION OF THE UNIVERSITY
ADMITTED TO THE DEGREE OF

MASTER OF SCIENCE

IN

BOTANY

WITH DISTINCTION

VICE CHANCELLOR

DEAN OF THE FACULTY OF SCIENCE

REGISTRAR

GRAHAMSTOWN
10 APRIL 2010

Application for Professional Natural Science in the field of Zoology is currently awaiting approval.

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Amber Leah Jackson

Registration number: 100125/12

is registered as a

Candidate Natural 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 I of the Act)

Environmental Science **15 August 2012**

15 August 2012
Pretoria

President

Executive Director

University of Cape Town • iYunivesithi yaseKapa • Universiteit van Kaapstad

we certify that

Amber Leah Jackson

was admitted to the degree of

Master of Philosophy

in Environmental Management

on 9 June 2011

Vice-Chancellor

Registrar

SACNASP

South African Council for Natural Scientific Professions

herewith certifies that

Nicole Nadine Wienand

Registration Number: 130289

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)

Environmental Science (Certificated Natural Scientist)
Botanical Science (Professional Natural Scientist)

Effective **3 March 2021** Expires **31 March 2025**

Chairperson

Chief Executive Officer

To verify this certificate scan this code

NELSON MANDELA
UNIVERSITY

This is to certify that, all the requirements
having been met, the degree

Bachelor of Science Honours in Botany

with all the associated rights and privileges,
was conferred upon

Nicole Nadine Wienand
ID no.: 9501170150088

at a congregation of the Nelson Mandela University on
13 December 2018

Certificate no.: 20185249

Vice-Chancellor

Registrar

00008632

APPENDIX 4: CV

CONTACT DETAILS

Name	**Tarryn Martin**
Name of Company	**Biodiversity Africa**
Designation	Director
Profession	Botanical Specialist and Environmental Manager
E-mail	tarryn@biodiversityafrica.com
Office number	+27 (0)71 332 3994
Education	2010: Master of Science with distinction (Botany) 2004: Bachelor of Science (Hons) in African Terrestrial Vertebrate Biodiversity 2003: Bachelor of Science
Nationality	**South African**
Professional Body	**SACNASP**: South African Council for Natural Scientific Profession: Professional Natural Scientist (400018/14) **SAAB**: Member of the South African Association of Botanists **IAIASa**: Member of the International Association for Impact Assessments South Africa Member of Golden Key International Honour Society
Key areas of expertise	• Biodiversity Surveys and Impact Assessments • Environmental Impact Assessments • Critical Habitat Assessments • Biodiversity Management and Monitoring Plans

PROFILE

Tarryn has over ten years of experience working as a botanist, nine of which are in the environmental sector. She has worked as a specialist and project manager on projects within South Africa, Mozambique, Lesotho, Zambia, Tanzania, Cameroon and Malawi.

She has extensive experience writing botanical impact assessments, critical habitat assessments, biodiversity management plans, biodiversity monitoring plans and Environmental Impact Assessments to International Standards, especially to those of the International Finance Corporation (IFC). Her experience includes working on large mining projects such as the Kenmare Heavy Minerals Mine, where she monitored forest health, undertook botanical impact assessments for their expansion projects and designed biodiversity management and monitoring plans. She has also project managed Environmental Impact Assessments for graphite mines in northern Mozambique and has a good understanding of the Mozambique Environmental legislation and processes.

Tarryn holds a BSc (Botany and Zoology), a BSc (Hons) in African Vertebrate Biodiversity and an MSc with distinction in Botany from Rhodes University. Tarryn's Master's thesis examined the impact of fire on the recovery of C_3 and C_4 Panicoid and non-Panicoid grasses within the context of climate change for which she won the Junior Captain Scott-Medal (Plant Science) for producing the top MSc of 2010 from the South African Academy of Science and Art as well as an Award for Outstanding Academic Achievement in Range and Forage Science from the Grassland Society of Southern Africa. Tarryn is a professional member of the South African Council for Natural Scientific Professionals (since 2014).

EMPLOYMENT EXPERIENCE

Director and Botanical Specialist, Biodiversity Africa

July 2021 - present

- Botanical and ecological assessments for local and international EIAs in Southern Africa
- Identifying and mapping vegetation communities and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Designing rehabilitation plans
- Designing alien management plans
- Critical Habitat Assessments
- Large ESIA studies
- Managing budgets

Principal Environmental Consultant, Branch Manager and Botanical Specialist, Coastal and Environmental Services

May 2012-June 2021

- Botanical and ecological assessments for local and international EIAs in Southern Africa
- Identifying and mapping vegetation communities and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Designing rehabilitation and biodiversity offset plans
- Designing alien management plans
- Critical Habitat Assessments
- Large ESIA studies
- Managing budgets
- Cape Town branch manager
- Coordinating specialists and site visits

Accounts Manager, Green Route DMC

October 2011- January 2012

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa
- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction.

