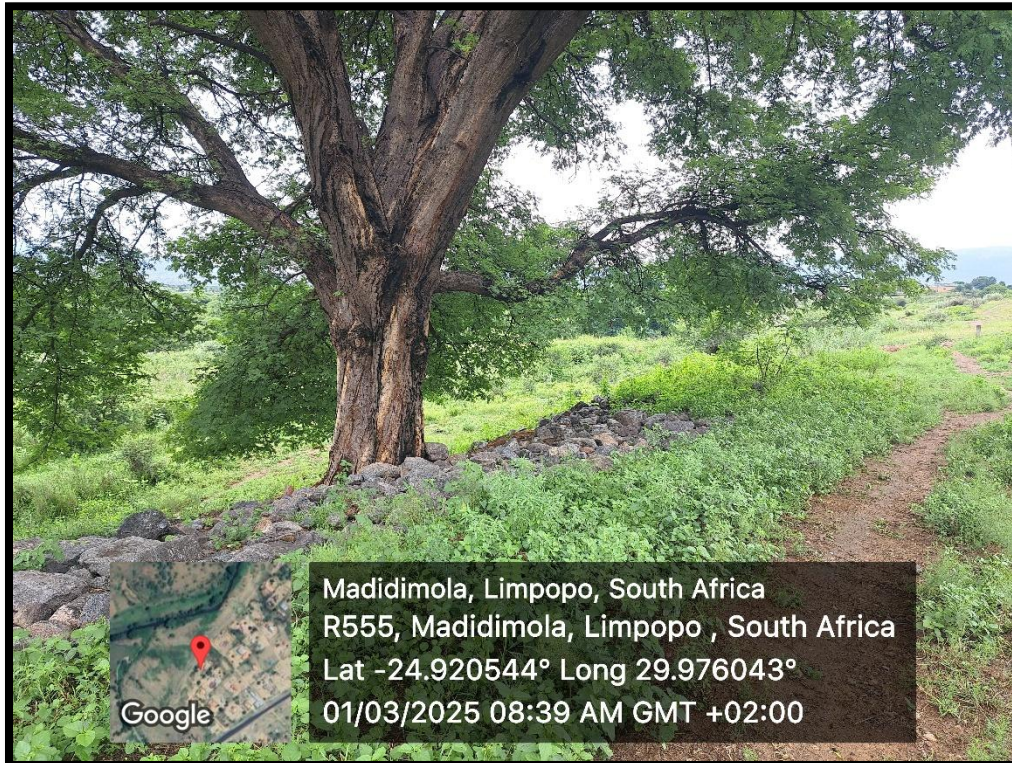# TERRESTRIAL ECOLOGICAL STUDY REPORT

ECOLOGICAL STUDIES REPORT FOR THE PROPOSED PROSPECTING ON THE PORTION 0 OF THE FARM AAPJESBOOM NO.884 KS SITUATED IN THE MAGISTERIAL DISTRICT OF SEKHUKHUNE IN LIMPOPO PROVINCE, SOUTH AFRICA

Madidimola, Limpopo, South Africa
R555, Madidimola, Limpopo , South Africa
Lat -24.920544° Long 29.976043°
01/03/2025 08:39 AM GMT +02:00

THOMATREE FAMILY The Last Standing Tree	ThomaTree Family (Pty) Ltd 02/03/2025

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Document Reference:	**MRS Terrestrial Study**
Prepared by:	**Khantshi Ndivhuho**
Date Issued:	**02 March 2025**

DECLARATION OF INDEPENDENCE

I, Khantshi Ndivhuho, declare that I:

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

Khantshi Ndivhuho (SACNASP 122250)

02/ 03/ 2025

PRIMARY AUTHOR SPECIALIST INFORMATION

Khantshi Ndivhuho of ThomaTree Family (Pty) Ltd
Experienced Ecologist with a demonstrated history of working in the environmental services industry. Skilled in Environmental Compliance, Sustainability, Wildlife, Biodiversity and basic GIS. Strong research professional with a Bachelor of Science Hons (BSc) focused in Ecology and Resource Management from University of Venda.

DETAILS OF THE ENVIRONMNETAL ASSESSMENT PRACTITIONER

Name of organization	Mabirimisa Consulting and Projects (Pty) Ltd
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ABBREVIATIONS

BGIS	Biodiversity Geographic Information System (from SANBI)
BODATSA	Botanical Database of Southern Africa
CARA	Conservation of Agricultural Resources Act (Act No. 43 of 1983)
CBA	Critical Biodiversity Area
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
CR	Critically Endangered
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officers
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMP	Environmental Management Programme
EN	Endangered
ESA	Ecological support area
HGM	Hydro-geomorphic Approach
LC	Least Concern
MM	Millimetres
NEMA	National Environmental Management Act (No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act (No. 10 of 2004)
NT	Near Threatened
NWA	National Water Act (Act 36 of 1998)
NWCS	National Wetland Classification System
PA	Protected Area
PES	Present Ecological State
PRECIS	Pretoria Computerised Information System
QDGC	Quarter Degree Grid Cell
SABAP	Southern African Bird Atlas Project
VM	Virtual Museum
VU	Vulnerable
WULA	Water Use License Application

GLOSSARY

Alien species - Plant taxa in a given area, whose presence there, is due to the intentional or accidental introduction as a result of human activity

Biodiversity - Biodiversity is the variability among living organisms from all sources including inter alia terrestrial, marine and other aquatic ecosystems and ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems

Biome - A major biotic unit consisting of plant and animal communities having similarities in form and environmental conditions, but not including the abiotic portion of the environment.

Conservation - The management of the biosphere so that it may yield the greatest sustainable benefit to present generation while maintaining its potential to meet the needs and aspirations of future generations. The wise use of natural resources to prevent loss of ecosystems function and integrity.

Conservation - An indicator of the likelihood of that species remaining extant either in the present status day or the near future. Many factors are taken into account when assessing the conservation status of a species: not simply the number remaining, but the overall increase or decrease in the population over time, breeding success rates, known threats, and so on

Community - Assemblage of populations living in a prescribed area or physical habitat, inhabiting some common environment.

Critically - A taxon is Critically Endangered when it is facing an extremely

high risk of extinction Endangered - in the wild in the immediate future.

Declining - A taxon is declining when it does not meet any of the five IUCN criteria and does not qualify for the categories Threatened or Near Threatened, but there

are threatening processes causing a continuous decline in the population (Raimondo et al, 2009).

Ecological Corridors are roadways of natural habitat providing connectivity of various patches Corridors of native habitats along or through which faunal species may travel without any obstructions where other solutions are not feasible

Ecosystem - Organisms together with their abiotic environment, forming an interacting system, inhabiting an identifiable space

Edge effect- Inappropriate influences from surrounding activities, which physically degrade habitat, endanger resident biota and reduce the functional size of remnant fragments including, for example, the effects of invasive plant and animal species, physical damage and soil compaction caused through trampling and harvesting, abiotic habitat alterations and pollution

Endemic - Naturally only found in a particular and usually restricted geographic area or region

Habitat - Type of environment in which plants and animals live

Indigenous - Any species of plant, shrub or tree that occurs naturally in South Africa

Invasive species - Naturalised alien plants that have the ability to reproduce, often in large numbers. Aggressive invaders can spread and invade large areas

Mitigation - The implementation of practical measures to reduce adverse Impacts

Near Threatened - A Taxon is Near Threatened when available evidence indicates that that it nearly meets any of the five IUCN criteria for Vulnerable, and is therefore likely to qualify for a threatened category in the near future (Raimondo et al, 2009).

Plant Community - A collection of plant species within a designated geographical unit, which forms a relatively uniform patch, distinguishable from neighbouring

patches of different vegetation types. The components of each plant community are influenced by soil type, topography, climate and human disturbance. In many cases there are several soil types within a given plant community (Gobbat et al, 2004)

Vegetation - A complex of plant communities ecologically and historically (both in spatial and temporal terms) occupying habitat complexes at the landscape scale. Mucina and Rutherford (2006) state: "Our vegetation units are the obvious vegetation complexes

Vulnerable - A taxon is Vulnerable when it is not Critically Endangered or Endangered but meets any of the five IUCN criteria for Vulnerable and are therefore facing a high risk of extinction in the wild in the future (Raimondo et al, 2009)

1. Introduction

Path Mining (Pty) Ltd intend to undertake a prospecting right application in respect of Aapjesboom No.884 KS situated in the magisterial district of Sekhukhune in Limpopo Province, South Africa. Figure 1 and 2 indicates the location of the proposed area.

In preparing this Terrestrial Biodiversity Study, findings from the studies that were conducted in Steelpoort was consulted, as well as other pertinent sources, have been thoroughly consulted. The author acknowledges all work done prior to and utilized during the research process. This includes published studies, expert analyses, and data from various stakeholders, which have provided invaluable insights into the area's ecological conditions.

By triangulating information from multiple sources, this report aims to present a well-rounded assessment while maintaining ethical standards in report writing. This approach not only enhances the report's credibility but also ensures compliance with relevant laws and regulations governing the use of existing public information.

This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Registered Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making as to the ecological viability of the proposed project.

The study aims to assess terrestrial biodiversity sensitivity and determine the extent to which it will be affected and earmarked as areas of potential sensitivity that may be subject to impacts.

1.1. Terms of reference

To inform the required regulatory processes, an assessment of the associated terrestrial ecological features and wetland features was required. It is required that the assessment provides technical advice on the following information, applicable to the proposed prospecting right on the site: a brief discussion on the vegetation types in which the study area is situated using available literature to place the study in context was summarized as follows:

- Investigation of the Ecological sensitivity of the proposed area
- Site Mapping, with ecological layers
- Determination of potential Ecological Impacts and Assessment, and
- Desktop Study Report showing comprehensive Desktop investigation of the site.
- Describe the baseline terrestrial ecology of the impact footprint.
- Assess the Conservation Importance of the terrestrial habitats represented within the study area; this will include predicting which threatened species of fauna and flora potentially occur.
- Make recommendations for mitigation measures.

1.2. Assumptions and limitations

To obtain a comprehensive understanding of the dynamics and diversity of the biota on a site, including species of conservation concern, studies should include investigations through the different seasons of the year, over a number of years, and extensive sampling of the area. This is particularly relevant where seasonal limitations to biodiversity assessments exist for the area of the proposed activity. Due to project time constraints inherent with Environmental Authorisation application processes, such long-term research is seldom feasible, and information contained within this report is based on a single field survey conducted during a single season.

The findings, results, observations, conclusions, and recommendations provided in this report are based on the author's best scientific and professional knowledge as well as available information regarding the perceived impacts on wetland and terrestrial environment.

A description of vegetation was based on the physical field surveys and site walkthrough and investigations as performed on site. Limited time was a constraint during field surveys. Results presented in this report are based on a snapshot investigation of the study site and not on detailed and long-term investigations of all environmental attributes and the varying degrees of biological diversity that may be present in the study site.

The wetland delineation as presented in this report is regarded as a best estimate of the wetland boundary based on the site conditions present at the time of assessment. Global Positioning System (GPS) technology is inherently inaccurate and some inaccuracies due to the use of handheld GPS instrumentation may occur.

Once-off assessments such as this may potentially miss certain ecological information, thus limiting accuracy, detail and confidence. The assessment of impacts and recommendation of mitigation measures were informed by the site-specific ecological issues arising from the field survey and based on the assessor's working knowledge and experience with similar projects.

