



View to the Southwest



View to the West



View to the Northwest

Additional Photos:









Appendix C: Facility illustration(s)

None

See App. B

“JWALE KE NAKO YA KOTULO, RE A KUBELE TSA”

Appendix D: Specialist reports (including terms of reference)

- Heritage Impact Assessment
- Terrestrial Biodiversity Compliance Statement and Plant Species Compliance Statement

“JWALE KE NAKO YA KOTULO, RE A KUBELETSA”

- Heritage Impact Assessment

“JWALE KE NAKO YA KOTULO, RE A KUBELETSA”

PHASE 1 HERITAGE IMPACT ASSESSMENT (HIA) FOR THE PROPOSED
EXPANSION OF A SHEEP FEEDLOT ON THE REMAINDER OF THE FARM
GROENHOF, VREDEFORT ROAD, FREE STATE PROVINCE



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For:



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REPORT DETAILS

Report Details	Rev 0
Report Title	Phase1 Heritage Impact Assessment (HIA) for the proposed expansion of a sheep feedlot on the Remainder of the Farm Groenhof, Vredefort Road, Free State Province
Date Submitted	November 2022
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Declaration	<p>I, Leonie Marais as authorised representative of Leonie Marais Heritage Practitioner hereby confirm my independence in terms of Section 13.(1)(a) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) 2014 EIA Regulations as amended and the National Heritage Resources Act, 1999 (Act 25 of 1999).</p>
Copyright Warning	<p>Unless otherwise noted, the copyright in all text and other content (including the manner of presentation) is the exclusive property of Leonie Marais Heritage Practitioner.</p>
Disclaimer	<p>Although all possible care is taken to identify/find all sites of cultural importance during the initial survey of the study area, the nature of archaeological and historical sites is as such that it is always possible that hidden or sub-surface sites could be overlooked during the study. Leonie Marais Heritage Practitioner will not be held liable will not be held liable for such oversights or for the costs incurred as a result thereof.</p>

EXECUTIVE SUMMARY

Leonie Marais was appointed by KEMS to carry out a Phase 1 Heritage Impact Assessment (HIA) for the proposed expansion of a sheep feedlot on the Remainder of the Farm Groenhof, Vredefort Road, Free State Province. The site visit took place on 27 October 2022.

A field survey was conducted after which a survey of literature was undertaken.

There are no heritage sites nor items in the area earmarked for development.

It should be noted that the sub-surface archaeological and/or historical deposits and graves are always a possibility. Care should be taken during any work in the entire area and if any of the above is discovered, an archaeologist/heritage practitioner should be commissioned to investigate.

Contents page

<u>Contents</u>	<u>Page</u>
1. INTRODUCTION	8
1.1 WHY A PHASE 1 HIA IS REQUIRED	8
1.1.1 BASELINE STUDY	8
1.1.2 SEASON AND RELEVANCE THEREOF	8
1.1,3 VISIBILITY	9
1.2 HISTORY OF THE STUDY AREA	9
1.3 LOCATION AND PHOTOGRAPHICAL RECORD OF STUDY AREA	11
2. FINDINGS	15
2.1 Pre-Colonial Heritage Sites	15
2.2 Historical Period Heritage sites	15
2.3 Original Landscape	16
2.4 Intangible Heritage	16
3. CATEGORIES OF HERITAGE VALUE	16
3.1 HERITAGE VALUE WEIGHED AGAINST CULTURAL SIGNIFICANCE CATEGORIES	18
3.2 SPECIFIC CATEGORIES INVESTIGATED AS PER SECTION 3 (1) AND (2) OF THE NATIONAL HERITAGE LEGISLATION, 1999 (ACT NO. 25 OF 1999)	18
4. RECOMMENDATIONS	21
5. THE WAY FORWARD	21

DEFINITION OF TERMS:

“alter” means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or other decoration or any other means.

“archaeological” means—

(a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;

(b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;

(c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; and

(d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

“conservation”, in relation to heritage resources, includes protection, maintenance, preservation and sustainable use of places or objects so as to safeguard their cultural significance.

“cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance.

“development” means any physical intervention, excavation, or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including—

(a) construction, alteration, demolition, removal or change of use of a place or a structure at a place;

(b) carrying out any works on or over or under a place;

(c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;

(d) constructing or putting up for display signs or hoardings;

(e) any change to the natural or existing condition or topography of land; and

(f) any removal or destruction of trees, or removal of vegetation or topsoil; or object that is specifically designated by that state as being of importance.

“grave” means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place.

“heritage resource” means any place or object of cultural significance.

“heritage resources authority” means the South African Heritage Resources Agency (SAHRA), or in respect of a province, a provincial heritage resources authority.

“heritage site” means a place declared to be a national heritage site by SAHRA or a place declared to be a provincial heritage site by a provincial heritage resources authority.

“improvement”, in relation to heritage resources, includes the repair, restoration and rehabilitation of a place protected in terms of Act 25 of 1999.

“living heritage” means the intangible aspects of inherited culture, and may include—

- (a) cultural tradition;
- (b) oral history;
- (c) performance;
- (d) ritual;
- (e) popular memory;
- (f) skills and techniques;
- (g) indigenous knowledge systems; and
- (h) the holistic approach to nature, society and social relationships.

“local authority” means a municipality as defined in section 10B of the Local Government Transition Act, 1993 (Act No. 209 of 1993).

“management”, in relation to heritage resources, includes the conservation, presentation and improvement of a place protected in terms of Act 25 of 1999.

“meteorite” means any naturally-occurring object of extraterrestrial origin.

“object” means any movable property of cultural significance which may be protected in terms of any provisions of Act 25 of 1999, including—

- (a) any archaeological artefact;
- (b) palaeontological and rare geological specimens;
- (c) meteorites; and
- (d) other objects.

“palaeontological” means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

“place” includes—

- (a) a site, area or region;
- (b) a building or other structure which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure;

- (c) a group of buildings or other structures which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures;
- (d) an open space, including a public square, street or park; and
- (e) in relation to the management of a place, includes the immediate surroundings of a place.

“presentation” includes—

- (a) the exhibition or display of;
- (b) the provision of access and guidance to;
- (c) the provision, publication or display of information in relation to; and
- (d) performances or oral presentations related to, heritage resources protected in terms of Act 25 of 1999.

“public monuments and memorials” means all monuments and memorials—

- (a) erected on land belonging to any branch of central, provincial or local government, or on land belonging to any organisation funded by or established in terms of the legislation of such a branch of government; or
- (b) which were paid for by public subscription, government funds, or a public-spirited or military organisation, and are on land belonging to any private individual.

“site” means any area of land, including land covered by water, and including any structures or objects thereon.

“structure” means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

“victims of conflict” means—

- (a) certain persons who died in any area now included in the Republic as a direct result of any war or conflict as specified in the regulations, but excluding victims of conflict covered by the Commonwealth War Graves Act, 1992 (Act No. 8 of 1992);
- (b) members of the forces of Great Britain and the former British Empire who died in active service in any area now included in the Republic prior to 4 August 1914;
- (c) persons who, during the Anglo-Boer War (1899-1902) were removed as prisoners of war from any place now included in the Republic to any place outside South Africa and who died there; and
- (d) certain categories of persons who died in the “liberation struggle” as defined in the regulations, and in areas included in the Republic as well as outside the Republic.

1 INTRODUCTION

PROPOSED ACTIVITY

Proposed development expansion of a sheep feedlot on the Remainder of the farm Groenhof Vredefort RD, Free State Province.

BASIC PROJECT DESCRIPTION

The current facility houses 950 herd of sheep at a density of 1 small stock unit per 17m². The expansion will be to increase the density, which will exceed 8m² per small stock unit with an increase in numbers up to 2247 small stock units.

1.1 WHY A PHASE 1 HERITAGE IMPACT ASSESSMENT IS REQUIRED?

This project may potentially impact on any types and ranges of heritage resources that are outlined in Section 3 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999). Subsequently a Phase 1 Heritage Impact Assessment (HIA) was commissioned by KEMS and conducted by Leonie Marais.

1.1.1 BASELINE STUDY

The objective of this Phase 1 Heritage Impact Assessment (HIA) is to gain an overall understanding of the heritage sensitivities of the area and indicate how they may be impacted on through development activities. The site survey took place on 27 October 2022.

A baseline study was conducted to identify and compile a comprehensive inventory of sites of cultural heritage within the proposed project area, which include:

- (i) all sites of archaeological interest;
- (ii) all buildings and structures older than 60 years;
- (iii) landscape features include sites of historical events or providing a significant historical record or a setting for buildings or monuments of architectural or archaeological importance, historic field patterns and graves.

The baseline study also included a desk-top research and a field survey.

The desktop research was conducted to analyse, collect and collate extant information. The desktop research included:

- Search of the list of declared heritage sites protected by the National Heritage Resources Act, 1999 (Act no. 25 of 1999);
- Search of publications on local historical, architectural, anthropological, archaeological and other cultural studies;

- Search of other unpublished papers, records, archival and historical documents through public libraries, archives, and the tertiary institutions; and
- Search of cartographic and pictorial documents and maps.

The above baseline categories are sufficient for a report of this nature.

1.1.2 SEASON AND RELEVANCE THEREOF

The survey was conducted during late Spring. Unlike botanical studies heritage surveys are not restricted by season.

1.1.3 VISIBILITY

Good.

1.2 ARCHAEOLOGICAL CONTEXT AND HISTORY OF THE STUDY AREA

1.2.1 Archaeological context

1.2.1.1 The Stone Age

Concentrations of Early Stone Age (ESA) sites are mainly found on the flood-plains of perennial rivers and may date to over 2 million years ago. The said sites may contain scatters of stone tools and manufacturing debris or concentrated deposits ranging from pebble tool choppers to core tools such as handaxes and cleavers.

Middle Stone Age (MSA) sites are also present on flood plains, but are also associated with caves and rock shelters. Such sites usually consist of large concentrations of knapped stone flakes such as scrapers, points and blades and associated manufacturing debris. Limited drive-hunting activities are also associated with this period.

Late Stone Age (LSA) sites are preserved in rock shelters, although open sites with scatters of mainly stone tools can occur. Deposits are well-protected in shelters and these stable conditions result in the preservation of organic materials such as wood, bone, hearths, ostrich eggshell beads and even bedding material. South African rock art is associated with this period.

1.2.1.2 The Iron Age

In the northern regions of South Africa at least three settlement phases can be distinguished associated with early pre-historic agro-pastoralist settlements during the Early Iron Age (EIA). Diagnostic pottery assemblages can be utilised to infer group identities and to investigate movements across the landscape. The first phase of the EIA, known as Happy Rest (named after the site where ceramics were first identified), is representative of the Western Stream of migrations, and dates 400-600 AD. The second phase of Diamant is dated 600-900 AD and was first

recognised at the eponymous site of Diamant in the western Waterberg. The third phase, characterised by herringbone-decorated pottery of the Eiland tradition, is regarded the final expression of the EIA and occurs over large parts of the North West Province, Limpopo Province, Gauteng Province and Mpumalanga Province. This phase has been dated to approximately 900-1200 AD. These sites are usually located on low-lying spurs close to water. No EIA sites occur in the Free State Province.

The Late Iron Age (LIA) settlements are characterised by stone-walled enclosures situated on defensive hilltops *circa* 1640-1830. This occupation phase has been linked to the arrival of ancestral Northern Sotho, Tswana and Southern Ndebele (Nguni-speakers) in the northern and Waterberg regions, and dates from the 16th and 17th centuries. The terminal LIA is represented by late 18th and early 19th century settlements with multichrome Moloko pottery commonly attributed to the Sotho-Tswana. These settlements can in various instances be correlated with oral traditions on population movements during which African farming communities sought refuge in mountainous regions during the processes of disruption in the northern interior of South Africa, resulting from the so-called Difaqane or Mfecane.