Camp Administrator and Project Co-ordinator, Windsor Mountain International Summer Camp, USA

April 2011 - September 2012

- Co-ordinated staff and camper travel arrangements, main camp events and assisted with marketing the camp to prospective families.

Freelance Project Manager, Green Route DMC

November 2010 - April 2011

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa
- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction.

Camp Counselor, Windsor Mountain Summer Camp, USA

June 2010 - October 2010

NERC Research Assistant, Botany Department, Rhodes University, Grahamstown in collaboration with Sheffield University, Sheffield, England

April 2009 - May 2010

- Set up and maintained experiments within a common garden plot experiment
- collected, collated and entered data
- Assisted with the analysis of the data and writing of journal articles

Head Demonstrator, Botany Department, Rhodes University

March 2007 - October 2008

Operations Assistant, Green Route DMC

September 2005 - February 2007

- Project and staff co-ordination
- Managing large budgets for incentive and conference groups travelling to southern Africa
- Creating tailor-made programs for clients
- Negotiating rates with vendors and assisting with the ground management of inbound groups to ensure client satisfaction

PUBLICATIONS

- Ripley, B.; Visser, V.; Christin, PA.; Archibald, S.; Martin, T and Osborne, C. Fire ecology of C_3 and C_4 grasses depends on evolutionary history and frequency of burning but not photosynthetic type. *Ecology.* 96 (10): 2679-2691. 2015
- Taylor, S.; Ripley, B.S.; Martin, T.; De Wet, L-A.; Woodward, F.I.; Osborne, C.P. Physiological advantages of C_4 grasses in the field: a comparative experiment demonstrating the importance of drought. *Global Change Biology*. 20 (6): 1992-2003. 2014
- Ripley, B; Donald, G; Osborne, C; Abraham, T and Martin, T. Experimental investigation of fire ecology in the C3 and C4 subspecies of *Alloteropsis semialata. Journal of Ecology.* 98 (5): 1196 - 1203. 2010
- South African Association of Botanists (SAAB) conference, Grahamstown. Title: Responses of C3 and C4 Panicoid and non-Panicoid grasses to fire. January 2010
- South African Association of Botanists (SAAB) conference, Drakensberg. Title: Photosynthetic and Evolutionary determinants of the response of selected C3 and C4 (NADP-ME) grasses to fire. January 2008

COURSES

- Rhodes University and CES, Grahamstown
- EIA Short Course 2012
- Fynbos identification course, Kirstenbosch, 2015.
- Photography Short Course, Cape Town School of Photography, 2015.
- Using Organized Reasoning to Improve Environmental Impact Assessment, 2018, International IAIA conference, Durban

CONSULTING EXPERIENCE

International Projects

- 2020 – 2021: Project manager for the 2Africa subsea cable ESIA in Mozambique.
- 2020 – 2021: Project manager for the Category B EIA for the Wihinana Graphite Mine, Cabo delgado, Mozambique
- 2020 – 2021: Project manager for the category B exploration ESIA for Sofala Heavy Minerals Mine, Inhambane, Mozambique
- 2020: Critical Habitat Assessment for a graphite mine in Cabo Delgado, Mozambique. This assessment was to IFC standards.
- 2020: Analysed the botanical dataset for Lurio Green Resources and provided comment on the findings and gaps.
- 2020: Biodiversity Management Plan and Monitoring Plan for mine at Pilivilli in Nampula Province, Mozambique. This assessment was to IFC standards.
- 2019: Botanical Assessment for a cocoa plantation, Tanzania. This assessment was to IFC standards.

