

# Basic Assessment for the proposed maize and bean cultivation and harvesting enterprise for the Khanyani Agricultural Cooperative, Emthebeni, Imbabazane Local Municipality, KwaZulu Natal

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Prepared for:  
Khanyani Agricultural Cooperative

CSIR Report No.: CSIR/CAS/EMS/IR/2015/00011/A

April 2017

DRAFT BASIC ASSESSMENT REPORT – Basic Assessment for the proposed  
maize and bean cultivation and harvesting enterprise for the  
Khanyani Agricultural Cooperative, Emthebeni,  
Imbabazane Local Municipality, KwaZulu Natal.

## **DRAFT BASIC ASSESSMENT REPORT**

CSIR Report Number: CSIR/CAS/EMS/IR/2015/00011/A

April 2017

*Prepared for:*  
Khanyani Agricultural Cooperative

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# REPORT DETAILS

<b>Title:</b>	Basic Assessment for the proposed maize and bean cultivation and harvesting enterprise of the Khanyani Agricultural Cooperative, Emthebeni, Imbabazane Local Municipality, KwaZulu Natal
<b>Purpose of this report:</b>	<p>The purpose of this BA Report is to:</p> <ul style="list-style-type: none"><li>• Present the proposed project and the need for the project;</li><li>• Describe the affected environment at a sufficient level of detail to facilitate informed decision-making;</li><li>• Provide an overview of the BA Process being followed, including public consultation;</li><li>• Assess the predicted positive and negative impacts of the project on the environment;</li><li>• Provide recommendations to avoid or mitigate negative impacts and to enhance the positive benefits of the project; and</li><li>• Provide an Environmental Management Programme (EMPr) for the proposed project.</li></ul> <p>The Draft Basic Assessment Report and Draft Environmental Management Programme (EMPr) are hereby released to all Interested and Affected Parties (I&amp;APs) and stakeholders for a 30-day review period. All comments received during the review of the Draft Basic Assessment Report will be incorporated into the Final Basic Assessment Report and EMPr.</p>
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# OPPORTUNITY FOR REVIEW

## Opportunity for Review:

This Draft Basic Assessment Report and Draft Environmental Management Programme (EMPr) are hereby released for a 30-day review period by stakeholders. Review comments are to be submitted to the Project Manager at the details below:

*Project Manager* - Karabo Mashabela

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# ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

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Minnelise Levendal (Project Leader)	<p><b>Qualification &amp; Expertise: MSc</b></p> <p>Minnelise is a Senior EAP in the EMS group of the CSIR and has a Master's degree in Biological Science (Botany). She has 15 years experience in Environmental Management (which includes nine years working as an EAP). Before she joined the CSIR she was employed at the Western Cape Department of Environmental Affairs and Development Planning (DEA&amp;DP) where she assessed EIAs, BAs and EMPs. Minnelise is currently managing various EIAs for wind and solar renewable energy projects in South Africa. Minnelise was the CSIR project manager for the 100 MW Ubuntu Wind Energy Facility near Jeffrey's Bay (Environmental Authorisation granted in June 2012), as well as the 50 MW Banna Ba Pifhu Wind Energy Facility proposed by WKN Wind current near Humansdorp in the Eastern Cape (Environmental Authorisation granted in July 2014). She was the project manager of ten BAs for wind monitoring masts in South Africa as part of the National Wind Atlas Project of the Department of Energy. Environmental Authorisation from the national Department of Environmental Affairs for all the ten masts was obtained in 2010. She was also the Project Leader for seven Solar Photovoltaic facilities near Kenhardt in the Northern Cape in 2016. Minnelise is the Project Manager of the Special Needs and Skills Development Programme of DEA which provides pro bono environmental assessments (BAs) to applicants with special needs.</p>

# EXECUTIVE SUMMARY

## INTRODUCTION AND BACKGROUND

The Khanyani Agricultural Cooperative is a Non-Governmental Organization (NGO), based on the KwaMkhize tribal land. The Cooperative is being assisted under the Department of Environmental Affairs Special Needs and Skills Development Programme to prepare an environmental assessment of a proposed agricultural project. The proposed development entails cultivation of maize and bean cultivars on a piece of land which was given to the Project Applicant by the KwaMkhize Traditional Council for farming. Agricultural land in Imbabazane is mainly utilised for subsistence purposes: According to the 2016 SDF the maize production is about 40% whereas soya beans production accounts for 14% in the area. Commercial farming takes up 56% of the uThukela District Municipality and occupies a large portion of the municipal land. The agriculture sector is the major employer in the majority of municipalities and forms the economic anchor of these municipalities.

The Council for Scientific and Industrial Research (CSIR), appointed by the National Department of Environmental Affairs (DEA), manages the Special Needs and Skills Development Programme which provides *pro-bono* Environmental Services to small-scale businesses or applicants with special needs. The programme offers the undertaking of Basic Assessments for projects that require this assistance in applying for Environmental Authorisation. The CSIR is currently undertaking a Basic Assessment Process for Khanyani Agricultural Cooperative in KwaMkhize, KwaZulu-Natal.

The development triggers a listed activity in terms of the Environmental Impact Assessment (EIA) Regulations, Government Notice Regulations (GNR) 983 of 4 December 2014 promulgated under the National Environmental Management Act (Act no 107 of 1998, NEMA). In terms of these Regulations, a Basic Assessment (BA) should be undertaken for the proposed project. The CSIR is managing the BA process on behalf of the applicant.

In terms of the National Environmental Management Act (NEMA) EIA Regulations published in GNR 327 on the 7 April 2017 Government Gazette, the following listed activity applies to the project (detailed in Table S.1 below).

**Table S.1: Listed activity relating to the proposed project**

Relevant notice	Activity No (s) (in terms of the relevant notice)	Description of each listed activity as per the Government Notice
GN. R 327, 7 April 2017	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 - i) The undertaking of a linear activity ii) Maintenance purposes undertaken in accordance with a maintenance Management plan.



## PROJECT DESCRIPTION

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The Khanyani Agricultural Cooperative is a crop producing community owned enterprise, located on a 19 hectare portion of land owned by KwaMkhize Traditional Council, in the Imbabazane Local Municipality, KwaZulu-Natal (KZN). The Agricultural Cooperative consists of twelve community members and is led by Mr Bongani Mnculwane. The Khanyani Agricultural Cooperative proposes to cultivate 9.5 ha of maize and 9.5 ha of bean crops. The total footprint of the proposed development will be 19 hectares. Activities include clearance of approximately 19 hectares of vegetation, planting and growing the crops and undertaking the associated operations of a crop production; and harvesting of maize and bean crops.

Maize and bean crops are the most important food crops in South Africa and they are produced throughout the country in diverse environments. The maize and beans of Khanyani Agricultural Cooperative will be planted from October to December. Due to variation in rainfall pattern, temperature and duration of the growing season, different cultivars will be available, adapted to the range of climatic and production conditions. Maize can take from 60 to 100 days to reach harvest depending upon variety and the amount of heat during the growing season. These crops will be planted, thinned, weeded and harvested annually to promote maximum employment opportunities for unskilled and semi-skilled employees from the local community. When this farming unit is ready for harvesting approximately 400 man-days will be utilised. According to Ms J.B. Hadebe, Agricultural Advisor KZN Department of Agriculture and Environmental Affairs; Soil Fertility and Analytical Services, the area has soils like Hutton and Clovelly -these are good soils in terms of rooting depth and drainage. The crops that were recommended, i.e. maize and dry beans are suitable for the area and potatoes too are suitable.

## SPECIALIST STUDY

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### Terrestrial Ecological Assessment

A Terrestrial Ecological Assessment of the area was undertaken by Mr Simon Bundy of SDP Ecological and Environmental Services cc to inform the BA process. The study is attached in Appendix D. The main findings of the study are listed below.

#### Terrestrial Ecological Impact Assessment: Fauna and Flora

- There will be loss and degradation of natural vegetation and faunal habitat within the development site and allowable disturbance footprint;
- Partial loss of current ecological connectivity and habitat loss of *Sagittarius serpentarius* (Secretary bird) and *Chrysospalax villosus* (golden mole); and the
- Facilitated spread of alien invasive vegetation (strongly associated with soil disturbance).

## IMPACT ASSESSMENT

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The main potential impacts associated with the proposed cultivation of the maize and bean crops and its significance ratings are listed in the table below.

Summary of potential impacts	Significance rating of impacts before mitigation	Significance rating of impacts after mitigation
Loss of vegetation and faunal habitat	High (Negative)	High (Negative)
Loss and displacement of fauna on site.	High (Negative)	High (Negative)
Introduction and increase in alien vegetation	Low (Negative)	Low (Negative)
Erosion	Medium (Negative)	Low (Negative)
Employment opportunities created	Medium (Positive)	High (Positive)

### Heritage Impact Assessment

The CSIR sub-contracted Ethembeni Cultural Heritage to undertake a Heritage Impact Assessment (HIA) for the proposed cultivation project of the Khanyani Agricultural Cooperative.

The South African Heritage Resources Information System (SAHRIS) Palaeontology sensitivity map indicates the area to be of low sensitivity and as such Ethembeni Cultural Heritage applied for an Exemption from undertaking a full HIA. This request was granted by AMAFA.

Response from AMAFA (letter dated 17 February 2017): AMAFA has no objection to the development and recommends that the following standard conditions must be adhered to:

## CONDITIONS

1. AMAFA should be contacted if any heritage objects are identified during earthmoving activities and all development should cease until further notice.
2. No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from AMAFA.
3. No activities are allowed within 50 m of a sitewhich contains rock art.
4. Sources of all natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt, etc.) must be obtained in a sustainable manner and in compliance with the heritage legislation.

Failure to comply with the requirements of the National Heritage Resources Act (Act 25 of 1999) and the KwaZulu Natal Heritage Resources Act (Act 4 of 2008) could lead to legal action being instituted against the applicant.

Should you have any further queries, please contact SAHRA or AMAFA

The contact details for SAHRA are:

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## EAP'S RECOMMENDATION

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Based on the findings of the Basic Assessment process for the Khanyani Agricultural Cooperative, it is recommended that this project be authorised, subject to the following conditions:

The EMPr of this proposed development must form part of the contractual agreement and be adhered to by the applicant.

The recommendations of the ecological specialist, with regards to vulnerable fauna found on site were considered when preparing this BA Report. *Sagittarius serpentarius* (Secretary bird) and *Chrysospalax villosus* (Rough-haired Golden Mole) are listed as Vulnerable species and are found on site (Red data book, 2000). Therefore the Regulations of the National Environmental Management Biodiversity Act 10 of 2004 (NEMBA) on Threatened and Protected Species were also taken into consideration in preparation of this BAR and EMPr.

Negative impacts have been identified within this BAR that, in the opinion of the EAP, should not be considered as "fatal flaws". In order to ensure the effective implementation of the mitigation and management actions, an EMPr has been compiled and is included in the BA report (see Appendix F). The mitigation measures required to ensure that the project is planned and conducted in an environmentally responsible manner are listed in the EMPr. The EMPr is a dynamic document that should be updated as required and provides clear and implementable measures for the proposed project.

The project proponent, i.e. the Khanyani Agricultural Co-operative, is being assisted under the DEA Special Needs and Skills Development Programme on a *pro bono* basis as it qualifies as an applicant with special needs. As such it does not have the financial means to have an alternative site available other than the preferred site which was given to them by the Kwa-Mkwise Traditional Council. It is therefore recommended by the EAP that the proposed layout and preferred site (this proposal) be included in the Environmental Authorisation (should such authorisation be granted for the proposed project).

**Concluding statement from EAP: Provided that the specified mitigation measures outlined in the EMPr are applied effectively, it is proposed that the project receives Environmental Authorisation in terms of the EIA Regulations promulgated under the NEMA.**

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# GLOSSARY

BA	Basic Assessment
BAR	Basic Assessment Report
BID	Background Information Document
CA	Competent Authority
CV	Curriculum Vitae
CSIR	Council for Scientific and Industrial Research
DEA	National Department of Environmental Affairs
DEA&DP	Department of Environmental Affairs and Development Planning
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
HSSE	Health, Security, Safety and Environment
I&AP	Interested and Affected Party
IDP	Integrated Development Plan
NAMM	National Association of Maize Millers
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMBA	National Environmental Management Biodiversity Act (Act 10 of 2004)
NEM: AQA	National Environment Management: Air Quality Act (Act 39 of 2004)
NHRA	National Heritage Resources Act (Act 25 of 1999)
PPP	Public Participation Process
SACNASP	South African Council for Natural Scientific Professions
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
SANBI	South African National Biodiversity Institute
SANS	South African National Standards
SDF	Spatial Development Framework
ToR	Terms of Reference

## Requirements according to Appendix 1 of GNR 982 of 4 December 2014 - Scope of Assessment and Content of BAR.

SCOPE OF ASSESSMENT AND CONTENT OF BAR	SECTION IN BAR
1) A basic assessment report must contain all the information that is necessary for the competent authority to consider and come to a decision on the application, and must include - (a) details of - i. the EAP who prepared the report; and	Section A
ii. the expertise of the EAP, including a curriculum vitae;	Section A
(b) the location of the activity, including: (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Appendix A
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is- (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	Appendix A
(d) a description of the scope of the proposed activity, including- (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure ;	Section A
(e) a description of the policy and legislative context within which the development is proposed including-	Section A



DRAFT BASIC ASSESSMENT REPORT  
 PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

SCOPE OF ASSESSMENT AND CONTENT OF BAR	SECTION IN BAR
<p>not considering such; and</p> <p>(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;</p>	
<p>(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including-</p> <p>(i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and</p> <p>(ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;</p>	Section F
<p>(j) an assessment of each identified potentially significant impact and risk, including-</p> <p>(i) cumulative impacts;</p> <p>(ii) the nature, significance and consequences of the impact and risk;</p> <p>(iii) the extent and duration of the impact and risk;</p> <p>(iv) the probability of the impact and risk occurring;</p> <p>(v) the degree to which the impact and risk can be reversed;</p> <p>(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and</p> <p>(vii) the degree to which the impact and risk can be avoided, managed or mitigated;</p>	Section F
<p>(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;</p>	Section F
<p>(l) an environmental impact statement which contains-</p> <p>(i) a summary of the key findings of the environmental impact assessment;</p> <p>(ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and</p> <p>(iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;</p>	Where is this addressed?
<p>(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management objectives, and the impact management outcomes for the development</p>	Appendix F

DRAFT BASIC ASSESSMENT REPORT  
PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

SCOPE OF ASSESSMENT AND CONTENT OF BAR	SECTION IN BAR
for inclusion in the EMPr;	
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	Appendix D
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	Section F
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	Section F
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	N/A
(r) an undertaking under oath or affirmation by the EAP in relation to: <ul style="list-style-type: none"> <li>(i) the correctness of the information provided in the reports;</li> <li>(ii) the inclusion of comments and inputs from stakeholders and I&amp;APs;</li> <li>(iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and</li> <li>(iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and</li> </ul>	Appendix A  Section C  Appendix E
(s) where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;	Appendix E
(t) any specific information that may be required by the competent authority; and	N/A
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	N/A



# SECTION A : ACTIVITY INFORMATION

## 1. INTRODUCTION

### 1.1 BACKGROUND

The Environmental Management Services (EMS) group of the CSIR is managing the Basic Assessment (BA) for the proposed cultivation of maize and bean crops on behalf of the Khanyani Agricultural Cooperative. The BA is being undertaken under the Department of Environmental Affairs Special Needs and Skills Development Programme which provides *pro bono* assistance to communities and groups that do not have financial means to undertake environmental assessments.

The EMS is a unit under the Implementation Unit (IU) within the CSIR. The CSIR is amongst the largest multi-disciplinary research and development organisation in Africa, which undertakes applied research and development for promoting sustainability across the continent. The organisation also provides consulting services to government, private sector, international agencies and non-governmental organisations.

The CSIR’s approach builds on its experience from conducting a wide range of BAs and EIAs throughout Southern Africa. The CSIR has in-depth experience in conducting BAs, EIAs and preparing EMPs in accordance with South African and international requirements.

The Khanyani Agricultural Cooperative is a start-up agricultural project. It is located in the KwaMkhize rural area in Kwazulu-Natal at: 21° 13’ 1”S; 29° 41’ 33”E. The demand for maize and beans in the country’s mostly rural area as a staple food is high which allows the Khanyani Agricultural Cooperative to make contribution to the domestic market.

### 1.2 NAMES AND EXPERTISE OF REPRESENTATIVES OF THE EAP

Names and details of the expertise of each representative of the EAP involved in the preparation of this report:

Name of representative of the EAP	Education qualifications	Professional affiliations	Experience in environmental assessments (yrs)
Minnelise Levendal	MSc Botany	SACNASP 117078&IAIAsa	16 years
Karabo Mashabela	MSc Environmental Science & Geography	SACNASP 116164& IAIAsa	1 year
Reinett Mogotshi	BSc Honours	IAIAsa	2 years

### 1.3 NAMES OF EXPERTISE REVIEWER

Name of reviewer	Education qualifications	Professional affiliations	Experience in environmental assessments (yrs)
Pat Morant	MSc Environmental Studies	SACNASP 401514/83	30 years

#### 1.4 NAMES AND EXPERTISE OF SPECIALISTS

Name of specialist	Education qualifications	Field of expertise	Section/s contributed to in this basic assessment report	Title of specialist report/ s as attached in Appendix D
Simon Colin Bundy	BSc, MSc, Pr.Sci.Nat	Ecological/biodiversity assessment and wetland delineation	Section 4 and Appendix D	Ecological review - Khanyane agricultural project Imbabazane, nr kamberg
Len van Schalkwyk	BA Hons. Archaeology(Stell) 1982; MA Archaeology (UCT) 1992	Archaeologist; Heritage Practitioner	Appendix E.7	Application for Exemption from a Phase 1 Heritage Impact Assessment

#### 1.5 DESCRIPTION OF PROPOSED SITE FOR CULTIVATION

The Khanyani Agricultural Cooperative is a crop producing community owned enterprise, located on a portion of land owned by the KwaMkhize Traditional Council in the Imbabazane Local Municipality, KwaZulu-Natal (KZN) (see Figure 1 (a+b) for the project location).

The Agricultural Cooperative consists of twelve community members and is led by Mr Bongani Mnculwane. The Khanyani Agricultural Cooperative proposes to farm 9.5 ha of maize and 9.5 ha of bean crops, thus farming a total area of 19 ha. They also intend to widen the existing farm road to a maximum of 7m for the tractor to pass through. The tractor was sponsored by the KwaMkhize Traditional Council for farming.

In terms of the EIA Regulations promulgated under Chapter 5 of the National Environmental Management Act (Act no 107 of 1998) (NEMA) published in GN 324, R325, R326 and R327 on 7 April 2017, a BA Process is required for the proposed project. The need for the BA is triggered by the inclusion of Activity 27 listed in GN R327 (Listing Notice 1):

Activities include clearance of more than 19 ha of vegetation, preparing the land (ploughing) sowing seed, weeding and finally harvesting of the maize; and bean crops. Maize and bean crops are the most important grain crops in South Africa and they are produced throughout the country in diverse environments. The Khanyani Agricultural Cooperative maize and beans will be planted from October to December. Due to variations in the rainfall pattern, temperature and duration of the growing season, different cultivars will be available, adapted to the range of climatic and production conditions. Maize can take from 60 to 100 days to reach harvest depending upon variety and the amount of heat during the growing season. These crops will be planted, thinned, weeded and harvested annually to promote maximum employment opportunities for unskilled and semi-skilled people from the local community. When this farming unit is ready for harvesting approximately 400 man-days will be utilised.

In terms of the suitability maize and beans are the largest locally produced field crop, and the most important source of carbohydrates in the southern African region as well as Estcourt. According to the Agricultural advisor, Ms J.B Hadebe, the area has soils as such Hutton and Clovelly which are good soils in terms of rooting depth and drainage. The crops that were recommended, maize and dry beans, are suitable for the area, potatoes are also suitable. An expected maximum yield of 4 tonnes /ha of maize,

105 tonnes/ha for dry beans and 20 tonnes/ha of potatoes could be attained provided the recommendations with respect to soil nutrient and lime are followed.

According to South African National Biodiversity Institute (SANBI) data the volume of field crop production increased by 12.8% mainly as a result of increases in the production of summer crops as well as oilseed crops (sunflower seed, soya beans and groundnuts). Maize production increased by 2.2 million tons (17.7%) and sorghum production by 124 775 tonnes (73.7%).



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PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

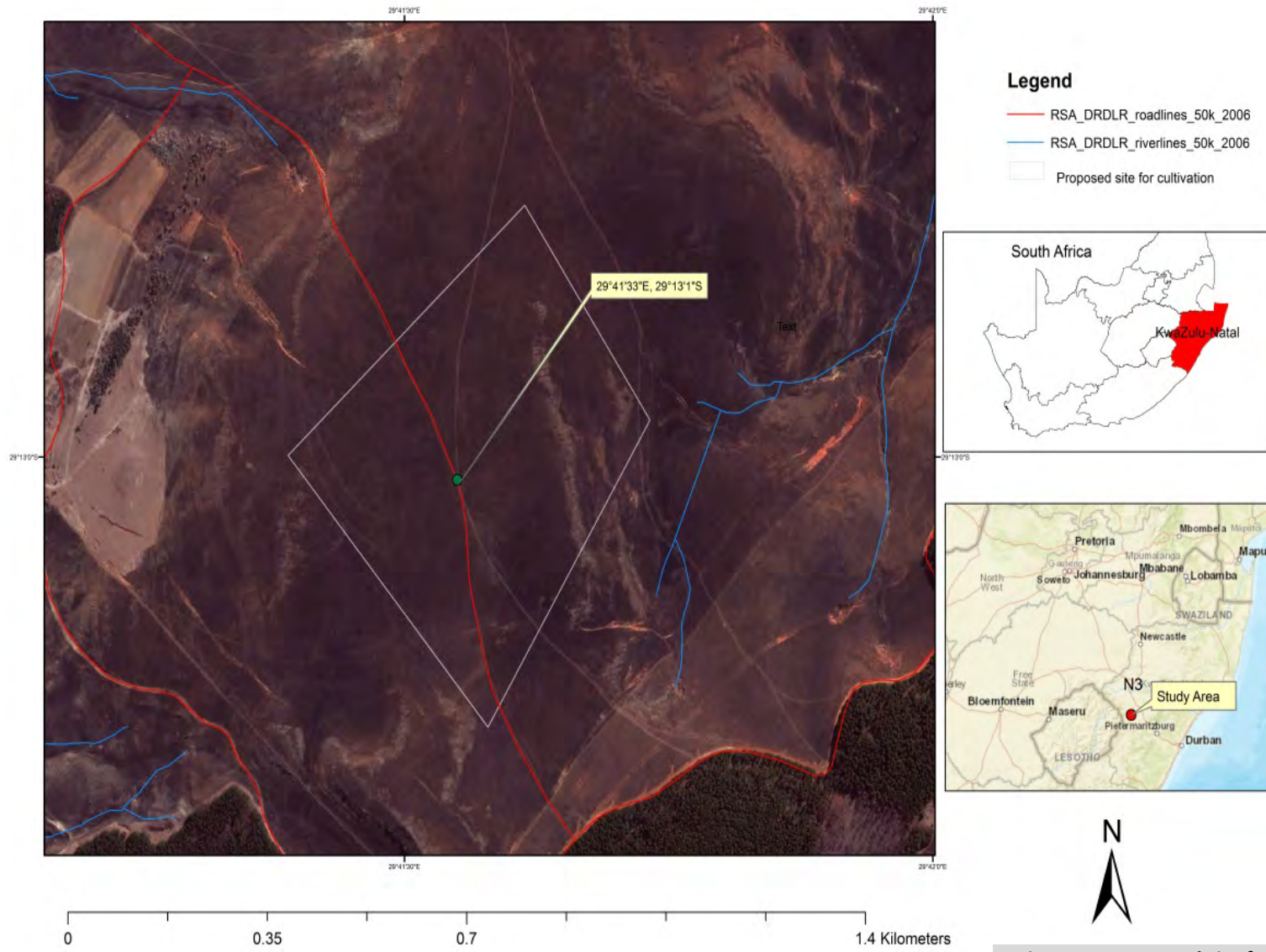
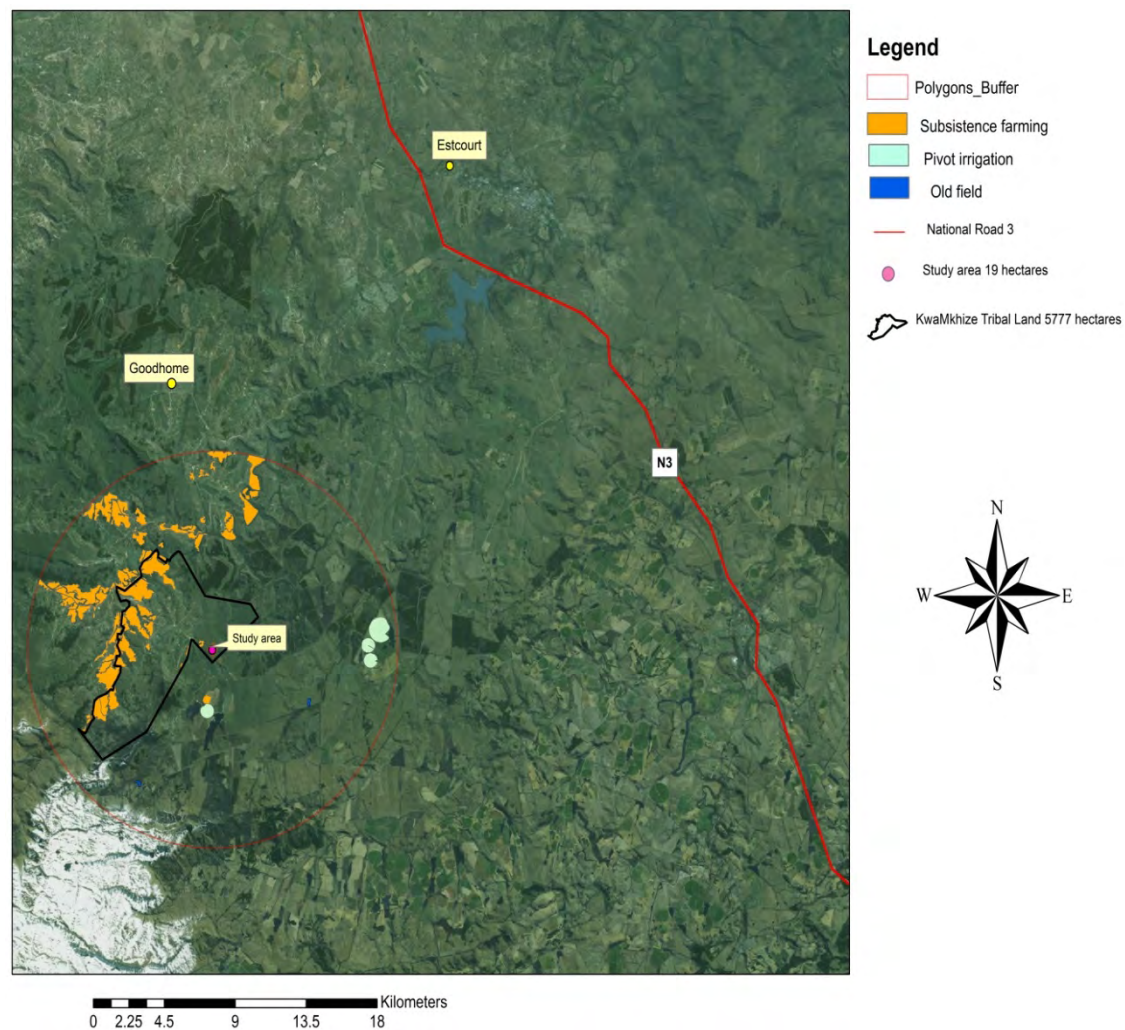


Figure: 1a Proposed site for cultivation



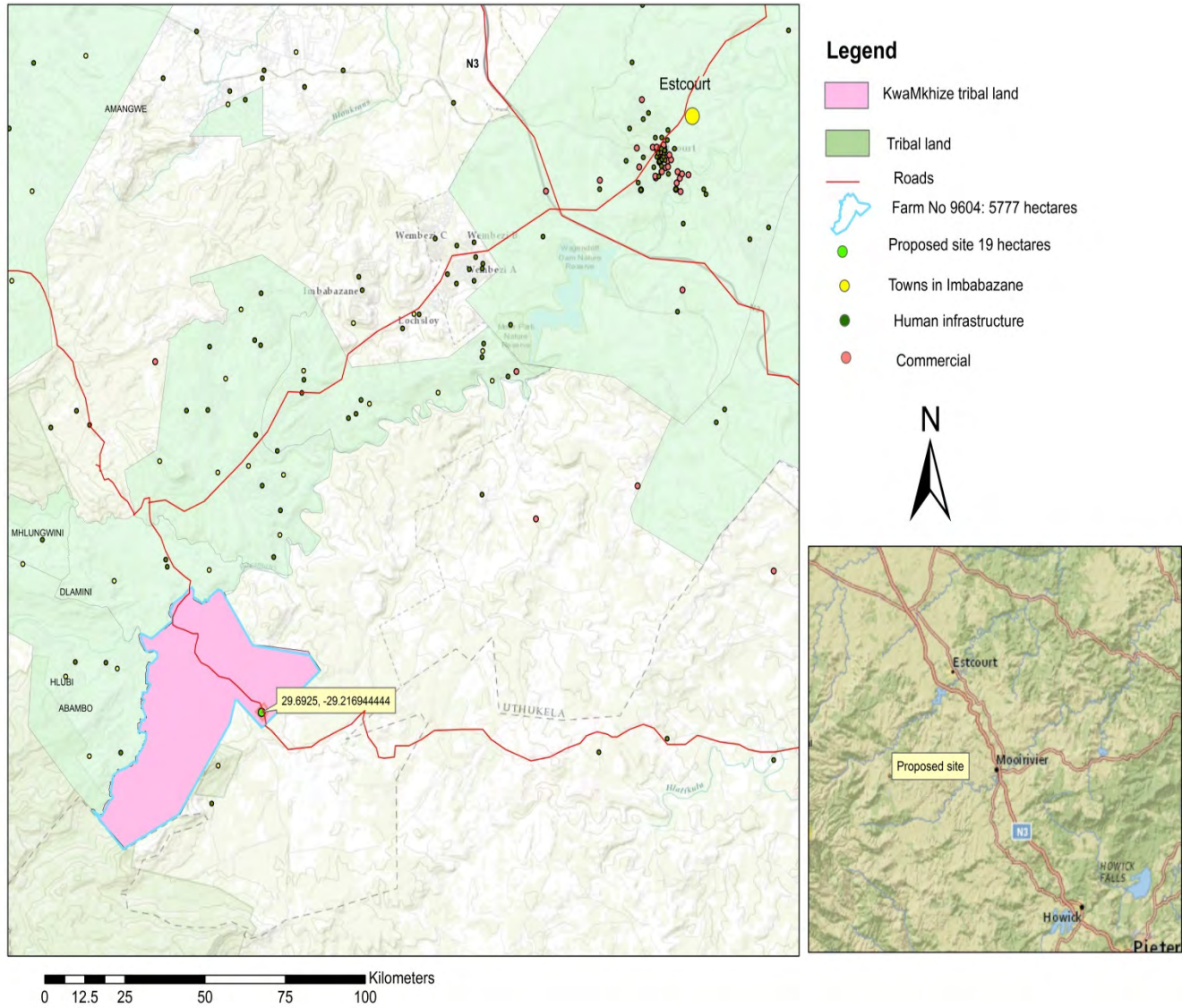


**Figure: 1b 10km buffer for the subsistence farming in the area**

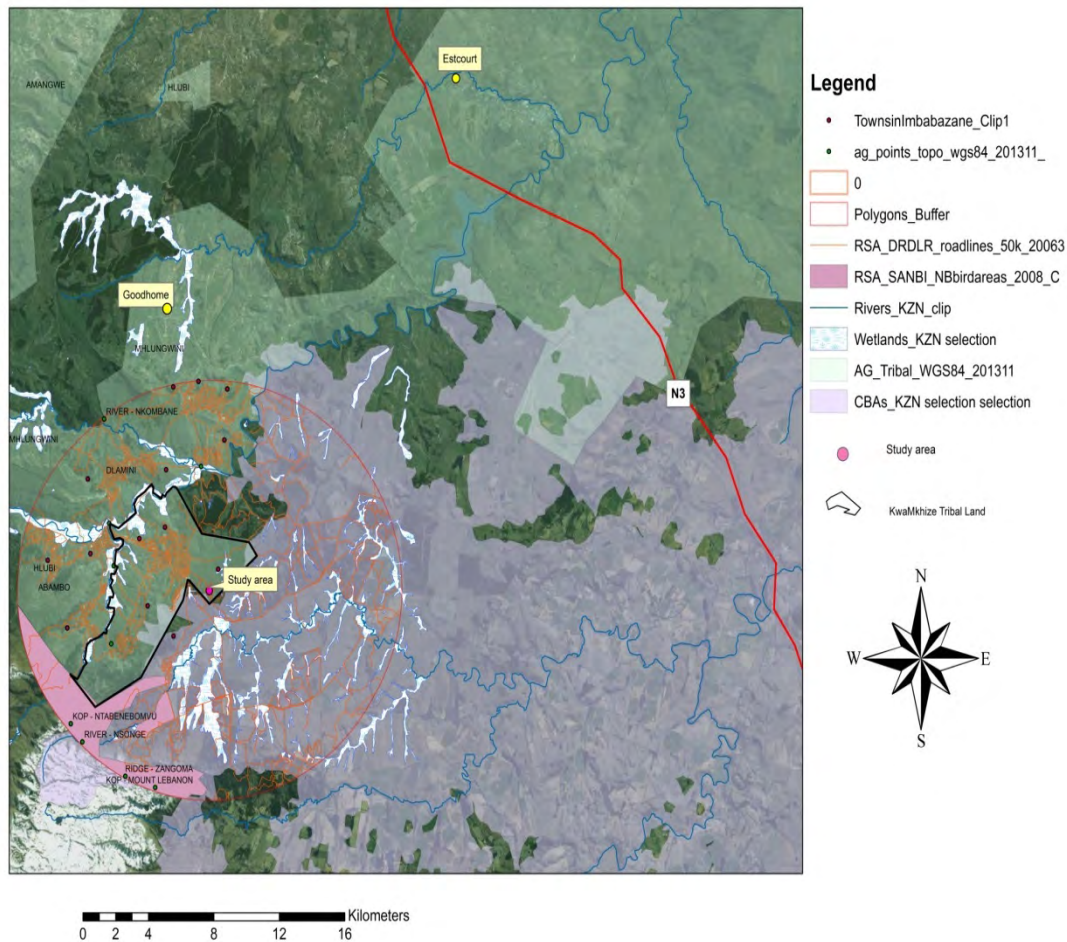
The figure above shows the subsistence farming and pivot irrigation in the area within 10 km buffer zone.



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**Figure: 1d Locality map with 10 km buffer zone**

## 1.6 ACTIVITY DESCRIPTION

Relevant Listing Notice	Activity	Description
GN. R 327 7April 2017 December 2014	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 - i) The undertaking of a linear activity ii) Maintenance purposes undertaken in accordance with a maintenance management plan.

## 1.7 FEASIBLE AND REASONABLE ALTERNATIVES

No feasible or reasonable alternatives have been identified for the proposed development, because the land was acquired through the KwaMkhize Traditional Council. There are therefore no site alternatives proposed for this project.

Cultivation is the most appropriate land use for the site and the land was given to the Khanyani Agricultural Cooperative for the sole purpose of agriculture. Maize and bean crops are the most important food crops in South Africa and are, therefore, very feasible to cultivate. The project will provide economic benefits to the community owned enterprise. No other types of activities were therefore considered to be undertaken on the site.

## 1.8 PROPERTY CO-ORDINATES, GRADIENT OF THE SITE AND LOCATION IN LANDSCAPE

<b>Latitude</b>	<b>Longitude</b>
21 <sup>0</sup> 13' 1"S	29 <sup>0</sup> 41' 33"E
<b>Gradient of the site</b>	
1:15 – 1:10	
<b>Location in landscape</b>	
Undulating plain/low hills	

## 1.9 OBJECTIVES OF STUDY

The BA for the Khanyani Agricultural Cooperative aims to achieve the following:

- Conduct a consultative process.
- Determine the policy and legal context within which the proposed activity is undertaken and how the activity complies with and responds to the policy and legal context.
- Describe the need for and desirability of, the proposed alternatives.
- Undertake an impact and risk assessment process inclusive of cumulative impacts (where applicable).
- Propose mitigation measures and recommendations to avoid or reduce potential negative impacts.

## 1.10 SITE PHOTOGRAPHS

**Site photographs are included as Appendix B of the Report.**

## 1.11 FACILITY ILLUSTRATION

The proposed project does not include any “facility” development and thus there are no facility plans/illustrations associated with this development. The only aspect that needs to be taken into consideration is the cultivation of the land itself which will cover an area of approximately 19 ha as can be seen on the locality map and access road (Appendix A).

# ***SECTION B : DESCRIPTION OF RECEIVING ENVIRONMENT***

## **2. PROJECT MOTIVATION**

### 2.1 SOCIO-ECONOMIC VALUE

What is the expected capital value of the activity on completion?	R388 500
What is the expected yearly income that will be generated by or as a result of the activity?	R498 000
Will the activity contribute to service infrastructure?	No
Is the activity a public amenity?	No
How many new employment opportunities will be created in the development phase of the activity?	12
What is the expected value of the employment opportunities during the development phase?	R7 000
What percentage of this will accrue to previously disadvantaged individuals?	100%
How many permanent new employment opportunities will be created during the operational phase of the activity?	12 Permanent
What is the expected current value of the employment opportunities during the first 10 years?	R 498 000
What percentage of this will accrue to previously disadvantaged individuals?	100%

### 2.2 NEED AND DESIRABILITY

According to the Imbabazane Local Municipality IDP 2016/2017 the Khanyani Agricultural Cooperative falls in the good agricultural land (figure 2). South Africa is a net maize exporting country. In 2014, about 26% of South African maize exports went to Taiwan. The industry makes an important contribution to the national economy, given its agricultural and industrial investments, foreign exchange earnings, linkages with major suppliers, support industries and customers. The South African maize and bean industry generates an annual estimated R12 billion direct income annually.

Maize is the largest locally produced field crop, and the most important source of carbohydrates in the southern African region. South Africa is the main maize producer in the Southern African Development Community (SADC). More than 9 000 commercial maize producers are responsible for the major part of the South African crop, while the rest is produced by thousands of small-scale producers. Maize is produced mainly in the North West province, the Free State, the Mpumalanga Highveld and the KwaZulu-Natal Midlands. Local consumption of maize amounts to about 8 million tonnes, and the surplus is exported whereas bean cultivars are grown in South Africa. The common beans are *Phaseolus vulgaris*, which includes varieties such as small white and red speckled or sugar beans, the tepary bean (*Phaseolus acutifolius*) and the large white kidney bean (*Phaseolus coccineus*).

Beans were once known as 'poor man's meat', because they are cheaper and have more protein than an equal amount of red meat. Soya bean production in South Africa currently ranges from 450 000 to 500 000 tons per annum at an average yield of 2, 5 to 3 t/ha under dry-land conditions. KwaZulu-Natal produces 15% of the national crop in the country. There is a guaranteed market for the maize and beans from the proposed project at the local mill and the price is set by the NAMM (National Association of Maize Millers) and Dry Bean Producers' Organisation (DPO) The final maize and beans product and its bi-products locally and internationally (ARC, 2015).

Agriculture in South Africa contributes approximately 25% of formal employment, as well as providing work for casual labourers and contributing approximately 2.6% of GDP for the nation. Approximately 54% of the KwaZulu-Natal population lives in rural areas, and 70% of the population is below 35 years of age. According to the District Health Barometer the ten most deprived districts in South Africa fell within three provinces namely KwaZulu-Natal, Eastern Cape and Limpopo. Between 63% and 82% of the households are living on less than R800 per month. This project will therefore help alleviate poverty in this area, boosting local economic development, supplying the local market and creating skills.