1.2.2 Historical period

In the 1820's the area was affected by the disruptive influence of Mzilikazi (Zulu warrior) and later during the middle and late 19th century the area was settled in by white farmers which resulted in the establishment of fenced farms and formal towns.

1.3 LOCATION AND PHOTOGRAPHIC RECORD OF STUDY AREA

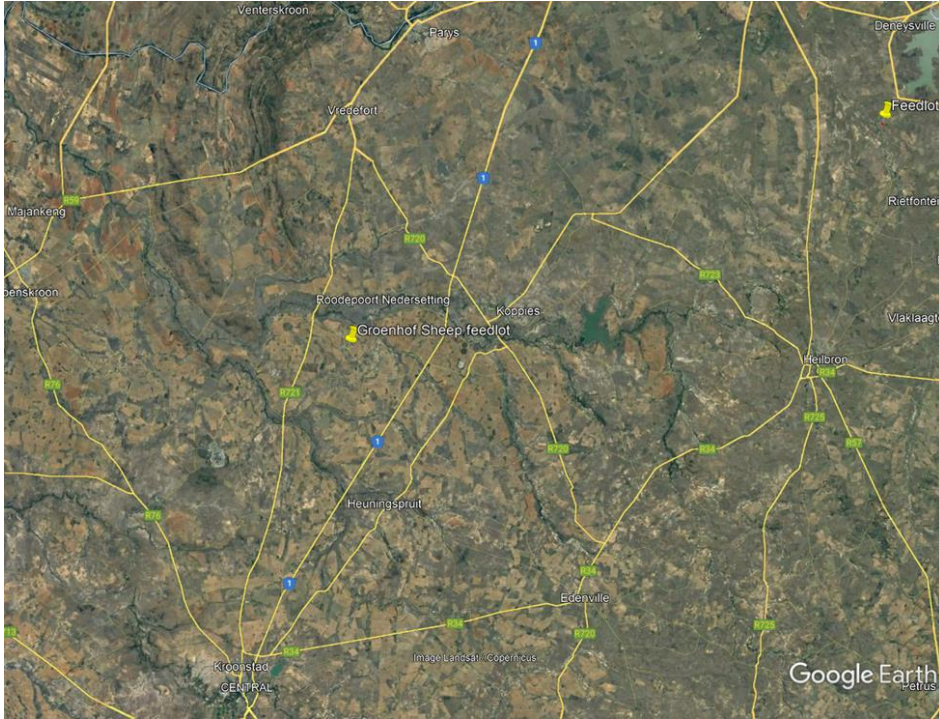


Figure 1: Locality map 1

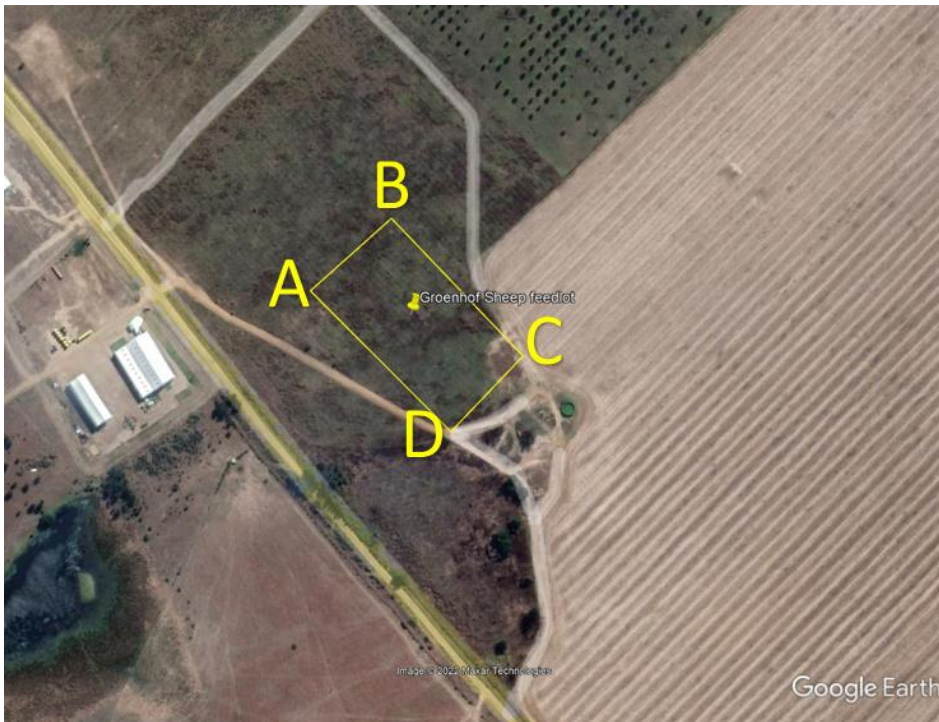


Figure 2: Photograph locations



Photograph 1: Site characteristics



Photograph 2: Site characteristics



Photograph 3: Site characteristics



Photograph 4: Site characteristics



Photograph 4: Site characteristics

2. FINDINGS

2.1 PRE-COLONIAL HERITAGE SITES

Possibilities: Greater study area taken into account.

Stone Age

The Stone Age is the period in human history when stone material was mainly used to produce tools¹. In South Africa the Stone Age can be divided in three periods²;

- Early Stone Age 2 000 000 – 150 000 years ago
- Middle Stone Age 150 000 – 30 000 years ago
- Late Stone Age 40 000 years ago - +/- 1850 AD

Iron Age

The Iron Age is the period in human history when metal was mainly used to produce artefacts³. In South Africa the Iron Age can be divided in three periods;

- Early Iron Age 250-900 AD
- Middle Iron Age 900-1300 AD
- Late Iron Age 1300-1840 AD⁴

There are no pre-colonial heritage sites evident in the study area. This can be attributed to previous agricultural or infrastructure development activities in the study area.

2.2 HISTORICAL PERIOD HERITAGE SITES

Possibilities: Greater study area taken into account.

- Pioneer sites;
- Sites associated with early mining;
- Structures older than 60 years;
- Graves (Graves younger than 60 years, graves older than 60 years, but younger than 100 years, graves older than 100 years, graves of victims of conflict or of individuals of royal descent).

¹ P. J. Coertze & R.D. Coertze, *Verklarende vakwoordeboek vir Antropologie en Argeologie*.

² S.A. Korsman & A. Meyer, *Die Steentydperk en rotskuns* in J.S. Bergh (red) *Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies*.

³ P.J. Coertze & R.D. Coertze, *Verklarende vakwoordeboek vir Antropologie en Argeologie*.

⁴ M.M. van der Ryst & A Meyer. *Die Ystertydperk* in J.S. Bergh (red) *Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies* and T.N Huffman, *A Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa*.

There are no historical period sites evident on the site earmarked for development. This can be attributed to previous agricultural or infrastructure development activities in the study area.

2.3 ORIGINAL LANDSCAPE

The original landscape has been severely altered by agricultural and infrastructure development in the study area.

2.4 INTANGIBLE HERITAGE

The intangible heritage of the greater study area can be found in the stories and oral recollections of past and present inhabitants.

3 CATEGORIES OF HERITAGE VALUE (NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT NO. 25 OF 1999))

The National Heritage Resources Act, 1999 (Act no. 25 of 1999) identifies the following categories of value under section 3(1) and (2) of the Act under the heading "National Estate":

- "3 (1) For the purpose of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- (2) Without limiting the generality of subsection (1), the national estate may include-
- (a) places, buildings, structures and equipment of cultural significance;
 - (b) places which oral traditions are attached or which are associated with living heritage;
 - (c) historical settlements and townscapes;
 - (d) landscapes and natural features of cultural significance;
 - (e) geological sites of scientific or cultural importance;
 - (f) archaeological and palaeontological sites;
 - (g) graves and burial grounds, including-
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the Gazette
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
 - (h) sites of significance relating to the history in South Africa;
 - (i) movable objects, including-

- (i) objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with living heritage;
 - (iii) ethnographic art and objects;
 - (iv) military objects;
 - (v) objects of decorative or fine art;
 - (vi) objects of scientific or technological interests; and
 - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 (xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996).
- (3) Without limiting the generality of the subsections (1) and (2), a place or object is to be considered part of the national estate if it has cultural significance or other special value because of-
- (a) Its importance in the community, or pattern of South Africa's history;
 - (b) Its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
 - (c) Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
 - (d) Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural objects;
 - (e) Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
 - (f) Its importance in demonstrating a high degree of creative or technical achievement at a particular period;
 - (g) Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;
 - (h) Its strong or special association with the life and work of a person, group or organisation of importance in the history of South Africa; and
 - (i) Sites of significance relating to the history of slavery in South Africa".

3.1 HERITAGE VALUE WEIGHED AGAINST CULTURAL SIGNIFICANCE CATEGORIES

3.1.1 Spiritual value

During the site visit/field work no indication of spiritual activity was observed on the site earmarked for development.

3.1.2 Scientific value

No sites of scientific value were observed on or near the site earmarked for development.

3.1.3 Historical value

No historical value associated with the site could be found in primary and secondary sources.

3.1.4 Aesthetic value

No heritage item with exceptional aesthetic (architectural) value was identified in the study area.

3.1.5 Social value

Social value is attributed to sites that are used by the community for recreation and formal and informal meetings regarding matters that are important to the community. These sites include parks, community halls, sport fields etc.

None of the above is situated on the area earmarked for development.

3.2 SPECIFIC CATEGORIES INVESTIGATED AS PER SECTION 3 (1) AND (2) OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT NO. 25 OF 1999)

3.2.1 Does the site/s provide the context for a wider number of places, buildings, structures and equipment of cultural significance?

The study area does not provide context for a wider number of places, buildings, structures and equipment of cultural significance. The reason being the non-existence of heritage structures in the study area.

3.2.2 Does the site/s contain places to which oral traditions are attached or which are associated with living heritage?

Places to which oral traditions are attached or associated with living heritage are usually found in conjunction with traditional settlements and villages which still practise age old traditions. None of these are evident near or on the proposed site.

3.2.3 Does the site/s contain historical settlements?

No historical settlements are located on or near the proposed site.

3.2.4 Does the site/s contain landscapes and natural features of cultural significance?

The site and greater study area does not contain landscapes and natural features of cultural significance.

3.2.5 Does the site/s contain geological sites of cultural importance?

Geological sites of cultural importance include meteorite sites (Tswaing Crater and Vredefort Dome), fossil sites (Karoo and Krugersdorp area), important mountain ranges or ridges (Magaliesburg, Drakensberg etc.). The proposed site is not located in an area known for sites of this importance.

3.2.6 Does the site/s contain a wide range of archaeological sites?

The site and areas surrounding the site do not contain any surface archaeological deposits, a possible reason is previous agricultural or infrastructure development in the study area.

The possibility of sub-surface findings always exists and should be taken into consideration in the Environmental Management Programme (EMPr).

If sub-surface archaeological material is discovered work must stop and a heritage practitioner preferably an archaeologist contacted to assess the find and make recommendations.

3.2.7 Does the site/s contain any marked graves and burial grounds?

The site does not contain marked graves or burial grounds.

