

**PROPOSED RESORT DEVELOPMENT ON THE REM EXT 1
ELANDSFONTEIN 21 IQ, PORTION 4 AND 5 OF
ELANDSFONTEIN 21 IQ MOLOTE, RUSTENBURG
MUNICIPALITY IN THE NORTH WEST PROVINCE**

ENVIRONMENTAL SCREENING REPORT

FINAL

June 2015



JOMELA Consulting (Pty) Ltd

EXECUTIVE SUMMARY

Bakubung Ba Ratheo proposes the establishment of a Holiday Resort, with a preliminary estimate of 70 chalets, shops, pools, African village, restaurant, entertainment theatre, amphitheatre, support and administration buildings as well as a hiking trail. The number of units will ensure that the impact of development on the study area remains minimal, privacy for the resort visitors is maximised; and the demand on service infrastructure to the holiday units is reduced to levels which can be adequately maintained.

The total area of the farm portions measure 2000 hectares. However, a total developable area of only 20 hectares will be used for the establishment of the chalets and the affiliated infrastructure, ie. Self-sustaining civil services and access roads. The remainder of the property will be utilized for foot paths, hiking trails etc. The proposed development is promoted as a nature orientated recreational area. The development proposal is a very low density, low impact, private resort establishment

Resource consumption in the form of water and power will be minimal. The locality of the holiday stands have been selected based on ease of existing access to the sites, and have furthermore been clustered in close proximity to one another, to ensure that land is protected in a way that benefits the conservation of wildlife species and habitats in the larger landscape.

Potential negative impacts have been identified and they can all be effectively mitigated and monitored, significantly reducing the risk of the impacts to "low" on the environment. The majority of the impacts anticipated during the construction phase will be short term in nature.

Accountable and environmentally responsible development on site, will promote development of this kind in the area, thereby encouraging additional land utilization which attracts investment to the area. It is the opinion of the consultant that there are no environmental impacts emanating from the proposed activity that cannot be adequately managed. The management of the negative impacts will require the implementation of the necessary mitigatory measures to be detailed in the Basic Assessment and Environmental Management Programme.

Potential beneficial impacts associated with the entire development have been identified as follows:

- Construction Phase
 - Creation of employment opportunities and skills development for local communities;

- Increased income generation for local entrepreneurs and service providers providing services/supplies to the construction process;
 - In-direct benefit will include the increased standard of living for many families in the surrounding communities
- Operational Phase
- Rehabilitation of disturbed areas;
 - Skills development and long term job opportunities;
 - Community and local socio-economic upliftment;
 - Generation of funds to contribute to the local community through SLP identified projects;
 - Environmental Interpretation, education and awareness opportunities to educate visitors to the Molote Resort and the local community about the importance of conservation;
 - Increased income generation for local entrepreneurs and service providers providing services/supplies to the operations process;
 - Economic multiplier effect of tourism on businesses in the local and regional economy; and
 - Creation of a destination that appeals to the tastes and preferences of a new or broader tourist market and exposes them to nature and heritage.

REPORT INFORMATION

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DRAFT

1 INTRODUCTION

Planning Futures Development Specialist (Pty) Ltd have appointed Jomela to act as its Independent Environmental Consultant to conduct Environmental Screenings and a desktop Traffic Impact Assessment for the proposed Molote Resort Project in Molote, Rustenburg Rural, North West Province, South Africa.

The project entails construction of a Resort and related Infrastructure on the Farms: Rem Ext 1 Elandsfontein 21 IQ, Portion 4 and 5 Of Elandsfontein 21 IQ in Molote. The land is owned by the Bakubung Ba Ratheo of Molote Communal Property Association. Bakubung Ba Ratheo in the North West Province, situated in Elandsfontein, which falls under the Bojanala District Municipality.

The current farms are zoned for agriculture but according to the zoning and Development information in Terms of the Rustenburg Land Use Management Scheme of 2005: Conference facility and guest house buildings may be erected and used or purposed only with special consent of the local authority. The Bakubung communal association intends to construct the facility for community development and beneficiation and this will be discussed with the local municipalities as part of the Public participation process of the project.

The purpose of a screening is to provide clarity on the current site sensitivities. This determines whether or not a development proposal requires environmental assessment and if so, what level of assessment is appropriate (DEAT, 2002). Screening is thus a decision making process that is initiated during the early stages of the development of a proposal. Two main types of Environmental Screening occur: 1) Pre-Application Screening and 2) Mandatory Screening (DEAT, 2002). Pre-Application Screening is usually undertaken as a formal process, typically at the discretion of the development proponent and aims to provide an opportunity for key environmental issues to be anticipated at the earliest opportunity (DEAT, 2002) (**Figure 1**).

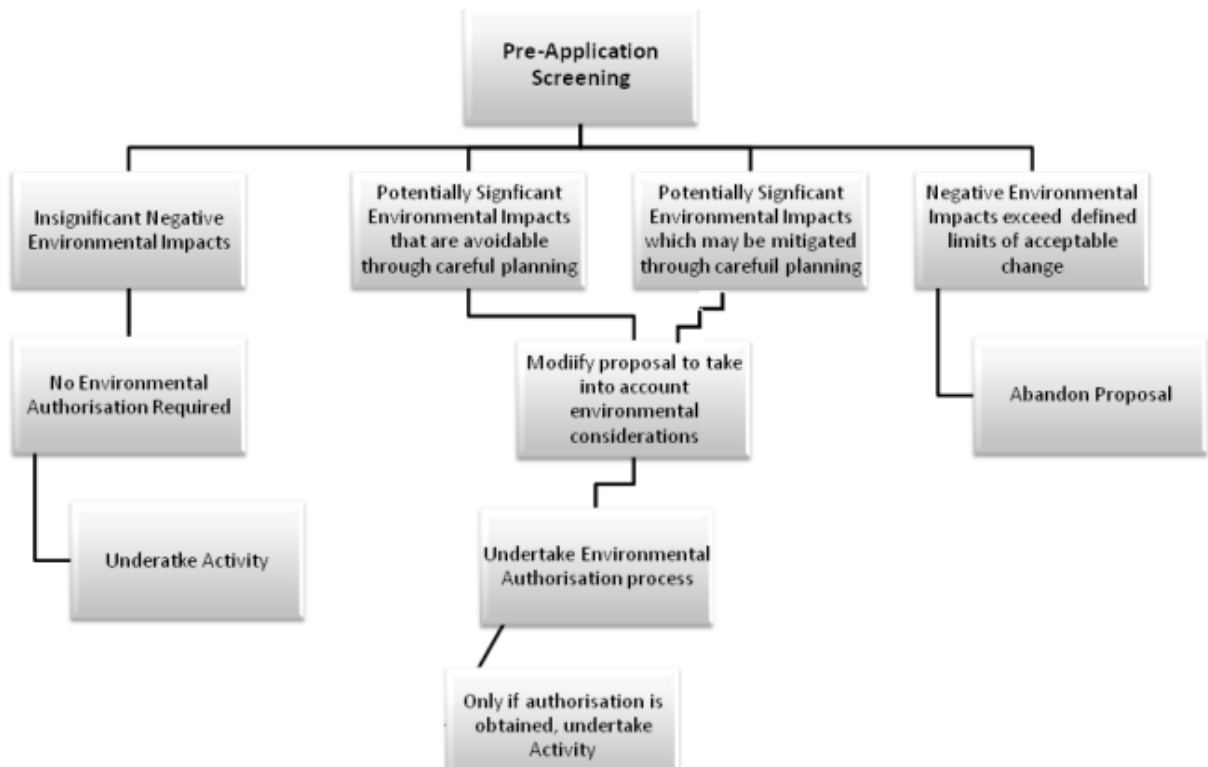


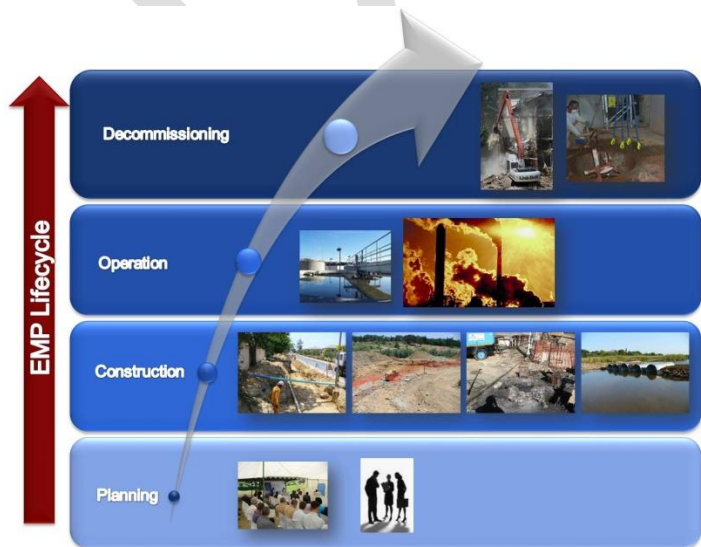
Figure 1: Pre-Application Screening Process (Adapted from DEAT, 2002).

The aim of this Environmental Screening was to identify any sensitive features so to provide guidance on decision-making.

General guidance regarding requisite legislation will also be provided based on the current design layout for the proposed Resort. It should be noted that should this information change, the listed activities triggered may also change.

Project Lifecycle

During its lifecycle, projects journey through four distinctive phases, as presented



Four Generic Phases of a Project Lifecycle.

Due to this project incorporating the construction of a Resort, its life cycle is characterised by the following phases:

- Planning (selection of construction method);
- Construction Phase (construct roads and infrastructure);
- Operational Phase (Resort chalets and related infrastructure); and
- Decommissioning (not applicable for this project).

2 SCOPE OF WORK

The Environmental Screening of the site includes the following factors:

- a. Biophysical factors including:
 - a. Topography;
 - b. Geology;
 - c. Surface Water;
 - d. Biodiversity and;
 - e. The Conservation Plan
- b. Social Factors including:
 - a. Agricultural Potential;
 - b. Heritage Impacts;
 - c. Surrounding land use; and
 - d. Urban Edge.
- c. Legal Requirements and Frameworks

The Environmental Screening is required to:

- Provide an overview of Environmental Screening variables;
- Identify the implications of the proposed project on the environment in relation to the environmental features;
- Provide a brief project description; and
- Provide an overview of Environmental Legislative Framework and Environmental Authorisation required prior to the onset of the proposed project.

The report is intended to present the results of the environmental screening taking into account the proposed resort location:

- Provide an overview of the key environmental considerations that should be taken in account during the Environmental Impact Assessment Process;
- Determine any fatal flaws associated with the project;
- Provide an overview of the environmental authorisation required prior to the implementation of the project as well the requisite environmental processes that need to be followed; and
- Provide a brief overview of the anticipated impacts expected from the project lifecycle

The following assumptions and limitations apply to this assessment:

- The screening is based on available information at the time of the environmental screening, and no site visits were undertaken to verify or update the available information; and
- Predicted impacts are not scientific studies but are anticipated on the basis of desktop analysis, research and impacts associated with the type of development.

3 SITE LOCATION

The proposed Molote Resort Project is located in Molote, Rustenburg Rural, North West Province, South Africa and covers an area of approximately 2000 ha. The project area lies between Magaliesburg, GP (45km in the easterly direction) and Derby, NW (35 km in the North West direction) via R509.

The farm portions are within a 2km radius of the Molote communal area where they are RDP houses as well as a Bakubung Primary school (see figure 1).

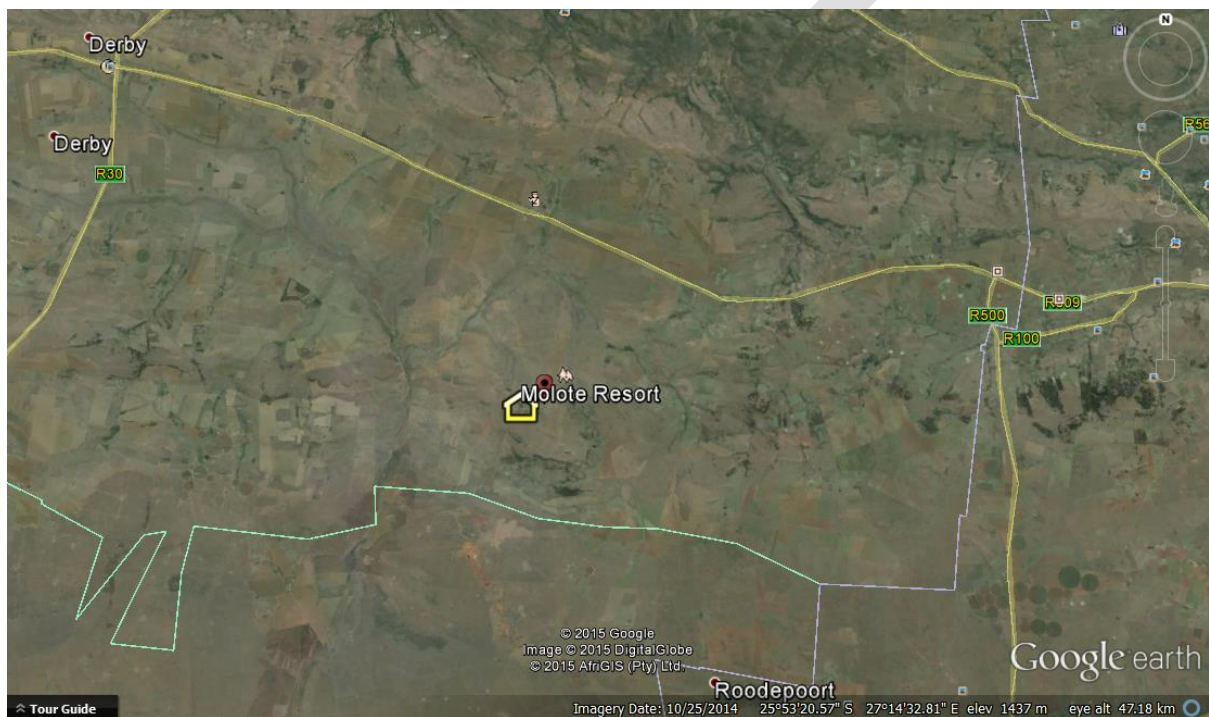


Figure 2: Locality Map

The layout above gives a preliminary alignment options of the access routes and possible design layout of the infrastructure. West of the farm boundary there is state property and an existing gravel road which will be used to access the resort (see Figure 2).

