



BLUELEAF
ENVIRONMENTAL

Terrestrial Biodiversity Specialist Assessment

Bothaville Consolidated Prospecting, Free State

Prepared for:

Mr Michael Leach
Environmental Consultant
Enviroworks
E-mail: michael@enviroworks.co.za
Mobile: +27 (0) 82 438 9744

Date submitted: 24 July 2024

Mr Roy de Kock M. Sc (Pri.Nat.Sc.)
Ecologist and Biodiversity Specialist
Blue Leaf Environmental (Pty) Ltd.
Cell: +27 76 281 9660
Email: roy@blueleafenviro.co.za

Port Elizabeth:
38 Tulip Avenue
Sunridge Park
Port Elizabeth
6045

East London:
163 Cowrie Crescent
Cove Rock Country Estate
East London
5213

DECLARATION OF INDEPENDENCE

I, Roy de Kock, as duly authorised representative of BlueLeaf Environmental (Pty) Ltd, hereby confirm my independence (as well as that of BlueLeaf) as a specialist and declare that neither I nor BlueLeaf have any interest, be it business, financial, personal or other, in any proposed activity, application or appeal in respect of which Ayampa Sustainable Development (Pty) Ltd was appointed as environmental assessment practitioner in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), other than fair remuneration for work performed, specifically in connection with the Specialist Assessment for the proposed Bothaville Consolidated Prospecting project in the Free State. I further declare that I am confident in the results of the studies undertaken and conclusions drawn because of it – as is described in this report.



Full Name: Roy de Kock

Title / Position: Ecologist

Qualification(s): BSc (Hons) Geology; MSc Botany; Candidate PhD Botany

Experience (years/ months): 16 years

Registration(s): SACNASP (400216/16)

EXPERTISE

Roy has over 17 years' experience in environmental consulting and specialist services in South Africa. Various projects throughout Africa have also been undertaken. Projects include baseline studies, impact assessments and compliance auditing for various large-scale projects including numerous wind farms, roads (National and Provincial), and infrastructure development projects. Blue Leaf also offers a wide range of in-house specialities including but not limited to Ecological and Botanical assessments, Biodiversity studies, Plant and Animal Search and Rescue, Fauna and Flora permits, Aquatic Assessments, Agricultural and Soil Assessments and Environmental and Venomous animals training workshops.

Roy holds a BSc Honours in Geology and an MSc in Botany from the Nelson Mandela University in Port Elizabeth. He is currently busy with his PhD (Doctorate degree) in Botany and Soil Science. He has over 17 years' experience in the environmental consulting focussing on Ecological and Agricultural Assessments, Geological and Geotechnical analysis, Environmental Management Plans, mining applications and various environmental impact studies.

Table of Contents

1.	INTRODUCTION	4
1.1.	PROJECT DESCRIPTION	4
1.2.	PROJECT LOCALITY	6
1.3.	ALTERNATIVE	9
1.4.	PUBLIC CONSULTATION	9
1.5.	OBJECTIVES	9
1.6.	ASSUMPTIONS AND LIMITATIONS	9
1.7.	PROJECT AREA OF INFLUENCE	10
2.	APPROACH AND METHODOLOGY	12
2.1.	VEGETATION MAPPING	12
2.2.	BIODIVERSITY CLASSIFICATION	12
2.3.	PROTECTED AREAS	13
2.5.	SITE SENSITIVITY	13
2.6.	IMPACT ASSESSMENT	14
3.	SITE ASSESSMENT	18
3.1.	SITE SURVEY	18
3.2.	TOPOGRAPHY	18
3.3.	LOCAL CLIMATE	19
3.4.	GEOLOGY AND SOILS	19
3.5.	LAND USE	19
3.6.	VEGETATION	21
3.7.	TERRESTRIAL BIODIVERSITY	22
3.8.	PROTECTED AREAS	23
3.9.	STRATEGIC WATER SOURCE AREAS	23
3.10.	ALIEN AND INVASIVE SPECIES	23
4.	SITE ECOLOGICAL IMPORTANCE	25
4.1.	DFFE SCREENING REPORT SENSITIVITY	25
4.2.	SITE SENSITIVITY	25
5.	IMPACT ASSESSMENT	27
6.	CONCLUSION	31
6.1.	ASSESSMENT SUMMARY	31
6.2.	SITE SENSITIVITY	32
6.3.	ALTERNATIVES	32
6.4.	CUMULATIVE IMPACTS	32
6.5.	LEVELS TO BE AVOIDED	33
6.6.	BIODIVERSITY OFFSETTING	33
6.7.	LEVELS OF ACCEPTABLE CHANGE	33
6.8.	CURRENT IMPACTS	33
6.9.	MITIGATIONS	33
6.10.	SPECIALIST OPINION	34
7.	REFERENCES	35

1. Introduction

BlueLeaf Environmental (Pty) Ltd (BlueLeaf) has been appointed by Enviroworks Consulting on behalf of Reef Exploration (Pty) Ltd, to undertake a terrestrial biodiversity assessment as part of the Environmental Impact Assessment (EIA) process conducted by Enviroworks.

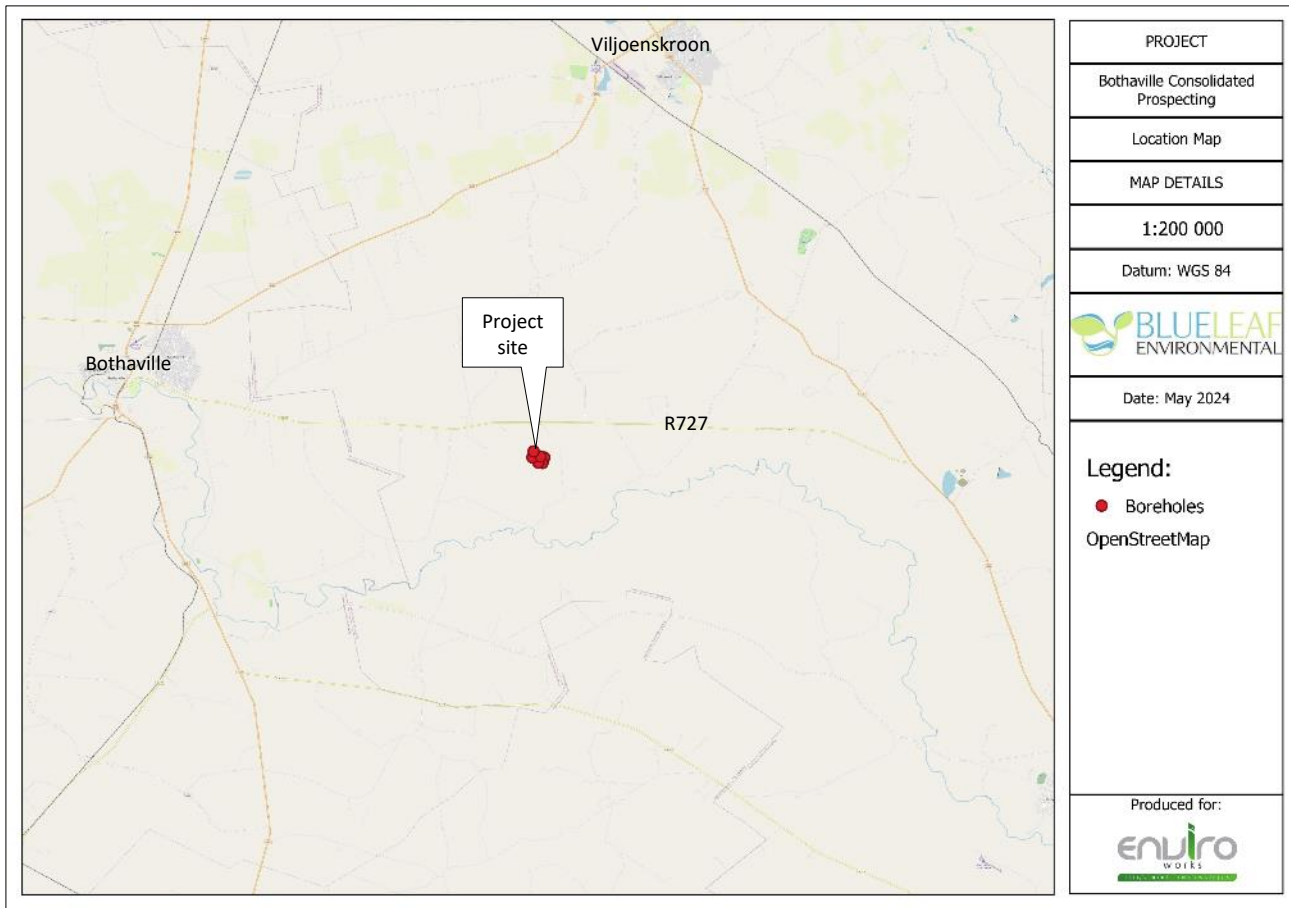


Figure 1.1: Location of the project site near Bothaville within the Free State Province

1.1. Project description

The site is situated 30 kms east of Bothaville in the Free-State, just south of the R727 and will be located on various farm portions belonging to two separate landowners (Figure 1.2). Farming consists of a mix of maize crop farming and cattle grazing.

The project involves invasive prospecting that will take the form of diamond drilling. This information will then be integrated into the geological model to further define the orebodies, which when combined with the assay information will be utilized to define a resource. The minerals to be prospected for includes Gold Ore, Silver Ore, Coal, Diamond (Alluvial), Platinum Group Metals, Rare Earths, Sulphur and Uranium Ore.

Based on the initial geological model established, a diamond drilling programme, comprising of six boreholes will be undertaken. The drilling of the six boreholes will be to a depth of 700m. The extent of the area required for prospecting is 18 627, 1944 hectares (ha).