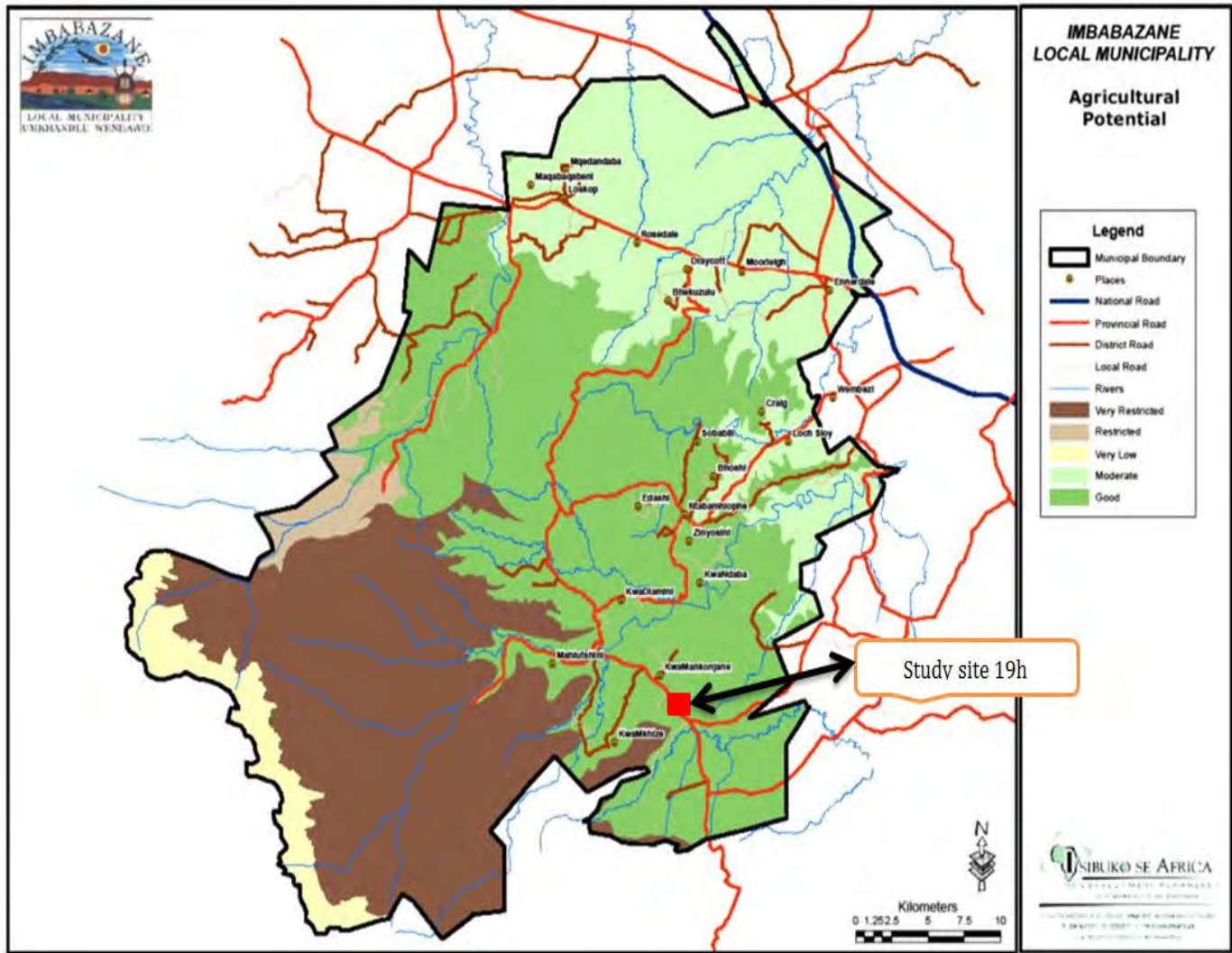


Figure 2: IDP Agricultural potential

### 2.3 BENEFITS FOR THE LOCAL COMMUNITIES

Maize and beans are affordable especially to households with low incomes. Maize is enjoyed by people in various forms, such as whole corn, corn flour, corn starch, corn gluten, corn syrup, cornmeal, corn oil, popcorn, cornflakes, etc. Maize is also a good source of vitamins, minerals and dietary fibre. This farm will allow the community to achieve its primary objectives (poverty alleviation, creating employment, utilising of physical resources for economic gain) and function as a productive economic unit within the agricultural industry by maintaining production yields, infrastructure, equipment and positive net cash flows.

Both maize and beans are an excellent source of numerous vitamins and minerals; they are high in magnesium, iron, and are also very high in folate, phosphorus, and B vitamins in addition to others. Its antioxidants neutralize the effects of harmful free radicals that cause diseases like cancer. The antioxidant, betacarotene, prevents lung cancer, while lutein prevents age related vision loss. Thiamine is required for boosting memory, cognitive functions and nerve health, and pantothenic acid is essential for energy, as it is linked to carbohydrate, protein and lipid metabolism. Folate is an essential requirement, especially during pregnancy. The phosphorus helps to maintain normal growth, kidney function and bone health. Magnesium boosts the latter, as well as regulates the heart rate. Finally, maize lowers LDL cholesterol and guards against cardiac diseases, diabetes and hypertension.

Beans on the other hand protect heart health in numerous ways, one of the most important being that they reduce inflammation. Beans are also exceptionally high in soluble fibre, which is the type of dietary fibre that is associated with fighting heart disease by helping to balance unhealthy cholesterol levels. Studies have found that a diet high in dietary fibre, especially from bean and legume sources, is protective against heart disease, cardiac arrest, and stroke.

Project Need			
		YES	NO
1	Was the relevant provincial planning department involved in the application?	YES	
2	Does the proposed land use fall within the relevant provincial planning framework?	YES	
3	If the answer to question 1 and /or 2 was NO, please provide further motivation/ explanation. - N/A		
Desirability			
1	Does the proposed land use/ development fit the surrounding area? The development cultivation farm agricultural activity, within a predominantly agricultural area.	YES	
2	Does the proposed land use/ development conform to the relevant structure plans, SDF and planning visions of the area?	YES	
3	Will the benefits of the proposed land use/ development outweigh the negative impacts of it? All impact will be fairly mitigated so as not to cause undue burden or inconvenience during the full project implementation.	YES	
4	If the answer to any of the questions 1-3 was NO, please provide further motivation/Explanation - N/A		

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5	Will the proposed land use/development impact on the sense of place? The development falls within an agricultural land use, which is the predominant land use of the area. In addition the current use of the property is for agriculture.	YES	
6	Will the proposed land use/ development set a precedent?		NO
7	Will any person's rights be affected by the proposed land use/ development? The property is a tribal land owned by the KwaMkhize tribal authority.		NO
8	Will the proposed land use/ development comprise the "urban edge" the area falls within an agricultural/ rural area		NO
9	If the answer to any of the questions 5-8 was YES, please provide further motivation/ explanation- N/A		
<b>Benefits</b>			
1	Will the land use/ development have any benefit for society in general?	YES	
2	Will the land use/ development have any benefit for the local communities where it will be located?	YES	

## 2.4 APPLICABLE LEGALISATION, POLICIES AND/OR GUIDELINES

Title of legislation, policy or guideline:	Administering authority:	Date
The Constitution of the Republic of South Africa, Section 24 (Environmental Right)	The constitution of South Africa	18 December 1996
National Environmental Management Act (Act 107 of 1998), as amended (NEMA), and the EIA regulations as amended	National Department of Environmental Affairs	4 December 2014
Occupational Health and Safety Act (Act 85 of 1993)	Department of Labour	23 June 1993
Conservation of Agricultural Resources Act (Act no. 43 of 1983)	Department of Agriculture, Forestry and Fisheries	1 June 1984
National Forest Act(Act No. 122 of 1998),	Department of Agriculture, Forestry and Fisheries	30 October 1998
National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)	National & Provincial	2004
National Heritage Resources Act (Act No. 25 of 1999)	South Africa Heritage Resource Agency (SAHRA) and provincial Heritage Authorities	28 April 1999
Imbabazane Integrated Development Plan (IDP)	Provincial	2015/2016

## 2.5 ENVIRONMENTAL LEGISLATIVE CONTEXT

Description of compliance with the relevant legislation, policy or guideline:	
Legislation, policy of guideline	Description of compliance
The Constitution of the Republic of South Africa, Section 24 (Environmental Right)	The Constitution stipulates that everyone has the right to an environment that is not harmful to their health or well-being; and the right to have the environment protected, for the benefit of the present and future generations, through reasonable legislative and other measures. The Constitution has thus paved the way for environmental legislation in South Africa post 1994.
National Environmental Management Act, 1998 (Act No. 107 of 1998 as amended)	The National Environmental Management Act, 1998 (Act No. 107 of 1998) [NEMA] was enacted in November 1998. It prescribes principles and guidelines that allow for sustainable development. Ensuring that these principles are adhered to is important for sound environmental practice. Activities will not commence until the Environmental Authorisation (EA) is granted and conditions of EA shall be adhered to should approval be granted.
National Environmental Management Act EIA Regulations (8 December 2014)	A number of listed activities have been identified that have triggered the BA to be consulted as per Appendix 1 of the 2014 Regulations (Gazette No 38282). As part of the BA process, the public participation process stipulated in Chapter 6, sub-regulation 41 of the 2014 Regulations (Gazette No 38282) was conducted. Activities will not commence until the EA is granted and conditions of EA shall be adhered to should approval be granted.
National Heritage Resources (Act No. 25 of 1999)	The SAHRA is the relevant competent authority for protection of archaeological and paleontological resources. An application for Heritage Resources review was submitted to SAHRA (Ref No. 9782) in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) as amended (NHRA). A copy of the Draft BAR will be submitted to SAHRA for comment via SAHRIS.
National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004)	The NEMBA aims to conserve and provide management of biodiversity in the country. The client has the responsibility to conserve endangered ecosystems in the area and apply any appropriate management tools. The client will aim to limit any further loss of biodiversity. An Ecological specialist study was undertaken (Appendix G).
National Development Plan	<p>The National Development Plan (NDP) aims to <i>inter alia</i>, eliminate poverty and reduce inequality by 2030. Additionally it aims to improve the lives of South Africans through better service delivery. It has the following strategies to achieve the above-mentioned goals:</p> <ol style="list-style-type: none"> <li>1. Creating jobs and improving livelihoods;</li> <li>2. Expanding infrastructure;</li> <li>3. Transition to a low-carbon economy;</li> <li>4. Transforming urban and rural spaces;</li> <li>5. Improving education and training;</li> <li>6. Providing quality health care;</li> <li>7. Fighting corruption and enhancing accountability;</li> <li>8. Transforming society and uniting the nation.</li> </ol> <p>This proposed development contributes to the NDP by creating jobs and livelihoods as well as transforming urban and rural areas.</p>
Imbabazane Municipality IDP	The IDP of the Imbabazane outlines the need to establish service delivery regions. Following this, the City developed Regional Integrated Plans which feed into the overall region development plans. These were considered in the study.

### 3. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

The proposed site activity will not produce solid waste and liquid effluent during the design, operational and restoration phase. Furthermore the activity will not release emissions into the atmosphere and the noise will be minimal during the day only.

### 4. WATER USE

The crop plants will be rain fed as such co-op will not require a Water Use Licence.

### 5. ENERGY EFFICIENCY

The proposed project does not require development of any facilities or supporting infrastructure on site. Therefore there will be no electricity usage on site and thus energy efficiency is not applicable.

### 6. DESCRIPTION OF BASELINE ENVIRONMENT

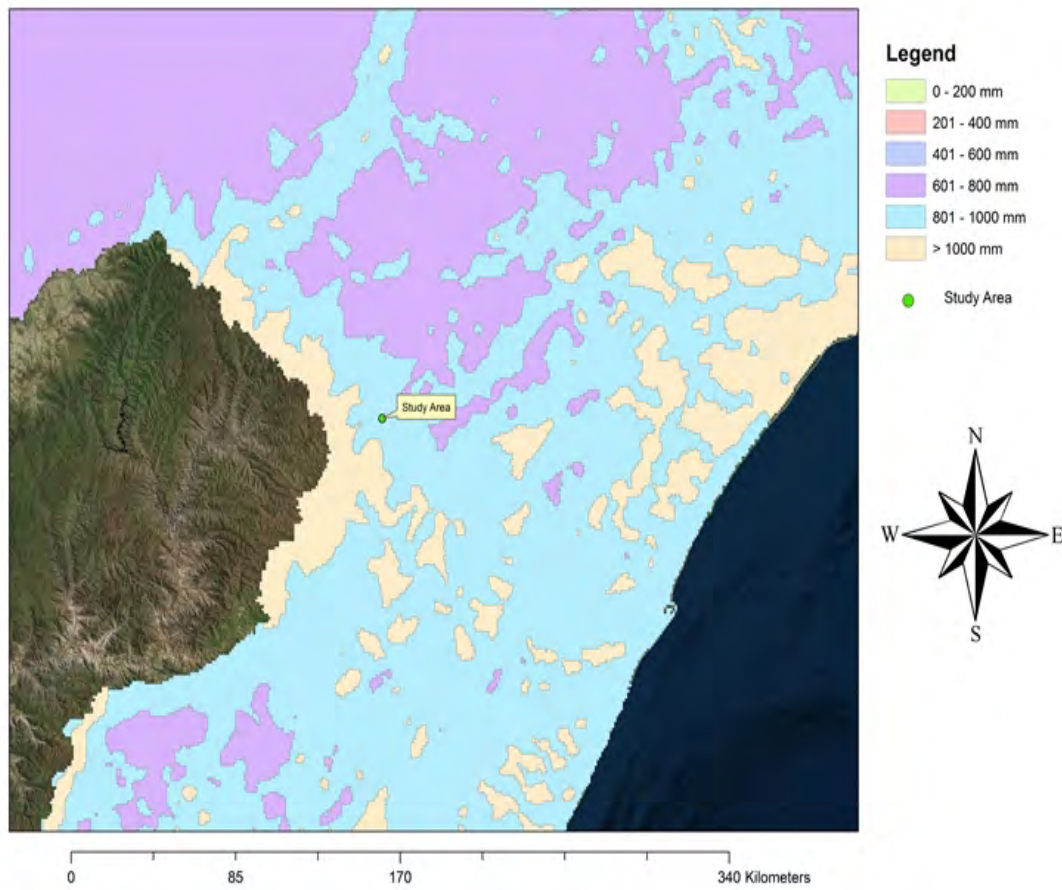
#### 6.1 CLIMATE

##### 6.1.1 Rainfall

The region has a mild climate with relatively high summer rainfall (801-1000 mm) and dry winters and the weather is generally predictable which favours the cultivation of maize and beans. Rainfall distribution in KwaZulu-Natal is shown in Figure 3.







**Figure 3: Rainfall in Kwazulu-Natal**

### 6.1.2 Rainfall erodibility

Rainfall erosion is a major driving force of many hydrological and erosional processes and the amount of soil that is detached, as well as other key processes the degree of erosion is related to rainfall intensity. The Khanyani Agricultural Cooperative falls between an area of 301- 400 mm of rainfall erodibility (Figure 4).

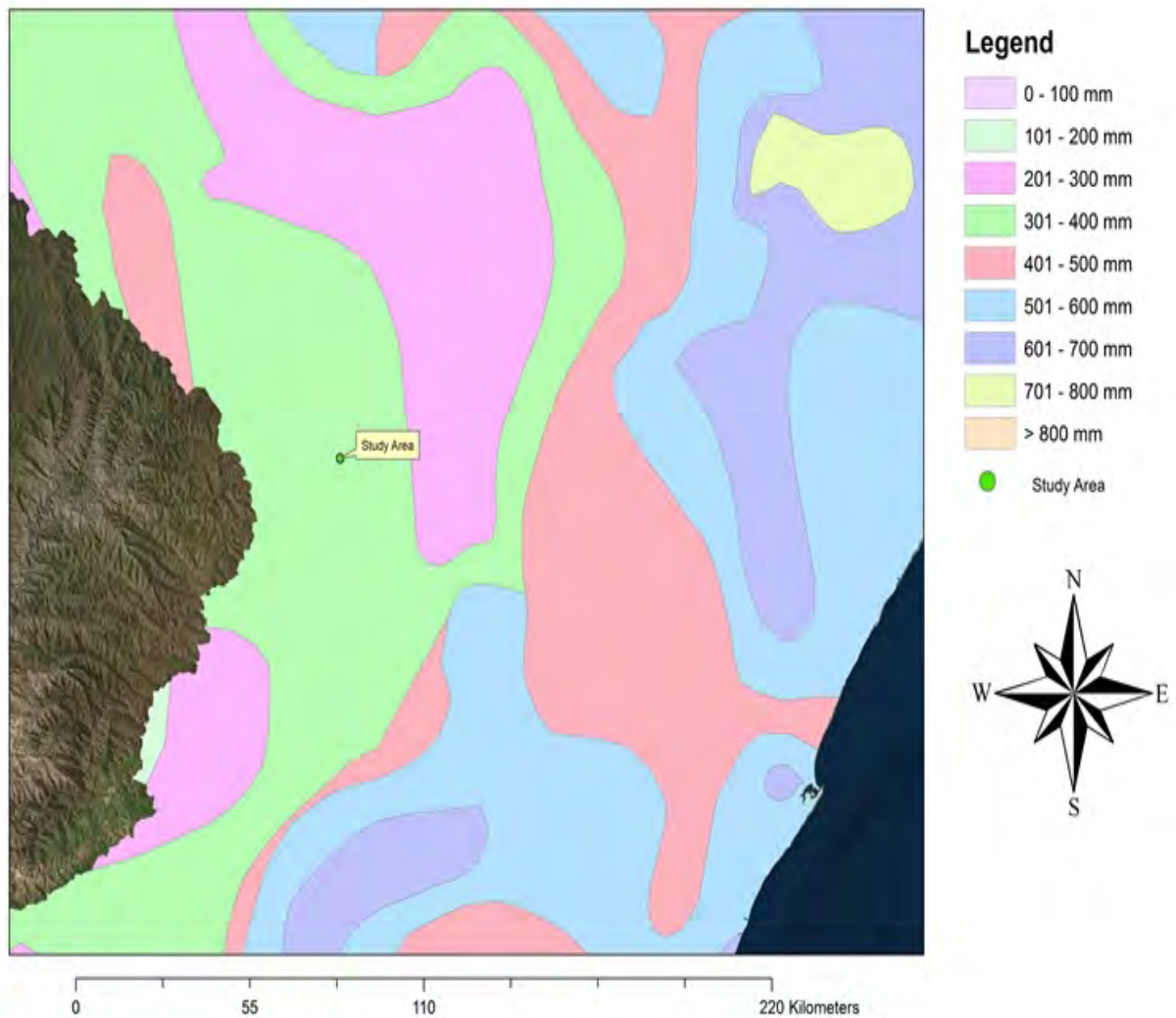
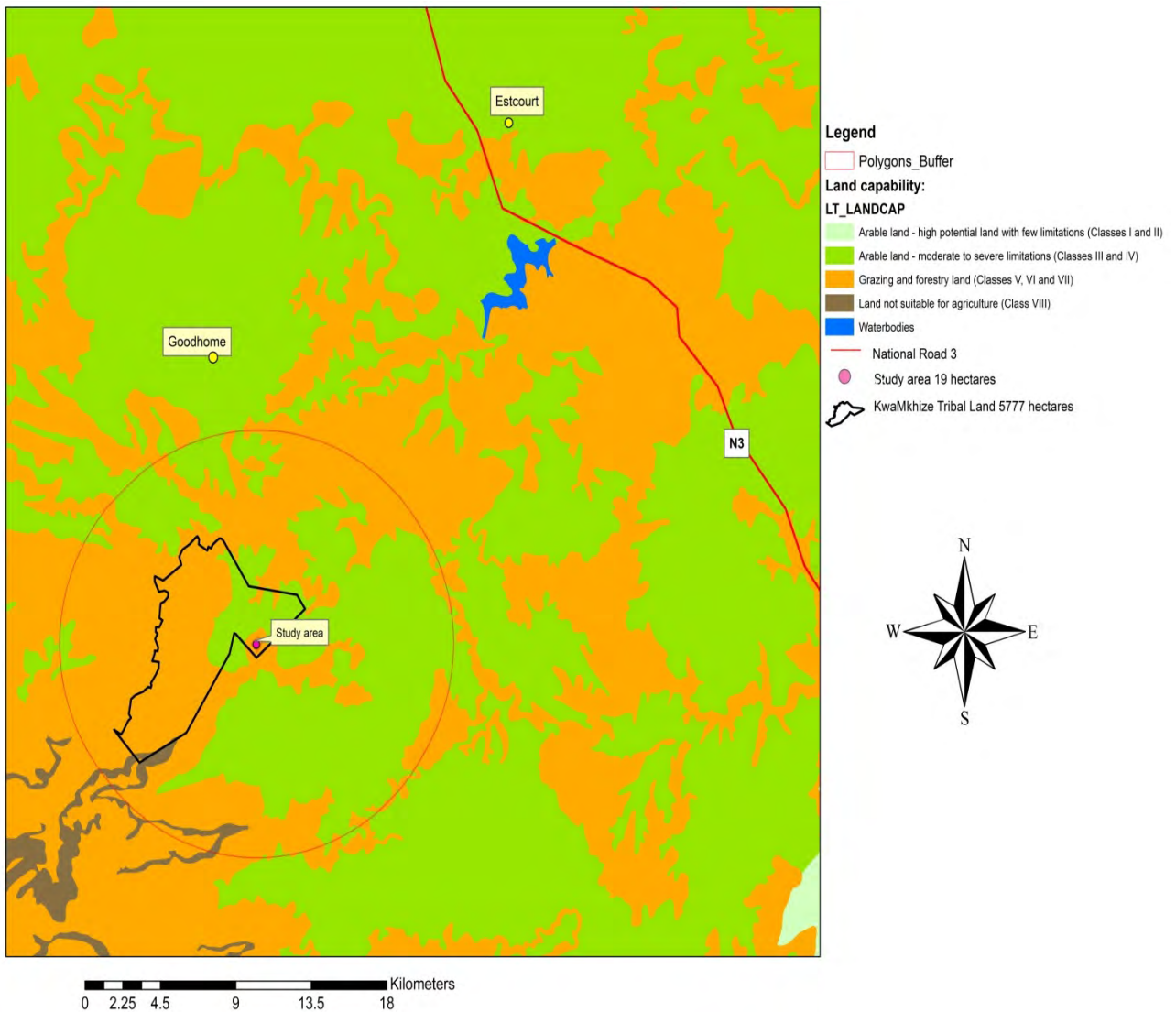


Figure 4: Rainfall erodibility

## 6.2 LAND TYPES

According to the Agricultural Research Council Institute for Soil, Climate and Water, land types represent areas that are uniform with respect to climate, terrain form, geology and soil. The data, obtained through the Agricultural Geo-referenced Information System (AGIS 2010), indicates that the land type is undulating plains and has a high potential for agriculture.

Shallow water table (less than 1.5m deep)	YES
Dolomite, sinkhole or doline areas	NO
Seasonally wet soils (often close to water bodies)	YES
Unstable rocky slopes or steep slopes with loose soil	YES
Dispersive soils (soils that dissolve in water)	YES
Soils with high clay content (clay fraction more than 40%)	NO
Any other unstable soil or geological feature	NO
An area sensitive to erosion	YES



**Figure 5: Grazing and Forestry**

According to the SANBI data the proposed site falls within the grazing and forestry land class V, as such this may be favourable to maize and bean cultivation in the area.

### 6.3 FLORA AND FAUNA

According to SANBI data the selected site comprises primarily of a grassland veld form, which is representative of the Drakensberg foothill moist grassland veld type. The site shows high botanical diversity with limited disturbance from other land uses, as well as little invasion by exotic vegetation. Based on the study done by the specialist further consideration of the site indicated that the area was of significance in terms of forage for a number of grassland associated birds and on the site *Sagittarius serpentarius* (Secretary Bird) were noted. These birds are endemic to Africa, found in over 30 sub-Saharan countries from as far North as Mali to South Africa and they are listed as Vulnerable (Red data book). The Vulnerable rough-haired golden mole, *Chrysospalax villosus*, was identified on site which, otherwise, is limited in terms of larger vertebrates. According to Figure 5 (below) the important fully protected area lies more than 7 km away from the study site.

According to the ecological specialist (Bundy, 2016) the site is dominated by a graminoid primarily *Aristida junciformis* and *Tristachya leucothrix*, with *Themeda triandra* and *eragrostis* spp. No woody species invasion and exotic species were evident during the site reconnaissance. The dominance of *Aristida junciformis* is an indication that the site has been overgrazed and the sweet grasses e.g *Themeda triandra* have been eliminated or severely reduced.





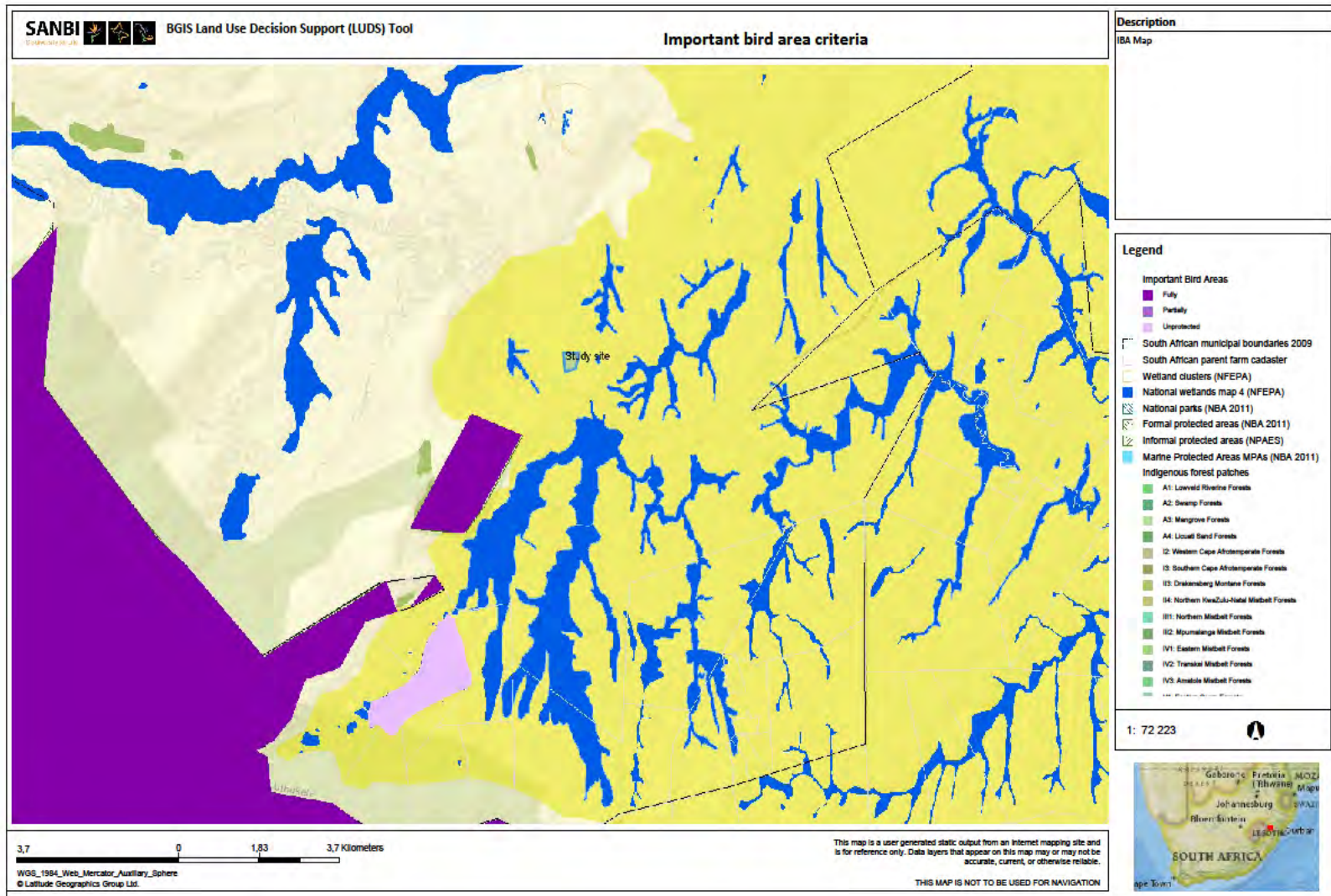
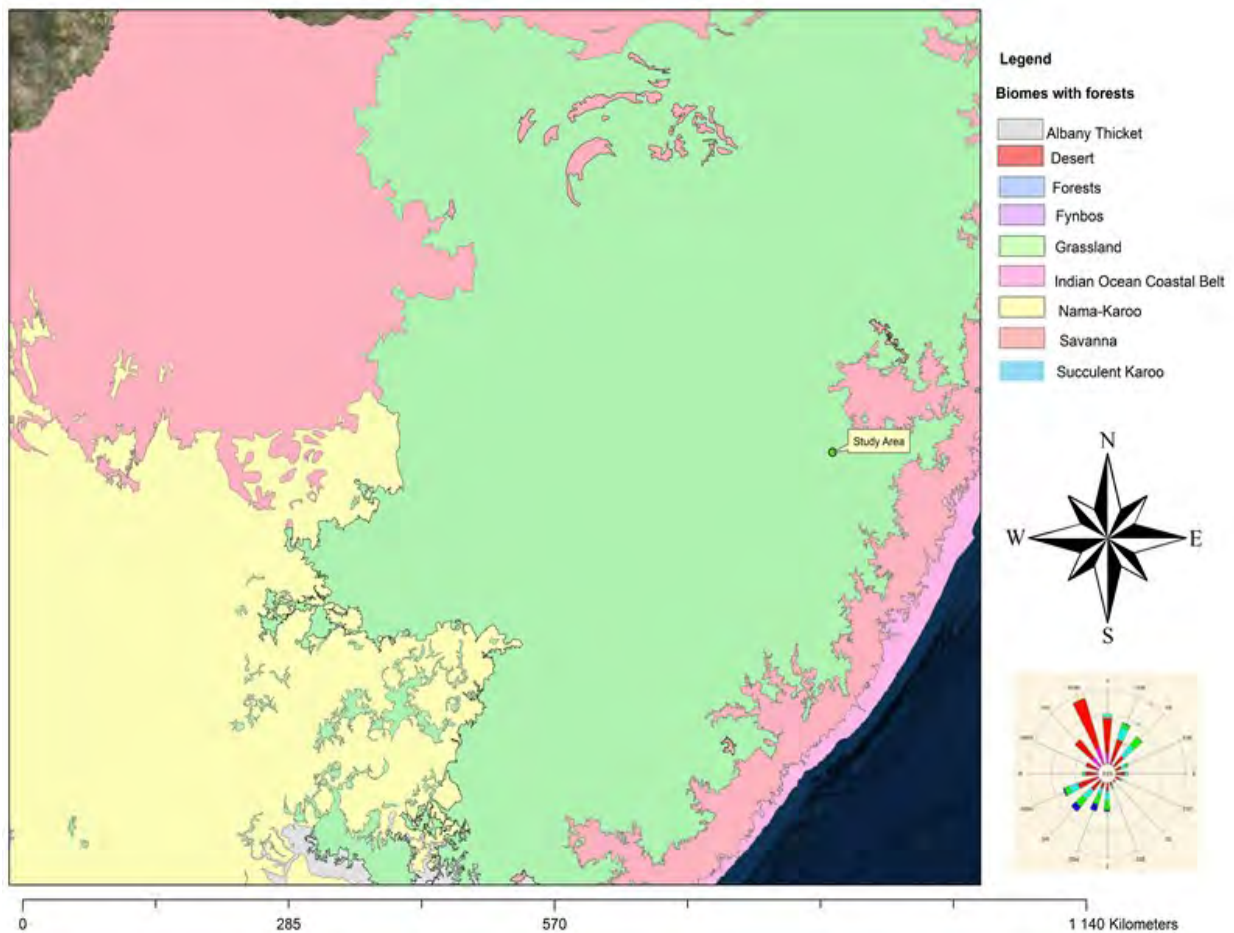


Figure 6: Important Bird Area





The site is dominated by a graminoid – forb associations comprising a number of grasses, primarily *Aristida junciformis* and *Tristachya leucothrix*, with *Themeda triandra* and *Eragrostis* spp also being common across the site (Bundy, 2016). Other common species identified across the subject site included, *Oxalis smithiana* and *A. junciformis*, while species including *Hieracium cymosum*, and graminoids (*Eragrostis* spp) also were noted as being dominant. No forest, woody and exotic species invasion were noted on site during the ecological evaluation.



**Figure 7: Biomes with Forest**

Maize and beans are the second most important crops in Kwazulu-Natal besides sugarcane. They are mostly cultivated in the tribal lands. Soils vary from grey and red sand on the coastal dunes, to weakly weathered soils in the coastal hinterland; the ground cover is in good condition (South African Sugar Experiment Station, 1999).

#### 6.4 LAND USE CHARACTER OF SURROUNDING AREA

Land use character			Description
Natural area	YES		The site predominantly consists of fallow indigenous grassland that has not been developed previously. The dominant vegetation form within the region is grassland biome.
Low density residential		NO	
Medium density residential		NO	
High density residential		NO	
Informal residential	YES		There are scatterings of informal housing located within 500 m of the site.
Retail commercial & warehousing		NO	
Light industrial		NO	
Medium industrial		NO	
Heavy industrial		NO	
Power station		NO	
Office/consulting room		NO	
Military or police base/station/compound		NO	
Spoil heap or slimes dam		NO	
Quarry, sand or borrow pit		NO	
Dam or reservoir		NO	
Hospital/medical centre		NO	
School/ creche		NO	
Tertiary education facility		NO	
Church		NO	
Old age home		NO	
Sewage treatment plant		NO	
Train station or shunting yard		NO	
Railway line		NO	
Major road (4 lanes or more)		NO	
Airport		NO	
Harbour		NO	
Sport facilities		NO	
Golf course		NO	
Polo fields		NO	
Filling station		NO	
Landfill or waste treatment site		NO	
Plantation		NO	
Agriculture	YES		The site is surrounded by agricultural operations, mainly maize and bean production
River, stream or wetland		NO	
Nature conservation area		NO	
Mountain, hill or ridge	YES		The site does have a slight slope.
Museum		NO	
Historical building		NO	
Protected Area		NO	

Land use character			Description
Graveyard		NO	
Archaeological site		NO	
Other land uses (describe)		NO	

## 7. CULTURAL/ HISTORICAL FEATURES

There are no signs of culturally or historically significant elements I defined in Section 2 of the National Heritage Resources Act, 1999 (Act no. 25 of 1999).

# SECTION C : PUBLIC PARTICIPATION

## 8. PUBLIC PARTICIPATION

A Basic Assessment is required to obtain Environmental Authorisation for Khanyani agricultural cooperative. A public participation process was undertaken as part of the Basic Assessment process and was done in the following manner:

Notice of the Basic Assessment process has been given by:

1. placing a Site Notice on the Farm fence;
2. posting and emailing written notice regarding the proposed development to Interested and Affected Parties, including neighbours, competent authority and other relevant Government departments, the Imbabazane municipality and Ward Councillor;
3. placing an advertisement in The Estcourt and Midlands News’ (English) which allowed potential Interested and Affected Parties to register and to submit comments within a 30-day period regarding the Basic Assessment of the proposed project;
4. a copy of the Draft Basic Assessment Report was placed at the Imbabazane Public Library;
5. letters notifying I&AP’s of the release of the Draft Basic Assessment Report for 30-day review period were sent out;
6. the Draft Basic Assessment Report is available on the project website:  
<https://www.csir.co.za/environmental-impact-assessment>
7. all comments raised by I&APs during the review of the BID have been captured and addressed within the Draft BA Report;
8. the Draft BAR was distributed for 30-days to registered I&APs and organs of state.

An advertisement notifying potential I&APs of the proposed project was placed in the ‘Estcourt and Midlands News’, a newspaper, on 13 November 2015 and 26 April 2017. This can be seen as Appendix E.2. Furthermore Site Notices Boards (English and Zulu) were placed-which can be seen as Appendix E.

The Comments and Responses report has been compiled and it is included in Appendix E.8.

### COMMENTS AND RESPONSE REPORT

The table below lists all the comments received from Interested and Affected Parties (I&APs) following the release of the Background Information Document for comment regarding the proposed cultivation of 19 ha of fallow grassland to maize and beans on land on the KwaMkhize Traditional Council, KwaZulu-Natal. Copies of the correspondence are included in Appendix E7 of the Basic Assessment Report.

ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
<p>Department of Agriculture Forestry and Fisheries (DAFF) through the sub-directorate Forestry Regulation and support is the authority mandated to implement the National Forests Act, (Act No, 84 of 1998) by regulating the use of natural forest and protected trees species in terms of the said Act.</p> <p>With regard to the BID received on the 09<sup>th</sup> of November 2015 and the desktop analysis majority of the proposed site has no present trees. However, there is woody vegetation noted adjacent to the site even though it is not clear as to what type of species occur or whether they will be impacted on. The specialist scope of work included in the BID indicated that a terrestrial ecological study will be undertaken. This study will assist in determining the impact that the development and supporting infrastructure such as roads may have on the indigenous tree and/or protected trees in terms of the NFA.</p>	<p>N.Sontangane</p> <p>Forestry Regulation &amp; Support KZN</p>	<p>19 November 2015</p>	<p>Thank you for your comment</p> <p>The vegetation including forest will be mapped. Please see figure 7 for the forest and vegetation type in the area. Please see page 13 on the specialist report on the type of species which occur and that no woody species invasion was noted on site and no exotic species were recognized.</p>
<p>With reference to your letter dated 9 November 2015, I have to inform you that the Minister as the Controlling Authority as defined in the Kwazulu-Natal Roads Act No. 4 of 2001, has in terms of section 21 of the said Act, no objections to the proposed application as represented in the Background Information Document CSIR/CAS/EMS/IR/2015/00011/A.</p>	<p>Michéle Schmid</p> <p>KwaZuluNatal Department of Transport</p>	<p>23 November 2015</p>	<p>Thank you for your comment.</p> <p>The position of the proposed access point is shown in the map in Appendix A.</p>



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ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
<p>However, please advise us on the position of the proposed access point and the number of vehicles that are envisaged to be utilised.</p>			<p>One tractor will be used on site during cultivation and one truck will be used to transport the crops to the market. The harvested maize and beans will be transported four times to the market but this may change due to the yield of the crops per harvesting.</p>
<p>The proposal seems to be for the cultivation of maize and beans and the harvesting thereof without the development of structures.</p> <p>Food security endeavors would be encouraged and supported by the Department.</p> <p>Interested and Affected parties to consult would include:</p> <ol style="list-style-type: none"> <li>1. Ezemvelo KZN Wildlife: Mrs Longmore: 033 845 1349</li> <li>2. Department of Agriculture: Natural Resources and Macro Planning: Mrs B Wiseman: 071 600 9805</li> <li>3. Imbabazane Municipal Planner: Mr B Msimango: 036 3530691</li> </ol> <p>This Department and Directorate: Spatial Planning would have no objection to the proposed initiative as described in the Basic Assessment Report dated 9 November 2015</p>	<p>C. Rushton Spatial planning</p>	<p>14 December 2015</p>	<p>Thank you for your comment.</p> <p>The Interested and Affected Parties you listed were added to the project database. The Draft BAR will be send to them for comment as requested.</p>
<p>The proposed development which involves clearance of more than 300 square metres of vegetation is likely to impact on sites of heritage significance of an archaeological and historical nature.</p>	<p>Bernadet Pawandiwa,  Amafa/Heritage KwaZulu Natal.</p>	<p>29 November 2016</p>	<p>eThembeni Cultural Heritage was appointed to address the Heritage Impact Assessment requirements from AMAFA. According to eThembeni the SAHRIS palaeo-sensitivity mapping indicates that the proposed</p>

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ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
<p>Amafa Heritage KZN would like the following to be addressed in the BAR:</p> <p>1) Identification of any culturally sensitive areas and water resources such as wetlands, streams, rock shelters, open shelters rivers associated with historical activities and beliefs, etc. as well as possible impacts and proposed mitigation measures to protect such resources.</p> <p>Considering the heritage value of the area of proposed development, a Heritage Impact Assessment is required to fulfill the requirements of Section 38 the National Heritage Resources Act No.25 of 1999 (Section 38 ). This must include the archaeological component (Phase 1) and any other applicable heritage components. Amafa KZN Heritage therefore requires the appointment of an Amafa accredited Heritage Practitioner to assist in the provision of recommendations and mitigation procedures.</p> <p>The Study should cover:</p> <p>Identification of all heritage resources in the development area and its surroundings -50m</p> <p>Assessment of the impact of the development on such heritage</p> <p>Evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development</p>			<p>agriculture project falls within a general area of an underlying Beaufort Group lithology of extremely high sensitivity. However, the presence of intrusive dolerite sills and dykes within and surrounding the project area precludes the presence of any fossil material, thus requiring a protocol for finds, only. The project area has probably been eschewed for settlement primarily because of the high risk of lightening-strikes on the dolerite exposures.</p>

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ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
<p>Results of consultation with communities affected by the proposed development and other interested and affected parties regarding the impact of the development on heritage resources.</p> <p>Consideration of alternatives if heritage resources are affected by the development</p> <p>Mitigation plans for any adverse effects during and after completion of the project</p> <p>Table of all heritage resources identified .This should show Heritage resource type, description, location, significance and reasons for this rating.</p>			
<p>Khanyani Coop is situated at KwaMkhize area under Inkosi Langalibalele municipality ward 11 now in Estcourt. The area has potential soils like Hutton and Clovelly these are good soils in terms of rooting depth and drainage The crops that were recommended maize and dry beans are suitable for the area and potatoes too are suitable. Maize with expected minimum yield of 4 t/ha, dry beans 1.5 t/ha and potatoes 20t/ha, but as long the soil nutrient and lime recommendations will be followed.</p>	<p>Hadebe JB</p> <p>KZN Department of Agriculture and Environmental Affairs; Soil Fertility and Analytical Services</p>	<p>19 March 2017</p>	<p>Thank you for the response</p> <p>The management plan will be in cooperated in the EMPr.</p>

## ***SECTION D: RESOURCE USE AND PROCESS DETAILS***

### **9. SOCIO-ECONOMIC CONTEXT**

#### **BASELINE DEMOGRAPHIC INFORMATION**

KwaMkhize is a rural area in Imbabazane Local Municipality Ward 11 previously Ward 1, KwaZulu-Natal Province. The majority of the population of Imbabazane Municipality resides in rural villages scattered throughout the municipal area, particularly in traditional authority areas. Estcourt is the closest urban centre to Imbabazane, and serves as a locally important and shopping and service centre offering specialist services including medical, education and manufacturing. Many of the government departments serving Imbabazane have regional offices located in Estcourt. Ladysmith is the main regional shopping and services centre and boasts a healthy industrial centre that continues to expand. Estcourt and Ladysmith are the main employment centres for Imbabazane. Imbabazane does not have a well-defined settlement pattern, which along with poor municipal capacity, has inhibited service delivery. According to the 2011 Census, there is a clear indication of 11 332 (65%) households who are still relying on the public phones. The poor access to communication has negative impacts in terms of accessing emergency services and, access to Information Technology.