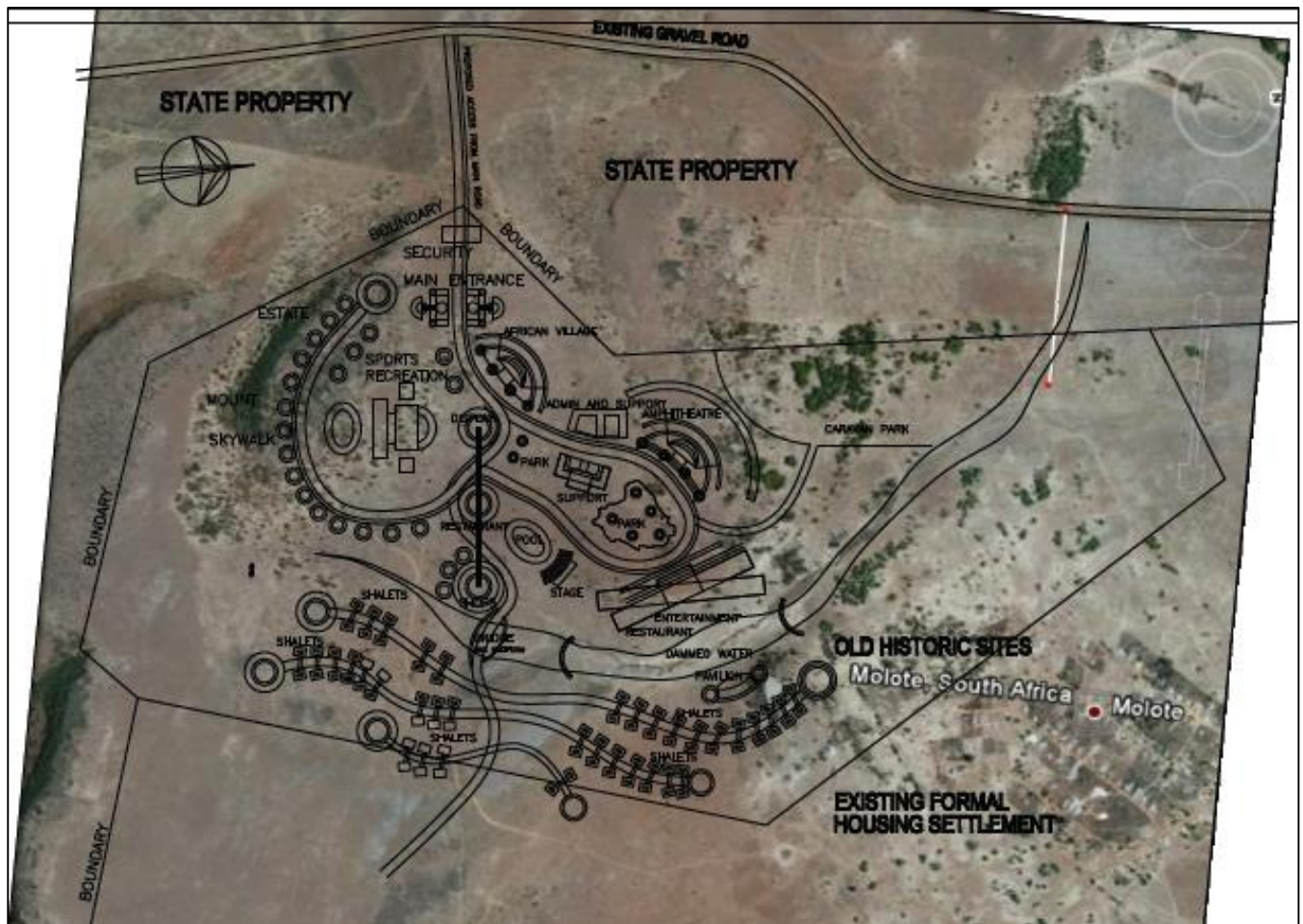


Figure 3: Site Plan

The proposed resort will have 70 chalets, shops, pools, African village, restaurant, entertainment theatre, amphitheatre, support and administration buildings as well as a hiking trail. This is a preliminary outline of the proposed infrastructure subject to modification

The old historical sites will be preserved and possible fenced off and used as an attraction feature. Consultation with SAHRA will be done to best find a way to preserve the site as well as make it a tourism site.

4 BIOPHYSICAL FACTORS

The site was screened on a desktop level using GIS as a spatial tool to identify sensitive environmental features.

4.1 Topography

Steep slopes are inherently sensitive to change. In keeping with current developments in the EIA policies in the country steep slopes have been identified in the area. The occurrence of steep slopes is depicted below. The town is approximately 1600 meters above average mean sea level. The natural landscape is typical Savanna Biome (**Figure 4**).

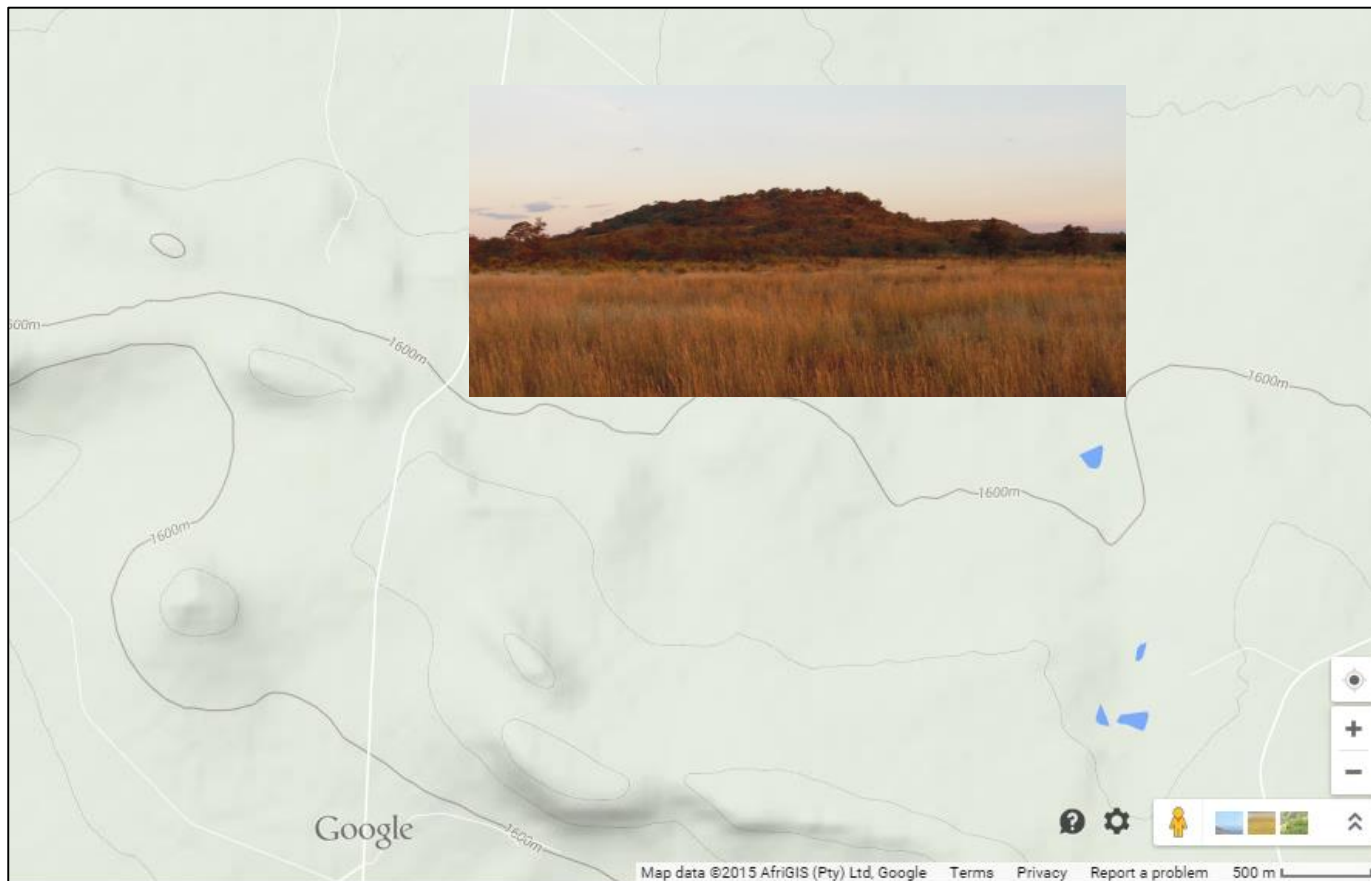
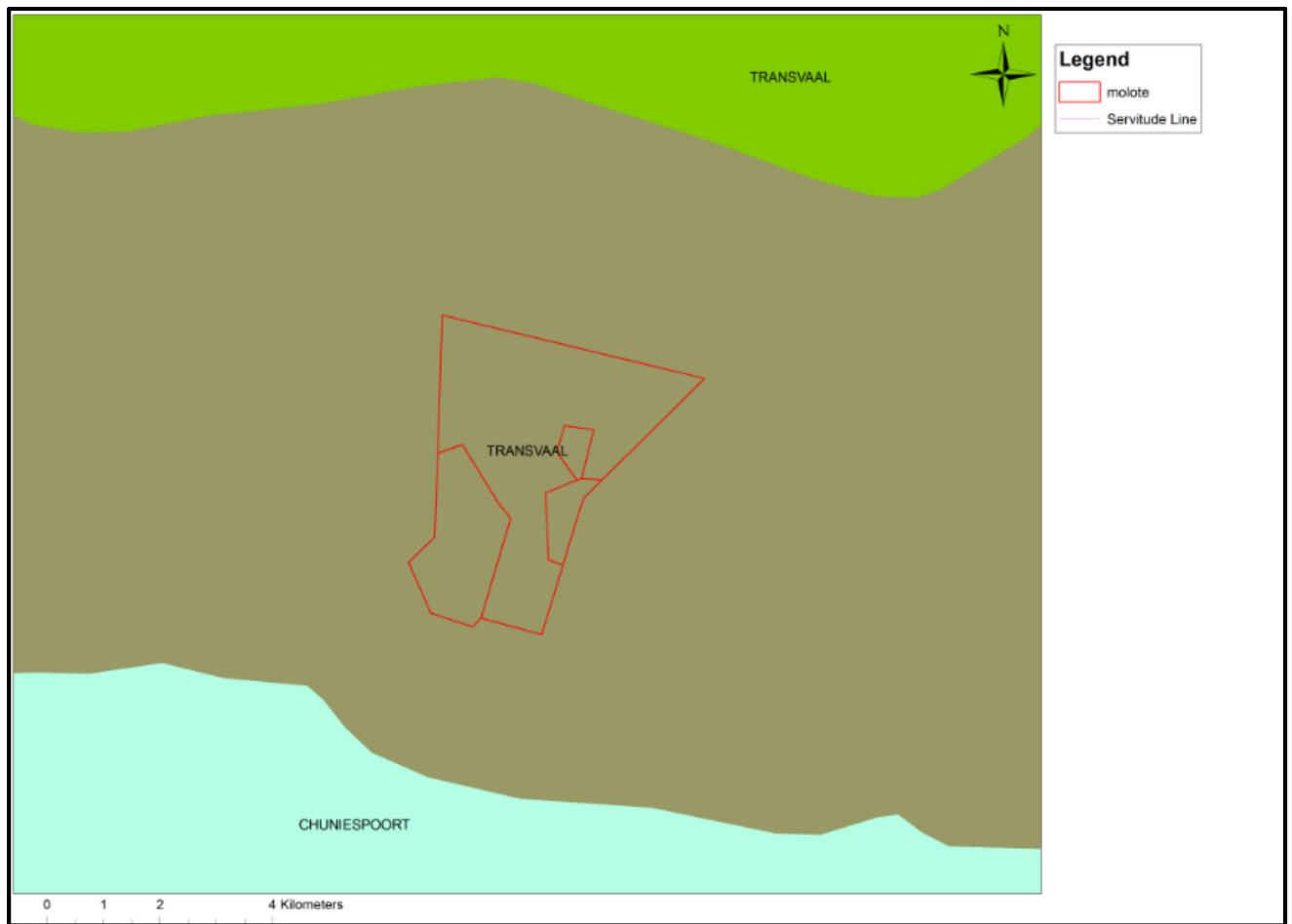


Figure 4: Slope Analysis

4.2 Geology



The **Transvaal Basin** is one of three basins of the Transvaal Supergroup on the Kaapvaal craton. The evolution of this 2.65–2.05 Ga Neoproterozoic–Palaeoproterozoic basin is thought to have been derived largely from magmatism, palaeoclimate and eustasy, while plate tectonics played an intermittent role. The supergroup is made up of basal 'protobasinal' rocks, upon which followed the Black Reef Formation, Chuniespoort Group and the uppermost Pretoria Group.

The Transvaal Supergroup displays three unconformity-bounded sequences that surface in two geographically distinct areas – the Transvaal Basin, which circumscribes the Bushveld Igneous Complex, and the Griqualand West basin, lying between Kimberley and Sishen at the western Kaapvaal craton rim, extending into southern Botswana beneath the Kalahari Sands as the Kanye Basin. The two basins are separated by the broad Vryburg Arch.^[2]

Between approximately 2.640 and 2.516 Ga, two successive stromatolitic carbonate platforms developed in the basin of the Kaapvaal craton. Oldest was the Schmidtsdrif Subgroup, deposited in the southwestern part of the basin, showing stromatolitic carbonates, siliciclastic sediments and small lava flows. This was followed by the Nauga

formation carbonates deposited on peritidal flats in the southwest, which were inundated during a marine transgression of the Transvaal Supergroup continental sea, at some 2.550 Ga. This resulted in a carbonate platform in the Transvaal and Griqualand West Basins, lasting for 30–50 Ma. Shale's were deposited during this period over the Nauga Formation carbonates. Following this a subsidence led to immersion of the stromatolitic platform and to sediments of iron-rich banded iron formations being laid down over the entire basin

The area is characterised by sediments of mostly shale with less quartzite and conglomerate. Carbonates, volcanic rock, breccias and diamictites also occur. Bronzite, harzburgite, gabbro and norite are also found in the area. Soils are mostly deep, red-yellow, apedal and freely drained with high base status and with some vertic or melanic clays. The land types of the area are mainly Ae and Ea (Mucina & Rutherford, 2006).



Picture 1: Geology- Bedrock



Picture 2: Chalk (Carbonate material)

Due to the presence of the carbonates a Geotechnical Assessment will need to be done to determine the structural integrity of the farm.

4.3 Surface Water

The Crocodile (West) and Marico water management area borders on Botswana to the north-west. Its main rivers, the Crocodile and Marico, give rise to the Limpopo River at their confluence. The climate is generally semi-arid, with the mean annual rainfall ranging from 400 mm to 800 mm. Extensive irrigation development occurs along the main rivers, with grain, livestock and game farming in other parts. A general orientation is given by Figure 5. Economic activity in the water management area is dominated by the urban and industrial complexes of northern Johannesburg and Pretoria and platinum mining north-east of Rustenburg. It is the second most populous water management area in the country and has the largest proportionate contribution to the national economy.

Development and utilisation of surface water occurring naturally in the water management area has reached its full potential. Large dolomitic groundwater aquifers occur along the southern part of the area, which is the reason for part of the Upper Molopo River catchment being incorporated into the area. The aquifers are utilised extensively for urban and irrigation purposes. The aquifers are utilised extensively for urban and irrigation purposes. Localised over-exploitation of groundwater occurs in the Molopo area. Some aquifers also underlie the border with Botswana and are shared with that country. A substantial portion of the water used in the water management area is transferred from the Vaal River and further afield. Small transfers out of the water management area are to Gabarone in Botswana and to Modimolle in the Limpopo water management area.

