PROPOSED WATER SUPPLY AUGMENTATION BOREHOLE FOR THE PROPOSED MALABAR SITE WITHIN THE NELSON MANDELA BAY MUNICIPALITY, EASTERN CAPE

TERRESTRIAL BIODIVERSITY ASSESSMENT

FOR

Engineering and Advice Services (Pty) Ltd

BY

EnviroSci (Pty) Ltd
Dr Brian Colloty
1 Rossini Rd
Pari Park
Gqeberha
6070

DATE

20 March 2025

REVISION 1

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ACRONYMS

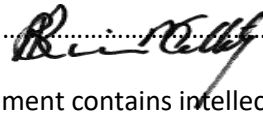
CARA	Conservation of Agricultural Resources Act
CBA	Critical Biodiversity Area
CSIR	Council for Scientific and Industrial Research
DFFE	Department of Forestry, Fisheries and Environment
DWAF	Department of Water Affairs and Forestry, now DWS
DWS	Department of Water and Sanitation formerly the Department of Water Affairs (DWA)
EA	Environmental Authorisation
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMPr	Environmental Management Plan/Programme Report
ESA	Ecological Support Area
GA	General Authorisation (WUA type)
GIS	Geographic Information System
HGM	Hydrogeomorphic
IHI	Integrated Habitat Index
IUCN	International Union of Conservation of Nature
NAEMP	National Aquatic *Ecological Monitoring Program*
NEMA	National Environmental Management Act (Act No. 107 of 1998).
NFEPA	National Freshwater Ecosystem Priority Atlas (Nel *et al*., 2011).
NWA	National Water Act (Act 36 of 1998)
NWCS	National Wetland Classification System
PES	Present Ecological State
RTU	Recognisable Taxonomic Unit
SANBI	South African National Biodiversity Institute
SCC	Species of Special Concern
SQ	Subquaternary Catchment
ToR	Terms of Reference
WRC	Water Research Commission
WUA	Water Use Authorisation
WUL	Water Use License
WULA	Water Use License Application

SPECIALIST REPORT DETAILS

This report has been prepared as per the requirements of the Environmental Impact Assessment Regulations and the National Environmental Management Act (Act 107 of 1998), any subsequent amendments and any relevant National and / or Provincial Policies related to biodiversity assessments. This also includes the minimum requirements as stipulated in the National Water Act (Act 36 of 1998), as amended in Water Use Licence Application and Appeals Regulations, 2017 Government Notice R267 in Government Gazette 40713 dated 24 March 2017, which includes the minimum requirements for a Wetland Delineation/ Aquatic Report.

Report prepared by: Dr. Brian Colloty Pr.Sci.Nat. (Ecology) / Member SAEIES and Wetland Society of South Africa.

Expertise / Field of Study: BSc (Hons) Zoology, MSc Botany (Rivers), Ph.D Botany Conservation Importance rating, and has worked as an independent consulting specialist from 1996 to present.
I, **Dr. Brian Michael Colloty** declare that this report has been prepared independently of any influence or prejudice as may be specified by the National Department of Forestry, Fisheries and Environment and or Department of Water and Sanitation

Signed:…  Date:…20 March 2025……

1 Introduction

Engineering and Advices Services (Pty) Ltd appointed EnviroSci (Pty) Ltd to conduct an biodiversity screening assessment and then impact assessment for the proposed WATER SUPPLY AUGMENTATION BOREHOLES FOR the proposed Malabar site within the Nelson Mandela Bay Municipality, Eastern Cape. This, located ca. 10 km west of the Gqeberha CBD. This report deals with the assessment of the proposed exploration borehole site including a potential disturbance area of approximately a 10m radius and any access tracks needed to the drilling site. Once the borehole is tested and found suitable, then an assessment will be conducted for the remaining infrastructure that will be required to connect the borehole/s to the municipal reticulation / reservoir network. This will then form part of a separate assessment / authorisation process.

The PROTOCOL FOR SPECIALIST ASSESSMENT AND MINIMUM REPORT CONTENT REQUIREMENTS FOR THE ENVIRONMENTAL IMPACTS ON BIODIVERSITY (Government Gazette 43110, 20 March 2020), superseding the Appendix 6 NEMA requirements, was also adhered to. This report thus meets the criteria to fulfil a Specialist Verification Assessment Report as the proposed site is located within an area rated as ***Very High*** sensitivity by the DFFE Screening Tool (See Screening Verification Statement – Appendix 2), related to the Terrestrial Environment (National Protected Area Expansion Strategy area & Critically Endangered Ecosystem). The Animal theme was rate High & Medium, while the Plant theme was rated as Medium.

Portions of the site are situated within the Algoa Sandstone Fynbos (FFs 29) vegetation unit, considered Vulnerable (NSBA, 2018) and listed also as a Threatened Ecosystems.

The findings of this report were supported by baseline data collected in a one day site-specific visits in December 2024 and March 20025. The surveys were conducted in early and mid-summer, with most of the expected plants flowering, with the exception of several of the autumn bulbs known to occur in the area, but these are referenced in pervious assessments in the area conducted in the region / site and included in this assessment, especially if listed in the screening tool results or are Listed / Protected Species with conservation concern.

Several important national and provincial scale conservation plans were also considered, with the results of those studies where relevant being included in this report. Most conservation plans are produced at a high level, so it is important to verify or ground truth the actual status of the study area. Groundtruthing of terrestrial resources in the project area was also important as the information was critical for the identification and mapping of important habitat where protected or endangered species are known to occur within the region.

Figure 1: The site boundary in relation to the surrounding environment and road infrastructure and the proposed exploration drilling site

1.1 Aims and objectives

The aim of this report is to provide a summary of the terrestrial (plant and animal) baseline information and identify any No-Go areas. The report also makes recommendations, regard which Boreholes are thus suitable to reduce, avoid or mitigate the potential negative impacts where possible. This would then also apply identifying any access to these areas should no roads or tracks exist.

Based on the information supplied, coupled with technical constraints, development options will then be selected for further in-depth assessment during the Environmental Authorisation (EA) process, following the required NEMA Biodiversity Assessment Protocols.

1.2 Assumptions and Limitations

To obtain a comprehensive understanding of the dynamics of both the flora and fauna of communities within a study site, as well as the status of endemic, rare or threatened species in any area, assessments should always consider investigations at different time scales (across seasons/years) and through replication. However, due to time constraints these long-term studies are not feasible and are thus mostly based on instantaneous sampling. This limitation is common to many impact assessment type studies, but the findings are deemed adequate for the purposes of decision-making support regarding project acceptability in this Phase, unless otherwise stated.

Therefore, due to the scope of the work presented in this report, a long-term investigation of the proposed site was not possible and as such not perceived as part of the Terms of Reference. However, a concerted effort was made to assess as much of the potential site, as well as make use of any supporting literature, species distribution data and aerial photography.

It should be emphasised that information, as presented in this document, only has reference to the study area as indicated on the accompanying maps. Therefore, this information cannot be applied to any other area without detailed investigation.

2 Terms of Reference

The methodology used in this assessment was developed in mind of the minimum requirements stipulated by DFFE and included the following aspects:

- Desktop analysis
- Site investigation
- Compilation of one draft and one final site report for the project which adheres to the following (this list is not exhaustive):
    - The Initial Site Sensitivity Verification reporting requirements for environmental themes set out in Government Gazette No. 43110 which was promulgated on 20 March 2020 in terms of section 24(5)(a) and (h) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA).
    - Identification and mapping of any discrepancies with the environmental sensitivity as identified on the national web based environmental screening tool.
    - Identification of sensitive areas to be avoided (including corresponding spatial data) and the determination of the respective buffers (if applicable) for the site.
    - Initial recommendations for the layout and allowable development footprint from a biodiversity perspective (including corresponding spatial data).
    - Recommendations regarding the areas to be utilised within the project site from a biodiversity perspective (including corresponding spatial data)
    - Assess the proposed development layout against the receiving environment in the form of an impact assessment
    - Provide any additional development guidelines and mitigations were relevant

3 Relevant legislation, policy and permit requirements

The following is pertinent to this study:

- Section 24 of The Constitution of the Republic of South Africa;
- Agenda 21 – Action plan for sustainable development of the Department of Environmental Affairs and Tourism (DEAT) 1998;
- National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998) inclusive of all amendments, as well as the NEM: Biodiversity Act;
- National Water Act, 1998 (Act No. 36 of 1998);
- Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983);
- Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002);
- National Forest Act (No. 84 of 1998); and
- National Heritage Resources Act (No. 25 of 1999) – could apply if cultural use or heritage is linked to any aquatic resources

NEMA and the CARA identify and categorise invasive plants together with associated obligations on the landowner. Several Category 1 & 2 invasive plants were observed in covering extensive areas of the site under investigation.

4 Methodology

4.1 Terrestrial fauna and flora

A desktop and literature review of the study area under investigation was conducted to collate as much information as possible prior to detailed fieldwork. The purpose of the desktop assessment was to rank relevant areas according to their ecological sensitivity and to identify areas of ecological risk prior to the site visit.

Other relevant literature, for example from the South African Biodiversity Information Facility, South African Herpetological Atlas Projects, INaturalist, relevant Red Data books, ordinances and all systematic bioregional / conservation plans) was also reviewed.

Fieldwork was limited to visual sightings by means of transect walks and plot-based sampling. Particular attention was paid to the occurrence of Red Data species or protected species as follows:

Vegetation units were sampled by means of the following techniques at each of the proposed development sites:

- Data collection was transect based and in the form of vegetation samples within selected reference areas to categorise the various vegetation units.
- Results from the data analysis provided a description of the dominant and typical species occurring for each site(s), and included:
    - Threatened, endemic or rare species, with an indication of the relative functionality and conservation importance of the specific community in the area under investigation (i.e. study area);
    - Invasive or exotic species present and localities in the area; and the
    - Functional and conservation importance of all vegetation communities in the investigation area.

Mammals were sampled by means of the following techniques:

- Fieldwork included visual sightings by means of transect walks to evaluate the presence of mammal taxa. During the site visit, specific attention was given to signs (droppings, burrows, vocalisations, etc.) of taxa and the presence of suitable habitat;
- A full list of species observed and expected to occur was made; and
- Specific reference was made to the occurrence of Red Data species.

Herpetofauna (reptiles and amphibians) were sampled by means of the following techniques:

- Visual observations;
- Installation of pitfall traps and two drift fence arrays;
- Active searching techniques; and
- Vocalisations (for amphibians).

Invertebrates were sampled by means of the following techniques:

- Random linear transects using a standard hand nets while focussing on specific indicator groups;

- All taxa caught, were identified to species level if appropriate taxonomic literature is available (as is the case for butterflies), otherwise the concept known as Recognisable Taxonomic Units (RTUs) or morphospecies will be applied;
- The presence of conservation important taxa was verified by intensive searching of likely habitat types or burrows.
- Additional information on faunal communities residing within the area of investigation was sourced from distributional data/records (both recent and historical), relevant literature, the private sector and other atlas projects.

The respective site areas, based on the species compositions of the vegetation analysis, topography and soils) were ranked into High / No-Go, Medium or Low classes in terms of their significance based on the Ecological Sensitivity and Conservation Importance. This was then used to rank the suitability of the proposed drilling sites, along with the potential impacts inclusive of site access, as the creation of tracks would impact on important or sensitive habitats, more so than the drilling site.

5 Project Description

- The Coega Development Corporation (CDC) on behalf of the NMBM (Nelson Mandela Bay Municipality) is seeking to drill exploratory boreholes (Phase 1) as part of its plan to augment the NMBM's water supply.
- Phase 1 is aimed at the exploratory activities only and some of the proposed exploratory boreholes could be located within 100 meters of watercourses within the Aspen Heights site (Figure 1).
- No drilling was however anticipated to be located within watercourses.
- Part of the rationale for drilling within 100 meters of watercourses was due to the high possibility of obtaining viable groundwater resources.
- The positioning of the boreholes was determined using desktop tools and analysis, including the geohydrology of the greater NMBM area.
- The borehole exploration portion of the project is only to ascertain the availability of water and perform water yield and quality tests.
- The outcome of the exploratory phase would then inform the siting, drilling, and equipping of production boreholes, which would then only include in the installation of pump houses, electrical supply, and access roads etc.
- The CDC and the NMBM will however ensure preventative measures will be in place to prevent environmental damage, including but not limited to environmental specifications that the contractor would be obligated to comply with, method statements for during exploration, an appointed SHE agent for site monitoring in respect to compliance and enforcement, and an Environmental Management Programme for this Phase 1 of the project.