2. LEGISLATIVE REQUIREMENTS

A summary of the relevant sections of the acts that govern the activities and potential impacts to the environment associated with the development are listed below. It should be noted that these acts are listed below only with specific reference to biodiversity studies.

Table 1: Acts and regulations relating to the project

Legislation/Policy	Description
The Convention of Biological Diversity (Rio de Janeiro, 1992).	The purpose of the Convention on Biological Diversity is to conserve the variability among living organisms, at all levels (including diversity between species, within species and of ecosystems). Primary objectives include (i) conserving biological diversity, (ii) using biological diversity in a sustainable manner and (iii) sharing the benefits of biological diversity fairly and equitably.
South African Constitution 108 of 1996	The Constitution is the supreme law of the land and includes the Bill of rights which is the cornerstone of democracy in South Africa and enshrines the rights of people in the country. It includes the right to an environment which is not harmful to human health or well-being and to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.
Strategic Framework for	The development of a broad framework for sustainable development was initiated to provide an overarching and guiding National Sustainable Development Strategy. The Draft Strategic

Sustainable Development in South Africa	Framework for Sustainable Development (SFSD) in South Africa (September 2006) is a goal orientated policy framework aimed at meeting the Millennium Development Goals. Biodiversity has been identified as one of the key crosscutting trends in the SFSD. The lack of sustainable practices in managing natural resources, climate change effects, loss of habitat and poor land management practices were raised as the main threats to biodiversity.
National Environmental Management Act 107 of 1998	This is a fundamentally important piece of legislation and effectively promotes sustainable development and entrenches principles such as the 'precautionary approach', 'polluter pays' principle, and requires responsibility for impacts to be taken throughout the life cycle of a project NEMA provides the legislative backing (Including Impact Assessment Regulations) for regulating development and ensuring that a risk-averse and cautious approach is taken when making decisions about activities.
Environmental Impact Assessment (EIA) regulations	New regulations have been promulgated in terms of Chapter 5 of NEMA and were published on 07 April 2017 in Government Notice No. R. 326. Development and land use activities which require Environmental Authorisation in terms of the NEMA EIA Regulations, 2017, are in Listing Notice 3 (GG No. R.324, LN3) identified via geographic areas with the intention being that activities only require Environmental Authorisation when located within designated sensitive areas. These sensitive/geographic areas were identified and published for each of the nine (9) Provinces.
National Environmental Management: Biodiversity Act No 10 of 2004	The Biodiversity Act provides listing threatened or protected ecosystems, in one of four categories: Critically Endangered (CR), Endangered (EN), Vulnerable (VU) or Protected (Government Gazette, 2011). The main purpose of listing threatened ecosystems is to reduce the rate of ecosystem and species extinction and includes the prevention of

	further degradation and loss of structure, function and composition of threatened ecosystems.
Conservation of Agricultural Resources Act 43 of 1967	The intention of this Act is to control the over-utilization of South Africa's natural agricultural resources, and to promote the conservation of soil and water resources and natural vegetation. The CARA has categorised a large number of invasive plants together with associated obligations of the land-owner, including the requirement to remove categorised invasive plants and taking measures to prevent further spread of alien plants.
National Forest Act 84 of 1998	The protection, sustainable management and use of forests and trees within South Africa are provided for under the National Forests Act (Act 84 of 1998).
National Environmental Management: Protected Areas Act 57 of 2003	This Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. It also seeks to provide for the sustainable utilization of protected areas and to promote participation of local communities in the management of protected areas.
United Nations Convention to Combat Desertification	South Africa has responded to the UN Convention to Combat Desertification by developing a National Action Plan. The aim of the NAP is to implement at current and future policies that affect natural resource management and rural development, and establish partnerships between government departments, overseas development agencies, the private sector and NGOs
The RAMSAR Convention	Emphasis is placed on protecting wetlands and implementing initiatives to maintain or improve the state of wetland resources.
New Partnership for Africa's	Wetland conservation and sustainable use is one of the eight themes under the environment initiative.

Development (NEPAD)	
The World Summit on Sustainable Development (WSSD)	The Implementation Plan highlights actions that reduce the risk of flooding in drought-vulnerable countries by promoting the restoration and protection of wetlands and watersheds.

2.1. Provincial and Municipal Level

In addition to national legislation, South Africa's nine provinces have their own provincial biodiversity legislation, as nature conservation is a concurrent function of national and provincial government in terms of the Constitution (Act 108 of 1996).

2.2.1. Limpopo environmental biodiversity and protected areas management plan

The Limpopo Department of Economic Development, Environment & Tourism (LEDET) is the designated management authority for all the Provincial Nature Reserves in the Limpopo Province and is responsible for the compilation of a Protected Area Management Plan (PAMP) for each reserve in accordance with the National Environmental Management: Protected Areas Act, No.57 of 2003. Each Protected Area Management Plan is.

2.2. Study area

The proposed prospecting right application on portion 0 of farm Aapjesboom884 KS situated in Fetakgomo Tubatse Local Municipality in Sekhukhune District Municipality in Limpopo Province, South Africa.

The coordinates are as follows:

- Southing: 24°53'52.96''S
- Easting: 29°57'24.72''E
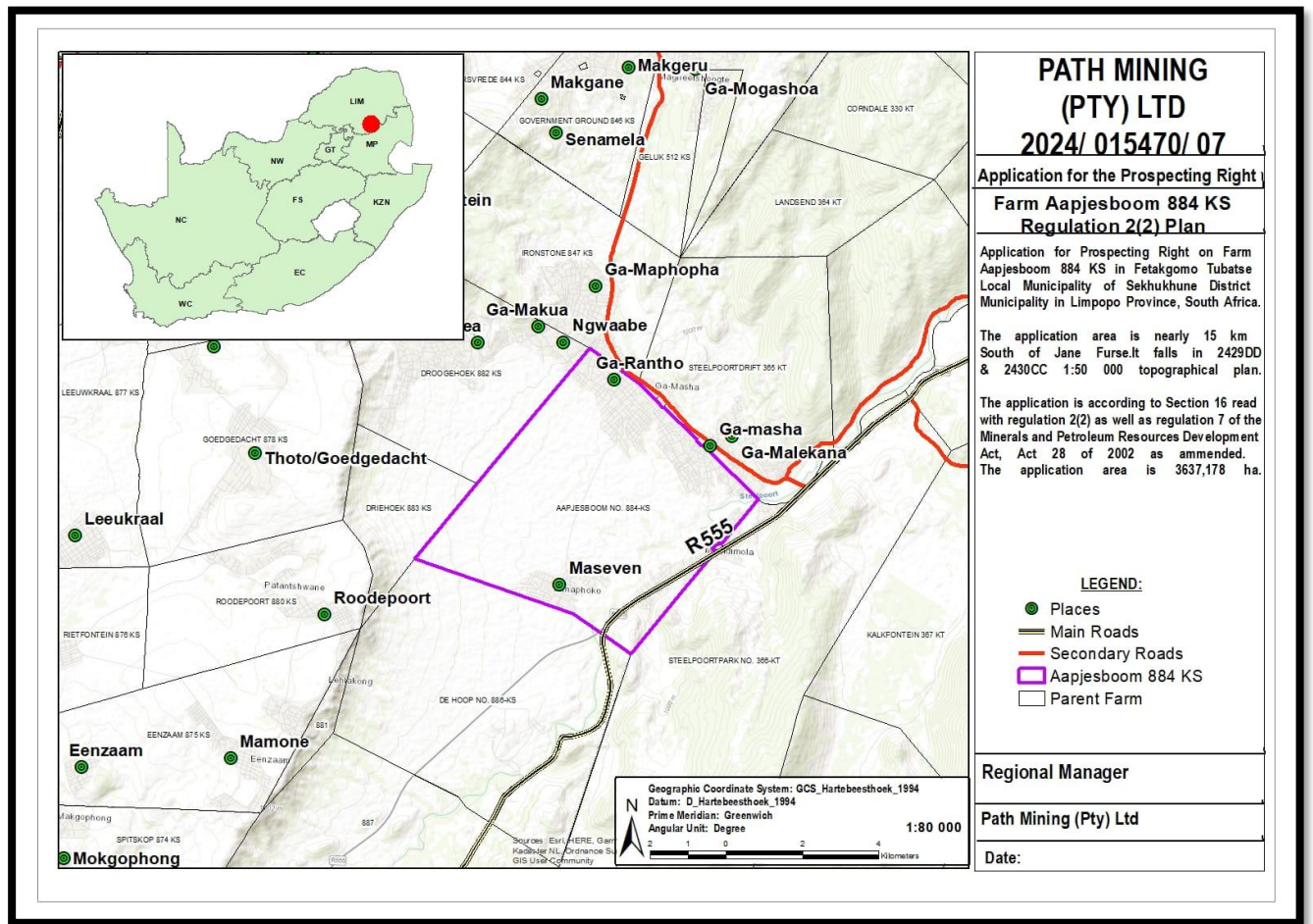
Figure 1: Locality map for the proposed site

Figure 2: Google earth view of the proposed site

The above maps are showing an area of the extent of approximately 3637.178 Hectares of the proposed prospecting rights.
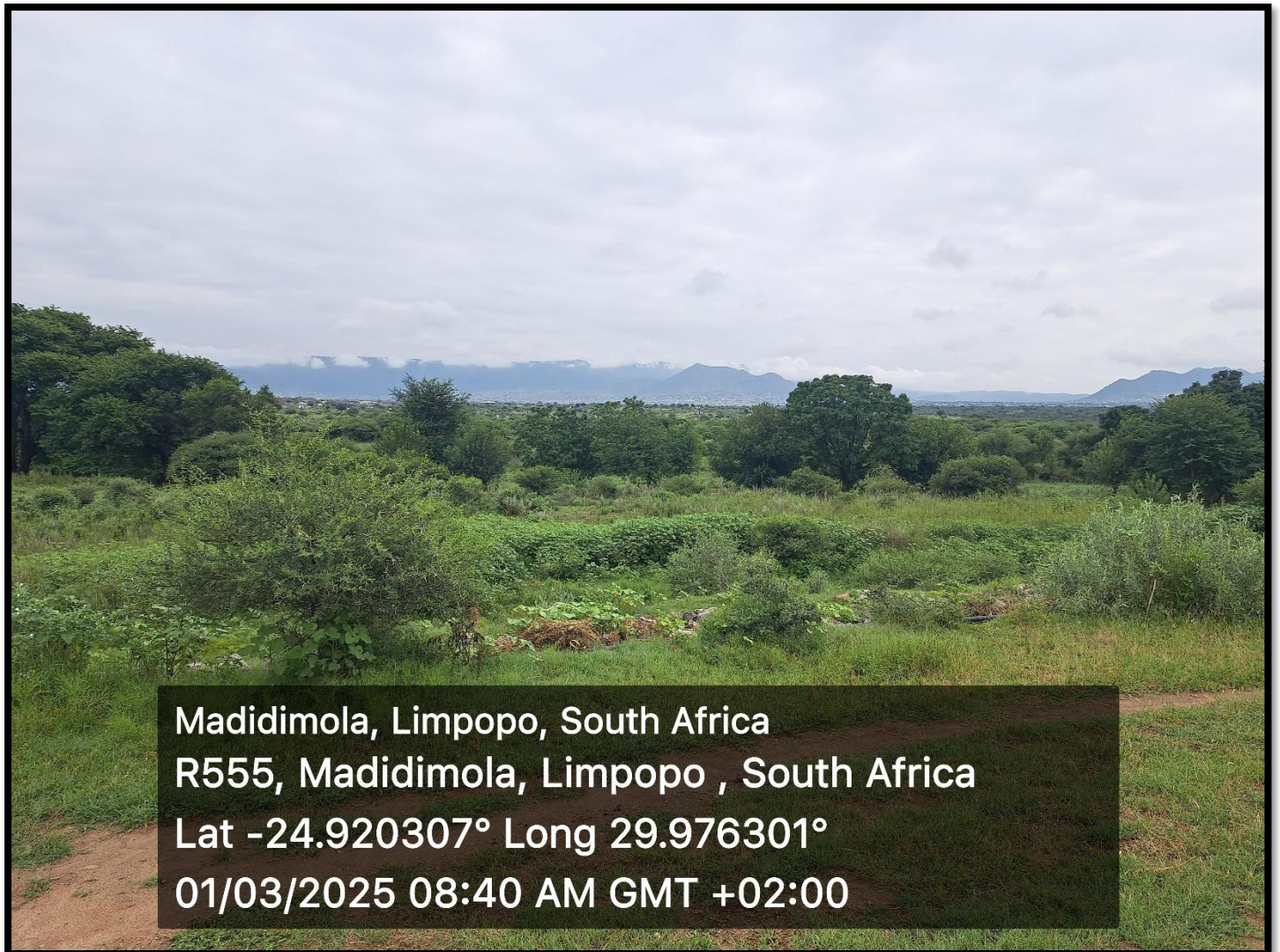
Figure 1:Typical site area.