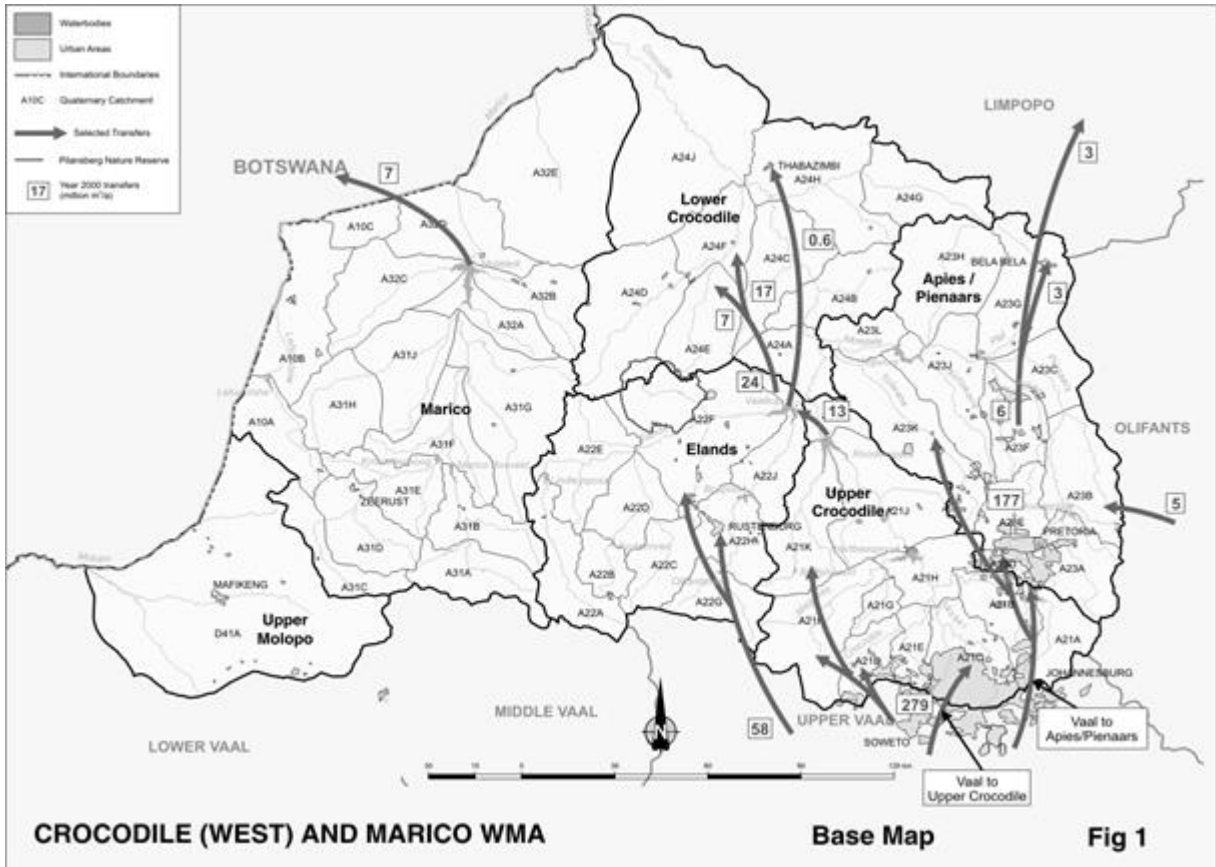


Figure 5: Water Management Area.

Figure 6 shows the watercourse emanating from a fractured aquifer supplying the cattle watering dams along the watercourse.



Picture 3: Surface Water.

If the development falls within 32m of several watercourses and wetlands occur within 500m of the development as well any alterations to the watercourses. A Geohydrological Study will be required to determine the 1:100 year flood line and a Water Use License Application will be required in terms of Section 21 (c) and (i). The following NEMA activities are triggered:

- EIA Listing 1: 12 (xii) and 19(i)

4.4 Biodiversity

4.4.1 Veld Description

Zeerust Thornveld occurs in the North West Province extending along the plains from the Lobatsi River in the west via Zeerust, Groot Marico and Mabaalstad to the flats between the Pilanesberg and the western end of the Magaliesberg in the east. Zeerust Thornveld vegetation type occurs as deciduous, open to dense short thorny woodland, dominated by *Acacia* species with herbaceous layer of mainly grasses. It occurs on deep, high base-status and some clay soils on plains and lowlands as well as between rocky ridges.

The key indicator species of this vegetation type include:

- *Tall trees: Acacia burkei* (d), *A. erioloba* (d),
- *Small trees: Acacia melifera subsp. detinens* (d), *A. nilotica* (d), *A. tortilis subsp. heteracantha* (d), *Rhus lancea* (d), *Acacia fleckii*, *Peltophorum africanum*, *Terminalia sericea*;
- *Tall shrubs: Diospyros lycioides subsp. lycioides*, *Grewia flava*, *Mystroxydon aethiopicum subsp. burkeanum*;
- *Low shrubs: Rhus maricoana* (d), *Agathisanthemum bojeri*, *Chaetacanthus costatus*, *Clerodendrum ternatum*, *Indigofera filipes*, *Rhus grandidens*, *Sida chrysantha*, *Stylosanthes fruticos*;
- *Grass: Eragrostis lehmanniana* (d), *Panicum pospischilii*
- *Herbs: Blepharis integrifolia*, *Chamaecrista absus*, *C. mimosoides*, *Cleome maculate*, *Dicoma anomala*, *Kyphocarpa angustifolia*, *Limeum viscosum*, and *Lophiocarpus tenuissimus*.¹

Conservation status

Zeerust Thornveld is considered to be **Least Threatened**. The conservation target for the area is 19% and less than 4% is statutorily conserved, spreading between four reserves including the Pienaar and Marico Bushveld Nature Reserves. Some 16% of the vegetation type has been transformed, mainly by cultivation, with some urban or built up areas. A few areas are scattered with plants of the alien *Cereus jamacaru* and several other alien species are

¹ *Note: (d = dominant species)

scattered elsewhere. Erosion of the area is mainly low to very low (Mucina & Rutherford, 2006).

4.4.2 Description of Critical biodiversity areas for the North West Province

The North West Province's biodiversity provides an important basis for economic growth and development, in ways such as providing rangelands that support commercial and subsistence farming, horticulture and agriculture industry based on indigenous species, tourism industry, aspects of film industry, commercial and non-commercial medicinal applications of indigenous resources, and provision of clean water.

Critical biodiversity areas (CBA's) are terrestrial and aquatic features the landscape that are critical for retaining biodiversity and supporting continued ecosystem functioning and services (SANBI, 2007).

The primary purpose of CBA's is to inform land-use planning and the land-use guidelines attached to CBA's aim to promote sustainable development by avoiding loss or degradation of important natural habitat and landscapes in these areas and the landscape as a whole.

CBA's can also be used to inform protected area expansion and development plans. The use of CBA's here follows the definition laid out in the guideline for publishing bioregional plans (Anon, 2008):

- Critical biodiversity areas (CBAs) are areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. In other words, if these areas are not maintained in a natural or near-natural state then biodiversity conservation targets cannot be met. Maintaining an area in a natural state can include a variety of biodiversity-compatible land uses and resource uses.
- Ecological support areas (ESA's) are areas that are not essential for meeting biodiversity representation targets/thresholds but which nevertheless play an important role in supporting the ecological functioning of critical biodiversity areas and/or in delivering ecosystem services that support socio-economic development, such as water provision, flood mitigation or carbon sequestration. The degree of restriction on land use and resource use in these areas may be lower than that recommended for critical biodiversity areas.

The biodiversity criteria used to define Critical Biodiversity Areas (CBAs) in the North West Province are listed in Table 1 below.

TABLE 1: BIODIVERSITY CRITERIA USED TO DEFINE CRITICAL BIODIVERSITY AREAS (CBAS) IN THE NORTH WEST PROVINCE.

Map Category Name	Sub-Category Name	Description of biodiversity features used to define CBA category	Shp File Name	Shp File CBA Field Name	CBA Level Codes
Protected Areas	Protected Areas	Protected areas recognised in the Protected Areas Act including South African National Parks and North West Provincial Parks. These were formerly known as Type 1 and 2 protected areas.	NW Protected Areas	CBA_pa	PA
	Conservation areas	Conservation areas not recognised in the Protected areas Act (e.g. conservancies and private nature reserves or game farms where there is no legal agreement). These were formerly known as Type 3 protected areas.	NW Protected Areas	CBA_pa	CA
Critical Biodiversity Areas (CBAs)	Critical Patches: Ecosystem Status - Critically Endangered Ecosystems	Remaining patches larger than 3ha of provincially critically endangered ecosystems (vegetation types). i.e. The amount remaining intact of this vegetation type is less than representation target therefore all remaining patches of these vegetation units are of the highest conservation priority and further transformation of natural habitat should be avoided	NW Vegetation Patches	CBA_saveg	T1
	Critical Patches: Ecosystem Status - Endangered And Vulnerable Ecosystems	Remaining patches larger than 5ha of provincially endangered and vulnerable ecosystems (vegetation types), i.e. The amount remaining intact of this vegetation type is less than 60%. Any further transformation of these vegetation types should be limited to existing transformed or heavily degraded areas.	NW Vegetation Patches	CBA_saveg	T2
	Critical Patches: Endemic Vegetation Types	Remaining patches larger than 10ha of Endemic or Near-Endemic (>80% in province) vegetation types to the province with a global distribution of less than 50 000ha. These are vegetation types whose conservation target can only be achieved in the NW Province. Also, the small extent of these vegetation units makes them vulnerable to transformation.	NW Vegetation Patches	CBA_end	T2
	Critical Biodiversity Corridors Linkages	Critical linkages in the provincial biodiversity corridor network where existing conversion of natural landscapes to other uses has severely restricted options for maintaining connectivity in the natural landscape.	NW Biodiversity Corridors	CBA_links	T1

Map Category Name	Sub-Category Name	Description of biodiversity features used to define CBA category	Shp File Name	Shp File CBA Field Name	CBA Level Codes
			Critical Linkages		
	Important Terrestrial Habitats: Experts Areas	Areas in the terrestrial environments less than 10 000 ha in extent identified by experts as being important for biodiversity conservation	NW Expert Terrestrial	CBA_exp_T	T1
	Important Habitats: Features	Important natural features (habitats, springs, scenic landscapes) identified in the existing SDF data	NW Features	CBA_fea	T2
	Important Habitats: Hills and Ridges	Hills and ridges identified as sensitive habitats in the existing provincial SDF dataset. The hill and ridges layer was developed to address the special biodiversity significance of these topographic features in the Province. The layer was re-developed from scratch using the GIS modelling approach used in Gauteng Province and modified for the North West Province.	NW Hills and Ridges	CBA_hill	T2
	Existing or Proposed Protected Area Development Corridors	Existing protected area development corridors identified in previous studies: 1. Heritage Park 2. Highveld Grassland corridor 3. Vredefort Dome World Heritage Site 4. Kalahari Transfrontier Protected Area 5. Magaliesberg Protected Environment	NW PA Development Corridors	CBA_pa1	T2
Critical Biodiversity Areas (CBAs)	Biodiversity Development Nodes	Potential biodiversity or nature-based industry development nodes identified through the systematic biodiversity assessment. Nodes coincide with areas of important remaining or intact biodiversity that contribute significantly towards achieving biodiversity conservation goals (e.g. achieving targets, economic development). In most cases these are the last remaining areas in the landscape where extensive reserve networks can be developed as other areas are heavily transformed and are thus better suited to stewardship type conservation. Note: the areas indicated are notional indicating broadly areas for biodiversity development	NW Biodiversity Nodes	CBA_node	T2

Map Category Name	Sub-Category Name	Description of biodiversity features used to define CBA category	Shp File Name	Shp File CBA Field Name	CBA Level Codes
	Biodiversity Corridors	<p>Provincial-level biodiversity corridor network aimed at retaining connectivity between all geographic areas in the province. Corridor network identified, following a least cost path analysis.</p> <p>The corridor network was designed as a product of the systematic assessment and was based on the following set of design criteria or principles agreed to by the stakeholders and experts involved with this project:</p> <ul style="list-style-type: none"> • The corridor network needs to incorporate all existing identified landscape or biodiversity corridors. These include: <ul style="list-style-type: none"> ○ Madikwe-Pilanesberg-Borakalalo Heritage Park ○ Magaliesberg PE • The corridor network needs to link core conservation landscapes through a province-wide network that covers the complete range of altitudinal and latitudinal zones. • The corridor network should where possible incorporate most terrestrial and freshwater priority areas. • The corridor network should not focus on one component of biodiversity (e.g. grassland) in the design but rather consider all components of biodiversity pattern and ecological process. • Give effect to the principles and axes of landscape corridor design embodied in the National Spatial Biodiversity Assessment. <p>NOTE: The corridor network is notional to indicate general alignment of biodiversity corridors at the provincial level. Only areas designated as critical corridor linkages are mandatory as there are no other options for linking the landscape.</p>	NW Biodiversity Corridor	CBA_corr	T2

Note: CBA level codes T1 and T2 refer to terrestrial CBA1 and terrestrial CBA2 respectively.

The guideline for bioregional plans defines three basic CBA categories based on three high-level land management objectives which were adapted for the North West Province

Table 2: A framework for linking spatial planning categories (CBAs) to land-use planning and decision-making guidelines based on a set of high-level land biodiversity management objectives. Adapted from the guideline for bioregional plans (Anon, 2008).

CBA category	Land Management Objective
PA & CBA 1	<p>Natural landscapes:</p> <ul style="list-style-type: none"> • Ecosystems and species fully intact and undisturbed • These are 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. • These are landscapes that are at or past their limits of acceptable change
CBA 2	<p>Near-natural landscapes:</p> <ul style="list-style-type: none"> • Ecosystems and species largely intact and undisturbed. • Areas with intermediate irreplaceability or some flexibility in terms of area required to meet biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising our ability to achieve targets. • These are landscapes that are approaching but have not passed their limits of acceptable change.
Ecological Support Areas (ESA)	<p>Functional landscapes:</p> <ul style="list-style-type: none"> • Ecosystems moderately to significantly disturbed but still able to maintain basic functionality. • Individual species or other biodiversity indicators may be severely disturbed or reduced. • These are areas with low irreplaceability with respect to biodiversity pattern targets only.
Other Natural Areas (ONA) and Transformed	<p>Production landscapes: manage land to optimize sustainable utilization of natural resources.</p>

4.4.3 Terrestrial Threatened Ecosystems

The South African National Biodiversity Institute (SANBI), in conjunction with the Department of Environmental Affairs and Tourism (DEAT), released a draft report in 2009 entitled “Threatened Ecosystems in South Africa: Descriptions and Maps” to provide background information on the abovementioned 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 national list of ecosystems that are threatened and in need of protection was gazetted on 9 December 2011 (Government Notice 1002 (<http://bgis.sanbi.org/ecosystems/project.asp>)). 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 categorising these ecosystems is to prioritise 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 the land in 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, Environmental Management Frameworks, Environmental Impact Assessments and other environmental applications (Mucina *et al.*, 2006).

Protected area network:

- The provincial protected area (PA) network is not representative of the biodiversity in the province. At present only 2.84% of the province is in formal PA’s. Nearly half of the provinces 61 vegetation types do not occur within any protected area. Over the long term this figure will

need to be increased approximately ten-fold for the PA network to be representative of the province's biodiversity and for national targets for vegetation types to be achieved.

- The PA registry for the Province is incomplete. It is important that such a registry be verified and updated regularly, and linked to a PA management effectiveness tool so that the province can better keep track of status of the formal PA network.