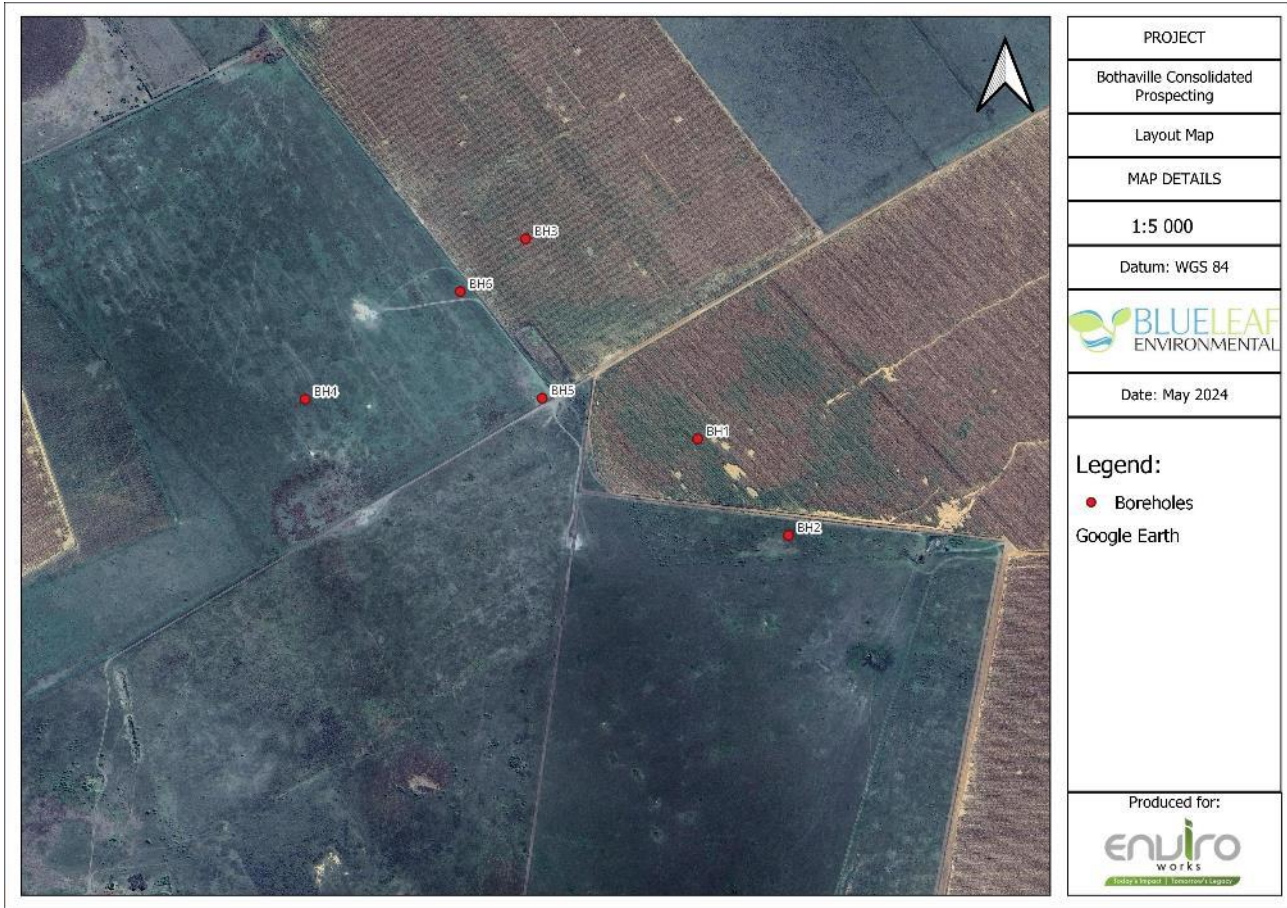


Figure 1.2: Layout of the six proposed prospecting borehole sites

Drilling will be conducted in a competent and environmentally responsible manner including rehabilitation of the drill sites to their original site. Plastic lining will be placed underneath the rig motors to prevent oil seepage. It is noted that no drilling fluids other than water for dust suppression will be utilized in the case of diamond drilling. Environmental rehabilitation measures will be included in the contract with the drilling company and environmental rehabilitation costs will be included in the drilling costs.

The drilling process will be managed in a competent manner and will involve the following actions:

- Call for drill tenders.
- Review the registration, incorporation, employment equity and BEE of the drilling company.
- Confirm the good financial standing of the drilling company.
- Establishment of confidentiality agreements and management of conflicts of interest that the drilling company may have.
- Review the drilling company’s approach to Mines, Health and Safety issues.
- Compile a preliminary analysis report.
- Select drilling company.
- Award of the drilling contract.
- Obtain permission to access the property.
- Submit information of planned drilling to Mines, Health and Safety at DMR.
- Forward special instructions to the drilling company regarding power, water, environmental, safety and security.

- Preliminary analysis report on notifications e.g. Eskom, Telkom, etc.
- Finalise the initial borehole positions.
- Plan access roads, crew accommodation and site security.
- Environmental assessment of drill sites.
- Preparation of drilling sites.
- Establish water source for drilling.
- Plan health and safety issues and establish a safe working code specific to the area.
- Perform the necessary risk assessments and Planned Task Observations (PTO).
- Monitor and control the drilling process.
- Ensure secure core storage and sampling facilities.
- Set QA/QC sampling procedures in place and insert proper reference material as samples.
- Undertake site rehabilitation.
- Take pictures before and after rehabilitation.
- Compile preliminary analysis report on the start date of the drilling program.
- Plan additional infill borehole sites.

A strict QA/QC program will be conducted by the internal Qualified Person (QP)/Exploration Manager:

- Quality of drilling program.
- Survey of borehole collars utilizing a GPS.
- Sample management (weighing, splitting, transport).
- Logging and mineralization/reef identification.
- Sampling procedures.
- Chain of custody of transport of samples to laboratory.
- Laboratories utilized.
- Quality control of standards, blanks and duplicates to ensure accurate assay methods and grades from laboratory.
- Applicable assay method utilized for style of mineralization.
- QA/QC on lab results including check assaying at an umpire laboratory.
- Database management.
- External audits by Qualified Persons.

1.2. Project locality

The proposed six boreholes are located at the following coordinates:

Borehole #	Coordinates	
1.	27° 26.176'S	26° 52.388'E
2.	27° 26.263'S	26° 52.469'E
3.	27° 25.997'S	26° 52.233'E
4.	27° 26.141'S	26° 52.034'E
5.	27° 26.140'S	26° 52.248'E
6.	27° 26.044'S	26° 52.174'E

1.3. Legislative context

The following legislation is directly relevant when assessing the terrestrial environment relating to the proposed prospecting project near Bothaville in the Free State Province:

National Environmental Management Act (NEMA) (107 of 1998, as amended) and the Specialist Assessment Protocols (GNR 320 of 2020):

The National Web based Environmental Screening Tool (<https://screening.environment.gov.za/screeningtool/>) is a geographically based web-enabled application which allows a proponent intending to apply for environmental authorization in terms of the Environmental Impact Assessment (EIA) Regulations 2014 (as amended), to screen their proposed site for any environmental sensitivity.

The Screening Tool also provides site specific EIA process and review information, for example, the Screening Tool may identify if an industrial development zone, minimum information requirement, Environmental Management Framework or bio-regional plan applies to a specific area.

Further to this, the Screening Tool identifies related exclusions and/ or specific requirements including specialist studies applicable to the proposed site and/or development, based on the national sector classification and the environmental sensitivity of the site.

Finally, the Screening Tool allows for the generating of a Screening Report referred to in Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended whereby a Screening Report is required to accompany any application for Environmental Authorization and as such the tool has been developed in a manner that is user friendly and no specific software or specialized GIS skills are required to operate this system.

Procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 107 of 1998 (NEMA), when applying for environmental authorisation have been gazetted (GN. R 320 of 20 March 2020). In terms of sections 24(5)(a), (h) and 44 of the National Environmental Management Act, 1998. These procedures prescribe general requirements for undertaking site sensitivity verification and for protocols for the assessment and minimum report content requirements of environmental impacts for environmental themes for activities requiring environmental authorization, as contained in the Schedule therein. When the requirements of a protocol apply, the requirements of Appendix 6 of the Environmental Impact Assessment Regulations, as amended, (EIA Regulations), promulgated under sections 24(5) and 44 of NEMA, are replaced by these requirements.

The contents of this specialist report comply with the legislated requirements as described in the following environmental theme and associated specialist assessment protocols as listed in the projects' Screening Tool Report:

- Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Terrestrial Biodiversity.

National Environmental Management Act (NEMA) (107 of 1998, as amended) and the EIA regulations (as amended):

Although the Specialist Assessment Protocols (as listed above) supersede this legislative requirement, the contents of this specialist report still comply with the legislated requirements as described in Appendix 6 of the National Environmental Management Act (No 107 of 1998; NEMA) Regulations of 2014 and updated in 2017 (GN R. 326 of 2017).

Other national legislation

Other national legislation relevant to this project includes:

Title of legislation or guideline	Administering authority	Applicability to the project
NEMA EIA Regulations, 2014, as amended	Department of Economic, Small Business Development, Tourism and Environmental Affairs (DESTE A)	The activity triggers activities listed in NEMA EIA Regulations GN R. 327.
National Water Act, 1998 (Act No. 36 of 1998, NWA)	Department of Water and Sanitation (DWS)	Infrastructure may impact on existing surface water systems. This impact is only mentioned in this report (if relevant) and NOT discussed in detail.
National Environment Management: Biodiversity Act (NEMBA) (Act No. 10 of 2004)	DESTE A	The proposed development must: <ul style="list-style-type: none"> - Conserve endangered ecosystems and protect and promote biodiversity. - Assess the impacts of the proposed development on endangered ecosystems. - No protected species may be removed or damaged without a permit. - The proposed site must be cleared of alien vegetation using appropriate means.
National Forest Act (Act No. 84 of 1998)	Provincial Department of Forestry	Requires that a permit be obtained should any forests or protected trees be removed during the construction phase of the project.