Figure 2: Typical site area

2.3.   Climatic conditions

The climatic region that SVcb28 is situated in is the summer rainfall region of southern Africa with a mean annual precipitation (MAP) of between 500 and 700 mm. Day temperatures are hot in summer, especially in the valley bottoms and the mean annual potential evaporation is 2043 mm, which is more than twice the MAP. Winters are dry and cool with few occurrences of frost in low lying areas

2.4.   Overview of the Biome type
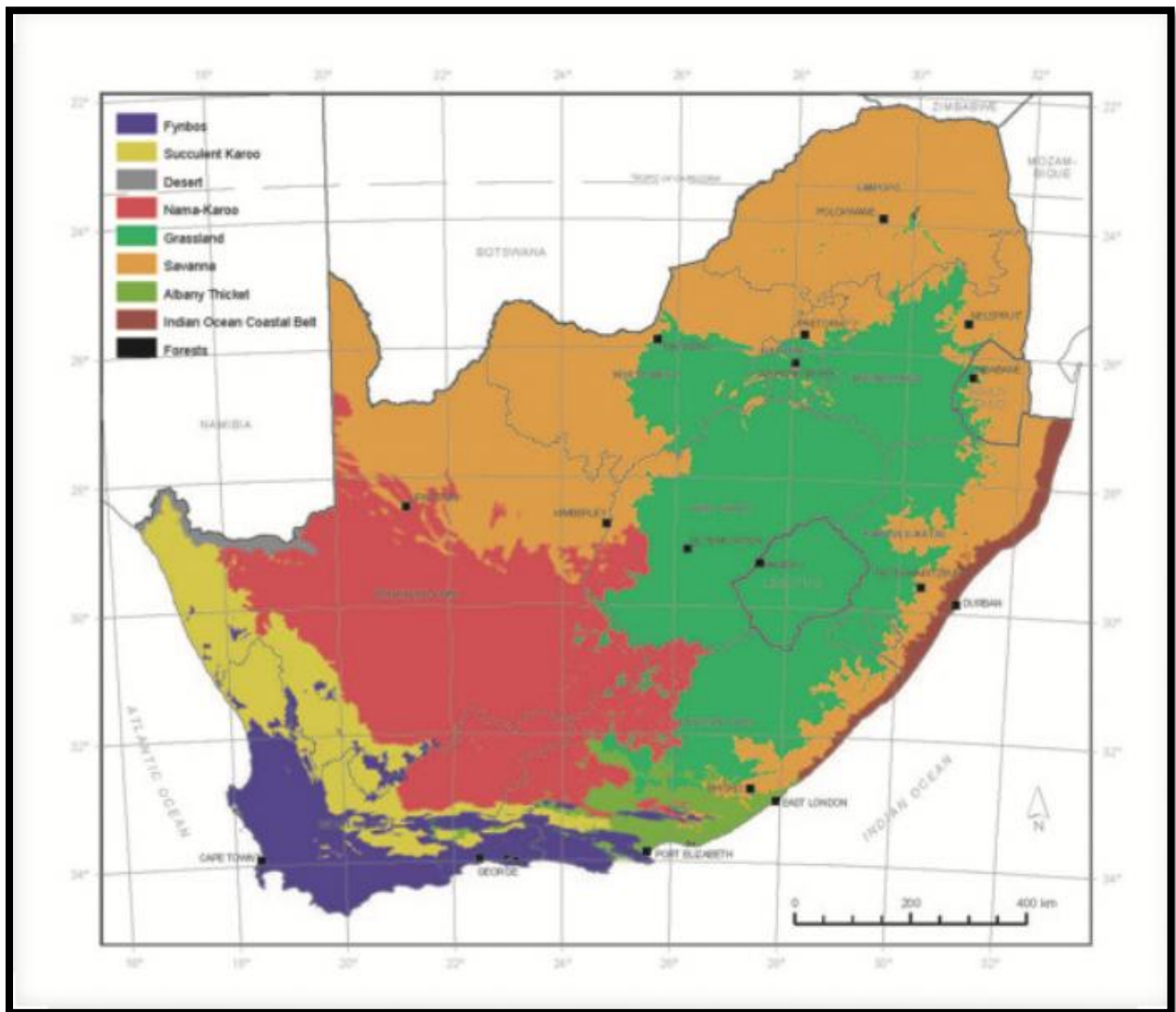
Figure 3: Map Showing South African Biome

2.1. Biome type

Rutherford and Westfall (1994) described the project as falling within the Savanna Biome. The Savanna Biome is the largest Biome in southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the lowveld and Kalahari region of South Africa and is also the dominant vegetation in neighbouring Botswana, Namibia and Zimbabwe. It is characterized by a grassy ground layer and a distinct upper layer of woody plants. Where this upper layer is near the ground vegetation may be referred to as Shrubveld, where it is dense as Woodland, and the intermediate stages are locally known as Bushveld.

The environmental factors delimiting the biome are complex: altitude ranges from sea level to 2000 m; rainfall varies from 235 to 1000 mm per year; frost may occur from 0 to 120 days per year; and almost every major geological and soil type occurs within the biome. A major factor delimiting the biome is the lack of sufficient rainfall which prevents the upper tree layer from dominating, coupled with fires and grazing, which keep the grass layer dominant. Summer rainfall is essential for grass dominance, which, with its fine material, fuels near-annual fires. In fact, almost all species are adapted to survive fires, usually with less than 10% of plants, both in the grass and tree layer, killed by fire. Even with severe burning, most species can re-sprout from the stem bases.

The grass layer is dominated by C 4-type grasses, which are at an advantage where the growing season is hot. But where rainfall has a stronger winter component, C 3-type grasses dominate. The shrub-tree layer may vary from 1 to 20 m in height, but in Bushveld typically varies from 3 to 7 m. The shrub-tree element may come to dominate the vegetation in areas which are being overgrazed. Most of the Savanna vegetation types are used for grazing, mainly by cattle or game. In the southernmost Savanna types, goats are a major stock.

2.2.   Broad vegetation classification
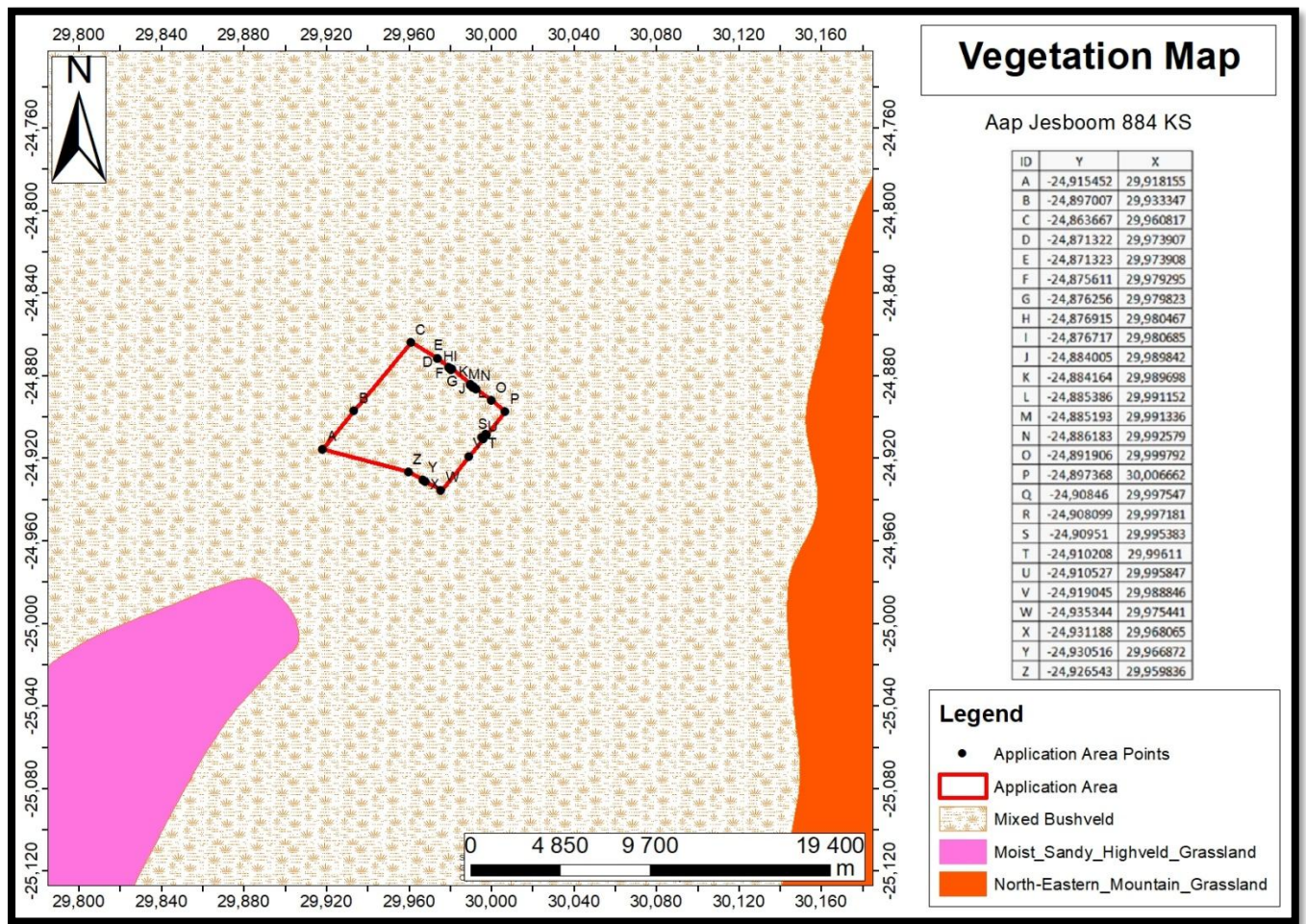
Figure 3: Broad-vegetation map for the site.