- 2019: Critical Habitat Assessment, Biodiversity Management Plan and Ecosystem Services Assessment for JCM Solar Farm in Cameroon. This assessment was to IFC standards.
- 2019: Undertook the Kenmare Road and Infrastructure Botanical Baseline Survey and Impact Assessment for an infrastructure corridor that will link the existing mine at Moma to the new proposed mine at Pillivilli in Nampula Province, Mozambique. This assessment was to IFC standards.
- 2012 – Present: Kenmare Terrestrial Monitoring Program Project Manager and Specialist Survey, Nampula Province, Mozambique.
- 2018: Conducted a field survey and wrote a botanical report to IFC standards for the proposed Balama Graphite Mine Environmental and Social Impact Assessment (ESIA) in Cabo Delgado Province, Mozambique.
- 2018: Co-authored the critical habitat assessment chapter for the proposed Kenmare Pilivilli Heavy Minerals Mine.
- 2018: Authored the Conservation Efforts chapter for the Kenmare Pilivilli Heavy Minerals Mine.
- 2017-2018: Co-authored and analysed data for the Kenmare Bioregional Survey of *Icuria dunensis* (species trigger for critical habitat) in Nampula Province, Mozambique. This was for a mining project that needed to be IFC compliant.
- 2017: Conducted a field survey and wrote a botanical report to IFC standards for the proposed Ancuabe Graphite Mine Environmental and Social Impact Assessment (ESIA) in Cabo Delgado Province, Mozambique.
- 2017-2018: Managed the Suni Resources Montepuez Graphite Mine Environmental Impact Assessment. This included the management of ten specialists, the co-ordination of their field surveys, regular client liaison and the writing of the Environmental Impact Assessment Report which summarised the specialists findings, assessed the impacts of the proposed mine on the environment and provided mitigation measures to reduce the impact.
  I was also the lead botanist for this baseline survey and impact assessment and undertook the required field work and analysed the data and wrote the report.
- 2017: Undertook the botanical baseline survey and impact assessment for the proposed Kenmare Pilivili Heavy Mineral Mine in Nampula Province, Mozambique. This was to IFC Standards.
- 2017: Ecological Survey for the Megaruma Mining Limitada Ruby Mine Exploration License, Cabo Delgado, Mozambique.
- 2016: Undertook the botanical baseline survey and impact assessment, wrote an alien invasive management plan and co-authored the biodeiveristy monitoring plan for this farm. The project was located in Zambezia Province, Mozambique.
- 2015-2016: Conducted the Triton Minerals Nicanda Hills Graphite Mine Botanical Survey and Impact Assessment. Was also the project manager and specialist co-ordinator for this project. The project was located in Cabo Delgado Province, Mozambique.
- 2015: Was part of the team that undertook a Critical Habitat Assessment for the Nhangonzo Coastal Stream site at Inhassora in Mozambique that Sasol intend to establish drill pads at. This project needed to meet the IFC standards.
- 2014: Lurio Green Resources Wood Chip Mill and Medium Density Fibre-board Plant, Project Manager and Ecological Specialist, Nampula Province, Mozambique. 2014-2015.
- 2013-2014: LHDA Botanical Survey, Baseline and Impact assessment, Lesotho.
- 2014: Biotherm Solar Voltaic Ecological Assessment, Zambia.
- 2013-2014: Lurio Green Resources Plantation Botanical Assessment, Vegetation and Sensitivity Mapping, Specialist Co-ordination, Nampula Province, Mozambique.
- 2013: Syrah Resources Botanical Baseline Survey and Ecological Assessment., Cabo Delgado Mozambique.
- 2013-2014: Baobab Mining Ecological Baseline Survey and Impact Assessment, Tete, Mozambique.

South African Projects

- 2021 - Present: Project Manager for the Sturdee Energy Solar PV facility, Western Cape
- 2021: Ecological Assessment for the Sturdee Energy Solar PV facility, Western Cape
- 2021: Rehabilitation plan for a housing development (Hope Village)
- 2020: Ecological Assessment for the Eskom Juno-Gromis Powerline deviation, Western Cape
- 2020: Project Manager for the Basic Assessment for SANSA development at Matjiesfontein (Western Cape). Project received authorization in 2021.
- 2020: Ecological Assessment for construction of satellite antennae, Matjiesfontein, Western Cape
- 2019: Ecological Assessment for a wind farm EIA, Kleinzee, Northern Cape
- 2019: Ecological Assessment for two housing developments in Zeerust, North West Province
- 2019: Botanical Assessment in Retreat, Cape Town for the DRDLR land claim.
- 2019: Cape Agulhas Municipality Botanical Assessment for the expansion of industrial zone, Western Cape, South Africa, 2019.
- 2018: Ecological Assessment for the construction of a farm dam in Greyton, Western Cape.
- 2018: Conducted the Ecological Survey for a housing development in Noordhoek, Cape Town
- 2018: Conducted the field survey and developed an alien invasive management plan for the Swartland Municipality, Western Cape.
- 2017: Undertook the field survey and co-authored a coastal dune study that assesses the impacts associated with the proposed rezoning and subdivision of Farm Bookram No. 30 to develop a resort.
- 2017: Project managed and co-authored a risk assessment for the use of Marram Grass to stabilise dunes in the City of Cape Town.
- 2015-2016: iGas Saldanha to Ankerlig Biodiversity Assessment Project Manager, Saldanha.
- 2015: Innowind Ukomoleza Wind Energy Facility Alien Invasive Management Plan, Eastern Cape Province, South Africa.
- 2015: Savannah Nxuba Wind Energy Facility Powerline Ecological Assessment, ground truthing and permit applications, Eastern Cape South Africa.
- 2014: Cob Bay botanical groundtruthing assessment, Eastern Cape, South Africa.
- 2013-2016: Dassiesridge Wind Energy Facility Project Manager, Eastern Cape, South Africa.
- 2013: Harvestvale botanical groundtruthing assessment, Eastern Cape, South Africa.
- 2012: Tsitsikamma Wind Energy Facility Community Power Line Ecological Assessment, Eastern Cape, South Africa.
- 2012: Golden Valley Wind Energy Facility Power Line Ecological Assessment, Eastern Cape, South Africa.
- 2012: Middleton Wind Energy Facility Ecological Assessment and Project Management, Eastern Cape, South Africa.
- 2012: Mossel Bay Power Line Ecological Assessment, Western Cape, South Africa.
- 2012: Groundtruthing the turbine sites for the Waainek Wind Energy Facility, Eastern Cape, South Africa.
- 2012: Toliara Mineral Sands Rehabilitation and Offset Strategy Report, Madagascar.