6 Description of the affected environment

6.1 Climate

The site is located within the bimodal rainfall region of South Africa, with a Mean Annual Precipitation (MAP) for the coastal region at ca. 680 mm per annum. Annual average temperatures range between 7.6 and 25° C, with frost a rare occurrence of no more than 3 days per year (Mucina & Rutherford, 2007).

6.2 Geology and soils

The site is underlain calcareous sandstones of the Table Mountain Group, made of quarzitic sandstones, with areas containing quartzite sands. The proposed drilling site is located on higher lying area with weathered sand, that then dominated the species / habitat composition of the site.

6.3 Slope and aspect

The drilling site is located on an open plateau associated with the catchment divides and 150 mASL (Above Sea Level).

6.4 Terrestrial environment

The vegetation types defined by Mucina and Rutherford (2007), as amended in the National Vegetation Map 2012 and 2017/18 spatial information are shown in Figure 2, as Algoa Sandstone Fynbos (FFs 29), a form of Algoa Grassy Fynbos and is listed as Critically Endangered. Therefore considered a Threatened Ecosystem, as per the National Environmental Management: Biodiversity Act.

The typical species associated with the site were then more Algoa Sandstone Fynbos, dominated by a variety of grasses, Ericas and Proteas, and are only located within a narrow coastal belt between the Van Stadens River in the West and Summerstrand in the East, within NMBM are listed in Table 1 below.

Table 1: List of plant species in Algoa Sandstone Fynbos. (d=dominant, e=South African endemic, et=possibly endemic to a vegetation type)

Growth Form	Species
Shrubs	Tall Shrubs: *Protea eximia*, *P. neriifolia*, *P. repens*. Low Shrubs: *Agathosma hirta*, *A. ovata*, *Erica zeyheriana*, *Euryops ericifolius*, *Helichrysum appendiculatum*, *H. teretifolium*, *Leucadendron salignum*, *L. spissifolium* subsp. *phillipsii*, *Leucospermum cuneiforme*, *Protea cynaroides*, *P. foliosa*, *Tephrosia capensis*.
Herbs	Succulent Herb: *Crassula pellucida* subsp. *marginalis*
Graminoids:	Graminoids: *Aristida adscensionis* (d), *A. congesta* (d), *Cynodon dactylon* (d), *C. incompletus* (d), *Eragrostis obtusa* (d), *Panicum maximum* (d), *Tragus berteronianus* (d), *Cenchrus ciliaris*, *Cyperus capensis*, *Digitaria argyrograpta*, *Ehrharta calycina*, *Enneapogon scoparius*, *Eragrostis curvula*, *Eustachys paspaloides*, *Heteropogon contortus*, *Panicum deustum*, *Sporobolus fimbriatus*, *Stipa dregeana*, *Themeda triandra*.

The proposed drilling site is located near an existing track, or rather at an intersection of tracks, which traverse varying degrees of intact vegetation (Plate 1 & 2).

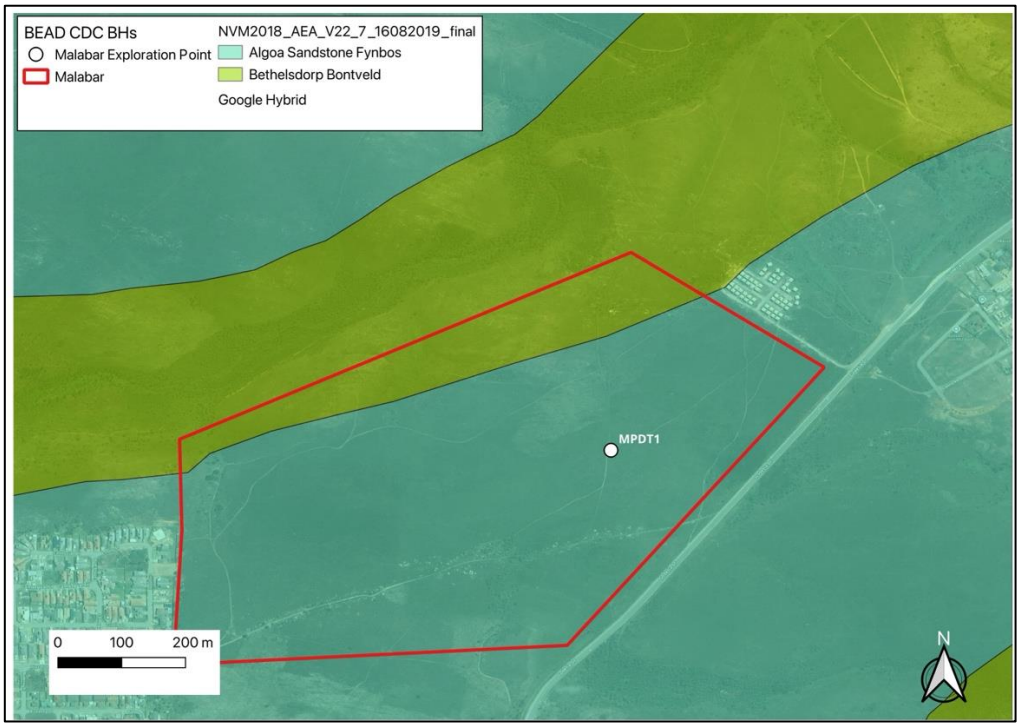


Figure 2: Vegetation South Africa VegMap as per Mucina & Rutherford (2007) revised 2018

Figure 3 indicates finer scale mapping of the site, with regard a vegetation and bioregional assessment conducted by SRK (2014) for NMBM, which indicates that the site is located within Malabar Grassy Fynbos. Species associated with this unit and observed on site included *Themeda triandra, Berkheya heterophylla, Passerina rigida, Leucospermum cuneiform, Aspalathus setacea, Syncarpa argentea, Euryops imbricatus*. Dense stands of *Bobartia orientalis* were also evident within the proposed site. Additional species observed on site included several Erica species listed in Table 3 as identified by the screening tool, as well as several Watsonias. All of which are protected by Provincial law.

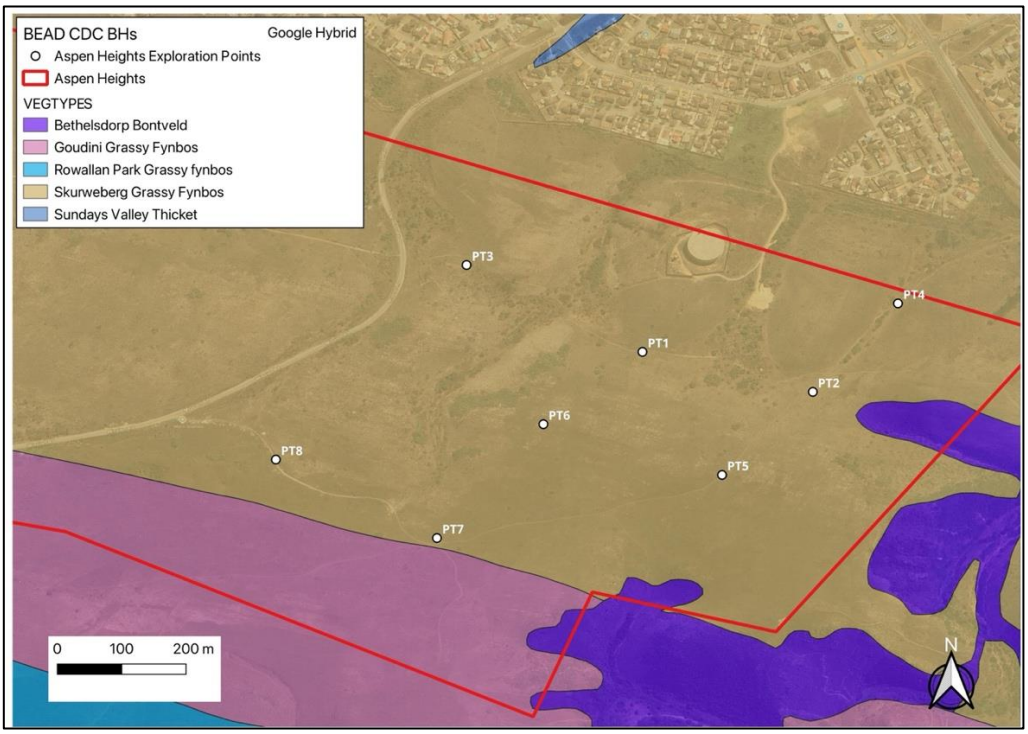


Figure 3: NMBM Vegetation map (SRK, 2014)

Plate 1: A view of the drilling site, dominated by Bobartia and Watsonia spp, with one of the access tracks in view

Plate 2: The access track leading to the west, which is more disturbed thus minimising disturbance to reach the site

Table 2, includes species highlighted by the DFFE Screening tool, that are rated as having a Medium Sensitivity within the site. These species were actively searched for, with several being observed.

Table 2: Sensitive plant species (Medium Sensitivity) that have the potential to occur within the site according to the DFFE Screening Tool Results.

Screening Tool Plant Species*	Conservation importance	Habitat	Observed Y/N Where No = Not observed or no suitable habitat
Agathosma gonaquensis	Critically Endangered B1ab(ii,iii,iv,v)	Plants grow in coastal grassland with fynbos elements.	Yes
Agathosma recurvvispina	Critically Endangered	Several known locations along the Baakens River	Similar species observed but will need a flowering specimen to confirm
Agathosma stenopetala	Vulnerable B1ab(iii)	Tertiary sands	No
Apodolirion macowanii	Vulnerable A3c; B1ab(i,ii,iii,iv,v)	Heavy clay soils in renosterveld or valley bushveld.	No
Argyrolobium crassifolium	Endangered A2c; B1ab	Grassland below 300mASL	No
Aristea nana	Rare	Kouga Mountains at high altitude	No
Bobartia macrocarpa	Vulnerable A2c;	Flat open grassy patches	Yes
Caputia scaposa var. addoensis	Endangered B1ab(iii)	Sandstone rocks.	Yes
Corpuscularia lehmannii	Critically Endangered B1ab	Quartzite outcrops	No
Disperis woodii	Vulnerable B2ab(i,ii,iii,iv,v)	It occurs in damp grassland, usually in open places with sandy soils, sometimes within grass tussocks, from sea level to 800 m.	No
Ellisochloa papposa	Vulnerable B1ab(ii,iii,iv,v)	This species of grass in only known from less than 10 locations. Declining due to alien plant invasion, in the Baviaanskloof and along the Van Stadens and Swartkops rivers, and quarrying and urban expansion around Uitenhage/Kariega	No
Erepsia arista	Endangered B1ab(iii)+2ab(iii)	It is localized to sandstone outcrops above perennial stream beds on lower mountain slopes	No
Erica chloroloma		Coastal dune fynbos	No
Erica glumiflora	Vulnerable B1ab(i,ii,iii,iv,v)	Only known from six coastal localities	Similar species observed but will need a flowering specimen to confirm
Erica zeyheriana	Vulnerable A4bc; B1ab+2ab	Remnant lowland grassy fynbos on sand.	No
Gymnosporia elliptica	Vulnerable B1ab	Coastal plains, with specimens recorded along the Baakens River in the past	Yes, but located just upstream of the proposed site
Holothrix longicornu	Critically Endangered	Lower sandstone slopes thought to be extinct	No
Justicia orchioides subsp. orchioides	Vulnerable B1ab(i,ii,iii,iv,v)	It occurs in open sandy areas, often in lime-rich soils	No
Lebeckia gracilis	Endangered	Coastal fynbos in deep, sandy soil below 300 mABSL	No
Lotononis acuminata	Vulnerable B1ab	Disturbed renosterveld and grassy fynbos	Yes
Rapanea gilliana	Endangered B1ab	Coastal sand dunes	No
Selago rotundifolia	Vulnerable B1ab	Forest margins or grassy flats	No
Senecio hirtifolius	Possibuly extinct	Little known on this species	No
Sensitive species 1252	Vulnerable	Coastal fynbos in deep, sandy soil below 300 mABSL	No
Sensitive species 141	Endangered B2ab	Coastal sands	No
Sensitive species 236	Vulnerable B1ab	Coastal forelands	Similar species observed but will need a flowering specimen to confirm
Sensitive species 249	Critically Endangered B1ab	Lowland fynbos in marshy drainage lines, 300 mASL.	Yes, but located just upstream of the proposed site
Sensitive species 264	Endangered B1ab	Flats and lower slopes in semi-arid areas	No
Sensitive species 448	Rare	Coastal fynbos in deep, sandy soil below 300 mABSL	No
Sensitive species 654	Rare	Coastal fynbos in deep, sandy soil below 300 mABSL	NO