Table 2: Broad vegetation classification information

Vegetation Class	Vegetation & Landscape	Important Taxa	Conservation
Sekhukhune Mountain Bushveld Refer to figure 2	According to the Sekhukhune Mountain Bushveld (SVcb28) occurs on dry open to closed mixed micro-phyllous (small-leaved) and broad-leaved savanna in Limpopo and Mpumalanga on undulating hills and mountain sides that form concentric belts that run parallel to the north-eastern escarpment. SVcb28 is situated on high ground surrounding the vegetation of the Sekhukhune Plains Bushveld (SVcb27) and includes the steep slopes of the Leolo Mountains, the Dwarsrivier Mountains, Thaba Sekhukhune and the undulating small hills in the Steelpoort River Valley up to and alongside the Klip River	Tall tree: Acacia nigrescens; Small trees: Acacia senegal var. leiorhachis (d), Combretum apiculatum (d), Kirkia wilmsii (d), Terminalia prunioides (d), Vitex obovata subsp. wilmsii (d), Ziziphus mucronata (d), Bolusanthus speciosus, Boscia albitrunca, Brachylaena ilicifolia, Combretum molle, Commiphora mollis, Croton gratissimus, Cussonia transvaalensis, Hippobromus pauciflorus, Ozaroa sphaerocarpa, Pappea capensis, Schotia latifolia, Sterculia rogersii; Succulent tree: Aloe marlothii subsp. Marlothii; Tall shrubs: Dichrostachys cinerea (d), Euclea crispa subsp. crispa (d),	The Sekhukhune Mountain Bushveld is considered as least threatened with some protected in the Potlake Reserve. Cultivation and urban areas resulted in more than 20% transformation of the vegetation unit and again dongas are present. The main invasive alien present is Melia azedarach

	flowing past Roossenekal in the south-west.	Combretum hereroense, Euclea linearis, Pavetta zeyheri, Tinnea rhodesiana, Triaspis glaucophylla;	
		Low shrubs: Elephantorrhiza praetermissa (d), Grewia vernicosa (d), Asparagus intricatus, Barleria saxatilis, B. senensis, Clerodendrum ternatum, Commiphora africana, Hermannia glanduligera, Indigofera lydenburgensis, Jatropha latifolia var. angustata, Melhania prostrata, Phyllanthus glaucophyllus, Psiadia punctulata, Rhus keetii. Rhynchosia komatiensis;	
		Succulent shrubs: Aloe castanea (d), A. cryptopoda (d);	
		Herbs: Berkheya insignis (d), Commelina africana (d), Cyphostemma woodii, Kyphocarpa angustifolia, Senecio latifolius;	

		Geophytic herbs: Hypoxis rigidula, Sansevieria hyacinthoides; and Succulent herb: Huernia stapelioides.	

2.3. Terrestrial threatened ecosystem

The South African National Biodiversity Institute (SANBI), in conjunction with the Department of Environmental Affairs (DEA), released a draft report in 2009 entitled "Threatened Ecosystems in South Africa: Descriptions and Maps", to provide background information on the List of Threatened Ecosystems (SANBI, 2009). The purpose of this report was to present a detailed description of each of South Africa's ecosystems and to determine their status using a credible and practical set of criteria.

The following criteria were used in determining the status of threatened ecosystems:

- Irreversible loss of natural habitat;
- Ecosystem degradation and loss of integrity;
- Limited extent and imminent threat;
- Threatened plant species associations;
- Threatened animal species associations; and
- Priority areas for meeting explicit biodiversity targets as defined in a systematic conservation plan.

In terms of section 52 (1) (a), of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004), a new national list of ecosystems that are threatened and in need of protection was gazetted on 9 December 2012 (Government Notice 1002 (Driver *et. al.*, 2004). The list classified all threatened or protected ecosystems in South Africa in terms of four categories; *Critically Endangered* (CR), *Endangered* (EN), *Vulnerable* (VU), or *Protected*. The purpose of categorizing these ecosystems is to prioritize conservation areas in order to reduce the rates of ecosystem and species extinction, as well as preventing further degradation and loss of structure, function, and composition of these ecosystems. It is estimated that threatened ecosystems make up 9.5% of South

Africa, with critically endangered and endangered ecosystems accounting for 2.7%, and vulnerable ecosystems 6.8% of the land area. It is therefore vital that Threatened Terrestrial Ecosystems inform proactive and reactive conservation and planning tools, such as Biodiversity Sector Plans, municipal Strategic Environmental Assessments (SEAs) and Environmental Management Frameworks (EMFs), Environmental Impact Assessments (EIAs) and other environmental applications (Mucina *et al., 2006)*. According to data sourced from South African National Biodiversity Institute (SANBI), the area is located within the **vulnerable** ecosystem.

2.4. Important Bird and Biodiversity Areas

The Sekhukhune District, including Fetakgomo Tubatse, is recognized for its biodiversity and birdlife. While specific Important Bird Areas (IBAs) are not detailed in the search results for Fetakgomo Tubatse, the broader Sekhukhune region hosts several critical biodiversity areas. The area features diverse vegetation types, including Sekhukhune Mountain Bushveld and Sekhukhune Plains Bushveld, which support a wide range of bird species and biodiversity. These areas are significant for conservation due to their threatened ecosystems and the presence of various bird species, including raptors and other avifauna. However, the region faces challenges from invasive species and habitat degradation.

Several alien invasive plant species pose significant threats to biodiversity and ecosystem health. Some of the invasive species found in this region include:

Agave spp.: Known for their ability to outcompete native vegetation and exacerbate erosion.

Lantana camara: A highly invasive shrub that can form dense thickets, displacing indigenous plants. Opuntia spp.: Prickly pear cacti that spread rapidly and can dominate landscapes. Verbesina encelioides: A weed that can outcompete native plants for resources.

These invasive species can lead to reduced biodiversity, increased erosion, and decreased water quality, making their control crucial for environmental conservation

2.5. Description of the CBAs

Critical Biodiversity Areas and Broad Scale Ecological Processes Critical Biodiversity Areas (CBA) have been identified for all municipal areas of the Northern Cape Province and are published by SANBI (http://bgis.sanbi.org/). This biodiversity assessment identifies CBAs representing biodiversity priority areas that should be maintained in a natural to near-natural state. CBA maps show the most efficient selection and classification of land portions to be safeguarded so that ecosystem functioning is maintained, and national biodiversity objectives are met (see Table 3 for CBA land management objectives).

Table 3: Relationship between Critical Biodiversity Areas categories (CBAs) and land management objectives.

CBA category	Land Management Objective
Protected Areas (PA) & CBA 1	Natural landscapes: » Ecosystems and species are fully intact and undisturbed. • Areas with high irreplaceability or low flexibility in terms of meeting biodiversity pattern

	targets. If the biodiversity features targeted in these areas are lost then targets will not be met. • Landscapes that are at or past their limits of acceptable change.
CBA 2	Near-natural landscapes: » Ecosystems and species largely intact and undisturbed. • Areas with intermediate irreplaceability or some flexibility in terms of the area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising the ability to achieve targets. • Landscapes that are approaching but have not passed their limits of acceptable change.
ESA	Functional landscapes: • Ecosystem moderately to significantly disturbed but still able to maintain basic functionality. • Individual species or other biodiversity indicators may be severely disturbed or reduced. • Areas with low irreplaceability with respect to biodiversity pattern targets only.

ONA (Other Natural Areas) and Transformed.	Production landscapes: Manage land to optimise sustainable utilisation of natural resources.

Large part of the proposed site falls under the ESA2, part of an active stream on site is categorised as CBA2 and ESA1. The description of the biodiversity categories located within the project site as well as the features underlying these categories and remarks based on a screening site visit, are provided below in Table 2 above.
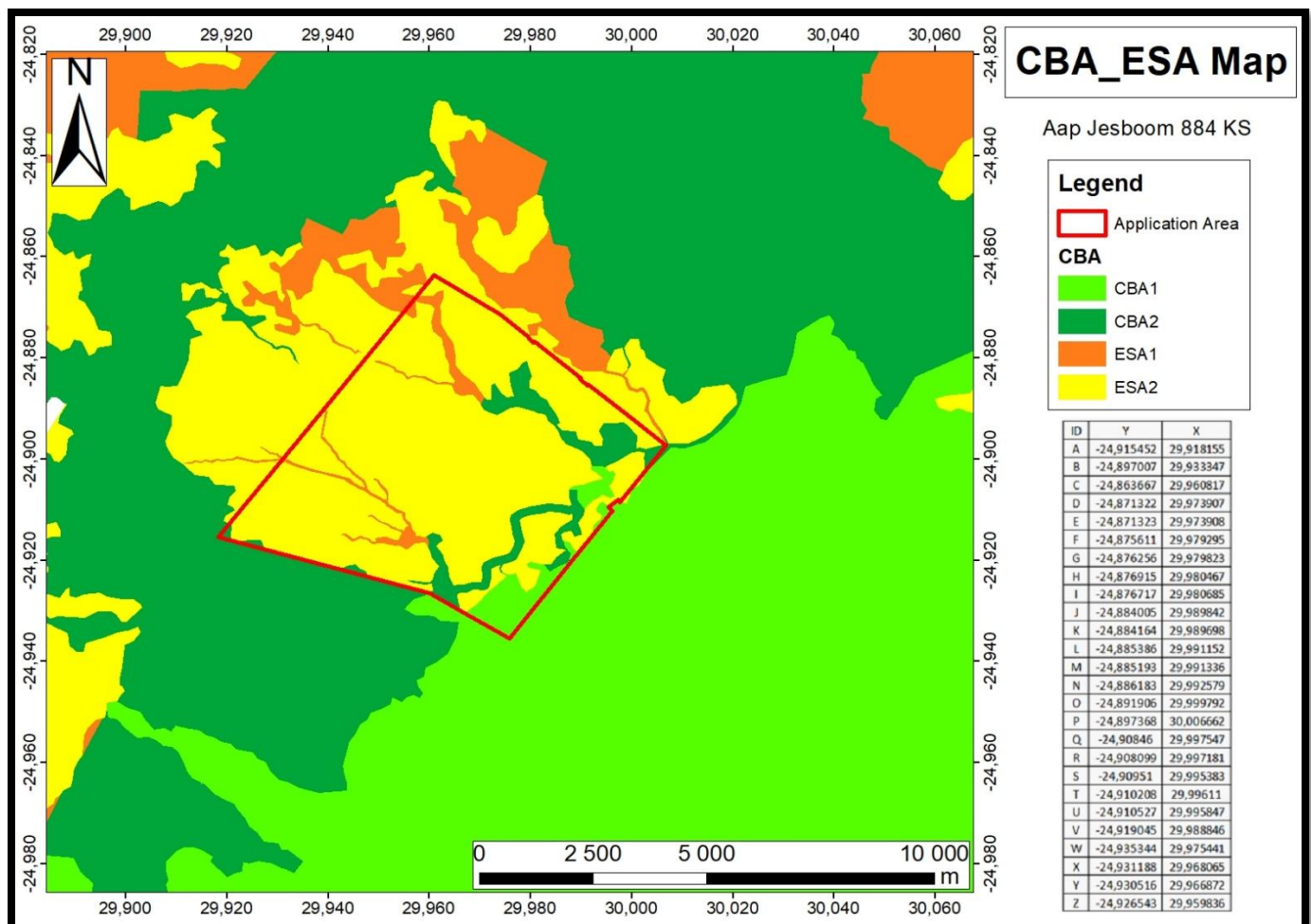

Figure 4: Map showing critical biodiversity area within the proposed project site.