CONTACT DETAILS

Name	**Amber Jackson**
Name of Company	**Biodiversity Africa**
Designation	Director
Profession	Faunal Specialist and Environmental Manager
E-mail	amber@biodiversityafrica.com
Office number	+27 (0)78 340 6295
Education	2011 M. Phil Environmental Management (University of Cape Town) 2008 BSc (Hons) Ecology, Environment and Conservation (University of the Witwatersrand) 2007 BSc 'Ecology, Environment and Conservation' and Zoology (WITS)
Nationality	**South African**
Professional Body	**SACNASP**: South African Council for Natural Scientific Profession (100125/12) **ZSSA**: Zoological Society of Southern Africa **HAA**: Herpetological Association of Southern Africa **IAIASa**: Member of the International Association for Impact Assessments South Africa
Key areas of expertise	• Biodiversity Surveys and Impact Assessments • Environmental Impact Assessments • Critical Habitat Assessments • Biodiversity Management and Monitoring Plans

PROFILE

Amber has over ten years' experience in environmental consulting and has managed projects across various sectors including mining, agriculture, forestry, renewable energy, housing, coastal and wetland recreational infrastructure. Most of these projects required lender finance and therefore met both in-country, lender and sector specific requirements.

Amber completed the IFC lead and Swiss funded programme in Environmental and Social Risk Management course in 2018. The purpose of the course was to upskill Sub-Saharan African environmental consultants to increase the uptake of E&S standards by Financial Institutions.

Amber specialises in terrestrial vertebrate faunal assessments. She has conducted large scale faunal impact assessments that are to international lender's standards in Mozambique, Tanzania, Lesotho and Malawi. In South Africa her faunal impact assessments comply with the protocols for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity and follows the SANBI Species Environmental Assessment Guideline. Her specialist input goes beyond impact assessments and includes faunal opportunities and constraints assessments, Critical Habitat Assessments, Biodiversity related Management Plans and Biodiversity Monitoring Programmes.

Amber holds a BSc (Zoology and Ecology, Environment & Conservation) and BSc (Hons) in Ecology, Environment & Conservation from WITS University and an MPhil in Environmental Management from University of Cape Town. Amber's honours focused on the landscape effects on Herpetofauna in Kruger National Park and her Master's thesis focused on the management of social and natural aspects of environmental systems with a dissertation in food security that investigated the complex food system of informal and formal distribution markets

EMPLOYMENT EXPERIENCE

Director and Faunal Specialist, Biodiversity Africa

July 2021 - present

- Faunal assessments for local and international EIAs in Southern Africa
- Identifying and mapping habitats and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Critical Habitat Assessments
- Large ESIA studies
- Managing budgets

Principal Environmental Consultant and Faunal,

Coastal and Environmental Services

September 2011-June 2021

- Faunal and ecological assessments for local and international EIAs in Southern Africa
- Identifying and mapping habitat and sensitive areas
- Designing and implementing biodiversity management and monitoring plans
- Critical Habitat Assessments
- Large ESIA studies
- Coordinating specialists and site visits
- Faunal Impact Assessment
- Project Management, including budgets, deliverables and timelines.
- Environmental Impact Assessments and Basic Assessments project
- Environmental Control Officer
- Public/client/authority liaison
- Mentoring and training of junior staff