Relevant Provincial and Municipal legislation includes:

Title of legislation or guideline	Administering authority	Applicability to the project
Free State Nature and Conservation Ordinance (No.8 of 1969)	DESTE A	Listing of protected animal species. Permits are required for removal and relocating any of these listed species in the EC.
Free State Biodiversity Plan (; FSBP; 2015)	DESTE A	The FSBP is a spatial planning tool that includes a map of biodiversity importance for the Free State Province.

1.4. Alternative

No site alternatives or layouts are proposed. The outcome of this report will address alternatives if necessary.

1.5. Public consultation

No consultation requirements were identified during the drafting of this specialist report. The findings of this report can be presented to stakeholders and I&APs as part of the BAR Public Participation Process (PPP).

No comments have been received to date on this report.

1.6. Objectives

The objectives of the project are listed below. These objectives are based on the requirements of each specialist protocol as listed in the DFFE Screening Report:

- Describe both the existing area as well as the area prior to construction in terms of its current ecological characteristics and the general sensitivity of these components to change.
- Confirm if there are any outright fatal flaws to the establishment of the proposal at its current location from a biodiversity perspective.
- Map all existing areas to be directly affected by the proposals in terms of its current and previous biodiversity sensitivity (constraints).
- Map all 'No-Go' areas.
- Describe the likely scope, scale, and significance of impacts (positive and negative) on biodiversity components of the area associated with the construction of the proposals.
- Make recommendations on the scope of any mitigation measures that may be applied during construction to avoid/reduce the significance of the identified construction-related impacts.
- Describe the likely scope, scale, and significance of impacts (positive or negative) on the biodiversity components associated with the operation or use of the proposals.
- Make recommendations on the scope of any mitigation measures that may be applied to avoid/reduce the significance of the operations-related impacts. These mitigation measures could also be design recommendations as well as operational controls, monitoring programmes, management procedures and the like.
- It will be particularly important to identify any rehabilitation measures that can be reasonably applied on the completion of the construction works.
- Broadly comment on the cumulative ecological impacts (positive or negative) associated with the construction and/or operation of the proposals.

It should be noted that only datasets and base data relevant to the study area and affected environmental features are discussed below.

1.7. Assumptions and limitations

- The report is based on currently available information and, as a result, limited by the information provided by the Client.

- The report is limited by seasonality as the presented data will be based on a single site survey of plant and animal species conducted within a single season (early summer) of a single year (2022).

1.8. Project Area of Influence

The Project Area of Influence (PAOI) is defined according to important ecosystem processes and functions that may be plausibly affected by the proposed development and its associated activities. The PAOI sets the minimum spatial extent of the study area, and the assessment will be focused within this area. The following site descriptors were used to delineate each PAOI (Figure 1.2):

PAOI	Area (ha)	Description	Probability of impact occurring
Primary PAOI	6 x (5m x 5m) boreholes = 150 m ²	The Primary PAOI includes all boreholes within the boundary of the development site. This is the area directly impacted by prospecting.	Definite
Secondary PAOI	500m buffer (228.985 ha)	The secondary PAOI includes all areas within a 500 m buffer of the proposed prospecting sites. These areas are not directly impacted by the development unless temporary footprints like site camps, laydown areas and stockpiles are placed in them. Assessing this PAOI will not only result in identifying potential indirect and cumulative impacts but will also allow for micro-movement of infrastructure.	Likely
Total PAOI	229 ha	The Primary and Secondary PAOI's are collectively referred to as the Total PAOI (or just the PAOI) or Study Site in this report and demarcate the extent of the study site that will be assessed.	Likely



Figure 1.2: Total PAOI indicating the borehole points.

2. Approach and Methodology

The aim of this assessment is to identify areas of ecological importance and to evaluate these in terms of their conservation importance. To do so, the terrestrial sensitivity of the area is assessed. To a large extent, the condition and sensitivity of vegetation cover will determine areas with high biodiversity.

The study site was assessed using a two-phased approach. Firstly, a desktop assessment of the site was conducted in terms of current ecological programmes and plans.

Further to the above, a site visit was conducted on 3-4 May 2024. The site visit served to inform potential impacts of the proposed project and how significantly it would impact on the surrounding terrestrial environment.

2.1. Vegetation mapping

Mucina and Rutherford (2010) developed the National Vegetation Map (VegMap). The latest update of the VegMap is dated 2018. This map describes each vegetation type in detail, along with the most important species including endemic species and those that are biogeographically important. This is the most comprehensive data for vegetation types in South Africa. The VegMap was used to identify vegetation types on site.

2.2. Biodiversity classification

The Free State Biodiversity Plan (FSBP; 2015) is a spatial planning tool that includes a map of biodiversity importance for the Free State Province. The plan delineates biodiversity priority features which require safeguarding to ensure the persistence of biodiversity, ecosystem functioning, and ecosystem services through a systematic conservation planning process. The FSBP (2015) identifies five broad categories including Protected Areas (PAs), Critical Biodiversity Area (CBAs) (including Irreplaceable and Optimal), Ecological Support Areas (ESAs), Other, and Degraded Areas. It is important to note that Biodiversity Sector Plans are developed at relatively coarse scales using the best available spatial data. These maps therefore need to be verified at project level and the appropriate land use recommendations applied.

All features were grouped into the following biodiversity categories as listed in the FSBP (2015):

Mapping Category	Critical Biodiversity Area Name
Protected areas (PA)	Protected Areas are areas that have been formally declared or recognized in terms of NEMPAA. This refers to “State owned” reserves, which includes National PAs managed by SANParks, Provincial PAs managed by Eastern Cape Parks and Tourism Agency, municipal reserves, Private Nature Reserves, and Protected Environments. Several municipal and provincial reserves have not been formally proclaimed under any legislation but are zoned accordingly in relevant Spatial Development Frameworks and are recognized as de facto Protected Areas.
Critical Biodiversity Area (CBA)	<p>CBAs are areas of high biodiversity value. They are categorised into two groups namely “CBA Irreplaceable” and “CBA Optimal”.</p> <p>CBA Irreplaceable:</p>

Mapping Category	Critical Biodiversity Area Name
	<p>A site that is irreplaceable or near-irreplaceable for meeting biodiversity targets. There are no or very few other options for meeting biodiversity targets for the features associated with the project area. Such sites are therefore critical, and they need to be maintained to ensure that features targets are achieved and that such features persist.</p> <p>CBA Optimal: A site that has been selected based on its complementarity for meeting biodiversity targets. CBA Optimal sites are therefore important, but their maintenance is not critical to ensure that features targets are achieved and that such features persist.</p>
Ecological Support Area (ESA)	ESAs play an important role in supporting the ecological functioning of a protected area or Critical Biodiversity Area, or in delivering ecosystem services. In most cases ESAs are currently in at least fair ecological condition and should remain in at least fair functioning condition. ESA's are categorized into two Categories namely ESA 1 (sites with minimal degradation) and ESA 2 (sites that have been degraded but not totally transformed)
Other areas	Other areas are areas of natural habitat not required to meet biodiversity targets for ecosystem types, species or ecological processes, i.e. natural areas not selected as CBA or ESA.
Degraded areas	Degraded areas are portions of land that are not in climax condition due to factors other than physical disturbance.

2.3. Protected areas

The National Environmental Management Protected Areas Act (NEMPAA) (Act No. 57 of 2003) was developed to provide for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes. Refer to section 4.8 for more detail on this matter.

The NEMBA National List of Ecosystems that are Threatened and in need of Protection (G. NR. 1002 of 2011) contains a national list of threatened terrestrial ecosystems. Refer to section 4.8 for more detail.

2.5. Site sensitivity

The Screening Tool Report identified site sensitivity allocations as very high, high, moderate, or low, based on ecosystem spatial triggers associated with a particular proposed development site. A site visit will confirm/dispute these sensitivities based on the identification and verification of the following biodiversity features:

- Terrestrial CBAs, including:
 - the reasons why an area has been identified as a CBA;
 - an indication of whether or not the proposed development is consistent with maintaining the CBA in a natural or near natural state or in achieving the goal of rehabilitation;
 - species composition and structure of vegetation with an indication of the extent of clearing activities in proportion to the remaining extent of the ecosystem type(s);
 - ecosystem threat status;
 - explicit subtypes in the vegetation;
 - overall species and ecosystem diversity of the site; and

- changes to threat status of populations of species of conservation concern in the CBA;
- Terrestrial ESAs, including:
 - ecological processes that operate within or across the site;
 - the extent the proposed development will impact on the functionality of the ESA; and
 - loss of ecological connectivity (on site, and in relation to the broader landscape) due to the degradation and severing of ecological corridors or introducing barriers that impede migration and movement of flora and fauna;
- Protected areas.
- Priority areas for protected areas expansion
- SWSAs
- FEPA sub catchments
- Indigenous forests, including:
 - The ecological integrity of the forest.

2.6. Impact assessment

The impacts that may result from the planning and design phase, construction phase and operational phase of the proposed development were assessed according to several criteria to arrive at an overall significance rating. The criteria used were as follows (based on DEAT 2002 - Impact Significance, IEM Information Series 5; and DEAT 2006 - Assessment of Alternatives and Impacts in support of the EIA Regulations, IEM Guideline Series 5):

Table 2.6: Criteria used in determining significance ratings to potential impacts.