The possibility of graves not visible to the human eye always exists and this should be taken into consideration in the Environmental Management Plan. It is important to note that all graves and cemeteries are of high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (Act 25 of 1999) whenever graves are 60 years and older. Other legislation with regard to graves includes those when graves are exhumed and relocated, namely the Ordinance on Exhumations (no 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended).

If sub-surface graves are discovered work should stop and a professional preferably an archaeologist contacted to assess the age of the grave/graves and to advice on the way forward.

3.2.8 Does the site/s contain aspects that relate to the history of slavery?
No evidence of the above evident on the site earmarked for development.

3.2.9 Can the place be considered as a place that is important to the community or in the pattern of South African history?
In primary and secondary sources the proposed site is not described as important to the community or in the pattern of South African history.⁵

3.2.10 Does the site/s embody the quality of a place possessing uncommon or rare endangered aspects of South Africa's natural and cultural heritage?
The proposed site does not possess uncommon, rare or endangered aspects of South Africa's natural and cultural heritage. These sites are usually regarded as Grade 1 or World Heritage Sites.

3.2.11 Does the site/s demonstrate the principal characteristics of South Africa's natural or cultural places?
The proposed site does not demonstrate the principal characteristics of South Africa's natural or cultural places. These characteristics are usually associated with aesthetic significance.

3.2.12 Does the site/s exhibit particular aesthetic characteristics valued by the community or cultural groups?
This part of the greater study area does not exhibit particular aesthetic characteristics valued by the community or cultural groups. The reason being the low density of heritage buildings and structures located in the greater study area.

3.2.13 Does the site/s contain elements, which are important in demonstrating a high degree of creative technical achievement?
The site does not contain elements which are important in demonstrating a high degree of creative technical achievement. Reason being none of the above are evident on site.

⁵ *Standard Encyclopaedia of Southern Africa and the TAB database at the National Archives of South Africa;*

3.2.14 Does the site/s have strong and special associations with particular communities and cultural groups for social, cultural and spiritual reasons?

The proposed site does not have a strong or special association with particular communities and cultural groups for social, cultural and spiritual reasons. No comment in this regard was received during the Public Participation Process (PPP).

3.2.15 Does the site/s have a strong and special association with the life or work of a person, group or organisation?

No indication of the above could be found in primary and secondary research sources.⁶

4. RECOMMENDATIONS

- In terms of heritage the area is already disturbed and will not yield heritage items or sites, thus the proposed project will have no impact on heritage resources;
- The discovery of subsurface archaeological and/or historical material as well as graves must be taken into account in the Environmental Management Programme. See 3.2.6 and 3.2.7; and
- Submit this report as a Section 38 application to the relevant heritage authority for approval/comment.

5. WAY FORWARD

- Submit this report as a Section 38 application in terms of the National Heritage Resources Act, 1999 (Act no. 25 of 1999) to the relevant heritage authority for approval/comment.

⁶ *Dictionary of South African Biography (vol I-V) and the TAB database at the National Archives of South Africa*

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- Terrestrial Biodiversity Compliance Statement and Plant Species Compliance Statement

“JWALE KE NAKO YA KOTULO, RE A KUBELETSA”

**TERRESTRIAL BIODIVERSITY COMPLIANCE STATEMENT
AND PLANT SPECIES COMPLIANCE STATEMENT FOR A PROPOSED
FEEDLOT EXPANSION ON THE REMAINDER OF THE FARM
GROENHOF 240.**



Prepared by



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Date: 31 October 2022

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TABLE OF CONTENTS:

1 INTRODUCTION 7

1.1 Terms of Reference 7

1.2 Assumptions, limitations, and gaps in knowledge..... 7

1.3 Importance of / Reasoning behind Proposed Development 8

1.4 Study Approach 8

1.5 Details of the specialist..... 8

2 METHODOLOGY 8

2.1 Red data plants..... 9

2.2 Protected trees..... 11

2.3 Other protected species 11

2.4 Protected Ecosystems..... 11

2.5 Terrestrial Biodiversity Assessment 12

2.6 Sensitivity Analysis 13

2.7 Impact Assessment Methodology 16

 2.7.1 Impact Significance = Consequence x Likelihood 16

 2.7.2 Severity Assessment and Rating 16

 2.7.3 Duration Assessment and Rating..... 16

 2.7.4 Extent Assessment and Rating 17

 2.7.5 Frequency Assessment and Rating 17

 2.7.6 Probability Assessment and Rating..... 17

3. THE STUDY SITE 18

3.1 Locality 18

3.2 Regional Vegetation and Environmental Parameters..... 18

3.2.1 Regional vegetation	19
3.2.2 Conservation Status	19
3.3 Regional conservation assessments	20
3.4 Legislative Requirements	21
4 RESULTS AND EVALUATION	24
4.1 Broad vegetation types	24
4.2 Terrestrial biodiversity of the site	25
4.3 Plants of the study site	26
4.3.1 Protected trees	26
4.3.2 Vegetation found on site.....	27
5 IDENTIFICATIONS OF POTENTIAL IMPACTS	28
5.1 Description of potential impacts	28
5.2 Assessment of Impacts	31
6 SENSITIVITY ANALYSIS	33
7 CONCLUSIONS.....	35
8. COMPLIANCE STATEMENT.....	36
9 REFERENCES	37

LIST OF FIGURES:

Figure 1: Classifications of vegetation types in accordance with their ecological status..... 12

Figure 2: Locality Map 18

Figure 3: Vegetation Unit of the study site from Mucina and Rutherford (2006)..... 19

Figure 4: Conservation value of the study area (Free State CBA map). 21

Figure 5: Current Land use of the site. 25

Figure 8: Evaluated piece of remaining vegetation south of the site. 26

Figure 9: Sensitivity Map 34

LIST OF TABLES

Table 1: Explanation of IUCN Ver. 3.1 categories (IUCN, 2001), and Orange List categories 10

Table 2: Rating of likelihood of occurrence 11

Table 3: Explanation of sensitivity ratings. 13

Table 4: Impact Assessment before mitigation: 31

Table 5: Impact Assessment after Mitigation: 32

Executive Summary

KEMS Pty Ltd was commissioned to undertake a Compliance statement for terrestrial biodiversity and plant species for the developed of a sheep feedlot on the remainder of the Farm Groenhof 240. The site consists of an existing legal feedlot under the EIA regulation thresholds. The applicant plans to expand on the existing feedlot. The expansion will be into existing cultivated areas.

Regional GIS maps indicated the site to be located within the Vaal-Vet Sandy Grassland vegetation that has a conservation status of "Endangered". The vegetation type was adopted into the List of Threatened Ecosystems in need of protection (GN 1002) as endangered. The study site did also not fall into any CBA areas in terms of the Free State CBA maps. The National Biodiversity Assessment of 2018 indicates the site as transformed.

The site assessment confirmed that the proposed expansion would fall within cultivated areas and that no Natural vegetation remains on site associated with the endangered Ecosystem.

An impact Assessment was undertaken for the site and only one impact was identified that needed attention. The establishment of Alien and Invasive Plant species must be monitored and controlled.

A total of 4 plants were identified on and around the site that is listed in the Alien and Invasive Species Regulations of 2014 (NEMBA) which needs management.

- 2 NEMBA Category 2 plant was recorded and must be controlled.
- 2 NEMBA Category 2 plants were identified and must be controlled.
- No prohibited species were recorded on or around the site.

The sensitivity assessment was undertaken as per Section 2.6 of this report. There is no more habitat remaining and a Low sensitivity rating was awarded to the site.

1 INTRODUCTION

1.1 Terms of Reference

The terms of reference are as follows:

- Terrestrial Biodiversity Compliance statement
 - Prepared by a specialist registered with SACNASP.
 - Be applicable to the preferred site and proposed development footprint.
 - Confirm that the site is “Low” sensitivity for terrestrial biodiversity.
 - Indicate whether the development will have any impact on biodiversity features.
- Terrestrial Plant species compliance statement
 - Prepared by a specialist registered with SACNASP in botanical sciences.
 - Be applicable to the preferred site and proposed development footprint.
 - Confirm that the site is “Low” sensitivity for terrestrial biodiversity.
 - Indicate whether the development will have any impact on Species of Conservation Concern.

KEMS Pty Ltd was appointed to undertake an environmental compliance report of the proposed site. The findings of the study are based on a desktop assessment of the study area, analysis of aerial imagery and a field survey of the site. The field surveys of the site were undertaken on 27 October 2022.

1.2 Assumptions, limitations, and gaps in knowledge

The study was conducted on 27 October 2022. To target flowering seasons of plant species of interest that may occur onsite the study should include a site visit with seasonal variances. The study was undertaken inside of the flowering season. Red and orange list species are, by their nature, very rare and difficult to locate.

Suitable habitat for listed red data plant species does not exist. It is important to note that, although the predicted impacts are mostly concerned with red data species, any sensitive non-red data species will also benefit from the proposed mitigation measures as they share the same habitat and face the same potential impacts as the red data species. The KEMS team has appropriate training and as well as practical experience and access to wide-ranging data bases to consider the derived species lists with high limits of accuracy. In instances where uncertainty exists regarding the presence of a species it is listed as a potential occupant, which renders the suggested mitigation measures and conclusions more vigorous.

Even though every care is taken to ensure the accuracy of this report, environmental assessment studies are limited in scope, time, and budget. Discussions and proposed mitigations are to some extent made on reasonable and informed assumptions built on *bone fide* information sources, as well as deductive reasoning. Deriving a 100% factual report based on field collecting and observations can only be done over several years and seasons to account for fluctuating environmental conditions and migrations. Since environmental impact studies deal with dynamic natural systems additional information may come to light at a later stage. KEMS can thus not accept responsibility for conclusions and mitigation measures made in good faith based on own databases or on the information provided at the time of the directive. This report should therefore be viewed and acted upon with these limitations in mind.

1.3 Importance of / Reasoning behind Proposed Development

The study site has been identified for an extension of a Feedlot.

1.4 Study Approach

The study approach for the study site was to identify potential sensitive areas via a desktop study and to concentrate on these areas for evaluation in the field. A comprehensive plant list was compiled, as well as plants listed as Alien and invasive species. The vegetation composition found on site was evaluated to compare if such vegetation firstly consists of indigenous vegetation, and if such indigenous vegetation can be associated with vegetation found within the Norite Koppies Bushveld.

1.5 Details of the specialist

The study was undertaken by Arno van den berg from KEMS Pty Ltd. Arno have conducted biodiversity, vegetation, flora, and environmental studies for 12 years. Arno is registered with SACNASP as a Scientific Professional since 2015. Arno is also an EAPASA registered EAP.

2 METHODOLOGY

To describe the overall site characteristics, Google earth imagery and 1:50 000 topographical maps were used and examined. Many parts of South Africa contain high levels of biodiversity at species and ecosystem level. At any single site there may be large numbers of species or high ecological complexity. Sites also vary in their natural character and uniqueness and the level to which they have been previously disturbed. Assessing the impacts of a proposed project often requires evaluating the conservation value of the site

relative to other natural areas of the site in terms of biodiversity conservation. A simple approach to evaluating the relative importance of a site and the species found within it includes assessing the following:

- Is the site unique in terms of natural or biodiversity features?
- Is the protection of biodiversity features on site of national/provincial importance?
- Would development of the site lead to contravention of any international, national, or provincial legislation, policy, convention, or regulation?
- Is the site modified/disturbed in any way?