Sensitive species 657	Vulnerable	Coastal fynbos in deep, sandy soil below 300 mABSL	No
Sensitive species 670	Rare	Coastal fynbos in deep, sandy soil below 300 mABSL	No
Sensitive species 991	Near Threatened B1ab	It is localized to open patches on deep, lime-rich sand and clay loams in mesic and xeric succulent thicket, 10-400 m.	No
Syringodea flanaganii	Vulnerable B1ab(i,ii,iii,iv,v)	Stony flats and slopes	Observed to the east of the study area in similar habitats
Marsilea schelpeana	Vulnerable B1ab(ii,iii)+2ab(ii,iii)	Margins of seasonal pools and along water courses from near sea level to about 200 m.	No
Centella tridentata var. hermanniifolia	Rare	Occurs on coastal flats and lower slopes.	Observed 300m from the drilling site
Sensitive species 1268	Vulnerable	Coastal fynbos in deep, sandy soil below 300 mABSL	No
Sensitive species 588	Vulnerable	Coastal fynbos in deep, sandy soil below 300 mABSL	No

*Due to the sensitivity of some of the species, the names of which are not allowed to be shown

Table 3, includes the faunal species observed during this assessment, none of which are considered sensitive or conservation needy. With regards mammal species, Species 5, listed by the DFFE Screening Tool, is unlikely to occur within the site due to lack of habitat and hunting/disturbance pressure or are avifaunal species and will move from the site once any activities commence.

No other animals were observed within the site, but it can be assumed that Snakes, Mongoose and various mice/rats, would be present.

Table 3: Faunal species observed within the site, previously recorded or likely to occur in the general study area, together with the conservation status. ***Key =: Y = Observed; U = Unconfirmed, but within the distribution range***

Taxon	Common Name	RDB/SSC	Presence
Amphibians			
Amietophrynus pardalis	Eastern Leopard Toad	PNCO, IUCN LC	U
Amietophrynus rangeri	Raucous Toad	PNCO, IUCN LC	U
Breviceps adspersus pentheri	Penther's Rain Frog	PNCO, IUCN LC	U
Cacosternum boettgeri	Common caco	PNCO, IUCN LC	U
Cacosternum nanum	Bronze Caco	PNCO, IUCN LC	U
Hyperolius marmoratus	Painted Reed Frog	PNCO, IUCN LC	U
Kassina senegalensis	Bubbling Kassina	PNCO, IUCN LC	U
Semnodactylus wealii	Rattling Frog	PNCO, IUCN LC	U
Strongylopus fasciatus	Striped Stream Frog	PNCO, IUCN LC	U
Strongylopus grayii	Clicking Stream Frog	PNCO, IUCN LC	U
Tomopterna delalandii	Cape Sand Frog	PNCO, IUCN LC	U
Vandijkophrynus angusticeps	Cape sand Toad	PNCO, IUCN LC	U
Xenopus laevis	Common Platanna	PNCO, IUCN LC	U
Reptiles			
Acontias gracilicauda	Thin tailed legless skink	PNCO, IUCN LC	U
Acontias lineicauda	Algoa legless skink	PNCO, IUCN NT	U
Acontias meleagris orientalis	Eastern legless skink	PNCO, IUCNLC	U
Acontias percivali tasmani	Tasman's legless skink	PNCO, IUCN LC	U
Agama atra	Southern rock agama	PNCO, IUCN LC	U
Aspidelapse lubricus	Cape coral snake	PNCO, IUCN LC	U

Bitis arietans	Puff adder	PNCO, IUCN LC	Y
Bradypodion ventrale	Southern Dwarf Chameleon	PNCO, IUCN LC, CITIES 2	U
Causus rhombeatus	Night adder	PNCO, IUCN LC	U
Chersina angulata	Angulate tortoise	PNCO, IUCN LC, CITIES 2	U
Cordylus cordylus	Cape girdled lizard	PNCO, IUCN LC, CITIES 2	U
Cordylus tasmani	Tasman's girdled lizard	CITES 2 ,PNCO, IUCN VU	U
Crotaphopeltis hotamboeia	Herald snake	PNCO, IUCN LC	U
Dasypeltis scabra	Rhombic egg eater	PNCO, IUCN LC	U
Hemachatus haemachatus	Rinkhals	PNCO, IUCN LC	Y
Hemidactylus mabouia	Tropical house gecko	PNCO, IUCN LC	U
Lamprophis aurora	Aurora house snake	PNCO, IUCN LC	U
Lamprophis capensis	Brown house snake	PNCO, IUCN LC	U
Lamprophis fuscus	Yellow bellied house snake	PNCO, IUCN NT	U
Lamprophis inornatus	Olive house snake	PNCO, IUCN LC	U
Lycodonomorphus rufulus	Brown water snake	PNCO, IUCN LC	U
Naja nivea	Cape cobra	PNCO, IUCN LC	U
Nucras intertexta	Spotted Sandveld Lizard	PNCO	U
Pelomedusa subrufa	Marsh terrapin	PNCO, IUCN LC	U
Philothamnus natalensis occidentalus	Natal green snake	PNCO, IUCN LC	U
Psammophis notostictus	Karroo whip snake	PNCO, IUCN LC	U
Psammophylax rhombeatus	Rhombic skaapsteker	PNCO, IUCN LC	U
Pseudaspis cana	Mole snake	PNCO, IUCN LC	U
Stigmochelys pardalis	Leopard Tortoise	PNCO, IUCN LC CITIES 2	U
Trachylepis capensis	Cape skink	PNCO, IUCN LC	Y
Trachylepis homalcephala	Red sided skink	PNCO, IUCN LC	U
Trachylepis varia varie	Variable skink	PNCO, IUCN LC	U
Varanus albigularis	Rock Monitor	PNCO, IUCN LC CITIES 2	U
Varanus niloticus	Water Monitor	PNCO, IUCN LC CITIES 2	U
Mammals			
Amblysomus corriae	Fynbos golden mole	PNCO, IUCN NT	U
Amblysomus hittentotus	Hottentot Golden Mole	PNCO, IUCN DD	U
Aonyx capensis	African clawless otter	PNCO, IUCN LC	U
Atilax paludinosus	Marsh mongoose	PNCO, IUCN LC	U
Caracal caracal	Caracal	PNCO, IUCN LC	U
Cercopithecus pygerythrus	Vervet monkey	PNCO, IUCN LC	U
Chlorotalpa duthieae	Duthie's golden mole	PNCO, IUCN LC	U
Crocidura cyanea	Reddish-Grey Musk Shrew	PNCO, IUCN DD	U
Crocidura flavescens	Greater red musk shrew	PNCO, IUCN LC	U
Cryptomys hottentotus	African mole rat	PNCO, IUCN LC	Y
Cynictis penicillata	Yellow mongoose	PNCO, IUCN LC	Y
Dendromus melanotis	Grey climbing mouse	PNCO, IUCN LC	U
Dendromus mesomelas	Brant's climbing mouse	PNCO, IUCN LC	U
Felis cattus	Domestic cat	Alien	U
Felis silvestris	African wild cat	PNCO, IUCN LC	U
Galerella pulverulenta	Cape grey mongoose	PNCO, IUCN LC	U

Genetta genetta	Small spotted genet	PNCO, IUCN LC	U
Genetta tigrina	Large spotted genet	PNCO, IUCN LC	U
Georychus capensis	Cape mole rat	PNCO, IUCN LC	U
Graphiurus murinus	Woodland dormouse	PNCO, IUCN LC	U
Graphiurus ocularis	Spectacled dormouse	PNCO, IUCN LC	U
Herpestes ichneumon	Large grey mongoose	PNCO, IUCN LC	U
Hystrix africaeaustralis	Cape porcupine	PNCO, IUCN LC	U
Ictonyx striatus	Striped pole cat	PNCO, IUCN LC	U
Lepus saxatilis	Scrub hare	PNCO, IUCN LC	Y
Macroscelides proboscideus	Round eared elephant shrew	PNCO, IUCN LC	U
Mastomys natalensis	Natal multimammate mouse	PNCO, IUCN LC	U
Mellivora capensis	Honey badger	PNCO, IUCN CITES 3 NT	U
Micaelamys namaquensis	Namaqua rock mouse	LC	U
Mus minutoides	Pygmy mouse	LC	U
Mus musculus	House mouse	Alien	U
Myosorex varius	Forest Shrew	PNCO, IUCN DD	U
Neoromicia capensis	Cape serotine bat	PNCO, IUCN LC	U
Nycteris thebaica	Egyptian slit faced bat	PNCO, IUCN LC	U
Orycteropus afer	Aardvark	PNCO, IUCN LC	U
Otocyon megalotis	Bat eared fox	PNCO, IUCN LC	U
Otomys irroratus	Vlei rat	PNCO, IUCN LC	Y
Otomys unisulcatus	Bush vlei rat	PNCO, IUCN LC	Y
Panthera pardus	Leopard	PNCO, IUCN LC	U
Papio cynocephalus ursinus	Chacma baboon	PNCO, IUCN LC	U
Species 5		PNCO, IUCN CITES2 VU	U
Poecilogale albinucha	African striped weasel	PNCO, IUCN VU	U
Potamochoerus larvatus	Bush pig	PNCO, IUCN LC	U
Raphicerus campestris	Steenbok	PNCO, IUCNLC	U
Raphicerus melanotis	Grysbok	PNCO, IUCNLC	U
Rattus rattus	House rat	PNCO, IUCN LC	U
Rhabdomys pumilio	Four striped grass mouse	PNCO, IUCN LC	Y
Saccostomus campestris	Pouched mouse	PNCO, IUCNLC	U
Suncus infinitesimus	Least dwarf shrew	PNCO, IUCN E	U
Sylvicapra grimmia	Common duiker	PNCO, IUCN LC	U
Tragelaphus scriptus	Bush buck	PNCO, IUCN LC	U
Vulpes chama	Cape Fox	PNCO, IUCN LC	U

Where:

ARRSA = Atlas and Red List of the Reptiles of South Africa, Lesotho and Swaziland. 2014. Edited by Michael F. Bates, William R. Branch, Aaron M. Bauer, Marius Burger, Johan Marais, Graham J. Alexander & Marienne S. de Villiers. SANBI, Pretoria.

RDB, 2015 = Taylor MR, Peacock F, Wanless RM (eds) 2015. The 2015 Eskom Red Data Book of birds of South Africa, Lesotho and Swaziland. BirdLife South Africa, Johannesburg.

SABCA = Mecenero, S., J.B. Ball, D.A. Edge, M.L. Hamer, G.A. Hening, M. Krüger, E.L. Pringle, R.F. Terblanche & M.C. Williams (eds). 2013. Conservation assessment of butterflies of South Africa, Lesotho and Swaziland: Red List and atlas. Saftronics (Pty) Ltd., Johannesburg and Animal Demography Unit, Cape Town.