Based on a scan of the current information available from the KZN Wildlife Services and the KZN Tourism Authority, Imbabazane has no major tourism facilities at present apart from the hotel and conference centre at the White Mountain Resort. However, the area provides a gateway to two Drakensberg resorts.

According to Census 2011, the KwaMkhize area has a total population of 2 670 and 562 households. Black Africans are in the majority making up 99.5% of the total population followed by the Indian/Asian population making up 0.3%, while the whites are 0.1% refer to Table 1.1 below. The gender population of the area is dominated by females with 53.9% and males with 46.1%.

**Table 1.1: Population group of KwaMkhize area**

Group	Percentage
Black African	99,5%
Coloured	0,0%
Indian/Asian	0,3%
White	0,1%
Other	0,1 %

The language most spoken at KwaMkhize is IsiZulu comprising 98.1%. The population density of the area is 626 persons/km<sup>2</sup>. Table 1.2 below shows the marital status of the KwaMkhize area. The majority of 75.7% were never married, 15.5% are married, 4.7% are living together. Four percent of the KwaMkhize area are widowed and lastly 0, 1% are divorced.

**Table 1.2: Marital status of KwaMkhize area**

Group	Percentage
Married	15,5%
Living together	4,7%
Never married	75,7%
Widower/Widow	4,0%
Separated	0,0%
Divorced	0,1 %

According to Table 1.3 35% of the population in KwaMkhize attended secondary school while 18.8% attended primary school 10.9% never attended school. 18, 5% obtained matric and 9, 8% obtained tertiary education. Education plays a pivotal role on community development. The Imbabazane Municipality IDP states that access to education facilities within Imbabazane is very poor reflecting the lack of development in the area.

**Table 1.3: Educational status of KwaMkhize area**

Group	Percentage
No Schooling	10,9%
Some Primary	18,8%
Completed Primary	6,9%
Some Secondary	35%
Matric	18,5%
Higher Education	9,8%

According to Statistics South Africa (2011), 48.8% of the house-holds in the area are female headed. Thirty five percent of (35%) of the KwaMkhize have access to electricity for cooking, heating and lighting but the majority of 49% uses wood for cooking and heating which is similar to the Imbabazane Local Municipality where the majority of households use wood for heating (54%), electricity for lighting (69%) and wood for cooking (49%). According to Stats SA, (2011) Ward 11 is the most disadvantaged ward as it has the least number of households with access to electricity for cooking and heating. It cannot entirely be assumed that the use of wood as an alternative source of energy is due to the lack or limited access to electricity. It should be considered that this may be an energy saving mechanism or a matter of affordability.

Eighty five percent of the areas settlement is traditional - the remaining 15% comprises farming. In terms of tenure status, 56.6% owned and fully paid off, 29.9% occupied rent free, owned but not yet paid off 7.7% rented dwellings account for 1. 7%. The main formal sources of water for households in the area are boreholes comprising 33.3% of the supply.

According to the Table 1.4 below 16.9% of the area's residents have no income, 23.5% earn between R9,601 - R19,600 while 22,3% earn between R19,601 - R38,200. According to Imbabazane Municipality IDP majority of the population in Imbabazane does not earn an income. The majority of the population are not economical active and have not been since 2001. In fact, there has been an increase in the number of people who are not economically active. The overall income status of the municipality is low and illustrates that the majority of the population is indigent and poverty is prevalent. This presents a very challenging picture of the unemployment rate which is nearly double the national average rate. This high unemployment rate is correlated with poverty and lack of established economic development activities such as manufacturing and farming.



**Table 1.4: Economic status of KwaMkhize households**

Income	Percentage
No income	16,9%
R1 - R4,800	6,7%
R4,801 - R9,600	13,6%
R9,601 - R19,600	23,5%
R19,601 - R38,200	22,3%
R38,201 - R76,4000	9,5%
R76,401 - R153,800	3,9%
R153,801 - R307,600	2,1%
R307,601 - R614,400	1,1%
R614,001 - R1,228,800	0,2%
R1,228,801 - R2,457,600	0,2%
R2,457,601+	0,1%

## ***SECTION E : IMPACT ASSESSMENT MANAGEMENT MITIGATION AND MONITORING MEASURES***

### **10. IMPACT ASSESSMENT**

#### **10.1 INTRODUCTION**

The Impact assessment must take account of the nature, scale and duration of effects on the environment, whether such effects are positive (beneficial) or negative (detrimental). Each issue / impact is also assessed according to the project stages from planning, through construction and operation to the decommissioning phase. Where necessary, the proposal for mitigation or optimisation of an impact is noted. A brief discussion of the impact and the rationale behind the assessment of its significance is provided in this Section. The EIA of the project activities is determined by identifying the environmental aspects and then undertaking an environmental risk assessment to determine the significant environmental aspects.

The environmental Impact Assessment is focussed on the following phases:

- Design and planning Phase
- Operational (cultivation and harvesting) Phase
- Restoration Phase

#### **10.2 IMPACT ASSESSMENT METHODOLOGY**

The following methodology has been provided by the CSIR to all specialists, for incorporation into specialist assessments:

##### **10.2.1 Methodology of impact assessment**

According to the DEA IEM Series guideline on "Impact Significance" (2002), there are a number of quantitative and qualitative methods that can be used to identify the significance of impacts resulting from a development. The process of determining impact significance should ideally involve a process of determining the acceptability of a predicted impact to society. Making this process explicit and open to public comment and input would be an improvement of the EIA/BA process. The CSIR's approach to determining significance is generally as follows:

Use of expert opinion by the specialists ("professional judgement"), based on their experience, a site visit and analysis, and use of existing guidelines and strategic planning documents and conservation mapping (e.g. SANBI biodiversity databases);

Review of specialist assessment by all stakeholders including authorities such as nature conservation officials, as part of the report review process (i.e. if a nature conservation official disagreed with the significance rating, then we could negotiate the rating); and our approach is more a qualitative approach - we do not have a formal matrix calculation of significance as is sometimes done.

### 10.2.2 Specialist criteria for impact assessment

The following methodology has been provided by the CSIR to all specialists, for incorporation into specialist assessments:

#### **Assessment of Potential Impacts**

The assessment of impact significance is based on the following conventions:

**Nature of Impact** - this reviews the type of effect that a proposed activity will have on the environment and should include "what will be affected and how?"

**Spatial Extent** - this should indicate whether the impact will be:

- Site specific;
- Local (<2 km from site);
- Regional (within 30 km of site); or
- National.

**Duration** - The timeframe during which (lifetime of) the impact will be experienced:

- Temporary (less than 1 year);
- Short term (1 to 6 years);
- Medium term (6 to 15 years);
- Long term (the impact will cease after the operational life of the activity); or
- Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient).

**Intensity** - it should be established whether the impact is destructive or innocuous and should be described as either:

- High (severe alteration of natural systems, patterns or processes such that they temporarily or permanently cease);
- Medium (notable alteration of natural systems, patterns or processes; where the environment continues to function but in a modified manner); or
- Low (negligible or no alteration of natural systems, patterns or processes); can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making.

**Probability** - this considers the likelihood of the impact occurring and should be described as:

- Improbable (little or no chance of occurring);
- Probable (<50% chance of occurring);
- Highly probable (50 – 90% chance of occurring); or
- Definite (>90% chance of occurring).

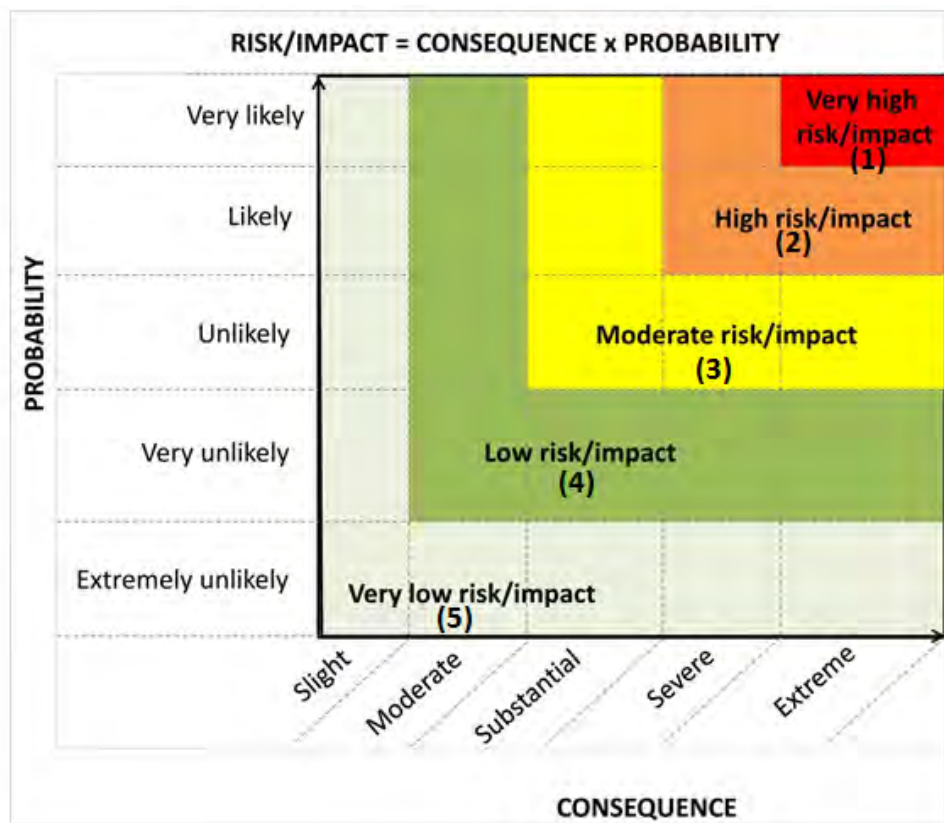
**Reversibility** - this considers the degree to which the adverse environmental impacts are reversible or irreversible. For example, an impact will be described as low should the impact have little chance of being rectified to correct environmental impacts. On the other hand, an impact such as the nuisance factor caused by noise impacts from wind turbines can be considered to be highly reversible at the end of the project lifespan. The assessment of the reversibility of potential impacts is based on the following terms:

- High - impacts on the environment at the end of the operational life cycle are highly reversible;
  - Moderate - impacts on the environment at the end of the operational life cycle are reasonably reversible;
  - Low - impacts on the environment at the end of the operational life cycle are slightly reversible;
- or

- Non-reversible - impacts on the environment at the end of the operational life cycle are not reversible and are consequently permanent.

**Irreplaceability** - this reviews the extent to which an environmental resource is replaceable or irreplaceable. For example, if the proposed project will be undertaken on land that is already transformed and degraded, this will yield a low irreplaceability score; however, should a proposed development destroy unique wetland systems for example, these may be considered irreplaceable and thus be described as high. The assessment of the degree to which the impact causes irreplaceable loss of resources is based on the following terms:

- High irreplaceability of resources (this is the least favourable assessment for the environment);
- Moderate irreplaceability of resources;
- Low irreplaceability of resources; or
- Resources are replaceable (this is the most favourable assessment for the environment).



**Figure 8: Guide to assessing risk/impact significance as a result of consequence and probability.**

The status of the impacts and degree of confidence with respect to the assessment of the significance is stated as follows:

**Status of the impact:** A description as to whether the impact will be:

- Positive (environment overall benefits from impact);
- Negative (environment overall adversely affected); or
- Neutral (environment overall not affected).

**Degree of confidence in predictions:** The degree of confidence in the predictions, based on the availability of information and specialist knowledge. This should be assessed as:

- High;
- Medium; or
- Low.

Based on the above considerations, the specialist provides an overall evaluation of the significance of the potential impact, which should be described as follows:

- **Low to very low:** the impact may result in minor alterations of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated;
- **Medium:** the impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated; or
- **High:** Where it could have a “no-go” implication for the project unless mitigation or re-design is practically achievable.

Furthermore, the following must be considered:

- Impacts should be described both before and after the proposed mitigation and management measures have been implemented.
- All impacts should be evaluated for the construction, operation and decommissioning phases of the project, where relevant.
- The impact evaluation should take into consideration the cumulative effects associated with this and other facilities which are either developed or in the process of being developed in the region, if relevant.

**Management Actions:**

- Where negative impacts are identified, mitigatory measures will be identified to avoid or reduce negative impacts. Where no mitigatory measures are possible this will be stated.
- Where positive impacts are identified, augmentation measures will be identified to potentially enhance these.
- Quantifiable standards for measuring and monitoring mitigatory measures and enhancements will be set. This will include a programme for monitoring and reviewing the recommendations to ensure their ongoing effectiveness.

**Monitoring:**

Specialists should recommend monitoring requirements to assess the effectiveness of mitigation actions, indicating what actions are required, by whom, and the timing and frequency thereof.

**Cumulative Impact:**

Consideration is given to the extent of any accumulative impact that may occur due to the proposed development. Such impacts are evaluated with an assessment of similar developments already in the environment. Such impacts will be either positive or negative, and will be graded as being of negligible, low, medium or high impact.

**Mitigation:**

The objective of mitigation is to firstly avoid and minimise impacts where possible and where these cannot be completely avoided, to compensate for the negative impacts of the development on the receiving environment and to maximise re-vegetation and rehabilitation of disturbed areas. For each impact identified, appropriate mitigation measures to reduce or otherwise avoid the potentially negative impacts are suggested. All impacts are assessed without mitigation and with the mitigation measures as suggested.



### 10.3 IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

The section below describes the potential impacts to occur during the design, construction, operational and decommissioning phases of the proposed project.

#### **ECOLOGICAL/BIODIVERSITY ASSESSMENT AND WETLAND DELINEATION**

According to the specialist study done by Mr Simon Bundy the proposed site is quite diverse botanically and is dominated by a graminoid – forb associations comprising of a number of grasses, primarily *Aristida junciformis* and *Tristachya leucothrix*, with *Themeda triandra* and *Eragrostis* spp also being common across the site. According to the specialist the identified Khanyane Agricultural site will see significant transformation of a portion of grassland located in an area of the Drakensberg foothills that continues to be and has been, subject to significant transformation through silviculture and urban settlement. As such the site can be considered a relict grassland within the local region and although it is used for grazing of livestock this is a passive activity from an ecological perspective. Biodiversity within the botanical community remains high and the association of fauna with the site is implicit. The dominance of *Aristida junciformis* and *Tristachya leucothrix* suggest that the site is not pristine. Nonetheless a diverse flora still exists. This, with much of the associated fauna will be lost as a result of the agricultural development.

An ecological review (including the impact assessment) of the Khanyane agricultural project Imbabazane, nr kamberg is included in Appendix D.

<b>Khanyane Agricultural Project – ecological loss and mitigation</b>					
<b>Spatial extent</b>	<b>Duration</b>	<b>Probability</b>	<b>Significance</b>	<b>Status</b>	<b>Confidence</b>
Local	Long term	Definite	Highly Significant	Very High	Very High
<p><b>Comment:</b></p> <p>The proposed cultivation of approximately 19 ha of grassland at the identified Khanyane Agricultural site will see significant transformation of a portion of grassland located in an area of the Drakensberg foothills that continues to be and has been, subject to significant transformation through silviculture and urban settlement. As such the site can be considered a relic grassland within the local region and although it is used for grazing of livestock this is a passive activity from an ecological perspective. Biodiversity within the botanical community remains high and the association of fauna with the site is implicit.</p> <p>It is strongly recommended that alternative sites be sought for the cultivation of crops on a commercial basis. Preferred land use options for the site could be considered as</p> <ul style="list-style-type: none"> <li>• Grazing of livestock under a managed regime</li> <li>• Tourism (bird watching etc)</li> <li>• Conservation</li> </ul>					
<b>Assessment status after all mitigation measures are applied</b>					
<b>Spatial extent</b>	<b>Duration</b>	<b>Probability</b>	<b>Significance</b>	<b>Status</b>	<b>Confidence</b>
Local	Long term	Definite	Highly Significant	Very High	Very High

### HERITAGE IMPACT ASSESSMENT OF THE KHANYANE AGRICULTURAL PROJECT

A Phase 1 Heritage Impact Assessment was done by Mr Len van Schalkwyk of Ethembeni Cultural Heritage for the Khanyani Agricultural project (see Appendix D). The SAHRIS palaeo-sensitivity mapping indicates that the proposed agriculture project falls within a general area of an underlying Beaufort Group lithology of extremely high sensitivity. However, the presence of intrusive dolerite sills and dykes within and surrounding the project area precludes the presence of any fossil material, thus requiring a protocol for finds, only. The settlement of the areas has probably been avoided as a consequence of the responses of dolomite rock which attract lightning strikes. The project area has probably been avoided for settlement primarily because the high risk of lightning-strikes on the dolerite exposures.

#### 10.3.1 Impacts that may result from the Planning and Design Phase

DESIGN AND PLANNING PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
<b>PROPOSAL (preferred alternative)</b>									
<b>Direct Impacts</b>									
Loss of vegetation and faunal habitat ecological loss	Site specific	Long term		Definite	Non-reversible	High	High (Negative)	<ul style="list-style-type: none"> <li>▪ Development planning must ensure loss of vegetation and disturbance is restricted to within the cultivation site.</li> <li>▪ Identify and mark indigenous vegetation on the ground. Those that are small and cannot be avoided should be transplanted elsewhere on site.</li> </ul>	High (Negative)

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DESIGN AND PLANNING PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
Loss of Conservation Important (CI) or medicinally important flora.	Site specific	Long term	Substantial	Likely	Moderate	Moderate	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Prior to cultivation any CI and medicinally important occurring within the site layout should be collected and replanted in the surrounding areas.</li> </ul>	Low (Negative)
Introduction and increase in alien vegetation.	Local	Long term	Moderate	Very likely	High	N/A	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Ensure that alien invasive species are identified on site.</li> <li>▪ Regulate / limit access by potential vectors of alien plants.</li> <li>▪ Alien invasive species identified on site should be removed prior to preparation of the land for planting.</li> <li>▪ Manual or mechanical removal should be done as opposed to chemical removal.</li> <li>▪ Prohibit the introduction of domestic animals such</li> </ul>	Low (Negative)

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DESIGN AND PLANNING PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
								as dogs and cats. <ul style="list-style-type: none"> <li>▪ Carefully regulate / limit access by vehicles and materials to the cultivation site. Demarcate or fence in the cultivation area.</li> </ul>	
Loss and displacement of fauna on site.	Site specific	Short term	Moderate	Very likely	Low	High	High (Negative)	<ul style="list-style-type: none"> <li>▪ If any of the remaining natural areas are to be affected, adhere to legal and best practice guidelines regarding the handling and relocation of fauna.</li> <li>▪ It is recommended that the farmer ask KZN wildlife for assistance to trap and relocate any Rough-haired golden moles on site.</li> <li>▪ a suitably qualified specialist be assigned to relocate any fauna on site to nearby suitable habitat.</li> </ul>	High (Negative)



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DESIGN AND PLANNING PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
Disturbance of fauna due to noise.	Local	Long term	Moderate	Likely	High	N/A	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Limit cultivation activities to day time hours.</li> <li>▪ Minimize noise to limit its impact on sensitive fauna such as Secretary Birds.</li> </ul>	Low (Negative)
Possible soil contamination due to leakage of fuel on site.	Local	Long term	Substantial	Likely	Reversible	N/A	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Ensure that any spilled fuel is effectively cleaned using the appropriate products.</li> <li>▪ Fuel tanks should be bounded to contain leakages</li> </ul>	Low (Negative)
Cultivation activities may disturb or destroy sites or features of heritage importance.	Local	Long term	Substantial	Not likely	Very Unlikely	High	Low (Negative)	<ul style="list-style-type: none"> <li>▪ Should any features of heritage significance be identified on site, these should not be disturbed and should be immediately reported to a Heritage specialist and KZN Heritage Resources Authority</li> </ul>	Low (Negative)
Potential deterioration of	Local	Long	Moderate	Unlikely	Non-	Moderate	Medium	<ul style="list-style-type: none"> <li>▪ Limit vehicles coming to the site and limit to</li> </ul>	Low

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DESIGN AND PLANNING PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
the existing gravel road due to use by tractor to collect the produce		term			reversible		(Negative)	a temporary minimal duration. <ul style="list-style-type: none"> <li>▪ Maintain and/or upgrade the gravel road as appropriate.</li> </ul>	(Negative)
Potential of soil erosion due to exposed soil.	Local	Long term	Substantial	Likely	Low	Moderate	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Implement erosion protection measures on site e.g contour ploughing to reduce potential soil erosion</li> <li>▪ Limit vegetation removal to only the cultivation area, avoid disturbance to other areas.</li> </ul>	Low (Negative)
Degradation of ambient air quality as a result of dust and other emissions generated.	Local	Long term	Severe	Very likely	Reversible	N/A	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Implement effective and environmentally-friendly dust control measures, such as mulching or periodic wetting of the entrance road.</li> <li>▪ Drive slowly</li> <li>▪ Exposed areas should be re-vegetated with</li> </ul>	Low (Negative)

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DESIGN AND PLANNING PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
								local indigenous flora. If the soil is compacted, it should be ripped, and fertilised.	
Noise disturbances as a result of cultivation.	Local	Long term	Moderate	Very likely	Low	N/A	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Activities that will generate the most noise should be limited to day time (cultivation) in order minimise disturbance to the neighbours.</li> <li>▪ The noise created by the proposed development is not expected to be problematic. If required, noise reduction measures will have to be implemented in compliance with the KwaZulu-Natal Noise Regulations.</li> </ul>	Low (Negative)

DESIGN AND PLANNING PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
<b>Indirect Impacts</b>									
The creation of new employment opportunities and skills development.	Local	Long term	Substantial	Very likely	Moderate	N/A	Medium (Positive)	<ul style="list-style-type: none"> <li>▪ Ensure maximisation of job creation and promote local employment and skills training.</li> </ul>	High (positive)
<b>NO-GO ALTERNATIVE</b>									
<p><b>DIRECT IMPACTS:</b></p> <ul style="list-style-type: none"> <li>• None of the impacts mentioned above will occur.</li> </ul> <p><b>INDIRECT IMPACTS:</b></p> <ul style="list-style-type: none"> <li>• There are no indirect impacts during the construction phase for the No-go Option.</li> <li>• If the proposed project does not proceed, increased income and economic benefits associated with the expansion will not be realised.                             <ul style="list-style-type: none"> <li>- No new employment opportunities will be created.</li> <li>- If the proposed project does not proceed, the local industries that rely on the supply of maize and beans could experience reduced economic growth potential.</li> </ul> </li> </ul>									

10.3.2 Impacts that may result from the operational phase

OPERATIONAL PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
<b>PROPOSAL (preferred alternative)</b>									
<b>Direct Impacts</b>									
Impact on sensitive areas such as sensitive fauna.	Local	Long term	Moderate	Likely	Non-reversible	Moderate	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Limit human activity on areas that are close to sensitive sites.</li> </ul>	Low (Negative)
Impact of dust and vehicle emissions generated during use of the gravel road when transporting maize and beans during operation.	Local	Long term	Moderate	Likely	Reversible	Moderate	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Vehicles transporting to and from the farm must keep at minimum speed to reduce dust generation.</li> <li>▪ Vehicles that are used must be roadworthy and regularly inspected in order to prevent unwanted emissions.</li> </ul>	Low (Negative)
Potential soil erosion due to exposed soil during cultivation.	Local	Long term	Substantial	Likely	Moderate	Moderate	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Implement erosion protection measures on site.</li> <li>▪ Limit vegetation removal to only the cultivation area, avoid</li> </ul>	Low (Negative)



DRAFT BASIC ASSESSMENT REPORT  
 PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

OPERATIONAL PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
								disturbance to other areas.	
Potential injury to employees.	Site specific	Very short term	Substantial	Unlikely	Reversible	Moderate	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Training of workers to safely store equipment.</li> <li>▪ Worker to wear Personal Protective Equipment (PPE).</li> <li>▪ Hazardous material and tools must be correctly labelled and handled in a safe manner.</li> </ul>	Low (Negative)
Introduction and spread of alien species.	Local	Long term	Severe	Likely	Moderate	N/A	High (Negative)	<ul style="list-style-type: none"> <li>▪ Control or limit access by potential vectors of alien plants.</li> <li>▪ Remove and dispose of Category 1b alien species on site.</li> <li>▪ Manual or mechanical removal of alien invasive should be done as opposed to chemical removal.</li> <li>▪ Carefully regulate / limit access by vehicles</li> </ul>	Low (Negative)

DRAFT BASIC ASSESSMENT REPORT  
 PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

OPERATIONAL PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
								and materials to the site. <ul style="list-style-type: none"> <li>▪ By law, remove and dispose of Category 1b alien species on site. All Category 2 species that remain on site KZN Wildlife will have to identify whether any such plants are present.</li> <li>▪ Prohibit the introduction of domestic animals such as dogs and cats.</li> </ul>	
Destruction of natural habitats and consequential loss and/or displacement of fauna	Local	Long term	Substantial	Very likely	Low	High	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Minimize noise to limit its impact on sensitive fauna such as potentially occurring owls, korhaans and secretary birds.</li> <li>▪ Create awareness on the importance of fauna and ecosystem functioning.</li> <li>▪ Cultivation should be</li> </ul>	Low (Negative)

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 PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

OPERATIONAL PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
								restricted to the cultivation site.	
Noise from operational activities throughout the farming process.	Local	Long term	Moderate	Very likely	Low	N/A	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Activities that generate the most noise to be limited to during the day.</li> <li>▪ Limit vehicles travelling to and from the site to minimise traffic noise to the surrounding environment</li> </ul>	Low (Negative)
Possible soil contamination from diesel storage on site.	Local	Long term	Substantial	Likely	Low	N/A	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ Appropriate storage of hazardous material such as diesel must be implemented e.g tanks must be bunded.</li> <li>▪ Fuel must be stored in a secure designated room/area.</li> <li>▪ In the event of spills, the area to be cleaned immediately using bioremediation</li> </ul>	Low (Negative)

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 PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

OPERATIONAL PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
								products. <ul style="list-style-type: none"> <li>▪ Ensure that any accidental spills do not move beyond the designated storage area.</li> <li>▪ Ensure workers are trained and educated about the safe handling and disposal of hazardous substances. Pesticide containers must be crushed or to supplier. They must not be given to people to use for other purposes.</li> </ul>	
Generation of operational waste.	Site specific	Very short term	Substantial	Likely	Reversible	N/A	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ All waste produced to be disposed of at a permitted designated waste disposal site or at a licenced landfill site</li> <li>▪ Waste must be stored in designated areas for removal to waste</li> </ul>	Low (Negative)

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OPERATIONAL PHASE									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
								disposal site.	
Potential impact on heritage resources.	Site specific	Permanent	Severe	Very unlikely	Non-reversible	High	Low (Negative)	<ul style="list-style-type: none"> <li>▪ The site does not have any known heritage resources; however should any archaeological features be discovered on site then a qualified Heritage specialist and SAHRA will be notified.</li> </ul>	Low (Negative)
<b>Indirect Impacts</b>									
Hydrological systems in the region	Local	Long term	Unlikely	Very likely	Moderate	Moderate	Low Negative	<ul style="list-style-type: none"> <li>▪ Footprint should be restricted to the proposed 19 hectares</li> </ul>	Low Negative
The proposed from has the potential to create local employment and skill development.	Local	Long term	Substantial	Very likely	High	N/A	Medium (Positive)	<ul style="list-style-type: none"> <li>▪ Maximise job creation and promote local employment and skills training.</li> </ul>	High (Positive)
The proposed project will contribute to the local economic through the supply of maize and beans	Local	Long term	Substantial	Likely	High	N/A	Medium (Positive)	<ul style="list-style-type: none"> <li>▪ Ensure that local markets are utilized as consumers.</li> </ul>	High (Positive)



<b>OPERATIONAL PHASE</b>									
Potential Impact Description	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance Rating (Positive or Negative)	Proposed Mitigation	Significance Rating after Mitigation
to local markets.									
<b>NO-GO ALTERNATIVE</b>									
<p><b>Direct impacts: N/A</b></p> <p><b>Indirect impacts: N/A</b></p> <p><b>Cumulative impacts:</b>                      There are no cumulative impacts during the site preparation e.g. ploughing phase for the No-go Option.</p>									

10.3.3 Impacts that may result from the Restoration or closure phase if the farming is successful then closer and restoration will not happen, but should it be closed then the following recommendations need to be implemented

IDENTIFIED IMPACTS- RESTORATION OR CLOSURE PHASE									
Potential impacts	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>ALTERNATIVE A1 (PREFERRED ALTERNATIVE)</b>									
<b>Direct impacts</b>									
Loss of economic activity in the area	Local	Long term	Substantial	Likely	High	High	High (Negative)	<ul style="list-style-type: none"> <li>▪ Closure of the development would result in job loss and no input into the local economy. Local economies should be supported and this establishment should be kept operational</li> </ul>	High (Negative)
Pollution of the surrounding environment as a result of the handling, temporary storage and disposal of solid waste from harvested products.	Local	Shor term	Substantial	Likely	High	High	Medium (Negative)	<ul style="list-style-type: none"> <li>▪ General waste (plastic) Ensure that sufficient general waste disposal bins are provided for all personnel throughout the site. These bins must be emptied on a regular basis.</li> <li>▪ Appropriately time</li> </ul>	Low (Negative)

<b>IDENTIFIED IMPACTS- RESTORATION OR CLOSURE PHASE</b>									
Potential impacts	Extent	Duration	Consequence	Probability	Reversibility	Irreplaceability	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:
<b>ALTERNATIVE A1 (PREFERRED ALTERNATIVE)</b>									
<b>Direct impacts</b>									
								demolition / rehabilitation activities to minimise sensory disturbance to fauna.	
Soil erosion	Local	Long term	Substantial	Likely	Moderate	Low	High (Negative)	<ul style="list-style-type: none"> <li>▪ Implement erosion protection measures on site.</li> <li>▪ Compact the soil and plant indigenous plants on site</li> </ul>	Medium (Negative)

***SECTION F: ASSESSMENT METHODOLOGIES  
 AND CRITERIA, GAPS IN KNOWLEDGE,  
 UNDERLAYING ASSUMPTIONS AND  
 UNCERTAINTIES***

**10.4 CUMULATIVE IMPACTS**

Impacts arising from the operational phase include:

IDENTIFIED Cumulative IMPACTS- OPERATIONAL PHASE			
IMPACT	SIGNIFICANCE RATING OF IMPACT BEFORE MITIGATION	PROPOSED MITIGATION	SIGNIFICANCE RATING OF IMPACT AFTER MITIGATION
Loss of vegetation and faunal habitat.	High (Negative)	Limit vegetation removal to only the cultivation area, avoid disturbance to other areas	High (Negative)
Increase in dust and erosion	Medium (Negative)	Implement erosion protection measures on site.  Limit vegetation removal to only the cultivation area, avoid disturbance to other areas.	Low (Negative)
Decrease in fauna and flora due to noise generated on site during operational phase	Low (Negative)	Ensure that cultivation takes place during the day.	Low (Negative)
Increased job opportunities and boosting of local economic development and skills transfer in the area.	Low (Positive)	No mitigation measures are identified	Medium (Positive)

*Loss of vegetation:* clearing of vegetation should be done on the cultivation site of 19 hectares only.

*Noise pollution.* This can be mitigated by activities occurring during working hours and during cultivation time one or twice a year.

*Dust pollution.* Dust reduction measures such as speed reduction for vehicles, wetting of surfaces should be implemented.

## 11. ENVIRONMENTAL IMPACT STATEMENT

The proposed development is a cultivation project that is deemed to have impacts on the environment. Clearance of vegetation, dust emissions, visual and noise impacts are anticipated from the proposed development. Most of these impacts are low to medium in the current environment, and with the recommended mitigation measures the proposed development will have overall low impacts of the environment. There will be no impact on freshwater resources on the site. However site clearance cannot be avoided during the cultivation phase. This phase will result in exposed soil, which could result in soil erosion and wind-blown dust. Erosion can lead to destruction of natural habitats. All reasonable measures need to be implemented to minimise erosion during the cultivation phase.

Findings from the Terrestrial Ecological Impact Study state that Conservation Important habitats and species are present on site. It is the opinion of the specialist that the site is highly sensitive and it will see significant transformation of a portion of grassland located in an area of the Drakensberg foothills that continues to be and has been, subject to significant transformation through urban settlement. The specialist does not support the proposed cultivation of the land.

However, it is the opinion of the EAP that from a biodiversity conservation perspective, the proposed project could move forward provided that all recommendations within the EMPr are adhered to.



DRAFT BASIC ASSESSMENT REPORT  
 PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

**Operational Phase: Cultivation and Harvesting**

Potential Impact Description	Significance Rating (Positive or Negative)	Significance Rating after Mitigation	Extent of impact	Duration of impacts	Likelihood of potential impacts actually occurring
Loss of vegetation and faunal habitat.	High (Negative)	High (Negative)	Local	Long term	Highly Significant
Loss of Conservation Important (CI) or medicinally important flora.	Medium (Negative)	Low (Negative)	Local	Long term (>15 years)	Low probability (10-25% chance)
Introduction and increase in alien vegetation.	Medium (Negative)	Low (Negative)	Local (<2km from site)	Permanent	Permanent
Possible soil contamination due to temporary fuel storage on site.	Medium (Negative)	Low (Very low negative)	Local	Medium term	Probable (25-50% chance)
Potential deterioration of the existing gravel road due to use by tractor to collect the produce	Medium (Negative)	Low (Negative)	Local <2km from site)	Long term (>15 years)	Highly probable (50-90% chance)

**Restoration Phase**

Potential Impact Description	Significance Rating (Positive or Negative)	Significance Rating after Mitigation	Extend of impact	Duration of impact	Likelihood of potential impacts actually occurring
Disturbance of CI fauna from increase in vehicle and human activity, noise and dust, environmental contamination, unnatural fires, and proliferation of alien species	Medium (Negative)	Low (Negative)	Local (<2km from site)	Long term (>15 years)	Highly probable (50-90% chance)

## 11.1 ASSUMPTIONS, LIMITATIONS OR GAPS IN KNOWLEDGE

Reasons for not finding certain species during the late summer site visit may be due to:

- The site visit was limited to a few day time hours and, therefore, not all potentially occurring (especially nocturnal) species were likely to be detected.
- The site visit was performed in late summer (i.e. February), when many animal species become less active or prepare to migrate.
- Some species, which are uncommon, small, migratory, secretive or otherwise difficult to detect may not have been detected even though they were potentially present.
- Some plant species, which are small, have short flowering times, rare or otherwise difficult to detect may not have been detected even though they were potentially present on site.

## **SECTION G : RECOMMENDATION OF THE EAP**

Based on the findings of the Basic Assessment process for Khanyani Agricultural Cooperative, it is recommended that this project be authorised, subject to the following conditions. The EMPr of this proposed development must form part of the contractual agreement and be adhered to by the applicant. According to the Agricultural advisor the area has soils such as Hutton and Clovelly which are good soils in terms of rooting depth and drainage. The crops that were recommended maize and dry beans are suitable for the area, in addition also potatoes too are suitable.

The recommendations of the ecological specialist, with regards to vulnerable fauna found on site were taken into consideration. *Sagittarius serpentarius* (Secretary Bird) and *Chrysospalax villosus* (Rough-haired Golden Mole) are listed Vulnerable species found on site. Therefore the Regulations of the National Environmental Management Biodiversity Act 10 of 2004 (NEMBA) on Threatened and Protected Species were also taken into consideration in preparation of this BAR and EMPr. The grass species on the site indicate that it has been overgrazed and this now has limited value as pasture. However the area is rich in non-grass plant species which should be relocated where possible to adjacent land prior to the clearing of the land. The proposed farm development does represent habitat fragmentation and the KwaMkhize Traditional Council should be assisted by KZN Wildlife and SANBI in defining areas for future cultivation as well as areas that should be set aside for conservation. Unnecessary habitat fragmentation should be avoided as a matter of priority. This is particularly pertinent since SANBI data states that the whole of KwaMkhize rural area falls within the National List of Threatened Terrestrial Ecosystems.

Negative impacts have been identified within this BAR that, in the opinion of the EAP, should not be considered as “fatal flaws”. In order to ensure the effective implementation of the mitigation and management actions, an EMPr has been compiled and is included in the BA report (see Appendix F). The mitigation measures required to ensure that the project is planned and carried out in an environmentally responsible manner are listed in the EMPr. The EMPr is a dynamic document that should be updated as required and provides clear and implementable measures for the proposed project.

The project proponent, the Khanyani Agricultural Cooperative, is being assisted pro-bono under the DEA Special Needs and Skills Development Programme and thus does not have the economic opportunity to have an alternative site available i.e. it is limited to the site given to them by the Kwa-Mkhize Traditional Council.

It is noted that the proposed project will impact on terrestrial biodiversity. However, as stated above, the proposed development falls within an overgrazed area, indicated by the presence of the grasses, i.e.

*Aristida junciformis* and *Tristachya leucothrix*. Consequently it is an area of limited pasture value. In an area where food security is of concern and unemployment rates are high, the proposed project will provide affordable food sources and much needed employment opportunities in the local community.

It is therefore recommended by the EAP that the proposed development proposal be authorised as the social benefits will outweigh the negative ecological impacts.

**THE FOLLOWING APPENDIXES WERE ATTACHED AS APPROPRIATE:**

Appendix A:	Site plan(s)
Appendix B:	Photographs
Appendix C:	Facility illustration(s) - N/A
Appendix D:	Specialist reports
Appendix E:	Public Participation Process (including the Comments and Responses Report)
Appendix F:	Draft Environmental Management Programme (EMPr)
Appendix G:	Other information-N/A

**DECLARATION BY THE EAP**

The following is hereby affirmed by the EAP to be included in this report:

- The correctness of the information provided in the reports;
- The inclusion of all comments and inputs from stakeholders and I&APs;
- The inclusion of all inputs and recommendations from the specialist reports where relevant; and
- Any information provided by the EAP to I&APs and any responses by the EAP to comments or inputs made by interest and affected parties.