Thus, the general approach and angle adopted for this type of study is to identify any potential flora species that may be affected by the proposed development. This means that the focus of this report will be on rare, threatened, protected and conservation-worthy species. Thus, the general approach adopted for this type of study is to **identify any critical biodiversity issues that may lead to the decision that the proposed project cannot take place**, i.e., to specifically **focus on red flags and/or potential fatal flaws**. Biodiversity issues are assessed by documenting whether any important biodiversity features occur on site, including species, ecosystems or processes that maintain ecosystems and/or species.

Rare, threatened, protected and conservation-worthy species and habitats are the highest priority, the presence of which is most likely to result in significant negative impacts on the ecological environment. The focus on national and provincial priorities and critical biodiversity issues is in line with National legislation protecting environmental and biodiversity resources.

2.1 Red data plants

South Africa has adopted the IUCN Red List Categories and Criteria to provide an objective, rigorous, scientifically founded system to identify Red List species. A published list of the Red List species of South African plants (Raimondo et al. 2009) contains a list of all species that are at risk of extinction. This list is updated regularly to take new information into account, but these are not published in book/paper format. Updated assessments are provided on the SANBI website (<http://redlist.sanbi.org/>). According to the website of the Red List of Southern African Plants (<http://redlist.sanbi.org/>), the conservation status of plants indicated on the Red List of South African Plants Online represents the status of the species within South Africa's borders. This means that when a species is not endemic to South Africa, only the portion of the species population occurring within South Africa has been assessed. The global conservation status, which is a result of the assessment of the entire global range of a species, can be found on the International

Union for the Conservation of Nature (IUCN) Red List of Threatened Species: <http://www.iucnredlist.org>. The South African assessment is used in this study. An explanation of the conservation categories is provided in Table 1.

The purpose of listing Red List plant species is to provide information on the potential occurrence of species at risk of extinction in the study area that may be affected by the proposed infrastructure. Species appearing on these lists can then be assessed in terms of their habitat requirements to determine whether any of them have a likelihood of occurring in habitats that may be affected by the proposed infrastructure.

Lists were compiled specifically for any species at risk of extinction (Red List species) previously recorded in the area. Historical occurrences of threatened plant species were obtained from the South African National Biodiversity Institute (<http://.sanbi.org>) for the quarter degree square/s within which the study area is situated). Habitat information for each species was obtained from various published sources. The probability of finding any of these species will then be assessed by comparing the habitat requirements with those habitats that occur on site.

Table 1: Explanation of IUCN Ver. 3.1 categories (IUCN, 2001), and Orange List categories (Victor & Keith, 2004).

IUCN / Orange List category	Definition	Class
EX	Extinct	Extinct
CR	Critically Endangered	Red List
EN	Endangered	Red List
VU	Vulnerable	Red List
NT	Near Threatened	Orange List
Declining	Declining taxa	Orange List
Rare	Rare	Orange List
Critically Rare	Rare: only one subpopulation	Orange List
Rare-Sparse	Rare: widely distributed but rare	Orange List
DDD	Data Deficient: well-known, not enough information for assessment	Data Deficient
DDT	Data Deficient: taxonomic problems	Data Deficient
DDX	Data Deficient: unknown species	Data Deficient
LC	Least Concern	Least Concern

For all listed plant species that occur in the general geographical area of the site, a rating of the likelihood of it occurring on site is given in Table 2 below:

Table 2: Rating of likelihood of occurrence

Rating of likelihood	Definition
LOW	No suitable habitats occur on site / habitats on site do not match habitat description for species;
MEDIUM	Habitats on site match general habitat description for species (e.g., grassland), but detailed microhabitat requirements (e.g., rocky grassland on shallow soils overlying dolomite) are absent on the site or are unknown from the descriptions given in the literature or from the authorities;
HIGH	Habitats found on site match very strongly the general and microhabitat description for the species (e.g., rocky grassland on shallow soils overlying dolomite);
DEFINITE	Species found on site.

2.2 Protected trees

Regulations published for the National Forests Act (Act 84 of 1998) as amended, provide a list of protected tree species for South Africa. The species on site and surrounding the site was checked against the list provided. The protected species list was also referenced against historical recorded data for the quarter degree grid cell to see if any of the species have been recorded historically.

2.3 Other protected species

Species identified in the National Screening tool as compiled by the Department of Forestry, fisheries, and the Environment (DFFE) was obtained through a request to SANBI. These species were searched for within suitable habitats on site. 8 Species of medium sensitivity was identified by the screening tool.

2.4 Protected Ecosystems

A literature review was conducted to investigate previous vegetation classification studies conducted on / near the study site. These studies were investigated before the field visit. To describe broad vegetation patterns within the study area, Mucina and Rutherford (2006) were used. To describe the conservation status of the vegetation units occurring within the study area, Mucina and Rutherford (2006), The National List of Ecosystems that need Protection (NEMBA, 2004) and the method described in Strelitzia 17 (Driver et al., 2005) is used. This method classifies vegetation types into four categories, according to the percentage of untransformed natural habitat remaining (Figure 1).

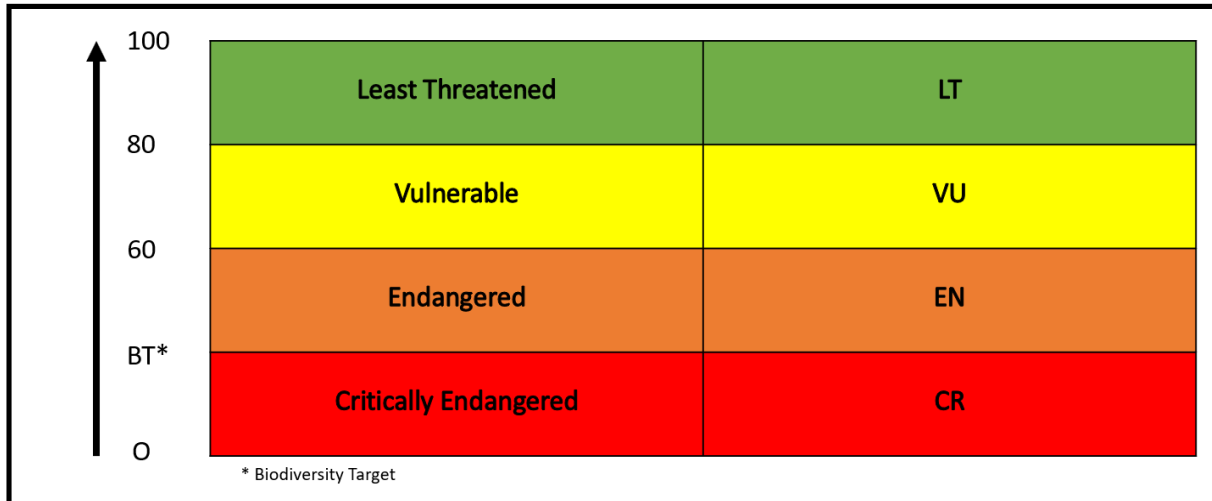


Figure 1: Classifications of vegetation types in accordance with their ecological status (Driver et al., 2005).

A survey was conducted on rare and protected plants that might occur in the study area. For this investigation, the South African National Biodiversity Institute (SANBI), PRECIS and SIBIS websites and databases were consulted. The possible and actual presence of rare and protected species were recorded during the field visit. A field assessment was conducted to classify vegetation zones, identify rare and protected species, and identify sensitive habitats. This was done by doing a survey of the site. Vegetation communities were identified during the survey and a vegetation assessment was conducted at sites within each vegetation zone.

2.5 Terrestrial Biodiversity Assessment

Thirty four percent of South Africa’s 440 terrestrial ecosystems are threatened. Of these, 5% are critically endangered, 13% are endangered and 16% are vulnerable. The 5 linked sets of actions to conserve terrestrial biodiversity in priority areas are as follows:

- **Work with Production Sectors-** major land users such as agricultural, infrastructure, property developers, mining and forestry to develop and implement sector specific wise practice guidelines to minimise loss of natural habitat and species in threatened ecosystems, and to protect ecosystem functioning.
- **Strengthen bioregional programmes-** Conservation and sustainability development projects.
- **Minimise loss of habitat in threatened ecosystem-** promote stewardship among private and communal landowners to restrict certain land uses in terms of regulations in the biodiversity act within listed ecosystems.

- **Prevent and Manage the spread of invasive alien species-** focus on alien clearance efforts such as working for water, in areas where socio-economic needs coincide with areas of high biodiversity priority.
- **Expand formal protected areas to achieve biodiversity targets-** In consultation with implementing agencies such as SANParks and provincial conservation agencies

2.6 Sensitivity Analysis

The location of potentially sensitive features in the study area was determined by taking the following into consideration:

- Satellite imagery/Google Earth imagery was used to determine natural state of land cover against areas already transformed.
- The National Spatial Biodiversity Assessment (NSBA) is a conservation planning tools from the Mpumalanga province that was used in the sensitivity mapping.
- Habitat in which sensitive plants occur was deemed as sensitive.

Sensitivity rating intensities are given in Table 3 below. Areas containing untransformed natural vegetation of conservation concern, high diversity or habitat complexity, Red List organisms or systems vital to sustaining ecological functions are considered potentially sensitive. In contrast, any transformed area that has no importance for the functioning of ecosystems is considered to potentially have low sensitivity.

Table 3: Explanation of sensitivity ratings.

Rating	Factors contributing to sensitivity	Examples of qualifying features
VERY HIGH	Indigenous natural areas that are highly positive for any of the following: <ul style="list-style-type: none"> • <u>Presence of threatened species</u> (Critically Endangered, Endangered, Vulnerable) and/or habitat critical for the survival of populations of threatened species. • <u>High conservation status</u> (low proportion remaining intact, highly fragmented, habitat for species that are at risk). • <u>Protected habitats</u> (areas protected according to national / provincial legislation, e.g., National Forests Act, Draft Ecosystem List of NEM:BA, Integrated Coastal Zone Management Act, Mountain Catchment Areas Act, Lake Areas Development Act). 	<ul style="list-style-type: none"> • CBA 1 areas. • Remaining areas of vegetation type listed in Ecosystem List of NEM: BA as Critically Endangered, Endangered or Vulnerable. • Protected forest patches. • Confirmed presence of populations of threatened species.