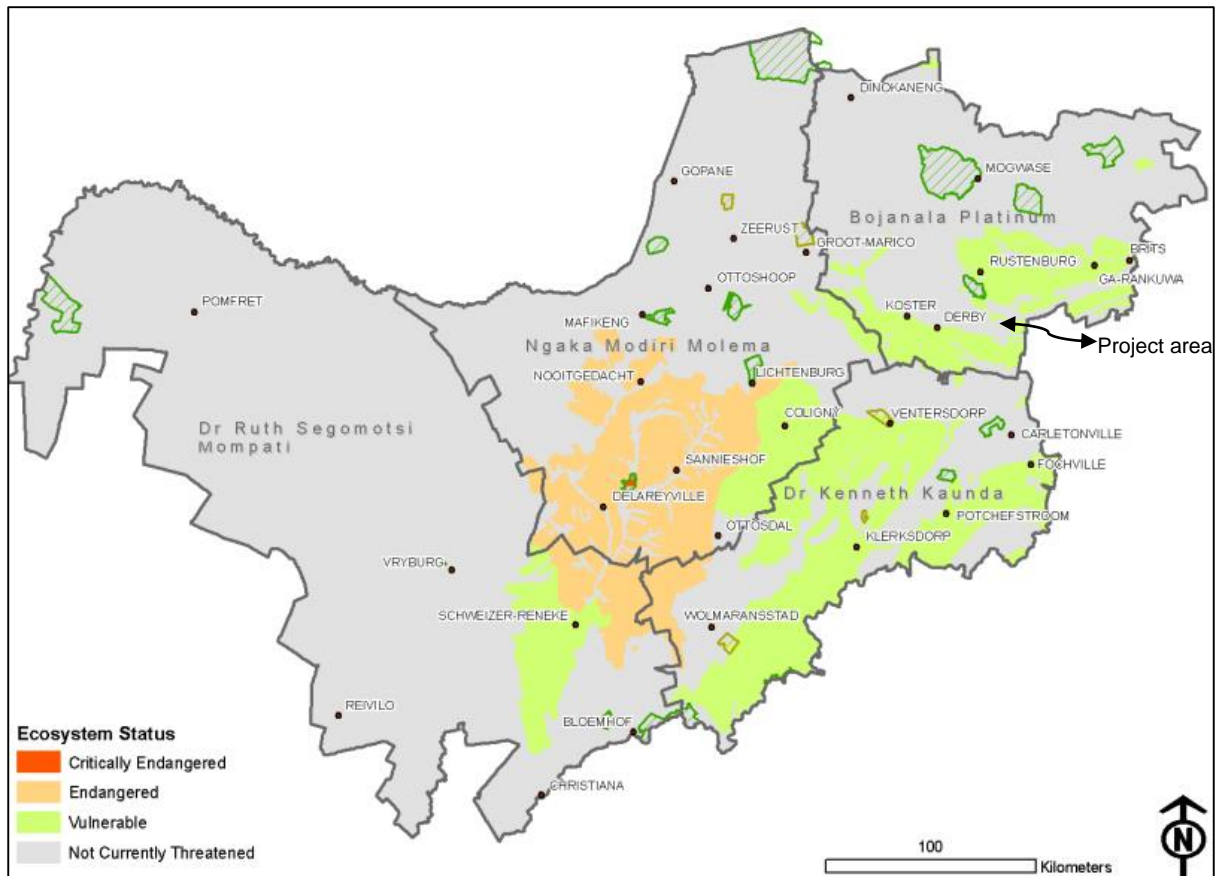


Figure 6: North West Threatened Terrestrial Ecosystems.

Plant species recorded in the study area which could potentially occur in the study area are referred to in Appendix 1.



Figure 7: Molote Proposed Site Terrestrial Ecosystems.

Note: EN=Endangered; VU=Vulnerable; NT=Near Threatened

Table 3. Definitions of Red Data plant status (Raimondo *et al.*, 1999)

Symbol	Status	Description
EN	Endangered	A taxon is Endangered when the best available evidence indicates that it meets any of the five International Union for Conservation of Nature (IUCN) criteria for Endangered, and is therefore facing a very high risk of extinction in the wild.
VU	Vulnerable	A taxon is Vulnerable when the best available evidence indicates that it meets any of the five) IUCN criteria for Vulnerable and it is therefore considered to be facing a high risk of extinction in the wild.
NT	Near Threatened	A taxon is Near Threatened when available evidence indicates that it is close to meeting any of the five IUCN criteria for Vulnerable, and is therefore likely to qualify for a threatened category in the near future.
	Declining	A taxon is Declining when it does not meet any of the five IUCN criteria and does not qualify for the categories

Symbol	Status	Description
		Critically Endangered, Endangered, Vulnerable or Near Threatened, but there are threatening processes causing a continuing decline in the population.

4.4.4 Fauna

4.4.4.1 Birds

Important Bird Areas (IBAs) form a network of sites, at a bio-geographic scale, which are crucial for the long-term viability of naturally occurring bird populations (Barnes, 2000). Conservation and planning tools will be consulted for relevancy for this project, to find if Important Bird Area (IBA) that occur in the study area. The area is partially protected in the IBA.



Figure 8: Molote Proposed Site Important Bird Areas.

4.4.4.2 Mammals

According to the mammal data sourced by Virtual Museum of African Mammals (http://vmus.adu.org.za/vm_view_db.php), there are mammal species that were recorded in grid cell 2527AC, that are known to occur in the region. These species are shown in the Table 4 below, however many of these mammal species are unlikely to occur at the study site given the human habitation, but still needs to be investigated.

Table 4: Mammal species which could potentially occur in the study area

Family	Genus	Species	Subspecies	Common name	Red list category	No. records
Bovidae	<i>Aepyceros</i>	<i>melampus</i>		Impala	Least Concern	24
Bovidae	<i>Alcelaphus</i>	<i>buselaphus</i>		Red Hartebeest	Least Concern	13
Bovidae	<i>Antidorcas</i>	<i>marsupialis</i>		Springbok	Least Concern	9
Bovidae	<i>Connochaetes</i>	<i>taurinus</i>	<i>taurinus</i>	Blue Wildebeest	Least Concern	22
Bovidae	<i>Damaliscus</i>	<i>lunatus</i>	<i>lunatus</i>	Tsessebe	Endangered	7
Bovidae	<i>Kobus</i>	<i>ellipsiprymnus</i>	<i>ellipsiprymnus</i>	Waterbuck	Least Concern	2
Bovidae	<i>Oreotragus</i>	<i>oreotragus</i>		Klipspringer	Least Concern	7
Bovidae	<i>Oryx</i>	<i>gazella</i>		Gemsbok	Least Concern	6
Bovidae	<i>Pelea</i>	<i>capreolus</i>		Grey Rhebok	Least Concern	2
Bovidae	<i>Raphicerus</i>	<i>campestris</i>		Steenbok	Least Concern	7
Bovidae	<i>Redunca</i>	<i>arundinum</i>		Reedbuck	Least Concern	4
Bovidae	<i>Redunca</i>	<i>fulvorufula</i>		Mountain Reedbuck	Least Concern	5
Bovidae	<i>Sylvicapra</i>	<i>grimmia</i>		Common Duiker	Least Concern	3
Bovidae	<i>Syncerus</i>	<i>caffer</i>		Cape Buffalo	Least Concern	23
Bovidae	<i>Taurotragus</i>	<i>oryx</i>		Eland	Least Concern	12
Bovidae	<i>Tragelaphus</i>	<i>angasii</i>		Nyala	Least Concern	2
Bovidae	<i>Tragelaphus</i>	<i>scriptus</i>		Bushbuck	Least Concern	3
Bovidae	<i>Tragelaphus</i>	<i>strepsiceros</i>		Kudu	Least Concern	18
Canidae	<i>Canis</i>	<i>mesomelas</i>		Black-backed Jackal	Least Concern	30
Canidae	<i>Lycaon</i>	<i>pictus</i>		African Wild Dog	Endangered	9
Cercopithecidae	<i>Cercopithecus</i>	<i>aethiops</i>	<i>pygerythrus</i>	Vervet Monkey	Least Concern	4
Cercopithecidae	<i>Papio</i>	<i>ursinus</i>		Chacma Baboon	Least Concern	7
Elephantidae	<i>Loxodonta</i>	<i>africana</i>		African Elephant	Least Concern	1002
Equidae	<i>Equus</i>	<i>quagga</i>		Plains Zebra	Least Concern (IUCN 3.1)	33
Felidae	<i>Acinonyx</i>	<i>jubatus</i>		Cheetah	Vulnerable	24
Felidae	<i>Caracal</i>	<i>caracal</i>		Caracal	Least Concern	5
Felidae	<i>Felis</i>	<i>silvestris</i>		African Wild Cat	Least Concern	3
Felidae	<i>Leptailurus</i>	<i>serval</i>		Serval	Near Threatened	3
Felidae	<i>Panthera</i>	<i>leo</i>		Lion	Vulnerable	605
Felidae	<i>Panthera</i>	<i>pardus</i>		Leopard	Least Concern	150
Galagonidae	<i>Galago</i>	<i>moholi</i>		Southern Lesser Galago	Least Concern	2
Giraffidae	<i>Giraffa</i>	<i>camelopardalis</i>	<i>giraffa</i>	Giraffe	Least Concern	341
Herpestidae	<i>Atilax</i>	<i>paludinosus</i>		Water Mongoose	Least Concern	7
Herpestidae	<i>Galerella</i>	<i>sanguinea</i>		Slender Mongoose	Least Concern	39
Herpestidae	<i>Ichneumia</i>	<i>albicauda</i>		White-tailed Mongoose	Least Concern	1
Herpestidae	<i>Mungos</i>	<i>mungo</i>		Banded Mongoose	Least Concern	4
Hippopotamidae	<i>Hippopotamus</i>	<i>amphibius</i>		Hippopotamus	Least Concern	19
Hyaenidae	<i>Crocuta</i>	<i>crocuta</i>		Spotted Hyaena	Near Threatened	7

Family	Genus	Species	Subspecies	Common name	Red list category	No. records
Hyaenidae	<i>Hyaena</i>	<i>brunnea</i>		Brown Hyaena	Near Threatened	44
Hyaenidae	<i>Proteles</i>	<i>cristatus</i>		Aardwolf	Least Concern	3
Hystricidae	<i>Hystrix</i>	<i>africaeausustralis</i>		Porcupine	Least Concern	1
Leporidae	<i>Lepus</i>	<i>saxatilis</i>		Scrub / Savannah Hare	Least Concern	59
Leporidae	<i>Pronolagus</i>	<i>randensis</i>		Jameson's Red Rock Rabbit	Least Concern	2
Leporidae	<i>Pronolagus</i>	<i>rupestris</i>		Smith's Red Rock Rabbit	Least Concern	1
Manidae	<i>Manis</i>	<i>temminckii</i>		Pangolin	Vulnerable	1
Molossidae	<i>Tadarida</i>	<i>aegyptiaca</i>		Egyptian Free-tailed Bat	Least Concern	2
Muridae	<i>Aethomys</i>	<i>ineptus</i>		Tete Veld Rat	Least Concern	9
Muridae	<i>Aethomys</i>	<i>namaquensis</i>		Namaqua Rock Mouse	Least Concern	6
Muridae	<i>Lemniscomys</i>	<i>rosalia</i>		Single-striped Mouse	Data Deficient	4
Muridae	<i>Mus</i>	<i>indutus</i>		Desert Pygmy Mouse	Least Concern	1
Muridae	<i>Otomys</i>	<i>irroratus</i>		Vlei Rat	Least Concern	5
Muridae	<i>Thallomys</i>	<i>paedulus</i>		Tree Rat	Least Concern	2
Mustelidae	<i>Aonyx</i>	<i>capensis</i>		Cape Clawless Otter	Least Concern	4
Mustelidae	<i>Mellivora</i>	<i>capensis</i>		Honey Badger	Near Threatened	20
Procavidae	<i>Procavia</i>	<i>capensis</i>		Rock Hyrax	Least Concern	8
Sciuridae	<i>Paraxerus</i>	<i>cepapi</i>		Tree Squirrel	Least Concern	3
Suidae	<i>Phacochoerus</i>	<i>africanus</i>		Warthog	Least Concern	22
Viveridae	<i>Genetta</i>	<i>maculata</i>		Common Large-spotted Genet (Rusty-spotted Genet)	Least Concern	1
Viveridae	<i>Genetta</i>	<i>tigrina</i>		Large-spotted Genet	Least Concern	14

From the above assessment, a detailed Flora and Fauna Specialist Study would be needed to determine if any of the above listed fauna and flora Species occur on site.

4.5 North West Conservation and Biodiversity Plan (2009)

Critical Biodiversity Areas (CBAs) are areas of the landscape that need to be maintained in a natural or near natural state in order to ensure the continued existence and functioning of species and ecosystems. Maintaining an area in a natural state can include a variety of biodiversity compatible land uses and resource uses (sanbi.bgis.co.za).

The purpose of the plan is to develop the spatial component of a bioregional plan (i.e. map of Critical Biodiversity Areas (CBA) and associated land-use guidelines).

Bioregional plans are one of a range of tools provided for in the National Environmental Management: Biodiversity Act (NEMBA) (No. 10 of 2004) that can be used to facilitate biodiversity conservation in priority areas outside the protected area network. The purpose of a bioregional plan is to inform land-use planning, environmental assessment and authorisations, and natural resource management, by a range of sectors whose policies and decisions impact on biodiversity.

This is done by providing a map of biodiversity priority areas or CBAs together with accompanying land-use planning and decision-making guidelines. The conservation plan applies a target driven systematic spatial biodiversity planning methodology to develop this map and it is based on the best available biodiversity and context data, and an explicit set of biodiversity conservation targets. The resultant map represents the minimum area necessary to maintain biodiversity pattern and ecological processes in the landscape, i.e. ecologically functional landscapes.

Bioregional plans are intended to feed into a range of multi-Sectoral planning and assessment processes such as Environmental Management Frameworks (EMFs), Spatial Development Frameworks (SDFs), Strategic Environmental Assessments (SEAs), Environmental Impact Assessments (EIAs), Biosphere Reserves, and to support and streamline environmental decision-making. A bioregional plan is not in itself a multi-sectoral planning or assessment tool, but rather is the biodiversity sector's input into other planning and assessment processes.

This conservation plan is consistent with National Environmental Management Act (NEMA) principles and the NEMBA. It is designed to support integrated development planning and sustainable development by identifying an efficient set of CBAs that are required to meet national and provincial biodiversity objectives, in a configuration that is least conflicting with other land uses and activities. Where alternatives are available, the CBAs are designed to avoid conflict with existing IDPs, EMFs and SDFs in the region by favouring the selection of sites that are least conflicting with other land-uses.