7 Site Sensitivity

Based on the findings of this study, the various habitats were ranked in terms of their sensitivity to development. Typically this is carried out using the following criteria, listed in order of importance, i.e., the habitat or vegetation unit:

- Contained Species of Special Concern (SSC)
- Habitat was protected under a form of legislation
- Exhibited a high degree of biodiversity
- Exhibited a limited degree of degradation
- A unique habitat that is not well represented within the region
- Provided an important ecosystem role or support system, e.g., ecological corridor

This approach has been formalised via the Species Environmental Impact Assessment Guidelines in support of the Terrestrial Plant and Animal Species protocols (July 2023). The guidelines provide detail for implementing relevant species protocols and in particular a method to determine the Site Ecological Importance or SEI. The SEI protocol used in this assessment provides a species and habitat ranking approach to assessing the importance and thus indirectly the sensitivity of a particular site. This was adapted from SANBI, 2020 Ver 3.1 2022. Table 4 indicates the Sensitivity Ratings definitions, while Table 5 indicates the results for each of the proposed drilling sites.

Note SEI is calculated as follows based on Section 8 of SANBI (2022):

Site Ecological Importance (SEI) is a standardised methodology to spatially identify the importance of a development site for species (SANBI 2020). SEI is considered to be a function of the biodiversity importance (BI) of the receptor (e.g. species of conservation concern, the vegetation/fauna community or habitat type present on the site20) and its resilience to impacts (receptor resilience [RR]) as follows:

SEI = BI + RR

BI in turn is a function of conservation importance (CI) and the functional integrity (FI) of the receptor as follows:

BI = CI + FI

Conservation importance (CI) is evaluated in accordance with recognised established internationally acceptable principles and criteria for the determination of biodiversity-related value, including the IUCN Red List of Species, Red List of Ecosystems and Key Biodiversity Areas (KBA; IUCN [2016]). Conservation importance is defined here as: 'The importance of a site for supporting biodiversity features of conservation concern present, e.g. populations of IUCN threatened and Near Threatened species (CR, EN, VU and NT), Rare species, range-restricted species, globally significant populations of congregatory species, and areas of threatened ecosystem types, through predominantly natural processes.'

Functional integrity (FI) of the receptor (e.g. the vegetation/ fauna community or habitat type) is defined here as the receptors' current ability to maintain the structure and functions that define it, compared to its known or predicted state under ideal conditions. Simply stated, FI is: '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.'

Receptor resilience (RR) is defined here as: '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.'

HOWEVER, DUE TO THE SMALL DRILLING DISTURBANCE FOOTPRINTS, THE RATINGS WERE APPLIED TO THE RESPECTIVE SITE IN TABLE 5 AND THEN THE AFFECT HABITATS WERE ASSESSED AND RATED

Table 4: Species and habitat sensitivity ratings definitions

Sensitivity Rating	Description
Very High	Avoidance mitigation – no destructive development activities should be considered. Offset mitigation not accept- able/not possible (i.e. last remaining populations of species, last remaining good condition patches of ecosystems/ unique species assemblages). Destructive impacts for species/ecosystems where persistence target remains.
High	Avoidance mitigation wherever possible. Minimisation mitigation – changes to project infrastructure design to limit the amount of habitat impacted; limited development activities of low impact acceptable. Offset mitigation may be required for high impact activities.
Medium	Minimisation and restoration mitigation – development activities of medium impact acceptable followed by appropriate restoration activities.
Low	Minimisation and restoration mitigation – development activities of medium to high impact acceptable followed by appropriate restoration activities.
Very Low	Minimisation mitigation – development activities of medium to high impact acceptable and restoration activities may not be required.

Table 5: Site Sensitivity rating results, as per SANBI (2020). (BI = Biodiversity Importance, RR = receptor resilience)

DRILING SITE	POTENTIAL ACCESS	HABITAT	CONSERVATION IMPORTANCE	FUNCTIONAL INTEGRITY	RECEPTOR RESILIENCE	SITE ECOLOGICAL IMPORTANCE
MPDT 1	Yes along vehicle track	Algoa Grassy Fynbos which is mostly intact and contains several listed / protected species and the species listed in the DFFE Screening tool, thus should be avoided, if no access or disturbance is present.	High – confirmation of 3 Species of Conservation Concern (SCC)	Medium Major threats include AIPs, illegal dumping and too frequent grazing	Medium Likely to recover slowly (more than 10 years), in particular the sensitive succulent species	Medium BI= Medium RR= Medium

An adjacent area, with no SCC was identified, and is located at -33.9246422 S 25.5169408 E, 5m west of the proposed drilling site, which can be accessed via the same track from the Malabar suburb, which is highly disturbed as it is used for solid waste disposal (See Figure 4). Should both the recommendations be adhered to then the SEI could in all likelihood be reduced to LOW.

8 Impact Assessment

During this investigation it was found that the greatest number of impacts could occur as a result of the direct loss of vegetation, vegetation that is considered Vulnerable and or contains high numbers of listed / protected plant species. Due to the nature and scale of the activities, a limited to no impact is anticipated on faunal groups as most are mobile and would disperse. Similarly impacts on habitat fragmentation, Critical Biodiversity Areas or Protected Areas Expansion are also not anticipated in this phase of the project as none occur.

With regard to the decommissioning phase, this was assessed as the impacts would remain the same as that shown in the construction phase. However there is a degree of lack of irreversibility of the impacts due to the nature of the soils, topography and vegetation having moderate long term rehabilitation potential but this was considered in the Receptor Resilience assessment in the Sensitivity rating of the sites.

8.1 No-Go Option

With regard the No-Go option it is assumed that the site would remain functional and were impacts already occur continue to degrade due to the prevalence of grazing, solid waste dumping, and alien encroachment. This would continue into the long-term with a Moderate intensity that would impact on the regional scale due to loss of important habitat. Little in the way of mitigation could be proposed other than controlling access to the area and Alien Invasive Species management.

8.2 Terrestrial Impacts

8.2.1 Impact 1: Loss of vegetation and in particular species / habitats that are listed as Critically Endangered and or Vulnerable

Impact 1	Loss of vegetation and in particular species / habitats that are listed as Critically Endangered and or Vulnerable	
Issue	The destruction of habitats that are listed as Critically Endangered and or Vulnerable	
Description of Impact		
During the drilling activities, vegetation clearing will be required. This could then result, although on small scale in a loss of important habitats / vegetation units. Based on the sensitivity assessment of the drilling site, was found acceptable with mitigation listed below		
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Construction	
Criteria	**Without Mitigation**	**With Mitigation**
Intensity	High	Medium
Duration	Long-term	Medium-Term
Extent	Regional	Local
Consequence	Very High	Low
Probability	Probable	Possible
Significance	Very High -	Very Low -
Degree to which impact can be reversed	Medium	

Degree to which impact may cause irreplaceable loss of resources	Medium	
Degree to which impact can be mitigated	High -	
Mitigation actions		
The following measures are recommended:	• Drilling should be shifted 5m west to 33.9246422 S 25.5169408 E. This would then avoid loss of listed / protected plants and trees. • All temporary works areas (laydowns and camps) can only be placed in previously disturbed areas within the site, and this includes any temporary access roads or storage areas. • All drilling fluids and pump test water, especially with fines / sediment must be contained and not allowed to spill into the general area. If this does happen then these soils must be removed and be rehabilitated. • Alien vegetation management must be initiated at the beginning of the construction period and must extend into any remaining areas into the operation phase on the Tankatara Farm. • Several listed and protect plant species are still found directly adjacent the tracks and roads that can be used, and these should be pegged so that these can be avoided. • It is recommended as best practice to conduct a search and rescue programme for any listed or protected plants species, although this consideration was not used to reduce the potential impact ratings. Any plants removed could easily be relocated into areas that will need rehabilitation post construction.	
Monitoring		
The following monitoring is recommended:	• The revegetation of any temporary sites as well as any previously degraded areas must begin from the onset of the project, with the involvement of a botanist to assist with the revegetation specifications. • Regeneration of alien vegetation must be monitored once all areas have been cleared, forming part of a long-term alien vegetation management plan	
Cumulative impacts		
Nature of cumulative impacts	Additional loss of sensitive vegetation / habitats within the study area must be assessed in the EIA phase of the overall project, but any additional loss of important species / habitats would be High.	
Rating of cumulative impacts	**Without Mitigation**	**With Mitigation**
	High -	Low -

8.2.2 Impact 2: Loss of habitat containing protected species or Species of Special Concern

Impact 2	**Loss of habitat containing protected species or Species of Special Concern**
Issue	Based on previous on the observations made, it was evident that several protected and listed species do occur and these can be avoided with the inclusion of the proposed no-go areas.

Description of Impact		
During the drilling activities, vegetation clearing will be required. This could then result, although on small scale in a loss of listed and protected species. Most of the listed plant species observed are considered Near Threatened or Vulnerable and are endemic to NMBM.		
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Construction	
Criteria	**Without Mitigation**	**With Mitigation**
Intensity	High	Medium
Duration	Long-term	Medium-Term
Extent	Regional	Local
Consequence	Very High	Low
Probability	Probable	Possible
Significance	Very High -	Very Low -
Degree to which impact can be reversed	Medium	
Degree to which impact may cause irreplaceable loss of resources	Medium	
Degree to which impact can be mitigated	High -	
Mitigation actions		
The following measures are recommended:	• Drilling should be shifted 5m west to 33.9246422 S 25.5169408 E. This would then avoid loss of listed / protected plants and trees. • All temporary works areas (laydowns and camps) can only be placed in previously disturbed areas within the site, and this includes any temporary access roads or storage areas. • All drilling fluids and pump test water, especially with fines / sediment must be contained and not allowed to spill into the general area. If this does happen then these soils must be removed and be rehabilitated. • Alien vegetation management must be initiated at the beginning of the construction period and must extend into any remaining areas into the operation phase on the Tankatara Farm. • Several listed and protect plant species are still found directly adjacent the tracks and roads that can be used, and these should be pegged so that these can be avoided. • It is recommended as best practice to conduct a search and rescue programme for any listed or protected plants species, although this consideration was not used to reduce the potential impact ratings. Any plants removed could easily be relocated into areas that will need rehabilitation post construction.	
Monitoring		
The following monitoring is recommended:	• The revegetation of any temporary sites as well as any previously degraded areas must begin from the onset of the project, with the involvement of a botanist to assist with the revegetation specifications.	

	• Regeneration of alien vegetation must be monitored once all areas have been cleared, forming part of a long-term alien vegetation management plan	
Cumulative impacts		
Nature of cumulative impacts	Additional loss of sensitive vegetation / habitats within the study area must be assessed in the EIA phase of the overall project, but any additional loss of important species / habitats would be High.	
Rating of cumulative impacts	**Without Mitigation**	**With Mitigation**
	High -	Low -

8.2.3 Impact 3: Loss of any critical corridors and connect habitats that are linked to any future conservation plans or protected areas expansion

Impact 3	**Loss of any critical corridors and connect habitats that are linked to any future conservation plans or protected areas expansion**	
Issue	The destruction of habitats that are listed form part of any ecological corridors, Critical Biodiversity Areas or National Protected Area Expansion Strategy area (NPAES)	
Description of Impact		
No terrestrial Critical Biodiversity Areas and or Ecological Support areas will be affected. Further due to scale of the exploration phase, this impact would seem to be negligible and will be assessed in more detail once the project proceeds and the final boreholes sites have been identified		
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Construction	
Criteria	**Without Mitigation**	**With Mitigation**
Intensity	Medium	Medium
Duration	Medium-Term	Medium-Term
Extent	Local	Local
Consequence	Low	Low
Probability	Possible	Possible
Significance	Very Low -	Very Low -
Degree to which impact can be reversed	High	
Degree to which impact may cause irreplaceable loss of resources	Low	
Degree to which impact can be mitigated	High	
Mitigation actions		
The following measures are recommended:	• Drilling should be shifted 5m west to 33.9246422 S 25.5169408 E. This would then avoid loss of listed / protected plants and trees. • All temporary works areas (laydowns and camps) can only be placed in previously disturbed areas within the site, and this includes any temporary access roads or storage areas. • All drilling fluids and pump test water, especially with fines / sediment must be contained and not allowed to spill into the general area. If this does happen then these soils must be removed and be rehabilitated.	