HIGH	<p>Indigenous natural areas that are positive for any of the following:</p> <ul style="list-style-type: none"> • High <u>intrinsic</u> biodiversity value (moderate/high species richness and/or turnover). • Presence of <u>habitat highly suitable</u> for threatened species (Critically Endangered, Endangered, Vulnerable species). • Moderate ability to respond to disturbance (moderate resilience, dominant species of intermediate age). • Moderate conservation status (moderate proportion remaining intact, moderately fragmented, habitat for species that are at risk). • Moderate to high value ecological goods & services (e.g., water supply, erosion control, soil formation, carbon storage, pollination, refugia, food production, raw materials, genetic resources, cultural value). <p>And may also be positive for the following:</p> <ul style="list-style-type: none"> • Protected habitats (areas protected according to national / provincial legislation, e.g., National Forests Act, Draft Ecosystem List of NEM:BA, Integrated Coastal Zone Management Act, Mountain Catchment Areas Act). 	<ul style="list-style-type: none"> • CBA 2 “critical biodiversity areas”. • Habitat where a threatened species could potentially occur (habitat is suitable, but no confirmed records). • Confirmed habitat for species of lower threat status (near threatened, rare). • Habitat containing individuals of extreme age. • Habitat with low ability to recover from disturbance. • Habitat with exceptionally high diversity (richness or turnover). • Habitat with unique species composition and narrow distribution. • Ecosystem providing high value ecosystem goods and services.
MEDIUM-HIGH	<p>Indigenous natural areas that are positive for one or two of the factors listed above, but not a combination of factors.</p>	<ul style="list-style-type: none"> • CBA 2 “corridor areas”. • Habitat with high diversity (richness or turnover). • Habitat where a species of lower threat status (e.g. (near threatened, rare) could potentially occur (habitat is suitable, but no confirmed records).
MEDIUM	<p>Other indigenous natural areas in which factors listed above are of no particular concern. May also include natural buffers around ecologically sensitive areas and natural links or corridors in which natural habitat is still ecologically functional.</p>	N/A
MEDIUM-LOW	<p>Degraded or disturbed indigenous natural vegetation. May also include secondary vegetation in an advanced stage of development in which habitat is still ecologically functional.</p>	N/A
LOW	<p>No natural habitat remaining.</p>	N/A

Any natural vegetation within which there are features of conservation concern will be classified into one of the high sensitivity classes (MEDIUM-HIGH, HIGH, or VERY HIGH. The difference between these three high classes is based on a combination of factors and can be summarised as follows:

1. Areas classified into the **VERY HIGH** class are vital for the survival of species or ecosystems. They are either known sites for threatened species or are ecosystems that have been identified as being remaining areas of vegetation of critical conservation importance. CBA1 areas would qualify for inclusion into this class.
2. Areas classified into the **HIGH** class are of high biodiversity value, but do not necessarily contain features that would put them into the VERY HIGH class. For example, a site that is known to contain a population of a threatened species would be in the VERY HIGH class, but a site where a threatened species could potentially occur (habitat is suitable), but it is not known whether it does occur there or not, is classified into the HIGH sensitivity class. The class also includes any areas that are not specifically identified as having high conservation status, but have high local species richness, unique species composition, low resilience or provide very important ecosystem goods and services. CBA2 “irreplaceable biodiversity areas” would qualify for inclusion into this class, if there were no other factors that would put them into the highest class.
3. Areas classified into the **MEDIUM-HIGH** sensitivity class are natural vegetation in which there are one or two features that make them of biodiversity value, but not to the extent that they would be classified into one of the other two higher categories. CBA2 “corridor areas” would qualify for inclusion into this class.

2.7 Impact Assessment Methodology

The potential environmental impacts can be identified and evaluated according to their severity, duration, extent, and significance. The following sections will describe the various aspects in detail.

2.7.1 Impact Significance = Consequence x Likelihood

Environmental Significance (Impact)	Description
L (1 – 4.9)	Low environmental significance
LM (5 - 9.9)	Low to medium environmental significance
M (10 – 14.9)	Medium environmental significance
MH (15 – 19.9)	Medium to high environmental significance
H (20 – 25)	High environmental significance. Likely to be a fatal flaw.

The confidence level (the specialist's degree of confidence in the predictions and/or the information on which it is based will be ranked Low, Medium, or High.

The consequence can be determined as follows:

$$\text{Consequence (C)} = \frac{(\text{Severity} + \text{Duration} + \text{Extent})}{3}$$

2.7.2 Severity Assessment and Rating

Rating	Description
1	Negligible / non-harmful / minimal deterioration (0 – 20%)
2	Minor / potentially harmful / measurable deterioration (20 – 40%)
3	Moderate / harmful / moderate deterioration (40 – 60%)
4	Significant / very harmful / substantial deterioration (60 – 80%)
5	Irreversible / permanent / death (80 – 100%)

2.7.3 Duration Assessment and Rating

Rating	Description
1	Less than 1 month / quickly reversible
2	Less than 1 year / quickly reversible
3	More than 1 year / reversible over time
4	More than 10 years / reversible over time / life of project or facility
5	Beyond life of project of facility / permanent

2.7.4 Extent Assessment and Rating

Rating	Description
1	Within immediate area of activity
2	Surrounding area within project boundary
3	Beyond project boundary
4	Regional / provincial
5	National / international

$$\text{Likelihood (L)} = \frac{(\text{Frequency} + \text{Probability})}{2}$$

2.7.5 Frequency Assessment and Rating

Rating	Description
1	Less than once a year
2	Once in a year
3	Quarterly
4	Weekly
5	Daily

2.7.6 Probability Assessment and Rating

Rating	Description
1	Almost impossible
2	Unlikely
3	Probable
4	Highly likely
5	Definite

3. THE STUDY SITE

3.1 Locality

The site is situated between Vrededorst and Kroonstad. The site is accessible through various dirt roads of the R721. The site is located on a farm. The site is located within the 2727AD qdgc and can be found at 27°16'19.79"S 27°22'9.91"E. The site is located within the Free State Province.

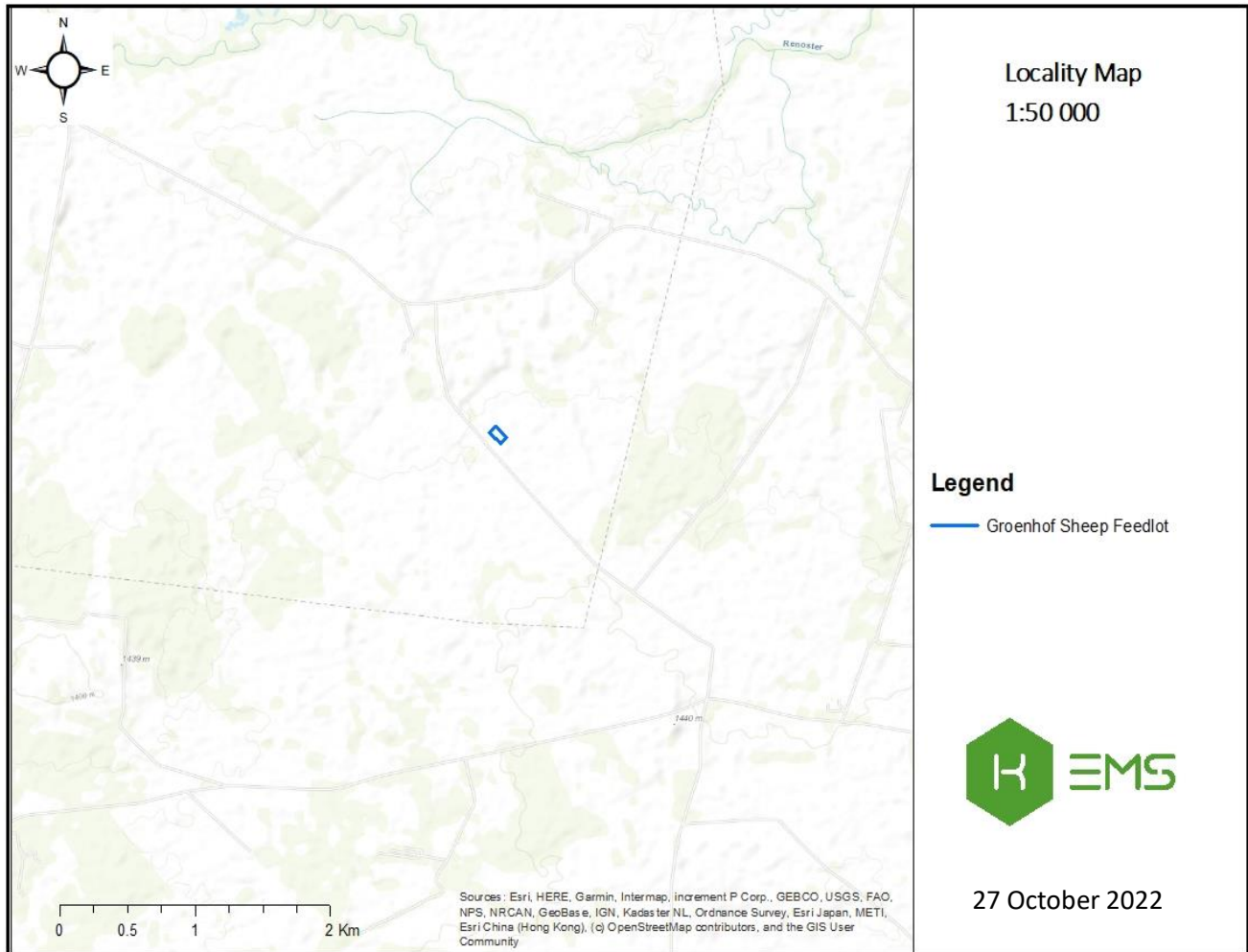


Figure 2: Locality Map

3.2 Regional Vegetation and Environmental Parameters

The study area falls within the Grassland Biome. Mucina and Rutherford described the vegetation as Vaal-Vet Sandy Grassland (See Figure 3).

3.2.1 Regional vegetation

Plains-dominated landscape with some scattered, slightly irregular undulating plains and hills. Mainly low-tussock grasslands with an abundant karroid element. Dominance of *Themeda triandra* is an important feature of this vegetation unit. Locally low cover of *T. triandra* and the associated increase in *Elionurus muticus*, *Cymbopogon pospischilii* and *Aristida congesta* is attributed to heavy grazing and/or erratic rainfall.

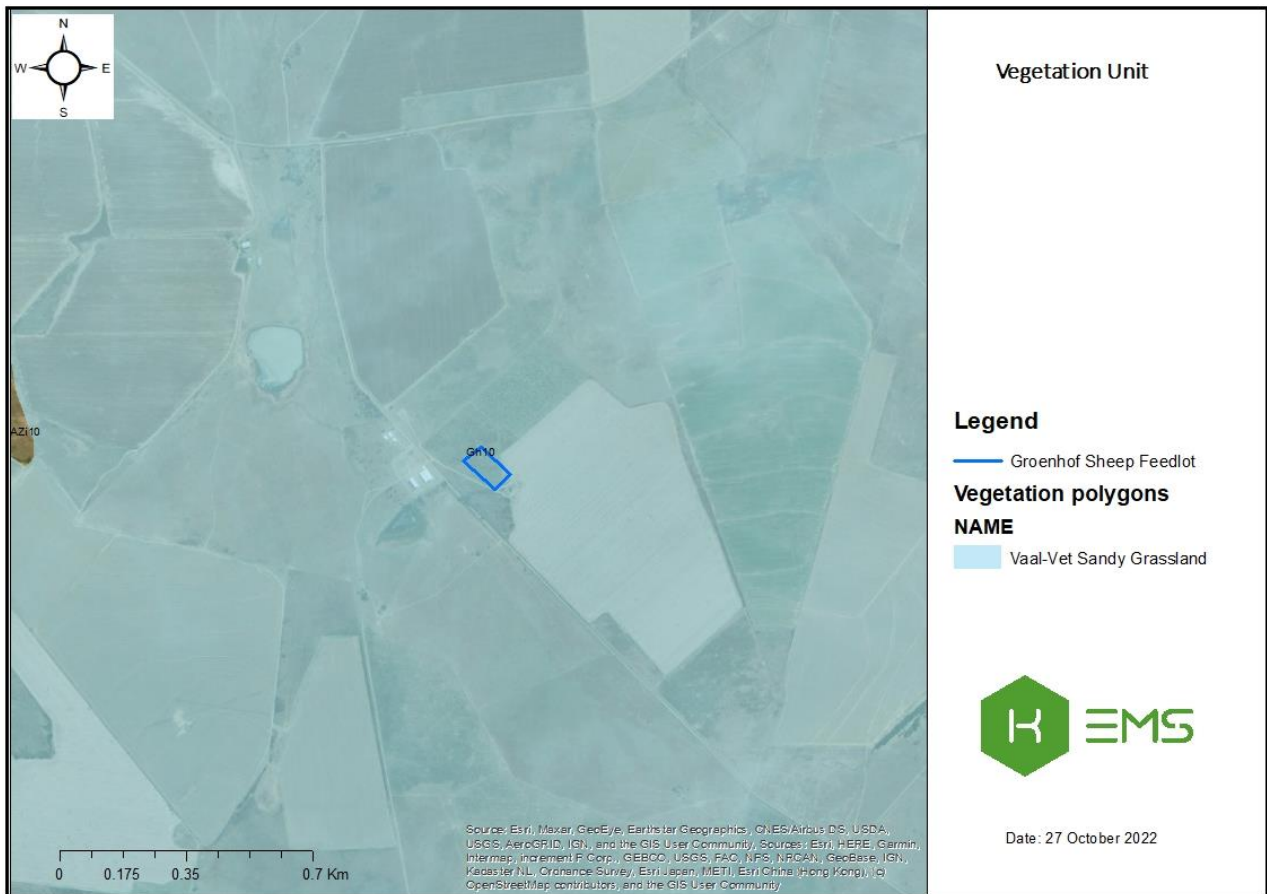


Figure 3: Vegetation Unit of the study site from Mucina and Rutherford (2006).