The following NEMA activities may be triggered:

- The indigenous vegetation may be 300 square metres or more.
 - Activity No. 12(a), of Listing Notice 3 of 2014 may be triggered

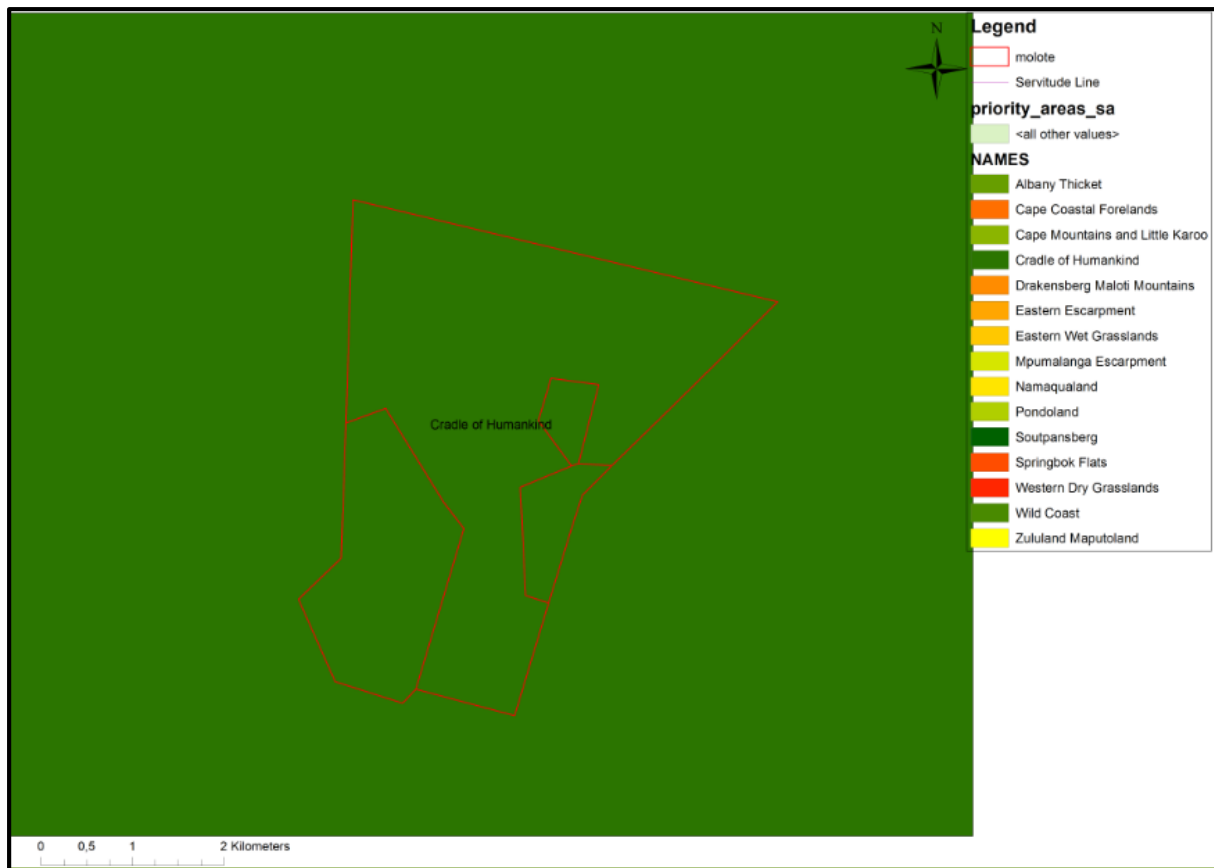


Figure 9: Molote Proposed Site Vegetation Priority Area.

5 SOCIAL FACTORS

5.1 Agricultural Potential

North West area with high agricultural potential. Accordingly a number of labour intensive development initiatives, have been identified as having the potential of for ensuring wide-spread economic spin-offs for local communities. However, expediting land claims and land restitution processes as well as ensuring access to water for agriculture development is seen as a top priority to unlock the agricultural potential in the area.

5.2 Heritage

When referring to the human past in archaeological (heritage) terms, the following time periods are usually distinguished, namely:

- The Stone Age (SA) is divided into the Early Stone Age (ESA) (covers the period from 2.5 million years ago to 250 000 years ago), the Middle Stone Age (MSA) (refers to the period from 250 000 years ago to 22 000 years ago) and the Late Stone Age (LSA) (the period from 22 000 years ago to 200 years ago). Stone Age hunter-gathers seasonally moved around in small bands and lived in temporary settlements such as open sites or caves and mainly lived by means of hunting and gathering. LSA hunter-gathers and Khoekhoe herders are also associated with rock art.
- The Iron Age (IA) is usually divided into the Early Iron Age (EIA) (covers the 1st millennium AD) and the Later Iron Age (LIA) (covers the first 880 years of the 2nd millennium AD). The Iron Age (IA) is associated with the first agro-pastoralists (farming) communities who lived in semi-permanent villages, manufactured pottery and in some instances practiced specialized activities such as mining, metal working and trading.
- The Historical (Colonial) Period refers to the appearance of the first written records provided by hunters, traders, adventures and missionaries who moved into the interior from the 1830's onwards. Their diaries, memoirs and journals contains amongst others descriptions of the indigenous peoples, places, fauna and flora, minerals and (now historical) events that occurred in this part of the country.

According to Section 38(1) under Heritage resources management of the National Heritage Act 25 of 1999 the heritage resources in South Africa should be managed in the following:

“(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;



Picture 4: Historical traditional Kraals

According to Section 38 of the National Heritage Resources Act 25 of 1999, a linear development exceeding 300m in length triggers a Heritage Impact Assessment (HIA). The resort access road will be approximately more than 300m in length at any point, thus a Heritage Impact Assessment (HIA) will be required. This will need to be submitted to the Provincial Heritage Resource Authority. The resort will be within 500m of Historical (colonial) Kraals which triggers a HIA.

5.3 Surrounding Land Use

The proposed site occurs in unimproved (natural) grassland and neighbored by Urban Build up areas (**Picture 5**). The site occurs inside the rural areas within the municipal focus areas (**Picture 6**).



Picture 5: Land Use.



Picture 6: Municipal development focus areas

6.1 Legislation

Development and conservation planning must be contextualised within the framework of national government, provincial government, district municipality and local municipality's legal, regulatory and policy.

Environmental law provides mechanisms for the management and conservation of environmental features and the sustainability of new development. The importance of environmental management is to make responsible use of natural, economic and human resources in ways that protect and improve the environment.

Environment law is divided into various sections and most laws applicable to protection and management of the environment were developed to protect and manage specific sectors.

The most common laws applicable to environment management are described in the following sections.

The following Acts and Regulations are applicable to the activities described:

a) The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996)

Section 24 of the Constitution of the Republic of South Africa (Act 108 of 1996) states that everyone has the right:

- a) to an environment that is not harmful to their health or well-being; and
- b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that:
 - i) prevent pollution and ecological degradation;
 - ii) promote conservation; and
 - iii) secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.

The Constitution of South Africa is the highest form of law enforceable on any individual or organisation. This section therefore provides the basic environmental rights to all citizens to safe and healthy environment.

6.1.1 The National Environmental Management Act (Act 107 of 1998)

The NEMA is considered the overarching act in terms of environmental legislation. Every act that relates to environmental matters is directly or indirectly linked to the NEMA and provisions

are made in acts that followed publication of NEMA 1998 to accommodate conditions specified in various acts.

The National Environmental Management Amendment Act (NEMAA) act was promulgated in 2008 and was aimed at substituting certain definitions, further regulating environmental authorisations and to effect certain textual alterations.

NEMAA provides for cooperative governance and establishes principles for decision-making on matters affecting the environment such as:

- *People and their needs must be placed at the forefront of environment management;*
- *Development must be sustainable and therefore requires avoidances of pollution and degradation of the environment, disturbances of landscapes and sites of cultural heritage*
- *The integrated nature of the environment and that responsibility for environmental management exists throughout the life cycle of an activity (from cradle to grave);*
- *Public Participation;*
- *Transparent decision making; and*
- *Intergovernmental co-ordination and harmonisation of policies, legislation and actions.*

Chapter Five of NEMA provides for Integrated Environmental Management and defines the general objectives of IEM. Minimum procedures are laid down with respect to investigating, assessing and communicating the potential impacts of activities.

Section 24 of NEMA provides for Environmental Management Frameworks through provisions for the identification of sensitive and geographical areas. Chapter Eight of NEMA specifies the sensitive and geographical areas mentioned above and maps created as a result thereof to be used as environmental management framework.

Identification and Registration of I&APs

A detailed database containing the contact names of all registered interested and affected parties, including stakeholders, surrounding community members, ward councilors, business and community associations or organizations, and relevant state departments, has to be compiled. This database will remain open for the registration of any interested and affected party during the EA application process.

A number of key stakeholders have been identified and listed below. These include the following:

- North West Department of Economic Development, Environment and Tourism

- North West Department of Water affairs
- North West Department of Roads and Transport
- Housing Development Agency;
- SAHRA;
- Eskom;
- Rustenburg Local Municipality;
- SANRAL;
- WESSA;
- Birdlife South Africa; and
- Molote Community

6.1.2 The National Environmental Management: Air Quality Act (Act 39 of 2004)

The purpose of this act was to reform the law regulating air quality by providing measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development.

The acts aims to promote justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; and for specific air quality measures

6.1.3 The National Environmental Management: Biodiversity Act (Act 10 of 2004)

The purpose of the National Environment Management Biodiversity Act (NEMBA) is to provide for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act (Act 107 of 1998).

The Act allows for the publication of provincial and national lists of ecosystems that are threatened and in need of protection. The list should include:

- *Critically Endangered Ecosystems*, which are ecosystems that have undergone severe ecological degradation as a result of human activity and are at extremely high risk of irreversible transformation.

- *Endangered Ecosystems*, which are ecosystems that, although they are not critically endangered, have nevertheless undergone ecological degradation as a result of human activity.
- *Vulnerable Ecosystems*, which are ecosystems that have a high risk of undergoing significant ecological degradation.
- *Protected Ecosystems*, which are ecosystems that are of a high conservation value or contain indigenous species at high risk of extinction in the wild in the near future.

Similarly, the Act allows for the listing of endangered species, including critically endangered species, endangered species, vulnerable species and protected species. A person may not carry out a restricted activity (including trade) involving listed threatened or protected species without a permit.

A Flora and Fauna Study be undertaken. Further, an Environmental Management Programme (EMPr) based on best practices should be compiled. The EMPr should include the recommendations of the Flora and Fauna Study.

6.1.4 The National Environmental Management: Protected Areas Amendment Act (Act 15 of 2009).

The purpose of NEMPAA is to amend the National Environmental Management: Protected Areas Act, 2003, so as to provide for:

- A comprehensive list in the schedule of all national parks;
- The assignment of national parks, special nature reserves and heritage sites to the South African National Parks;
- Flight corridors and permission of the management authority to fly over special nature reserve, national park or heritage site; and
- Specific areas available for training and testing of aircraft.

This act creates a national system of protected areas in order to protect and conserve ecologically viable areas representative of biodiversity in the country. It further seeks to achieve co-operative environmental governance and to promote sustainable and equitable utilisation and community participation.

The legislation requires the State to act as trustee of protected areas, and to implement the Act 'in partnership with the people' to achieve the progressive realisation of the environmental rights contained in Section 24 of the Constitution.

Once an area is declared protected, the Minister must appoint management authorities, who in turn must prepare management plans for the special nature reserve, national park, nature reserve or protected environment. These plans must, amongst other things, contain the terms and conditions of any applicable biodiversity management plan, procedures for public participation, including participation by the owner (if applicable), any community or other interested party, and where appropriate, the implementation of community-based natural resource management.

The management authority may enter into an agreement with another organ of state, a local community, an individual or other party for the co-management of the area by the parties, or the regulation of human activities that affect the environment in the area.

6.1.5 EIA Regulations (2014 Vol. 594) Listing Notices 1, 2, 3 and 4.

The EIA regulations of 2010 (amended Dec 2014) provide amended listed activities which may trigger Basic Assessment or Scoping and Environmental Impact Assessment processes. It provides guidelines on a number of aspects including Public Participation. It also provides the listed activities which trigger a Basic Assessment Process and Scoping and EIA process.

In terms of the proposed resort, the following should be noted:

- Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development:
 - (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;
- The expansion of a dam where-
 - the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher and where the height of the wall is increased by 2,5 metres or more
- The indigenous vegetation may be 300 square metres or more.
 - Activity No. 12(a), of Listing Notice 3 of 2014 may be triggered.

Thus a **Basic Assessment Process** is required in order to obtain **Environmental Authorisation**.

The table below describes the listed activities triggered as a result of the development.

Table 5. Listed activities applicable

Notice No	Activity number	Activity description
Listing Notice 1 of 2014	12(xii)	The development of:- (x) buildings exceeding 100 square metres in size; where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line
	27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for- (ii) Maintenance purposes undertaken in accordance with a maintenance management plan.
	28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare;
	56	The lengthening of a road by more than 1 kilometre- (ii) where no reserve exists, where the existing road is wider than 8 metres;
	66	The expansion of a dam where- (i) the highest part of the dam wall, as measured from the outside toe of the wall to the highest part of the wall, was originally 5 metres or higher and where the height of the wall is increased by 2,5 metres or more
Listing Notice 3 of 2014	4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. (e) In North West : * Outside urban areas, in: (aa) A protected area identified in terms of NEMPAA; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental
	6	The development of resorts, lodges, hotels and tourism or hospitality facilities that sleeps 15 people or more. (e) In North West : (ii) Natural Heritage sites; (iii) Outside urban areas, in:

		(aa) Critical biodiversity areas (Terrestrial Type 1 and 2) as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; or (bb) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined;
	12 (a)	The clearance of an area of 300 square metres or more of vegetation except where such a clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan (ii) Within critical biodiversity areas identified in bioregional plans
	26	Phased activities for all activities listed in this Notice and as it applies to a specific geographical area, which commenced on or after the effective date of this Notice; Notices where any phase of the activity may be below a threshold but where a combination of the phases, including expansions or extensions, will exceed a specified threshold
The Conservation of Agricultural Resources Act No. 43 of 1983	Section 6	Implementation of control measures for alien and invasive plant species.
	Section 29	Weeds, invaders and indicators of bush encroachment
Atmospheric Pollution Prevention Act (No 45 of 1964)	Sections 27 –35	Dust control.
	Section 36 - 40	Air pollution by vehicle emissions.
Occupational Health and Safety Act (No 85 of 1993)	Section 8	General duties of employers to their employees.
	Section 9	General duties of employers and self-employed persons to persons other than their employees.
The National Water Act No. 36 of 1998	Chapter 3	The protection of water resources.
	Section 19	Prevention and remedying the effects of pollution.
	Section 20	Control of emergency incidents.
	Chapter 4	Water Use Licensing.

The National Roads Act No. 7 of 1998		The provision for a national roads agency to manage and control the Republic's national roads system and take assume responsibility for the development, maintenance and rehabilitation of national roads.
The Hazardous Substances Act No. 15 of 1973		Provides for the definition, classification, use, operation, and disposal of hazardous substances.
The National Road Traffic Act No. 93 of 1996		The provision for road traffic concerns, which applies uniformly throughout the Republic.
The Constitution Act No. 108 of 1996	Chapter 2	Bill of Rights
	Section 24	Environmental rights
	Section 25	Rights in property
National Veld and Forest Fires Act No. 101 of 1998)		Control of and prevention of veld fires.
National Heritage Resources Act No. 25 of 1999)	Section 34	Any structure older than 60 years is protected in terms of the National Heritage Resources Act. A permit to alter or demolish any structure older than 60 years is required from the Provincial Heritage Resources Authority.
	Section 35	No person may, without a permit issued by the responsible heritage resources authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site.
	Section 36	No person may, without a permit issued by the South African Heritage Resource Agency (SAHRA) or a provincial heritage resources authority destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority. "Grave" is widely defined in the Act to include the contents, headstone or other marker of such a place, and any other structure on or associated with such place.