	• Alien vegetation management must be initiated at the beginning of the construction period and must extend into any remaining areas into the operation phase on the Tankatara Farm. • Several listed and protect plant species are still found directly adjacent the tracks and roads that can be used, and these should be pegged so that these can be avoided. • It is recommended as best practice to conduct a search and rescue programme for any listed or protected plants species, although this consideration was not used to reduce the potential impact ratings. Any plants removed could easily be relocated into areas that will need rehabilitation post construction.	
Monitoring		
The following monitoring is recommended:	• The revegetation of any temporary sites as well as any previously degraded areas must begin from the onset of the project, with the involvement of a botanist to assist with the revegetation specifications. • Regeneration of alien vegetation must be monitored once all areas have been cleared, forming part of a long-term alien vegetation management plan	
Cumulative impacts		
Nature of cumulative impacts	Additional loss of sensitive vegetation / habitats within the study area must be assessed in the EIA phase of the overall project, but any additional loss of important species / habitats would be High.	
Rating of cumulative impacts	**Without Mitigation**	**With Mitigation**
	High -	Low -

8.2.4 Impact 4: The potential spread of alien vegetation

Impact 4	The potential spread of alien vegetation	
Issue	Several Alien Invasive Species were found present near the site, and included the following species *Acacia mearnsii, Acacia longifolia* *Acacia cyclops, Eucalyptus spp* *Agave sisalana* These species in particular have the ability to alter vegetation units and drive down habitat complexity and species diversity.	
Description of Impact		
During construction, vegetation clearing for development will be required. This disturbance then allows for the alien species to colonise the soils, if left unmanaged.		
Type of Impact	Indirect	
Nature of Impact	Negative	
Phases	Construction	
Criteria	**Without Mitigation**	**With Mitigation**
Intensity	High	Medium
Duration	Long-term	Medium-Term
Extent	Regional	Local
Consequence	Very High	Low
Probability	Probable	Possible
Significance	Very High -	Very Low -
Degree to which impact can be reversed	Medium	
Degree to which impact may cause irreplaceable loss of resources	Medium	
Degree to which impact can be mitigated	High -	
Mitigation actions		
The following measures are recommended:	• All temporary works areas (laydowns and camps) can only be placed in previously disturbed areas within the site, and this includes any temporary access roads or storage areas. • Alien vegetation management must be initiated at the beginning of the construction period and must extend into any remaining areas into the operation phase on the Tankatara Farm.	
Monitoring		
The following monitoring is recommended:	• The revegetation of any temporary sites as well as any previously degraded areas must begin from the onset of the project, with the involvement of a botanist to assist with the revegetation specifications. • Regeneration of alien vegetation must be monitored once all areas have been cleared, forming part of a long-term alien vegetation management plan	
Cumulative impacts		
Nature of cumulative impacts	Additional loss of sensitive vegetation / habitats within the study area must be assessed in the EIA phase of the overall project, but any additional loss of important species / habitats would be High.	
Rating of cumulative impacts	**Without Mitigation**	**With Mitigation**
	High -	Low -

Conclusion and Recommendations

During this assessment, several sensitive habitats were observed associated described vegetation units known in the region and as anticipated contained most of the listed and or protected species associated with these habitats. Habitat that in themselves is listed or are considered Vulnerable. Although there is a close similarity in the delineation the DFFE rated systems when compared to the actual extent of the observed systems, a finer rating of the drilling site and potential accessed was needed. The current site and several access options are located in areas that would result in the disturbance of near natural areas with a number of listed and protected species.

For this reason the following recommendation is reiterated, that the site be relocated 5m to the west 33.9246422 S 25.5169408 E, and only the following access road should be used due to the high degree of disturbance already exists as shown in Figure 4 below:

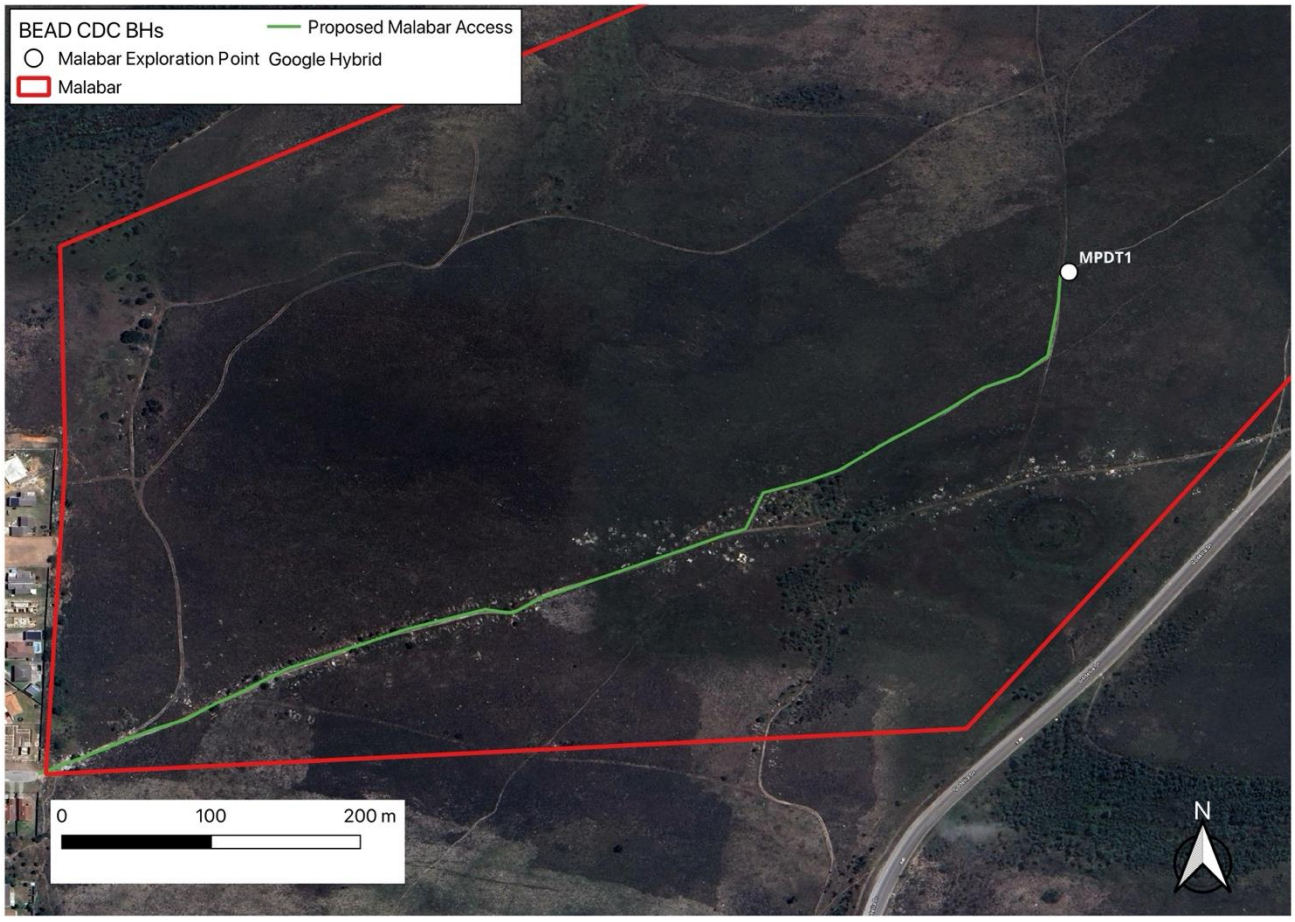


Figure 4: Proposed access route along existing track with a high degree of disturbance (illegal solid waste disposal)

9 References

- Agenda 21 – Action plan for sustainable development of the Department of Environmental Affairs and Tourism (DEAT) 1998.
- Agricultural Resources Act, 1983 (Act No. 43 of 1983).
- Driver A., Sink, K.J., Nel, J.N., Holness, S., Van Niekerk, L., Daniels, F., Jonas, Z., Majiedt, P.A., Harris, L. & Maze, K. 2012. National Biodiversity Assessment 2011: An assessment of South Africa's biodiversity and ecosystems. Synthesis Report. South African National Biodiversity Institute and Department of Environmental Affairs, Pretoria.
- Du Preez, L. And Carruthers, V. 2009. A Complete Guide To Frogs Of Southern Africa. Struik Nature, Cape Town
- IUCN (2019). Red List of Threatened Species. IUCN Species Survival Commission, Cambridge Available: http://www.iucnredlist.org/
- Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002), as amended.
- Mucina, L., & Rutherford, M.C., 2006. The Vegetation of South Africa, Lesotho and Swaziland, Strelitzia 19, South Africa.
- National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended.
- National Water Act, 1998 (Act No. 36 of 1998), as amended
- Ramsar Convention, (1971) including the Wetland Conservation Programme (DEAT) and the National Wetland Rehabilitation Initiative (DEAT, 2000).
- South African Bird Atlasing Project 2 (SABAP2). 2017. Animal Demographic Unit. Available online: http://sabap2.adu.org.za/
- Stuart, C and Stuart, T. 2007. A field guide to the mammals of Southern Africa. Struik Nature, Cape Town.

10 Appendix 1 – Copy of Specialist CV

CURRICULUM VITAE
Dr Brian Michael Colloty
7212215031083

1 Rossini Rd
Pari Park
Port Elizabeth, 6070
brianc@envirosci.co.za
083 498 3299

Profession: Ecologist & Environmental Assessment Practitioner (Pr. Sci. Nat. 400268/07)
Member of the South African Wetland Society
Specialisation: Ecology and conservation importance rating of inland habitats, wetlands, rivers & estuaries
Years experience: 29 years

SKILLS BASE AND CORE COMPETENCIES

- 29 years experience in environmental sensitivity and conservation assessment of aquatic and terrestrial systems inclusive of Index of Habitat Integrity (IHI), WET Tools, Riparian Vegetation Response Assessment Index (VEGRAI) for Reserve Determinations, estuarine and wetland delineation throughout Africa. Experience also includes biodiversity and ecological assessments with regard sensitive fauna and flora, within the marine, coastal and inland environments. Countries include Mozambique, Kenya, Namibia, Central African Republic, Zambia, Eritrea, Mauritius, Madagascar, Angola, Ghana, Guinea-Bissau and Sierra Leone. Current projects also span all nine provinces in South Africa.
- 15 years experience in the coordination and management of multi-disciplinary teams, such as specialist teams for small to large scale EIAs and environmental monitoring programmes, throughout Africa and inclusive of marine, coastal and inland systems. This includes project and budget management, specialist team management, client and stakeholder engagement and project reporting.
- GIS mapping and sensitivity analysis

TERTIARY EDUCATION

- 1994: B Sc Degree (Botany & Zoology) - NMU
- 1995: B Sc Hon (Zoology) - NMU
- 1996: M Sc (Botany - Rivers) - NMU
- 2000: Ph D (Botany – Estuaries & Mangroves) – NMU

EMPLOYMENT HISTORY

- 1996 – 2000 Researcher at Nelson Mandela University – SAB institute for Coastal Research & Management. Funded by the WRC to develop estuarine importance rating methods for South African Estuaries
- 2001 – January 2003 Training development officer AVK SA (reason for leaving – sought work back in the environmental field rather than engineering sector)
- February 2003- June 2005 Project manager & Ecologist for Strategic Environmental Focus (Pretoria) – (reason for leaving – sought work related more to experience in the coastal environment)
- July 2005 – June 2009 Principal Environmental Consultant Coastal & Environmental Services (reason for leaving – company restructuring)
- June 2009 – August 2018 Owner / Ecologist of Scherman Colloty & Associates cc
- August 2018 Owner / Ecologist - EnviroSci (Pty) Ltd