ASPECT	IMPACT RATING	
Status of the Impact	A statement of whether the impact is positive (a benefit), negative (a cost), or neutral	
Direct impact	Impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.	
Indirect Impacts	Indirect impacts are not a direct result of the project but are often produced away from or because of a complex impact pathway related to the project.	
Cumulative Impacts	Impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of the past, present, or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.	
Nature of the Impact	The evaluation of the nature is impact specific. Most negative impacts will remain negative, however, after mitigation, significance should reduce to: <ul style="list-style-type: none"> ➤ Positive ➤ Negative 	
Extent	A description of whether the impact would occur on a scale limited to within the study area (local), limited to within 5 km of the study area (area) on a regional scale. i.e. the Kouga Municipality & Eastern Cape (Region); or would occur on a national or international scale.	
	Local	1
	Area	2
	Regional	3
	National	4
	International	5

ASPECT		IMPACT RATING		
Duration	A prediction of whether the duration of the impact would be immediate and once-off (less than one month), more than once, but short term (less than one year), regular, medium term (1 to 5 years), long term (6 to 15 years), project life/permanent (> 15 years, with the impact ceasing after the operational life of the development or should be considered as permanent).			
	Immediate		1	
	Short term		2	
	Medium term		3	
	Long term		4	
	Project life/permanent		5	
Intensity	This provides an order of magnitude of whether or not the intensity (magnitude/size/frequency) of the impact would be negligible, low, medium, high or very high. This is based on the following aspects:			
	<ul style="list-style-type: none"> ➤ An assessment of the reversibility of the impact (permanent loss of resources, or impact is reversible after project life; ➤ Whether or not the aspect is controversial; ➤ An assessment of the irreplaceability of the resource loss cause by the activity (whether the project will destroy the resources which are easily replaceable, or the project will destroy the resources which are irreplaceable and cannot be replaced; ➤ The level of alteration to the natural system, processes or systems. 			
	Negligible	The impact does not affect physical, biophysical or socio-economic functions and processes.	1	
	Low/potential harmful	The impact has limited impacts on physical, biophysical or socio-economic functions and processes.	2	
	Medium/slightly harmful	The impact has an effect on physical, biophysical or socio-economic functions and processes, but in such a way that these processes can still continue to function albeit in a modified fashion.	3	
	High/harmful	Where the physical, biophysical or socio-economic functions and processes are impacted on in such a way as to cause them to temporarily or permanently cease.	4	
Very high/disastrous	Where the physical, biophysical or socio-economic functions and processes are highly impacted on in such a way as to cause them to permanently cease.	5		
Severity (extent + duration + intensity)				
Frequency	This provides a description of any repetitive, continuous or time-linked characteristics of the impact: Once-off (occurring any time during construction or operation); intermittent (occurring from time to time, without specific periodicity); periodic (occurring at more or less regular intervals); continuous (without interruption).			
	Once-off	Once	1	
	Rare	1/5 to 1/10 years	2	
	Frequent	Once a year	3	
	Very frequent	Once a month	4	
	Continuous	≥ once a day/per shift	5	

ASPECT	IMPACT RATING		
Probability of occurrence	A description of the chance that consequences of that selected level of severity could occur during the exposure.		
	Highly unlikely	The probability of the impact occurring is highly unlikely due to its design or historic experience.	1
	Improbable	The probability of the impact occurring is low due to its design or historic experience.	2
	Probable	There is a distinct probability of the impact occurring.	3
	Almost certain	It is most likely that the impact will occur	4
	Definite	The impact will occur regardless of any prevention measures.	5
Incidence (frequency + probability)			
Risk rating	The risk rating is calculated based on input from the above assessments. The incidence of occurrence is calculated by adding the extent of the impact to the duration of the impact. The severity of the impact is calculated based on input from the extent of the impact, the duration and the intensity.		
	<p>Risk = Severity (extent + duration + intensity) x Incidence (frequency + probability)</p> <p>Significance: The significance of the risk based in the identified impacts has been expressed qualitatively as follows:</p> <ul style="list-style-type: none"> ➤ Low – the impact is of little importance/insignificant but may/may not require minimal management. ➤ Medium – the impact is important; management is required to reduce negative impacts to acceptable levels. ➤ High – the impact is of great importance, negative impacts could render development options or the entire project unacceptable if they cannot reduce to acceptable levels and/or if they are not balanced by significant positive impact, management of impacts is essential. 		

Based on a synthesis or combination of the information contained in the above-described criteria, and drawing on legal policies and guidelines as well as the status of the impacts and potential risks, the overall significance were determined as follows:

Table 2.7: Definition of significance ratings (positive and negative)

Significance	Description
Very high (VH) (150+)	An impact of very high significance will mean that the project cannot proceed, and that impacts are irreversible, regardless of available mitigation options.
High (H) (101-149)	An impact of high significance which could influence a decision about whether to proceed with the proposed project, regardless of available mitigation options.
Medium (M) (51-100)	If left unmanaged, an impact of medium-high significance could influence a decision about whether to proceed with a proposed project. An impact of Low-medium significance would have some effect during decision making about whether to proceed with a proposed project, however, mitigation for this type of impact is manageable.
Low (L) (25-50)	An impact of low significance would have little effect on decision making and only a small influence on project design or alternative motivation.
Very low (VL) (1-24)	An impact of very low significance is likely to contribute to positive decisions about whether to proceed with the project. It will have little effect and is unlikely to have an influence on project design or alternative motivation.
Negligible / zero impact	There will be no impact, or any impact identified can be viewed as negligible. This rating will be unlikely to have an influence on project design or alternative motivation.

Significance	Description
Positive impact (+)	A positive impact is likely to result in a positive consequence/effect and is likely to contribute to positive decisions about whether to proceed with the project.

3. Site assessment

This chapter compares baseline desktop information with field survey data collected.

3.1. Site survey

A site visit was conducted between the 3-4 May 2024. All points as indicated in Figure 3.1 below including access routes were followed, and data collected. The collected data was then compared to existing literature of the site which included vegetation classifications, spatial and habitat distributions of species and biodiversity programmes and plans.

3.2. Topography

The landscape within the project site is relatively flat but elevation does increase slightly from the south to north through the Total PAOI. The highest point of elevation is found north of the project site at 1345 meters above sea level (m.a.s.l.) while the lowest point of elevation can be observed south of the project site at 1340 m.a.s.l (Fig 3.1).

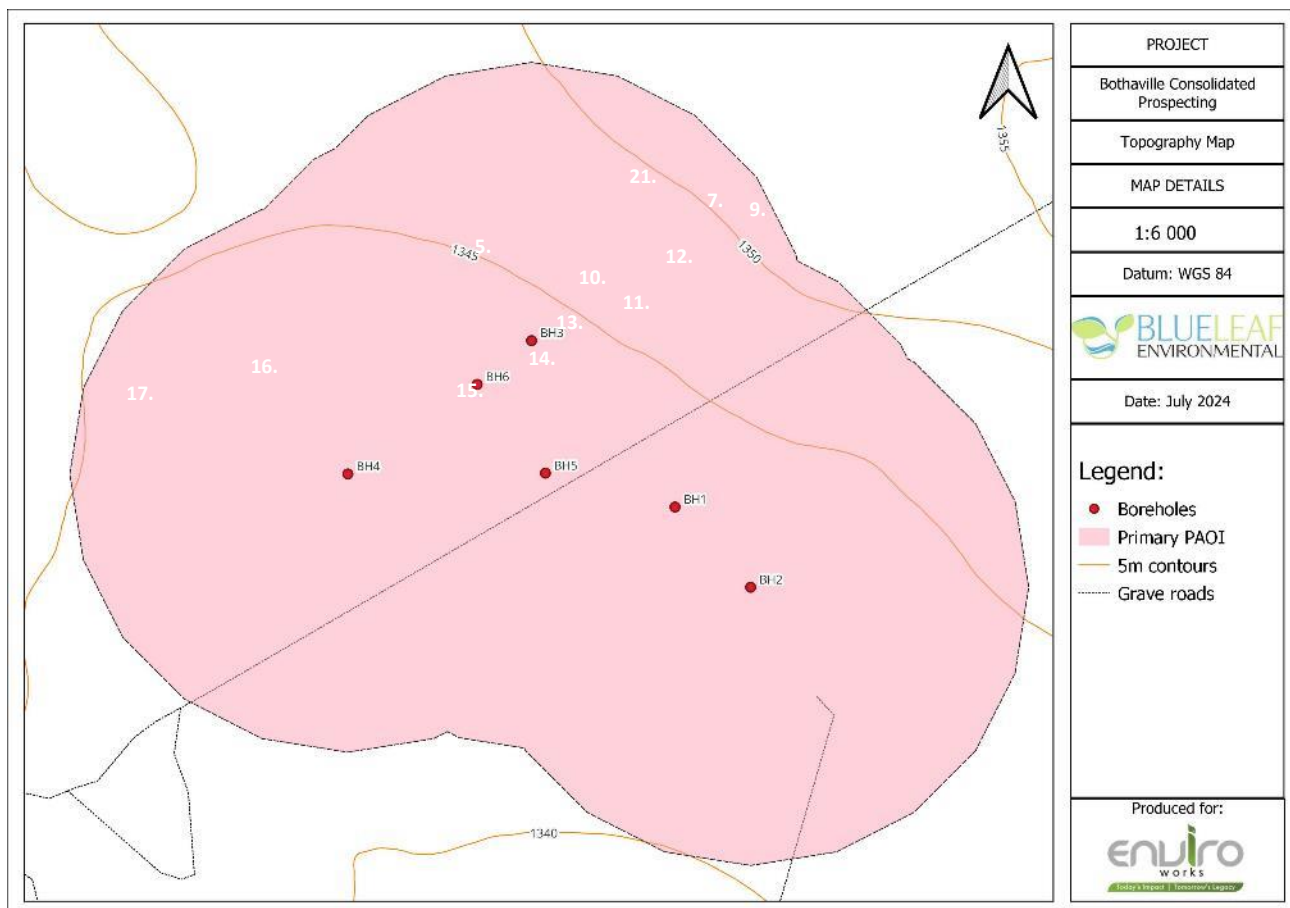


Figure 3.1: Topography of the proposed sites and surrounding areas.