6.1.6 National Heritage Resources Act (Act 25 of 1999)

The purpose of the NHRA is to protect and promote good management of South Africa's heritage resources, and to encourage and enable communities to nurture and conserve their legacy so it is available to future generations.

The Act makes heritage resources of cultural significance or other special value part of the national State, and therefore places them under the care of the South African Heritage Resources Agency (SAHRA).

Heritage resources may include buildings, historic settlements, landscapes and natural features, burial grounds and certain moveable objects, including objects of decorative art or scientific interest. Provincial and municipal authorities also play a role in managing provincial heritage resources and local-level functions.

New landowners should be made aware of any pre-existing heritage sites or objects located on their properties, and be further educated on their responsibilities regarding those sites or objects. They may also wish to approach heritage authorities in order to obtain a designation for a particular site or object under this Act.

According to Section 38 of the National Heritage Resources Act 25 of 1999, a linear development exceeding 300m in length triggers a Heritage Impact Assessment (HIA). The road exceed 300m as well as the presence of Kraals adjacent to the site, thus a Heritage Impact Assessment (HIA) will be required. This will need to be submitted to the Provincial Heritage Resource Authority.

6.1.7 National Water Act (Act 36 of 1998)

The National Water Act (NWA), 1998 (Act No. 36 of 1998), aims to manage national water resources in order to achieve sustainable use of water for the benefit of all water users. This requires that the qualities of water resources are protected, and that integrated management of water resources takes place.

According to Section 21(c) and (i) Water Use Authorisation Application Process by the Department of Water Affairs and Sanitation, any development within 500m of a wetland boundary triggers a Water Use License Application (WULA). Any development within the 1:100 year floodline or riparian area also triggers a WULA. If the development crosses diverts or alters any watercourses, is within the 1:100 year floodline and is also within 500m of wetlands, therefore an Aquatic Delineation and WULA will be required. Any one of these three triggers a WULA application

6.1.8 National Environmental Management Waste Act (Act 59 of 2008)

This act was developed to reform the law regulating waste management in order to protect health and the environment.

This act places a high liability on waste producers and government to supply adequate waste removal, treatment and disposal facilities to ensure that waste is not threatening the health and safety of citizens.

Waste management was previously conducted in terms of the NWA and several sections of law have been repealed by NEMWA. This act must be read with NEMA and application must be guided by principles set out in section 2 of NEMA.

Ablution facilities will be installed at the resort, consultation with the relevant department will be required. A Waste Management License will be required.

6.1.9 The Environmental Conservation Act (Act 73 of 1989)

The objective of the Environmental Conservation Act (ECA) is to provide for the effective protection and controlled utilisation of the environment. This Act was historically the main act that governed environmental management in South Africa.

Several sections of ECA have been repealed by various pieces of legislation mentioned in this section. ECA should therefore always be read in conjunction with NEMA and other legislation applicable to the subject in question.

6.1.10 The National Forests Act (Act 84 of 1998)

The purpose of this Act includes the following:

- To promote the sustainable management and development of forests for the benefit of all;
- To create the conditions necessary to restructure forestry in State forests;
- To provide special measures for the protection of certain forests and trees;
- To promote the sustainable use of forests for environmental, economic, educational, recreational, cultural, health and spiritual purposes;
- To promote community forestry; and
- To promote greater participation in all aspects of forestry and the forest products industry by persons disadvantaged by unfair discrimination.

6.1.11 Conservation of Agricultural Resources Act (Act 43 of 1983)

CARA seeks to provide for the conservation of natural agricultural resources by maintaining the production potential of land, combating and preventing erosion and weakening or destruction of water resources, protecting vegetation and combating weeds and invader plant species.

CARA generally does not apply to any land situated in an urban area (which is land under the control of a local authority, excluding any commonage or other land used for agricultural purposes; or any land that is subdivided). However, the provisions relating to weeds and invader plants do apply in urban areas.

6.2 Environmental Authorisations Required

Based on the Environmental Screening undertaken, environmental authorisation is required and a Basic Assessment will need to be undertaken to achieve this.

It is also necessary for a HIA to be submitted.

It is also suggested that a Flora and Fauna, and a Geotechnical Study be undertaken, the findings of which should be incorporated into an EMPr to be submitted.

6.3 Guidelines, Frameworks and Plans

Although not included in this screening exercise, other guidelines, frameworks (e.g. Spatial Development Framework, Environmental Management Framework, Strategic Environmental Assessment), plans (e.g. Integrated Development Plans) and provincial, district and local policies and strategies will also need to be considered during any environmental authorisation process that may be necessary for any development at the site.

7 ENVIRONMENTAL ACTIVITIES, ASPECTS AND IMPACTS

In order to establish best management practices and prescribe mitigation measures, the following project-related information needs to be adequately understood:

- **Activities** associated with the proposed project;
- **Environmental aspects** associated with the project activities;
- **Environmental impacts** resulting from the environmental aspects; and
- The nature of the surrounding **receiving environment**.

7.1 Project Activities

The main project component includes constructing of access roads and buildings.

In order to understand the impacts related to the project it is necessary to unpack the activities associated with the project life-cycle, as shown below:

7.2 Activities associated with the Project Life-Cycle

Planning/Pre-construction

Project Activities
• Surface water and Wetland delineation, Ecological, Agricultural, Geotechnical and Heritage Studies
• Engineering design
• Approval of methods and construction plans
• Construction site planning, access and layout
• Procurement of contractors

Construction

Project Activities
• Environmental awareness creation
• Site clearance
• Vegetation clearance for infrastructure
• Fencing of construction site
• Establish construction camp
• Construction employment
• Delivery of construction material
• Transportation of equipment, materials and personnel
• Storage and handling of material
• Construction all associated infrastructure (e.g. chalets, amphitheatre)
• Excavation
• Management of topsoil and spoil
• Stormwater management plan
• Rehabilitation plan

Operation

Project Activities
• Access arrangements and requirements
• Infrastructure upgrades
• Routine maintenance inspections
• Management of vegetation clearance
• Repair and maintenance works

7.3 Environmental Aspects

Environmental aspects are regarded as those components of an organisation's activities, products and services that are likely to interact with the environment. The following environmental aspects have been identified for the proposed project, which are linked to the project activities (note that only high-level aspects are provided).

7.4 Environmental Aspects associated with the Project Life-Cycle

Pre-Construction

Environmental Aspects

- Insufficient Planning

Construction

Environmental Aspects

- Lack of environmental awareness creation
- Indiscriminate site clearing
- Poor management of access and use of access roads
- Poor transportation practices
- Poor site establishment
- Dust & emissions
- Erosion
- Disruptions to traffic flow
- Inadequate storage and handling of material

<ul style="list-style-type: none"> • Inadequate storage and handling of hazardous material
<ul style="list-style-type: none"> • Poor management of wastewater and disposal of solid waste
<ul style="list-style-type: none"> • Poor management of labour force
<ul style="list-style-type: none"> • Pollution from ablution facilities
<ul style="list-style-type: none"> • Damage to significant flora
<ul style="list-style-type: none"> • Damage to significant fauna
<ul style="list-style-type: none"> • Disruption of animal movement corridors
<ul style="list-style-type: none"> • Environmental damage of sensitive areas
<ul style="list-style-type: none"> • Disruption of archaeological and culturally significant features
<ul style="list-style-type: none"> • Poor reinstatement and rehabilitation
<ul style="list-style-type: none"> • Land disturbance outside servitude area
<ul style="list-style-type: none"> • Noise nuisance caused by construction activities

Operation

Environmental Aspects
<ul style="list-style-type: none"> • Lack of on-going Stormwater management
<ul style="list-style-type: none"> • Inadequate management of vegetation
<ul style="list-style-type: none"> • Inadequate litter control
<ul style="list-style-type: none"> • Inefficient use of electricity
<ul style="list-style-type: none"> • Obstruction to animal movement corridors

7.5 Significant Environmental Impacts

Environmental impacts are the change to the environment resulting from an environmental aspect, whether desirable or undesirable. The significant environmental impacts are listed in below

7.6 Significant environmental impacts associated with the project

CONSTRUCTION phase	
Feature	Impact
Soil	<ul style="list-style-type: none"> • Impacts associated with the sourcing of construction material and loss of topsoil • Soil erosion (land clearance and construction activities)
Flora	<ul style="list-style-type: none"> • Damage and loss of vegetation of conservation significance • Proliferation of exotic vegetation in disturbed areas
Fauna	<ul style="list-style-type: none"> • Damage / clearance of habitat of conservation importance • Loss of fauna species of conservation significance • Obstruction to animal movement corridors
Air Quality	<ul style="list-style-type: none"> • Dust generation and emissions
Noise	<ul style="list-style-type: none"> • Noise nuisance to surrounding communities
Aesthetics	<ul style="list-style-type: none"> • Reduction in visual quality of area
Safety & Security	<ul style="list-style-type: none"> • Safety risk to local community • Working in close proximity to existing services (i.e. Electricity cables)
Waste Management	<ul style="list-style-type: none"> • Impacts associated with the use of veld for ablution purposes. • Land, air and water pollution through poor waste management practices • Management of excess spoil material
Socio – Economic Environment	<ul style="list-style-type: none"> • Generation of employment opportunities for local community. • Contribution to local economy

CONSTRUCTION phase	
Feature	Impact
Heritage	<ul style="list-style-type: none"> • Damage to heritage resources
Agriculture	<ul style="list-style-type: none"> • Impact on the local farming activities
Water Resource Quality - <i>Aquatic Biota</i>	<ul style="list-style-type: none"> • Alteration of habitat • Loss of aquatic-dependent biodiversity
Water Resource Quality – <i>Flow Regime</i>	<ul style="list-style-type: none"> • Alteration of flow
Water Resource Quality – <i>Water Quality</i>	<ul style="list-style-type: none"> • Impacts on water quality through siltation and pollution.

7.7 Feasible and Reasonable Alternatives

“Alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the option of not implementing the activity.

This project involves spending money on the development of the resort infrastructure in order to stimulate social and economic development in the study area by tourist attraction and a getaway hub in an area which is cultured as well as by creating jobs directly associated with the construction and operation of the project. An activity alternative would be to consider different uses for the same financial investment that could improve the quality of life and generate an equivalent number of jobs and income to the area. As the applicant for this project is part of the Bakunung community this aligns with the development of the Molote community. The BAR will however investigate the economic development plans of the North West Province and review the proposed project against this framework.

7.7.1 Layout of Preferred option

Advantages:

- Lower in topography.
- Less visual impacts from road users and the local community.
- Located on the proposed farm.
- Will create jobs opportunities.
- The site location and layout has been designed to maximise the visual benefits for both the resort visitors as well as community.

Disadvantages:

- Impacts on the watercourses.
- Visual Impacts on the surrounding environment
- Increased traffic and general nuisance.

7.7.2 Route Options

The following aspects were considered in defining and evaluating the different routes:

- *Possible abstraction and delivery locations.*
- *Existing roads, as well as boundaries between land owners along the routes.*
- *Historical and planned future activities in the area.*
- *Existing and planned future services and infrastructure.*
- *Site constraints, potential river/stream crossings, and road and railway crossings.*
- *Geotechnical conditions based on a high level geotechnical screening.*
- *Environmental overview.*
- *Social impact of the proposed access route.*

Alternative Resort routes were identified in accordance with the above basic options. For the Resort routes and new roads the specialists will identify any sensitive areas and deviations to avoid these will be proposed in consultation with the technical team.

No Go Alternative

The land is designated for agriculture, but the land capability of this farm is yet to be determined. It is however used for cattle grazing current and the proposed activity will generate more income as well as contribution to the local development of the community. The no go alternative is to not construct the resort which is detrimental to the Molote Community development as well as employment opportunities.

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8 PROJECT MOTIVATION

Working closely and sympathetically with the natural beauty and unique topography of this location, Bakubung Resort will be gently crafted to create an outstanding mixed use Eco-Tourism resort. The design approach will respond to the need for planned, sustainable development and recourse to Architecture that applauds the creativity and great tradition of building in an “African Traditional theme vernacular”. Operated on a fully serviced basis, resort residences will be constructed using indigenous and natural materials to give the impression of simplicity and organic assimilation within the setting, in so doing, promoting a sense of wellbeing and a holistic ecological balance.

The fruition of the Resort project will depend largely on the conceptualization and implementation of the technical aspects of the project in such a manner so as to provide the most economically effective solutions. With the use of technical personnel who are experienced in their fields of endeavour, this document represents the information required for submission to the relevant approving agencies.

It is expected that the proposed development will result in the creation of new employment opportunities. Direct and indirect employment opportunities will be associated with construction and operational phases of the development. A number of contractors will be involved with the development of infrastructure and buildings of the resort. Not only will this project provide jobs but will entail skills transference, support to small scale enterprises, introduce new technologies as well as improving service infrastructure like roads.

8.1 Socio- Economic Factors

The size of the Molote area has brought about a situation where there are areas that are fairly well developed in contrast with other areas, which have developed very slowly. In addition to this, there are areas which have over time, proven themselves as natural growth centres. The urban areas within the North West Province are the most developed with better infrastructure. Increasing population levels and a variety of land uses have placed an increasing demand on water availability and thus impose pressure on water resources and the future need for alternative resources.

Because of the scale of the municipal area, communities in the area are ignorant of fundamental environmental principles such as water saving and pollution management. The Municipality has a broad socio-economic profile, which implies significant differences in the needs and priorities of its people, as well as the ability to pay the full cost of services

consumed. These differences render the planning processes complex and result in conflicting priorities.

Tourism has been identified as a tool to develop the area and strategies have been put in place in order to stimulate tourism growth in the Molote areas, and also to develop opportunities and market the tourism icons and places of attractions that are found within the municipality. There is a need to stimulate community tourism structures and other stakeholders involved in tourism. The strategies to be adopted are expected to double the contribution that tourism should make in the next 5 years.

Research indicates that 1 new job is created for every 11 tourists and for every job created a further 5 jobs opportunities are created indirectly. It is also pointed out in these policy documents that tourism has the ability to act as a stimulant and catalyst for economic employment growth and that tourism potential should be identified and exploited. The proposed development will create a tourism node and jobs and is thus in line with the spatial growth and economic contribution of the Molote area.

8.2 Environmental Factors (Technology to be used)

Dust

Limited dust will be generated during the construction phase of the chalets and associated infrastructure, due to the movement of trucks and construction activities on site. This impact will occur during the individual construction phases, and will be limited to the site. The duration will be short term, resulting in a very low significance impact.