3. METHODOLOGY AND REPORTING

The information provided in this terrestrial biodiversity report is based mainly on the observations that were made during the field survey and a review of the available reports that contain known and predicted biodiversity and ecological information regarding the proposed sites. A wide range of spatial data sets were interrogated, and relevant information was extracted for the study site. A basic ecological sensitivity analysis was performed to identify areas of special interest or concern. The various approaches used, and aspects considered are detailed below:

3.1.1. General

A desktop survey utilising aerial images and photography was undertaken to assemble background information regarding the different features and vegetation type present within the proposed project footprint including the buffer area. The site was then assessed on the 14 of February 2025 to ensure that the true floristic reflection of the site is recorded.

3.1.2. Vegetation

A desk-top study of the habitats of the red-listed and orange-listed species known to occur in the area was done prior to site assessment. Visual assessment was used to assess the abundance of floral and faunal species. The vegetation types of Mucina & Rutherford (2006) were also used as reference but where necessary communities are named according to the recommendations for a standardized South African syntaxonomic nomenclature system (Brown, L.R., Du Preez, P.J., Bezuidenhout, H., Bredenkamp, G.J., Mostert, T.H.C., and Collins, N.B. 2013). By combining the available literature with the survey results, stratification of vegetation communities was possible.

3.1.3. Fauna survey

The majority of mammals and reptiles are either very secretive, nocturnal, hibernate (reptiles), migrate (birds) or prefer specific habitat so sampling and identification was limited.

3.1.4.   Mammals

Records of all mammal species recorded in the proposed site was obtained from the Virtual Museum (VM) website of the Animal Demographic Unit of University of Cape Town prior to the site visits. The site assessment was conducted for mammal species diversity by direct and indirect methods using mammal sightings, burrows, holes and also verified by mammal book (Skinner and Chimimba, 2005). No trapping was conducted during the field survey.

3.1.5.   Alien invasive plants

Table 4: Alien plant species recorded in and around proposed prospecting area

Species	NEM:BA Category
Datura Stramonium	1b
Lnatana Camara	1b

A total of 2 alien plants are listed as invasive species in the NEM:BA Alien & Invasive Species Regulations.

Declared weeds and invaders have the tendency to dominate or replace the herbaceous layer of natural ecosystems, thereby transforming the structure, composition and function of natural ecosystems. Therefore, it is important that all these transformers be eradicated and controlled by means of an eradication and monitoring programme. Some invader plants may also degrade ecosystems through superior competitive capabilities to exclude native plant species (Henderson, 2001).

According to the published Alien and Invasive Species regulations in terms of section 97(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) four categories of problem plants are identified as:

- **Category 1a** plants are high-priority emerging species requiring compulsory control. All breeding, growing, moving and selling are banned.
- **Category 1b** plants are widespread invasive species controlled by a management programme.
- **Category 2** plants are invasive species controlled by area. Can be grown under permit conditions in demarcated areas. All breeding, growing, moving, and selling are banned without a permit.
- **Category 3** plants are ornamental and other species that are permitted on a property but may no longer be planted or sold.

4. IMPACT ASSESSMENT

Any activities associated with a natural system, whether historic, current, or proposed, will impact on the surrounding environment, usually in a negative way. The purpose of this phase of the study was to identify and assess the significance of the potential impacts and to provide a description of the mitigation required to limit the perceived impacts on the natural environment.

MITIGATION HIERARCHY

- Avoid or prevent
- Minimise
- Rehabilitate
- Offset
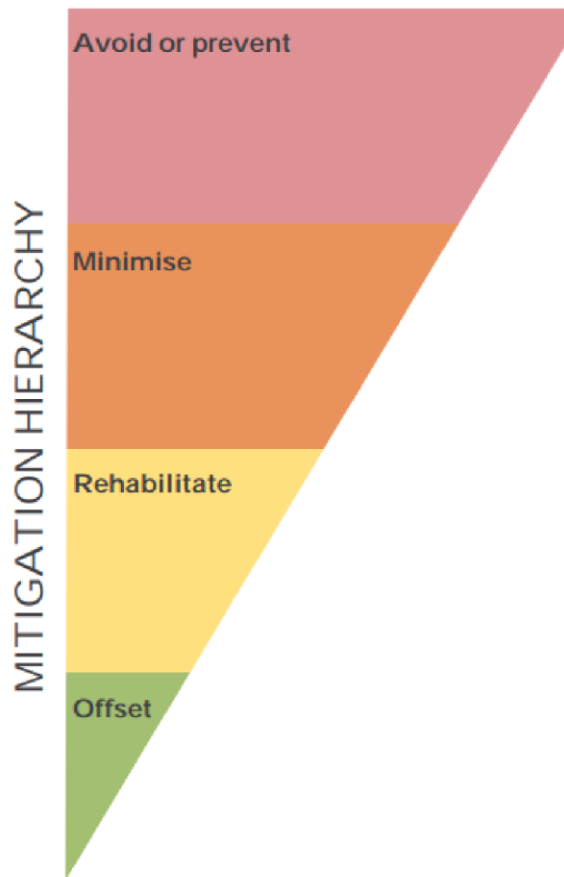
Consider options in project location, nature, scale, layout and technology to avoid potentially significant impacts on biodiversity. Where impacts would be highly significant, the proposed activity should not take place; alternatives should rather be sought. In these cases, it is inappropriate and unlikely to rely on the later steps in the mitigation hierarchy to provide effective remedy for impacts. Consider alternatives in the project location,

scale, layout, technology and phasing that would minimise impacts on biodiversity and ecosystem services. Even in areas where residential impacts on biodiversity and ecosystem services are not highly significant, effort is advised to minimise impacts and avoid costly rehabilitation or offsets.

Rehabilitation of areas where impacts are unavoidable, and measures are taken to return impacted areas to a condition ecologically similar to their natural state prior to the activity. Although rehabilitation is important and necessary, it has limitations. Even with significant resources and effort, it almost always falls short of replicating the diversity and complexity of a natural system; residual negative impacts on biodiversity and ecosystem services will invariably still need to be offset.

Refers to compensating for remaining and unavoidable negative effects on biodiversity and ecosystem services. When every effort has been made to avoid or prevent impacts, minimise

and then rehabilitate remaining impacts to a degree of no net loss of biodiversity against biodiversity targets, biodiversity offsets can - in cases where residual impacts would not cause irreplaceable loss - provide a mechanism to compensate for significant residual (unavoidable) negative impacts on biodiversity.

Prospecting and its related activities can have the following types of impacts:

- Direct impacts are those impacts directly linked to the project (e.g. clearing of land). These can be temporary or remain as residual impacts;
- Indirect impacts are those impacts resulting from the project that may occur beyond or downstream of the boundaries of the project site and/or after the project activity has ceased (e.g. migration of pollutants from road surfaces);
- Induced impacts are impacts that are not directly attributable to the project, but are anticipated to occur because of the presence of the project (e.g. impacts of associated expansion of residential settlements with increased pressure on biodiversity);
- Cumulative impacts are those impacts from the project combined with the impacts from past, existing and reasonably foreseeable future projects that would affect the same biodiversity or natural resources.

Many of the above impacts are not only a result of the direct impact on a particular species, but rather due to what is known as the 'Edge Effect', which can be explained as follows: Ecosystems consist of a mosaic of many different patches. The size of natural patches affects the number, type and abundance of species they contain. At the periphery of natural patches, influences of

neighbouring environments become apparent; this then is the 'Edge Effect'. Patch edges may be subjected to degradation due factors such as increased levels of heat, dust, desiccation, disturbance, invasion of exotic species and other negative agents. Edges seldom contain species that are rare, habitat specialists or species that require larger tracts of undisturbed core habitat to survive in the long term. Fragmentation due to development reduces core habitat and greatly extends edge habitat, which causes a shift in the species composition, which in turn puts great pressure on the dynamics and functionality of ecosystems (Perlman & Milder, 2005).

4.1. Impact Assessment Criteria

Potential impacts of the proposed activity on the environment were assessed in terms a formalised method, whereby a typical risk assessment process was undertaken in order to determine the significance of the potential impacts without the application of mitigation/management measures. Once the significance of the impacts without the application of mitigation/management measures was known, the impacts were then re-evaluated, taking cognisance of the application of proposed mitigation/management measures provided in order to reduce the impact, thus enabling an understanding of the overall impact after the implementation of mitigation/management measures.

The NATURE of an impact refers to a description of the activity, inherent features, characteristics and/or qualities of the impact. Thus, each impact will be comprehensively detailed and contextualised prior to being assessed.

The EXTENT refers to the impact footprint. What that means is that if a species were to be lost then the extent would be global because that species would be lost to the world. If human health is threatened, then the impact is likely to be no more than local and possibly (in the case of a nuclear power station) regional.

The significance of the impacts will be assessed considering the following descriptors:

Table 5: Impact assessment table

Nature of the impact		
Positive	+	Impact will be beneficial to the environment (a benefit).
Negative	-	Impact will not be beneficial to the environment (a cost).
Neutral	0	Where a negative impact is offset by a positive impact, or mitigation measures, to have no overall effect.

`Magnitude		
Minor	2	Negligible effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been altered significantly, and have little to no conservation importance (negligible sensitivity*).
Low	4	Minimal effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been largely modified, and / or have a low conservation importance (low sensitivity*).
Moderate	6	Notable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have already been moderately modified, and have a medium conservation importance (medium sensitivity*).
High	8	Considerable effects on biophysical or social functions / processes. Includes areas / environmental aspects which have been slightly modified and have a high conservation importance (high sensitivity*).
Very high	10	Severe effects on biophysical or social functions / processes. Includes areas / environmental aspects which have not previously been impacted upon and are pristine, thus of very high conservation importance (very high sensitivity*).
Extent		
Site only	1	Effect limited to the site and its immediate surroundings.
Local	2	Effect limited to within 3-5 km of the site.

Regional	3	Activity will have an impact on a regional scale.
National	4	Activity will have an impact on a national scale.
International	5	Activity will have an impact on an international scale.
Duration		
Immediate	1	Effect occurs periodically throughout the life of the activity.
Short term	2	Effect lasts for a period 0 to 5 years.
Medium term	3	Effect continues for a period between 5 and 15 years.
Long term	4	Effect will cease after the operational life of the activity either because of natural process or by human intervention.
Permanent	5	Where mitigation either by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient.
Probability of occurrence		
Improbable	1	Less than 30% chance of occurrence.
Low	2	Between 30 and 50% chance of occurrence.
Medium	3	Between 50 and 70% chance of occurrence.
High	4	Greater than 70% chance of occurrence.
Definite	5	Will occur, or where applicable has occurred, regardless or in spite of any mitigation measures.

Once the impact criteria have been ranked for each impact, the significance of the impacts will be calculated using the following formula:

Significance Points (SP) = (Magnitude + Duration + Extent) x Probability

The significance of the environmental impact is therefore calculated by multiplying the severity rating with the probability rating. The maximum value that can be reached through this impact evaluation process is 100 SP (points). The significance for each impact is rated as High (SP≥80), Medium (SP = 40-79) and Low (SP<20) significance as shown in the Table 6 below.