3.2.2 Conservation Status

- **Older classification in terms of Mucina and Rutherford of 2006.**

This vegetation type according to Mucina and Rutherford (2006) is classified as Endangered and only 0.3% is statutorily conserved in the Bloemhof Dam, Schoonspruit, Sandveld, Faan Meintjies, Wolwespruit and Soetdoring Nature Reserves

- **List of threatened Ecosystems of 2011 (GN 1002)**

The site falls within a Endangered Vegetation type as defined by GN1002.

3.2.3 General Climate

Warm-temperate, summer-rainfall climate, with overall MAP of 530 mm. High summer temperatures. Severe frost (37 days per year on average) occurs in winter.

3.2.4 Geology

Aeolian and colluvial sand overlying sandstone, mudstone and shale of the Karoo Supergroup (mostly the Ecca Group) as well as older Ventersdorp Supergroup andesite and basement gneiss in the north. Soil forms are mostly Avalon, Westleigh and Clovelly. Dominant land type Bd, closely followed by Bc, Ae and Ba.

3.3 Regional conservation assessments

The proposed development does not fall within any important areas in terms of Free State CBA maps. This biodiversity assessment identifies Critical Biodiversity Areas (CBAs) which represent priority areas requiring safeguarding to maintain ecosystem functioning. A map of CBAs for Free State was produced to guide development planning and inform decision makers about biodiversity patterns and processes. As can be seen in Figure 4 , the study site contains elements of “Degraded”.

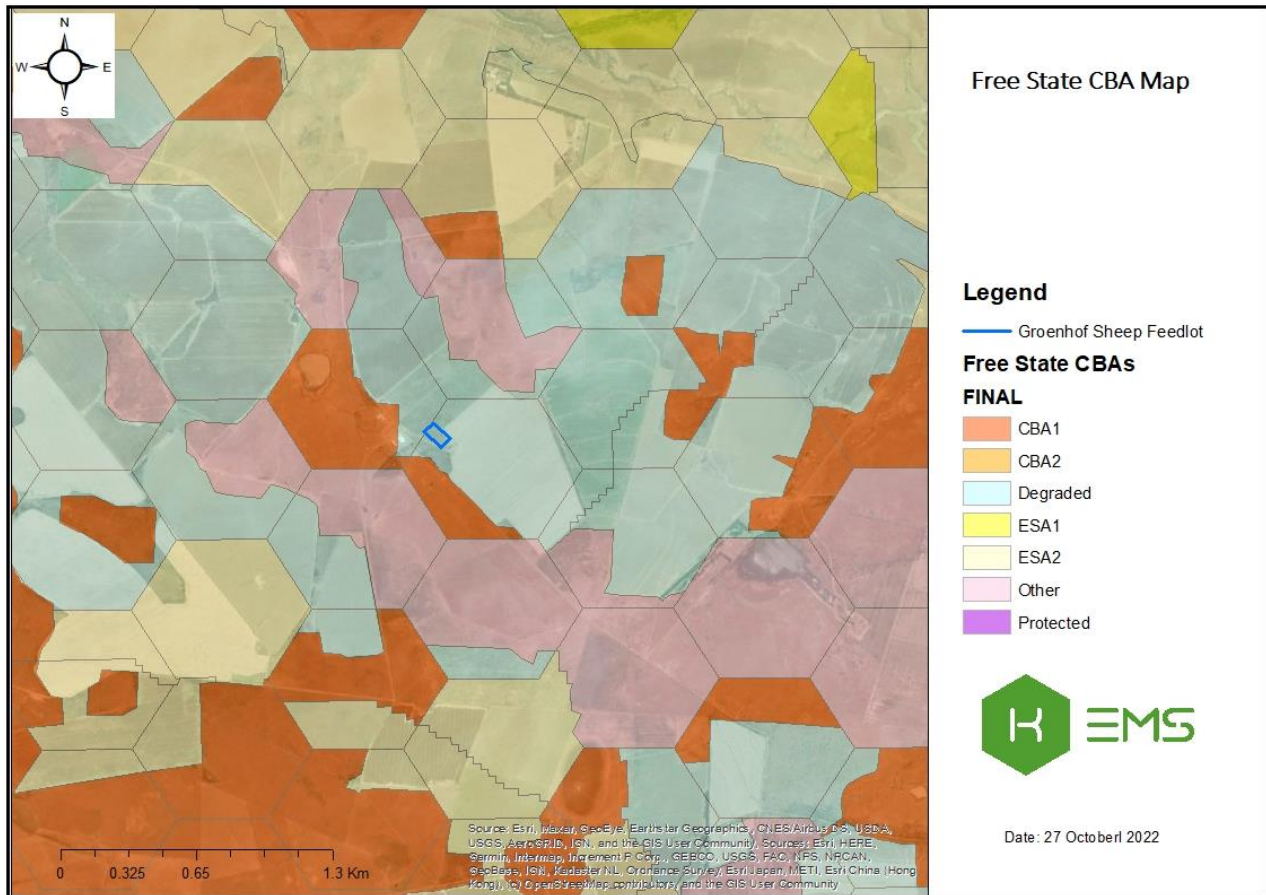


Figure 4: Conservation value of the study area (Free State CBA map).

3.4 Legislative Requirements

South African Constitution 108 of 1996

The Constitution is the supreme law of the land and includes the Bill of rights which is the cornerstone of democracy in South Africa and enshrines the rights of people in the country. It includes the right to an environment which is not harmful to human health or well-being and to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.

National Environmental Management Act (NEMA), 107 of 1998

NEMA requires that:

- “development must be socially, environmentally, and economically sustainable,”
- “disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied,” and

- “a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions.”

NEMA states that “the environment is held in public trust for the people, the beneficial use of environmental resources must serve the public interest and the environment must be protected as the people’s common heritage.”

National Environmental Management: Biodiversity Act (NEMBA), 10 of 2004

In terms of NEMBA, the developer has a responsibility for:

- The conservation of endangered ecosystems and restriction of activities according to the categorisation of the area (not just by listed activity as specified in the EIA regulations).
- Promotion of the application of appropriate environmental management tools to ensure integrated environmental management of activities thereby ensuring that all development within the area is in line with ecological sustainable development and protection of biodiversity, and
- Limiting further loss of biodiversity and conserving endangered ecosystems.
- Adhering to all regulations and legislation promulgated because of the National Environmental Management: Biodiversity Act (NEMBA), 10 of 2004.
- Furthermore, a person may not conduct a restricted activity involving a specimen of a listed threatened or protected species without a permit issued as per Chapter 7 of NEMBA.

Alien and Invasive Species Regulations, 2014 (NEMBA)

Alien and Invader plant species in South Africa are categorised according to one of the following categories:

- Prohibited Species: May not be introduced into the country.
- Category 1a Listed Invasive Species: those species that must be combatted or eradicated.
- Category 1b Listed Invasive Species: those species that must be controlled.
- Category 2 Listed Invasive Species: those species that require a permit to conduct a restricted activity within an area, as specified in the act / regulations.
- Category 3 Listed Invasive Species: those species that are subject to certain exemptions and prohibitions, as specified in the act / regulations.

National Water Act, 36 of 1998

The National Water Act provides for the protection of water resources, including protecting aquatic and associated ecosystems and their biodiversity and reducing and preventing pollution and degradation of water resources.

National List of Ecosystems that are threatened and in need of Protection, No 1002 of 2011.

A national list of threatened terrestrial ecosystems and provides supporting information to accompany the list, including the purpose and rationale for listing ecosystems, the criteria used to identify listed ecosystems, the implications of listing ecosystems, and summary statistics and national maps of listed terrestrial ecosystems. It also includes individual maps and detailed information for each listed ecosystem.

National Biodiversity Assessment of 2018.

The National Biodiversity Assessment (NBA) is the primary tool for monitoring and reporting on the state of biodiversity in South Africa. It is used to inform policies, strategies, and actions in a range of sectors for managing and conserving biodiversity more effectively. According to the NBA (2018) (remaining extent) majority of the study site is not considered in need of protection.

Free State Biodiversity CBA map

The 2015 Free State Biodiversity CBA map is only a map produced. The map is complimented by information form the National Biodiversity Assessment of 2018.

4 RESULTS AND EVALUATION

4.1 Broad vegetation types

Plains-dominated landscape with some scattered, slightly irregular undulating plains and hills. Mainly low-tussock grasslands with an abundant karroid element. Dominance of *Themeda triandra* is an important feature of this vegetation unit. Locally low cover of *T. triandra* and the associated increase in *Elionurus muticus*, *Cymbopogon pospischilii* and *Aristida congesta* is attributed to heavy grazing and/or erratic rainfall.

A list of expected common and dominant species in undisturbed **Vaal-Vet Sandy Grassland** includes the following (those with a "d" are dominant):

Graminoids: *Antheophora pubescens* (d), *Aristida congesta* (d), *Chloris virgata* (d), *Cymbopogon caesius* (d), *Cynodon dactylon* (d), *Digitaria argyrograpta* (d), *Elionurus muticus* (d), *Eragrostis chloromelas* (d), *E. lehmanniana* (d), *E. plana* (d), *E. trichophora* (d), *Heteropogon contortus* (d), *Panicum gilvum* (d), *Setaria sphacelata* (d), *Themeda triandra* (d), *Tragus berteronianus* (d), *Brachiaria serrata*, *Cymbopogon pospischilii*, *Digitaria eriantha*, *Eragrostis curvula*, *E. obtusa*, *E. superba*, *Panicum coloratum*, *Pogonarthria squarrosa*, *Trichoneura grandiglumis*, *Triraphis andropogonoides*.

Herbs: *Stachys spathulata* (d), *Barleria macrostegia*, *Berkheya onopordifolia* var. *onopordifolia*, *Chamaesyce inaequilatera*, *Geigeria aspera* var. *aspera*, *Helichrysum caespititium*, *Hermannia depressa*, *Hibiscus pusillus*, *Monsonia burkeana*, *Rhynchosia adenodes*, *Selago densiflora*, *Vernonia oligocephala*.

Geophytic Herbs: *Bulbine narcissifolia*, *Ledebouria marginata*. **Succulent Herb:** *Tripteris aghillana* var. *integrifolia*.

Low Shrubs: *Felicia muricata* (d), *Pentzia globosa* (d), *Anthospermum rigidum* subsp. *pumilum*, *Helichrysum dregeanum*, *H. paronychioides*, *Ziziphus zeyheriana*.