## 12. REFERENCE

Agricultural Research Council Annual Report 2014/2015:  
[http://www.daff.gov.za/daffweb3/Portals/0/SOE/ARC\\_201415%20Annual%20Report%20-%201pgView%20-%20Sept%202015.pdf](http://www.daff.gov.za/daffweb3/Portals/0/SOE/ARC_201415%20Annual%20Report%20-%201pgView%20-%20Sept%202015.pdf) Accessed 15 September 2016

## SECTION H : APPENDICES

Appendix A:	Site plan(s)
Appendix B:	Photographs
Appendix C:	Facility illustration(s) - N/A
Appendix D:	Specialist reports
Appendix E:	Public Participation Process (including the Comments and Responses Report)
Appendix F:	Draft Environmental Management Programme (EMPr)
Appendix G:	Other information-N/A

**Basic Assessment** for the proposed  
maize and bean cultivation and harvesting  
enterprise for the Khanyani Agricultural  
Cooperative, Emthebeni, Imbabazane  
Local Municipality, KwaZulu Natal



# APPENDICES

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# APPENDICES

## DRAFT BASIC ASSESSMENT REPORT

### PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

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<b>APPENDIX A:</b>	Site plan(s)
<b>APPENDIX B:</b>	Photographs
<b>APPENDIX C:</b>	Facility illustration(s) – N/A
<b>APPENDIX D:</b>	Specialist report
<b>APPENDIX E:</b>	Comments and responses report
<b>APPENDIX F:</b>	Draft Environmental Management Programme (EMPr)
<b>APPENDIX G:</b>	Other information
<b>APPENDIX H:</b>	CVs of the EAPs (project team who prepared the report)



# APPENDICES

DRAFT BASIC ASSESSMENT REPORT

PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

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## BASIC ASSESSMENT REPORT

### APPENDIX A: SITE LAYOUT PLANS

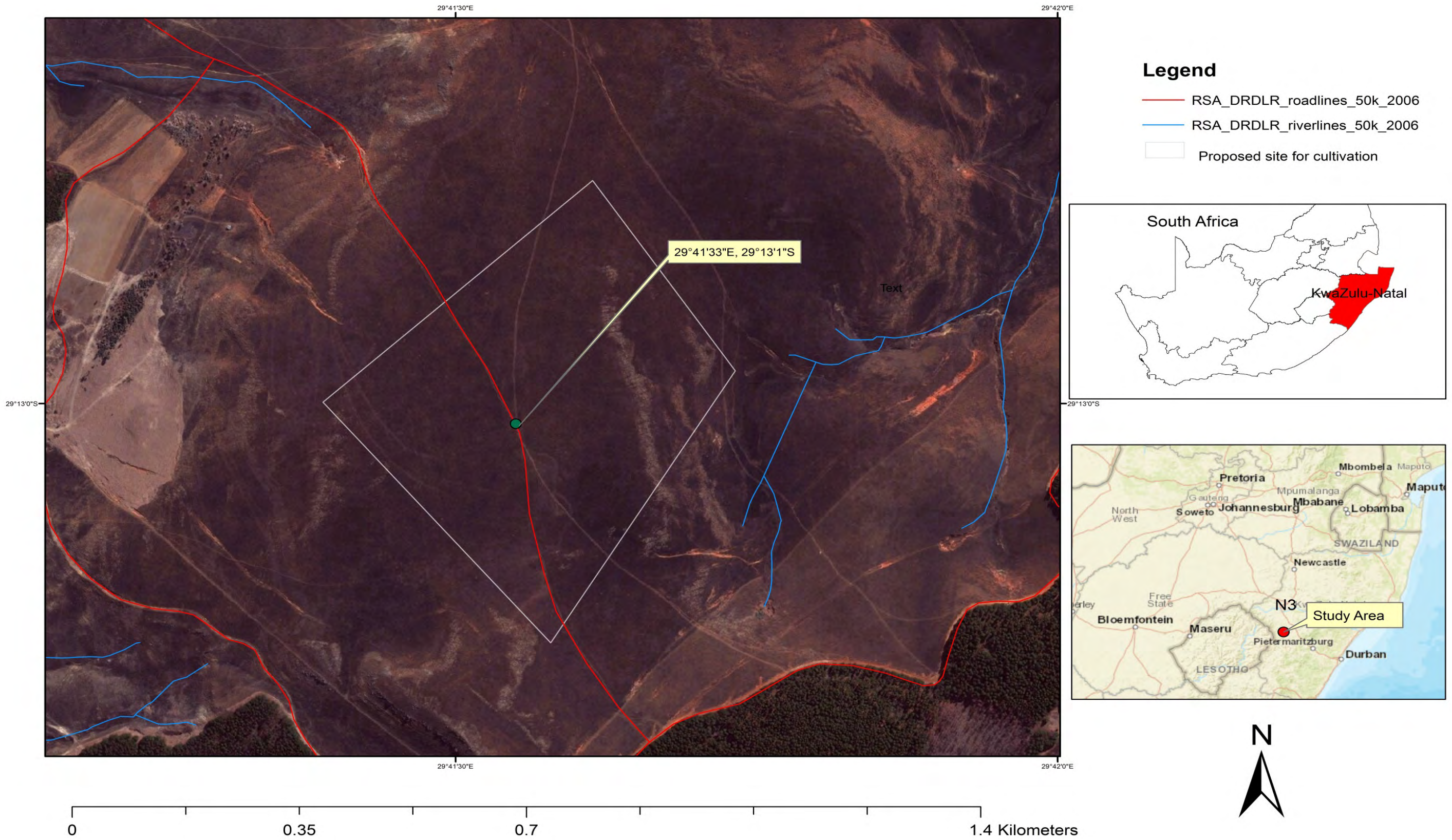
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Appendix A.2: The Site Plan of Khanyani Agricultural Cooperative Project _____	3
Appendix A.3: The Sensitivity Map of Khanyani Agricultural Cooperative Project Site _____	4



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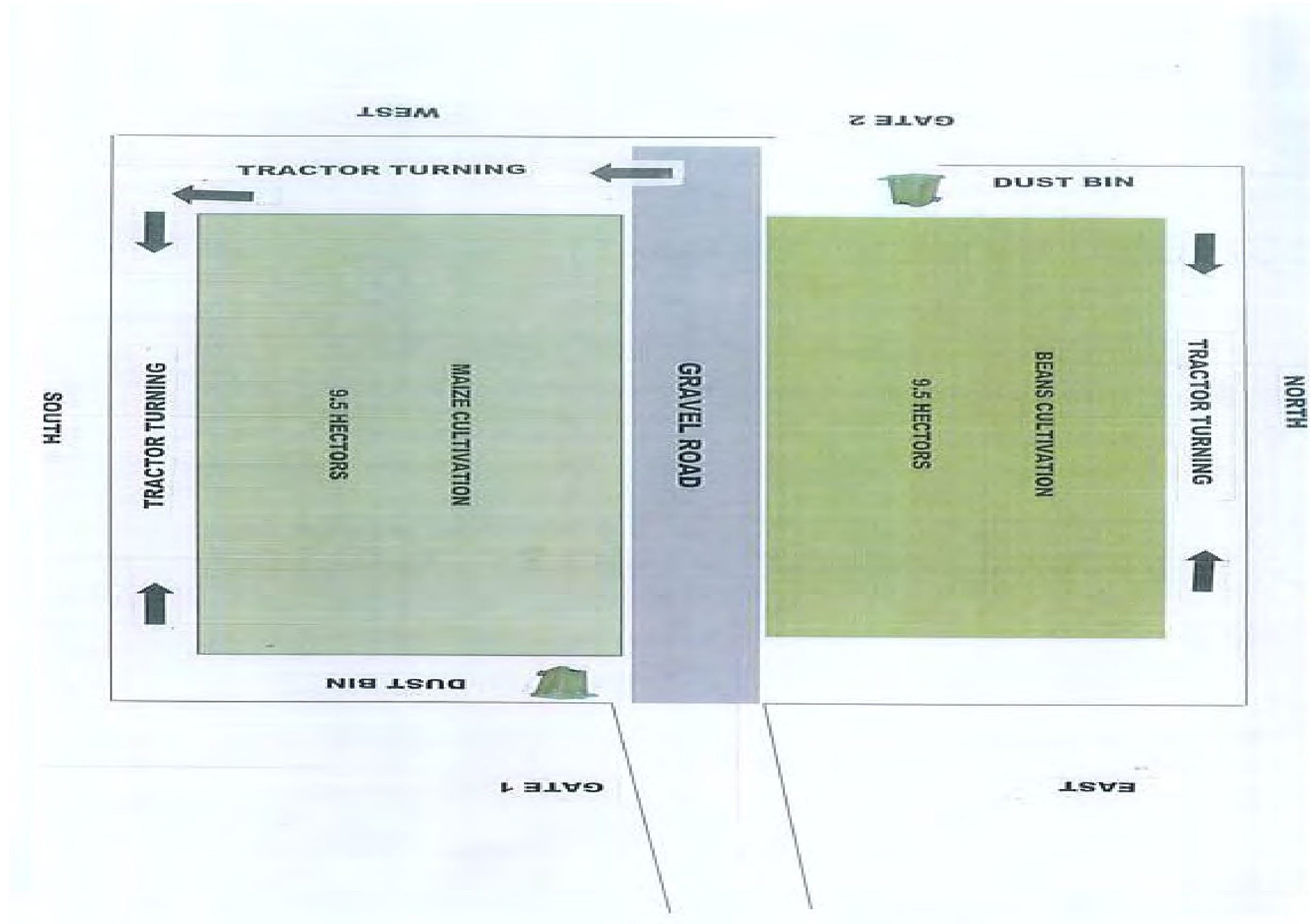
Appendix A.1: The proposed site of Khanyani Agricultural Cooperative Project





APPENDICES

Appendix A.2: The Site Plan of Khanyani Agricultural Cooperative Project



**Appendix A.3: The Sensitivity Map of Khanyani Agricultural Cooperative Project Site**



# APPENDICES

DRAFT BASIC ASSESSMENT REPORT

PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

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## BASIC ASSESSMENT REPORT

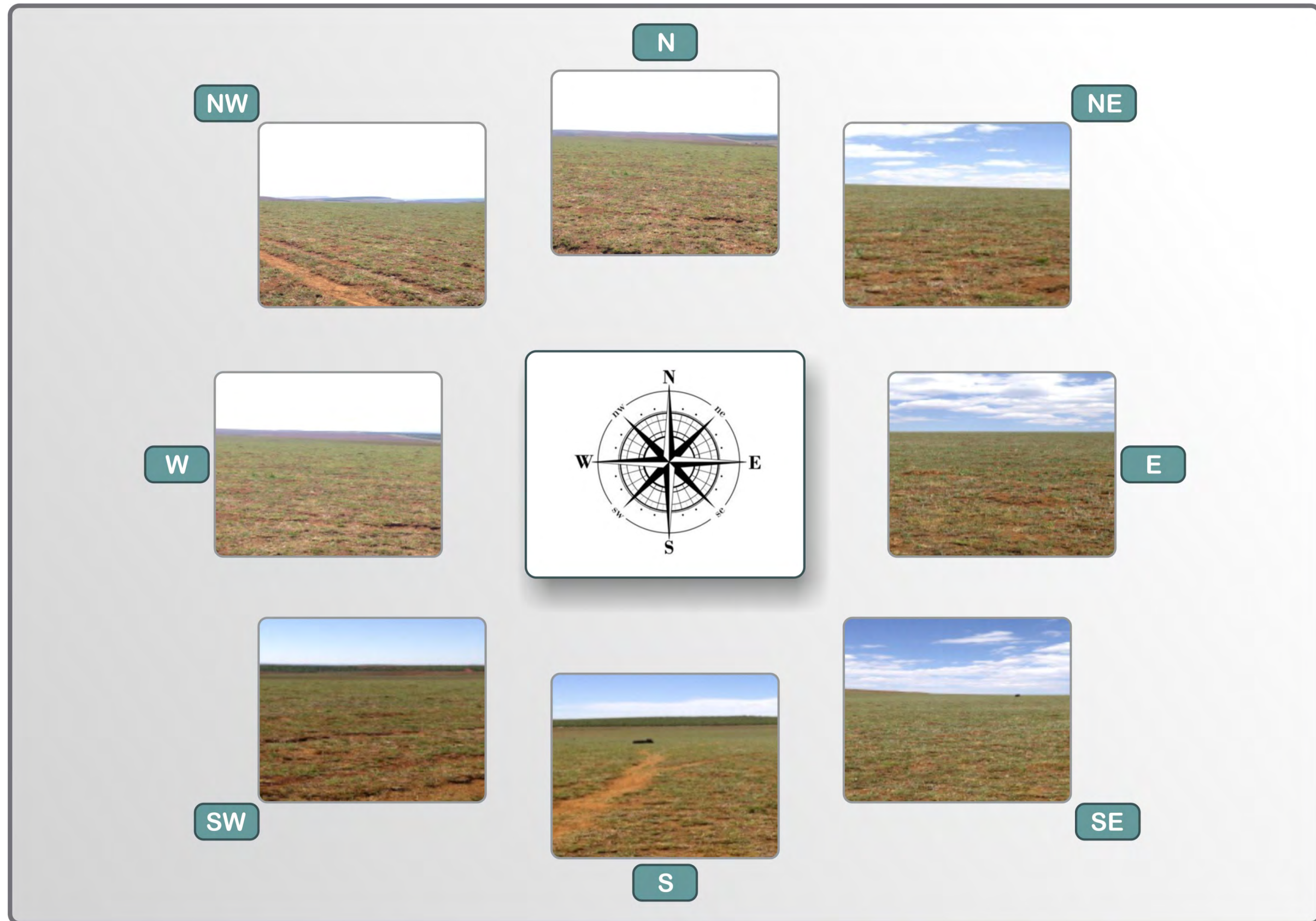
### APPENDIX B: PHOTOGRAPHS

### CONTENTS

Appendix B.1: Photographs taken from the centre of the site in 8 compass directions \_\_\_\_\_ 2

APPENDICES

Appendix B.1: Photographs taken from the centre of the site in 8 compass directions





# APPENDICES

DRAFT BASIC ASSESSMENT REPORT

PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

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## BASIC ASSESSMENT REPORT

### APPENDIX C: FACILITY ILLUSTRATIONS

N/A



**Basic Assessment** for the proposed  
maize and bean cultivation and harvesting  
enterprise for the Khanyani Agricultural  
Cooperative, Emthebeni, Imbabazane  
Local Municipality, KwaZulu Natal



# APPENDIX D: SPECIALIST REPORT

Ecological Review of Portion of  
Land at iMbabazane nr Kamberg,  
KwaZulu Natal

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## **KHANYANE AGRICULTURAL CO-OPERATIVE PROJECT**

### **Ecological Review of Portion of Land at iMbabazane nr Kamberg, KwaZulu Natal**

S C Bundy BSc MSc (Pr.Sci. Nat.)  
SDP Ecological and Environmental  
Services cc

Compiled for  
Council for Scientific and Industrial  
Research (Ms A Adams)

March 2016

Env proj / khany / 1601/01/scb

# ECOLOGICAL REVIEW – KHANYANE AGRICULTURAL PROJECT IMBABAZANE, nr KAMBERG

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5. CONCLUSION .....	18
APPENDICES .....	.....

<b>Compilation Date</b>	March 2016
<b>Client</b>	CSIR
<b>Compiled by</b>	S C Bundy
<b>Company</b>	SDP Ecological and Environmental Services
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<b>Reviewed by</b>	A M Whitehead
<b>Front page image</b>	Lower portion of site

### Acronyms and Abbreviations / Terminologies

CSIR	Council for Scientific and Industrial Research
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
Mesic	Dry land. Land that is neither aquatic or “wetland”
NEMA	National Environmental Management Act 1998
PCA	Principle Component Analysis. Statistical method of identifying variation within data
SANBI	South African National Biodiversity Institute
Transect	A “cut” or length over which sampling of a portion of ground or similar environment is undertaken
TWINSpan	Two Way Indicator Species Analysis. Statistical method of identifying similarities within data
Veld type	Vegetation or habitat form
Wetland	An area of land intermediate between aquatic and mesic environments

## 1. INTRODUCTION

The Council for Scientific and Industrial Research (CSIR) are the appointed environmental assessment practitioners evaluating the proposed establishment of approximately 19ha of cultivated land at Imbabazane near Kamberg (kwaMkhize area), in the Kwa Zulu Natal Midlands, (Fig. 1 below). The identified study site, situated at S 29°41' 33"E 29°13'01"S, lies within a larger portion of elevated plateau, some 70 ha or more in extent. This land has been identified for agricultural purposes by the tribal authority and the Khanyani Agricultural Co-operative, a community based initiative in the region.

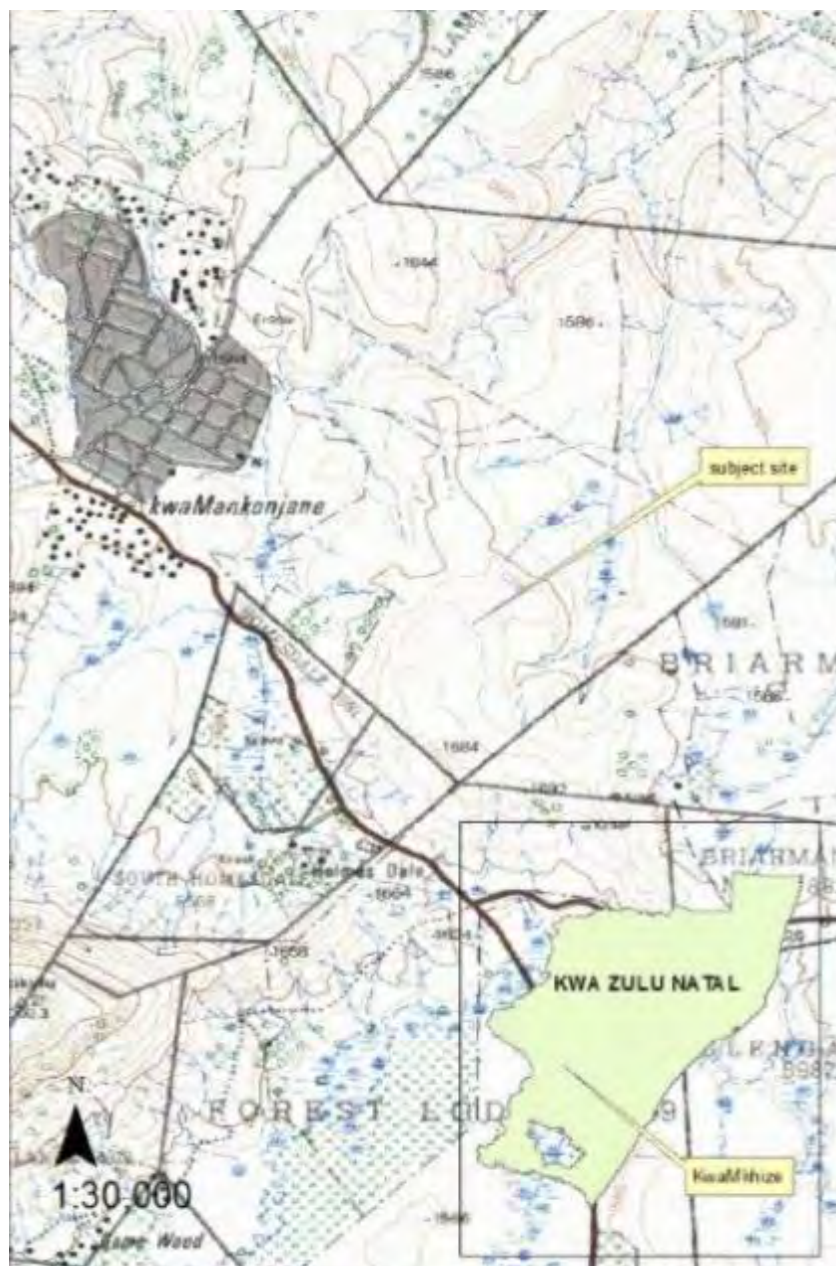


Fig. 1 Topographic map showing subject site and position of Imbabazane / KwaMkhize TA within region



According to the background information document compiled by the CSIR in respect of this project, the intention of the Khanyane Agricultural Community Project is to cultivate approximately 19.5 ha of land for the purposes of establishing maize and bean production. Given the extent of the proposed cultivated area, the activity is noted to require environmental authorisation from the mandated authorities in terms of GNR 983 of the National Environmental Management Act (107 of 1998). As such, this report has been commissioned by the CSIR in order to provide guidance in respect of the proposal to cultivate the subject site and allow for an impartial evaluation of the ecological impacts of such cultivation through the environmental authorisation process.

This report identifies the findings of the ecological review of the selected site (Fig. 2), giving due consideration to the bio physical factors inherent within the site, as well as the botanical and faunal components of the site and their significance from an ecological perspective. No alternative sites or properties were considered, however alternative options in respect of the positioning of the plantation within the study area, is given due consideration.



Fig. 2 Google Earth image indicating site in regional context (yellow outline). (Source Google Earth ; not too scale.)



## 2. METHODOLOGY

In pursuance of the above, SDP Ecological & Environmental Services undertook the following activities in the compilation of this report.

1. A desktop review of the site using aerial imagery.
2. A field review of the site was undertaken on 19 February 2016, whereby the general landscape and landscape features were considered, prior to the undertaking of a number of sample transects across site.
3. Sample transects were established at 10 sites across the study area (Fig. 3). These sample sites were deemed to be suitably representative of the site through:
  - a. Variation in topography
  - b. Variation in slope or gradient
  - c. Differentiation in aspect
  - d. Spread of sample across site



Fig. 3. Image indicating position of sample points across site

4. At each site a linear transect of 40m was established using a “drop stick method” of sampling, whereby the species closest to the sample point was recorded. A total of 20

points (2m intervals) were recorded from each site and recorded using a “presence – absence” methodology.

5. All data was logged and recorded in Excel.
6. All data was analysed using linear techniques and multivariate analysis (TWINSPAN and PCA) in order to identify:
  - a. The similarity or dissimilarity of data / plant community structure within the sampled sites.
  - b. The nature and structure of the data / plant communities across site in general.
  - c. Any anomalies that may be noted within the data.
7. From interpretation of the above results and the observations undertaken at site, the nature of the habitat within the site was given due consideration from an ecological perspective, which included the suitability for transformation.
8. Consideration was given to the identification of aquatic and wetland systems at a preliminary level during the site reconnaissance and through the use of geohydromorphic soil indicators, as well as other physical indicators, as per the Guidelines for the Delineation of Wetlands. All wetlands that were noted to be proximal to the subject site were given consideration. No wetland systems were identified on the proposed site.

Indicators of a riparian system include the following (as per DWAF 2005):

1. An obvious floodplain and active channel.
2. Evidence of active erosion indicating a high energy system.
3. The absence of classic hydromorphic vegetation, with species associated with riparian areas dominant, or simply a change in vegetation density and structure.

The approach to defining the riparian zone is not strictly defined (DWAF 2005) and a number of methods can be used. Accepted riparian indicators include (Fig 4 below):

- 1) **Topography:** identification on flood terraces and macro-channels.
- 2) **Vegetation: identification** of a distinct area of vegetation change, often in close association with the macro-channel. Changes can be in relation to species diversity or physical nature (density or health).

- 3) **Alluvial soils and deposited material:** identification of recent deposits of sand or mud serves as a confirmatory indicator of the higher extent of river associated inundations

A number of methods exist for identifying riparian indicators. Acceptable methods include (DWAF 2005):

1. The use of topographical maps.
2. Aerial photographs and aerial videos
3. Ecoregions (e.g. using climatic, geological or vegetative community indicators can be useful as a predictive method)
4. Field work (i.e. confirming desktop observations by locating indicators on site).

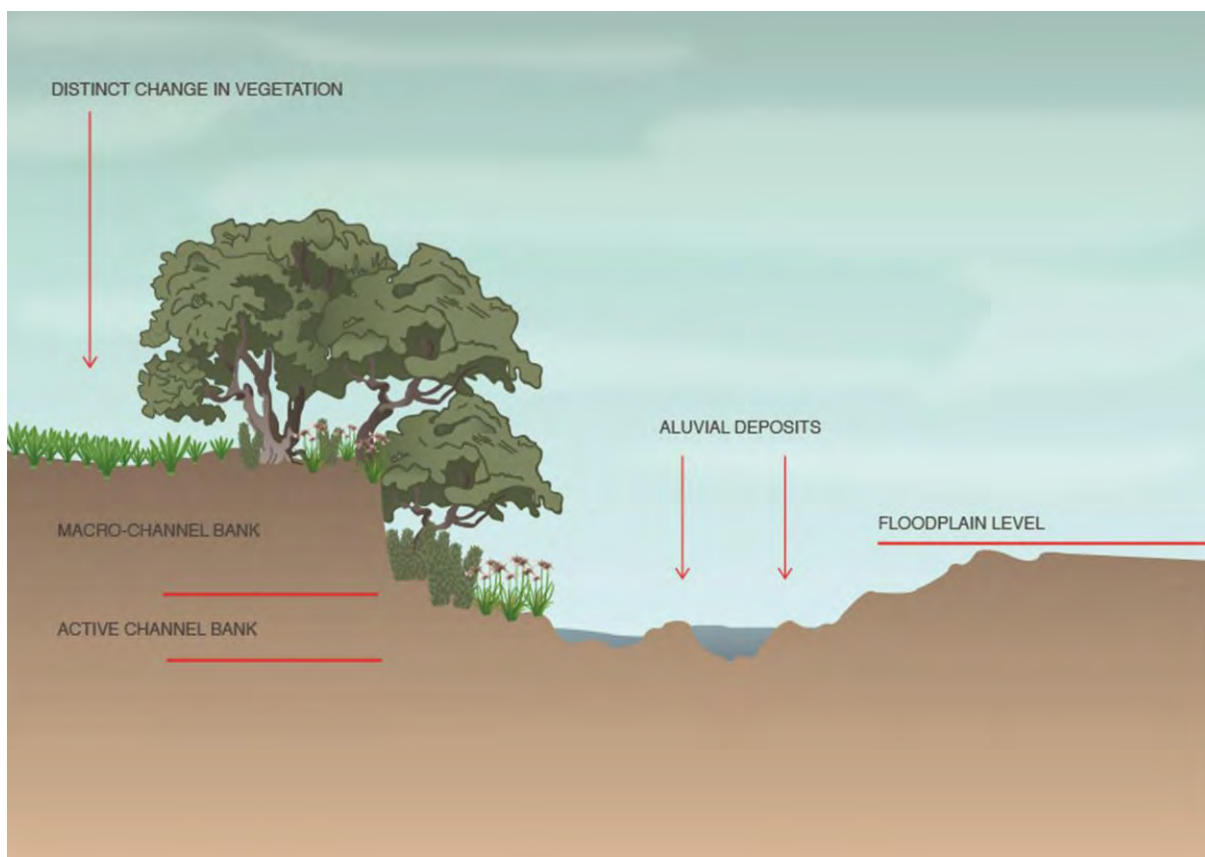


Fig 4. Illustration of a typical riparian cross section (Adapted from DWAF 2005)

Wetland systems are considered to be intermediate areas between mesic and aquatic systems. These systems are generally considered to be *temporary* (where evidence of inundation of water under a high level precipitation event is apparent), *seasonal* (where regular inundation arises) or *permanent* (where the area is permanently saturated). Such areas are typically identified by:

- **Topography and geomorphology**
- **Edaphics** – mottled and gley soils being evidence of such environments
- **Habitat** – *obligate* hydrophytes (e.g. *Phragmites* spp) are indicative of permanent inundation and *facultative* (e.g. *Centella asiatica*) are indicative of areas where inundation is regular to irregular in nature.

Such indicators are used to identify the nature and structure of wetland systems. No wetland systems were identified within the study site, however proximal systems were identified using the above determinants and the outer extent of such systems was delineated.

### 3. REGIONAL ECOLOGICAL PERSPECTIVE OF THE AREA

The subject site falls within Quaternary V70C, which encompasses a portion of the Bushmans River and its tributaries (Fig. 5). The Bushmans River ultimately serves the Tugela River. From Fig. 5 it is evident that drainage from the site is in a northerly direction, eventually serving the Mtshezana River. (Notably the differentiation between the extent of the Mtshezana and Boesmans River differs according to various references).

According to the Department of Water and Sanitation, PESEIS data obtained from [www.dwaf.gov.-iwqs](http://www.dwaf.gov.-iwqs) reip-eco-PESEIS indicates that the Mtshezana River has an overall PES Category of “B” and a mean ecological importance (EI) rating of “High”, with a mean ecological sensitivity (ES) rating of “High”. As such, the Mtshezana can be considered to be a system that is presently subject to minimal anthropogenic perturbation and exhibits generally intact and untransformed eco-system services. In addition, the system, via the Boesmans River, serves the Wagendrift dam, which is utilised for agricultural, domestic and industrial water supply.

The subject site lies upon a portion of the Mtshezana watershed, which encompasses level plateaux and buttes with relatively steep sandstone scarps. Occasional shale geologies are noted to prevail at points. Such geology gives rise to the regular occurrence of seep zones at elevated points, while within the valleys, floodplain wetland systems are evident, comprising of deep alluvial clays with occasional sandstone boulder wash. Fig. 6 indicates that the subject site, while not lying upon any wetland system, does lie within 500m of a number of NFEPA listed wetland systems.



Fig. 5 Topographic map indicating subject site, NFEPA wetlands derived from the NFEPA data base and an indication of 500m radius from the subject site (red circle).



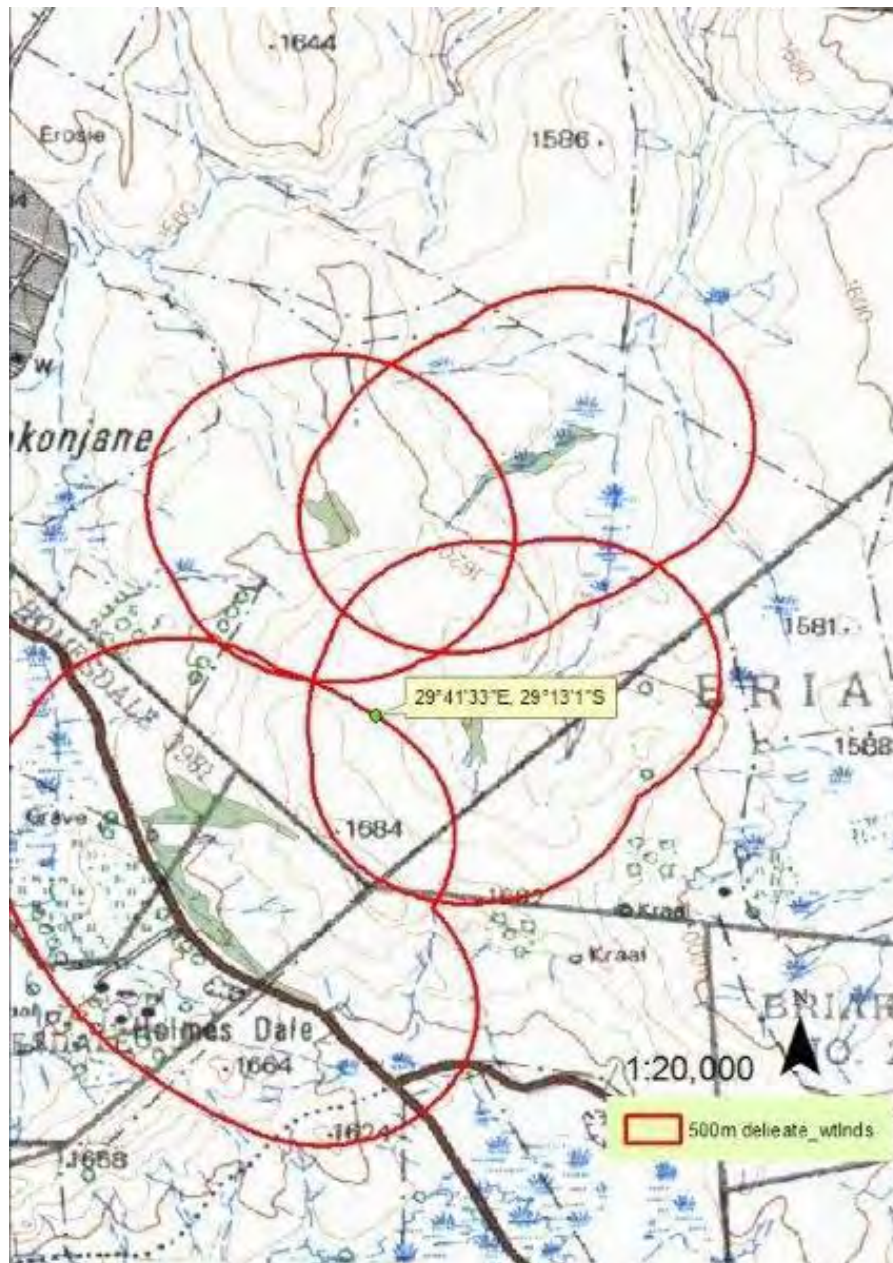


Fig. 6. Image indicating subject site in relation to prevailing wetland systems

The dominant vegetation form within the region is Gs10, The Drakensberg Foothill Grassland, an *Aristida* dominated grassland associated with wetlands and riparian zones with deeper soils (Fig. 7). This veld type is considered “least threatened” in terms of its conservation importance (SANBI 2006). Much of the regional ecology correlates with the abovementioned habitat form, although it is evident that in much of the iMbabazane area, the predominant land use is grazing, often intensively, as well as silviculture, which has given rise to *Aristida* dominated meadow type environments, or alternatively *Pinus sp* dominated plantations (Fig. 8). Such activities, have served to alter both the localised ecology around iMbabazane and the regional hydrology.





Fig. 7 Map indicating placement of subject site within veld types



Fig. 8 Image of subject site in foreground and plantation in background

#### 4. SITE EVALUATION

The study site lies approximately one kilometre south east of the town of KwaMakhonjane located at 29° 13' 04" S / 29° 41' 28" E (Fig.1 above). The study site, some 20ha in extent can be described as a broad hilltop comprising of a sandstone geology overlain by a clayey soil of variable depth. The variable soil depth from the site indicates that surface flow is rapid, with low levels of percolation being expected within the site itself. Where the vegetative stabilisation is compromised, erosion is likely to result (Fig.9)



Fig. 9 Image of site indicating erosion gully arising where vegetation cover is reduced

The subject site is presently utilised for the grazing of cattle and may be subject to intermittent burning. In addition, the area is subject to significant levels of frost which maintains the grassland sere on the subject site.

The site is dominated by a graminoid – forb associations comprising of a number of grasses, primarily *Aristida junciformis* and *Tristachya leucothrix*, with *Themeda triandra* and *Eragrostis* spp also being common across the site (Fig 5). Other common species identified across the subject site included, *Oxalis smithiana* and *A junciformis* , while species including *H cymosum*, and graminoids, (*Eragrostis* spp) also were noted as being dominant. No woody species invasion was noted on site and no exotic



species were evident during the site reconnaissance . The high level of forbs encountered within the subject transects are in keeping with the forb-rich nature of the veld type. Other forbs identified on site and within the various sample points included *Eucomis autumnalis*, *Agapanthus campanulata* and *Brunsvigia grandiflora*, while the common orchid *Satyrium longicauda* was also identified on site (Fig. 10).



Fig. 10 Various forbs identified within subject site; top left: *B grandiflora*, top right: *S longicauda* ; bottom left: *E autumnalis*; bottom right *A campanulata*

A total of 38 species were recorded within the 10 transects established. Fig. 11 below, identifies the species recorded and their prevalence within the sample sites. *A junciformis* and *O smithiana* were the most commonly encountered species, while it is noted that 14% of the species recorded were graminoids, with the balance of species recorded being forbs/herbs (using a *presence-absence* method of sampling). Further consideration of the species and their placement across the site can be achieved by using a multivariate analysis (TWINSPAN). The results of the TWINSPAN analysis are indicated below in Fig's 12 and 13.

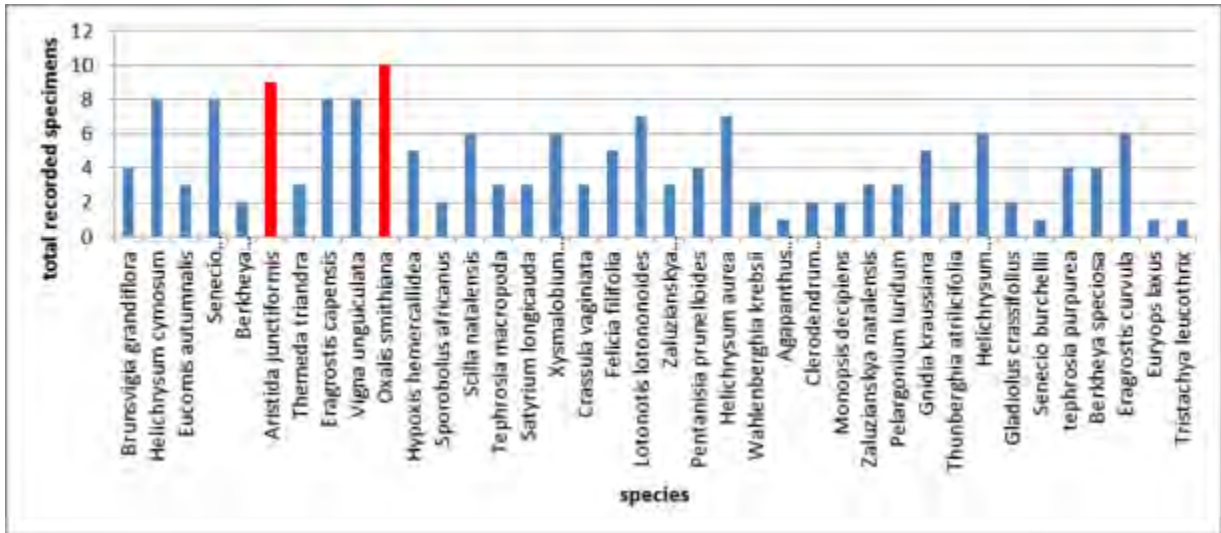


Fig. 11 Graph indicating the prevalence of species encountered within sample sites, with the two most prevalent species being highlighted in red.

Fig. 12 indicates the various associates that were identified across site and can be utilised to identify such associations on a spatial level within the site and therefore possible “drivers” of such association.

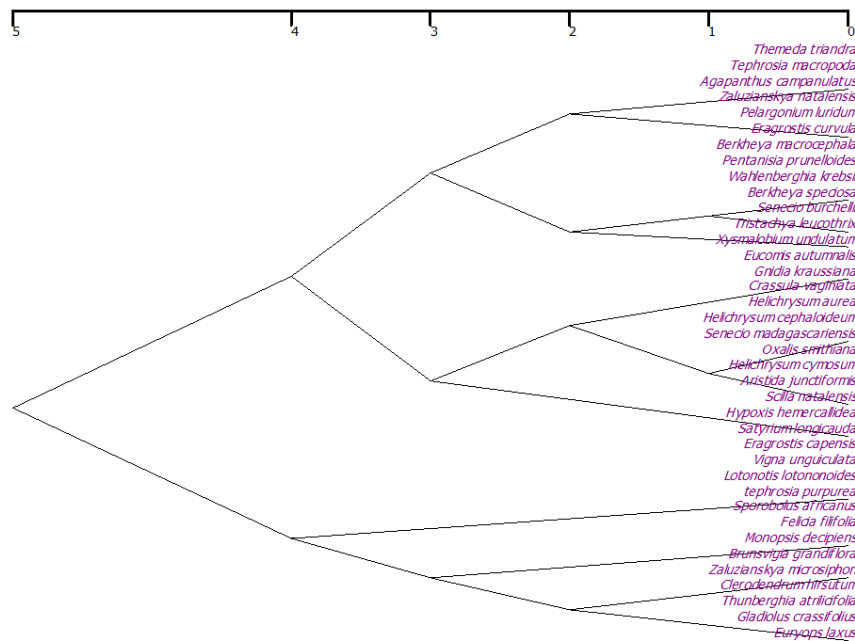


Fig. 12. Dendrogram indicating TWINSpan results for species association

Fig. 13 below, identifies those sites that show similarity according to the botanical associations identified within the site. As can be identified from Fig. 13, the sample transects indicated similarities across site that showed little spatial association. Such result indicates that factors such as soil depth or possibly grazing intensity may be drivers of such association.