SELECTED RELEVANT PROJECT EXPERIENCE

World Bank IFC Standards

- Kenmare Mining Pilivilli, Mozambique - wetland (mangroves, peatlands and estuarine) assessment and biodiversity offset analysis - current
- Botswana South Africa 400kv transmission line (400km) biodiversity assessment on behalf of Aurecon - current
- Farim phosphate mine and port development, Guinea Bissau – biodiversity and estuarine assessment on behalf of Knight Piesold Canada – 2016.
- Tema LNG offshore pipeline EIA – marine and estuarine assessment for Quantum Power (2015).
- Colluli Potash South Boulder, Eritrea, SEIA marine baseline and hydrodynamic surveys co-ordinator and coastal vegetation specialist (coastal lagoon and marine) (on-going).
- Wetland, estuarine and riverine assessment for Addax Biofeuls Sierra Leone, Makeni for Coastal & Environmental Services: 2009
- ESHIA Project manager and long-term marine monitoring phase coordinator with regards the dredge works required in

Luanda bay, Angola. Monitoring included water quality and biological changes in the bay and at the offshore disposal outfall site, 2005-2011

South African

- Plant and animal search and rescue for the Karusa and Soetwater Wind Farms on behalf of Enel Green Power, Current
- Plant and animal search and rescue for the Nxuba, Oyster Bay and Garob Wind Farms on behalf of Enel Green Power, 2018 - 2019
- Plant and Animal Search and Rescue for the Port of Ngqura, Transnet Landside infrastructure Project, with development and management of on site nursery, Current
- Plant and Animal Search and Rescue for the Port of Ngqura, OTGC Tank Farm Project (2019)
- Plant search and rescue, for NMBM (Driftsands sewer, Glen Hurd Drive), Department of Social Development (Military veterans housing, Despatch) and Nxuba Wind Farm, - current
- Wetland specialist appointed to update the Eastern Cape Biodiversity Conservation Plan, for the Province on behalf of EOH CES appointment by SANBI – current. This includes updating the National Wetland Inventory for the province, submitting the new data to CSIR/SANBI.
- CDC IDZ Alien eradication plans for three renewable projects Coega Wind Farm, Sonop Wind Farm and Coega PV, on behalf of JG Afrika (2016 – 2017).
- Nelson Mandela Bay Municipality Baakens River Integrated Wetland Assessment (Inclusive of Rehabilitation and Monitoring Plans) for CEN IEM Unit - Current
- Rangers Biomass Gasification Project (Uitenhage), biodiversity and wetland assessment and wetland rehabilitation / monitoring plans for CEM IEM Unit – 2017
- Gibson Bay Wind Farm implementation of the wetland management plan during the construction and operation of the wind farm (includes surface / groundwater as well wetland rehabilitation & monitoring plan) on behalf of Enel Green Power - 2018
- Gibson Bay Wind Farm 133kV Transmission Line wetland management plan during the construction of the transmission line (includes wetland rehabilitation & monitoring plan) on behalf of Eskom – 2016.
- Tsitsikamma Community Wind Farm implementation of the wetland management plan during the construction of the wind farm (includes surface / biomonitoring, as well wetland rehabilitation & monitoring plan) on behalf of Cennergi – completed May 2016.
- Alicedale bulk sewer pipeline for Cacadu District, wetland and water quality assessment, 2016
- Mogalakwena 33kv transmission line in the Limpopo Province, on behlaf of Aurecon, 2016
- Cape St Francis WWTW expansion wetland and passive treatment system for the Kouga Municipality, 2015
- Macindane bulk water and sewer pipelines wetland and wetland rehabilitation plan 2015
- Eskom Prieska to Copperton 132kV transmission line aquatic assessment, Northern Cape on behalf of Savannah Environmental 2015.
- Joe Slovo sewer pipeline upgrade wetland assessment for Nelson Mandela Bay Municipality 2014
- Cape Recife Waste Water Treatment Works expansion and pipeline aquatic assessment for Nelson Mandela Bay Municipality 2013
- Pola park bulk sewer line upgrade aquatic assessment for Nelson Mandela Bay Municipality 2013
- Transnet Freight Rail – Swazi Rail Link (Current) wetland and ecological assessment on behalf of Aurecon for the proposed rail upgrade from Ermelo to Richards Bay
- Eskom Transmission wetland and ecological assessment for the proposed transmission line between Pietermaritzburg and Richards Bay on behalf of Aurecon (2012).
- Port Durnford Exarro Sands biodiversity assessment for the proposed mineral sands mine on behalf of Exxaro (2009)
- Fairbreeze Mine Exxaro (Mtunzini) wetland assessment on behalf of Strategic Environmental Services (2007).
- Wetland assessment for Richards Bay Minerals (2013) – Zulti North haul road on behalf of RBM.
- Biodiversity and aquatic assessments for 118 renewable projects in the past 9 years in the Western, Eastern, Northern Cape, KwaZulu-Natal and Free State provinces. Clients included RES-SA, Red Cap, ACED Renewables, Mainstream Renewable, GDF Suez, Globeleq, ENEL, Abengoa amongst others. Particular aquatic sensitivity assessment and Water Use License Applications on behalf of Mainstream Renewable Energy (8 wind farms and 3 PV facilities.), Cennergi / Exxaro (2 Wind farms), WKN Wind current (2 wind farms & 2 PV facilities), ACED (6 wind farms) and Windlab (3 Wind farms) were also conducted. Several of these projects also required the assessment of the proposed transmission lines and switching stations, which were conducted on behalf of Eskom.
- Vegetation assessments on the Great Brak rivers for Department of Water and Sanitation, 2006 and the Gouritz Water Management Area (2014)
- Proposed FibreCo fibre optic cable vegetation assessment along the PE to George, George to Graaf Reinet, PE to Colesburg, and East London to Bloemfontein on behalf of SRK (2013-2015).

11 Appendix 2: Site verification report, as per the DFFE Screening Tool guideline

Site verification report

Government Notice No. 645, dated 10 May 2019, includes the requirement that an Initial Site Sensitivity Verification Report must be produced for a development footprint. As per Part 1, Section 2.3, the outcome of the Initial Site Verification must be recorded in the form of a report that-

(a) Confirms or disputes the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool;
(b) Contains a motivation and evidence of either the verified or different use of the land and environmental sensitivity;
(c) Is submitted together with the relevant reports prepared in accordance with the requirements of the Environmental Impact Assessment Regulations.

This report has been produced specifically to consider the aquatic and terrestrial ecology theme and addresses the content requirements of (a) and (b) above. The report will be appended to the respective specialist study included in the Scoping and EIA Reports produced for the projects.

Site sensitivity based on the biodiversity theme included in the Screening Tool and specialist assessment

Based on the DFFE Screening Tool, the site contains areas of very high and high sensitivity due to the presence of the following (Figures 1-4).

- Animals = High due to mostly birds, a mole and small buck and invertebrate species which have the potential to occur
- Plants = Medium and Low due to the presence of several plant species with the potential to occur in the remaining fynbos vegetation units
- Terrestrial = Very High because of being located in a listed Threatened Ecosystem

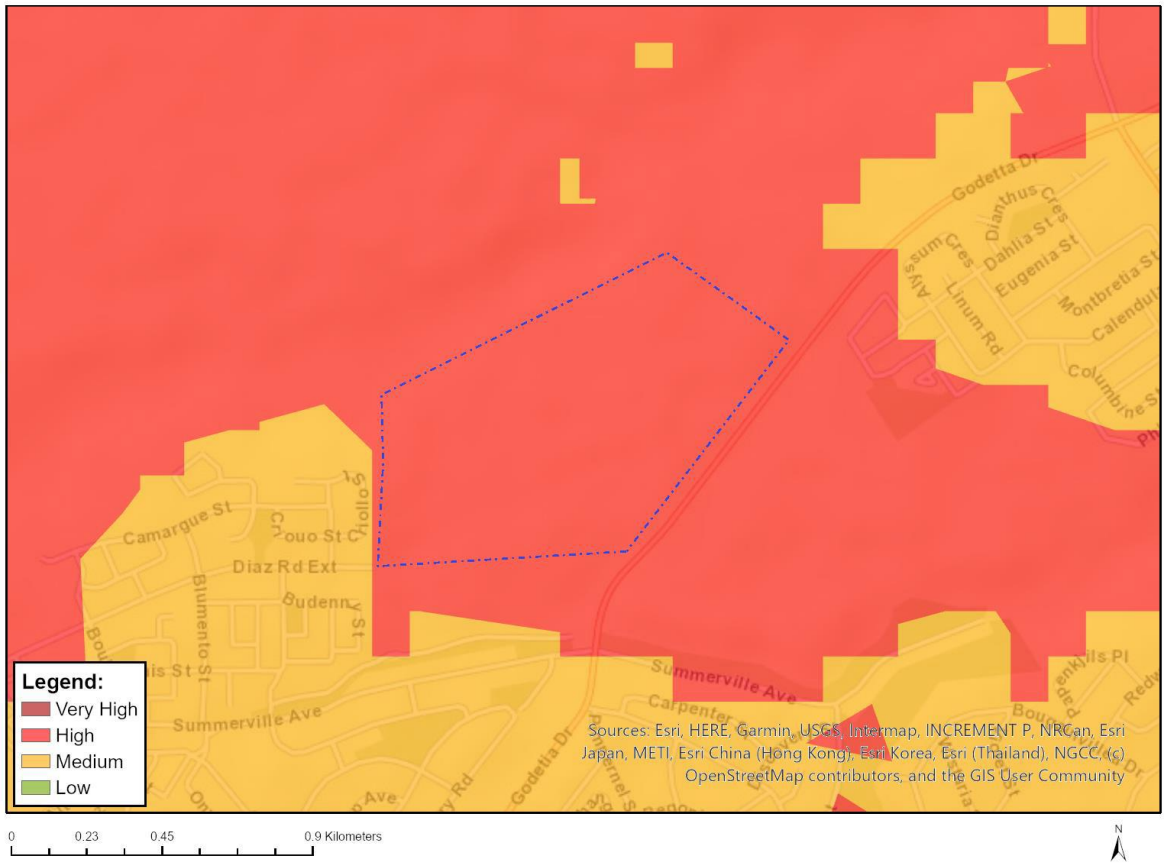


Figure 1: DFFE screening tool results for animals where Red = High and Orange = Medium