Endemic Taxon Herb: *Lessertia phillipsiana*.

4.2 Terrestrial biodiversity of the site

The current land use for the site is transformed and a road has been built (Figure 5).



Figure 5: Current Land use of the site.

4.3 Plants of the study site

No plants were present on site before construction of the existing feedlot, nor is there any plant species in the area where the expansion is planned. The site is located on cultivated land. A patch of vegetation resides to the south of the site and consists of Hyparrhenia grasses and herbs such as Verbena and Argemone. A few individuals of *Acacia karroo* and *Populus* trees could be recorded around the site but is not located within the proposed expansion area.



Figure 6: Evaluated piece of remaining vegetation south of the site.

Plants were also evaluated to determine if any plants reside on site that is listed in terms of the red and orange data plant species.

4.3.1 Protected trees

No protected trees occur on the site. No protected trees are therefore considered likely to occur on site.

4.3.2 Vegetation found on site.

A species list was developed for the scan. Transformed areas were classified as such, based on transformation of the vegetation due to structures and infrastructure (roads and developed areas) and historically transformed land.

Species encountered on site and adjacent is listed below from the study conducted 17 September 2022.

GENUS	Species	Location	NEMBA / Comments
Trees			
<i>Populus</i>	<i>alba</i>	<i>Southern side</i>	<i>NEMBA Category 2</i>
<i>Populus</i>	<i>X canadensis</i>	<i>Southern side</i>	<i>NEMBA Category 2</i>
<i>Vachellia</i>	<i>karroo</i>	<i>Western side</i>	
Herbs			
<i>Alternanthera</i>	<i>pungens</i>	<i>Southern side</i>	
<i>Argemone</i>	<i>mexicana</i>	<i>Southern side</i>	<i>NEMBA Category 1b</i>
<i>Bidens</i>	<i>pilosa</i>	<i>Southern Side</i>	
<i>Conyza</i>	<i>bonariensis</i>	<i>Southern side</i>	
<i>Datura</i>	<i>stamonium</i>	<i>Southern side</i>	<i>NEMBA Category 1b</i>
<i>Tagetes</i>	<i>minuta</i>	<i>Southern side</i>	
<i>Verbena</i>	<i>bonariensis</i>	<i>Southern side</i>	
Grasses and sedges			
<i>Eragrostis</i>	<i>curvula</i>		
<i>Hyparrhenia</i>	<i>hirta</i>	<i>Southern Side</i>	
<i>Panicum</i>	<i>maximum</i>	<i>Northern Vegs</i>	

The above-mentioned species were recorded on the site. Out of 13 species observed on the site, 4 of the plants were NEMBA listed plants and are subject to actions as stipulated under the NEMBA Act.

- 2 NEMBA Category 2 plant was recorded and must be controlled.
- 2 NEMBA Category 1b plants were identified and must be controlled.
- No prohibited species were recorded on or around the site.

Please note that the species count is deemed low and is a result of the study site being transformed. Species encountered was recorded on the southern side of the site.

5 IDENTIFICATIONS OF POTENTIAL IMPACTS

Potential issues relevant to potential impacts on the ecology of the study area include the following:

- **Impacts on biodiversity:** this includes any impacts on populations of individual species of concern (flora and fauna), including protected species, and on overall species richness. This includes impacts on genetic variability, population dynamics, overall species existence or health and on habitats important for species of concern.
- **Impacts on sensitive habitats:** this includes impacts on any sensitive or protected habitats, including indigenous forest, fynbos and wetland vegetation that leads to direct or indirect loss of such habitat.
- **Impacts on ecosystem function:** this includes impacts on any processes or factors that maintain ecosystem health and character.

5.1 Description of potential impacts

- ***Impact 1: Loss or fragmentation of indigenous natural vegetation***

Nature: Transformation of areas may lead to direct loss of vegetation.

This may lead to localised or more extensive reduction in the overall extent of vegetation. There are factors that may aggravate this potential impact. For example, where this vegetation has already been stressed due to degradation and transformation at a regional level, the loss may lead to increased vulnerability (susceptibility to future damage) of the habitat and a change in the conservation status (current conservation situation). Consequences of the potential impact of loss of indigenous natural vegetation occurring may include:

1. Negative change in conservation status of habitat (Driver et al. 2005).
2. Increased vulnerability of remaining portions to future disturbance.
3. General loss of habitat for sensitive species.
4. Loss in variation within sensitive habitats due to loss of portions of it.
5. General reduction in biodiversity.
6. Increased fragmentation (depending on location of impact).
7. Disturbance to processes maintaining biodiversity and ecosystem goods and services; and
8. Loss of ecosystem goods and services.

The vegetation types on site are based in the classification of Munica and Rutherford (2006) as the **Vaal-Vet Sandy Grassland** which is classified as Endangered. The National List of Ecosystems that are Threatened and need of protection (GN1002 of 2011), published under the National Environmental Management: Biodiversity Act (Act No. 10, 2004) also lists the **Vaal-Vet Sandy Grassland** as Endangered.

- ***Impact 2: Loss of individuals of threatened plants***

Nature: Plant species are especially vulnerable to development since they cannot move out of the path of the construction activities but are also affected by overall loss of habitat.

Threatened species include those classified as critically endangered, endangered, or vulnerable. For any other species, a loss of individuals or localised populations is unlikely to lead to a change in the conservation status of the species. However, in the case of threatened plant species, loss of a population or individuals could lead to a direct change in the conservation status of the species, extinction. This may arise if the proposed infrastructure is located where it will impact on such individuals or populations. Consequences may include:

1. Fragmentation of populations of affected species.
2. Reduction in area of occupancy of affected species; and
3. Loss of genetic variation within affected species.

These may all lead to a negative change in conservation status of the affected species, which implies a reduction in the chance of survival of the species. No species of special interest were recorded on site. No plants of special concern were flagged by the DEFF screening tool as having a significant potential to occur on site.

- **Impact 3: Establishment and spread of declared weeds and alien invader plants.**

Major factors contributing to invasion by alien invader plants includes *inter alia* high disturbance (such as clearing for construction activities) and negative grazing practices. Exotic species are often more prominent near infrastructural disturbances than further away. Consequences of this may include:

1. Loss of indigenous vegetation.
2. Change in vegetation structure leading to change in various habitat characteristics.
3. Change in plant species composition.
4. Change in soil chemical properties.
5. Loss of sensitive habitats.
6. Loss or disturbance to individuals of rare, endangered, endemic and/or protected species.
7. Fragmentation of sensitive habitats.
8. Change in flammability of vegetation, depending on alien species.
9. Hydrological impacts due to increased transpiration and runoff; and
10. Impairment of wetland function.

There are several alien species that may become problematic in the study area. There is therefore the potential for alien plants to spread or invade following disturbance on site.

5.2 Assessment of Impacts

The following was considered:

- Impacts of erosion on the vegetation.
- Impacts of construction of storm water outlets on vegetation.
- Impact of the construction of tar roads will have on vegetation.

Mitigation measures are proposed to ensure that the rating of significance could be reduced into a more acceptable rating.

The three identified impacts were adopted into Table 4 below for assessment. The assessment also included other impact associated with the project scope.

Table 4: Impact Assessment before mitigation:

Impact	Description	Severity	Duration	Extent	Consequence (S + D + E / 3)	Frequency	Probability	Likelihood (F + P / 2)	Significance (C*L)
Impact on Indigenous Natural Vegetation due to the planned filling station	The site vegetation and terrestrial biodiversity was transformed even though it was located in an endangered ecosystem with the original extent maps, the National Biodiversity Assessment of 2018 already indicated the site as transformed.	4	4	2	3	4	1	2.5	7.5 Low
Loss of individual or threatened plants	Vegetation clearance of the site had a low potential to impact on any plant species of special concern. None of these species were listed in the DEFF screening tool.	4	4	2	3	4	1	2.5	7.5 Low
Establishment and spread of declared weeds and alien invader plants	Transformed sites are vulnerable to alien invasive plant establishment.	5	5	2	4	5	5	5	20 High

Mitigation measures for Impact on Natural vegetation:

- Unnecessary impacts on surrounding natural vegetation must be avoided. Only the direct site and associated access roads may be impacted upon.
- Any spillages of hydrocarbon materials must be prevented from reaching floodplains and runoff areas to avoid contamination of soils and in effect, vegetation.

Mitigation measures for Loss of individual or threatened plants:

- Any on site recordings of plants with distinctive character should first be confirmed before trampling or removal of such plants. Most red or orange data plants are distinctive from normal vegetation.
- The site is transformed due to cultivation and no mitigation can be suggested.

Mitigation measures for establishment and spread of declared weeds and alien invader plants:

- Any alien plants must be immediately controlled.
- An on-going monitoring programme should be implemented to detect and quantify any aliens that may become established and provide information for the management of aliens.
- All disturbed areas must be monitored for the establishment of invasive plant species.

Table 5: Impact Assessment after Mitigation:

Impact	Severity	Duration	Extent	Consequence (S + D + E / 3)	Frequency	Probability	Likelihood (F + P / 2)	Significance (C*L)
Impact on Indigenous Natural Vegetation due to the planned filling station	4	4	2	3	4	1	2.5	7.5 Low
Loss of individual or threatened plants No red or orange data plants were recorded on site.	4	4	2	3	4	1	2.5	7.5 Low
Establishment and spread of declared weeds and alien invader plants	4	4	2	3	4	1	2.5	7.5 Low

6 SENSITIVITY ANALYSIS

Within this section, the sensitivity of the study area is determined and discussed. The sensitivity assessment determines which parts of the study area have a high conservation value and / or may be sensitive to disturbance caused by the proposed project.

Areas containing untransformed natural vegetation of conservation concern, high diversity, habitat complexity, red list organisms and / or systems vital to sustaining ecological function are considered sensitive. In contrast, areas that are transformed and have little importance for ecological functioning are of low sensitivity.

Using the methodology as indicated in Table 3 in Section 2.6, a sensitivity rating of **Low** was given to study area. This is due to the following:

No natural habitat remaining.