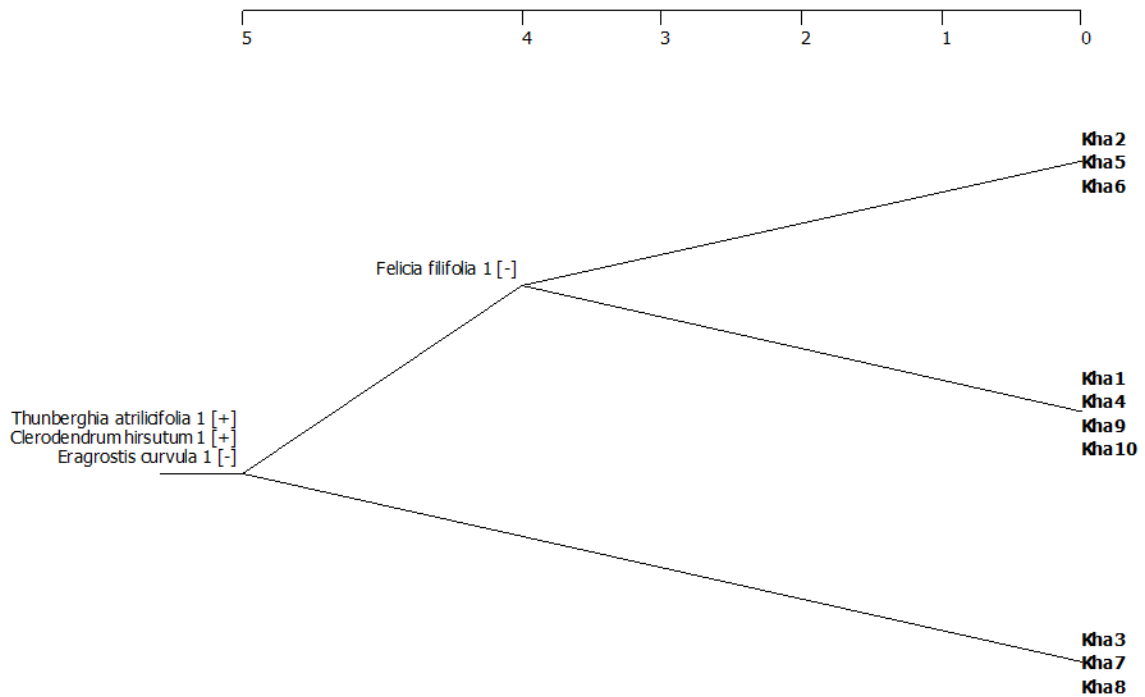


Fig. 13. TWINSpan Dendrogram indicating site association results

Additional analysis of the collated data was undertaken using Principle Component Analysis (PCA). PCA is utilised to summarise the relationship between a large number of species and samples. The PCA was weighted to omit outlier species. The results of the PCA analysis (Fig. 14) indicated some minor differences in site associations, however as per the TWINSpan results, these results showed no significant relationships/trends across site.

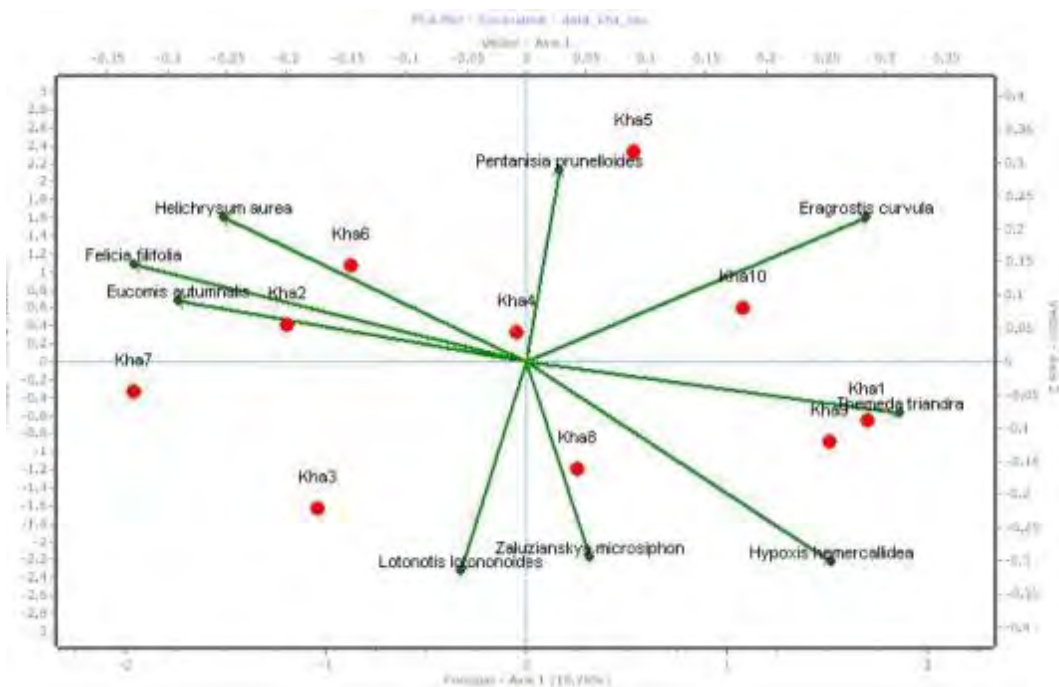


Fig.14 PCA results in graphic form indicating species to site associations

Given the above, it can be concluded that from a botanical perspective that:

- The study area shows a high level of botanical diversity across the site.
- Such diversity does not appear to follow any trends (i.e. is not associated with aspect or elevation).
- Given the prevailing terrain, influences on species diversity are possibly random and relate to depth of soils and grazing intensity.

#### 4.1 Fauna

Further consideration of the site indicated that the area was of significance in terms of forage for a number of grassland associated aves. Noted on the site were *Sagittarius serpentarius* (Secretary bird), an uncommon to locally common species listed as “near threatened” (Roberts 2012), and *Macronyx capensis* (Cape longclaw), a species typical of higher altitude grasslands.

Consideration of the SABAP2 atlas (Pentad 2929BC) indicated that a total of 212 species had been logged in the area including a number of raptors and other species associated with grassland environments ([http://sabap2.adu.org.za/coverage.php#menu\\_top](http://sabap2.adu.org.za/coverage.php#menu_top)). Amongst these species are wattled crane (*Bufo carunculatus*) and white winged flufftail (*Sarothrura ayresi*) which are of particular conservation significance.

Furthermore, although limited in terms of larger vertebrates, evidence of the presence of *Chrysospalax villosus*, the rough haired golden mole, was identified on site. (Fig. 15). *C villosus* is listed as “vulnerable” according to the IUCN Red List, primarily on account of disturbance to its preferred habitat. A number of invertebrates and vertebrates are noted within the EKZNVWildlife C Plan data base as being specific to the area including oribi (*Ourebia ourebi*) and the millipedes *Centrobolus tricolor* and *Doratogonus montanus*.



Fig. 15 image of *C villosus* ([www.afrotheria.net](http://www.afrotheria.net)) and entrance to fortress on site.



#### 4.2 Wetland and other hydrological linkages

A preliminary review of wetland systems within the region indicated that all wetlands are associated with hillside seeps and riparian zones (floodplain wetlands). Given the placement of the subject site within the landscape and with reference to Fig. 16 below, it is evident that the subject site does not impinge directly on any wetland systems, however as indicated above, the site does fall within 500m of such wetland systems. It is clear that disturbance of ground as a result of cultivation may have indirect effects upon hydrological systems in the region. Such impacts would be ameliorated through good agricultural practices being instituted.



Fig. 16 image indicating wetland systems identified around site

### 5. CONCLUSION

From the above the following summary of bio physical and geophysical information is provided. This data indicates that:

1. The selected site comprises primarily of a grassland veld form, which is representative of the Drakensberg Foothill Moist Grassland veld type.
2. The site shows high botanical diversity with limited disturbance from other land uses, as well as little invasion by exotic vegetation.

3. Faunal affiliation with the site is considered to be strong on account of the high level of transformation of adjacent lands (primarily plantation and urban settlement), while evidence and observation of the presence of primarily aves and a fossorial mammal identified on site were made.
4. Wetland and riparian systems are associated with the Mtshezana and Boesmans River systems and lie in close proximity to the site. No wetland systems are identified on site, however some sites do fall within 500m of the subject property.

Table 1 indicates the significance and importance of the subject site

Table 1. Table indicating qualitative forecast of impact significance for proposed site development

<b>Khanyane Agricultural Project – ecological loss and mitigation</b>					
<b>Spatial extent</b>	<b>Duration</b>	<b>Probability</b>	<b>Significance</b>	<b>Status</b>	<b>Confidence</b>
Local	Long term	Definite	Highly Significant	Very High	Very High
<p><b>Comment:</b></p> <p><b>The proposed cultivation of approximately 19 ha of grassland at the identified Khanyane Agricultural site will see significant transformation of a portion of grassland located in an area of the Drakensberg foothills that continues to be and has been, subject to significant transformation through silviculture and urban settlement. As such the site can be considered a relic grassland within the local region and although it is used for grazing of livestock this is a passive activity from an ecological perspective. Biodiversity within the botanical community remains high and the association of fauna with the site is implicit.</b></p> <p><b>It is strongly recommended that alternative sites be sought for the cultivation of crops on a commercial basis. Preferred land use options for the site could be considered as</b></p> <ul style="list-style-type: none"> <li>• Grazing of livestock under a managed regime</li> <li>• Tourism (bird watching etc)</li> <li>• Conservation</li> </ul>					
<b>Assessment status after all mitigation measures are applied</b>					
<b>Spatial extent</b>	<b>Duration</b>	<b>Probability</b>	<b>Significance</b>	<b>Status</b>	<b>Confidence</b>
Local	Long term	Definite	Highly Significant	Very High	Very High

Fig. 17 below indicates the general nature of the site. While it is accepted that the agricultural potential of soils in the region are generally good, the site shows variable soil depth, with sandstone outcrops which may constrain larger scale commercial cultivation activities.



Fig. 17. Image across site indicating sandstone outcrops and graminoid dominance

Alternative land use options for the site may include conservation and the maintenance of the present land use which is livestock grazing. Alternative sites for consideration in respect of the cultivation of various crops may be considered in close proximity to kwaMankonjane or proximal to the existing plantations.

## **References (cited and uncited)**

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[www.sabap2.adu.org.za/coverage.php#menu\\_top](http://www.sabap2.adu.org.za/coverage.php#menu_top)

[www.iucnredlist.org](http://www.iucnredlist.org). The IUCN Red List of Threatened Species 2013.2

## Annexure Ä

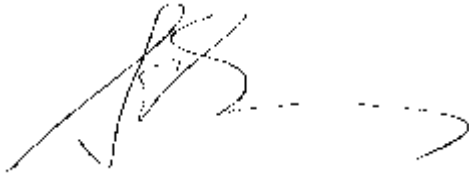
	Kha1	Kha2	Kha3	Kha4	Kha5	Kha6	Kha7	Kha8	Kha9	Kha10
<i>Brunsvigia grandiflora</i>	1	1	1	0	0	0	1	0	0	0
<i>Helichrysum cymosum</i>	1	1	1	1	1	0	1	0	1	1
<i>Eucomis autumnalis</i>	0	1	0	0	0	1	1	0	0	0
<i>Senecio madagascariensis</i>	1	1	0	0	1	1	1	1	1	1
<i>Berkheya macrocephala</i>	1	1	0	0	0	0	0	0	0	0
<i>Aristida junctiformis</i>	1	1	1	1	1	0	1	1	1	1
<i>Themeda triandra</i>	1	0	0	0	0	0	0	0	1	1
<i>Eragrostis capensis</i>	1	1	1	1	0	1	1	1	1	0
<i>Vigna unguiculata</i>	1	1	1	1	0	1	1	1	1	0
<i>Oxalis smithiana</i>	1	1	1	1	1	1	1	1	1	1
<i>Hypoxis hemerallidea</i>	1	0	1	0	0	0	0	1	1	1
<i>Sporobolus africanus</i>	0	1	1	0	0	0	0	0	0	0
<i>Scilla natalensis</i>	1	0	0	1	0	1	1	1	0	1
<i>Tephrosia macropoda</i>	1	0	0	1	0	0	0	0	1	0
<i>Satyrium longicauda</i>	1	0	1	0	0	0	0	0	0	1
<i>Xysmalobium undulatum</i>	1	1	0	1	1	1	0	1	0	0
<i>Crassula vaginiata</i>	1	1	1	0	0	0	0	0	0	0
<i>Felicia filifolia</i>	0	1	1	0	1	1	1	0	0	0
<i>Lotonotis lotonoides</i>	1	1	1	1	0	0	1	1	1	0
<i>Zaluzianskya microsiphon</i>	0	0	1	0	0	0	0	1	1	0
<i>Pentanisia prunelloides</i>	0	1	0	1	1	0	0	0	0	1
<i>Helichrysum aurea</i>	0	1	1	1	1	1	1	0	0	1
<i>Wahlenberghia krebsii</i>	0	0	0	1	0	1	0	0	0	0
<i>Agapanthus campanulatus</i>	1	0	0	0	0	0	0	0	0	0
<i>Clerodendrum hirsutum</i>	0	0	1	0	0	0	1	0	0	0
<i>Monopsis decipiens</i>	0	0	0	0	1	0	1	0	0	0
<i>Zaluzianskya natalensis</i>	0	1	0	1	0	0	0	0	0	1
<i>Pelargonium luridum</i>	1	0	0	0	1	0	0	0	1	0
<i>Gnidia kraussiana</i>	1	1	0	0	1	1	1	0	0	0
<i>Thunberghia atrilicifolia</i>	0	0	0	0	0	0	1	1	0	0
<i>Helichrysum cephaloideum</i>	0	1	1	1	0	1	1	0	1	0
<i>Gladiolus crassifolius</i>	0	0	0	0	0	0	1	1	0	0
<i>Senecio burchellii</i>	0	0	0	0	1	0	0	0	0	0
<i>tephrosia purpurea</i>	0	0	1	1	0	0	1	0	0	1
<i>Berkheya speciosa</i>	1	1	0	0	1	0	0	0	1	0
<i>Eragrostis curvula</i>	1	0	0	1	1	1	0	0	1	1
<i>Euryops laxus</i>	0	0	0	0	0	0	0	1	0	0
<i>Tristachya leucothrix</i>	0	0	0	0	1	0	0	0	0	0



## **Declaration**

I Simon C Bundy (ID No 6609097 5257 081), declare that I have no vested interest in the proposed development of the Khanyane Agricultural Project , Imbambazane.

I am a registered ecologist with the South African Council of Natural Scientific Professionals (No.400093/06) with 24 years' experience. A curriculum vitae is attached below

A handwritten signature in black ink, appearing to be 'S. Bundy', written over a horizontal dashed line.

**CURRICULUM VITAE**  
**SIMON COLIN. BUNDY**

**NAME OF FIRM : Sustainable Development Projects cc**

**NAME OF STAFF** Simon Colin Bundy

**PROFESSION** Ecologist / Environmental Assessment Practitioner

**DATE OF BIRTH** 7 September 1966

**PLACE OF BIRTH** Glasgow, Scotland

**NATIONALITY** South African / British

**MEMBERSHIP OF PROFESSIONAL BODIES** : South African Council of Natural Scientific Professionals No. 400093/06 – Professional Ecologist

**KEY QUALIFICATIONS**

Simon Bundy has been involved in environmental and development projects and programmes since 1991 at provincial, national and international level, with employment in the municipal, NGO and private sectors, providing a broad overview and understanding of the function of these sectors. With a core competency in coastal ecology and coastal management, Bundy has worked on coastal projects in the Seychelles and Tanzania providing ecological and general environmental advice and support. Within South Africa, Bundy has been involved in a number of large coastal projects including residential estates, infrastructure and linear developments in KwaZulu Natal, Eastern Cape and Western Cape. In such projects Bundy has provided both technical ecological support, as well as the undertaking of environmental impact assessments.

Allied to the above, Bundy has provided technical assistance to the “Save the Wild Coast” initiative through a technical report outlining the concerns relating to dune mining in and around the Xolobeni prospecting region while also evaluating critically, a number of environmental impact assessments and technical reports for various clients. Such evaluations have included “sea defence structures at Buffalo Bay, Western Cape”, through the Nelson Mandela University. Bundy has also assisted iSimangaliso Wetland Park in its initiatives against unlawful developments in the Bangha Nek region. Bundy has also acted as expert witness on ecological issues on a number of legal cases. From a technical specialist perspective, Bundy is competent in a large number of ecological methodologies and analytical methods including statistical methods ; multivariate analysis and canonical analysis. Bundy is competent in wetland delineation and has formulated ecological coastal set back methodologies for EKZN Wildlife and the Oceanographic Research Institute. Bundy acts as botanical specialist for Eskom Eastern Region, with specific interest in coastal habitat forms.

**EDUCATION**

Matriculation : DHS 1986

BSc Biological Science (1990) University of Natal

Diploma Project Management (1997) Executive Education

MSc (2004) University of KwaZulu Natal

1998 : Guest of Konrad Adenauer Foundation to Berlin to consider “sustainable development initiatives” in Europe

2000 : Training course : “Environmental Economics and Development”. University of Colorado (Boulder) USA.

**SELECTED RELEVANT PROJECT EXPERIENCE**

**Task Team Chair and Project Ecologist : Task Team for Coastal Disaster Management, KwaDukuza 2007 - 2011**

Management of coastal clean up programme immediately following March storm event of 2007. Activities included introduction of geofabric bag protection options, coastal retreat implementation and development of policy on coastal management following destruction of coastline.

**Ecological Review of Lake Mzingazi for Umhlatuze Water : University of kwaZulu Natal – (2010)**

Review of habitat structure and integrity of Mzingazi Lake System at Richards Bay required to interpret transformation of aquatic system over time and evaluate forecast for future reference.

**Ecological Review of Lake Mzingazi for Umhlatuze Water : CSIR – (2013)**

Review of water quality and habitat structure and integrity of Mzingazi Lake System as expansion of existing knowledge base at uMhlatuze Water

**Project Leader and Coastal Specialist : Addington Farm Strategic Environmental Assessment (2010)**

Strategic assessment in and around the Addington Farm / KwaDukuza region relating to development in sensitive coastal and estuarine environments including the Seteni and Umvoti River estuaries.

**Ecologist and Environmental Specialist : Dukuduku Resettlement Programme (2008 - date)**

As environmental consultant to this COGTA led initiative, the project has entailed understanding the ecological function of various components of the Dukuduku forest and identifying an ecologically defensible boundary line between the iSimangaliso Park and the proposed Dukuduku development area. Other components of project have included defining “development regions”, providing ecological and general environmental guidance and liaising with various government departments.

**Terrestrial and Coastal Ecologist : Environmental management and ecological component - Port of Richards Bay Expansion (2010)**

Investigation and due diligence report into the requirement for “off set” and “connectivity” following the proposed expansion of the Port of Richards Bay for Transnet. Project entailed identification and evaluation of various estuarine and coastal components and recommendations on the opportunity to offset, mitigate and avoid destruction under a port expansion scenario.

**Ecological Services for Emnambithi Open Space System review – Emnambithi Municipality(2010)**

Review and identification of ecological components within the Emnambithi Municipal area in order to establish an open space management system within the Municipal area.

**Ecological and Dune retreat investigation of the Sodwana Bay Node Isimangaliso Wetland Park Authority (2013)**

Specialist investigation into the retreat of frontal and secondary dune forms at the Sodwana Beach node, calculating retreat and progradation over a 60 year timeframe and provision of management recommendations on redevelopment of node.

**PUBLICATIONS**

**Bundy S C and Smith A M 2009** “ *Analysis of the Recovery of Two Separate Coastal Dune Systems Following the 2006 – 2007 Marine Erosion Event and Assessment of the Artificial Dune System in Coastal Management*” KZN Marine and Coastal Management Symposium, Durban South Africa.

**Bundy S C , Smith AM, Mather AA 2010**“ Dune retreat and stability on the Northern Amanzimtoti Dune Cordon” EKZN Wildlife Conservation Symposium 2010

**Smith, A Mather AM Bundy SC, Cooper AS Guastella L, Ramsay PJ and Theron A ; 2010** “*Contrasting styles of swell-driven coastal erosion: examples from KwaZulu-Natal, South Africa*” *Geology Journal*”, Cambridge University Press

**Smith, AM, L Guastella , SC Bundy and AA Mather 2007**“*Coastal Storm Damage in the March 2007 Storm* SA Journal of Science 2007 “A Synopsis of Recent Storm Events”

**Guastella L, Smith A Mather A and Bundy S** 2008 “*As Memories Fade - A Review of the Post 2007 Coastal Erosion Events*” African Wildlife 32 / 2008

**Smith A, Mather A, Theron A, Bundy S and Guastella L** 2008 “*The 2006-2007 KwaZulu – Natal Coastal Erosion Event in Perspective*” 2009 Contribution to the The South African Environmental Observation Network publication “ Climate Change in Southern Africa”

**Smith A and Bundy S** 2009 “*Coastal erosion: reparative work on the Ballito coastline, KwaZulu-Natal, South Africa, was it enough?*” 2009 International Multi Purpose Reef and Coastal Conference, Jeffrey’s Bay South Africa.

**Smith AM, SC Bundy** 2012 “Review of Coastal Defence Systems in Southern Africa” Article for Springer Scientific Publications through Ulster University, Pilkey and Cooper

**Bundy SC AM Smith, L Guastella** 2012 “*A Review of Select Dune Rehabilitation Initiatives and a Proposed Methodology towards Ensuring a Prudent Approach towards the “Greening of Dunes”* VI International Sandy Beaches Symposium Emphakweni Port Alfred

Various popular articles including documentaries on coastal and climate change issues

# APPENDICES

## DRAFT BASIC ASSESSMENT REPORT

PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

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# BASIC ASSESSMENT REPORT

## APPENDIX E: COMMENTS AND RESPONSES REPORT

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# APPENDICES

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## APPENDIX E: PUBLIC PARTICIPATION

### PUBLIC PARTICIPATION REPORT

Two notice boards (84.1 cm x 59.4 cm) were fixed at the entrance gate to the existing proposed development site 20 January 2016. The notice boards were provided in both English and Zulu.

*Refer to:*

Appendix E.1: Copy of the letter to I&APs to notify them of the initiation of the Basic Assessment process.

Appendix E.2: Copy of the newspaper advertisements and proof of placement.

Appendix E.3: Copy of the site notice boards and proof of placement thereof.

Appendix E.4-E.6: Proof of registered mail to notify I&APs of the release of the BID.

Appendix E.7: Comments received from I&APs following the release of the BID.

Appendix E.8: The comments and responses trail

Appendix E.9: The I&P database.



Appendix E.2: Newspaper Advertisement (Estcourt and Midlands 13 November 2015)

Visit our online site for daily news update:  
estcourtnews.co.za



**UMTSHEZI MUNICIPALITY  
PUBLIC NOTICE**

Notice is hereby given that an application has been lodged with Umtshezi Local Municipality in terms of Chapter 3-Subdivision and Chapter 6-Removal of restrictive conditions of the Kwa-Zulu Natal Planning and Development Act No. 6 of 2008 and in terms of Chapter 6 of Spatial Planning and Land Use Management Act No. 16 of 2013, on Portion 15 (of 1) of the Farm Wilgen Split No. 300.

Any person having an interest in the proposed application may lodge written comments not later than 23 December 2015 to the Acting Municipal Manager, Mr E.H Dladla, Umtshezi Municipality, P.O. Box 15, Estcourt, 3310 or deliver such written comments to Zandokuhle Mthethwa, Old Post Office Building, corner of Connor and Lorne Street, Estcourt.

Copies of the application document will be available for inspection in the Town Planning Office, situated at corner of Connor and Lorne Street, Estcourt, in the Old Post Office Building during normal office hours.

Please be advised that failure to lodge or forward comments in response to this notice by the aforementioned date disqualifies a person from further participating in the process.

Enquiries: Z.N Mthethwa 036 352 2352

ACTING MUNICIPAL MANAGER  
E.H DLADLA

NOTICE NO: 54/15

**CUSTOMER CARE  
NUMBER**

**0860 104 257**

The public is hereby advise to make use of the above customer care number which is available 24H / 7 days per week, should they wish to log any water or sewer related queries.

All queries that are logged, will be issued with a reference number.




**LEGALS**

**All Advertisers Take Note**

Our deadline is Monday at 10:00.  
All bookings and ad copy must reach us by 10.00. Cancellations will only be accepted in writing.

IN THE MAGISTRATE'S COURT FOR THE DISTRICT OF MOOI RIVER HELD AT MOOI RIVER

CASE NO. 119/2015

In the matter between:  
DR H. G. DYS  
and  
W. SAUTU

Execution Debtor  
Execution Debtor

**SALE IN EXECUTION**

KINDLY TAKE NOTICE that in terms of a Judgement passed on the 12 SEPTEMBER 2015 in the Pietermaritzburg Magistrate's Court and Warrant of Execution issued thereafter, a sale in execution of the under-mentioned goods will be held at 123 Alfred Street, Estcourt on 27 November 2015 at 10:00, consisting of:

- GOODS:**
- 1 x 3 Phase Lounge Suite
  - 1 x Glass Top Coffee Table
  - 1 x General Plasma TV
  - 1 x Sony Hi-Fi System
  - 1 x Steel & Glass TV Stand
  - 1 x Double Door Refrigerator Freezer
  - 1 x LG Microwave
  - 1 x 3 Phase Dining Room Suite

To the highest bidder IN CASH.

- TAKE FURTHER NOTICE THAT:
1. The sale is in the sale in execution pursuant to a Judgment obtained in the above court.
  2. The Rules of this auction is available 24 hours before the auction at the office of the Sheriff Estcourt.
  3. Registration as a buyer is a pre-requisite subject to specific conditions, in this order:
    - a) Directive of Consumer Protection Act 68 of 2008;
    - b) FICA - registration in respect of proof of identity and address particulars;
    - c) Payment of a Registration fee of R 1000.00 in cash;
    - d) Registration conditions.

The office of the Sheriff or the Executive Officer will conduct the sale in execution.

**EXECUTION CREDITOR'S ATTORNEY  
PITCHER & FISHER ATTORNEYS  
TEL: 033 - 5442988  
FAX: 033 - 544 2117  
E-MAIL: greg@pitcherfisher.co.za  
(REF: 086/147139/160)**

**ESTATE NOTICE**

IN THE ESTATE OF THE LATE HANDESH RAMULU Identity Number: 4112140200034 OF 80, Cavendish Drive, 46, Sankar, 2740 (Date of Birth: 02/07/1914)

In terms of Section 26 (1) of Act 93 of 1963 notice is hereby given that the Executor's Final and Final Liquidation and Distribution Account will be for inspection to all persons interested therein at the offices of the Master of the High Court, PIETER MARITZBURG, and the Magistrate Estcourt, for 21 days, calculated from the 13 November 2015.

Should no objection be lodged hereto during the said period the Executor will proceed to make payment in accordance therewith.

DATED AT EST COURT on the 02 November 2015

**LOMBARD  
GOLDENHUYT  
ATTORNEYS FOR  
EXECUTOR  
81 HARDING STREET  
P.O. BOX 18  
ESTCOURT  
REP: 116882001  
Tel: 033 362 0100**

**ESTATE NOTICE**

IN THE ESTATE OF THE LATE MURIEL JEAN ZORNIEVELD

12 Feb. 2010/13 0047 98 6 inherited out of community of property of 3 Hillside Flats 44 Olney Road ESTCOURT 3310 and who died on 16 September 2015.

WATERS REFERENCE NO. 77410516/PMS

Creditors and Debtors in the above estate are hereby called upon to lodge their claims and to pay their debts to the undersigned within thirty (30) days from date of publication hereof.

**JORDAAN  
GOLDENHUYT'S  
210 Albert Street  
P.O. Box 886  
ESTCOURT**

**ESTATE NOTICE**

IN THE ESTATE OF THE LATE DONALD DEUDNEY SIMMONS ID No: 800716 0265 080 of Rooftop Farm, Dennis Coetzee Road, Mooi River.

Estate No. 80042016/PMS

Notice is hereby given that the Amended Final Liquidation and Distribution Account in the above Estate will be for inspection at the Mooi River Magistrate's Court for a period of twenty-one (21) days as from date of publication hereof.

Dated at Pietermaritzburg this 11<sup>th</sup> day of November 2015.

**Mark Robert Daniel  
CA (SA) CFP  
Gresham Fiduciary Services (Pty) Ltd.  
Postnet Suite 56,  
Private Bag 20066,  
Pietermaritzburg,  
3201.**

Notice of Basic Assessment for the proposed intake and basin construction and housing of wastewater on a portion of land owned by KwaZulu Natal Traditional Council, Indobuzwana Local Municipality, KwaZulu Natal.

CSIR ENG Reference No: CSIR/ENG/15/0016/0001/001

Notice is hereby given that a Basic Assessment (BA) process being undertaken in terms of Chapter 4 of the National Environmental Management Act (NEMA) 2002, in order to assess the proposed project against the National Environmental Management Act (NEMA) 2002, in order to determine the proposed project against the following listed activity: 27(1)(b) Activity 27, namely the discharge of any liquid effluent to surface water, but does not include discharge of effluent to surface water, where such discharge of effluent is regulated by a licence issued in terms of the National Water Act (NWA) 1956.

The Council for Scientific and Industrial Research (CSIR) is the Environmental Assessment Practitioner (EAP) who will be managing the BA process.

You are invited to register as an interested party for affected party (IAP) status to provide any written comments on the BA process by 14 December 2015. To obtain further information on the project and to register as an IAP, please provide your full name, full postal address, phone numbers, email address and also your state of residence to: Mr. Andile Adams, CSIR, PO Box 339, Tlokweng 7700, Free State 081 588 5881, Fax: 0811 888 2882 or Email: andad@csir.co.za



## APPENDICES

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### **Notice of Basic Assessment for the proposed maize and bean cultivation and harvesting enterprise on a portion of land owned by KwaMkhize Traditional Council, Imbabazane Local Municipality, KwaZulu Natal.**

**CSIR EMS Reference No: CSIR/CAS/EMS/IR/2015/00011/A**

Notice is given of a Basic Assessment (BA) process being undertaken on behalf of Khanyani Agricultural Co-operative (the Project Applicant) for the proposed maize and bean cultivation and harvesting enterprise. The proposed project will be located on a portion of land owned by KwaMkhize Traditional Council, Imbabazane local municipality, KZN, with the centre point having the following GPS coordinates: 29° 41' 33" E, 29° 13' 1" S and a total area for cultivation is 19.5 hectares.

In terms of the NEMA EIA Regulations published in Government Notice Regulation (GNR) 983 on 8 December 2014 Government Gazette Number 38282, a BA process is required as the project triggers the following listed activities: *GNR 983 Activity 27*.

The Council for Scientific and Industrial Research (CSIR) is the Environmental Assessment Practitioner (EAP) who will be managing the process.

You are invited to register as an Interested and/or Affected Party (I&AP) and/or to provide any written comments on the BA process by 14 December 2015. To obtain further information on the project and/or to register as an I&AP, please provide your full name, full postal address, phone numbers, email address and state your area of interest and/or concern to: **Ms. Abulele Adams, CSIR, PO Box 320, Stellenbosch 7599, Phone: (021) 888 2482, Fax: (021) 888 2693 or Email: [aadams1@csir.co.za](mailto:aadams1@csir.co.za)**






# APPENDICES





# APPENDICES

## Appendix E.4: Proof of Notification of release of BID

  
 10/11/2015

Name & Signature of person responsible for post: F. Hlatshway  
 41 items – Registered Post (Khanyani Agricultural Co-Operative BA- 9 November 2015) Abulele  
 Adams 021 888 2482  
 EMS0076 / RUN / 04100 / OKG10

Department of Environmental Affairs MMatlala Rabothatha Fedsure Building Private Bag X447 315 Pretorius Street Pretoria 0002	Department of Environmental Affairs Sibusisiwe Hlela Fedsure Building Private Bag X447 315 Pretorius Street Pretoria 0002	Department of Environmental Affairs Takalani Nemarude Fedsure Building Private Bag X447 315 Pretorius Street Pretoria 0002
Department of Agriculture, Forestry and Fisheries Mashudu Marubini Private Bag X138 Pretoria 0001	Department of Agriculture, Forestry and Fisheries Thoko Buthelezi Private Bag X120, Pretoria 0001	WESSA Tumi Lehabe PO Box 435, Ferndale, 2160
The Endangered Wildlife Trust, Adams Pires Private Bag X11, Modderfontein, 1609, Johannesburg	KZN Department of Economic Development, Tourism and Environmental Affairs- HOD Private Bag X9152 Pietermaritzburg 3200	KZN Department of Economic Development, Tourism and Environmental Affairs Reta Kallicharan Private Bag X07, Pietermaritzburg, 3202
KZN Department of Economic Development, Tourism and Environmental Affairs Kraigen Govindasamy Private Bag X07, Pietermaritzburg, 3202	KZN Department of Economic Development, Tourism and Environmental Affairs: South Region Mavis Padayachee Private Bag X6005, HILTON, 3245	Department of Agriculture, Forestry and Fisheries – KZN Karen Moodley Private Bag X9029, Pietermaritzburg, 3200
Department of Agriculture, Forestry and Fisheries – KZN Thembile Dlungwana Private Bag X9029, Pietermaritzburg, 3200	Department of Agriculture, Forestry and Fisheries – KZN Jeffrey Maivha Private Bag X9029, Pietermaritzburg, 3200	Department of Agriculture, Forestry and Fisheries –Land Use and Soil management B.N. De Lange private bag x120, Gezina
The Endangered Wildlife Trust, Carla van Rooyen Private Bag X11, Modderfontein, 1609, Johannesburg	The Endangered Wildlife Trust, Dr H Davies-Mostert Private Bag X11, Modderfontein, 1609, Johannesburg	Department of Agriculture, Forestry and Fisheries – Forestry regulations and Support- KZN Nandipha Sontangane Private Bag X9029, Pietermaritzburg 3200

## APPENDICES

<p>Department of Water and Sanitation Ms M Musekene Private Bag x313, Pretoria 0001</p>	<p>Department of Water and Sanitation Ms T Rakgotho Private Bag x313, Pretoria 0001</p>	<p>Council for Geoscience Private Bag x112, Pretoria 0001</p>
<p>Birdlife Simon Gear PO Box 515 Randburg, 2194</p>	<p>South African National Parks (SANParks) Dr Howard Hendricks PO Box 787, Pretoria, 0001</p>	<p>Department of Rural Development and Land Reform – KZN Babhekile Mpisane Private Bag X9000, Pietermaritzburg, 3200</p>
<p>Department of Rural Development and Land Reform – KZN Private Bag X9000, Pietermaritzburg, 3200</p>	<p>Department of Transport – KZN R. Ryan Private Bag X9043, Pietermaritzburg 3200</p>	<p>Department of Water Affairs– KZN Neo Leburu PO Box 1018, Durban, 4000</p>
<p>Department of Water Affairs– KZN Colleen Moonsamy PO Box 1018, Durban, 4000</p>	<p>Department of Co-operative Governance and Traditional Affairs: Development Planning KZN Ms D N Qhobosheane Private Bag X9078 Pietermaritzburg 3200</p>	<p>uThukela District Municipality Municipal manager PO Box 116 Ladysmith, 3370</p>
<p>Imbabazane Local Municipality Municipal Manager Po Box 750 Escourt 3310</p>	<p>South African Heritage Resources Agency (SAHRA) Marie South PO Box 4637, Cape Town, 8000</p>	<p>Khanyani Agricultural Co-Operative PO Box 54801 Estcourt 3310</p>
<p>Dry Bean producers' Organisation P.O. Box 26269 Arcadia 0007</p>	<p>Grain SA P. O. Box 88 Bothaville 9660</p>	<p>Ezemvelo KZN Wildlife Nerissa Pillay 1 Peter Brown Drive P.O. BOX 13053 Cascades 3200</p>

## APPENDICES

Zululand Chamber of Commerce and Industry Thula Mkhwanazi PO Box 649, Richards Bay, 3900	Zululand Environmental Alliance Debbie Smith PO Box 442, Kwambonambi, 3915	WWF – SA (Land Programme Manager) Natasha Wilson PO Box 23273; Claremont; 7735
South African National Biodiversity Institute (SANBI) – Invasive plants Michael Cheek PO Box 52099, Durban, 4000	AMAFA KZN PO Box 2685, Pietermaritzburg 3206	



# APPENDICES

<p><b>REGISTERED LETTER GEREGISTREERDE BRIEF</b> </p> <p><i>(with an insurance option/met 'n versekeringsopsie)</i></p> <p><b>Full tracking and tracing/Volledige volg en spoor</b></p> <p>Addressed to/Geadresseer aan  <u>Birdlife</u>  <u>Simon Gear</u>  <u>Po Box 515</u>  <u>Randburg</u> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> Postcode  <u>Postcode</u></p> <p><small>The value of the contents of this letter is as indicated and compensation is not payable for a letter received undamaged. Compensation is limited to R100.00. No compensation is payable without documentary proof. Optional insurance up to R2 000.00 is available and applies to domestic registered letters only.          Die waarde van die inhoud van hierdie brief is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat onbeskadig ontvang word. Vergoeding is beperk tot R100.00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering tot R2 000.00 is beskikbaar en is slegs op binnelandse geregisteerde briewe van toepassing.</small></p>	<p>Postage paid R _____ c</p> <p>Service fee/Diensgeld R _____ c</p> <p>Insurance/Versekering R _____ c</p> <p><b>Total/Totaal R _____ c</b></p> <p>Insured value of contents Versekerde waarde van inhoud R _____ c</p> <p>Enquiries/Navrae Toll-free number Tolvry nommer <b>0800 111 502</b></p> <p><small>Affix Track and Trace REGISTERED LETTER (with a domestic insurance option) (Sticker RC 102 748 332 ZA) CUSTOMER COPY 301928R Klientaskrif</small></p> <p>Initial of accepting officer <u>S.A. POST OFFICE STELLENBOSCH 7599</u></p> <p>Date stamp <b>10 NOV 2015</b></p> <p>Paraaf van aanneem-beampte _____ Datumstempel <b>FOLIO 7</b></p>
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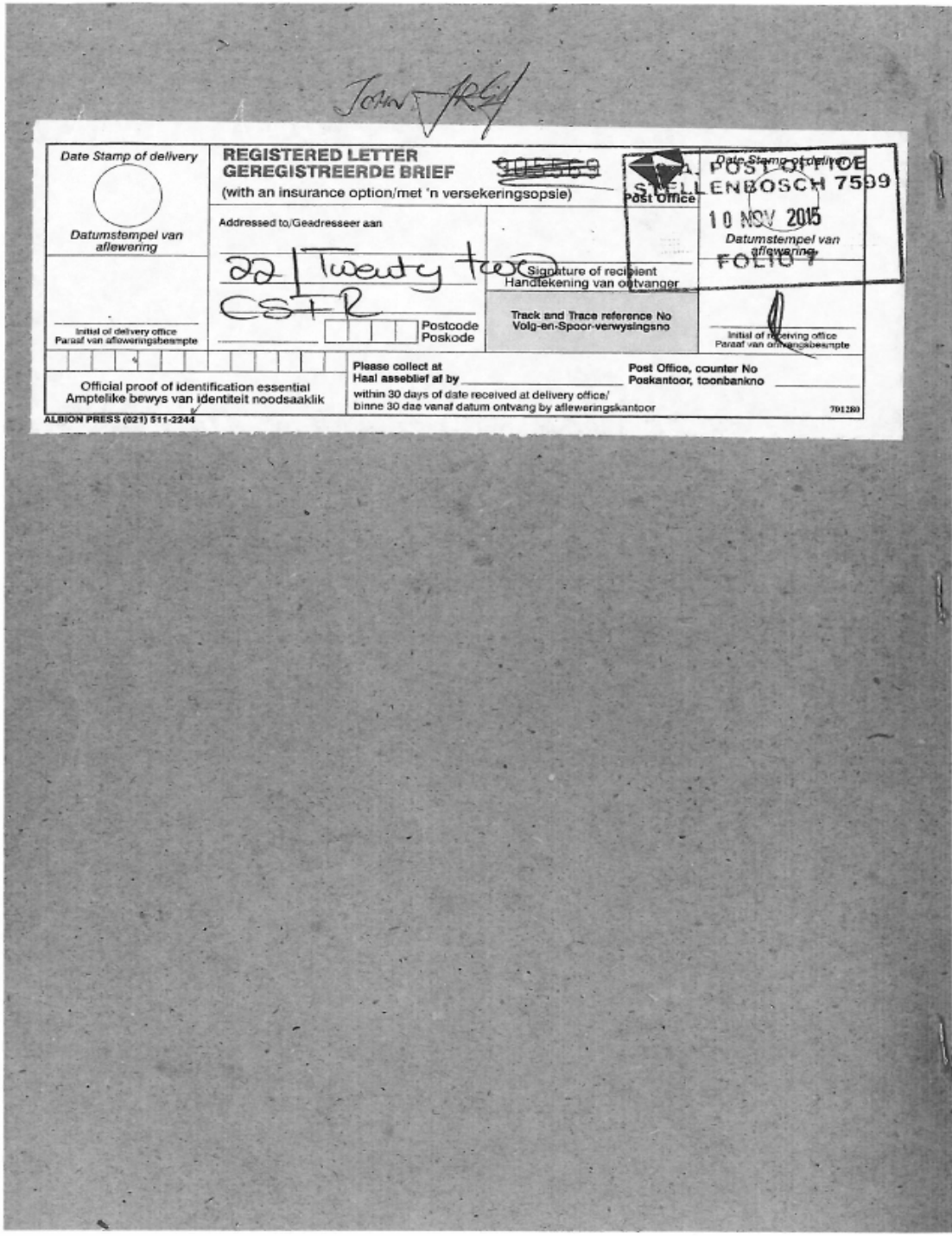
# APPENDICES