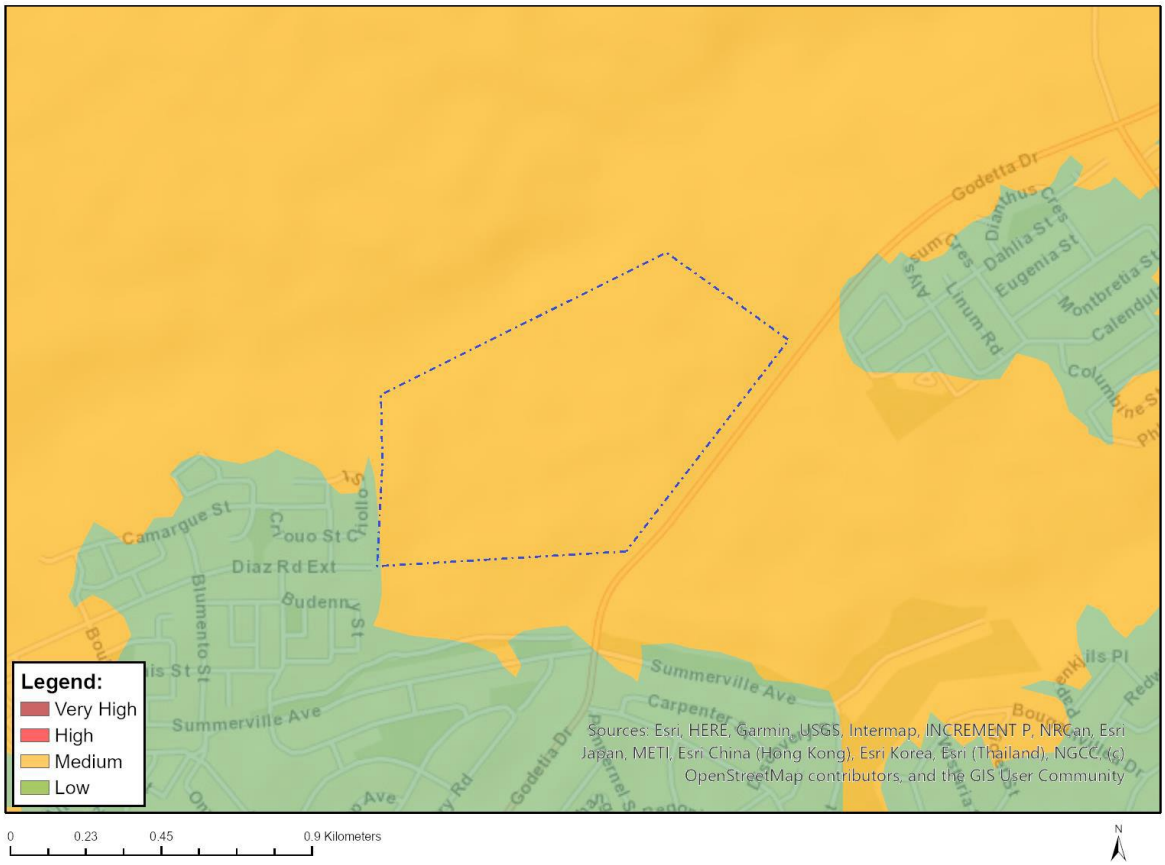


Figure 3. DFFE Screening Tool outcome for the Plant biodiversity theme, Orange = Medium and Green = Low

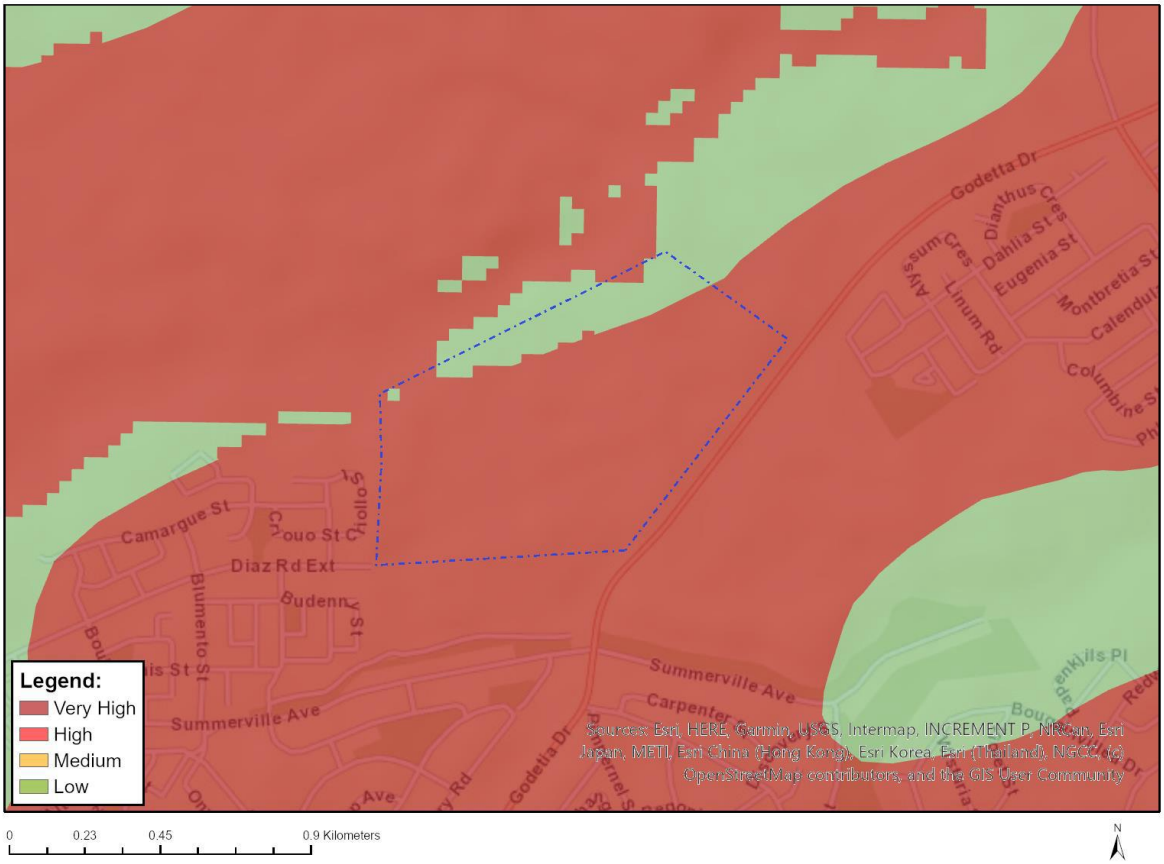


Figure 4. DFFE Screening Tool outcome for the Terrestrial biodiversity theme, Red = Very High & Green = Low

Based on the above outcomes, the specialist agrees with the certain environmental sensitivities identified on site. The findings have been informed by a site visit undertaken by Dr Brian Colloty in 2024/2025.

Motivation of the outcomes of the sensitivity map and key conclusions

In conclusion, the DFFE Screening Tool identified several sensitivity ratings within the study area, namely, Very High, High, Medium and Low. Although there is some overlap with the findings on site and the Screening Tool's outcome, the development footprint will be developed with cognisance of these sensitivities and recommendations regards drilling site selection based on site inspections.

Therefore, environmental sensitivity input received from the ecology specialist will be taken forward and considered within exploration phase. Appropriate layout and development restrictions must implemented within the development footprint to ensure that the impact is deemed acceptable by the ecologist.

Source SANBI ADU http://vmus.adu.org.za/index.php?database Accessed March 2025

AMPHIBIANS			
Hyperoliidae	*Hyperolius marmoratus*	Painted Reed Frog	Least Concern (IUCN ver 3.1, 2013)
Pipidae	*Xenopus laevis*	Cape Clawed Toad	Least Concern
Pyxicephalidae	*Amietia delalandii*	Delalande's River Frog	Least Concern (2017)
Pyxicephalidae	*Amietia fuscigula*	Cape River Frog	Least Concern (2017)
Pyxicephalidae	*Cacosternum boettgeri*	Common Caco	Least Concern (2013)
Pyxicephalidae	*Cacosternum nanum*	Bronze Caco	Least Concern (2013)
Pyxicephalidae	*Strongylopus fasciatus*	Striped Stream Frog	Least Concern
Pyxicephalidae	*Strongylopus grayii*	Clicking Stream Frog	Least Concern
REPTILES			
Agamidae	*Agama aculeata aculeata*	Common Ground Agama	Least Concern (SARCA 2014)
Agamidae	*Agama atra*	Southern Rock Agama	Least Concern (SARCA 2014)
Colubridae	*Dispholidus typus typus*	Boomslang	Least Concern (SARCA 2014)
Cordylidae	*Pseudocordylus microlepidotus microlepidotus*	Cape Crag Lizard	Least Concern (SARCA 2014)
Elapidae	*Naja nivea*	Cape Cobra	Least Concern (SARCA 2014)
Gekkonidae	*Afroedura nov sp. 1 (Kouga)*		
Lacertidae	*Pedioplanis burchelli*	Burchell's Sand Lizard	Least Concern (SARCA 2014)
Lacertidae	*Tropidosaura gularis*	Cape Mountain Lizard	Least Concern (SARCA 2014)
Lamprophiidae	*Lycodonomorphus rufulus*	Brown Water Snake	Least Concern (SARCA 2014)
Lamprophiidae	*Psammophylax rhombeatus*	Spotted Grass Snake	Least Concern (SARCA 2014)
Scincidae	*Acontias orientalis*	Eastern Legless Skink	Least Concern (SARCA 2014)
Testudinidae	*Chersina angulata*	Angulate Tortoise	Least Concern (SARCA 2014)
Viperidae	*Bitis arietans arietans*	Puff Adder	Least Concern (SARCA 2014)
LEPIDOPTERA			
HESPERIIDAE	*Spialia sataspes*	Boland sandman	Least Concern (SABCA 2013)
LYCAENIDAE	*Aloeides aranda*	Aranda copper	Least Concern (SABCA 2013)
LYCAENIDAE	*Aloeides damarensis damarensis*	Damara copper	Least Concern (SABCA 2013)
LYCAENIDAE	*Aloeides depicta*	Depicta copper	Least Concern (SABCA 2013)
LYCAENIDAE	*Aloeides juana*	Juana copper	Least Concern (SABCA 2013)
LYCAENIDAE	*Aloeides pallida liversidgei*	Giant copper	Least Concern (SABCA 2013)
LYCAENIDAE	*Cacyreus marshalli*	Common geranium bronze	Least Concern (SABCA 2013)
LYCAENIDAE	*Capys alpheus alpheus*	Orange banded protea	Least Concern (SABCA 2013)
LYCAENIDAE	*Chrysoritis beulah*	Beulah's opal	Least Concern (SABCA 2013)
LYCAENIDAE	*Chrysoritis chrysaor*	Burnished opal	Least Concern (SABCA 2013)
LYCAENIDAE	*Chrysoritis zeuxo cottrelli*	Cottrell's daisy copper	Least Concern (SABCA 2013)
LYCAENIDAE	*Lachnocnema durbani*	D'Urban's woolly legs	Least Concern (SABCA 2013)
LYCAENIDAE	*Lampides boeticus*	Pea blue	Least Concern (SABCA 2013)
LYCAENIDAE	*Lepidochrysops sp.*		
LYCAENIDAE	*Lepidochrysops ketsi ketsi*	Ketsi blue	Least Concern (SABCA 2013)
LYCAENIDAE	*Lepidochrysops patricia*	Patricia blue	Least Concern (SABCA 2013)
LYCAENIDAE	*Lepidochrysops poseidon*	Baviaanskloof blue	Least Concern (SABCA 2013)
LYCAENIDAE	*Lepidochrysops robertsoni*	Robertson's blue	Least Concern (SABCA 2013)
LYCAENIDAE	*Lepidochrysops variabilis*	Variable blue	Least Concern (SABCA 2013)
LYCAENIDAE	*Leptomyrina lara*	Cape black-eye	Least Concern (SABCA 2013)
LYCAENIDAE	*Tarucus thespis*	Vivid dotted blue	Least Concern (SABCA 2013)
LYCAENIDAE	*Thestor murrayi*	Murray's skolly	Least Concern (SABCA 2013)
LYCAENIDAE	*Trimenia argyroplaga argyroplaga*	Large silver-spotted copper	Least Concern (SABCA 2013)