6.1.1 Sensitivity map

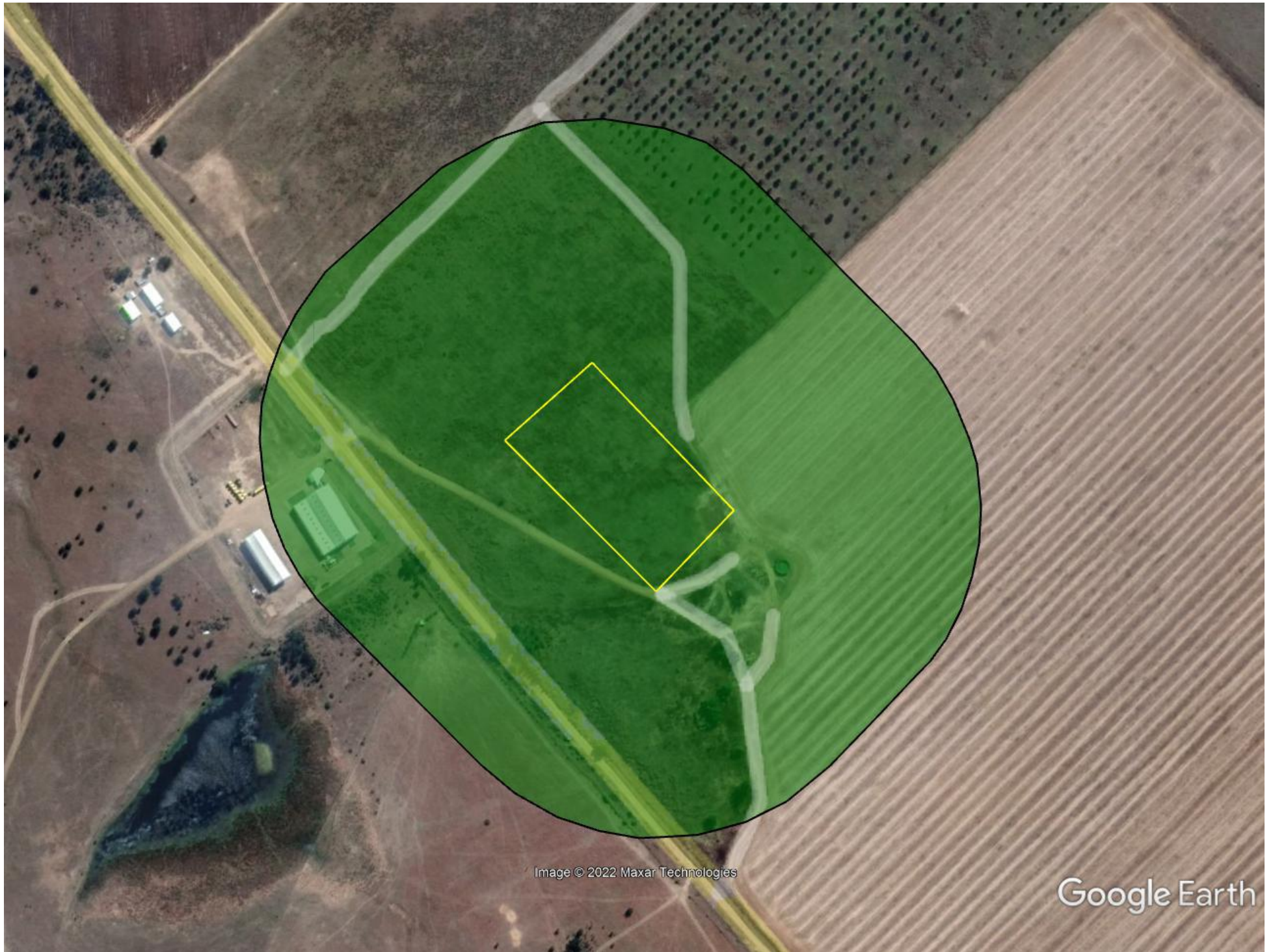


Figure 7: Sensitivity Map

7 CONCLUSIONS

KEMS Pty Ltd was commissioned to undertake a Compliance statement for terrestrial biodiversity and plant species for the developed of a sheep feedlot on the remainder of the Farm Groenhof 240. The site consists of an existing legal feedlot under the EIA regulation thresholds. The applicant plans to expand on the existing feedlot. The expansion will be into existing cultivated areas.

Regional GIS maps indicated the site to be located within the Vaal-Vet Sandy Grassland vegetation that has a conservation status of "Endangered". The vegetation type was adopted into the List of Threatened Ecosystems in need of protection (GN 1002) as endangered. The study site did also not fall into any CBA areas in terms of the Free State CBA maps. The National Biodiversity Assessment of 2018 indicates the site as transformed.

The site assessment confirmed that the proposed expansion would fall within cultivated areas and that no Natural vegetation remains on site associated with the endangered Ecosystem.

An impact Assessment was undertaken for the site and only one impact was identified that needed attention. The establishment of Alien and Invasive Plant species must be monitored and controlled.

A total of 4 plants were identified on and around the site that is listed in the Alien and Invasive Species Regulations of 2014 (NEMBA) which needs management.

- 2 NEMBA Category 2 plant was recorded and must be controlled.
- 2 NEMBA Category 2 plants were identified and must be controlled.
- No prohibited species were recorded on or around the site.

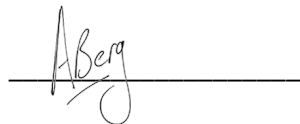
The sensitivity assessment was undertaken as per Section 2.6 of this report. There is no more habitat remaining and a Low sensitivity rating was awarded to the site.

8. COMPLIANCE STATEMENT

After the site visit was undertaken for the proposed sheep feedlot on the remainder of Groenhof 240, and after the evaluation of the bioregional maps, it is my reasoned opinion that the development of feedlot would have no impact on any vegetation on site.

It is also my reasoned opinion that the site did not have any potential to contain significant plant species of conservation concern.

Arno van den Berg

A handwritten signature in black ink, appearing to read 'A. Berg', is written over a horizontal line.

Pr. Sci. Nat. Environmental Sciences

31 October 2022

9 REFERENCES

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Appendix E: Public participation information

- Appendix E1: Proof of site notice
- Appendix E2: Written notices (BIDS) issued as required in terms of the regulations & Proof of receipt of BIDS
- Appendix E3: Proof of newspaper advertisements
- Appendix E4: Comments received from I&APs including stakeholders
- Appendix E5: Comments and response sheet
- Appendix E6 – Comments from I&APs on Basic Assessment (BA) Report
- Appendix E7 –Comments from I&APs on amendments to the BA Report
- Appendix E8: Register of I&APs-

Attached

“JWALE KE NAKO YA KOTULO, RE A KUBELETSA”

“JWALE KE NAKO YA KOTULO, RE A KUBELE TSA”

NOTICE: ENVIRONMENTAL IMPACT ASSESSMENT PROCESS

PROPOSED EXPANSION OF A SHEEP FEEDLOT ON THE FARM GROENHOF, FREE STATE PROVINCE.

Notice is hereby given in terms of Regulation 41 of the Regulations published in Government Notice 326 of 7 April 2017 - Chapter 6 of the National Environmental Management Act, 1998 (Act no. 107 of 1998), as amended, for an application submitted for the following activity:

- NEMA: GN No. R 327 of 7 April 2017 (Listing 1): Activity No.: 39 (ii)(a).
- NEMA: GN No. R 324 of 7 April 2017 (Listing 3): Activity No.: 12 b.(i).
- A Phase 1 Heritage Impact Assessment to take place in terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999), for Mr. Armand Marx. Section 38(1) (c): exceeding 5000m² in extent.

PROJECT DESCRIPTION:

The current facility houses 950 herd of sheep at a density of 1 small stock unit per 17m². The expansion will be to increase the density, which will exceed 8m² per small stock unit with an increase in numbers up to 2247 small stock units.

PROJECT LOCATION:

Turn-off to the farm from the R721 (between Vredefort and Kroonstad) is about 27.4 km from the Caltex Filling station in Vredefort. At this turn-off travel 4,4 km on a gravel road (S261) to the next turn-off on your right-hand side. At this turn-off travel 1.5 km on a gravel road (S1274) to the entrance (GPS coords.: -27.271985°S, 27.367214°E) of the farm.



APPLICANT:

Agrien (Pty) Ltd.

ENVIRONMENTAL CONSULTANT:

REC Services (Pty) Ltd.

PO Box 40541, Moreleta Park, 0044

Tel: (012) 997 4742

Fax: (012) 997 0415

Email: rowan@recservices.co.za

Contact Person (s): Rowan van Tonder / Pieter van der Merwe



ENVIRONMENTAL CONSULTANTS

In order to register as an interested and/or affected party, or to obtain more information on the proposed development, please submit your name, contact details and interest in the matter within 30 days of the date of this notice: 30 September 2022

PROOF OF SITE NOTICE



“JWALE KE NAKO YA KOTULO, RE A KUBELE TSA”



BACKGROUND INFORMATION DOCUMENT

PROPOSED EXPANSION OF A SHEEP FEEDLOT ON THE REMAINDER OF THE FARM
GROENHOF VREDEFORT RD, FREE STATE PROVINCE

THIS BACKGROUND INFORMATION DOCUMENT SERVES TO INFORM THE PUBLIC OF THE APPLICATION
LODGED IN TERMS OF THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT 107 OF 1998 (NEMA) AS
AMENDED.

<p>APPLICANT:</p> <p>Agrien (Pty) Ltd.</p> <p>Mr. Armand Marx</p> <p>PO Box 6227</p> <p>Kroonheuwel</p> <p>9501</p> <p>Tel: 083 596 8071</p> <p>E-Mail: armand@agrien.co.za / ck@agrien.co.za</p>	<p>ENVIRONMENTAL CONSULTANT:</p> <p>REC Services (Pty) Ltd.</p> <p>Mr. Rowan van Tonder/ Mr Pieter van der Merwe</p> <p>P.O. BOX 40541</p> <p>Moreleta Park</p> <p>0044</p> <p>Tel: (012) 997 4742</p> <p>E-mail: rowan@recservices.co.za</p>
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30 SEPTEMBER 2022

1. PURPOSE OF THIS BACKGROUND INFORMATION DOCUMENT

The purpose of this document is to:

- Notify the identified Interested and Affected Parties (I&APs) of the Environmental Impact Assessment (EIA) Regulations in accordance with stipulations made in Government Notice R. 326 of 7 April 2017 published in terms of chapter 6 of the National Environmental Management Act (Act No. 107 of 1998) as amended.
- Present stakeholders with an overview of the perceived environmental, biophysical and social impacts of the proposed development.
- Provide I&APs with a Locality Map (Appendix 1) indicating the proposed development.
- Obtain issues and concerns from the I&APs regarding the environmental assessment process and proposed activity, which will be addressed for the planning, construction and operational phases of the proposed development.

2. INTRODUCTION AND STATEMENT OF INDEPENDENCE

2.1 INTRODUCTION

REC Services (Pty) Ltd. (REC) was appointed by Mr. Armand Marx of Agrien (Pty) Ltd., for the Environmental Impact Assessment and application process in terms of the National Environmental Management Act (Act 107 Of 1998), pertaining to the development of an expansion of a feedlot for small stock (sheep) to be located on a part of the farm Groenhof, Free State.

The public participation process aims to provide an opportunity for I&APs to comment on the proposed activity, such that relevant information exchanges will enable the EIA process to focus the study on reasonable and relevant issues, predominantly relating to environmental impacts that the proposed activity may have. The Environmental Impact Assessment Report to be compiled REC will focus on the possible issues and impacts associated with the proposed development, and where negative impacts are identified, recommendations will be made to mitigate such impacts.

REC and its environmental assessment practitioners have no connection with the applicant. REC is not a subsidiary, legally or financially of the applicant. Remuneration for services pertaining to this assessment and application is not linked to approval by decision-making authorities responsible for authorizing the proposed activities. REC and its environmental assessment practitioners have no interest in secondary or downstream developments because of the authorisation of the proposed activities.

3. KEY LEGISLATION APPLICABLE TO THIS NOTICE

3.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT 108 OF 1998 AS AMENDED

Listed activity triggered in the 2017 NEMA regulations:

R. 327, 7 APRIL 2017 , as amended: Listing Notice 1 - Basic assessment Activities	
Activity No	Listed Activity Description:
39	The expansion and related operation of facilities for the concentration of animals in densities that will exceed. (ii) 8 square meters per small stock unit, where the expansion will constitute more than;
R. 324 of 7 April 2017, as amended: Listing Notice 3 - Basic assessment Activities	
Activity No	Listed Activity Description:
12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (b) In Mpumalanga: i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;

3.2 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

Notice is also given of a Phase 1 Heritage Impact Assessment to take place in terms of The National Heritage Resources Act (Act 25 of 1999), for Mr. Armand Marx.

- Section 38 (1) (c): any development or other activity which will change the character of a site-
- exceeding 5 000m² in extent;