Energy Efficiency

The following basic energy-saving techniques can be used to reduce building energy use, and as such, are brought to the attention of the developer and project architects:

1. Ensure that the planned building configuration takes maximum advantage of the site and climate.
2. Reducing cooling loads by eliminating undesirable solar heat gain.
3. Reducing heating loads by using desirable solar heat gain. Using day lighting through building windows can displace artificial lighting, reduce energy costs, and is associated with improved occupant health, comfort, and productivity.
4. Using natural light as a substitute for (or complement to) electrical lighting.
5. Using natural ventilation whenever possible.
6. Using more efficient heating and cooling equipment to satisfy reduced loads.
7. Develop material specifications and a building envelope configuration that maximizes energy performance. Consider window shape and placement, shading devices,

differentiated façades, reflective roofing, fabric roofs, induced ventilation, night time cooling ventilation, and selective glazing.

8. Continue energy analyses, including multiple runs of similar products (e.g. Various glazings and insulation levels) to determine best project-specific options. In addition to first cost, consider durability and long-term energy performance.

Structural Design

The following recommendations regarding structural designs are brought to the attention of the individual developer:

1. Use of building material that requires excessive amounts of energy to manufacture should be minimised.
2. Use of building material originating from sensitive or scarce environmental resources should be minimised. E.g. no tropical hardwood may be used.
3. Building material should be legally obtained by the supplier, e.g. wood must have been legally harvested, and sand should be obtained only from legal borrow pits and from commercial sources.
4. Building material that can be recycled / reused should be used rather than building material that cannot.
5. Use highly durable building material for parts of the building that is unlikely to be changed during the life of the building (unlikely to change due to e.g. renovation, fashion, changes in family life cycle) is highly recommended.
6. Local building material instead of imported building material should be used as much as possible (this will reduce transportation impacts and enhance local job creation).

The following Architectural principles are provided to encourage the applicant to ensure the buildings on site or both energy efficient and make effective use of alternative energy sources, ie. 'Passive Design Principles' such as:

- Building orientation,
- Use of local material,
- Sufficient glazing protection,
- Natural ventilation principles, and
- Potential rain water harvesting.

9 CONCLUSIONS

The identification of the relevant environmental authorisations required for the project was undertaken against the backdrop of the current available information.

Tasks to be performed	Number of days	Month 1				Month 2				Month 3				Month 4				Month 5				Month 6				Month 7			
		Week				Week				Week				Week				Week				Week							
		1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4	1	2	3	4
EAP to complete Application Form and submit to Department.	7	■																											
If in order, the Department to acknowledge the application.	14		■	■																									
EAP to compile the draft Basic Assessment Report (BAR) (including a draft EMP).	30	■	■	■	■																								
EAP to notify I&APs (incl. the State departments) (incl. placing notice(s) in the media) of the application as well as the availability of the draft BAR & EMP for comments.	7					■																							
Department to request comments from the relevant State departments.	7					■																							
Commenting period of 40 days for I&APs and State departments.	40					■	■	■	■	■	■	■																	
EAP to consider the comments received and complete the final BAR (including the final draft of the EMP).	14										■	■																	
EAP to make the final BAR (including the final draft of the EMP) available to the registered I&APs for a 21-day commenting period.	21										■	■	■																
Following the commenting period the EAP to submit the BAR together with any comments received on the final BAR to the Department.	14													■	■														
The Department to acknowledge receipt of the BAR.	14																■	■											
If in order, the Department to accept the BAR	30																		■	■	■	■							
After having accepted the BAR, Department to decide whether or not to grant or refuse Environmental Authorisation.	30																							■	■	■	■		

Figure 10: Generalised BAR process

In addition, once the project team has reached consensus on the appropriate listed activities, it is recommended that pre-consultation be conducted (including a site visit) with the relevant government authorities *to confirm the following*:

- *Relevant activities that require approval;*
- *Requisite protocols to be followed; and*
- *The authorities' information requirements.*

Based on the description of the project contained in the preliminary design report as well spatial information on watercourses, vegetation types and threatened ecosystems, the following is required:

- Environmental Authorisation;
- Land Capability;
- Heritage Impact Assessment;

- Geotechnical Study;
- A Flora and Fauna (Ecological) Study;
- Waste Management License;
- Surface water and wetland Delineation; and
- Water use license application.

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APPENDIX 1: Plant species of conservation concern which could potentially occur in the study area (SANBI data).

Family	Species	Threat status	SA Endemic	Growth forms
Acanthaceae	<i>Barleria bremekampii</i> Oberm.	LC	No	Dwarf shrub
Acanthaceae	<i>Barleria pretoriensis</i> C.B.Clarke	LC	No	Dwarf shrub
Acanthaceae	<i>Blepharis serrulata</i> (Nees) Ficalho & Hiern	LC	No	Dwarf shrub
Acanthaceae	<i>Crabbea angustifolia</i> Nees	LC	No	Herb
Acanthaceae	<i>Justicia betonica</i> L.	LC	No	Dwarf shrub
Acanthaceae	<i>Justicia flava</i> (Vahl) Vahl	LC	No	Dwarf shrub
Acanthaceae	<i>Ruellia cordata</i> Thunb.	LC	No	Dwarf shrub
Acanthaceae	<i>Ruellia setosa</i> (Nees) C.B.Clarke	LC	No	Herb
Acanthaceae	<i>Thunbergia atriplicifolia</i> E.Mey. ex Nees	LC	No	Dwarf shrub
Acanthaceae	<i>Thunbergia neglecta</i> Sond.	LC	No	Herb, scrambler
Amaranthaceae	<i>Aerva leucura</i> Moq.	LC	No	Herb
Amaranthaceae	<i>Hermestaedia odorata</i> (Burch.) T.Cooke var. <i>albi-rosea</i> Suess.	LC	No	Herb
Anacardiaceae	<i>Ozoroa paniculosa</i> (Sond.) R.& A.Fern. var. <i>salicina</i> (Sond.) R.& A.Fern.	LC	No	Shrub, tree
Anacardiaceae	<i>Searsia discolor</i> (E.Mey. ex Sond.) Moffett	LC	No	Dwarf shrub
Anacardiaceae	<i>Searsia lancea</i> (L.f.) F.A.Barkley	LC	No	Shrub, tree
Anacardiaceae	<i>Searsia pallens</i> (Eckl. & Zeyh.) Moffett	LC	No	Shrub, tree
Anacardiaceae	<i>Searsia pyroides</i> (Burch.) Moffett var. <i>gracilis</i> (Engl.) Moffett	LC	No	Shrub, tree
Anthericaceae	<i>Chlorophytum galpinii</i> (Baker) Kativu var. <i>galpinii</i>	LC	No	Herb
Anthericaceae	<i>Chlorophytum transvaalense</i> (Baker) Kativu	LC	No	Herb
Apiaceae	<i>Heteromorpha arborescens</i> (Spreng.) Cham. & Schltl. var. <i>abyssinica</i> (Hochst. ex A.Rich.) H.Wolff	LC	No	Shrub, tree
Apocynaceae	<i>Acokanthera oppositifolia</i> (Lam.) Codd	LC	No	Shrub, tree
Apocynaceae	<i>Ancylobotrys capensis</i> (Oliv.) Pichon	LC	No	Climber, shrub
Apocynaceae	<i>Asclepias aurea</i> (Schltr.) Schltr.	LC	No	Herb
Apocynaceae	<i>Asclepias fallax</i> (Schltr.) Schltr.	LC	No	Herb

Family	Species	Threat status	SA Endemic	Growth forms
Apocynaceae	<i>Aspidoglossum lamellatum</i> (Schltr.) Kupicha	LC	No	Herb, succulent
Apocynaceae	<i>Cryptolepis oblongifolia</i> (Meisn.) Schltr.	LC	No	Scrambler, shrub
Apocynaceae	<i>Duvalia polita</i> N.E.Br.	LC	No	Succulent
Apocynaceae	<i>Sarcostemma viminale</i> (L.) R.Br. subsp. <i>viminale</i>	LC	No	Climber
Asparagaceae	<i>Asparagus flavicaulis</i> (Oberm.) Fellingham & N.L.Mey. subsp. <i>flavicaulis</i>	LC	No	Shrub
Asteraceae	<i>Athrixia elata</i> Sond.	LC	No	Dwarf shrub
Asteraceae	<i>Berkheya radula</i> (Harv.) De Wild.	LC	No	Herb
Asteraceae	<i>Dicoma anomala</i> Sond. subsp. <i>gerrardii</i> (Harv. ex F.C.Wilson) S.Ortíz & Rodr.Oubiña	LC	No	Herb
Asteraceae	<i>Felicia clavipilosa</i> Grau subsp. <i>clavipilosa</i>	LC	No	Shrub
Asteraceae	<i>Felicia muricata</i> (Thunb.) Nees subsp. <i>muricata</i>	LC	No	Shrub
Asteraceae	<i>Geigeria burkei</i> Harv. subsp. <i>burkei</i> var. <i>burkei</i>	LC	No	Herb
Asteraceae	<i>Geigeria burkei</i> Harv. subsp. <i>burkei</i> var. <i>zeyheri</i> (Harv.) Merxm.	LC	No	Herb
Asteraceae	<i>Helichrysum cerastioides</i> DC. var. <i>cerastioides</i>	LC	No	Herb
Asteraceae	<i>Helichrysum harveyanum</i> Wild	LC	No	Herb
Asteraceae	<i>Helichrysum nudifolium</i> (L.) Less. var. <i>nudifolium</i>	LC	No	Herb
Asteraceae	<i>Helichrysum rugulosum</i> Less.	LC	No	Herb
Asteraceae	<i>Hirpicium bechuanense</i> (S.Moore) Roessler	LC	No	Dwarf shrub
Asteraceae	<i>Litogyne gariepina</i> (DC.) Anderb.	LC	No	Dwarf shrub
Asteraceae	<i>Nidorella hottentotica</i> DC.	LC	No	Herb
Asteraceae	<i>Nidorella microcephala</i> Steetz	LC	No	Herb
Asteraceae	<i>Osteospermum muricatum</i> E.Mey. ex DC. subsp. <i>muricatum</i>	LC	No	Herb
Asteraceae	<i>Philyrophyllum schinzii</i> O.Hoffm.	LC	No	Herb
Asteraceae	<i>Senecio inornatus</i> DC.	LC	No	Herb
Boraginaceae	<i>Ehretia alba</i> Retief & A.E.van Wyk	LC	No	Shrub
Boraginaceae	<i>Ehretia rigida</i> (Thunb.) Druce subsp. <i>nervifolia</i> Retief & A.E.van Wyk	LC	No	Shrub
Burseraceae	<i>Commiphora schimperi</i> (O.Berg) Engl.	LC	No	Shrub, tree
Campanulaceae	<i>Wahlenbergia undulata</i> (L.f.) A.DC.	LC	No	Herb

Family	Species	Threat status	SA Endemic	Growth forms
Capparaceae	<i>Boscia albitrunca</i> (Burch.) Gilg & Gilg-Ben.	LC	No	Shrub, tree
Capparaceae	<i>Boscia foetida</i> Schinz subsp. <i>rehmanniana</i> (Pestal.) Toelken	LC	No	Tree
Capparaceae	<i>Maerua angolensis</i> DC. subsp. <i>angolensis</i>	LC	No	Shrub, tree
Celastraceae	<i>Gymnosporia maranguensis</i> (Loes.) Loes.	LC	No	Shrub, tree
Celastraceae	<i>Gymnosporia tenuispina</i> (Sond.) Szyszyl.	LC	No	Shrub
Celtidaceae	<i>Celtis africana</i> Burm.f.	LC	No	Shrub, tree
Combretaceae	<i>Terminalia sericea</i> Burch. ex DC.	LC	No	Tree
Commelinaceae	<i>Commelina africana</i> L. var. <i>krebsiana</i> (Kunth) C.B.Clarke	LC	No	Herb
Commelinaceae	<i>Commelina erecta</i> L.	LC	No	Herb
Commelinaceae	<i>Commelina livingstonii</i> C.B.Clarke	LC	No	Herb
Convolvulaceae	<i>Evolvulus alsinoides</i> (L.) L.	LC	No	Herb
Convolvulaceae	<i>Ipomoea crassipes</i> Hook. var. <i>crassipes</i>	LC	No	Herb, succulent
Convolvulaceae	<i>Ipomoea magnusiana</i> Schinz	LC	No	Herb
Convolvulaceae	<i>Ipomoea oblongata</i> E.Mey. ex Choisy	LC	No	Herb, succulent
Cyperaceae	<i>Bulbostylis burchellii</i> (Ficalho & Hiern) C.B.Clarke	LC	No	Cyperoid
Cyperaceae	<i>Cyperus longus</i> L. var. <i>tenuiflorus</i> (Rottb.) Boeck.	LC	No	Cyperoid
Cyperaceae	<i>Cyperus margaritaceus</i> Vahl var. <i>margaritaceus</i>	LC	No	Cyperoid
Cyperaceae	<i>Kyllinga alba</i> Nees	LC	No	Cyperoid
Cyperaceae	<i>Pycnus mundii</i> Nees	LC	No	Cyperoid
Dipsacaceae	<i>Cephalaria zeyheriana</i> Szabó	LC	No	Herb
Dipsacaceae	<i>Scabiosa columbaria</i> L.	LC	No	Herb
Ebenaceae	<i>Diospyros lycioides</i> Desf. subsp. <i>lycioides</i>	LC	No	Shrub
Ebenaceae	<i>Euclea crispa</i> (Thunb.) Gürke subsp. <i>crispa</i>	LC	No	Shrub, tree
Ebenaceae	<i>Euclea undulata</i> Thunb.	LC	No	Shrub, tree
Elatinaceae	<i>Bergia decumbens</i> Planch. ex Harv.	LC	No	Dwarf shrub
Eriospermaceae	<i>Eriospermum flagelliforme</i> (Baker) J.C.Manning	LC	No	Geophyte
Euphorbiaceae	<i>Acalypha glabrata</i> Thunb. var. <i>pilosa</i> Pax	LC	No	Shrub, tree