COURSES

- **Herpetological Association of Southern Africa Conference- Cape St Frances** September 2019
- **International Finance Corporation Environmental and Social Risk Management (ESRM) Program** January – November 2018
- **IAIA WC EMP Implementation Workshop** 27 February 2018
- **IAIAsa National Annual Conference** August 2017
  Goudini Spa, Rawsonville.
- **Biodiversity & Business Indaba, NBBN** April 2017
  Theme: Moving Forward Together (Partnerships & Collaborations)
- **Snake Awareness, Identification and Handling course, Cape Reptile Institute (CRI)** November 2016
- **Coaching Skills programme, Kim Coach** November 2016
- **Western Cape Biodiversity Information Event, IAIAsa** May 2016
  Theme: Biodiversity offsets & the launch of a Biodiversity Information Tool
- **Photography Short Course** 2015.
  Cape Town School of Photography,
- **Mainstreaming Biodiversity into Business: WHAT, WHY, WHEN and HOW** June 2014 Hosted by Dr Marie Parramon Gurney on behalf of the NBBN at the Rhodes Business School
- **IAIAsa National Annual Conference** September 2013
  Thaba'Nchu Sun, Bloemfontein
- **St Johns Life first aid course** July 2012

CONSULTING EXPERIENCE

International Projects

- 2018-Crooks Brothers Post EIA Work- Environmental and Social EMPr, Policies, E&S Management Plans and Monitoring Programmes
- 2018-Triton Ancuabe Graphite Mine (ESHIA), Mozambique. IFC Standards.
- 2016-Bankable Feasibility Study of Simandou Infrastructure Project – Port and Railway Summary of critical habitat, biodiversity offset plan and monitoring and evaluation plan.
- 2016-Lurio Green Resources Forestry Projects ESIA project upgrade to Lender standards including IFC, EIB, FSC and AfDB.
- 2014-Green Resources Woodchip and MDF plant (EPDA).
- 2014-Niassa Green Resources Forestry Projects ESIA to Lender standards including IFC, EIB, FSC and AfDB.

- 2020-Kenmare Faunal Biodiversity Management Plan, Mozambique.
- 2020-Kenmare Faunal Monitoring Pogramme (year 1)- Baseline, Mozambique.
- 2019-Kenmare addendum ESIA Faunal Impact Assessment, Mozambique.
- 2019-Kenmare infrastructure corridor ESIA Faunal Impact Assessment, Mozambique.
- 2019/20-Olam Cocoa Plantation Faunal Impact Assessment, Tanzania.
- 2019-JCM Solar Voltaic project Faunal desktop critical habitat assessment, Cameroon.
- 2018-Suni Resources Balama Graphite Mine Project Faunal Impact Assessment, Mozambique.
- 2017/18-Battery Minerals Montepuez Graphite Mine Project Faunal Impact Assessment, Mozambique.
- 2017-Triton Minerals Nicanda Hills Graphite Mine Project Faunal Impact Assessment, Mozambique.
- 2017-Sasol Biodiversity Assessment, Mozambique.
- 2014-Lesotho Highlands Water Project Faunal Impact Assessment, Lesotho.
- 2012-Malawi Monazite mine Projects (ESIA) EMP ecological management contribution
- Liberia Palm bay & Butow (ESIA)
- PGS Seismic Project (ESIA), Mozambique.

South African Projects

- 2018-Port St Johns Second Beach Coastal Infrastructure Project - E&S Risk Assessment
- 2015-Blouberg Development Initiative- E&S Risk Assessment
- 2019-Boulders Powerline BA Faunal desktop impact assessment, WC, SA.
- 2019-Ramotshere housing development BA Faunal desktop impact assessment, NW, SA.
- 2019-Cape Agulhas Municipality Industrial development faunal impact assessment, WC, SA.
- 2019-SANSA Solar PV BA Faunal desktop impact assessment, WC, SA.
- 2019-Wisson Coal to Urea Faunal desktop assessment, Mpumalanga.
- 2019-Assessment Boschendal Estate Faunal Opportunities and Constraints, WC, SA.
- 2019-Ganspan-Pan Wetland Reserve Recreational and Tourist Development Avifaunal Impact Assessment, NC, SA.
- 2018-City of Johannesburg Municipal Reserve Proclamation for Linksfield Ridge and Northcliff Hill Faunal Assessment, South Africa.
- 2017-Augrabies falls hydro-electric project Hydro-SA Faunal Impact Assessment.
- Port St Johns Second Beach Coastal Infrastructure Project (EIA), South Africa.
- Woodbridge Island Revetment checklist.
- Belmont Valley Golf Course and Makana Residential Estate (EIA)
- Belton Farm Eco Estate (BA).
- Ramotshere housing development (BA).
- G7 Brandvalley Wind Energy Project (EIA)
- G7 Rietkloof Wind Energy Project (EIA)
- G7 Brandvalley Powerlines (BA)
- G7 Rietkloof Powerlines (BA)
- Boschendal wine estate Hydro-electric schemes (BA, 24G and WULA)
- Mossel Bay Wind Energy Project (EIA)
- Mossel Bay Powerline (BA) 132kV interconnection
- Inyanda Farm Wind Energy (EIA)
- Middleton Wind Energy (EIA)
- Peddie Wind Energy (EIA)