<p><b>REGISTERED LETTER</b> <b>EREGISTREERDE BRIEF</b></p> <p><i>(with an insurance option/met 'n versekeringsopsie)</i></p> <p style="text-align: right;"><b>Post Office</b></p> <p><b>Full tracking and tracing/Volledige volg en spoor</b></p> <p>Addressed to/Geadresseer aan  <b>Dept of Water and Sanitation</b>  <b>Ms M Musekene</b>  <b>Private Bag X 313</b>  <b>Pretoria</b>      <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p><small>Value of the contents of the letter is as indicated and compensation is not payable for a letter without insuranc... Compensation is limited to R100 000. No compensation is payable without documentary proof. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys.</small></p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Postage paid R</td><td style="text-align: right;">C</td></tr> <tr><td>Service fee/Diensgeld R</td><td style="text-align: right;">C</td></tr> <tr><td>Insurance/Versekering R</td><td style="text-align: right;">C</td></tr> <tr><td><b>Total/Totaal R</b></td><td style="text-align: right;"><b>C</b></td></tr> </table> <p>Insured value of contents Versekerde waarde van inhoud R <input type="text"/></p> <p>Enquiries/Navrae Toll-free number Tolvry nommer <b>0800 111 502</b></p> <p><b>REGISTERED LETTER</b> <small>(with a domestic insurance option)</small> Initial CAT 0800 111 502 <b>RC 102 749 205 ZA</b></p> <p>CUSTOMER COPY 301028R Kliëntafskrif</p> <div style="border: 2px solid black; padding: 5px; text-align: center;"> <p><b>S.A. POST OFFICE</b> <b>STELLENBOSCH 7599</b></p> <p>Date stamp <b>10 NOV 2015</b></p> <p>Paraaf van aaneem-beampte <b>FOLIO 7</b></p> <p>Datumstempel</p> </div>	Postage paid R	C	Service fee/Diensgeld R	C	Insurance/Versekering R	C	<b>Total/Totaal R</b>	<b>C</b>
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Service fee/Diensgeld R	C								
Insurance/Versekering R	C								
<b>Total/Totaal R</b>	<b>C</b>								
<p><b>REGISTERED LETTER</b> <b>EREGISTREERDE BRIEF</b></p> <p><i>(with an insurance option/met 'n versekeringsopsie)</i></p> <p style="text-align: right;"><b>Post Office</b></p> <p><b>Full tracking and tracing/Volledige volg en spoor</b></p> <p>Addressed to/Geadresseer aan  <b>Ezemvelo KZN Wildlife</b>  <b>Nerissa Pillay</b>  <b>Peter Brown Drive</b>  <b>P.O. Box 13053</b>      <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p><small>Value of the contents of the letter is as indicated and compensation is not payable for a letter without insuranc... Compensation is limited to R100 000. No compensation is payable without documentary proof. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys.</small></p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Postage paid R</td><td style="text-align: right;">C</td></tr> <tr><td>Service fee/Diensgeld R</td><td style="text-align: right;">C</td></tr> <tr><td>Insurance/Versekering R</td><td style="text-align: right;">C</td></tr> <tr><td><b>Total/Totaal R</b></td><td style="text-align: right;"><b>C</b></td></tr> </table> <p>Insured value of contents Versekerde waarde van inhoud R <input type="text"/></p> <p>Enquiries/Navrae Toll-free number Tolvry nommer <b>0800 111 502</b></p> <p><b>REGISTERED LETTER</b> <small>(with a domestic insurance option)</small> Initial CAT 0800 111 502 <b>RC 102 749 165 ZA</b></p> <p>CUSTOMER COPY 301028R Kliëntafskrif</p> <div style="border: 2px solid black; padding: 5px; text-align: center;"> <p><b>S.A. POST OFFICE</b> <b>STELLENBOSCH 7599</b></p> <p>Date stamp <b>10 NOV 2015</b></p> <p>Paraaf van aaneem-beampte <b>FOLIO 7</b></p> <p>Datumstempel</p> </div>	Postage paid R	C	Service fee/Diensgeld R	C	Insurance/Versekering R	C	<b>Total/Totaal R</b>	<b>C</b>
Postage paid R	C								
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Insurance/Versekering R	C								
<b>Total/Totaal R</b>	<b>C</b>								
<p><b>REGISTERED LETTER</b> <b>EREGISTREERDE BRIEF</b></p> <p><i>(with an insurance option/met 'n versekeringsopsie)</i></p> <p style="text-align: right;"><b>Post Office</b></p> <p><b>Full tracking and tracing/Volledige volg en spoor</b></p> <p>Addressed to/Geadresseer aan  <b>South African National Institute (SANBI)</b>  <b>Michael Cheek</b>  <b>P.O. Box 5209</b>      <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/></p> <p><small>Value of the contents of the letter is as indicated and compensation is not payable for a letter without insuranc... Compensation is limited to R100 000. No compensation is payable without documentary proof. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys. Opname van inhoud van brief is soos aangegee en vergoeding sal nie betaal word vir letter sonder dokumentêre bewys.</small></p>	<table style="width: 100%; border-collapse: collapse;"> <tr><td>Postage paid R</td><td style="text-align: right;">C</td></tr> <tr><td>Service fee/Diensgeld R</td><td style="text-align: right;">C</td></tr> <tr><td>Insurance/Versekering R</td><td style="text-align: right;">C</td></tr> <tr><td><b>Total/Totaal R</b></td><td style="text-align: right;"><b>C</b></td></tr> </table> <p>Insured value of contents Versekerde waarde van inhoud R <input type="text"/></p> <p>Enquiries/Navrae Toll-free number Tolvry nommer <b>0800 111 502</b></p> <p><b>REGISTERED LETTER</b> <small>(with a domestic insurance option)</small> Initial CAT 0800 111 502 <b>RC 102 749 267 ZA</b></p> <p>CUSTOMER COPY 301028R Kliëntafskrif</p> <div style="border: 2px solid black; padding: 5px; text-align: center;"> <p><b>S.A. POST OFFICE</b> <b>STELLENBOSCH 7599</b></p> <p>Date stamp <b>10 NOV 2015</b></p> <p>Paraaf van aaneem-beampte <b>FOLIO 7</b></p> <p>Datumstempel</p> </div>	Postage paid R	C	Service fee/Diensgeld R	C	Insurance/Versekering R	C	<b>Total/Totaal R</b>	<b>C</b>
Postage paid R	C								
Service fee/Diensgeld R	C								
Insurance/Versekering R	C								
<b>Total/Totaal R</b>	<b>C</b>								

# APPENDICES

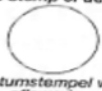
<p><b>REGISTERED LETTER</b> <b>GEREGISTREERDE BRIEF</b></p> <p style="text-align: right;"><b>Post Office</b></p> <p><i>(with an insurance option/met 'n versekeringsopsie)</i></p> <p><b>Full tracking and tracing/Volledige volg en spoor</b></p> <p>Addressed to/Geadresseer aan</p> <p style="font-size: 1.2em;">Grcin SA P.O. Box 38 Bethaville 9600</p> <p style="text-align: right;">Postcode Postkode</p> <p><small>The value of the contents of this letter is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100.00. No compensation is payable without documentary proof. Optional insurance up to R2 000.00 is available and applies to domestic registered letters only.</small></p> <p><small>Die waarde van die inhoud van hierdie brief is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word. Vergoeding is beperk tot R100.00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering tot R2 000.00 is beskikbaar en slegs op binnelandse geregistreerde briewe van toepassing.</small></p>	<p>Postage paid R _____ c</p> <p>Service fee/Diensgeld R _____ c</p> <p>Insurance/Versekering R _____ c</p> <p><b>Total/Totaal R _____ c</b></p> <p>Insured value of contents Versekerde waarde van inhoud R _____ c</p> <p>Enquiries/Navrae Toll-free number Tolvry nommer <b>0800 111 502</b></p> <p>Initial of accepting officer _____</p> <p>Date stamp _____</p> <p style="text-align: center;"><b>S.A. POST OFFICE STELLENBOSCH 7599</b></p> <p style="text-align: center;">10 NOV 2015</p> <p>Paraaf van aanneem-beampte _____</p> <p style="text-align: right;">FOLIO 7</p>
<p><b>REGISTERED LETTER</b> <b>GEREGISTREERDE BRIEF</b></p> <p style="text-align: right;"><b>Post Office</b></p> <p><i>(with an insurance option/met 'n versekeringsopsie)</i></p> <p><b>Full tracking and tracing/Volledige volg en spoor</b></p> <p>Addressed to/Geadresseer aan</p> <p style="font-size: 1.2em;">Dept of Water Affairs New Leburu P.O. Box 1018 Durban</p> <p style="text-align: right;">Postcode Postkode</p> <p><small>The value of the contents of this letter is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100.00. No compensation is payable without documentary proof. Optional insurance up to R2 000.00 is available and applies to domestic registered letters only.</small></p> <p><small>Die waarde van die inhoud van hierdie brief is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word. Vergoeding is beperk tot R100.00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering tot R2 000.00 is beskikbaar en slegs op binnelandse geregistreerde briewe van toepassing.</small></p>	<p>Postage paid R _____ c</p> <p>Service fee/Diensgeld R _____ c</p> <p>Insurance/Versekering R _____ c</p> <p><b>Total/Totaal R _____ c</b></p> <p>Insured value of contents Versekerde waarde van inhoud R _____ c</p> <p>Enquiries/Navrae Toll-free number Tolvry nommer <b>0800 111 502</b></p> <p>Initial of accepting officer _____</p> <p>Date stamp _____</p> <p style="text-align: center;"><b>S.A. POST OFFICE STELLENBOSCH 7599</b></p> <p style="text-align: center;">10 NOV 2015</p> <p>Paraaf van aanneem-beampte _____</p> <p style="text-align: right;">FOLIO 7</p>
<p><b>REGISTERED LETTER</b> <b>GEREGISTREERDE BRIEF</b></p> <p style="text-align: right;"><b>Post Office</b></p> <p><i>(with an insurance option/met 'n versekeringsopsie)</i></p> <p><b>Full tracking and tracing/Volledige volg en spoor</b></p> <p>Addressed to/Geadresseer aan</p> <p style="font-size: 1.2em;">DRDLR - KZN Private Bag X9000 Pietermaritzburg KZN</p> <p style="text-align: right;">Postcode Postkode</p> <p><small>The value of the contents of this letter is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100.00. No compensation is payable without documentary proof. Optional insurance up to R2 000.00 is available and applies to domestic registered letters only.</small></p> <p><small>Die waarde van die inhoud van hierdie brief is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word. Vergoeding is beperk tot R100.00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering tot R2 000.00 is beskikbaar en slegs op binnelandse geregistreerde briewe van toepassing.</small></p>	<p>Postage paid R _____ c</p> <p>Service fee/Diensgeld R _____ c</p> <p>Insurance/Versekering R _____ c</p> <p><b>Total/Totaal R _____ c</b></p> <p>Insured value of contents Versekerde waarde van inhoud R _____ c</p> <p>Enquiries/Navrae Toll-free number Tolvry nommer <b>0800 111 502</b></p> <p>Initial of accepting officer _____</p> <p>Date stamp _____</p> <p style="text-align: center;"><b>S.A. POST OFFICE STELLENBOSCH 7599</b></p> <p style="text-align: center;">10 NOV 2015</p> <p>Paraaf van aanneem-beampte _____</p> <p style="text-align: right;">FOLIO 7</p>
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APPENDICES



# APPENDICES

## Appendix E.6: Proof of Notification of the release of the Background Information Document

Date Stamp of delivery  
  
Datumstempel van aflewering

Initial of delivery office  
Paras van afleweringseempte

**REGISTERED LETTER  
GEREGISTREERDE BRIEF**  
(with an insurance option/met 'n versekeringsopsie)

Addressed to/Geadresseer aan  
**20 Twenty  
CSIR.**

Postcode  
[ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ]

Signature of recipient  
Handtekening van ontvanger  
*[Signature]*

Track and Trace reference No  
Volg-en-Spoor-reeksnommer

**POST OFFICE  
STELLENBOSCH 7599**

**10 NOV 2015**  
Datumstempel van aflewering

Initial of receiving office  
Paras van ontvangseempte

Official proof of identification essential  
Ampptelike bewys van identiteit noodsaaklik

Please collect at  
Haal asseblief af by \_\_\_\_\_ Post Office, counter No  
within 30 days of date received at delivery office/  
binne 30 dae vanaf datum ontvang by afleweringkantoor \_\_\_\_\_ Postkantoor, toonbankno

ALBION PRESS (021) 911-2244 701280

	Naam en adres van geadresseerde	Versekerde bedrag	Versekeringsgeld	Posgeld	Diensgeld	Piaak Volg-en-Spoor-Kliëntafskrif
1	Dep. of Econ. Develop. Reta KALLICHAID PRIVATE BAG X07, PIETERMARITZBURG, 3202					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 173 ZA CUSTOMER COPY 301028R
2	The Endors. LifeLife Trust, Pioners Pies PRIVATE BAG X11, ROODEWATEN, 1609, JHB.					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 156 ZA CUSTOMER COPY 301028R
3	WESSA, Tumi LEHABE, P.O. Box 435 FERNDALE, 2160					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 213 ZA CUSTOMER COPY 301028R
4	Dep. of Agri. Forest & Fish, Thabo RATHURU PRIVATE BAG X120, PRETORIA 0001					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 235 ZA CUSTOMER COPY 301028R
5	Dep. of Agri. Forest & Fish, Mashwai MHLONJI PRIVATE BAG X138, PRETORIA, 0001					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 258 ZA CUSTOMER COPY 301028R
6	Dep. of Environ. Affairs, Fatima MSHOMOFE P.BAG X047, 315 PRETORIA S.C. PRETORIA, 0002					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 315 ZA CUSTOMER COPY 301028R
7	Dep. of Agri, Forest & Fish, B. N. de VANGE PRIVATE BAG X120, GEZINA					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 292 ZA CUSTOMER COPY 301028R
8	Dep. of Agri, Forest & Fish - RZN, THOMPSON P. BAG X 9029, PIETERMARITZBURG, 3200					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 275 ZA CUSTOMER COPY 301028R
9	Dep. of Rural Devel. & Land Reform, KZN PRIVATE BAG X9000, PIETERMARITZBURG, 3200					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 377 ZA CUSTOMER COPY 301028R
10	(SANPARKS), de Honned Hendricks, P.O. Box 787, PRETORIA, 0001					REGISTERED LETTER (with a domestic insurance option) Afskrif 0283 171 202 www.sps.co.za RC 102 748 350 ZA CUSTOMER COPY 301028R
Total Totaal		R	R	R	R	

Number of letters posted **10**  
Getal briewe gepos

Signature of client *[Signature]* : **JOHN**  
Handtekening van klient

Signature of accepting officer *[Signature]*  
Handtekening van aanneembeampte

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

GOOD IMPRESSIONS

**S.A. POST OFFICE  
STELLENBOSCH 7599**

**10 NOV 2015**

**FOLIO 7**

Datumstempel

701248

# APPENDICES

## List of REGISTERED LETTERS Lys van GEREgistreerde BRIEWE (with an insurance option/met 'n versekeringsopsie)

Full tracking and tracing/Volledige volg en spoor



Name and address of sender: ABULLELE ADAMS  
 Naam en adres van afsender: CSIR STELLENBOSCH

Enquiries/Navrae  
ShareCall  
number/nummer  
**0800 141 502**  
www.postoffice.co.za

No.	Name and address of addressee Naam en adres van geadresseerde	Insured amount Versekerde bedrag	Insurance fee Versekeringsgeld	Postage Postgeld	Service fee Diensgeld	Affix Track and Trace customer copy Plak Volg-en-Spoor-Klientafskrif
1	COETA MS DN CONBOUWE, PRIVATE BAG X 9078, PIETERMARITZBURG, 3206					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 102 748 598 ZA CUSTOMER COPY 301028R
2	AMABA KZN, PO BOX 26 85 PIETERMARITZBURG					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 102 748 515 ZA CUSTOMER COPY 301028R
3	KZN DEPT. OF ECO. DEVEL. TURKSW Private Bag X 9152, Pietermaritzburg 3200					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 069 405 257 ZA CUSTOMER COPY 301028R
4	DEPT. OF Agric. FOREST AND FISH. KZN Private Bag X 9029, Pietermaritzb. 3200					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 069 405 230 ZA CUSTOMER COPY 301028R
5	DEPT. OF. AGRIC. FOREST & FISH. KZN Private Bag X 9029, Pietermaritzburg 3200					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 069 405 226 ZA CUSTOMER COPY 301028R
6	THE ENDANGERED WILDLIFE TRUST, Dr. H. Ooms Private Bag XII, Modderfontein, 1609, Johannesburg.					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 069 405 243 ZA CUSTOMER COPY 301028R
7	DEPT OF ENVIRON. AFFAIRS, SIRUSISIVE HEHLA Private Bag X 147, 315 Pretorius Str. Pietermaritzburg					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 069 237 409 ZA CUSTOMER COPY 301028R
8	DEPT. OF ENV. AFFAIRS, MONTANA RABOTUNTHA P. BAG X 147, 315 Pretorius Str. Pieterb., 0202					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 069 237 386 ZA CUSTOMER COPY 301028R
9	DEPT. OF AGRIC, FOREST & FISH, KZN, KwaZulu Natal Private Bag X 9029, Pietermaritzburg, 3200					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 069 237 369 ZA CUSTOMER COPY 301028R
10	DEPT OF ECON. DEVEL, KRAIGEN GOVINDASAMY P. BAG X 07, PIETERMARITZBURG, 3202					REGISTERED LETTER (with a domestic insurance option) Afskrif met 'n domestiese versekeringsopsie RC 102 748 195 ZA CUSTOMER COPY 301028R
	Number of letters posted Getal briewe gepos	10	R	R	R	R

Signature of client  
Handtekening van kliënt: [Signature]

Signature of accepting officer  
Handtekening van aanneembeampte: [Signature]

The value of the contents of these letters is as indicated and compensation is not payable for a letter received unconditionally. Compensation is limited to R100,00. No compensation is payable without documentary proof. Optional insurance of up to R2 000,00 is available and applies to domestic registered letters only.

Die waarde van die inhoud van hierdie briewe is soos aangedui en vergoeding sal nie betaal word vir 'n brief wat sonder voorbehoud ontvang word nie. Vergoeding is beperk tot R100,00. Geen vergoeding is sonder dokumentêre bewys betaalbaar nie. Opsionele versekering van tot R2 000,00 is beskikbaar en is slegs op binnelandse geregistreerde briewe van toepassing.

GOOD IMPRESSIONS

Date stamp

**S.A. POST OFFICE  
STELLENBOSCH 7599**

**10 NOV 2015**

**FOLIO 7**

Datumstempel

701248



# APPENDICES

## Appendix E.7: Comments received following the release of the Background Information Document



agriculture,  
forestry & fisheries

Department:  
Agriculture, Forestry and Fisheries  
REPUBLIC OF SOUTH AFRICA

---

F 033 342 8783	DAFF	Ms. N. Sontangane
T 033 392 7733	Forestry Regulations & Support	19 November 2015
te NandiphaS@nda.agric.za	P/Bag X9029 Pietermaritzburg 3200	

---

**CSIR our future through science (Environmental)**

P.O Box 320  
Stellenbosch  
7599

**Attention:** Abulele Adams

**BACKGROUND INFORMATION DOCUMENT (BID): COMMENTS FOR THE PROPOSED MAIZE AND BEAN ENTERPRISE FOR THE KHANYANI AGRICULTURAL COOPERATIVE, IMBABAZANE, KWAZULU-NATAL**

The Department of Agriculture, Forestry and Fisheries (DAFF) through the sub-directorate Forestry Regulations and Support is the authority mandated to implement the National Forests Act, (Act No. 84 of 1998) by regulating the use of natural forests and protected trees species in terms of the said Act.

With regards to the BID received on the 09<sup>th</sup> of November 2015 and the desktop analysis majority of the proposed site has no present trees. However, there is woody vegetation noted adjacent to the site even though it is not clear as to what type of species occur or whether they will be impacted on. The specialist scope of work included in the BID indicates that a terrestrial ecological study will be undertaken. This study will assist in determining the impact that the development and supporting infrastructure such as roads may have on the indigenous trees and/or protected trees in terms of the NFA.

Page 1 of 2

## APPENDICES

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Further comments will be provided upon receipt and review of the DBAR.

Should any further information be required, please do not hesitate to contact this office.

Yours faithfully

N. Sontangane



.....  
**Forestry Regulations & Support - KZN**

Page 2 of 2

## APPENDICES

Good day Abulele,

With reference to your letter dated 9 November 2015, I have to inform you that the Minister as the Controlling Authority as defined in the Kwazulu-Natal Roads Act No. 4 of 2001, has in terms of section 21 of the said Act, no objections to the proposed application as represented in the Background Information Document CSIR/CAS/EMS/IR/2015/00011/A.

However, please advise us on the position of the proposed access point and the number of vehicles that are envisaged to be utilised.



"May the Good LORD bless you!" 🍀 🍀

**Michèle Schmid | Engineering Services: Road Control  
KZN Department of Transport**

Street Address: 224 Prince Alfred St, Pietermaritzburg, 3201

Postal Address: Private Bag X9043, Pietermaritzburg, 3200

**Office:** 033 355 0581 **Fax:** 033 342 3962 **Cell:** 082 902 0120

**e-mail:** [michele.schmid@kzntransport.gov.za](mailto:michele.schmid@kzntransport.gov.za)

**Web Pages:** <http://www.kzntransport.gov.za>; <http://www.kzntransportgis.co.za/transport>

Michèle Schmid <michele.schmid@Kzntransport.gov.za> 23/11/2015 12:23 >>>

# APPENDICES



**cogta**

Department:  
Cooperative Governance and Traditional Affairs  
PROVINCE OF KWAZULU-NATAL

## BUSINESS SUPPORT: SPATIAL PLANNING

Enquiries:	My Reference:	Date:
Imbuzo: <b>Mr C Rushton</b>	Inkamba Yami:	Usuku: <b>14-12-2015</b>
Navrae:	My Verwysing:	Datum:

CSIR  
P o Box 320  
Stellenbosch  
7599

Attention: Ms. Abulele Adams

Dear Madam

### PROPOSED MAIZE AND BEAN CULTIVATION AND HARVESTING ENTERPRISE : KWAMKHIZE TRADITIONAL COUNCIL

Your letter of 9 November 2015 received on 11 December 2015 has reference.

The proposal seems to be for the cultivation of maize and beans and the harvesting thereof without the development of structures.

Food security endeavors would be encouraged and supported by the Department.

Interested and Affected parties to consult would include:

- (1) Ezemvelo KZN Wildlife: Mrs J Longmore : 033 845 1349
- (2) Department of Agriculture : Natural Resources and Macro Planning : Mrs B Wiseman: 071 600 9805
- (3) Imbabazane Municipal Planner : Mr B Msimango : 036 3530691

This Department and the Directorate: Spatial Planning would have no objection to the proposed initiative as described in the Basic Assessment Report dated 9 November 2015.

Yours faithfully

FOR SENIOR MANAGER: SPATIAL PLANNING



# APPENDICES

Khanyani Agricultural Cooperative , Imbabazane

Our Ref: SAH16/10119

Enquiries: Bernadet Pawandiwa  
Tel: 033 304 6543  
Email: bernadetp@amafapmb.co.za  
CaseID: 10119

Date: Tuesday November 29, 2016

Page No: 1



## Interim Comment

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the KwaZulu-Natal Heritage Act (Act 4 of 2008)

**Attention:** Mr Bongani Mnculwane  
KHANYANE AGRICULTURAL PROJECT

Khanyani Agricultural Cooperative is a crop producing community owned enterprise, located on a portion of land owned by KwaMkhize Traditional Council, in the Imbabazane local municipality, KwaZulu Natal (KZN). Khanyani Agricultural Cooperative proposes to farm 9.5 ha of maize and 9.5 ha of bean crops thus making it 19 ha of the farm which was given to them by KwaMkhize traditional Council for farming.

The documents and information relating to this application has been evaluated in terms of the requirements of the heritage legislation. The general region in which this development falls is associated with activities relating to the stone age , iron age and historical era. It is a corridor where a lot of cultures interacted and left footprints in form of cultural material and features . While sites of paleontological significance occur in the general area, it is not anticipated that the proposed activity will unearth fossil remains as the fossil sensitivity map indicates that the site is in an area of zero to insignificant fossil sensitivity.

The proposed development which involves clearance of more than 300 square metres of vegetation is likely to impact on sites of heritage significance of an archaeological and historical nature.

Amafa Heritage KZN would like the following to be addressed in the BAR:

1) Identification of any culturally sensitive areas and water resources such as wetlands, streams, rock shelters , open shelters rivers associated with historical activities and beliefs, etc. as well as possible impacts and proposed mitigation measures to protect such resources

Considering the heritage value of the area of proposed development, a **Heritage Impact Assessment is required** to fulfill the requirements of Section 38 the National Heritage Resources Act No.25 of 1999 (Section 38 ). This must include the archaeological component (Phase 1) and any other applicable heritage components. Amafa KZN Heritage therefore requires the appointment of an Amafa accredited Heritage Practitioner to assist in the provision of recommendations and mitigation procedures.

The Study should cover:

- Identification of all heritage resources in the development area and its surroundings -50m
- Assessment of the impact of the development on such heritage
- Evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development
- Results of consultation with communities affected by the proposed development and other interested



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Heritage KwaZulu-Natal  
Erfenis KwaZulu-Natal

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Website: www.heritagekzn.co.za



# APPENDICES

Khanyani Agricultural Cooperative , Imbabazane

Our Ref: SAH16/10119

Enquiries: Bernadet Pawandiwa  
Tel: 033 394 0543  
Email: bernadetp@amafapmb.co.za  
CaseID: 10119

Date: Tuesday November 29, 2016

Page No: 2



and affected parties regarding the impact of the development on heritage resources.

- Consideration of alternatives if heritage resources are affected by the development
- Mitigation plans for any adverse effects during and after completion of the project
- Table of all heritage resources identified .This should show Heritage resource type, description, location, significance and reasons for this rating.

Please download our list of Heritage Practitioners from our website [www.heritagekzn.co.za](http://www.heritagekzn.co.za).

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Bernadet Pawandiwa  
Senior Heritage Officer  
Amafa/Heritage KwaZulu Natal

Annie van de Venter Radford  
Deputy Director: Research, Professional Services and Compliance  
Amafa/Heritage KwaZulu Natal

#### ADMIN:

Direct URL to case: <http://www.sahra.org.za/node/369621>

#### Terms & Conditions:

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to Amafa immediately.
3. Amafa reserves the right to request additional information as required.



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Website: [www.heritagekzn.co.za](http://www.heritagekzn.co.za)

# APPENDICES

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**ETHEMBENI  
CULTURAL  
HERITAGE**

Amafa aKwazulu-Natali  
195 Jabu Ndlovu Street Pietermaritzburg 3200 August  
Telephone 033 3946 543  
[hemaxicm@amafanamb.co.za](mailto:hemaxicm@amafanamb.co.za)

16 January 2016

Attention Bernadet Pawandiwa

Dear Ms Pawandiwa

**Application for Exemption from a Phase 1 Heritage Impact Assessment**

**Proposed cultivation of 19,5 ha of fallow land for maize and bean production  
Khanyani Agricultural Co-operative  
KwaMkhize Traditional Council, Imbabazane LM, KwaZulu-Natal.**

**Project Area and Project description<sup>1</sup>**

Khanyani Agricultural Cooperative is a crop producing community owned enterprise, located on a portion of land owned by KwaMkhize Traditional Council, in the Imbabazane local municipality, KwaZulu Natal. The Agricultural Cooperative consists of twelve community members and is led by Bongani Mnculwane. Khanyani Agricultural Cooperative proposes to farm 10 ha of maize and 9.5 ha of bean crops thus making it 19.5 ha of the farm which was given to them by KwaMkhize traditional Council for the purpose of farming.

There is a guaranteed market for maize and bean crops in the area in which the Agricultural Cooperative operates. The crops grown are not only for consumption but the surplus will be sold to make a profit. The Agricultural Cooperative currently has a written off-take agreement with a local buyer, Macksons, to buy their produce as well as there is demand from surrounding villages.

Khanyani Agricultural Cooperative will employ a total of twelve employees, nine of which will be responsible for the crops and three of which will be responsible for the administration of the Agricultural Cooperative. In terms of capacity building, the employees will undergo training for crop production and gain skills in monitoring and harvesting crops. Khanyani Agricultural Cooperative could contribute to the viability of the crop to the local community.

**Observations**

The Basic Assessment for this project is triggered by NEMA EIA Regulations in terms of GN. R 983, 8 (27): the clearance of more than 1 ha of indigenous vegetation, in this case within the grassland biome.

The proposed maize and bean production is in keeping with the current agrarian landscape and associated activities.

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1

CSIR Reference Number: CSIR/CAS/EMS/IR/2015/00011/A.

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Box 20857 Ashburton 3213 PIETERMARITZBURG South Africa ~ Telephone Len 082 655 9077 ~ Fax 086 672 8557  
thembeni@africa.com ~ CK 94/022770/23 ~ VAT Nu 4690238368

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# APPENDICES

Khanyani Agricultural Cooperative , Imbabazane

Our Ref: SAH16/10119

Enquiries: Bernadet Pawandiwa  
Tel: 033 394 6543  
Email: bernadep@amafapmb.co.za  
CaseID: 10119

Date: Friday February 17, 2017

Page No: 1



## Final Comment

In terms of Section 38(8) of the National Heritage Resources Act (Act 25 of 1999) and the KwaZulu-Natal Heritage Act (Act 4 of 2008)

Attention: Mr Bongani Mnculwane

**KHANYANI AGRICULTURAL CO-OPERATIVE PROJECT** crop producing community owned enterprise, located on a portion of land owned by KwaMkhize Traditional Council, in the Imbabazane local municipality, KwaZulu Natal (KZN). Khanyani Agricultural Cooperative proposes to farm 9.5 ha of maize and 9.5 ha of bean crops thus making it 19 ha of the farm which was given to them by KwaMkhize traditional Council for farming.

Thank you for submitting the Letter of Exemption from undertaking a full Heritage Impact Assessment on this application. The exemption motivation by Len Schalkwyk of eThembeni Cultural Heritage has been reviewed and the arguments in favour of the development proposal have been accepted by the Amafa APMBG Unit.

Amafa therefore has no objection to the development.

You are also required to adhere to the below-mentioned standard conditions:

### Conditions:

1. Amafa should be contacted if any heritage objects are identified during earthmoving activities and all development should cease until further notice.
2. No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from Amafa.
3. No activities are allowed within 50m of a site, which contains rock art.
4. Sources of all natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt, etc.) must be obtained in a sustainable manner and in compliance with the heritage legislation.

Failure to comply with the requirements of the National Heritage Resources Act and the KwaZulu Natal Heritage Resources Act could lead to legal action being instituted against the applicant.

Should you have any further queries, please contact the designated official using the case number quoted above in the case header.

Yours faithfully

Bernadet Pawandiwa  
Senior Heritage Officer  
Amafa/Heritage KwaZulu Natal



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# APPENDICES

Khanyani Agricultural Cooperative , Imbabazane

Our Ref: SAH16/10119

Enquiries: Bernadet Pawandiwa  
Tel: 033 364 6543  
Email: bernadep@amafapmb.co.za  
CaseID: 10119

Date: Friday February 17, 2017

Page No: 2



Annie van de Venter Radford  
Deputy Director: Research, Professional Services and Compliance  
Amafa/Heritage KwaZulu Natal

## ADMIN:

Direct URL to case: <http://www.sahra.org.za/node/369621>

## Terms & Conditions:

1. This approval does not exonerate the applicant from obtaining local authority approval or any other necessary approval for proposed work.
2. If any heritage resources, including graves or human remains, are encountered they must be reported to Amafa immediately.
3. Amafa reserves the right to request additional information as required.



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Website: [www.heritage.gov.za](http://www.heritage.gov.za)



# APPENDICES



Figure 1 Location of the Khanyani Agricultural Cooperative Project Site



Figures 2 and 3 Virgin grassland proposed for maize and bean cultivation



## APPENDICES



FIGURE 4 Khanyani land allocation within the local environment

The archaeological footprint of the Drakensberg Foothill Moist Grasslands themselves (*sensu* Mucina and Rutherford 2006)<sup>2</sup> is understood to be low (KZN Museum Archaeology Data Base). Whilst Stone Age hunter gatherer sites abound in the adjacent Stormberg Group lithology of the lower Drakensberg, Iron Age settlement of the central Drakensberg grasslands only occurred to any extent in the mid to late 19<sup>th</sup> Century. This was largely due to the settlement actions of Theophilus Shepstone<sup>3</sup> and his establishment of Native Reserves for tribal groups displaced by expansion of the Zulu Kingdom and the effects of the *mfecane*<sup>4</sup>. The immediate area around the land allocated to the Khanyani Co-operative is extensively underlain with dolerite sills which present at the surface as contiguous boulder beds. Such exposed dolerite is eschewed for settlement in traditional society due to the incidence of lightning strikes. Consequently, no significant archaeological remains were anticipated..

No historical graves are reported by the project proponents, who are residents of the adjacent local communities.

The SAHRIS Palaeontology sensitivity map indicates the area to be of insignificant sensitivity (grey). The Khanyani land allocation lies on Beaufort Group basement (comprising mud and sandstones that are

<sup>2</sup> 2008. Mucina, L., Rutherford, M.C. (Eds.), The vegetation of South Africa, Lesotho and Swaziland. SANBI, Pretoria

<sup>3</sup> 2013. Jeff Guy. Theophilus Shepstone and the Forging of Natal: UKZN Natal Press. Pietermaritzburg

<sup>4</sup> 1970. Jeff Guy. The Destruction of the Zulu Kingdom. UKZN Press. Pietermaritzburg

## APPENDICES

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potentially fossil rich). However, the extensive underlay of intrusive dolerite sills<sup>†</sup> has negated the possibility of significant fossil remains. Weathering of the dolerite basement has produced the relatively deep red soils sought after for the proposed agricultural activities. Consequently no further palaeontology assessment or monitoring is recommended.

### Recommendations

Accordingly, we request that Amafa grant an exemption from an HIA for the proposed agricultural activities and local community upliftment project, allowing the enterprise to proceed with no further heritage resource mitigation.

In this regard, please can you notify us timeously via the loaded SAHRIS case file as to the decision of Amafa.

Yours sincerely



Len van Schalkwyk  
Principle Investigator

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<sup>†</sup> Groenewald, G. 2012. Palaeontological Technical Report for KwaZulu-Natal. Unpublished. Amafa aKwaZulu-Natal.

## APPENDICES

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"Buyisiwe Hadebe" <jennicah@telkomsa.net>

19/03/2017 11:16 AM

Crops recommendation

to: Karabo Mashabela

Good day

Khanyani Coop is situated at KwaMkhize area under Inkosi Langalibalele municipality ward 11 now in Estcourt. The area has potential soils like Hutton and Clovelly these are good soils in terms of rooting depth and drainage. The crops that were recommended maize and dry beans are suitable for the area and potatoes too are suitable. Maize with expected minimum yield of 4 t/ha, dry beans 1.5 t/ha and potatoes 20t/ha, but as long the soil nutrient and lime recommendations will be followed.

Attached the nutrient and lime recommendation results.

Regards

J.B. Hadebe- Agricultural advisor(0722418409)

# APPENDICES

Page 1



## FERTILIZER ADVISORY SERVICE

KZN Department of Agriculture and Environmental Affairs; Soil Fertility and Analytical Services; Private Bag X9059, Pietermaritzburg 3200. Tel : 033-3559455. Fax : 033-3559454. Enquiries: Les Thurtell

### CLIENT DETAILS

Kharyani Co-op  
P.O Box 1490  
Estcourt

3310  
Phone : 072 522 7755

### ADVISOR DETAILS

Hadebe JB  
P.O Box 1490  
Estcourt

3310  
Phone : 036 352 3033 (W)

### SUMMARY OF ANALYTICAL RESULTS

(These results may not be used in litigation)

Batch : 707 Year : 2014 Printed : 30/09/2014

Your sample ID	Lab number	Sample density g/mL	P mg/L	K mg/L	Ca mg/L	Mg mg/L	Exch. acidity cmol/L	Total cations cmol/L	Acid sat. %	pH (KCl)	Zn mg/L	Mn mg/L	Cu mg/L
KHANYA 1	F15721	0.96	5	109	315	342	2.14	6.81	31	4.02	0.7	20	3.6

Your sample ID	Lab number	Mid-Infrared Estimates		
		Org. C %	N %	Clay %
KHANYA 1	F15721	3.7	0.27	39

#### Comments:

- (1) Recommended rates of fertilizer and lime for the relevant crops are reported on the following pages. No recommendation will be given for crops not entered on the submission form.
- (2) Recommendations are not provided for subsoil samples.
- (3) It is assumed that samples submitted for crops and for the establishment of pastures were taken from the top 15 cm of soil. For the maintenance of established pastures, a sampling depth not exceeding 10 cm is assumed.
- (4) It is assumed that the lime to be used has a neutralising value equal to 75% of that of pure calcium carbonate. Dolomitic lime is recommended if soil Mg levels are low, and calcitic lime, if soil Mg exceeds 0.6 x soil Ca. Where Mg is sufficient, but not excessive, either type of lime may be used. If lime is not necessary, but the soil Mg level is suboptimal for the intended crop, this is indicated under the "Lime type" heading with the comment "low Mg". Consult your advisor for the most cost-effective method of improving Mg status.
- (5) Phosphorus recommendations are based on a water-soluble P source.
- (6) The recommendations are based on the assumption that the soil sample is truly representative of the land and that other growth factors are not limiting.
- (7) Organic carbon, total nitrogen and clay percentage, estimated by mid-infrared (MIR) spectroscopy, is given for most samples. MIR measurements should be viewed as reasonably reliable estimates. Actual C, N and clay percentages (as well as S concentrations) can be determined (at extra cost) on request.

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Printed 30/09/2014

Page 2

**Fertrec 6 ..... Khanyani Co-op / Hadebe JB**

## NUTRIENT AND LIME RECOMMENDATIONS

Dry bean: dryland

Sample ID	Lab Num	NITROGEN		PHOSPHORUS			POTASSIUM			LIME			ZINC fert. reqd.?	
		Yield target t/ha	Req. N kg/ha	Sample soil test mg/L	Target soil test mg/L	Req. P kg/ha	Sample soil test mg/L	Target soil test mg/L	Req. K kg/ha	Sample acid sat. %	PAS %	Req. Lime t/ha		Lime type
KHANYA 1	F15721	1.0	40	5	10	55	109	100	0	31	5	8.6	Calc	Yes
		2.0	80	5	10	55	100	100	0	31	5	8.6	Calc	Yes
		3.0	120	5	10	55	100	100	0	31	5	8.6	Calc	Yes

Sample soil test and sample acid saturation reflect the soil test values of the sample submitted. Required P and required K (coloured red) are the amounts of P and K required to raise the soil test to the target value. Lime required (coloured red) is the amount of lime needed to decrease the soil acid saturation to the permissible acid saturation (PAS).

### MANAGEMENT GUIDELINES

- (1) LIME, IF REQUIRED, SHOULD BE APPLIED AT LEAST ONE TO TWO MONTHS BEFORE PLANTING. It is assumed that the lime will be incorporated to a depth of 20 cm. Thorough incorporation is essential. discing followed by ploughing is recommended.
- (2) Where soil test P levels are considered adequate, but are less than 120 mg/L, a starter application of 20 kg P/ha has been recommended to promote initial plant growth.
- (3) Where the soil P test of a sample is abnormally high (>120 mg/L), and the sample is truly representative of the whole field, no fertilizer P should be applied until test levels indicate a P requirement.
- (4) This crop requires 20 - 30 kg S/ha. This can usually be supplied from the atmosphere and by the mineralization of organic S in soils, but supplementary S fertilizers may be necessary on sandy soils, where sulphate is lost by leaching.