Family	Species	Threat status	SA Endemic	Growth forms
Euphorbiaceae	<i>Clutia pulchella</i> L. var. <i>franksiae</i> Prain	LC	No	Dwarf shrub
Euphorbiaceae	<i>Croton gratissimus</i> Burch. var. <i>gratissimus</i>	LC	No	Shrub, tree
Euphorbiaceae	<i>Dalechampia capensis</i> A.Spreng.	LC	No	Dwarf shrub
Euphorbiaceae	<i>Jatropha zeyheri</i> Sond.	LC	No	Dwarf shrub
Euphorbiaceae	<i>Spirostachys africana</i> Sond.	LC	No	Shrub, tree
Euphorbiaceae	<i>Tragia rupestris</i> Sond.	LC	No	Climber
Fabaceae	<i>Acacia galpinii</i> Burt Davy	LC	No	Tree
Fabaceae	<i>Acacia karroo</i> Hayne	LC	No	Shrub, tree
Fabaceae	<i>Acacia robusta</i> Burch. subsp. <i>robusta</i>	LC	No	Tree
Fabaceae	<i>Acacia senegal</i> (L.) Willd. var. <i>rostrata</i> Brenan	LC	No	Shrub, tree
Fabaceae	<i>Alysicarpus zeyheri</i> Harv.	LC	No	Herb
Fabaceae	<i>Bauhinia galpinii</i> N.E.Br.	LC	No	Climber, shrub
Fabaceae	<i>Chamaecrista biensis</i> (Steyaert) Lock	LC	No	Herb
Fabaceae	<i>Eriosema psoraleoides</i> (Lam.) G.Don	LC	No	Dwarf shrub
Fabaceae	<i>Indigofera daleoides</i> Benth. ex Harv. var. <i>daleoides</i>	LC	No	Herb
Fabaceae	<i>Indigofera vicioides</i> Jaub. & Spach var. <i>vicioides</i>	LC	No	Herb
Fabaceae	<i>Listia heterophylla</i> E.Mey.	LC	No	
Fabaceae	<i>Rhynchosia densiflora</i> (Roth) DC. subsp. <i>chrysadenia</i> (Taub.) Verdc.	LC	No	Climber, herb
Fabaceae	<i>Rhynchosia minima</i> (L.) DC. var. <i>prostrata</i> (Harv.) Meikle	LC	No	Climber, herb
Fabaceae	<i>Stylosanthes fruticosa</i> (Retz.) Alston	LC	No	Dwarf shrub
Fabaceae	<i>Vigna vexillata</i> (L.) A.Rich. var. <i>vexillata</i>	LC	No	Climber, herb
Fabaceae	<i>Zornia milneana</i> Mohlenbr.	LC	No	Herb
Gentianaceae	<i>Chironia palustris</i> Burch. subsp. <i>transvaalensis</i> (Gilg) I.Verd.	LC	No	Herb
Gentianaceae	<i>Chironia purpurascens</i> (E.Mey.) Benth. & Hook.f. subsp. <i>humilis</i> (Gilg) I.Verd.	LC	No	Herb
Geraniaceae	<i>Monsonia angustifolia</i> E.Mey. ex A.Rich.	LC	No	Herb
Hyacinthaceae	<i>Albuca glauca</i> Baker	LC	No	Geophyte
Hyacinthaceae	<i>Drimia intricata</i> (Baker) J.C.Manning & Goldblatt	LC	No	Geophyte

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Hyacinthaceae	<i>Ledebouria leptophylla</i> (Baker) S.Venter	LC	No	
Hypericaceae	<i>Hypericum aethiopicum</i> Thunb. subsp. <i>sonderi</i> (Bredell) N.Robson	LC	No	Herb
Icacinaceae	<i>Apodytes dimidiata</i> E.Mey. ex Arn. subsp. <i>dimidiata</i>	LC	No	Shrub, tree
Lamiaceae	<i>Ocimum americanum</i> L. var. <i>americanum</i>	LC	No	Herb
Lamiaceae	<i>Rothea hirsuta</i> (Hochst.) R.Fern.	LC	No	Herb
Lamiaceae	<i>Rothea louwalbertsii</i> (P.P.J.Herman) P.P.J.Herman & Retief	LC	No	Herb
Lamiaceae	<i>Salvia runcinata</i> L.f.	LC	No	Herb
Lamiaceae	<i>Teucrium trifidum</i> Retz.	LC	No	Herb
Malpighiaceae	<i>Sphedamnocarpus pruriens</i> (A.Juss.) Szyszyl. subsp. <i>galphimiifolius</i> (A.Juss.) P.D.de Villiers & D.J.Botha	LC	No	Climber, shrub
Malpighiaceae	<i>Sphedamnocarpus pruriens</i> (A.Juss.) Szyszyl. subsp. <i>pruriens</i>	LC	No	Climber, shrub
Malvaceae	<i>Grewia flavescens</i> Juss.	LC	No	Shrub
Malvaceae	<i>Grewia monticola</i> Sond.	LC	No	Shrub, tree
Malvaceae	<i>Grewia occidentalis</i> L. var. <i>occidentalis</i>	LC	No	Shrub, tree
Malvaceae	<i>Grewia retinervis</i> Burret	LC	No	Shrub
Malvaceae	<i>Hermannia burkei</i> Burt Davy	LC	No	Climber, herb
Malvaceae	<i>Hermannia cernua</i> Thunb.	LC	No	Herb
Malvaceae	<i>Hermannia depressa</i> N.E.Br.	LC	No	Herb
Malvaceae	<i>Hibiscus aethiopicus</i> L. var. <i>ovatus</i> Harv.	LC	No	Herb
Malvaceae	<i>Hibiscus calyphyllus</i> Cav.	LC	No	Dwarf shrub
Malvaceae	<i>Hibiscus microcarpus</i> Garcke	LC	No	Herb
Malvaceae	<i>Melhania prostrata</i> DC.	LC	No	Dwarf shrub
Malvaceae	<i>Sida cordifolia</i> L. subsp. <i>cordifolia</i>	LC	No	Dwarf shrub
Malvaceae	<i>Triumfetta sonderi</i> Ficalho & Hiern	LC	No	Dwarf shrub
Malvaceae	<i>Waltheria indica</i> L.	LC	No	Herb
Meliaceae	<i>Turraea obtusifolia</i> Hochst.	LC	No	Climber
Myrothamnaceae	<i>Myrothamnus flabellifolius</i> Welw.	DDT	No	Dwarf shrub
Oleaceae	<i>Menodora heterophylla</i> Moric. ex DC. var. <i>australis</i> Steyerem.	LC	No	Dwarf shrub

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Oleaceae	<i>Olea europaea</i> L. subsp. <i>africana</i> (Mill.) P.S.Green	LC	No	Shrub, tree
Orobanchaceae	<i>Cycnium adonense</i> E.Mey. ex Benth.	LC	No	Herb, parasite
Orobanchaceae	<i>Striga asiatica</i> (L.) Kuntze	LC	No	Herb, parasite
Orobanchaceae	<i>Striga bilabiata</i> (Thunb.) Kuntze subsp. <i>bilabiata</i>	LC	No	Herb, parasite
Orobanchaceae	<i>Striga elegans</i> Benth.	LC	No	Herb, parasite
Pedaliaceae	<i>Dicerocaryum senecioides</i> (Klotzsch) Abels	LC	No	Herb
Pedaliaceae	<i>Pterodiscus luridus</i> Hook.f.	LC	No	Herb, succulent
Phyllanthaceae	<i>Bridelia mollis</i> Hutch.	LC	No	Shrub, tree
Phyllanthaceae	<i>Flueggea virosa</i> (Roxb. ex Willd.) Voigt subsp. <i>virosa</i>	LC	No	Shrub, tree
Phyllanthaceae	<i>Phyllanthus incurvus</i> Thunb.	LC	No	Dwarf shrub
Phyllanthaceae	<i>Phyllanthus maderaspatensis</i> L.	LC	No	Herb
Poaceae	<i>Anthephora pubescens</i> Nees	LC	No	Graminoid
Poaceae	<i>Aristida bipartita</i> (Nees) Trin. & Rupr.	LC	No	Graminoid
Poaceae	<i>Aristida canescens</i> Henrard subsp. <i>canescens</i>	LC	No	Graminoid
Poaceae	<i>Aristida congesta</i> Roem. & Schult. subsp. <i>barbicollis</i> (Trin. & Rupr.) De Winter	LC	No	Graminoid
Poaceae	<i>Aristida congesta</i> Roem. & Schult. subsp. <i>congesta</i>	LC	No	Graminoid
Poaceae	<i>Bewisia biflora</i> (Hack.) Gooss.	LC	No	Graminoid
Poaceae	<i>Bothriochloa bladhii</i> (Retz.) S.T.Blake	LC	No	Graminoid
Poaceae	<i>Bothriochloa insculpta</i> (Hochst. ex A.Rich.) A.Camus	LC	No	Graminoid
Poaceae	<i>Brachiaria nigropedata</i> (Ficalho & Hiern) Stapf	LC	No	Graminoid
Poaceae	<i>Cenchrus ciliaris</i> L.	LC	No	Graminoid
Poaceae	<i>Chrysopogon serrulatus</i> Trin.	LC	No	Graminoid
Poaceae	<i>Cynodon hirsutus</i> Stent	LC	No	Graminoid
Poaceae	<i>Digitaria argyrograpta</i> (Nees) Stapf	LC	No	Graminoid
Poaceae	<i>Digitaria eriantha</i> Steud.	LC	No	Graminoid
Poaceae	<i>Diheteropogon amplexens</i> (Nees) Clayton var. <i>amplexens</i>	LC	No	Graminoid
Poaceae	<i>Elionurus muticus</i> (Spreng.) Kunth	LC	No	Graminoid

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Poaceae	<i>Enneapogon scoparius</i> Stapf	LC	No	Graminoid
Poaceae	<i>Eragrostis chloromelas</i> Steud.	LC	No	Graminoid
Poaceae	<i>Eragrostis curvula</i> (Schrad.) Nees	LC	No	Graminoid
Poaceae	<i>Eragrostis gummiflua</i> Nees	LC	No	Graminoid
Poaceae	<i>Eragrostis racemosa</i> (Thunb.) Steud.	LC	No	Graminoid
Poaceae	<i>Eragrostis rigidior</i> Pilg.	LC	No	Graminoid
Poaceae	<i>Eragrostis rotifer</i> Rendle	LC	No	Graminoid
Poaceae	<i>Eragrostis superba</i> Peyr.	LC	No	Graminoid
Poaceae	<i>Eustachys paspaloides</i> (Vahl) Lanza & Mattei	LC	No	Graminoid
Poaceae	<i>Fingerhuthia africana</i> Lehm.	LC	No	Graminoid
Poaceae	<i>Heteropogon contortus</i> (L.) Roem. & Schult.	LC	No	Graminoid
Poaceae	<i>Hyparrhenia anamesa</i> Clayton	LC	No	Graminoid
Poaceae	<i>Hyperthelia dissoluta</i> (Nees ex Steud.) Clayton	LC	No	Graminoid
Poaceae	<i>Ischaemum afrum</i> (J.F.Gmel.) Dandy	LC	No	Graminoid
Poaceae	<i>Loudetia flavida</i> (Stapf) C.E.Hubb.	LC	No	Graminoid
Poaceae	<i>Loudetia simplex</i> (Nees) C.E.Hubb.	LC	No	Graminoid
Poaceae	<i>Melinis repens</i> (Willd.) Zizka subsp. <i>grandiflora</i> (Hochst.) Zizka	LC	No	Graminoid
Poaceae	<i>Panicum coloratum</i> L. var. <i>coloratum</i>	LC	No	Graminoid
Poaceae	<i>Panicum maximum</i> Jacq.	LC	No	Graminoid
Poaceae	<i>Perotis patens</i> Gand.	LC	No	Graminoid
Poaceae	<i>Pogonarthria squarrosa</i> (Roem. & Schult.) Pilg.	LC	No	Graminoid
Poaceae	<i>Schmidtia pappophoroides</i> Steud.	LC	No	Graminoid
Poaceae	<i>Setaria incrassata</i> (Hochst.) Hack.	LC	No	Graminoid
Poaceae	<i>Setaria lindenbergiana</i> (Nees) Stapf	LC	No	Graminoid
Poaceae	<i>Setaria nigrirostris</i> (Nees) T.Durand & Schinz	LC	No	Graminoid
Poaceae	<i>Sporobolus fimbriatus</i> (Trin.) Nees	LC	No	Graminoid
Poaceae	<i>Sporobolus pyramidalis</i> P.Beauv.	LC	No	Graminoid

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Poaceae	<i>Tarigidia aequiglumis</i> (Gooss.) Stent	LC	No	Graminoid
Poaceae	<i>Trachypogon spicatus</i> (L.f.) Kuntze	LC	No	Graminoid
Poaceae	<i>Tragus berteronianus</i> Schult.	LC	No	Graminoid
Poaceae	<i>Tricholaena monachne</i> (Trin.) Stapf & C.E.Hubb.	LC	No	Graminoid
Poaceae	<i>Trichoneura grandiglumis</i> (Nees) Ekman	LC	No	Graminoid
Poaceae	<i>Urochloa mosambicensis</i> (Hack.) Dandy	LC	No	Graminoid
Polygonaceae	<i>Persicaria hystricula</i> (J.Schust.) Soják	LC	No	Herb
Proteaceae	<i>Faurea saligna</i> Harv.	LC	No	Tree
Rhamnaceae	<i>Ziziphus zeyheriana</i> Sond.	LC	No	Dwarf shrub
Rubiaceae	<i>Afrocanthium mundianum</i> (Cham. & Schltdl.) Lantz	LC	No	
Rubiaceae	<i>Agathisanthemum bojeri</i> Klotzsch subsp. <i>bojeri</i>	LC	No	Herb, shrub
Rubiaceae	<i>Kohautia caespitosa</i> Schnizl. subsp. <i>brachyloba</i> (Sond.) D.Mantell	LC	No	Herb
Rubiaceae	<i>Kohautia virgata</i> (Willd.) Bremek.	LC	No	Herb
Rubiaceae	<i>Pavetta eylesii</i> S.Moore	LC	No	Shrub, tree
Salicaceae	<i>Dovyalis zeyheri</i> (Sond.) Warb.	LC	No	Shrub, tree
Salicaceae	<i>Salix mucronata</i> Thunb. subsp. <i>woodii</i> (Seemen) Immelman	LC	No	Tree
Salicaceae	<i>Scolopia zeyheri</i> (Nees) Harv.	LC	No	Shrub, tree
Santalaceae	<i>Thesium rasum</i> (A.W.Hill) N.E.Br.	LC	No	Herb
Santalaceae	<i>Thesium resedoides</i> A.W.Hill	LC	No	Herb
Sapindaceae	<i>Erythrophysa transvaalensis</i> I.Verd.	LC	No	Shrub, tree
Sapotaceae	<i>Mimusops zeyheri</i> Sond.	LC	No	Shrub, tree
Scrophulariaceae	<i>Aptosimum elongatum</i> Engl.	LC	No	Dwarf shrub
Scrophulariaceae	<i>Chaenostoma leve</i> (Hiern) Kornhall	LC	No	Herb
Scrophulariaceae	<i>Craterostigma plantagineum</i> Hochst.	LC	No	Herb, succulent
Scrophulariaceae	<i>Jamesbrittenia aurantiaca</i> (Burch.) Hilliard	LC	No	Herb
Scrophulariaceae	<i>Jamesbrittenia montana</i> (Diels) Hilliard	LC	No	Herb
Sinopteridaceae	<i>Cheilanthes eckloniana</i> (Kunze) Mett.	LC	No	Geophyte

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Sinopteridaceae	<i>Cheilanthes hirta</i> Sw. var. <i>hirta</i>	LC	No	Geophyte
Sinopteridaceae	<i>Pellaea calomelanos</i> (Sw.) Link var. <i>calomelanos</i>	LC	No	Geophyte
Solanaceae	<i>Lycium cinereum</i> Thunb.	LC	No	Dwarf shrub
Strychnaceae	<i>Strychnos pungens</i> Soler.	LC	No	Shrub, tree
Vahliaceae	<i>Vahlia capensis</i> (L.f.) Thunb. subsp. <i>capensis</i>	LC	No	Herb
Verbenaceae	<i>Chascanum hederaceum</i> (Sond.) Moldenke var. <i>hederaceum</i>	LC	No	Herb
Verbenaceae	<i>Lantana mearnsii</i> Moldenke var. <i>latibracteolata</i> Moldenke	LC	No	Shrub
Verbenaceae	<i>Lantana rugosa</i> Thunb.	LC	No	Shrub
Verbenaceae	<i>Lippia javanica</i> (Burm.f.) Spreng.	LC	No	Shrub
Zygophyllaceae	<i>Tribulus terrestris</i> L.	LC	No	Herb