3.3. Local climate

Bothaville, the nearest town with climate data, has an average daily high temperature above 28.3°C. The hottest month of the year is January, with an average high of 30 °C and low of 17 °C. The average daily high temperature during winter is below 22°C. The coldest month of the year is June, with an average low of 2°C and high of 19°C. (en.climate-data.org/).

3.4. Geology and Soils

Rocks found within the study site are dominated by Vryheid Formation. This formation has been subdivided into three different lithofacies arrangements. They are dominated by fine-grained mudstone, carbonaceous shale with alternating layers of bituminous coal seams, and coarse-grained, bioturbated immature sandstones respectively. The rock sediments are predominantly arranged in upward-coarsening cycles, although some fining-upward cycles are found in this formation's easternmost deposits. The alternating rock types observed in the Vryheid Formation indicate seasonal variations of storms and fairer weather in a pro-delta setting. The carbonaceous shales were formed below the water surface in anoxic conditions and the coal formed from compacted plant matter deposited at the bottom of peat swamps.

3.5. Land use

Current land use has been determined and the entire study area consists of cultivated land as well as grassland (Figure 3.2). The land is currently being used for cattle grazing and agriculture (maize farming). Wetlands can be observed north-west as well as south of the study site. No signs of alien vegetation can be observed on site with some vegetation been degraded due to grazing. Signs of high impact grazing is evident.

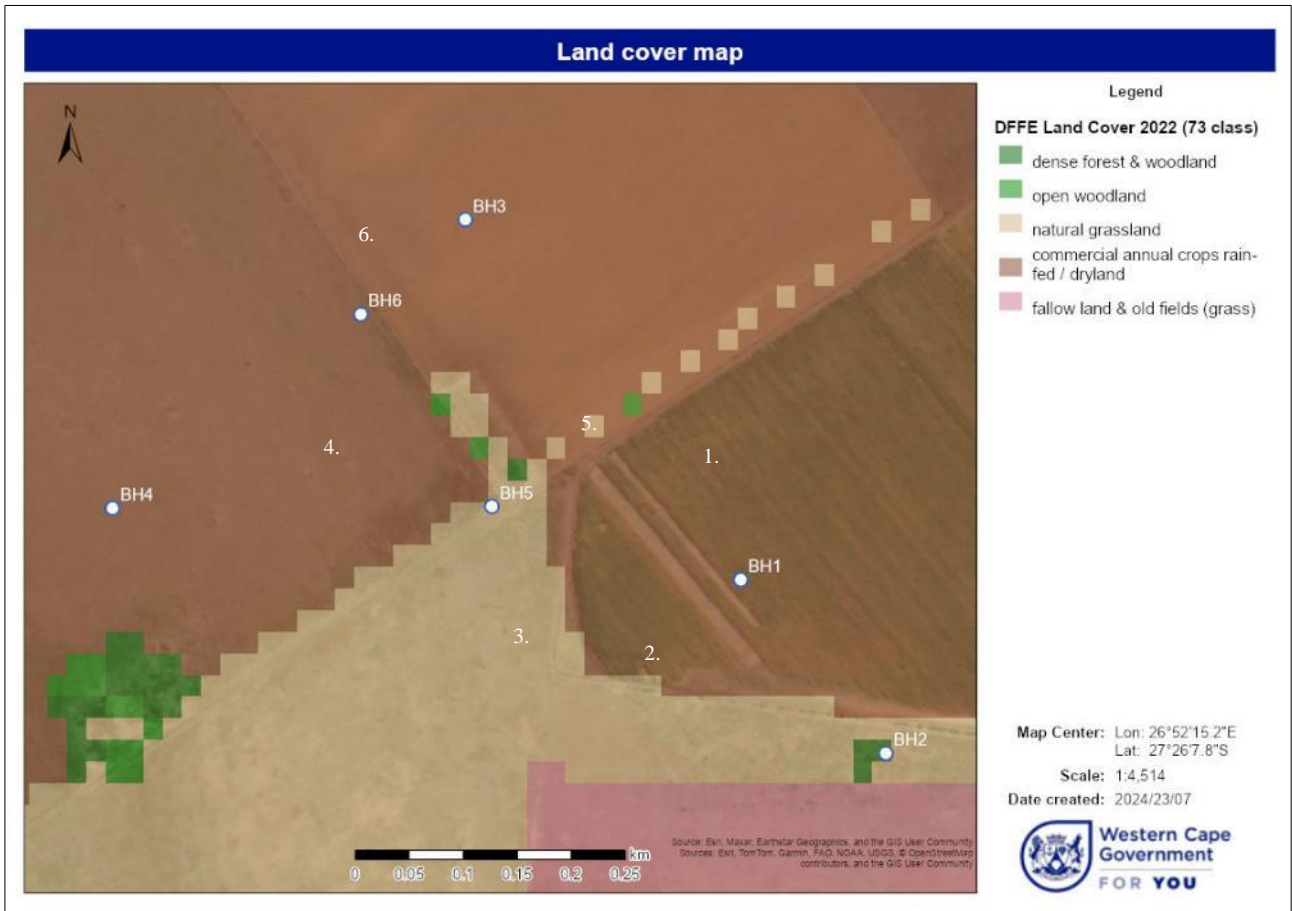
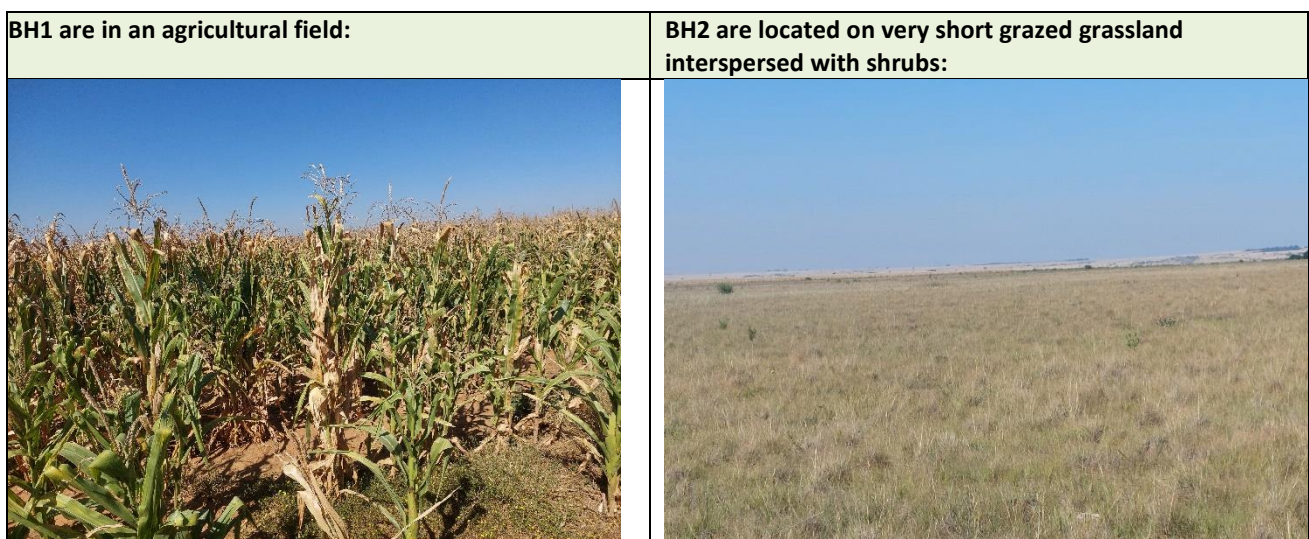


Figure 3.2: Land cover map project sites and surrounding areas.

Below are photographs illustrating the land cover and land uses for the study site and surrounding areas:



BH3 are located on natural grassland:	BH4 is located in a natural grassland:
	
BH5 is located in a natural grassland:	
	

3.6. Vegetation

The site was first described according to available literature and databases. A site visit is then conducted to confirm and describe the vegetation as well as the condition of each vegetation unit.

The South African National Biodiversity Institute (SANBI) vegetation map (called the VegMap, 2021) a single vegetation type located within the PAOI:

Biome	SANBI Vegetation Unit			Size in ha (within PAOI)	% cover in PAOI	Impacted (Y/N)	Likelihood of impact	Sensitivity status
Grassland	Vaal-Vet Grassland	Sandy	GH10	229 ha	100 %	Yes	Definite	EN

Vaal-Vet Sandy Grassland occurs within the North-West and Free-State Provinces: South of Lichtenburg and Ventersdorp, stretching southwards to Klerksdorp, Leeudoringstad, Bothaville and to the Brandfort area north of Bloemfontein. Altitude 1220 – 1560m, generally 1260 – 1360m. Vegetation and landscape features are characterized by Plains-dominated landscape with some scattered, slightly irregular undulating plains and hills. Mainly low-tussock grasslands with an abundant karroid element. Dominance of *Themeda triandra* is an important feature of this vegetation unit. Locally low cover of *T. triandra* and the associated increase in *Elionurus muticus*,

Cymbopogon pospischilii and *Aristida congesta* is attributed to heavy grazing and/or erratic rainfall. SANBI considers this vegetation type as **Endangered** with about 0.3% statutorily conserved in the Bloemhof Dam, Schoonspruit, Sandveld, Faan Meintjies, Wolwespruit and Soetdoring Nature Reserves. More than 63% transformed for cultivation (ploughed for commercial crops) and the rest under strong grazing pressure from cattle and sheep. Erosion very low.