NYMPHALIDAE	*Acraea neobule neobule*	Wandering donkey acraea	Least Concern (SABCA 2013)
NYMPHALIDAE	*Aeropetes tulbaghia*	Table mountain beauty	Least Concern (SABCA 2013)
NYMPHALIDAE	*Charaxes pelias*	Protea charaxes	Least Concern (SABCA 2013)
NYMPHALIDAE	*Danaus chrysippus orientis*	African monarch, Plain tiger	Least Concern (SABCA 2013)
NYMPHALIDAE	*Hypolimnas misippus*	Common diadem	Least Concern (SABCA 2013)
NYMPHALIDAE	*Junonia hierta cebrene*	Yellow pansy	Least Concern (SABCA 2013)
NYMPHALIDAE	*Pardopsis punctatissima*	Polka dot	Least Concern (SABCA 2013)
NYMPHALIDAE	*Precis archesia archesia*	Garden commodore	Least Concern (SABCA 2013)
NYMPHALIDAE	*Precis octavia sesamus*	Gaudy Commodore	Least Concern (SABCA 2013)
NYMPHALIDAE	*Pseudonympha magus*	Silver-bottom brown	Least Concern (SABCA 2013)
NYMPHALIDAE	*Pseudonympha trimenii ruthae*	Trimen's brown	Least Concern (SABCA 2013)
NYMPHALIDAE	*Stygionympha vigilans*	Western hillside brown	Least Concern (SABCA 2013)
NYMPHALIDAE	*Stygionympha wichgrafi williami*	Wichgraf's hillside brown	Least Concern (SABCA 2013)
NYMPHALIDAE	*Vanessa cardui*	Painted lady	Least Concern (SABCA 2013)
PAPILIONIDAE	*Papilio demodocus demodocus*	Citrus swallowtail	Least Concern (SABCA 2013)
PIERIDAE	*Belenois aurota*	Brown-veined white	Least Concern (SABCA 2013)
PIERIDAE	*Pontia helice helice*	Common meadow white	Least Concern (SABCA 2013)
PIERIDAE	*Teracolus eris eris*	Banded gold tip	Least Concern (SABCA 2013)
AVES (BIRDS)			
Common_group	**Common_species**	**Genus**	**Species**
Apalis	Bar-throated	*Apalis*	*thoracica*
Apalis	Yellow-breasted	*Apalis*	*flavida*
Barbet	Acacia Pied	*Tricholaema*	*leucomelas*
Barbet	Black-collared	*Lybius*	*torquatus*
Batis	Cape	*Batis*	*capensis*
Bishop	Southern Red	*Euplectes*	*orix*
Bokmakierie	Bokmakierie	*Telophorus*	*zeylonus*
Boubou	Southern	*Laniarius*	*ferrugineus*
Brownbul	Terrestrial	*Phyllastrephus*	*terrestris*
Bulbul	Cape	*Pycnonotus*	*capensis*
Bunting	Cinnamon-breasted	*Emberiza*	*tahapisi*
Bunting	Golden-breasted	*Emberiza*	*flaviventris*
Bush-shrike	Olive	*Telophorus*	*olivaceus*
Buzzard	Jackal	*Buteo*	*rufofuscus*
Buzzard	Steppe	*Buteo*	*vulpinus*
Camaroptera	Green-backed	*Camaroptera*	*brachyura*
Canary	Brimstone	*Crithagra*	*sulphuratus*
Canary	Cape	*Serinus*	*canicollis*
Canary	Forest	*Crithagra*	*scotops*
Canary	Yellow-fronted	*Crithagra*	*mozambicus*
Chat	Anteating	*Myrmecocichla*	*formicivora*
Chat	Familiar	*Cercomela*	*familiaris*
Cisticola	Grey-backed	*Cisticola*	*subruficapilla*
Cisticola	Lazy	*Cisticola*	*aberrans*
Cisticola	Levaillant's	*Cisticola*	*tinniens*
Cisticola	Zitting	*Cisticola*	*juncidis*
Coot	Red-knobbed	*Fulica*	*cristata*
Cormorant	Reed	*Phalacrocorax*	*africanus*
Cormorant	White-breasted	*Phalacrocorax*	*carbo*

Coucal	Burchell's	*Centropus*	*burchellii*
Crane	Blue	*Anthropoides*	*paradiseus*
Crested-flycatcher	Blue-mantled	*Trochocercus*	*cyanomelas*
Crow	Cape	*Corvus*	*capensis*
Crow	Pied	*Corvus*	*albus*
Cuckoo	Black	*Cuculus*	*clamosus*
Cuckoo	Klaas's	*Chrysococcyx*	*klaas*
Cuckoo	Red-chested	*Cuculus*	*solitarius*
Cuckoo-shrike	Black	*Campephaga*	*flava*
Cuckoo-shrike	Grey	*Coracina*	*caesia*
Dove	Laughing	*Streptopelia*	*senegalensis*
Dove	Lemon	*Aplopelia*	*larvata*
Dove	Red-eyed	*Streptopelia*	*semitorquata*
Dove	Tambourine	*Turtur*	*tympanistria*
Drongo	Fork-tailed	*Dicrurus*	*adsimilis*
Duck	African Black	*Anas*	*sparsa*
Duck	Yellow-billed	*Anas*	*undulata*
Eagle	African Crowned	*Stephanoaetus*	*coronatus*
Eagle	Martial	*Polemaetus*	*bellicosus*
Eagle	Verreaux's	*Aquila*	*verreauxii*
Eagle-owl	Spotted	*Bubo*	*africanus*
Egret	Cattle	*Bubulcus*	*ibis*
Firefinch	African	*Lagonosticta*	*rubricata*
Fiscal	Common (Southern)	*Lanius*	*collaris*
Fish-eagle	African	*Haliaeetus*	*vocifer*
Flycatcher	African Dusky	*Muscicapa*	*adusta*
Flycatcher	Fiscal	*Sigelus*	*silens*
Flycatcher	Spotted	*Muscicapa*	*striata*
Goose	Egyptian	*Alopochen*	*aegyptiacus*
Goose	Spur-winged	*Plectropterus*	*gambensis*
Goshawk	African	*Accipiter*	*tachiro*
Goshawk	Southern Pale Chanting	*Melierax*	*canorus*
Grassbird	Cape	*Sphenoeacus*	*afer*
Grebe	Little	*Tachybaptus*	*ruficollis*
Greenbul	Sombre	*Andropadus*	*importunus*
Guineafowl	Helmeted	*Numida*	*meleagris*
Gull	Kelp	*Larus*	*dominicanus*
Harrier	Black	*Circus*	*maurus*
Harrier-Hawk	African	*Polyboroides*	*typus*
Heron	Black-headed	*Ardea*	*melanocephala*
Heron	Grey	*Ardea*	*cinerea*
Honeyguide	Greater	*Indicator*	*indicator*
Honeyguide	Lesser	*Indicator*	*minor*
Honeyguide	Scaly-throated	*Indicator*	*variegatus*
Hoopoe	African	*Upupa*	*africana*
Hornbill	Crowned	*Tockus*	*alboterminatus*
Ibis	African Sacred	*Threskiornis*	*aethiopicus*
Ibis	Hadeda	*Bostrychia*	*hagedash*
Indigobird	Dusky	*Vidua*	*funerea*

Kestrel	Rock	*Falco*	*rupicolus*
Kingfisher	Brown-hooded	*Halcyon*	*albiventris*
Kingfisher	Half-collared	*Alcedo*	*semitorquata*
Kingfisher	Malachite	*Alcedo*	*cristata*
Kingfisher	Pied	*Ceryle*	*rudis*
Kite	Black-shouldered	*Elanus*	*caeruleus*
Kite	Yellow-billed	*Milvus*	*aegyptius*
Lapwing	Blacksmith	*Vanellus*	*armatus*
Lapwing	Crowned	*Vanellus*	*coronatus*
Lark	Red-capped	*Calandrella*	*cinerea*
Longclaw	Cape	*Macronyx*	*capensis*
Marsh-harrier	African	*Circus*	*ranivorus*
Martin	Brown-throated	*Riparia*	*paludicola*
Martin	Rock	*Hirundo*	*fuligula*
Masked-weaver	Southern	*Ploceus*	*velatus*
Moorhen	Common	*Gallinula*	*chloropus*
Mousebird	Red-faced	*Urocolius*	*indicus*
Mousebird	Speckled	*Colius*	*striatus*
Neddicky	Neddicky	*Cisticola*	*fulvicapilla*
Olive-pigeon	African	*Columba*	*arquatrix*
Oriole	Black-headed	*Oriolus*	*larvatus*
Palm-swift	African	*Cypsiurus*	*parvus*
Paradise-flycatcher	African	*Terpsiphone*	*viridis*
Pigeon	Speckled	*Columba*	*guinea*
Plover	Three-banded	*Charadrius*	*tricollaris*
Prinia	Karoo	*Prinia*	*maculosa*
Puffback	Black-backed	*Dryoscopus*	*cubla*
Quelea	Red-billed	*Quelea*	*quelea*
Raven	White-necked	*Corvus*	*albicollis*
Robin-chat	Cape	*Cossypha*	*caffra*
Rock-thrush	Cape	*Monticola*	*rupestris*
Rush-warbler	Little	*Bradypterus*	*baboecala*
Saw-wing	Black (Southern race)	*Psalidoprocne*	*holomelaena*
Scrub-robin	Brown	*Cercotrichas*	*signata*
Scrub-robin	White-browed	*Cercotrichas*	*leucophrys*
Seedeater	Streaky-headed	*Crithagra*	*gularis*
Sparrow	Cape	*Passer*	*melanurus*
Sparrow	House	*Passer*	*domesticus*
Sparrow	Southern Grey-headed	*Passer*	*diffusus*
Sparrowhawk	Black	*Accipiter*	*melanoleucus*
Sparrowhawk	Little	*Accipiter*	*minullus*
Spoonbill	African	*Platalea*	*alba*
Spurfowl	Red-necked	*Pternistis*	*afer*
Starling	Black-bellied	*Lamprotornis*	*corruscus*
Starling	Cape Glossy	*Lamprotornis*	*nitens*
Starling	Common	*Sturnus*	*vulgaris*
Starling	Pied	*Spreo*	*bicolor*
Starling	Red-winged	*Onychognathus*	*morio*
Stilt	Black-winged	*Himantopus*	*himantopus*

Stonechat	African	*Saxicola*	*torquatus*
Stork	White	*Ciconia*	*ciconia*
Sugarbird	Cape	*Promerops*	*cafer*
Sunbird	Amethyst	*Chalcomitra*	*amethystina*
Sunbird	Collared	*Hedydipna*	*collaris*
Sunbird	Greater Double-collared	*Cinnyris*	*afer*
Sunbird	Grey	*Cyanomitra*	*veroxii*
Sunbird	Malachite	*Nectarinia*	*famosa*
Sunbird	Orange-breasted	*Anthobaphes*	*violacea*
Sunbird	Southern Double-collared	*Cinnyris*	*chalybeus*
Swallow	Barn	*Hirundo*	*rustica*
Swallow	Greater Striped	*Hirundo*	*cucullata*
Swallow	Lesser Striped	*Hirundo*	*abyssinica*
Swallow	White-throated	*Hirundo*	*albigularis*
Swamp-warbler	Lesser	*Acrocephalus*	*gracilirostris*
Swift	Alpine	*Tachymarptis*	*melba*
Swift	Horus	*Apus*	*horus*
Swift	Little	*Apus*	*affinis*
Swift	White-rumped	*Apus*	*caffer*
Tchagra	Southern	*Tchagra*	*tchagra*
Teal	Cape	*Anas*	*capensis*
Thrush	Olive	*Turdus*	*olivaceus*
Tinkerbird	Red-fronted	*Pogoniulus*	*pusillus*
Tit-babbler	Chestnut-vented	*Parisoma*	*subcaeruleum*
Trogon	Narina	*Apaloderma*	*narina*
Turaco	Knysna	*Tauraco*	*corythaix*
Turtle-dove	Cape	*Streptopelia*	*capicola*
Wagtail	Cape	*Motacilla*	*capensis*
Warbler	Knysna	*Bradypterus*	*sylvaticus*
Warbler	Victorin's	*Cryptillas*	*victorini*
Waxbill	Common	*Estrilda*	*astrild*
Waxbill	Swee	*Coccopygia*	*melanotis*
Weaver	Cape	*Ploceus*	*capensis*
Weaver	Dark-backed	*Ploceus*	*bicolor*
Weaver	Spectacled	*Ploceus*	*ocularis*
Weaver	Thick-billed	*Amblyospiza*	*albifrons*
Weaver	Village	*Ploceus*	*cucullatus*
White-eye	Cape	*Zosterops*	*virens*
Whydah	Pin-tailed	*Vidua*	*macroura*
Wood-dove	Emerald-spotted	*Turtur*	*chalcospilos*
Wood-hoopoe	Green	*Phoeniculus*	*purpureus*
Woodland-warbler	Yellow-throated	*Phylloscopus*	*ruficapilla*
Woodpecker	Cardinal	*Dendropicos*	*fuscescens*
Woodpecker	Knysna	*Campethera*	*notata*
Woodpecker	Olive	*Dendropicos*	*griseocephalus*