### FERTILIZER OPTIONS

The following are fertilizer options (given in bags/ha) using DAP, MAP, Double Supers, 2:3:4(38), KCl, LAN and urea. Your local fertilizer adviser can provide additional fertilizer options. The quantities recommended are those for a complete growing season and the management guidelines on the previous page/s should be considered when scheduling applications.

Sample F15721 Yield target (t/ha) 1.0

- (1) If DAP was used, too much nitrogen would be supplied.
- (2) If MAP was used, too much nitrogen would be supplied.
- (3) 10.6 bags/ha Single Supers (10.5%P); 2.9 bags/ha LAN or 1.7 bags/ha urea.
- (4) If 234 was used, too much nitrogen would be supplied.

Sample F15721 Yield target (t/ha) 2.0

- (1) If DAP was used, too much nitrogen would be supplied.
- (2) If MAP was used, too much nitrogen would be supplied.
- (3) 10.6 bags/ha Single Supers (10.5%P); 5.7 bags/ha LAN or 3.5 bags/ha urea.
- (4) If 234 was used, too much nitrogen would be supplied.

Sample F15721 Yield target (t/ha) 3.0

- (1) If DAP was used, too much nitrogen would be supplied.
- (2) If MAP was used, too much nitrogen would be supplied.
- (3) 10.6 bags/ha Single Supers (10.5%P); 8.6 bags/ha LAN or 5.2 bags/ha urea.
- (4) If 234 was used, too much nitrogen would be supplied.



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**Fertrec 6 .... Khanyani Co-op / Hadobe JB**

## NUTRIENT AND LIME RECOMMENDATIONS

Maize grain; dryland

Sample ID	Lab Num	NITROGEN		PHOSPHORUS			POTASSIUM			LIME				ZINC
		Yield target t/ha	Req. N kg/ha	Sample soil test mg/L	Target soil test mg/L	Req. P kg/ha	Sample soil test mg/L	Target soil test mg/L	Req. K kg/ha	Sample acid sat. %	PAS %	Req. Lime t/ha	Lime type	Zinc fert. reqd.?
KHANYA 1	F15721	4.0	40	5	12	60	109	120	30	31	20	3.0	Calc	Yes
		7.0	120	5	12	60	109	120	30	31	20	3.0	Calc	Yes
		10.0	160	5	12	60	109	120	30	31	20	3.0	Calc	Yes

Sample soil test and sample acid saturation reflect the soil test values of the sample submitted. Required P and required K (coloured red) are the amounts of P and K required to raise the soil test to the target value. Lime required (coloured red) is the amount of lime needed to decrease the soil acid saturation to the permissible acid saturation (PAS).

### MANAGEMENT GUIDELINES

- (1) LIME, IF REQUIRED, SHOULD BE APPLIED AT LEAST ONE TO TWO MONTHS BEFORE PLANTING. It is assumed that the lime will be incorporated to a depth of 20 cm. Thorough incorporation is essential; discing followed by ploughing is recommended.
- (2) In order to increase the time between liming operations, it is often advisable to apply more lime than recommended above. Liming to 10% acid saturation rather than 20% is a sound policy for maize lands.
- (3) Where soil test P levels are considered adequate, but are less than 120 mg/L, a starter application of 20 kg P/ha has been recommended to promote initial plant growth.
- (4) At least 20 kg of the recommended P should be applied in the band at planting.
- (5) Where the soil P test of a sample is abnormally high (>120 mg/L), and the sample is truly representative of the whole field, no fertilizer P should be applied until test levels indicate a P requirement.
- (6) Nitrogen recommendations given above should be used as a guideline only as there are many situations where lower N rates are more cost-effective. Details are given in the leaflet 'Nitrogen fertilization: Allowing for N mineralization and residual N' which is available from Alan Manson (033-3659100).
- (7) On all soils, applications of N should be split in order to improve efficiency of N use and minimise soil acidification. This is especially important on soils that tend to waterlog as well as on sandy soils. Topdressed N should be applied when the plants are knee high.
- (8) Ensure that the total combined N and K applied in the band at planting does not exceed 80 kg/ha.
- (9) N applications may be reduced by 40 kg/ha if the previous crop was soybean that yielded 2-3 t/ha.
- (10) This crop requires 20 - 30 kg S/ha. This can usually be supplied from the atmosphere and by the mineralization of organic S in soils, but supplementary S fertilizers may be necessary on sandy soils, where sulphate is lost by leaching.
- (11) If subsol K (anywhere between 15 and 60 cm deep) is greater than 100 mg/L and the sample density is greater than 1.35 g/mL, the K recommendation can be decreased by 50 kg/ha.

### FERTILIZER OPTIONS

The following are fertilizer options (given in bags/ha) using DAP, MAP, Double Supers, 2:3:4(38), KCl, LAN and urea. Your local fertilizer adviser can provide additional fertilizer options. The quantities recommended are those for a complete growing season and the management guidelines on the previous page/s should be considered when scheduling applications.

Sample F15721 Yield target (t/ha) 4.0

- (1) 6.0 bags/ha DAP; 1.2 bags/ha KCl if DAP was used to supply the recommended P, it would supply more N than required.
- (2) 5.5 bags/ha MAP; 1.2 bags/ha KCl; 0.7 bags/ha LAN or 0.4 bags/ha urea.
- (3) 11.4 bags/ha Single Supers (10.5%P); 1.2 bags/ha KCl; 2.9 bags/ha LAN or 1.7 bags/ha urea.
- (4) 9.4 bags/ha 2:3:4(38). The 2:3:4 would supply more than sufficient K.

Sample F15721 Yield target (t/ha) 7.0

- (1) 6.0 bags/ha DAP; 1.2 bags/ha KCl; 4.7 bags/ha LAN or 2.9 bags/ha urea.
- (2) 5.5 bags/ha MAP; 1.2 bags/ha KCl; 6.4 bags/ha LAN or 3.9 bags/ha urea.
- (3) 11.4 bags/ha Single Supers (10.5%P); 1.2 bags/ha KCl; 8.8 bags/ha LAN or 5.2 bags/ha urea.
- (4) 9.4 bags/ha 2:3:4(38); 5.7 bags/ha LAN or 3.5 bags/ha urea. The 2:3:4 would supply more than sufficient K.

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## **Fertrec 6 ..... Khanyani Co-op / Hadebe JB**

Sample F15721 Yield target (t/ha) 10.0

- (1) 6.0 bags/ha DAP; 1.2 bags/ha KCl; 7.6 bags/ha LAN or 4.6 bags/ha urea.
- (2) 5.5 bags/ha MAP; 1.2 bags/ha KCl; 9.3 bags/ha LAN or 5.7 bags/ha urea.
- (3) 11.4 bags/ha Single Supers (10.5%P); 1.2 bags/ha KCl; 11.4 bags/ha LAN or 7.0 bags/ha urea.
- (4) 9.4 bags/ha 2:3:4(38); 8.6 bags/ha LAN or 5.2 bags/ha urea. The 2:3:4 would supply more than sufficient K.

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Printed 30/09/2014

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**Fertrec 6 ..... Khanyani Co-op / Hadebe JB**

**MAIZE FERTILIZATION AND LIMING:  
CONSEQUENCES OF DIFFERENT LIME, P AND K OPTIONS FOR A PARTICULAR SOIL TEST.**

Lab number F15721

Your sample ID	Lab number	Sample density g/mL	P mg/L	K mg/L	Ca mg/L	Mg mg/L	Exch. acidity cmol/L	Total cations cmol/L	Acid sat. %	pH (KCl)	Zn mg/L	Mn mg/L	Cu mg/L	NIRS org. C %	NIRS clay %
KHANYA 1	F15721	0.96	5	109	315	342	2.14	6.81	31	4.02	0.7	20	3.6	-	0

**LIMITATIONS IMPOSED BY SOIL ACIDITY, P AND K IN THIS SOIL.**

	Relative Yield(%)	Graphical representation of relative yields
Potential (if soil and lime recommendations are followed)	91	
Acidity limitation (if no lime applied but P and K recommendations followed)	77	
Soil P limitation (if no P applied but lime and K recommendations followed)	65	
Soil K limitation (if no K applied but lime and P recommendations followed)	91	

**LIME, P AND K OPTIONS:**

	Lime (t/ha)	P	K	Rel. yield (%)	Example yield (t/ha)	Graphical representation	
<b>Recommended option:</b>	L2P3K3	3.0	75	0	91	3.64	
	L2P2K2	3.0	32	0	82	3.26	
	L2P1K1	3.0	10	0	73	2.93	
	L2P0K0	3.0	0	0	65	2.61	
<b>Limited input options</b>	L1P3K3	0.5	75	0	79	3.14	
	L1P2K2	0.5	32	0	70	2.81	
	L1P1K1	0.5	10	0	63	2.53	
	L1P0K0	0.5	0	0	56	2.25	
<b>Zero lime, P and K</b>	L0P3K3	0	75	0	77	3.09	
	L0P2K2	0	32	0	69	2.77	
	L0P1K1	0.5	10	0	62	2.49	
	L0P0K0	0	0	0	56	2.25	

Climatic and agronomic practices may limit the potential yield of maize to a particular yield (eg. 4 t/ha). The relative yields given indicate how soil acidity, P deficiency and K deficiency are likely to limit yields below this level. The column headed "example yield" shows the yield possible using different lime, P and K options assuming the maximum potential yield is 4 t/ha.

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## NUTRIENT AND LIME RECOMMENDATIONS

Potato: dryland

Sample ID	Lab Num	NITROGEN		PHOSPHORUS			POTASSIUM			LIME			Zinc fert. reqd.?	
		Yield target t/ha	Req. N kg/ha	Sample soil test mg/L	Target soil test mg/L	Req. P kg/ha	Sample soil test mg/L	Target soil test mg/L	Req. K kg/ha	Sample acid sat. %	PAS %	Req. Lime t/ha		Lime type
KHANYA 1	F15721	20.0	90	5	16	120	109	160	130	31	30	1.0	Calc	Yes
		40.0	160	5	16	120	109	200	200	31	30	1.0	Calc	Yes
		60.0	300	5	16	120	109	240	330	31	30	1.0	Calc	Yes

Sample soil test and sample acid saturation reflect the soil test values of the sample submitted. Required P and required K (coloured red) are the amounts of P and K required to raise the soil test to the target value. Lime required (coloured red) is the amount of lime needed to decrease the soil acid saturation to the permissible acid saturation (PAS).

### MANAGEMENT GUIDELINES

- (1) LIME, IF REQUIRED, SHOULD BE APPLIED AT LEAST ONE TO TWO MONTHS BEFORE PLANTING. It is assumed that the lime will be incorporated to a depth of 20 cm. Thorough incorporation is essential: discing followed by ploughing is recommended.
- (2) If the crop is to be limed just prior to planting then a maximum of one ton of lime should be applied as the occurrence of scab appears to be associated with high lime applications.
- (3) If Ca levels are less than 300 mg/L in sandy soils or less than 500 mg/L in loamy or clayey soils, an application of 1000 to 3000 kg gypsum/ha is recommended.
- (4) Where P levels are considered adequate, but are less than 120 mg/L, an application of 80 kg P/ha has been recommended to ensure adequate growth.
- (5) Where the soil P test of a sample is abnormally high ( $>120$  mg/L), a response to P fertilizer is unlikely. However, P fertilizer may be applied to ensure that adequate P is available over the entire area to be cropped.
- (6) A high potassium:magnesium ratio ( $>4:1$  on a mass basis) could induce a magnesium deficiency in the crop. Should foliar analysis confirm Mg deficiency, supplementary Mg may be effectively applied by application of a foliar spray of 8 kg/ha of magnesium sulphate.
- (7) Apply N in two dressings, half banded at planting and half side dressed and ridged in at flower-bud emergence. The N recommendation is limited to 120 kg/ha for seed potatoes.
- (8) To ensure high yields, it is recommended that 30–40 kg/ha of sulphur be applied at establishment or soon thereafter.
- (9) Consult your adviser on the use of micronutrients such as zinc, boron and molybdenum.

### FERTILIZER OPTIONS

The following are fertilizer options (given in bags/ha) using DAP, MAP, Double Supers, 2:3:4(38), KCl, LAN and urea. Your local fertilizer adviser can provide additional fertilizer options. The quantities recommended are those for a complete growing season and the management guidelines on the previous page/s should be considered when scheduling applications.

Sample F15721 Yield target (t/ha) 20.0

- (1) 12.0 bags/ha DAP; 5.2 bags/ha KCl if DAP was used to supply the recommended P, it would supply more N than required.
- (2) 10.9 bags/ha MAP; 5.2 bags/ha KCl; 2.1 bags/ha LAN or 1.3 bags/ha urea.
- (3) 22.9 bags/ha Single Supers (10.5%P); 5.2 bags/ha KCl; 6.4 bags/ha LAN or 3.9 bags/ha urea.
- (4) 18.9 bags/ha 2:3:4(38); 0.8 bags/ha LAN or 0.5 bags/ha urea. The 2:3:4 would supply more than sufficient K.

Sample F15721 Yield target (t/ha) 40.0

- (1) 12.0 bags/ha DAP; 9.2 bags/ha KCl; 3.7 bags/ha LAN or 2.3 bags/ha urea.
- (2) 10.9 bags/ha MAP; 9.2 bags/ha KCl; 7.1 bags/ha LAN or 4.3 bags/ha urea.
- (3) 22.9 bags/ha Single Supers (10.5%P); 9.2 bags/ha KCl; 11.4 bags/ha LAN or 7.0 bags/ha urea.
- (4) 18.9 bags/ha 2:3:4(38); 2.8 bags/ha KCl; 5.8 bags/ha LAN or 3.5 bags/ha urea.

Sample F15721 Yield target (t/ha) 60.0

- (1) 12.0 bags/ha DAP; 13.2 bags/ha KCl; 6.6 bags/ha LAN or 4.0 bags/ha urea.

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- (2) 10.0 bags/ha MAP; 13.2 bags/ha KCl; 10.0 bags/ha LAN or 6.1 bags/ha urea
- (3) 22.8 bags/ha Single Supers (10.5%P); 13.2 bags/ha KCl; 14.3 bags/ha LAN or 6.7 bags/ha urea
- (4) 18.9 bags/ha 2:3:4(38); 8.8 bags/ha KCl; 8.8 bags/ha LAN or 5.2 bags/ha urea



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### Appendix E.8: Comments and Response Report

The table below lists all the comments received from Interested and Affected Parties (I&APs) following the release of the Background Information Document for comment regarding the proposed cultivation of 19 ha of fallow grassland to maize and beans on land on the KwaMkhize Traditional Council, KwaZulu-Natal. Copies of the correspondence are included in Appendix E7 of the Basic Assessment Report.

ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
<p>Department of Agriculture Forestry and Fisheries (DAFF) through the sub-directorate Forestry Regulation and support is the authority mandated to implement the National Forests Act, (Act No, 84 of 1998) by regulating the use of natural forest and protected trees species in terms of the said Act.</p> <p>With regard to the BID received on the 09<sup>th</sup> of November 2015 and the desktop analysis majority of the proposed site has no present trees. However, there is woody vegetation noted adjacent to the site even though it is not clear as to what type of species occur or whether they will be impacted on. The specialist scope of work included in the BID indicated that a terrestrial ecological study will be undertaken. This study will assist in determining the impact that the development and supporting infrastructure such as roads may have on the indigenous tree and/or protected trees in terms of the NFA.</p>	<p>N.Sontangane  Forestry Regulation &amp; Support KZN</p>	<p>19 November 2015</p>	<p>Thank you for your comment.</p> <p>The vegetation including forest will be mapped. Please see figure 7 for the forest and vegetation type in the area. Please see page 13 on the specialist report on the type of species which occur and that no woody species invasion was noted on site and no exotic species were recognized.</p>
<p>With reference to your letter dated 9 November 2015, I have to inform you that the Minister as the Controlling Authority as defined in the Kwazulu-Natal Roads Act No. 4 of 2001, has in terms of section 21 of the said Act, no</p>	<p>Michéle Schmid KwaZulu Natal Department of Transport</p>	<p>23 November 2015</p>	<p>Thank you for your comment.</p> <p>The position of the proposed access point is shown in the map in Appendix A.</p>

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ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
<p>objections to the proposed application as represented in the Background Information Document CSIR/CAS/EMS/IR/2015/00011/A.</p> <p>However, please advise us on the position of the proposed access point and the number of vehicles that are envisaged to be utilised.</p>			<p>One tractor will be used on site during cultivation and one truck will be used to transport the crops to the market. The harvested maize and beans will be transported four times to the market but this may change due to the yield of the crops per harvesting.</p>
<p>The proposal seems to be for the cultivation of maize and beans and the harvesting thereof without the development of structures.</p> <p>Food security endeavors would be encouraged and supported by the Department.</p> <p>Interested and Affected parties to consult would include:</p> <ol style="list-style-type: none"> <li>1. Ezemvelo KZN Wildlife: Mrs Longmore: 033 845 1349</li> <li>2. Department of Agriculture: Natural Resources and Macro Planning: Mrs B Wiseman: 071 600 9805</li> <li>3. Imbabazane Municipal Planner: Mr B Msimango: 036 3530691</li> </ol> <p>This Department and Directorate: Spatial Planning would have no objection to the proposed initiative as described in the Basic Assessment Report dated 9 November 2015</p>	<p>C. Rushton Spatial planning</p>	<p>14 December 2015</p>	<p>Thank you for your comment.</p> <p>The Interested and Affected Parties you listed were added to the project database. The Draft BAR will be send to them for comment as requested.</p>
<p>The proposed development which involves clearance of more than 300 square metres of vegetation is likely to impact on sites of heritage significance of an archaeological and historical nature.</p> <p>Amafa Heritage KZN would like the following to</p>	<p>Bernadet Pawandiwa, Amafa/Heritage KwaZulu Natal.</p>	<p>29 November 2016</p>	<p>eThembeni Cultural Heritage was appointed to address the Heritage Impact Assessment requirements from AMAFA. According to eThembeni the SAHRIS palaeo-sensitivity mapping indicates that the proposed agriculture project falls</p>

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ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
<p>be addressed in the BAR:</p> <p>1) Identification of any culturally sensitive areas and water resources such as wetlands, streams, rock shelters, open shelters rivers associated with historical activities and beliefs, etc. as well as possible impacts and proposed mitigation measures to protect such resources.</p> <p>Considering the heritage value of the area of proposed development, a Heritage Impact Assessment is required to fulfill the requirements of Section 38 the National Heritage Resources Act No.25 of 1999 (Section 38). This must include the archaeological component (Phase 1) and any other applicable heritage components. Amafa KZN Heritage therefore requires the appointment of an Amafa accredited Heritage Practitioner to assist in the provision of recommendations and mitigation procedures.</p> <p>The Study should cover:            Identification of all heritage resources in the development area and its surroundings -50m</p> <p>Assessment of the impact of the development on such heritage</p> <p>Evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development</p>			<p>within a general area of an underlying Beaufort Group lithology of extremely high sensitivity. However, the presence of intrusive dolerite sills and dykes within and surrounding the project area precludes the presence of any fossil material, thus requiring a protocol for finds, only. The project area has probably been eschewed for settlement primarily because of the high risk of lightening-strikes on the dolerite exposures.</p>

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ISSUES RAISED	COMMENTATOR	DATE	RESPONSE
<p>Results of consultation with communities affected by the proposed development and other interested and affected parties regarding the impact of the development on heritage resources.</p> <p>Consideration of alternatives if heritage resources are affected by the development</p> <p>Mitigation plans for any adverse effects during and after completion of the project</p> <p>Table of all heritage resources identified .This should show Heritage resource type, description, location, significance and reasons for this rating.</p>			
<p>Khanyani Coop is situated at KwaMkhize area under Inkosi Langalibalele municipality ward 11 now in Estcourt. The area has potential soils like Hutton and Clovelly these are good soils in terms of rooting depth and drainage The crops that were recommended maize and dry beans are suitable for the area and potatoes too are suitable. Maize with expected minimum yield of 4 t/ha, dry beans 1.5 t/ha and potatoes 20t/ha, but as long the soil nutrient and lime recommendations will be followed</p>	<p>Hadebe JB</p> <p>KZN Department of Agriculture and Environmental Affairs; Soil Fertility and Analytical Services</p>	<p>19 March 2017</p>	<p>Thank you for the response.</p> <p>The management plan will be in cooperated in the EMPr.</p>

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### Appendix E.9: I&AP Database

Company/organization	First Name	Surname	Physical Address	Postal
Department of Environmental Affairs	MMatlala	Rabothata	315 Pretorius Street Pretoria 0002	Fedsure Building Private Bag X447
Department of Cooperative Governance and Traditional Affairs	Craig	Rushton	271 Church Street, Pietermaritzburg 3201	Private Bag X9018 Pietermaritzburg 3200
Department of Agriculture, Forestry and Fisheries	Mashudu	Marubini	20 Steve Biko (Formerly Beatrix) Street Arcadia Pretoria 0002	Private Bag X138 Pretoria 0001
Department of Economic Development, Tourism and Environmental Affairs- HOD	Carol	Coetzee	270 Jabu Ndlovu Street, Pietermaritzburg	Private Bag X9152 Pietermaritzburg 3200
Department of Economic Development, Tourism and Environmental Affairs- HOD	Reta	Kalicharan	8 Warwick Road, Cascades	Private Bag X07, Pietermaritzburg, 3202
Department of Economic Development, Tourism and Environmental Affairs- HOD	Kraigen	Govindasamy	8 Warwick Road, Cascades	Private Bag X07, Pietermaritzburg, 3202
Department of Economic Development, Tourism and Environmental Affairs: South Region KZN	Mavis	Padayachee	A Block, 4 Pin Oak Avenue	Private Bag X6005, HILTON, 3245
Department of Agriculture, Forestry and Fisheries – KZN	Karen	Moodley	185 Longmarket Street Old Mutual Building Pietermaritzburg 3202	Private Bag X9029, Pietermaritzburg, 3200
Department of Agriculture, Forestry and Fisheries – KZN	Thembile	Dlungwana	185 Longmarket Street Old Mutual Building Pietermaritzburg 3202	Private Bag X9029, Pietermaritzburg, 3200
Department of Agriculture,	Jeffrey	Maivha	185 Longmarket Street	Private Bag X9029, Pietermaritzburg 3200



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Company/organization	First Name	Surname	Physical Address	Postal
Forestry and Fisheries – KZN			Old Mutual Building Pietermaritzburg 3202	
Department of Agriculture, Forestry and Fisheries –Land Use and Soil management	B.N.	De Lange	Delpen Building, Riveira	Private Bag X120, Gezina
Department of Agriculture, Forestry and Fisheries – Forestry regulations and Support- KZN	Nandipha	Sontangane	185 Longmarket Street Old Mutual Building Pietermaritzburg 3202	Private Bag X9029, Pietermaritzburg, 3200
Department of Agriculture, Forestry and Fisheries – Forestry regulations and Support- KZN	Seokwang	Modise	185 Longmarket Street Old Mutual Building Pietermaritzburg 3202	Private Bag X9029, Pietermaritzburg 3200
Department of Transport KwaZuluNatal	Michéle	Schmid	224 Prince Alfred St, Pietermaritzburg, 3201	Private Bag X9043, Pietermaritzburg, 3200
Department of Rural Development and Land Reform – KZN	Thembisile	Mabaso	200 Church Street, Pietermaritzburg, 3201	Private Bag X9000, Pietermaritzburg, 3200
Department of Rural Development and Land Reform – KZN	Babhekile	Mpisane	200 Church Street, Pietermaritzburg, 3201	Private Bag X9000, Pietermaritzburg, 3200
Department of Rural Development and Land Reform – KZN	Khethakuthula	Nzimande	188 berg Street Pietermaritzburg 3200	Private Bag X9000, Pietermaritzburg, 3200
Department of Transport – KZN	R.	Ryan	224 Prince Alfred Street, Pietermaritzburg, 3201	Private Bag X9043, Pietermaritzburg 3200
Department of Water and Sanitation– KZN	Colleen	Moonsamy	88 Field Street, Southern Life Building, 7th Floor, Durban 4000	PO Box 1018, Durban, 4000
Department of Water and Sanitation– KZN	Neo	Leburu	88 Field Street, Southern Life Building, 7th Floor, Durban 4000	PO Box 1018, Durban, 4000
Department of Co-operative Governance and Traditional Affairs:	Frikkie	Brooks	Moses Mabhida Building, 4th Floor, 300 Langalibalele Street, Pietermaritzburg	Private Bag X9078 Pietermaritzburg 3200

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Company/organization	First Name	Surname	Physical Address	Postal
uThukela District Municipality	Dudu	Mazibuko	Physical Address 36 Lyell Street / 33 Forbes Street	PO Box 116 Ladysmith, 3370
uThukela District Municipality	Cllr James	Nxumalo	36 Lyell Street / 33 Forbes Street Ladysmith, 3370	PO Box 116 Ladysmith, 3370
Imbabazane Local Municipality	M R	Mkhatshwa	1 Sobabili Road Ntabamhlophe Estcourt 3310	P.O Box 750 Estcourt 3310
Imbabazane Local Municipality: Ward	Mr M B Mabaso	Ward Councillor	1 Sobabili Road Ntabamhlophe Estcourt 3310	P.O Box 750 Estcourt 3310
Khanyani Co-Operative	Bongani Mnculwane	Applicant	265 Vezunyawo Hlathikhulu	PO Box 54801 Estcourt 3310
Dry Bean producers' Organisation	Chris	Kleingeld,	Plot 20, Zeekoegat, Pretoria, South Africa	P.O. Box 26269 Arcadia 0007
Department of Human Settlement (Head of Dept)	Gabi	Gumbi-Masilela	203 Church Street 3rd Floor Pietermaritzburg	Private Bag X644, PRETORIA, 0001
Grain SA	Du Toit	Wessels	Alenti Office Park, 457 Witherite Street, The Willows Pretoria, South Africa	P. O. Box 88 Bothaville 9660
Ezemvelo KZN Wildlife	Nerissa	Pillay	1 Peter Brown Drive	Ezemvelo KZN Wildlife 1 Peter Brown Drive P.O. BOX 13053 Cascades 3200
Zululand Chamber of Commerce and Industry	Thula	Mkhwanazi	Buscom Building, ZCBF Community Park, Richards Bay, 3900	PO Box 649, Richards Bay, 3900
Zululand Environmental Alliance	Debbie	Smith		PO Box 442, Kwambonambi, 3915
WWF – SA (Land Programme Manager)	Natasha	Wilson	Bridgetown, Cape Town, 7764, South Africa	PO Box 23273; Claremont; 7735
South African Heritage Resources Agency (SAHRA)	Marie	South	111 Harrington street, cape town	PO Box 4637, Cape Town, 8000

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Company/organization	First Name	Surname	Physical Address	Postal
South African National Biodiversity Institute (SANBI) – Invasive plants	Michael	Cheek	4 Problem Mkhize Road, Berea, 4001	PO Box 52099, Durban, 4000
AMAFA KZN	Bernadet	Pawandiwa	195 Langalibalele Street, Pietermaritzburg, 3201	PO Box 2685, Pietermaritzburg 3206
KZN Department of Agriculture and Environmental Affairs; Soil Fertility and Analytical Services;	Buyisiwe	Hadebe	Private Bag X9059, Pietermaritzburg 3200.	P.O Box 1490 Estcourt

Appendix E.10: Background Information Document (BID)

# Basic Assessment for the proposed maize and bean enterprise for the Khanyani Agricultural Cooperative, Imbabazane, KwaZulu Natal



CSIR Reference Number:

CSIR/CAS/EMS/IR/2015/00011/A



**Khanyani  
Agricultural  
Cooperative**

# APPENDICES

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## INTRODUCTION TO THE PROPOSED PROJECT

Khanyani Agricultural Cooperative is a crop producing community owned enterprise, located on a portion of land owned by KwaMkhize Traditional Council, in the Imbabazane local municipality, KwaZulu Natal (KZN) (see Figure 1). The Agricultural Cooperative consists of twelve community members and is led by Bongani Mnculwane.

Khanyani Agricultural Cooperative proposes to farm 10 ha of maize and 9.5 ha of bean crops thus making it 19.5 ha of the farm which was given to them by KwaMkhize traditional Council for the purpose of farming.

The development triggers a listed activity in terms of the Environmental Impact Assessment (EIA) Regulations, Government Notice Regulations (GNR) 983 which came into effect on 8 December 2014 promulgated under the National Environmental Management Act (Act no 107 of 1998) (NEMA). In terms of the said Regulations, a Basic Assessment (BA) should be undertaken for the proposed project. The Council for Scientific and Industrial Research (CSIR) is the Environmental Assessment Practitioner (EAP) who will be managing the BA process.

## AIM OF THE DOCUMENT

This Background Information Document (BID) provides potential Interested and Affected Parties (I&APs) with:

- Information on the proposed project;
- A description of the Basic Assessment process to be followed; and
- Details on how to register your interest in the project and receive further information.

As a registered I&AP, there will be opportunities for you to be involved in this BA process through receiving information, contributing issues and commenting on the BA Report (BAR). The input from I&APs, together with the information and assessment provided by the EAP and relevant specialists, will be used by the Competent Authority, in this instance the KZN Economic Development, Tourism and Environmental Affairs (KZN EDTEA), to determine whether to grant or refuse Environmental Authorisation (EA) for the proposed project.

## PROJECT LOCATION

The proposed project will be located on a portion of land owned by KwaMkhize Traditional Council, Imbabazane local municipality, KZN (see Figure 1); with the centre point having the following GPS coordinates: 29° 41' 33" E, 29° 13' 1" S and a total area for cultivation is 19.5 hectares.



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**Figure 1: Location of the Khanyani Agricultural Cooperative Project Site**

### BRIEF PROJECT DESCRIPTION

The key components of the proposed project are described below:

- Clearance of more than 300 square metres of vegetation;
- Start and associated operations of a crop production; and
- Harvesting of maize and bean crops.

### NEED AND JUSTIFICATION FOR THE PROJECT

There is a guaranteed market for maize and bean crops in the area in which the Agricultural Cooperative operates. The crops grown are not only for consumption but the surplus will be sold to make a profit. The Agricultural Cooperative currently has a written offtake agreement with a local buyer, Macksons, to buy their produce as well as there is demand from surrounding villages.

Khanyani Agricultural Cooperative will employ a total of twelve employees, nine of which will be responsible for the crops and three of which will be responsible for the administration of the Agricultural Cooperative.

In terms of capacity building, the employees will undergo training for crop production and gain skills in monitoring and harvesting crops. Khanyani Agricultural Cooperative could contribute to the

# APPENDICES

viability of the crop to the local community.

## ENVIRONMENTAL LEGISLATION –SUMMARY OF THE BASIC ASSESSMENT PROCESS

In terms of the NEMA EIA Regulations published in GNR 983, 984 and 985 on the 8 December 2014 Government Gazette Number 38282, a BA process is required as the project triggers the following listed activity which requires an EA from KZN EDTEA (detailed in Table 1 below).

**Table 1: Listed activity to be triggered**

Relevant notice:	Activity No (s) (in terms of the relevant notice) :	Description of each listed activity as per the Government Notice:
GN. R 983, 8 December 2014	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 – <ul style="list-style-type: none"> <li>i) The undertaking of a linear activity</li> <li>ii) Maintenance purposes undertaken in accordance with a maintenance management plan.</li> </ul>

The BA process that will be undertaken for this project is summarised in the following steps below:

**Step 1: Notify Authorities and potential I&APs (30 days) (current stage)**

The first stage in the process entails notifying all potential I&APs of the proposed project, by sending out a BID, and providing I&APs with an opportunity to register as an I&AP. I&APs are required to register their interest on the project database within 30 days (in order to be included from the outset of the BA process) and/or raise issues or concerns.

**Step 2: BAR for Public Comment (30 days)**

The BA process is undertaken in order to identify and assess potential environmental impacts, both positive and negative, that may be associated with the project. Mitigation and management measures will be identified to reduce potential negative impacts and maximise positive benefits. These mitigation and management measures will be included in the Environmental Management Programme (EMPr) for this project. One specialist study will be undertaken as part of the proposed project, i.e. a terrestrial ecological study which will comprise a biodiversity scan of the site.

The BAR will include comments received from all I&APs on this BID and findings of the specialist study. All registered I&APs on the project database will be notified in writing of the 30-day comment period for the BAR.

**Step 3: BAR to be submitted to KZN EDTEA for decision-making**

Following the public commenting period, the BAR will be finalised and will be submitted to KZN EDTEA for decision-making. The comments and issues raised will be included in the BAR submitted to KZN EDTEA. All I&APs will be provided with written notification whether the project has been granted or refused EA and about the appeal process.

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### SPECIALIST SCOPE OF WORK

A terrestrial Ecological study will be undertaken. The scope of work includes:

- A terrestrial biodiversity scan will be performed due to the need for clearance of vegetation. The scan will include: *An initial desktop study including literature review, followed by a field visit and the compilation of a biodiversity report.*

### HOW CAN YOU GET INVOLVED?

1. By responding to our invitation for your involvement as advertised in the local newspaper.
2. By mailing or emailing a comment form to the EAP indicated below.
3. By telephonically contacting the EAP if you have a query, comment, or require further project information.
4. By reviewing the various reports and provide comments within the stipulated comment periods provided (i.e. the BID and BAR).
5. By attending any meetings, which may be held during the review period.

### WHO SHOULD YOU CONTACT?

#### Environmental Assessment Practitioner Details

To register as an I&AP, please complete the Registration Form included with this BID and kindly send to:

<b>Abulele Adams</b>	
Email:	aadams1@csir.co.za
Tel:	021-888-2482
Address:	CSIR, PO Box 320, Stellenbosch, 7599
Website:	<a href="http://www.csir.co.za/ems/specialneeds/">http://www.csir.co.za/ems/specialneeds/</a>



**Basic Assessment** for the proposed  
maize and bean cultivation and harvesting  
enterprise for the Khanyani Agricultural  
Cooperative, Emthebeni, Imbabazane  
Local Municipality, KwaZulu Natal



## APPENDIX F:

# ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

**CSIR**

*our future through science*



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## **1. INTRODUCTION**

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This Environmental Management Programme (EMPr) is prepared as part of the requirements of the National Environmental Management Act (NEMA) EIA Regulations published in GNR 983, 984 and 985 on the 4 December 2014 Government Gazette Number 38282. Regulations published in GNR 921 on the 29 November 2013 Government Gazette No 38282. The EMPr is to be submitted to the KZN Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) as part of the Application for Environmental Authorisation for the proposed maize and bean cultivation and harvesting enterprise, Imbabazane Local Municipality, KwaZulu Natal.

The purpose of this EMPr is to ensure good environmental practice by the Khanyani Agricultural Cooperative. This EMPr therefore sets out the methods by which proper environmental controls are to be implemented by the cultivation management. This Draft Environmental Management Programme (EMPr) is prepared as part of the requirements of the Environmental Impact Assessment (EIA) Regulations (December 2014, as amended) promulgated under the National Environmental Management Act (NEMA) (Act 107 of 1998, as amended).

This EMPr is also being made available for a 30-day review period, as part of the Draft Basic Assessment (BA) Report. Comments received from stakeholders during the aforementioned review period will be incorporated into the EMPr, where applicable. Following the incorporation of comments from stakeholders, this EMPr is intended as a “living” document and should continue to be updated regularly, as needed.

### **1.1 Project Description**

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The Khanyani Agricultural Cooperative is a crop producing community owned enterprise, located on a 19 h portion of land owned by the KwaMkhize Traditional Council, in the Imbabazane Local Municipality, KwaZulu-Natal (KZN). The Agricultural Cooperative consists of twelve community members and is led by Mr Bongani Mnculwane. The Khanyani Agricultural Cooperative proposes to cultivate 9.5 ha of maize and 9.5 ha of bean crops. The total footprint of the proposed development will be 19 hectares. Activities include clearance of more than 19 hectares of vegetation, planting and growing the crops and undertaking the associated operations of crop production and harvesting of maize and bean crops. Maize and beans crops are the most important food crops in South Africa and they are produced throughout the country under diverse environments. The maize and beans of the Khanyani Agricultural Cooperative will be planted from October to December. Due to variations in rainfall pattern, temperature and duration of the growing season, different cultivars will be available, adapted to the range of climatic and production conditions. Maize can take from 60 to 100 days to reach harvest depending upon variety and the amount of heat during the growing season. These crops will be planted, thinned, weeded and harvested annually to promote maximum employment opportunities for unskilled and semi-skilled employees from the local community. When this farming unit is ready for harvesting approximately 400 man-days will have been utilised.

The activities described in the EMPr will be addressed in the following three phases of the operation:

- Design Phase

The design and layout of the proposed maize and bean cultivation

- Operational Phase: Cultivation and Harvesting Phase

Site preparation, cultivation of maize and beans and harvesting. Planting will follow seasonal structure.

### Authors of the EMPr

This EMPr has been compiled by the Environmental Assessment Practitioners, the terrestrial ecological specialist and the heritage specialist on the team (as indicated in Table 1). The details and expertise of the Environmental Assessment Practitioner and the specialists are provided in Appendix G of the Draft BA Report.

Table 1: Project Team

<b>ENVIRONMENTAL ASSESSMENT PRACTITIONER</b>			
<b>Name</b>	<b>Organisation</b>	<b>Role</b>	<b>Qualification/Expertise</b>
Minnelise Levendal	CSIR	Project Leader	MSc Botany
Mashabela Karabo	CSIR	Project Manager	MSc Environmental Science
Reinett Mogotshi	CSIR	Reviewer	BSc (Hons): Environmental Management
<b>SPECIALIST TEAM</b>			
<b>Name</b>	<b>Organization</b>	<b>Role/Specialist Study</b>	<b>Qualification/Expertise</b>
Simon Bundy	SDP Ecological and Environmental Services cc	Terrestrial ecological specialist study	MSc Ecology
Len van Schalkwyk	eTHEMBENI Cultural Heritage Management	Principal Investigator: Later Stone Age and Iron Age archaeology; Ancestral Graves Management.	MA Archaeology
Pat Morant	Private consultant	Reviewer	MSc Environmental Studies

### Contents of the EMPr

This EMPr specifies the management actions necessary to ensure no or minimal environmental impacts, as well as procedures for monitoring these impacts associated with the proposed activity. In terms of legal compliance, this EMPr aims to satisfy Appendix 4 of Government Notice Regulation 982 of 4 December 2014 presented in Table 2 below. Table 2: Compliance with Appendix 4 of Government Notice Regulation 982 of 4 December 2014 and Section 24N of the National Environmental Management Act 107 of 1998.

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<b>Requirements according to Appendix 4 of GNR 982 of 4 December 2014</b>	<b>Section</b>
(1) An EMPr must comply with section 24N of the Act and include-	
a) details of -	Section 1.3
(i) the EAP who prepared the EMPr; and	Appendix I
(ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	
b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 2
c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that any areas that should be avoided, including buffers;	Section 2, Figure 2-1, 2-2, 2-3
d) a description of the impact management objectives, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including-	Section 4
(i) planning and design;	Section 4
(ii) pre-construction activities;	Section 4
(iii) construction activities;	Section 4
(iv) rehabilitation of the environment after construction and where applicable post closure; and	Section 4
(v) where relevant, operation activities;	Section 4
e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 4
f) a description of proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated in paragraphs (d) and (e) will be achieved, and must, where applicable, include actions to –	Section 4
i. avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;	
ii. comply with any prescribed environmental management standards or practices;	Section 4
iii. comply with any applicable provisions of the Act regarding closure, where applicable; and	N/A
iv. comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable;	N/A
g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 4
h) frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 4
i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 4
j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 4
k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 4
l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 4
m) an environmental awareness plan describing the manner in which-	
(i) the applicant intends to inform his or her employees of any environmental risk	Section 4

Requirements according to Appendix 4 of GNR 982 of 4 December 2014	Section
which may result from their work; and	
(ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	
n) any specific information that may be required by the competent authority.	N/A

## 2. APPROACH TO PREPARING THE EMPr

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The EMPr follows an approach of identifying over-arching objectives, accompanied by management actions that are aimed at achieving these objectives. The management actions are presented in a table format in order to show the links between associated objectives, actions, responsibilities and monitoring requirements.

The management plans for the design, operation and decommissioning phases consist of the following components:

**Impact:** The potential positive or negative impact of the development that needs to be enhanced, mitigated or eliminated.

**Objectives:** The objectives necessary in order to meet the goal; these take into account the findings of the specialist studies.

**Mitigation/Management Actions:** The actions needed to achieve the objectives, taking into consideration factors such as responsibility, methods, frequency, resources required and prioritisation.