3.7. Terrestrial biodiversity

Terrestrial biodiversity is the variety of life forms found in a specific area. These life forms include a variety of animals, plants, fungi, and even microorganisms like bacteria that make up our natural world. Each of these species and organisms work together in ecosystems, like an intricate web, to maintain balance and support life. Below is a discussion of the factors influencing terrestrial biodiversity:

Ecological drivers

A driver is any natural or human-induced factor that directly or indirectly causes a change in an ecosystem. A direct driver unequivocally influences ecosystem processes. An indirect driver operates more diffusely, by altering one or more direct drivers. Below is a discussion of the identified ecological drivers on site and how the various new and road upgrades will impact biodiversity within the PAOI:

Ecological drivers	Biodiversity patterns
Fire	Grassland is a fire-prone ecosystem, hence fire is vital to the maintenance of both its structural and textural patterns. Fire is critical for maintaining the health of grassland ecosystems as it removes the dead and moribund plant material that shades out the next seasons growth; stimulates new growth which enhances primary productivity; releases nutrients and organic material back into the soil; and controls invasion of alien and indigenous woody plants which could cause a shift from grassland to Savanna or Woodland. Fire also increases the diversity of habitats within a landscape, for example recently burnt areas would be dominated by short grasses but areas that have not been burnt would be dominated by long grass. This mosaic of structurally differing habitats provides different habitats for different faunal species (SANBI, 2013).
Grazing	Grazing has a major influence on canopy structure in grass- lands as well as on species composition. The grass plant is well adapted to defoliation by grazing, fire or mowing: the basal meristems of grass leaves enable regrowth after defoliation and draw on carbohydrate reserves from the stem bases or rhizomes. Grazing is the removal of above-ground plant matter by animals, either indigenous or domestic. It acts as an important agent of disturbance, introducing habitat diversity into the system both spatially and over time. Grazing stimulates biomass production through the removal of dead or dying plant biomass that limits new growth and breaks up the soil surface due to hoof action which allows better infiltration of water and nutrients (especially from animal dung) (SANBI, 2013).

Critical biodiversity areas

Borehole 2 (BH2) is located in a CBA 1 while the remaining boreholes are all in an ESA1 (Figure 3.3). A maximum of 25 m² of CBA 1 and 125 m² of ESA 1 will be temporary impacted (approx. a month long). All six borehole sites will be rehabilitated afterwards with landscape features and natural vegetation returning to prior-impact conditions.

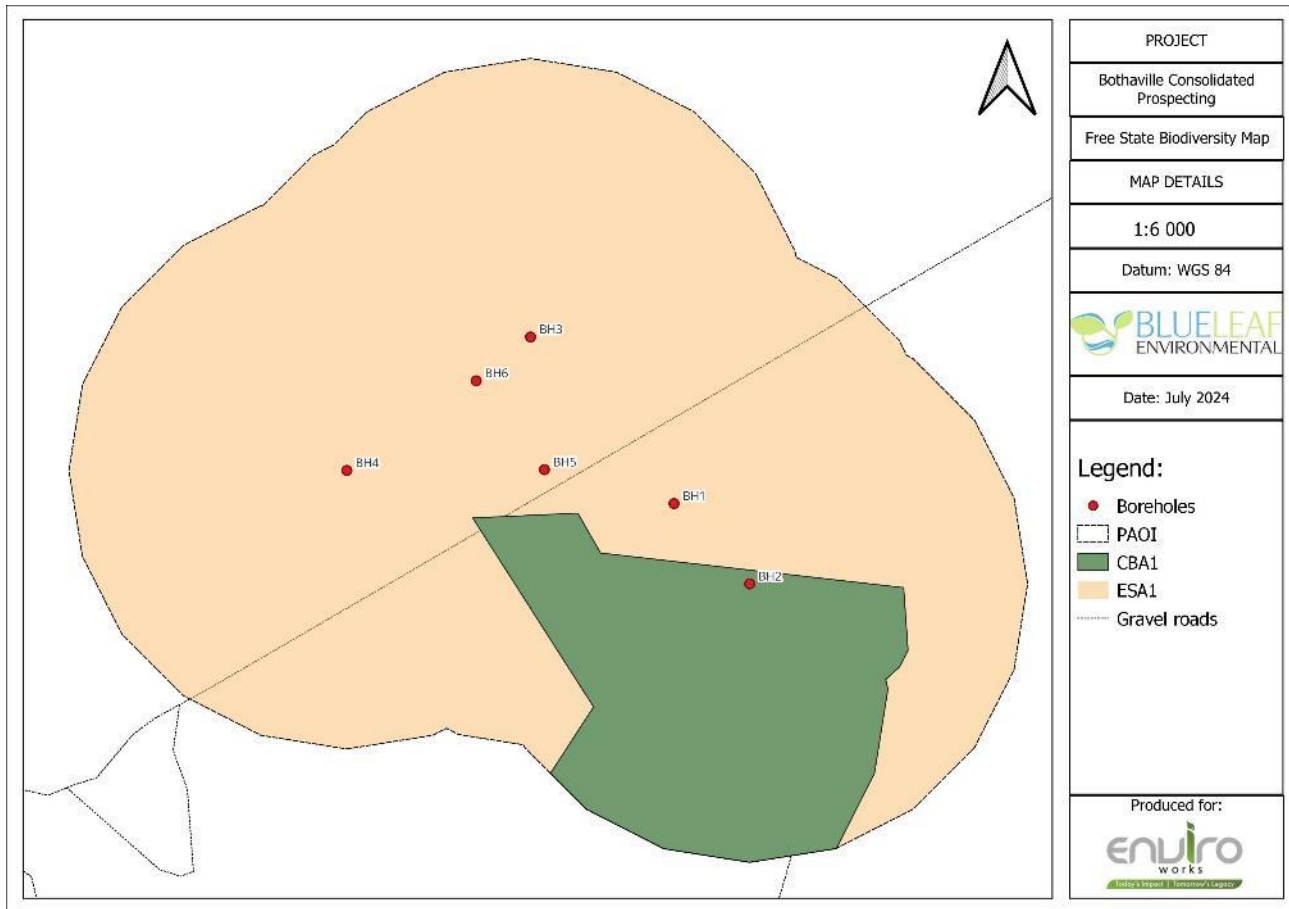


Figure 3.6: Free State Biodiversity Map

3.8. Protected areas

No protected areas are located within 10 km radius of the project site.

3.9. Strategic Water Source Areas

Strategic Water Source Areas or SWSAs are areas of the country that provide large volumes of water per unit area. They provide either surface water or groundwater (or both), making them vitally important assets for ensuring water security. The project site does not fall within any SWSA.

3.10. Alien and Invasive species

It should be noted that the CARA regulations for the legal obligations regarding alien invasive plants in South Africa have been superseded by the National Environmental Management: Biodiversity Act, 2004 (Act no. 10 of 2004) – Alien and Invasive Species (AIS) Regulations which was promulgated on 1 October 2014. However, CARA has not been repealed and is still included as a reference point to use in terms of the management of Alien and Invasive Species (AIS) within agricultural land.

The National Environmental Management: Biodiversity Act, (Act No. 10 of 2004; NEM:BA) provides a list of Alien and Invasive Species (AIS) for management (GN. R. 898 of 2014 as amended in 2016). AIS are classified into the following categories:

- **Category 1a:** species which must be combatted or eradicated.
- **Category 1b:** species which must be controlled.
- **Category 2:** species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit.
- **Category 3:** as species which are subject to exemptions.

No AIS were identified on site.

4. Site Ecological Importance

4.1. DFFE Screening Report Sensitivity

The DFFE Screening Tool Report for this project classifies the entire project as having an overall **Very High Sensitivity for the terrestrial biodiversity theme**. This is because of the following features:

Sensitivity	Feature(s)	Relevance to project
Very high	Critical biodiversity area 1	BH2 is located within a CBA1
	Critical biodiversity area 2	No footprint will be in a CBA2
	Ecological support area 1	The remaining 5 boreholes is located in an ESA1
	Ecological support area 2	No footprint will be in an ESA2
	Threatened Ecosystem	The entire site is in Vaal-Vet Sandy Grassland, an endangered ecosystem.
High	None	None
Moderate	None	None
Low	None	None

4.2. Site sensitivity

Site sensitivity was determined for the entire PAOI was first based on the DFFE Screening Tool Report outcome and secondly, a subsequent confirmation of these sensitivities during the site visit. Additional biodiversity related constraints (if any) were also identified and aligned with specific characteristics of the site. The following site characteristics contributed to confirming or disputing the site sensitivity:

Biodiversity indicator	Borehole #	Site characteristic contributing to sensitivity	Sensitivity allocation
CBA1 areas	BH2	Natural grassland occurs but are currently grazed on by cattle.	Very high
Natural vegetation	BH2 and BH3 to 5	Intact Vaal-Vet Sandy Grassland occurs on site. This is an endangered ecosystem	Very high
ESA1 areas	BH1 and BH3 to 6	Mostly grassland connected to surrounding natural areas. BH1 is in agricultural land.	High
Agricultural cropland (Maize)	BH1 and BH3	Transformed land	Low

Based on the site visit and assessment, the site’s terrestrial biodiversity theme sensitivity should remain as very high. A sensitivity map of the entire PAOI was developed based on the abovementioned biodiversity characteristics found within the site (Figure 4.1).