- Cookhouse Wind Energy Project (EIA)
- Haverfontein Wind Energy Project (EIA)
- Plan 8 Wind Energy Project (EIA)
- Brakkefontein Wind Energy Project (EIA)
- Grassridge Wind Energy Project (EIA) (Coega)
- St Lucia Wind Energy Project (EIA)
- ACSA ECO CT (Lead ECO)
- Enel Paleisheuwel Solar farm (Lead ECO)
- NRA Caledon road upgrade ECO
- Solar Capital DeAar Solar farm annual audits
- Eskom Pinotage substation WUL offset compliance

CONTACT DETAILS

Name	**Nicole Dealtry (née Wienand)**
Name of Company	Biodiversity Africa
Designation	Senior Botanist
Professional Affiliations	SACNASP Pri. Sci. Nat. Botany Reg No. 130289 IAIAsa Membership No. 6176 SAAB: Member of the South African Association of Botanists
E-mail	nicole@biodiversityafrica.com
Contact Number	+27 (0)81 044 1925
Education	April 2018: Bachelor of Science (BSc) Bontany and Geology December 2018: Bachelor of Science (BSc) Honours (Hons) Botany
Nationality	South African
Key areas of expertise	➢ Ecological Impact Assessments ➢ Botanical Micro-siting ➢ GIS Mapping

PROFILE

Nicole (SACNASP Pri. Sci. Nat. Botany Reg No. 130289) is a Botanical Specialist with over 4 years' experience. Nicole obtained her BSc Honours in Botany (Environmental Management) from Nelson Mandela University (NMU) in December 2018. She also holds a BSc Degree in Environmental Management (Cum Laude) from NMU. Nicole has undertaken numerous Ecological Impact Assessments for a range of developments, including Wind Energy Facilities (WEFs), mines, powerlines, housing developments, roads, amongst others, ensuring that these specialist assessments are undertaken and prepared in accordance with the Protocols for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity (GN R. 320), Plant Species and Animal Species (GN R. 1150) whilst working closely with developers to ensure a development which is environmentally sustainable as well as financially and technically feasible. Nicole also has experience with conducting specialist assessments in other African countries, including Sierra Leone and Mozambique.

EMPLOYMENT EXPERIENCE

Botanical Specialist, Biodiversity Africa
March 2023 – present

- Botanical and Ecological Impact Assessments
- Alien Management Plans
- GIS Mapping

Environmental Consultant and Botanical Specialist, Coastal and Environmental Services (CES)
07 January 2019 – February 2023

- Ecological Impact Assessments
- Botanical Micro-siting
- GIS Mapping
- Basic Assessments
- Public Participation
- Environmental Auditing/Compliance Monitoring
- Environmental Management Programmes (EMPr)

ACADEMIC QUALIFICATIONS

Nelson Mandela University, Port Elizabeth
BSc Honours Botany (Environmental Management)
2018

Nelson Mandela Metropolitan University, Port Elizabeth
BSc Environmental Sciences
2015-2017

CONSULTING EXPERIENCE

Basic Assessments

- Basic Assessment Report (BAR) for the proposed Duyker Island Prospecting Right, North West Province (Role: Assistant Report Writer).
- Basic Assessment Report (BAR) for the proposed Fairview Sand Mine near Port Alfred, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the proposed Kareekrans Boerdery Agricultural Development near Kirkwood, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the proposed Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province (Role: Report Writer).
- Basic Assessment Report (BAR) for the Proposed Private Jetty in Bushman's Estuary near Kenton-On-Sea, within the Eastern Cape Province (Role: Report Writer).

Ecological Impact Assessments and Related Work

- ZMY Steel Traders (Pty) Ltd., Steel Recycling Plant, Zone 5 of the Coega SEZ, Eastern Cape Province (Role: Ecological Specialist and Ecological Chapter Writer).
- Ecological Impact Assessment for the proposed Kareekrans Boerdery Agricultural Development near Kirkwood Eastern Cape Province (Role: Botanical specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province – Ecological Impact Assessment and Report Writing (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Uitsig Boerdery Trust Citrus Development near Kirkwood, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).