Table 6: Definition of significance rating

Significance of predicted NEGATIVE impacts		
Low	0-20	The perceived impact will not have a noticeable negative influence on the environment and is unlikely to require management intervention that would incur significant cost.
Low to moderate	20-39	The perceived impact is considered acceptable, and application of recommended mitigation measures recommended.
Moderate	40-59	The perceived impact is likely to have a negative effect on the receiving ecosystem, and is likely to influence the decision to approve the activity. Implementation of mitigation measures is required, as is routine monitoring to ensure effectiveness of recommended mitigation measures.
Moderate to high	60-79	The perceived impact will have a significant impact on the receiving ecosystem, and will likely to have an influence on the decision-making process. Strict implementation of mitigation measures as provided is required, and strict monitoring and high levels of compliance and enforcement in respect of the impact in question are required.

| High | 80-100 | The impact on the receiving ecosystem is considered of high significant and likely to be irreversible, and therefore highly likely to result in a fatal flaw for the project. Alternatives to the proposed activity are to be investigated as impact will have an influence on the decision-making process. |

Table 7: Impact/Risk Assessment: Design and Prospecting Phase

Impact	Stage	Nature	Magnitude	Extent	Duration	Probability	Significance before mitigation	Significance after mitigation
Removal of the natural vegetation	Prospecting	Negative	Low (4)	Site only (1)	Long term (4)	Definite (5)	Moderate (45)	Low
Disturbance to animals on site	Prospecting	Negative	Low (4)	Site only (1)	Long term (4)	Definite (5)	Moderate (45)	Low
Increased soil erosion, increase in silt loads and sedimentation	Prospecting	Negative	Moderate (6)	Regional (3)	Long term (4)	High (4)	Moderate (52)	Low
Establishment and spread of declared weeds	Prospecting	Negative	High (8)	Site only (1)	Long term (4)	Definite (5)	High (75)	Low to moderate
Pollution due to oil and fuel spills, erosion, and ablution facilities.	Prospecting	Negative	High (8)	Regional (3)	Long term (4)	High (4)	High (60)	Low
Impact on soil and water courses	Prospecting	Negative	Very High (10)	Local (2)	Long Term (4)	Definite (4)	High(80)	Moderate

5.   RESULTS OF THE ASSESSMENT
5.1.   Features noticed during the site survey:

The proposed site gives a feel of the grassland biome. This is because the site is dominated by the grassland with the dense bushes along the watercourses. The site was surveyed during the wet season, and it was easy to identify vegetation.

Four characteristics were noticed during the site survey:

- Disturbed natural environment

- Natural grassland; and

- The vegetation associated with watercourses.

- Human Settlement

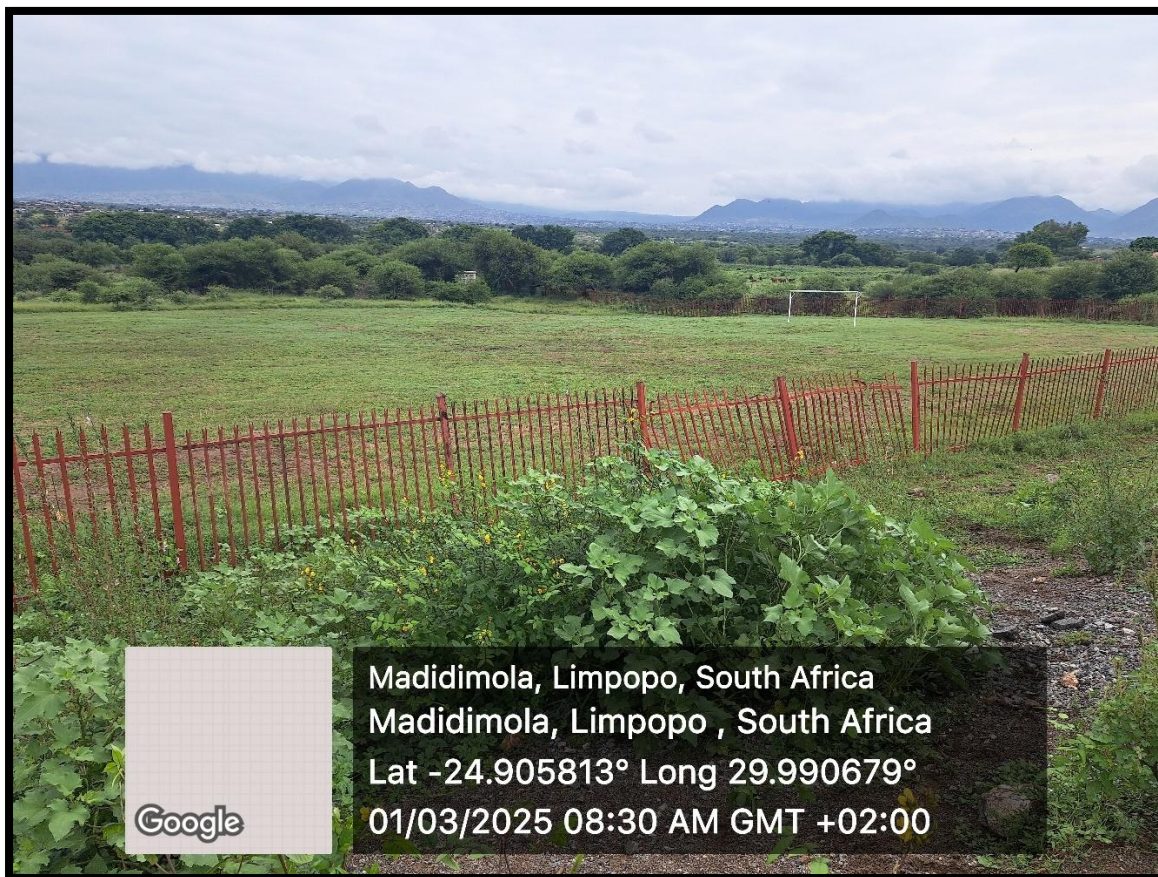### i)   Disturbed natural environment

Figure 5: Disturbance on site through human activities

Due to different human activities taking plan within the area, it has resulted into a lot of habitat disturbance/fragmentation. Dominating plant species include *Acacia Mearnsii* as well as the *Eucalyptus* which form part of the whole Sekhukhune area. The grass composition is dominated by mainly inceasers, i.e. *Cynodon dactylon, Eragrostis curvula, Eragrostis racemosa, Paspalum dilatatum, Sporobolus africanus, Aristida congesta and Melinis* repens. Very few weeds are present, the only exception being *Verbena aristigera*.

Sensitivity aspects

- The encroached natural grassland vegetation has an ecological functioning of medium - High;

- The suitability of this community for Red Data/protected species is considered low.

- Sections of the area have been cleared for cultivation.

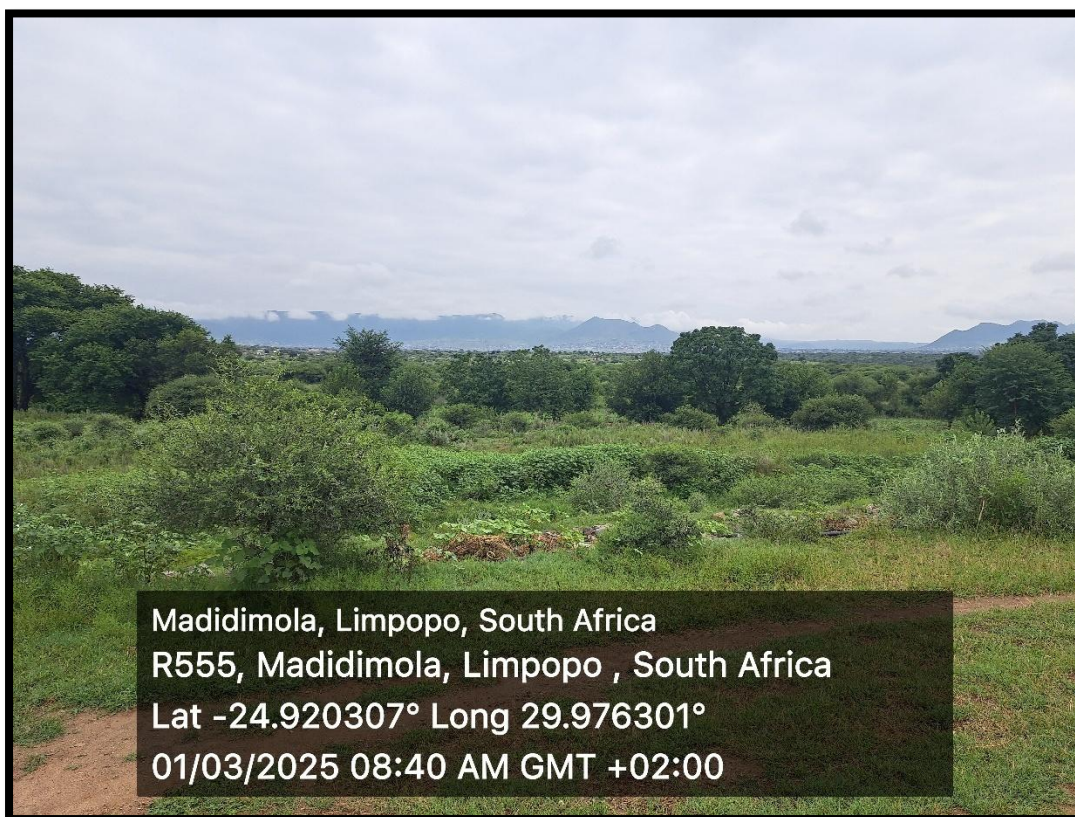### ii)   Natural grassland encroached with Datura Stramonium

Figure 6: Natural vegetation on the proposed site Encroached with Datura stramonium.

The natural grassland exist all around the proposed site has species such as Alloteropsis semialata, Andropogon appendiculatus, Andropogon schirensis, Brachiaria serrata, Ctenium concinnum, Cymbopogon caesius, Cynodon hirsutus, Digitaria tricholaenoides, Eragrostis racemose, Festuca scabra, Harpochloa falx, Heteropogon contortus, Hyparrhenia hirta, Loudetia simplex, Melinis nerviglumis, Microchloa caffra, Monocymbium ceresiiforme, Setaria nigrirostris, Themeda triandra, Trachypogon spicatus and Tristachya leucothrix. Small shrubs of Solanum mariantanum, Grewia occidentalis, Ziziphus mucronata, Rubus rigidus, Berkheya setifera, Dicoma anomala, Helichrysum rugulosum, Dicoma zeyheri and Rhus discolour scattered on this vegetation.

Sensitivity aspects
- The encroached natural grassland vegetation has an ecological functioning of medium - High;
- The suitability of this community for Red Data/protected species is considered low.
- Sections of the area have been cleared for cultivation.

iii)   Vegetation associated with watercourses

Figure 7: Picture showing Phragmites australis and Cypress grass on the banks of the stream.

This is the vegetation that occurs on the streams (perennial and non-perennial) including the eroded gully areas that show signs of macro erosion with very poor plant density and many bare patches of soil. The grass composition is almost exclusively increasers and the tree layer was dominated by Acacia mearnsii. Other species include Polygala uncinata, Lantana camara, Ficus burkei, Dombeya rotundifolia.