Areas scoring an overall **VERY HIGH Terrestrial Biodiversity Sensitivity** include natural/intact areas considered as irreplaceable in terms of the Free State Biodiversity Plan.

Areas scoring an overall **HIGH Terrestrial Biodiversity Sensitivity** include those areas transformed by agriculture to maize field. These areas however still are considered as CBA1 and ESA1 areas that retains some ecological function.

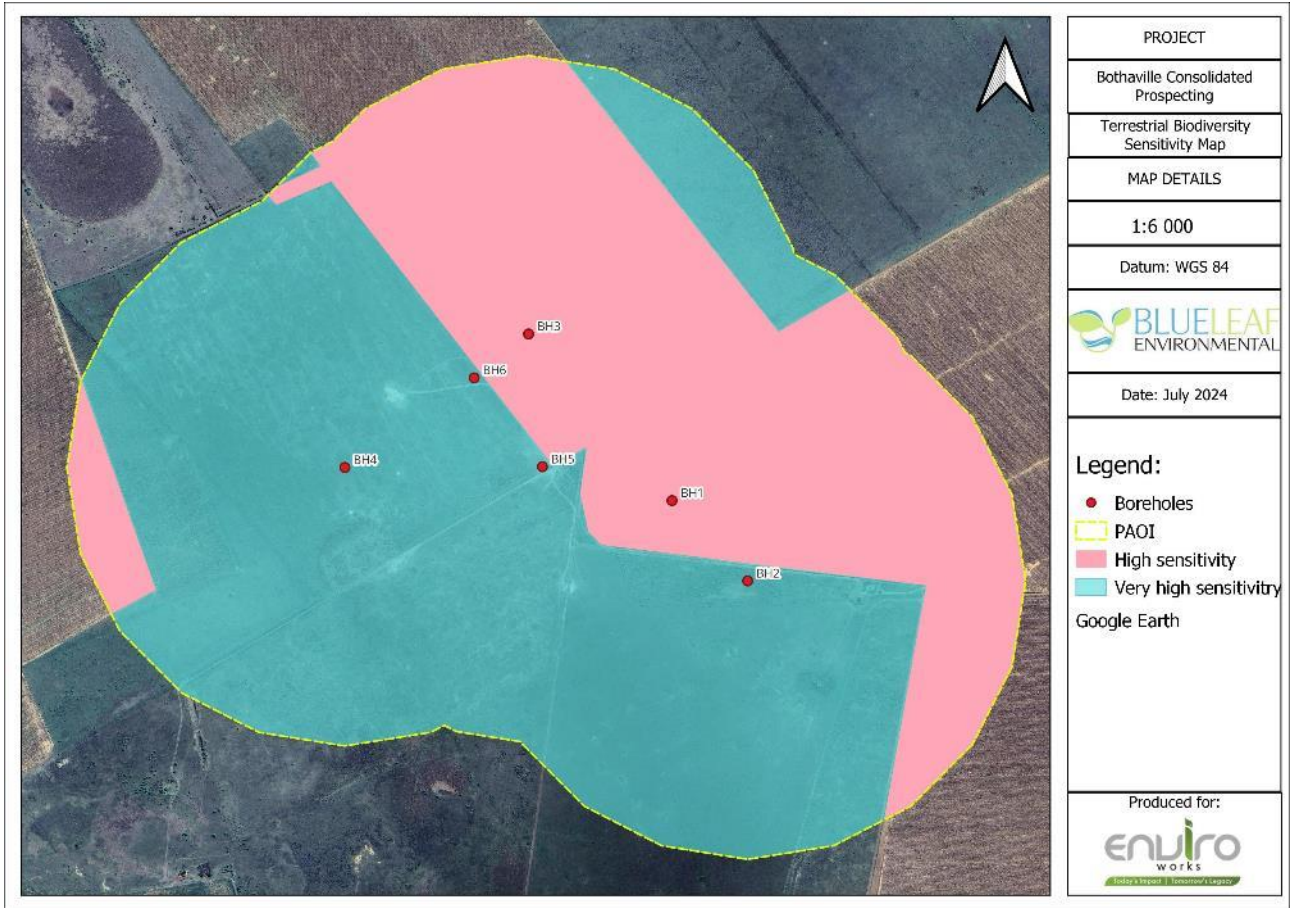


Figure 4.1: Terrestrial biodiversity sensitivity for the entire PAOI

The proposed mitigation measures provided below were designed to mitigate the impacts on the project site area in an acceptable manner to ensure minimal negative impacts on the environment.

5. Impact assessment

The following ecological issues were identified during the assessment of the proposed commercial and residential development:

#	Activity causing impact (Issue)	Description of impact
1.	Vegetation clearing	<p>1.1. Soil compaction Damage to soil structure, compaction, soil chemistry, reduced organic matter and ability to use, filter or retain water means that soil can't function effectively to grow food, support living organisms such as worms, plant roots and fungi, or store carbon (which helps to reduce carbon emissions).</p>
		<p>1.2. Loss of natural vegetation Clearing vegetation will result in the temporary loss of up to 125 m² of intact highveld grassland, resulting in the reduction of endangered grassland in the Biome.</p>
		<p>1.3. Spread of alien and invasive plant species Removal of natural vegetation will increase the risk of alien plant species invasion.</p>

All impacts identified above were assessed as per the assessment methodology described in Chapter 3.8 of this report. Each impact was described on how it will impact within a specific phase of the project, namely Planning and Design, Construction and Operations.

Issue 1:	Vegetation clearing for construction
Consequence of issue	Clearing of endemic vegetation including will result in a range of issues including increasing soil compaction, reducing endemic vegetation types, and increasing the risk of alien vegetation spreading.
Number of impacts	3 (Impacts 1.1 to 1.3)

Impact 1.1: Soil compaction	
Phase of expansion: Construction (Prospecting) Phase	
Nature of impact	Negative: Damage to soil structure, compaction, soil chemistry, reduced organic matter and ability to use, filter or retain water means that soil can't function effectively to grow food, support living organisms such as worms, plant roots and fungi, or store carbon (which helps to reduce carbon emissions). This impact is relevant in all temporarily impacted areas.
Cumulative impact	Loss of fertile soils in the area.
Indirect impacts	Loss of vegetation and habitat.
Residual impacts	Loss of soils in temporary impacted areas surrounding the road infrastructure through the setup of laydown areas, stockpile areas and driving on natural vegetated areas outside the POAI.

Classification of impact	Before mitigating	After mitigating	Consequence of Impact (pre-mitigation only)
Duration of impact	3	1	Occur during construction (prospecting) only.
Extent of impact	2	1	Impact in temporary footprints only.
Intensity of impact	4	1	Soil processes will be permanently altered.
Severity	9	3	Duration + extent + intensity
Probability of impact occurring	5	2	Impact will occur on commencement of prospecting.
Frequency	1	1	Continuous throughout prospecting.
Incidence	6	3	Frequency + Probability
Degree of reversibility	High		Impact can be reversed.
Irreplaceability	Medium		Soils play an important role in an ecosystem and must be conserved where possible.
Mitigations	Mitigatory potential		Recommended mitigations <ul style="list-style-type: none"> - All footprints must be clearly demarcated. No activities will be allowed outside the footprints. - Any topsoil removed and stockpiled must be replaced during rehabilitation. - No soil may be removed from site. - All sites must be fully rehabilitated.
	High		
Significance of impact (Severity x Incidence)	Pre-mitigation significance		Post-mitigation significance
	Medium negative (54)		Very low negative (9)

Impact 1.2: Loss of natural vegetation	
Phase of expansion: Construction (Prospecting) Phase	
Nature of impact	Negative: Clearing will result in the permanent loss of up to 125 m ² of intact highveld grassland, resulting in the reduction of endangered grassland in the Biome.
Cumulative impact	Reduction of endangered Vaal-Vet Sandy Grassland vegetation.
Indirect impacts	Loss of habitat.
Residual impacts	Loss of up to 125 m ² of natural vegetation. This impact is temporary.

Classification of impact	Before mitigating	After mitigating	Consequence of Impact (pre-mitigation only)
Duration of impact	3	1	Clearing will result in the permanent loss of 125m ² of natural vegetation. Drilling points can be rehabilitated.
Extent of impact	3	2	All the vegetation within the prospecting footprint will be removed.
Intensity of impact	3	1	Temporary impact.
Severity	9	4	Duration + extent + intensity
Probability of impact occurring	5	3	Impact will definitely occur on commencement of construction.
Frequency	3	1	Permanent removal of vegetation
Incidence	8	4	Frequency + Probability
Degree of reversibility	High		Impact can be reversed.
Irreplaceability	Medium		Vegetation will be temporary removed. Endemic forest thicket but with a low ecosystem threat.
Mitigations	Mitigatory potential		Recommended mitigations
	Medium		<ul style="list-style-type: none"> - The prospecting footprint must be demarcated prior to commencing. All contractors must be made aware of this demarcation. - Clearing must remain within the demarcated areas. - All prospecting areas must be rehabilitated and revegetated. - All areas outside the demarcated footprint will be considered as No-Go areas. No activities (temporary or permanent) will be allowed in these areas.
Significance of impact (Severity x Incidence)	Pre-mitigation significance		Post-mitigation significance
	Medium negative (72)		Very low negative (8)

Impact 1.3: Spread of alien and invasive plant species	
Phase of expansion: Construction Phase	
Nature of impact	Negative: Removal of natural vegetation will increase the risk of alien plant species invasion. Contractor can also unknowingly import exotic and invasive species through their plant and equipment.
Cumulative impact	Increase in regional spread of alien plants. Loss of grassland vegetation.
Indirect impacts	Spread of alien vegetation into surrounding areas.
Residual impacts	Decreased risk of alien vegetation occurrence and spread.