- Ground Truthing Survey for Aloe bowiea on Portion 2 of Farm 683 for the proposed Uitsig Boerdery Trust Citrus Development near Kirkwood, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Mosselbankfontein Coastal Dune and Ecological Impact Assessment near Witsand, Western Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Mangrove Forest Survey for the Kenmare Biodiversity Management Plan, Topuito, Mozambique (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Refele Village Sports Facility, Mount Fletcher, Elundini Local Municipality, Eastern Cape Province of South Africa (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Hamburg Quarry Expansion, R72, Ngqushwa Local Municipality (Role: Lead Report Writer).
- Ecological Opinion and Site Sensitivity Report for the proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment Report for the proposed Edendale Quarry, R56, Matatiele Local Municipality, Eastern Cape Province (Role: Report Writer).
- Ecological Impact Assessment for the proposed TWFT Piggery near Tsitsikamma, Koukama Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Oudtshoorn Cemetery Expansion, Oudtshoorn Local Municipality, Western Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Tyolomnqa River Estuary Situation Assessment (Role: Assistant Report Writer).
- Ecological Opinion Letter for the Proposed Umsobomvu Infrastructure Development, Eastern and Northern Cape Provinces (DEFF Reference Number: 14/12/16/3/3/1/2040) (Role: Report Writer).
- Ecological Opinion Letter for the Proposed Coleskop Infrastructure Development, Eastern and Northern Cape Provinces (DEFF Reference Number: 14/12/16/3/3/1/2039) (Role: Report Writer).
- Quinera Estuary Draft Situation Assessment Report (Role: Report Writer).
- Ecological Impact Assessment for the Proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the Proposed Umoyilanga Ancillary Infrastructure near Uitenhage, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment Report for the proposed Marine Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micrositing Report for the Proposed Dassiesridge (Umoyilanga) Wind Energy Facility near Uitenhage, Nelson Mandela Bay Municipality and Sundays River Valley Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Screening Report for the Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Umsobomvu Substation, Concrete Tower Manufacturing Facilities and Temporary Laydown Area, situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).

- Botanical Micro-siting Report for the Eskom Infrastructure MTS situated in the Umsobomvu Local Municipality (Northern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the Proposed Coleskop Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-siting Report for the Proposed Umsobomvu Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the Proposed Ganspan Pering 132 kV Overhead Line near Pampierstand, North West and Northern Cape Provinces (Role: Botanical Specialist and Lead Report Writer).
- Botanical Micro-Siting Investigation for the R342 Road Upgrade Between Paterson And Addo, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Terrestrial Biodiversity Compliance Statement for the proposed Stedin College, Walmer, Nelson Mandela Bay Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment Report for a proposed Hippo Enclosure on Glen Boyd Farm, Makana Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the Proposed Senqu Rural Water Supply Scheme, Joe Gqabi District Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Environmental Management Site Specification for the Rehabilitation of Land within the Coastal Dune System Impacted by the Zone 10 Services Project, Coega SEZ, Eastern Cape Province (Role: Site Visit and Assistant Report Writer).
- Botanical Assessment Report for the proposed Agricultural Development on the Remainder of Erf 60845, Zone 1, East London Industrial Development Zone, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Botanical Impact Assessment for the proposed FG Gold Limited Baomahun Gold Project, Sierra Leone (Role: Botanical Specialist and Lead Report Writer).
- Biodiversity Management Plan for the proposed FG Gold Limited Baomahun Gold Project, Sierra Leone (Role: Lead Report Writer).
- Ecological Baseline Assessment for the proposed Jeffreys Bay Eco-Estate, Eastern Cape Province (Role: Botanical Specialist and Co-Author).
- Ecological Impact Assessment for the proposed Mulilo Newcastle Wind Energy Facility, KwaZulu-Natal Province (Role: Botanical Specialist and Assistant Report Writer).
- Ecological Impact Assessment for the proposed Ngxwabangu Wind Energy Facility and Grid Connection near Cofimvaba, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Ecological Impact Assessment for the proposed Umoyilanga Buffer Yard, Site Camp and Site Camp Access Road near Uitenhage, Nelson Mandela Bay Municipality and Sundays River Valley Local Municipality, Eastern Cape Province (Role: Botanical Specialist and Lead Report Writer).
- Terrestrial Biodiversity Compliance Statement for the proposed Reverse Osmosis Plant for the Matla Power Station near Kriel, Mpumalanga Province (Role: Lead Report Writer).
- Ecological Impact Assessment for the proposed Great Kei Ancillary Infrastructure located near Komga, Eastern Cape Province.