Sensitivity aspects

- The watercourse area has an ecological functioning of High sensitivity.
- The suitability of this community for Red Data/protected species is considered high.

iv)   Human Settlement

Figure 8: Picture showing residential and business area within the proposed project site

Some areas within the proposed site is heavily composed of human settlement, the above picture is showing some the activities associated with the human settlement on site, however the area where people are residing should be excluded from the prospecting activities.

Sensitivity aspects

- The human settlement area has an ecological functioning of low sensitivity due to heavy disruption of the natural environment during construction activities.
- The suitability of this community for Red Data/protected species is considered to be very low.

5.1.1. Mammals Diversity and Habitats

The IUCN Red List Spatial Data lists 65 mammal species that could be expected to occur within the vicinity of the project site. This is regarded as a moderately-low species diversity.

Of these species, eight are medium to large conservation dependant species, or species that had a historical range that included the project area, but with natural populations since becoming locally "extinct" in these areas. These species are now generally restricted to protected areas such as game reserves and protected areas, with most of these species being re-introduced in these areas.

Examples of such species are:

- African Wild Dog – *Lycaon pictus* (Endangered);
- Spotted Hyaena – *Crocuta crocuta* (Near Threatened);
- Red Hartebeest – *Alcelaphus caama* (Not Evaluated);

These species are not expected to occur in the project site and are removed from the expected Species of Conservation Concern (SCC) list.   Of these 57 remaining mammals, only two species been previously recorded within the larger survey area (Quarter Degree Grids: 2919BA, 2919BB, 2919BD and 2920AA) according to the Animal Demographic Unit (ADU) database, indicating a significant undersupplying within the area (https://vmus.adu.org.za/vm_sp_list.php).

These recorded species are;

- Steenbok - *Raphicerus campestris* (No. of Records: 1)
- Bat-eared Fox – *Otocyon megalotis*.
- Aardwolf – *Proteles cristata*.
- Acacia Thallomys - *Thallomys paedulcus*.
- Striped Polecat – Ictonyx striatus

Site Visit Observations:

Of the remaining 57 small- to medium sized mammal species, One (1) indigenous mammal species have been observed refer to Table 4 through direct observations, camera trap photographs, Sherman traps, and/or the presence of visual tracks & signs. within the project site. These data represent strong evidence as to a potential low diverse and functional mammal

assemblage populating the study area. Based on the various sampling techniques, the following mammals were the most frequently observed within the project site.

- Pygmy Hairy-footed Gerbil (*Desmodillus auricularis):* No physical records but numerous burrows);

Table 8: List of Mammalian species that has been observed within the project site.

Common Name	Scientific Name	Regional Status (2016)	Global Status (2015)	TOPS (NEMBA)	Endemic
Short-tailed Gerbil	*Desmodillus auricularis*	LC	LC		
Steenbok	*Raphicerus campestris*	LC	LC		

5.1.2.   Reptile Diversity

The IUCN Red List Spatial Data lists 41 reptile species that could be expected to occur within the vicinity of the project site and include one tortoise, 13 geckos, 16 lizards, one chameleon and 15 snakes. This is comparatively moderate-low suggesting that reptile diversity at the site is likely to be fairly low.

Of these 41 reptile species, 15 have been previously recorded within the larger survey area (Quarter Degree Grids: 2919BA, 2919BB, 2919BD and, 2920AA) according to the Animal Demographic Unit (ADU) database, indicating significant under sampling within the region. Species that has been frequently observed within these QDGs are:

- Purchell's Gecko – *Pachydactylus prucelli* (No. of Records: 17); and
- Western Three-striped Skink – *Trachylepis occidentalis* (No. of Records: 4).

Figure 9: Picture showing Ziziphus Mucronata within the proposed site.

Site Visit Observations:

It must be reiterated that the low diversity observed within the project site can most likely be attributed unfavourable climatic conditions. However, the area is still none the less, regarded as containing a potentially moderate-low diverse and functional reptile assemblage populating.

Table 9: List of Reptilian species that has been observed within the project site.

Common Name	Scientific Name	Regional Status (2016)	Global Status (2015)	TOPS (NEMBA)	Endemic
Agama aculeata aculeata	*Western Ground Agama*	LC	LC		

5.1.3.   Protected Reptile Species

These are species that are either protected nationally within TOPS (Threatened and Protected Species Issued in terms of Section 56(1) of the National Environmental Management: Biodiversity Act, 2004) or provincially within Schedule 1 and 2 of the Northern Cape Nature Conservation Act No 9 of 2009.

5.1.4.   Amphibian Diversity

The IUCN Red List Spatial Data lists only eight amphibian species that occur within the region. Given the aridity of the site and lack of surface water in the area, this low diversity of amphibians is not surprising.

Of these eight amphibian species, only one species has been previously recorded within the larger survey area (Quarter Degree Grids: 2919BA, 2919BB, 2919BD, 2920AA) according to the Animal Demographic Unit (ADU) database.

- Common Caco – *Cacosternum boettgeri*

Screening Site Visit Observations:

No amphibian species have been recorded within the project area, however there are available habitat for these species and the likelihood of some of these species to occur.

The most likely amphibian species to inhabit the project site include:
- Tandy's Sand Frog – *Tomopterna tandyi*; and
- Common Caco – *Cacosternum boettgeri*

Impacts on amphibians are likely to be low given the limited extent of the development as well as low likely density of amphibians in the area. Although there are some available amphibian habitats these habitats are unlikely to be impacted by the proposed development.

6.   DFFE National Screening Tool (April 2022)

Please take note the Site Screening Survey was conducted prior to the Impact Assessment phase and was accompanied by a Screen Survey Site Visit. All the findings and recommendations were made based on the information

available at the time. The information provided within this Report as well as the Scoping Phase Report was used to finalize the layout of the facility in order to avoid all sensitive features as recommended within this report and the scoping phase report. Introduction and summary of the Screening Tool and the link between this tool and the newly gazetted Protocols for specialists. The Screening Tool, developed by the Department of Environmental Affairs ("DEA"), now Department Forestry and Fisheries of Environment, (DFFE), is a geospatial web-enabled application that aims to provide readily available information, known as 'spatial datasets', which enables applicants for Environmental Authorisation to screen their proposed site for environmental sensitivities. The Screening Tool provides site specific information to assist an applicant throughout the EIA process. The information provided includes, for example, zoning identification, applicable Environmental Management Frameworks or bio-regional plans, project specific requirements such as specialist studies, and the minimum information to be included in the EIA report. On 5 July 2019, the Minister of Environment, Forestry and Fisheries, Barbara Dallas Creecy, published a notice requiring that when submitting an application for environmental authorisation in terms of regulation 19 and regulation 21 of the Environmental Impact Assessment Regulations, 2014 (as amended) (the "EIA Regulations"), the applicant must submit the report generated by the National Web Based Screening Tool (the "Screening Tool") with the application. This notice came into effect in October 2019.
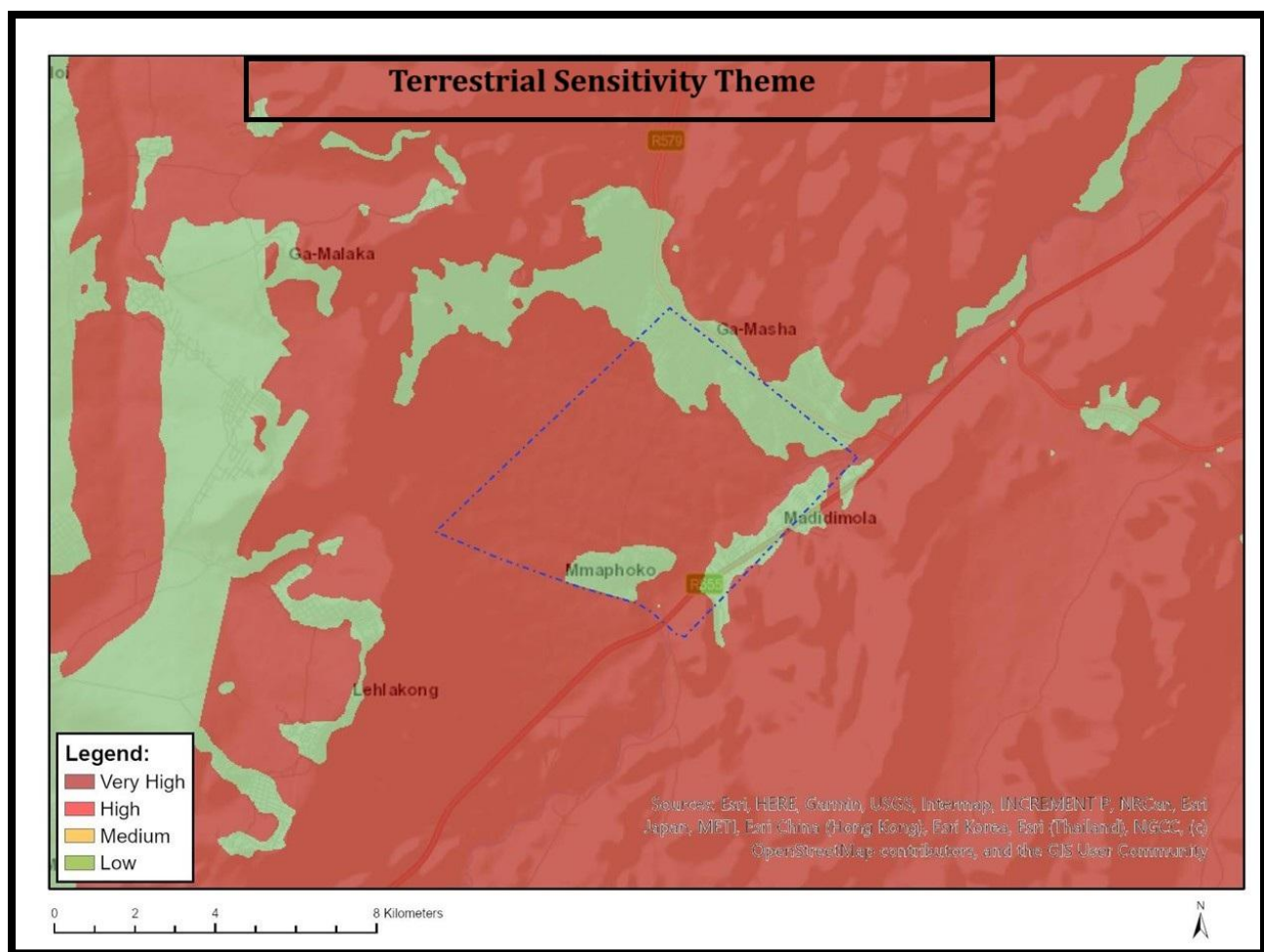
Figure 10: The National Web-Based Environmental Screening Tool map of the proposed Prospecting, indicating sensitivities for the Terrestrial sensitivity theme to be Low.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Very High	De Hoop Private Nature Reserve
Very High	CBA 1
Very High	CBA 2
Very High	National Protected Area Expansion Strategy (NPAES)
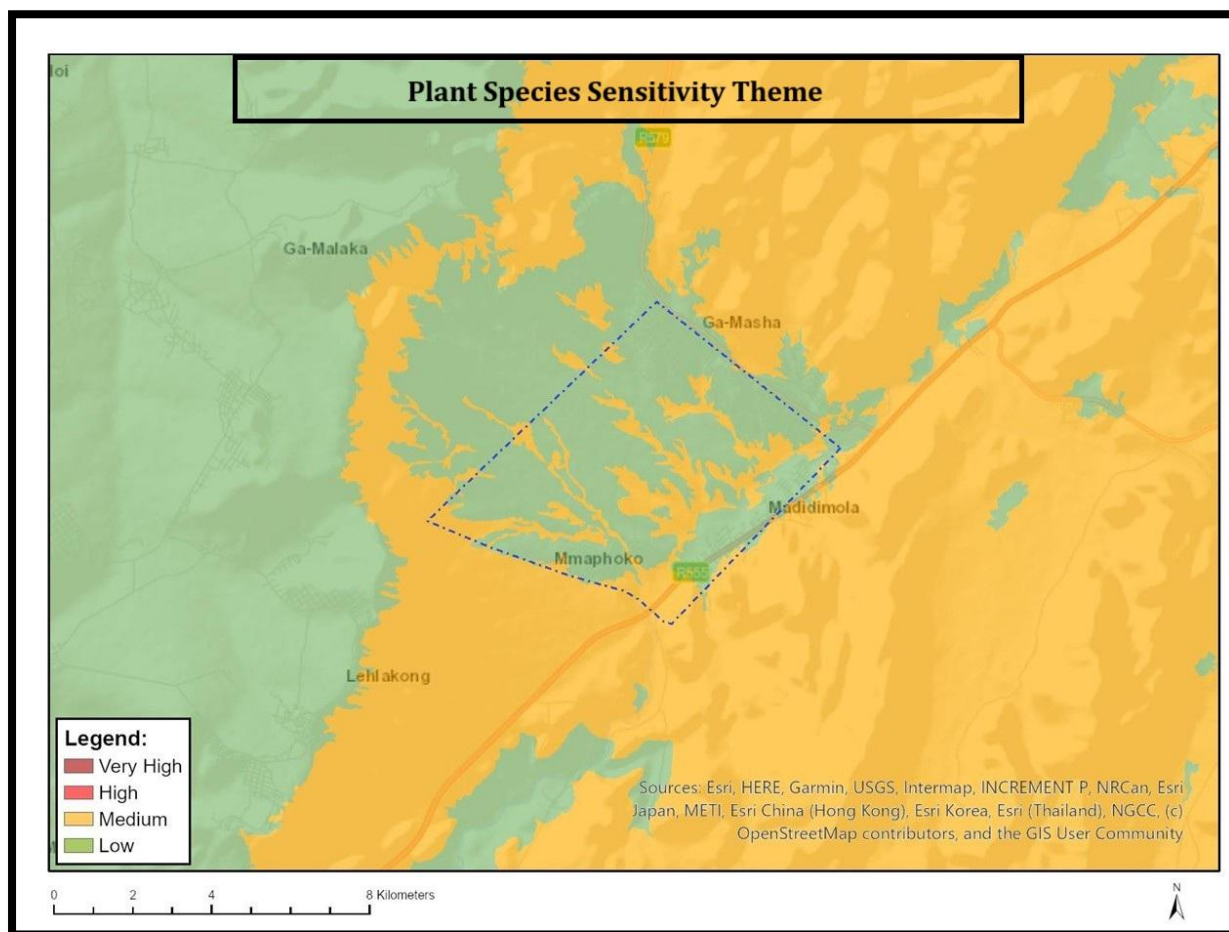
Figure 11: The National Web-Based Environmental Screening Tool map of the proposed prospecting, indicating sensitivities for the Plant sensitivity theme. The Medium sensitivity classifications.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 587
Medium	Asparagus fourei
Medium	Sensitive species 124