Classification of impact	Before mitigating	After mitigating	Consequence of Impact (pre-mitigation only)
Duration of impact	3	1	Clearing will occur throughout construction.
Extent of impact	3	1	The construction footprint and surrounding areas will be impacted.
Intensity of impact	3	1	All cleared areas have a risk of alien vegetation growth.
Severity	9	3	Duration + extent + intensity
Probability of impact occurring	3	3	Alien vegetation will grow on cleared areas and soil stockpiles.
Frequency	2	1	Impact will occur throughout construction phase.
Incidence	5	4	Frequency + Probability
Degree of reversibility	High		Impact can be managed throughout construction.
Irreplaceability	Low		All alien vegetation must be repeatedly removed within footprint during construction and operations.
Mitigations	Mitigatory potential		Recommended mitigations
	Medium		<ul style="list-style-type: none"> - All visible alien plants must be removed prior to top- and subsoil removal. - Sites must be monitored and managed for alien vegetation during prospecting. - Removal must occur through appropriate methods such as hand pulling, application of chemicals, cutting, etc. in accordance with the NEMBA: Alien Invasive Species Regulations. - Any alien plants removed must be dumped at the local registered dumpsite.
Significance of impact (Severity x Incidence)	Pre-mitigation significance		Post-mitigation significance
	Low negative (45)		Very low negative (12)

6. Conclusion

6.1. Assessment summary

BlueLeaf has been appointed by Enviroworks on behalf of Reef Exploration (Pty) Ltd, to undertake a terrestrial biodiversity assessment as part of the EIA process conducted by Enviroworks on six prospecting sites on various farms situated 30 kms east of Bothaville in the Free-State province.

The project involves invasive prospecting that will take the form of diamond drilling. The drilling of the six boreholes will be to a depth of 700m. The minerals to be prospected for includes gold ore, silver ore, coal, diamond (alluvial), platinum group metals, rare earths, sulphur and uranium ore.

The proposed six boreholes are located at the following coordinates:

Borehole #	Coordinates	
1.	27° 26.176'S	26° 52.388'E
2.	27° 26.263'S	26° 52.469'E
3.	27° 25.997'S	26° 52.233'E
4.	27° 26.141'S	26° 52.034'E
5.	27° 26.140'S	26° 52.248'E
6.	27° 26.044'S	26° 52.174'E

The Project Area of Influence (PAOI) has been determined as follows:

PAOI	Area (ha)	Description	Probability of impact occurring
Primary PAOI	6 x (5m x 5m) boreholes = 150m ²	The Primary PAOI includes all boreholes within the boundary of the development site. This is the area directly impacted by prospecting.	Definite
Secondary PAOI	500m buffer (228.985 ha)	The secondary PAOI includes all areas within a 500 m buffer of the proposed prospecting sites. These areas are not directly impacted by the development unless temporary footprints like site camps, laydown areas and stockpiles are placed in them. Assessing this PAOI will not only result in identifying potential indirect and cumulative impacts but will also allow for micro-movement of infrastructure.	Likely
Total PAOI	229 ha	The Primary and Secondary PAOI's are collectively referred to as the Total PAOI (or just the PAOI) or Study Site in this report and demarcate the extent of the study site that will be assessed.	Likely

Current land use has been determined and the entire study area consists of cultivated land and natural grassland. The land is currently being used for a combination of cattle grazing and crop farming (maize). Wetlands can be observed north-west as well as south of the study site. No signs of alien vegetation can be observed on site with some vegetation been degraded due to grazing. Signs of impact grazing is evident.

SANBI lists Vaal-Vet Sandy Grassland as the only impacted vegetation type with the PAOI. Below is a summary of the vegetation type:

Biome	SANBI Vegetation Unit			Size in ha (within PAOI)	% cover in PAOI	Impacted (Y/N)	Likelihood of impact	Sensitivity status
Grassland	Vaal-Vet Grassland	Sandy	GH10	229 ha	100 %	Yes	Definite	EN

SANBI considers this vegetation type as Endangered with about 0.3% statutorily conserved in the Bloemhof Dam, Schoonspruit, Sandveld, Faan Meintjies, Wolwespruit and Soetdoring Nature Reserves. More than 63% has already been transformed for cultivation (ploughed for commercial crops) and the rest are under strong grazing pressure from cattle and sheep.

Borehole 2 (BH2) is located in a CBA 1 while the remaining boreholes are all in an ESA1. A maximum of 25 m² of CBA 1 and 125 m² of ESA 1 will be temporary impacted (approx. a month long). All six borehole sites will be rehabilitated afterwards with landscape features and natural vegetation returning to prior-impact conditions.

6.2. Site sensitivity

The DFFE Screening Tool Report for this project classifies the entire project as having an **overall Very High Sensitivity for the terrestrial biodiversity theme**. Based on the site verification and assessment, the site’s **terrestrial biodiversity theme sensitivity will remain as very high**. A sensitivity map of the entire PAOI was developed based on the abovementioned biodiversity characteristics found within the site (Figure 4.1).

Areas scoring an overall **VERY HIGH Terrestrial Biodiversity Sensitivity** include natural/intact areas considered as irreplaceable in terms of the Free State Biodiversity Plan.

Areas scoring an overall **HIGH Terrestrial Biodiversity Sensitivity** include those areas transformed by agriculture to maize field. These areas however still are considered as CBA1 and ESA1 areas that retains some ecological function.

6.3. Alternatives

No site alternatives or layout alternatives are proposed. The proposed development is NOT considered as fatally flawed provided that all mitigation measures provided in this report are implemented.

6.4. Cumulative impacts

In terms of Environmental Impact Assessment, Cumulative Impact is defined as:

“Means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities”.

The following cumulative impacts were identified:

1. Loss of natural vegetation. Clearing vegetation will result in the temporary loss of up to 125 m² of intact highveld grassland, resulting in the reduction of endangered grassland in the Biome.
2. Increased risk of alien invasive plants spreading to surrounding areas because of vegetation clearing. Contractor can also unknowingly import exotic and invasive species through their plant and equipment.

6.5. Levels to be avoided

Various sensitive biodiversity areas have been identified within the PAOI. Refer to Figure 6.1 below for locations of these areas. These include:

1. Various sections of land have been classified as either a **CBA1 or ESA1**. Because the impact is small (150 m² in total) and temporary (over a 1-month period), prospecting should be allowed provided that the site is rehabilitated afterwards, and all mitigations proposed in this report is implemented.

6.6. Biodiversity offsetting

The project will not require biodiversity offsetting as per the NEMA National Biodiversity Offset Guideline (GN R 3569) legislated on the 23rd of June 2023.

The Biodiversity Offset Guideline is an implementation guideline contemplated in section 24J of the National Environmental Management Act, 1998 (NEMA). Guidelines published in terms of that section give guidance on, *inter alia*, the implementation, administration, and institutional arrangements of the Environmental Impact Assessment Regulations, 2014 (EIA Regulations) or subsequent regulations regarding the environmental impact assessment process.

6.7. Levels of acceptable change

The proposed development is considered as an acceptable change to the environment provided all proposed mitigations are implemented.

6.8. Current impacts

The following impacts are currently occurring on site:

- Cattle are being grazed on all naturally vegetated grassland.
- Maize crops are grown in sections on site.

6.9. Mitigations

The following mitigations must be included into the final EMP:

Soil compaction:

- All footprints must be clearly demarcated. No activities will be allowed outside the footprints.
- Any topsoil removed and stockpiled must be replaced during rehabilitation.
- No soil may be removed from site.
- All sites must be fully rehabilitated.

Loss of natural vegetation:

- The prospecting footprint must be demarcated prior to commencing. All contractors must be made aware of this demarcation.
- Clearing must remain within the demarcated areas.
- All prospecting areas must be rehabilitated and revegetated.
- All areas outside the demarcated footprint will be considered as No-Go areas. No activities (temporary or permanent) will be allowed in these areas.

Spread of alien and invasive plant species:

- All visible alien plants must be removed prior to top- and subsoil removal.
- Sites must be monitored and managed for alien vegetation during prospecting.
- Removal must occur through appropriate methods such as hand pulling, application of chemicals, cutting, etc. in accordance with the NEMBA: Alien Invasive Species Regulations.
- Any alien plants removed must be dumped at the local registered dumpsite.

6.10. Specialist opinion

The proposed prospecting six sites on farms located 30 km west of Bothaville is NOT considered to be Fatally Flawed and no components of the proposed project have been identified as flawed.

No site or layout alternatives are proposed.

The biodiversity impacts of all aspects for the proposed prospecting were assessed and considered to be acceptable, provided that all mitigation measures provided in this report are implemented.

7. References

Cape Farm Mapper, version 2.7. Spatial Information & Mapping Services. Western Cape Department of Agriculture [Available at: <https://gis.elsenburg.com/apps/cfm/>].

Collins, N.B. 2015. Free State Province Biodiversity Plan: CBA map. Free State Department of Economic, Small Business Development, Tourism and Environmental Affairs. Internal Report.

Mucina, L. and Rutherford, M.C. (eds). 2006. The vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.

National Environmental Management Act (Act No. 107 of 1998) as amended.

National Environmental Management Act (Act No. 107 of 1998), The National Biodiversity Offset Guideline (G.NR 3569 of 2023)

National Environmental Management: Biodiversity Act (Act No. 10 of 2004).

National Spatial Biodiversity Assessment (2004).

National Water Act (Act No. 36 of 1998) as amended.

Protocol of the specialist assessment and minimum report content requirements for environmental impacts on terrestrial biodiversity.

SANBI (bgis.sanbi.org).

South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 3.1. 2022.