Environmental Auditing

- Khayamnandi Extension on Erven 114, 609, 590 and 24337, Bethelsdorp, within the Nelson Mandela Bay Municipality;

- Aberdeen Bulk Water Supply Phase 2, Dr Beyers Naude Local Municipality, Eastern Cape Province, South Africa;
- The Milkwoods Integrated Residential Development, Remainder Erf 1953, Victoria Drive, Walmer, Nelson Mandela Bay Municipality, Eastern Cape Province;
- Fishwater Flats Wastewater Treatment Works Refurbishment, Nelson Mandela Bay Municipality, Eastern Cape Province;
- The Refurbishment of the Kwanobuhle Wastewater Treatment Plant, Nelson Mandela Bay Municipality, Eastern Cape Province, South Africa; and
- Driftsands Sewer Collector Augmentation (Phase Ii), Within the Nelson Mandela Bay Municipality, Eastern Cape Province.

Geographical Information Systems (GIS) Mapping

- ZMY Steel Traders – Basic Assessment Report and Biophysical Mapping.
- Duyker Island – Prospecting Area Mapping & Biophysical Mapping.
- Fairview Sand Mine near Port Alfred, Eastern Cape Province – Biophysical and Layout Mapping.
- St Francis Coastal Protection Scheme – Kromme Estuary Functional Zone Mapping; Biophysical Mapping; and Sand Source Area Mapping.
- Kareekrans Boerdery Agricultural Development – Biophysical and Layout Mapping.
- Sitrusrand Dwarsleegte Farm Citrus Development – Biophysical and Layout Mapping.
- Marine Intake and Outfall Infrastructure Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa – Biophysical and Layout Mapping.
- Proposed Private Jetty in Bushman's Estuary near Kenton-On-Sea, within the Eastern Cape Province – Biophysical and Layout Mapping.
- Proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province – Biophysical and Layout Mapping.
- Tyolomnqa River Estuary Situation Assessment – Biophysical and Layout Mapping.
- Hamburg Quarry Expansion, R72, Ngqushwa Local Municipality – Biophysical and Layout Mapping.
- Refele Village Sports Facility, Mount Fletcher, Elundini Local Municipality, Eastern Cape Province of South Africa – Biophysical and Layout Mapping.
- The proposed Woodlands Dairy 22kV Overhead Line near Humandsdorp, Eastern Cape Province – Biophysical and Layout Mapping.
- Ecological Impact Assessment Report for the proposed Edendale Quarry, R56, Matatiele Local Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- The proposed TWFT Piggery near Tsitsikamma, Koukama Local Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- Tyolomnqa River Estuary Situation Assessment – Biophysical and Layout Mapping.
- Quinera Estuary Draft Situation Assessment Report – Biophysical and Layout Mapping.
- The Proposed Umoyilanga 132 kV Overhead Line in the Sundays River Valley Local Municipality and the Nelson Mandela Bay Municipality, Eastern Cape Province – Biophysical and Layout Mapping.
- The Proposed Umoyilanga Ancillary Infrastructure near Uitenhage, Eastern Cape Province – Biophysical and Layout Mapping.
- Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province - Biophysical and Layout Mapping.
- Proposed Umsobomvu Substation, Concrete Tower Manufacturing Facilities and Temporary Laydown Area, situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) - Biophysical and Layout Mapping.
- Eskom Infrastructure MTS situated in the Umsobomvu Local Municipality (Northern Cape Province) - Biophysical and Layout Mapping.

- Botanical Micro-siting Investigation for the Proposed Umsobomvu Wind Energy Facility situated in the Umsobomvu Local Municipality (Northern Cape Province) and the Inxuba Yethemba Local Municipality (Eastern Cape Province) - Biophysical and Layout Mapping.
- Proposed Ganspan Pering 132 kV Overhead Line near Pampierstand, North West and Northern Cape Provinces - Biophysical and Layout Mapping.
- The proposed Agricultural Development on the Remainder of Erf 60845, Zone 1, East London Industrial Development Zone, Eastern Cape Province - Biophysical and Layout Mapping.
- The proposed Reverse Osmosis Plant for the Matla Power Station near Kriel, Mpumalanga Province - Biophysical and Layout Mapping.

Public Participation process

- Duyker Island Prospecting Right, North West Province St Francis Coastal Protection Scheme.
- Fairview Sand Mine near Port Alfred, Eastern Cape Province.
- Kareekrans Boerdery Agricultural Development near Kirkwood Eastern Cape Province,
- Proposed Coastal Protection Scheme, St Francis Bay, Kouga Local Municipality, Eastern Cape Province; and
- Sitrusrand Dwarsleegte Farm Citrus Development near Kirkwood, Eastern Cape Province.
- Marine Intake and Outfall Infrastructure Servitude Project, Zone 10, Coega SEZ, Eastern Cape Province, South Africa.
- Proposed Hlaziya 400-132 kV Powerline Project (the MTS Integration Project) from close to Jeffrey's Bay to Grassridge, near the Coega Sez, Eastern Cape Province.

Social Auditing

- Malawi Millennium Development Trust – Resettlement Action Plan Implementation Auditing.