|	
Medium	Polygala sekhukhuniensis
Medium	Searsia sekhukhuniensis
Medium	Combretum petrophilum

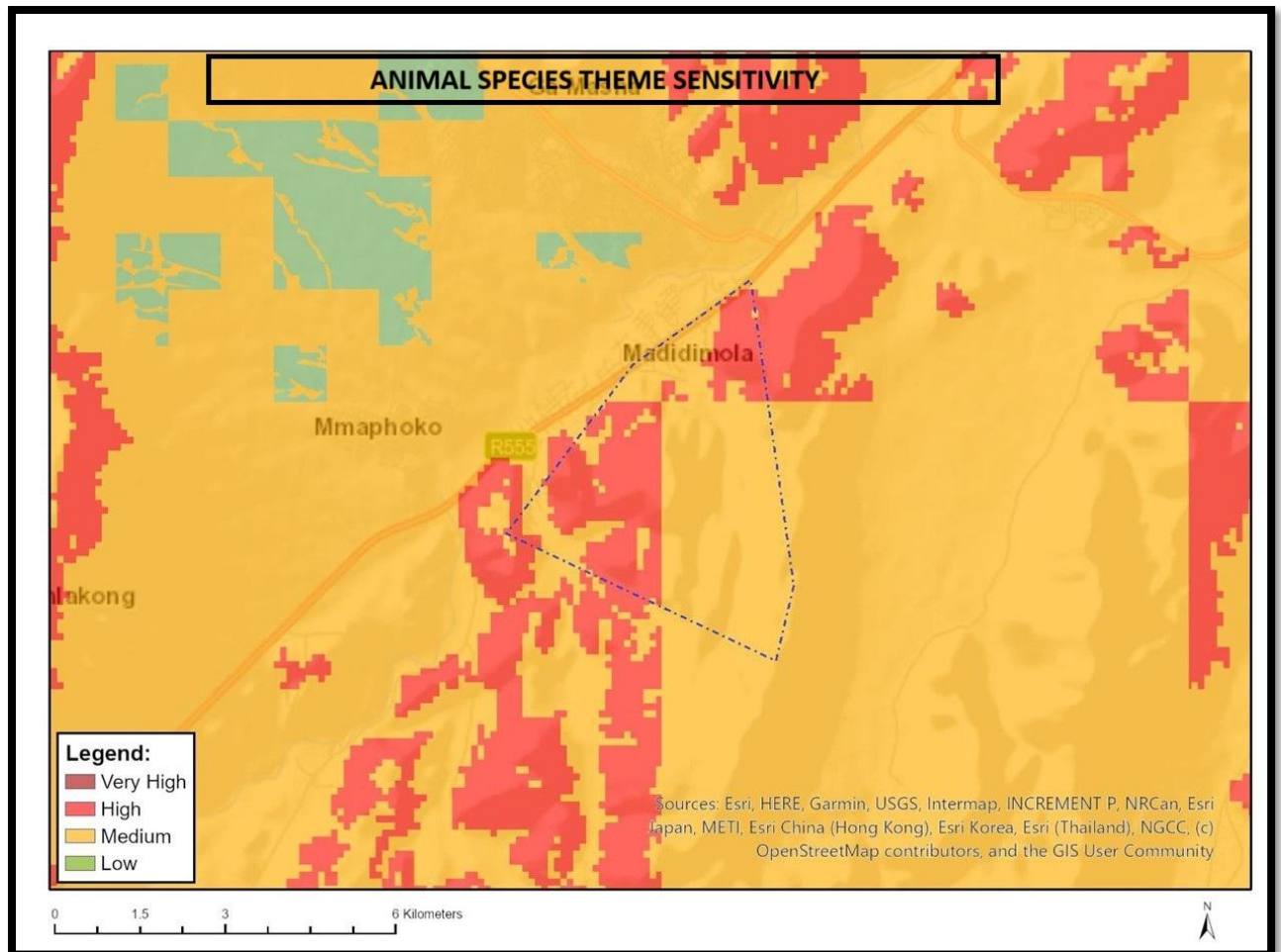Figure 12: The National Web-Based Environmental Screening Tool map of the proposed prospecting, indicating sensitivities for the Animal sensitivity theme. The Medium sensitivity classifications.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Aves-Falco biarmicus

Low	Subject to confirmation
Medium	Aves-Sagittarius serpentarius
Medium	Aves-Aquila rapax
Medium	Aves-Hydroprogne caspia
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Lycaon pictus
Medium	Reptilia-Crocodylus niloticus
Medium	Reptilia-Kinixys lobatsiana

7. CONCLUSION AND RECOMMENDATIONS

- The most significant way to mitigate the loss of habitat is to limit the footprint within the natural habitat areas remaining.
- Vegetation clearing should be kept to a minimum, and this should only occur where it is necessary. Where possible, natural vegetation must not be cleared and encouraged to grow.
- Rehabilitate all disturbed areas as soon as the prospecting is completed within the proposed prospecting areas.
- Ensure that all personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and on-going minimisation of environmental harm, and this can be achieved through provision of appropriate awareness to all personnel.
- There should be no prospecting within the designated buffer zones of all watercourses.
- As indicated on the drilling plan, the proposed prospecting should focus on area that has already been disturbed, and no further loss of primary or secondary vegetation should be permitted.
- It is recommended that areas to be prospected to be specifically demarcated to movement of workers into sensitive areas.
- All Critical Biodiversity Areas, Irreplaceable and Optimal have been excluded for prospecting, therefore prospecting should focus mostly on complete transformed areas such as cultivated areas, and cultivated areas that overlap sensitive areas can be considered for prospecting.
- Areas of indigenous vegetation, even secondary communities, should under no circumstances be fragmented or disturbed further or used as an area for dumping of waste.

- Given the observations made on site as well as the NFEPA guidelines and the buffer tool, it is recommended that a 100 m buffer be used for NFEPA systems (these systems are already vulnerable), a 33 m buffer for drainage lines and a 34 m buffer for wetlands. This is most relevant for the construction phase. Encroachment into these areas will cause serious harm to the watercourse systems.

From the desktop assessment it seems the plant communities on the site were in a good condition, representing natural, close to pristine vegetation. The proposed area for the prospecting is regarded as having a conservation value of Medium to High apart from the already disturbed area (due to cultivation). This is due to the abundance and richness of the plant species.

It is therefore important that the placement of the prospecting sites including structures is done with these sensitive areas in mind. The placement of drilling sites must take into account the area contains protected and red listed plants. The opportunity exists however, for the proposed prospecting to contribute significantly to conservation of biodiversity within the region, as not the whole area will be removed of vegetation but rather only the drilling sites. Conservation of as much of the natural land in the area within the site as possible, and the creation of corridors linking other natural areas would aid in conservation of ecosystems, flora and fauna. If efforts are made to initiate conservation of this habitat, and conservation is maintained after the closure of the prospecting, the net impacts on biodiversity will be positive.

It is then advised that prospecting may continue provided that the mitigation measures as suggested can be implemented, then the overall impact of the development components would be of low overall significance, and it is unlikely that the development would result in an overall net loss of biodiversity or long-term degradation of the receiving environment.

As far as possible, the proposed prospecting should target the area that have already been disturbed, and no further loss of primary or secondary vegetation should be permitted. It is recommended that areas to be prospected must be demarcated to movement of workers into sensitive areas.

- **10. Impact Statement**
  An impact statement is required as per the NEMA regulations concerning the proposed development.

The main impacts that may be expected to occur, as a result of the proposed prospecting and related activities, include the following:

- Direct habitat loss and fragmentation) and the degradation of the surrounding habitat;

- Direct loss and /or loss of habitat for NT plant species;

- Introduction and further spreading of weed species.

All mitigation measures as described in this report must be implemented to reduce the significance of all anticipated impacts to a lower level (from 'High' - 'Moderately High' to low Moderately high' - 'Moderate' and 'Low' respectively). The cumulative impact of the project, taking into account the size of the proposed project and the implementation of strict mitigation measures, is rated as 'Low'.

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