**Monitoring:** The key monitoring actions required to check whether the objectives are being achieved, taking into consideration responsibility, frequency, methods and reporting.

### 2.1 Goal of Environmental Management

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The overall goal for environmental management for the proposed Khanyani project is to operate the project in a manner that:

- Minimises the ecological footprint of the project on the local environment;
- Facilitates harmonious co-existence between the project and other land uses in the area; and
- Contributes to the environmental baseline and understanding of environmental impacts of cultivation e.g. erosion, in a South African context.

## **3. ROLES AND RESPONSIBILITIES**

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The intent of this section is to give a generic outline of what these roles and responsibilities typically require. It is expected that this will be appropriately defined at a later stage. For the purposes of the EMPr, the generic roles that need to be defined are those of the:

- Project Developer;
- Environmental Control Officer;
- Operations manager

### **3.1 Project Developer**

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The Project Developer, Khanyani Agricultural Cooperative Manager, will ensure delivery and keep the development team on track and provide day to day technical management and process guidance on development activities. The manager is responsible for ensuring that the conditions of the Environmental Authorisation issued in terms of NEMA (should the project receive such authorisation) are fully satisfied, as well as ensuring that any other necessary permits or licenses are obtained and complied with. It is expected that the Project Developer will appoint the farm manager who will also perform Environmental Control Officer (ECO) duties.

### **3.2 Environmental Control Officer**

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An independent ECO must be appointed to monitor the compliance of the proposed project with the conditions of Environmental Authorisation (should such authorisation be granted by DEDTEA) during the cultivation phase (and possibly the operational phase, depending on the requirements of DEDTEA). The ECO must also monitor compliance of the proposed project with environmental legislation and recommendations of the EMPr.

The ECO will be responsible for preparing the Final EMPr based on the Draft EMPr, as well as updating the EMPr as and when necessary, and compiling a monitoring checklist based on the EMPr. The roles and responsibilities of the ECO should include the following:

- The ECO must maintain a diary of site visits and audits, a copy of the Environmental Authorisation (should such authorisation be granted by DEDTEA) and relevant permits for reference purposes, a non-conformance register, a public complaint register, and a copy of previous environmental audits undertaken.
- Prior to the commencement of cultivation, the ECO/ farm manager must meet on site with the Project team to confirm the procedure and designated cultivation areas.
- The ECO/ farm manager must undertake periodic environmental audits during the relevant phases of the proposed project in order to monitor and record environmental impacts and non-conformances. It is recommended that weekly environmental audits be undertaken by the ECO/ farm manager during cultivation



- Environmental compliance reports must be submitted by the ECO to the Competent Authority (DEDTEA) on a regular basis (i.e. monthly during the cultivation phase or as stipulated by the DEDTEA).

### 3.3 Operations Manager

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The farm will be remotely controlled, however, it is envisaged that a “Farm Manager” will be residing on the farm and will ensure the following:

- Operation of the farm.
- Required maintenance of the farmhouse, equipment etc.

#### Farm Manager (Farm workers)

The farm manager will be responsible for the following:

- Meeting on site with the ECO and Operations Manager prior to the commencement of cultivation activities to confirm the cultivation procedure and designated activity zones.
- Overall cultivation and harvesting programme, project delivery and quality control for the construction of the facility.
- Overseeing compliance with the Health, Safety and Environmental Responsibilities specific to the project.
- Promoting total job safety and environmental awareness by employees, and the importance that the project proponent attaches to safety and the environment.
- Ensuring that all appointed farm workers are aware of this EMP and their responsibilities in relation to the programme.

Table 3 provides a list of legislation, guidelines and policies relevant to this project.



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Table 2: Description of applicable legislation, policies and guidelines.

Legislation, policy of guideline	Description of compliance
National Environmental Management Act (NEMA), 1998 (Act No. 107 of 1998 as amended).	An application for Environmental Authorisation for the proposed development is submitted in terms of GNR 982 of NEMA EIA Regulations, 4 December 2014, promulgated under NEMA.
GNR 982 of NEMA EIA Regulations, 4 December 2014	<p>To promote integrated environmental management, contents of this EMPr adhere to the requirements of Appendix 4 of the EIA Regulations. This EMPr outlines the conditions that the project will adhere to if authorisation is received.</p> <p>Appendix E of the BAR refers to the Public participation followed thus far in undertaking this assessment.</p>
National Development Plan	<p>The South African Government through the Presidency has published a National Development Plan. The Plan aims to eliminate poverty and reduce inequality by 2030. The Plan has set the target of developing people’s capabilities to improve their lives through education and skills development, health care, better access to public transport, jobs, social protection, rising income, housing and basic services, and safety. It proposes the following strategies to address the above goals:</p> <ol style="list-style-type: none"> <li>1. Creating jobs and improving livelihoods;</li> <li>2. Expanding infrastructure;</li> <li>3. Transition to a low-carbon economy;</li> <li>4. Transforming urban and rural spaces;</li> <li>5. Improving education and training;</li> <li>6. Providing quality health care;</li> <li>7. Fighting corruption and enhancing accountability;</li> <li>8. Transforming society and uniting the nation.</li> </ol>
National Heritage Resources Act (Act 25 of 1999)	An application for Heritage Resources review was submitted to SAHRA
National Environmental Management Biodiversity Act (Act 10 of 2004)	The National Environmental Management Biodiversity Act, 2004 (Act No. 10 of 2004) as amended (NEMBA) including all the pertinent legislation published in terms of this act was considered in compiling this EMPr. This included the determination and assessment of the fauna and flora prevailing in the proposed project and the handling thereof in terms of NEMBA.

## 4. ENVIRONMENTAL MANAGEMENT PLAN

As part of environmental management and enhancement, an identification and description of impact management objectives must be developed, inclusive of the proposed methods and effective management and mitigation measures required during the design, construction and operational phases of the proposed agricultural project. The table below lists potential impacts and mitigation measures recommended for the Khanyani Agricultural Cooperative development at the different phases.

Table 3: Impact management plan for the proposed Khanyani Agricultural Cooperative

Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>A. Design and Planning Phase</b>						
4.1 Loss of sensitive vegetation and faunal habitat as a result of poor planning and design from planting and harvesting.	To prevent further loss of vegetation on site, specifically in high sensitive areas.	<ul style="list-style-type: none"> <li>▪ The cultivation area must be clearly demarcated prior to any clearing of vegetation.</li> <li>▪ No additional clearing of vegetation must be undertaken in areas outside the demarcated cultivation area.</li> <li>▪ The removal or collecting of any plants or shrubs must be prohibited, apart from the plant search and rescue.</li> <li>▪ No-go areas containing important plant habitat in the immediate vicinity of the construction activities must be declared, mapped and clearly demarcated</li> </ul>	Highly sensitive areas should be avoided by revising the planned site plan and demarcate the cultivation site accordingly.	Management to ensure development layout adheres to the proposed mitigation measures of this EMPr	Prior to site clearing, with subsequent monthly monitoring	Farm Manager(s)

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Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>A. Design and Planning Phase</b>						
		using hazard tape or ski netting). <ul style="list-style-type: none"> <li>Farm workers must be clearly informed of the no-go areas and held accountable for any infringements that may occur. No access to the areas outside the demarcated cultivation area should be permitted.</li> </ul>				
4.2 Loss of Conservation Important (CI) flora, in accordance with law and best practice, and encourage rehabilitation.	To protect plants of conservation concern.	<ul style="list-style-type: none"> <li>If removing CI species submit and obtain permits for their removal.</li> <li>Prior to cultivation any CI and medicinally important floral specimens that may occur within the site layout footprint should be collected and replanted in the surrounding areas.</li> </ul>	Permits should be submitted and all CI flora within the site should be collected, stored and transplanted in a suitable surrounding area owed by the applicant.	Management to verify implementation of the mitigation measures proposed in this EMPr.	Monthly	Farm manager(s) Botanist/Horticulturist
4.3 The introduction and spread of alien invasive species.	To prevent the spreading and increase of alien invasive species.	<ul style="list-style-type: none"> <li>Cleared vegetation must be either be removed from site or burned <i>in-situ</i> in the temporary storage area.</li> <li>Any seed bearing material should be removed from the drainage area to prevent the spread of seed.</li> <li>Chopped brushwood can be used</li> </ul>	All Alien invasive plant species should be eradicated in the study area. A suitable specialist from KZN Wildlife should be	Management to verify implementation of the mitigation measures proposed in this EMPr.	Monthly	Farm manager

Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>A. Design and Planning Phase</b>						
		<p>to stabilise steep areas that may be susceptible to erosion during clearing activities.</p> <ul style="list-style-type: none"> <li>▪ A long-term alien maintenance plan must be designed and implemented in conjunction with a suitably qualified expert.</li> <li>▪ Ensure that alien invasive species are identified on site.</li> <li>▪ Regulate / limit access by potential vectors of alien plants.</li> <li>▪ Alien invasive species identified on site should be removed prior to cultivation.</li> <li>▪ Carefully regulate / limit access by vehicles and materials to the cultivation site. Demarcate or fence in the cultivation area.</li> <li>▪ By law, remove and dispose of Category 1b alien species on site. All Category 2 species that remain on site must require a permit.</li> <li>▪ Prohibit the introduction of domestic animals such as dogs and cats.</li> </ul>	contacted for the removal of alien plant species.			
4.4 Destruction of natural habitats and consequential loss and/or	To prevent the loss and	<ul style="list-style-type: none"> <li>▪ Areas containing sensitive fauna to be avoided in the layout plan</li> </ul>	A suitable specialist from	Management to ensure	Weekly	Farm Manager(s)



Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>A. Design and Planning Phase</b>						
displacement of fauna.	minimise the disturbance of natural habitats, and ultimately prevent the loss of ecosystem function on site.	for the proposed development. <ul style="list-style-type: none"> <li>▪ If any of the remaining natural areas are to be affected, adhere to law and best practice guidelines regarding the handling and relocation of CI fauna.</li> <li>▪ It is recommended that a suitably qualified specialist be assigned to find and relocate any CI fauna on site to nearby suitable</li> </ul>	KZN wildlife should be contacted for assistance to relocate the fauna to a suitable area outside of the development site.	development layout verifies the proposed mitigation measures of this EMPr. A monitoring programme should be implemented to assess the presence of faunal species within sensitive vegetation.	Monthly	Specialist from from KZN Wildlife to be contacted for assistance.

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Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>B. Operational: Cultivation and Harvesting</b>						
4.5 Potential of soil erosion due to exposed soil during cultivation.	To prevent soil erosion and consequential sedimentation of watercourses in close proximity.	<ul style="list-style-type: none"> <li>▪ Only areas necessary for cultivation activities should be cleared. Areas should be cleared just prior to being developed and must be cleared in sections.</li> <li>▪ Existing contour furrows to be retained where possible in order to manage run-off.</li> <li>▪ Design and implement a way of attenuating the run-off from the cultivation so that it does not lead to soil erosion, especially during heavy downpours.</li> </ul>	Good farming techniques should be followed and practiced. Erosion protection measures must be implemented on the site to reduce erosion and sedimentation of the receiving environment.	Ensure that regular site inspections are carried out throughout the construction phase.	Monthly monitoring, with annual reporting during the operational lifetime of the project	Farm manager(s)
4.6 Disturbance of fauna.	To minimise disturbances of fauna.	<ul style="list-style-type: none"> <li>▪ Minimize noise to limit its impact on sensitive fauna e.g. Secretary Birds.</li> <li>▪ No trapping or killing of fauna especially Golden mole (<i>Chrysochloris asiatica</i>) should be permitted</li> </ul>	Monitor activities regularly especially noise from the tractor	Ensure that regular site inspections are carried out throughout the Operational phase.	Monthly	Farm manager(s)
4.7 Noise disturbances as a result of Cultivation activities.	To minimise noise generation on site.	<ul style="list-style-type: none"> <li>▪ All activities e.g planting will be done during the day in order minimise disturbance to the neighbours.</li> </ul>	Training of drivers	Ensure that the tractors are inspected regularly before going on site.	Daily	Farm manager and Operation manager(s)

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Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>B. Operational: Cultivation and Harvesting</b>						
4.8 Loss of vegetation and faunal habitat as a result of poor planning and design	To prevent further loss of vegetation on site, specifically in high sensitive areas.	<ul style="list-style-type: none"> <li>▪ Development planning must ensure loss of vegetation and disturbance is restricted to within the recommended site layout.</li> <li>▪ Clearly demarcate or fence in the cultivation site. Relocate specimens that are situated in the cultivation footprint, according to the advice of an appropriate specialist.</li> <li>▪ Development must be planned for areas that are already transformed.</li> </ul>	A suitable specialist Agronomist or plant production expert should be appointed to guide the cultivation process on site. An agricultural extension officer of DAFF can also be contacted for assistance in this regard.	Management to ensure development layout verifies the proposed mitigation measures of this EMPr	Prior to site clearing, with subsequent monthly monitoring	Management
4.9 The introduction and spread of alien invasive species.	To prevent the spreading and increase of alien invasive species.	<ul style="list-style-type: none"> <li>▪ Ensure that alien invasive species are identified on site.</li> <li>▪ Regulate / limit access by potential vectors of alien plants.</li> <li>▪ Alien invasive species identified on site should be removed prior to cultivation site.</li> <li>▪ Demarcate or fence in the cultivation area.</li> <li>▪ By law, remove and dispose of Category 1b alien species on site. All Category 2 species that remain on site must require a permit.</li> <li>▪ Prohibit the introduction of domestic animals such as dogs and cats.</li> </ul>	All alien invasive plant species should be eradicated in the study area. A specialist from KZN wildlife should be approached to seek assistance for the removal and planted alien species. Monitor the removal of the alien invasive vegetation. An	Management to verify implementation of the mitigation measures proposed in this EMPr.	Monthly	Farm manager(s)

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Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>B. Operational: Cultivation and Harvesting</b>						
			Invasive species control plan should be implemented annually within the study area.			
4.10 Destruction of natural habitats and consequential loss and/or displacement of fauna.	To prevent the loss and minimise the disturbance of natural habitats, and ultimately prevent the loss of ecosystem function on site.	<ul style="list-style-type: none"> <li>▪ Areas of sensitive fauna to be avoided in the layout plan for the proposed development.</li> <li>▪ If any of the remaining natural areas are to be affected, adhere to law and best practice guidelines regarding the handling and relocation of CI fauna. Search and rescue measures to be implemented.</li> </ul>	Inspections to be carried out during the cultivation, harvesting and restoration phase	A monitoring programme should be implemented to assess the presence of faunal species within sensitive vegetation.	Monthly	Farm manager(s)
4.11 Cultivation activities may disturb or destroy sites or features of heritage importance.	To protect heritage resources.	<ul style="list-style-type: none"> <li>▪ The site does not have any heritage resources, however should any archaeological features be discovered on site then a qualified heritage specialist and SAHRA will be notified.</li> </ul> <p>The contact details for SAHRA are:            Telephone: 021 462 4502            Fax: 021 462 4509            Email: <a href="mailto:mgalimberti@sahra.org">mgalimberti@sahra.org</a></p> <p>AMAFA:</p>	The farm team must be briefed on the potential uncovering of heritage features and what actions are then required. In the event that artefacts of heritage significance are discovered, all	Report any features of heritage significance.	Monthly	Farm manager(s) and Operation manager(s)

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Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>B. Operational: Cultivation and Harvesting</b>						
		Enquiries: Bernadet Pawandiwa Tel: 033 394 6543 Email: <a href="mailto:bernadetp@amafapmb.co.za">bernadetp@amafapmb.co.za</a>	construction activities are to cease and the South African Heritage Resources Agency (SAHRA) must be immediately contacted.			
4.12 Impact of dust and vehicle emissions generated during use of the gravel road when transporting vegetables during Harvesting.	To minimise the impact of transport activities on the air quality and surrounds.	<ul style="list-style-type: none"> <li>Vehicles transporting to and from the farm must keep at minimum speed to reduce dust generation.</li> </ul>	<p>A checklist should be generated in this regard to ensure adherence to the safety requirements.</p> <p>Inspections to be carried out during the cultivation, harvesting and restoration phase</p>	A complaints register must be kept on the farm, in which any dust complaints from the public must be logged	Monthly	Farm Manager(s)
4.13 Application of Lime	To reduce the PH of the soil	<ul style="list-style-type: none"> <li>Lime should be applied at least one or two months before cultivation and it should be incorporated to a depth of 20 cm. Thorough incorporation is essential: discing followed by ploughing is recommended</li> </ul>	Soils samples to be collected annually and analysed. If required lime to be applied to reduce acidity.	Soil should be analysed annually	Annually	Farm Manager(s)



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Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>B. Operational: Cultivation and Harvesting</b>						
			A checklist should be generated in this regard.			
4.14 Soil PH test for adequate level	To measure of the acidity and alkalinity in soils.	<ul style="list-style-type: none"> <li>▪ Where soil test P levels are considered adequate, but are less than 120 mg/L, a starter application of 20 kg P/ha has been recommended to promote initial plant growth</li> </ul>	Soils samples to be collected quarterly and analysed	Application of 20 kg P/h	Quarterly	Farm Manager(s) and farm workers
4.15 Soil PH test for abnormally high sample	To measure of the acidity and alkalinity in soils.	<ul style="list-style-type: none"> <li>▪ Where the soil P test of a sample is abnormally high (&gt;120 mg/L), and the sample is truly representative of the whole field, no fertilizer P should be applied until test levels indicate a P requirement</li> </ul>	Soils samples to be collected quarterly and analysed	No fertilizer P should be applied until test levels indicate a P requirement	Quarterly	Farm Manager(s) and farm workers
4.16 Sulphur Fertilizer Application in Crop Production	To increase plants nutrients	<ul style="list-style-type: none"> <li>▪ This crop requires 20 - 30 kg S/ha. This can usually be supplied from the atmosphere and by the mineralization of organic S in soils, but supplementary S fertilizers may be necessary on sandy soils, where sulphate is lost by leaching</li> </ul>	Soils samples to be collected quarterly and analysed	Application of 20 - 30 kg S/ha on soils	Quarterly	Farm Manager(s) and farm workers

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Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility	
<b>C. Restoration Phase</b>							
4.17	Impact on natural vegetation during operational activities.	To minimise the disturbance and destruction of natural vegetation on site.	<ul style="list-style-type: none"> <li>Existing site entrance should be used to reduce impact on natural vegetation.</li> </ul>		Site monitoring should be conducted daily and report any non-compliance.	Monthly	Farm manager(s)
4.18	The introduction and spread of alien invasive species as a result of increased activity on site.	To prevent the spreading and increase of alien invasive species.	<ul style="list-style-type: none"> <li>Ensure that alien invasive species are identified on site.</li> <li>Regulate / limit access by potential vectors of alien plants.</li> <li>By law, remove and dispose of Category 1b alien species on site. All Category 2 species that remain on site must require a permit.</li> <li>Prohibit the introduction of domestic animals such as dogs and cats.</li> </ul>	The KZN Wildlife should be contacted for the removal and planted alien species.	Management to verify implementation of the mitigation measures proposed in this EMPr.	Monthly	Farm manager(s)
4.19	Loss of Conservation Important (CI) or medicinally important flora due to harvesting	To protect plants of conservation concern.	<ul style="list-style-type: none"> <li>Harvesting of indigenous flora, fire wood, building materials, and other purposes must be prohibited.</li> <li>Education of the Farm Management and team required prior to operation and with yearly refresher talks.</li> </ul>	The KZN Wildlife should be contacted	Management to verify implementation of the mitigation measures proposed in this EMPr.	Monthly	Farm manager (s)
4.10	Potential for fires to occur.	To prevent fires occurring on site.	<ul style="list-style-type: none"> <li>Create safe storage on the premises for flammable materials. If artificial burning is considered necessary, establish and implement a fire management plan with emergency fire procedures.</li> </ul>	The KZN Wildlife should be contacted and a checklist should be generated in this regard	Ensure effective fire management plans and equipment to deal with fire incidence is readily available at all	Monthly	Farm manager(s)

Impact Description	Environmental Objective	Management/Mitigation Measures	Methodology	Monitoring Compliance & Reporting	Monitoring Frequency	Responsibility
<b>C. Restoration Phase</b>						
		<ul style="list-style-type: none"> <li>▪ Maintain an effective fire break between the development area and the surrounding natural environment (especially the ridge to the north, where the fire-dependent Highveld Blue butterfly may occur).</li> <li>▪ Educate workers about the plan and emergency procedures with regular training and notices.</li> </ul>		times on site.		

## **5. EMERGENCY RESPONSE PLAN**

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The project Applicant must identify any potential emergencies and must develop any procedures to prevent and/or react to said emergencies. Emergency reaction procedures must be in place before construction and operation commence. Emergency procedures to be considered include:

- Fire
- Spills
- Employee accidents

Emergency telephone/cell phone numbers should be kept visible on site at all times throughout construction and operation.

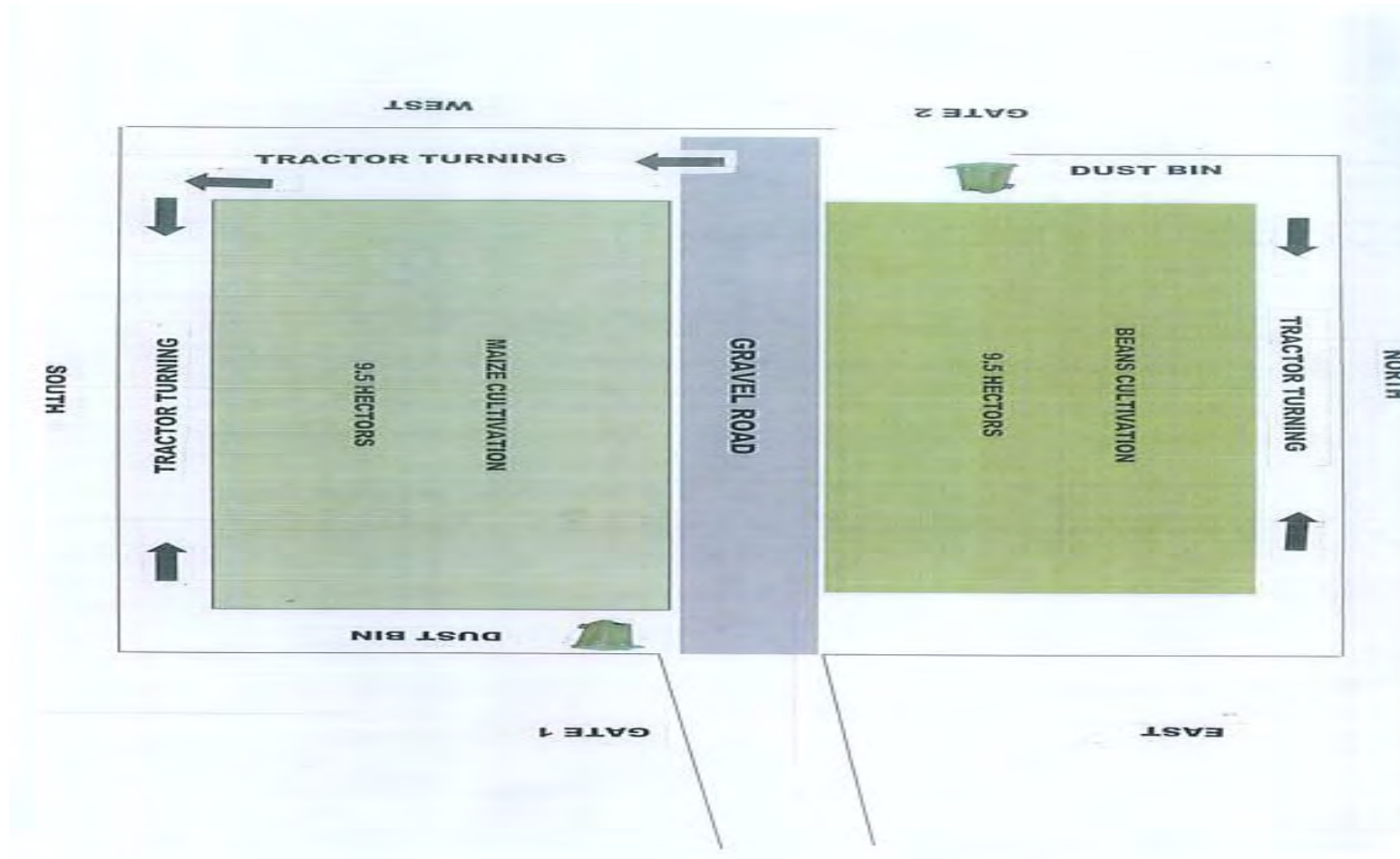
## **6. CONCLUSION**

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It is anticipated that if the farm is operated and decommissioned in accordance with the recommendations made herein, the project is unlikely to have significant adverse environmental impacts.

## APPENDIX A – PROPOSED SITE PLAN OF THE PROPOSED PROJECT

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## APPENDIX B – SENSITIVITY MAP FOR THE PROPOSED PROJECT



# APPENDICES

DRAFT BASIC ASSESSMENT REPORT

PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

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## BASIC ASSESSMENT REPORT

### APPENDIX G: OTHER INFORMATION

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Appendix G.1: Other information \_\_\_\_\_ 2

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### Appendix G.1: Other information

# APPENDICES

DRAFT BASIC ASSESSMENT REPORT

PROPOSED MAIZE AND BEAN CULTIVATION PROJECT OF THE KHANYANI AGRICULTURAL COOPERATIVE

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## BASIC ASSESSMENT REPORT

### APPENDIX H: CURRICULUM VITAE

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Appendix H: CVs of the Project Team	2
Minnelise Levendal (Project Leader)	2
Karabo Mahabela (Project Manager)	5
Reinett Mogotshi (Project Reviewer)	8

## Appendix H: CVs of the Project Team

### Minnelise Levendal (Project Leader)



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Jan Cilliers Street  
PO Box 320  
Stellenbosch 7600  
South Africa

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Fax: +27 21 888 2693  
Email: [mlevendal@csir.co.za](mailto:mlevendal@csir.co.za)



April 2017

### **CURRICULUM VITAE OF MINNELISE LEVENDAL – PROJECT LEADER**

<b>Name of firm</b>	CSIR
<b>Name of staff</b>	Minnelise Levendal
<b>Profession</b>	Environmental Assessment and Management
<b>Position in firm</b>	Project Manager
<b>Years' experience</b>	8 years
<b>Nationality</b>	South African
<b>Languages</b>	Afrikaans and English

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### **CONTACT DETAILS:**

<b>Postal Address:</b>	P O Box 320, Stellenbosch, 7599
<b>Telephone Number:</b>	021-888 2495/2661
<b>Cell:</b>	0833098159
<b>Fax:</b>	0865051341
<b>e-mail:</b>	<a href="mailto:mlevendal@csir.co.za">mlevendal@csir.co.za</a>

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### **BIOSKETCH:**

Minnelise joined the CSIR Environmental Management Services group (EMS) in 2008. She is focussing primarily on managing Environmental Impact Assessments (EIAs), Basic Assessments (BAs) and Environmental Screening studies for renewable energy projects including wind and solar projects. These include an EIA for a wind energy facility near Swellendam, Western Cape South Africa for BioTherm (Authorisation granted in September 2011) and a similar EIA for BioTherm in Laingsburg, Western Cape (in progress). She is also managing two wind farm EIAs and a solar Photovoltaic BA for WKN-Windcurrent SA in the Eastern Cape. Minnelise was the project manager for the Basic Assessment for the erection of ten wind monitoring masts at different sites in South Africa as part of the national wind atlas project of the Department of Energy in 2009 and 2010. She was also a member of the Project Implementation Team who managed the drafting of South Africa's Second National Communication under the United Nations Framework Convention on Climate Change. The national Department of Environmental Affairs



## APPENDICES

appointed the South African Botanical Institute (SANBI) to undertake this project. SANBI subsequently appointed the CSIR to manage this project.

### EDUCATION

- |                          |                                |      |
|--------------------------|--------------------------------|------|
| ▪ M.Sc. (Botany)         | Stellenbosch University        | 1998 |
| ▪ B.Sc. (Hons.) (Botany) | University of the Western Cape | 1994 |
| ▪ B.Sc. (Education)      | University of the Western Cape | 1993 |

### MEMBERSHIPS:

- International Association for Impact Assessment (IAIA), Western Cape (member of their steering committee from 2001-2003)
- IUCN Commission on Education and Communication (CEC); World Conservation Learning Network (WCLN)
- American Association for the Advancement of Science (AAAS)
- Society of Conservation Biology (SCB)

### EMPLOYMENT RECORD:

- **1995:** Peninsula Technicon. Lecturer in the Horticulture Department.
- **1996:** University of the Western Cape. Lecturer in the Botany Department.
- **1999:** University of Stellenbosch. Research assistant in the Botany Department (3 months)
- **1999:** Bengurion University (Israel). Research assistant (Working in the Arava valley, Negev – Israel; 2 months). Research undertaken was published (see first publication in publication list)
- **1999-2004:** Assistant Director at the Department of Environmental Affairs and Development Planning (DEA&DP). Work involved assessing Environmental Impact Assessments and Environmental Management Plans; promoting environmental management and sustainable development.
- **2004 to present:** Employed by the CSIR in Stellenbosch:
- **September 2004 – May 2008:** Biodiversity and Ecosystems Services Group (NRE)
- **May 2008 to present:** Environmental Management Services Group (EMS)

### PROJECT EXPERIENCE RECORD:

The following table presents a list of projects undertaken at the CSIR as well as the role played in each project:

Completion Date	Project description	Role	Client
2011 <i>(in progress)</i>	EIA for the proposed Electrawinds Swartberg wind energy project near Moorreesburg in the Western Cape	Project Manager	Electrawinds
2010-2011 <i>(in progress)</i>	EIA for the proposed Ubuntu wind energy project, Eastern Cape	Project Manager	WKN Windkraft SA
2010-2011 <i>(in progress)</i>	EIA for the proposed Banna ba pifhu wind energy project, Eastern Cape	Project Manager	WKN Windkraft SA
2010-2011	BA for a powerline near Swellendam in the Western Cape	Project Manager	BioTherm Energy (Pty Ltd)
2010-2011 <i>(Environmental Authorisation granted in September 2011)</i>	EIA for a proposed wind farm near Swellendam in the Western Cape	Project Manager	BioTherm Energy (Pty Ltd)
2010 <i>(complete)</i>	Basic Assessment for the erection of two wind monitoring masts near Swellendam and Bredasdorp in the Western Cape	Project Manager	BioTherm Energy (Pty Ltd)
2010 <i>(complete)</i>	Basic Assessment for the erection of two wind monitoring masts near Jeffrey's Bay	Project Manager	Windcurrent (Pty Ltd)

## APPENDICES

Completion Date	Project description	Role	Client
	in the Eastern Cape		
2009-2010 ( <i>Environmental Authorisations granted during 2010</i> )	Basic Assessment Process for the proposed erection of 10 wind monitoring masts in SA as part of the national wind atlas project	Project Manager	Department of Energy through SANERI; GEF
2010	South Africa's Second National Communication under the United Nations Framework Convention on Climate Change	Project Manager	SANBI
2009 ( <i>Environmental Authorisation granted in 2009</i> )	Basic Assessment Report for a proposed boundary wall at the Port of Port Elizabeth, Eastern Cape	Project Manager	Transnet Ltd
2008	Developing an Invasive Alien Plant Strategy for the Wild Coast, Eastern Cape	Co-author	Eastern Cape Parks Board
2006-2008	Monitoring and Evaluation of aspects of Biodiversity	Project Leader	Internal project awarded through the Young Researchers Fund
2006	Integrated veldfire management in South Africa. An assessment of current conditions and future approaches.	Co- author	Working on Fire
2004-2005	Biodiversity Strategy and Action Plan Wild Coast, Eastern Cape, SA	Co-author	Wilderness Foundation
2005	Western Cape State of the Environment Report: Biodiversity section. (Year One).	Co- author and Project Manager	Department of Environmental Affairs and Development Planning

### PUBLICATIONS:

**Bowie, M.** (néé Levendal) and Ward, D. (2004). Water status of the mistletoe *Plicosepalus acaciae* parasitic on isolated Negev Desert populations of *Acacia raddiana* differing in level of mortality. *Journal of Arid Environments* 56: 487-508.

Ward, S.J.E., Esler, K.J. and **Bowie, M.R** (2001). Seasonal photosynthetic temperature responses and changes in <sup>13</sup>C under varying temperature regimes in leaf-succulent and drought-deciduous shrubs from the Succulent Karoo, South Africa. *South African Journal of Botany* 67:235-243.

**Bowie, M.R.**, Wand, S.J.E. and Esler, K.J. (2000). Seasonal gas exchange responses under three different temperature treatments in a leaf-succulent and a drought-deciduous shrub from the Succulent Karoo. *South African Journal of Botany* 66:118-123.

### LANGUAGES

<b>Language</b>	<b>Speaking</b>	<b>Reading</b>	<b>Writing</b>
<i>English</i>	<i>Excellent</i>	<i>Excellent</i>	<i>Excellent</i>
<i>Afrikaans</i>	<i>Excellent</i>	<i>Excellent</i>	<i>Excellent</i>

*M. Levendal*

Minnelise Levendal

## APPENDICES

### Karabo Mahabela (Project Manager)



### CURRICULUM VITAE – Karabo Mashabela (Cand.Sci.Nat)

April 2017

**PO Box 320** Office: +27 21 888 2482/2408  
**Stellenbosch 7600** Cell : +27 760117841  
**South Africa** Fax: +27 21 888 2473  
Email: kmashabela1@csir.co.za

**Position in Firm:** Environmental Assessment Practitioner (Intern)  
**Full Name:** Karabo Mashabela  
**Professional Registration:** Cand.Sci.Nat Environmental Sciences  
**Date of Birth:** 11/12/1989  
**Nationality:** South African  
**Marital Status:** Single  
**Language Proficiency:** English, N Sotho, Swati, Ndebele, Zulu and Tsonga

### BIOSKETCH:

Karabo holds a master's degree in Environmental Science and Geography from University of Limpopo Turfloop campus. Her undergraduate degree was a Bachelor of Science with majors in Environmental Science and GIS and remote sensing. She is currently working as an environmental assessment practitioner intern at the Council for Scientific and Industrial Research (CSIR). Karabo has been the co-author of a various special need and skills programme Basic Assessment. She assisted with the Umgeni water desalination plant and wind and solar SEA. She is also a project officer for National Strategic environmental assessment for Aquaculture.

### EMPLOYMENT TRACK RECORD:

The following table presents a list of projects that Karabo Mashabela has been involved in to this date:

Completion Date	Project description	Role	Client
In progress	<b>National Strategic environmental assessment for Aquaculture</b>	Project officer	National Department of Environmental Affairs and National Department of Agriculture Forestry and Fisheries
In progress	<b>Special Needs and Skills Development Programme (DEA-CSIR)</b>	Project Manager conducting Environmental services such as basic Assessments and Environmental Screening Studies.	Various SMME's and Community Trusts
In progress	<b>Strategic Environmental Assessment (SEA) Wind and solar</b>	Project assistant	National Department of Environmental Affairs

## APPENDICES

Completion Date	Project description	Role	Client
In Progress	<b>EIA for Desalination plants on the KZN Tongaat.</b>	Project member- Public Participation Process, stakeholder engagement and project support.	Umgeni Water
In progress	<b>Intubayethu screening study Eastern Cape</b>	Project manager	DEA
In progress	<b>Basic Assesment for Blue-Green Aquaculture PTY Ltd</b>	Project manager	DEA
In progress	<b>Basic assessment for FishLab</b>	Project manager	DEA

### EMPLOYMENT RECORD:

- **2016** Environmental Scientist and Assessment Practitioner (Intern) for National Strategic environmental assessment. Council for Scientific and Industrial Research – Consulting and Analytical Services (CAS) – Stellenbosch
- **2016** Environmental consultant **and contractor trainer Dwarsrivier Chrome Mine**
- **2011-2015** University of Limpopo Geography Department - GIS and Remote Sensing lab assistant, facilitating GIS practical's using Quantum GIS and ARC-GIS software.
- **2010** National greening in the 2010 national environmental volunteer project ambassador for the department during the FiFa world cup (LEDET) Limpopo Department of Economic Development, Environment and Tourism

### QUALIFICATIONS/EDUCATION:

<i>Qualification Obtained:</i>	BSc (Environmental and Resource Studies)
<i>Name of Institution:</i>	University of Limpopo
<i>Duration:</i>	3 years (2009-2011)
<i>Major Subjects Passed:</i>	<ul style="list-style-type: none"> <li>• Environmental Management and Planning, Impact Studies (EIA, SEA, SIA, Risk Assessment, etc)</li> <li>• Solid Waste Management, Water Treatment Processes and Technology, Natural Resource Ecology, Remote Sensing and Geographic Information System (GIS)</li> </ul>
<i>Qualification obtained:</i>	BSc Honours (Geography and Environmental Sciences)
<i>Name of Institution:</i>	University of Limpopo (2012)
<i>Major Subjects Passed:</i>	<ul style="list-style-type: none"> <li>• Elements of Environmental Management</li> <li>• (Environmental Law, Environmental Management Systems (ISO 14001), EIA, SEA, SIA, IEM, Risk Assessment,</li> <li>• Project Management, Environmental Monitoring and Auditing )</li> <li>• GIS-Applications</li> <li>• Demography</li> <li>• Geography Research Methods</li> </ul>
<i>Honours Research Topic:</i>	"Waste management strategies at Lebowakgomo Central Business Area"
<i>Qualification obtained:</i>	MSc Geography and Environmental Sciences (GIS and Remote Sensing)
<i>Name of Institution:</i>	University of Limpopo (2013-2015)
<i>Master of Science Research Topic:</i>	Onsite greywater reuse as a water conservation Method: A case study of Lepelle-Nkumpi local Municipality, Limpopo province of South Africa
<i>Masters results:</i>	Completed

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### TRAINING, CONFERENCES AND PROFESSIONAL REGISTRATIONS:

- Media and Science Training Accreditation through Jive Media Africa (2016)
- IAIA WC Workshop for roles and responsibilities of an environmental control officer (2016)
- IAIA 2016 Annual National Conference Port Elizabeth (17-18 August 2016) Presented MSc study CSIR collaboration
- Project Management accreditation through the CSIRs Innovation, Leadership and Learning Academy Project Management Course (2016)
- Participated in the ACCESS Student Heritable planet workshop (2011)
- Registered as a Candidate Natural Scientist with the South African Council for Natural Scientific Professions (SACNASP) (Reg #: 116164)
- Member of the IAIA (Membership no: 5322)

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### Reinett Mogotshi (Project Reviewer)



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 Email: RMogotshi@csir.co.za

#### CURRICULUM VITAE OF REINETT MOGOTSHI – PROJECT MANAGER

<b>Surname:</b>	Mogotshi
<b>First names:</b>	Mashedi Reinett
<b>Gender:</b>	Female
<b>Local address:</b>	42 Bakker Street, Stellenbosch, 7600
<b>Contact cell number</b>	0729268494
<b>Email address:</b>	u10243900@tuks.co.za
<b>Home language:</b>	Tswana
<b>Other:</b>	English
<b>Health:</b>	Good
<b>Nationality:</b>	South African
<b>Hobbies:</b>	Watching Television and Reading
<b>Driver's licence:</b>	Code 10
<b>Membership:</b>	IAIAsa membership

#### EDUCATIONAL QUALIFICATIONS:

TERTIARY	
<b>Institute:</b>	Business Success Solutions
<b>Duration:</b>	29-30 October 2015
<b>Qualification:</b>	Environmental Law (Short Course)
<b>Institute:</b>	Council for Scientific and Industrial Research (CSIR)
<b>Duration:</b>	10-11 November 2015
<b>Qualification:</b>	Project Management I
<b>Institute:</b>	University Of Pretoria
<b>Duration:</b>	2014
<b>Qualification:</b>	BSc (Hons): Environmental Management and Analysis
<b>Institute:</b>	University Of Pretoria
<b>Duration:</b>	2010-2013
<b>Qualification:</b>	BSc Environmental Sciences



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SECONDARY	
<b>School:</b>	Tlhako Combined School
<b>Year:</b>	2009
<b>Qualification:</b>	Matric
<b>Subjects passed:</b>	Mathematics, Life Orientation, Life Sciences, Geography, Physical sciences, English and Seped
SKILLS	
<b>Computer skills:</b>	Microsoft Office: Word, Excel, Access and PowerPoint, Email Internet and Databases search
<b>GIS skills:</b>	ArcGIS 10, SAGA GIS, R 3.0.2

### EMPLOYMENT INCLUDING VOLUNTEER WORK:

<b>Company:</b>	Council for Scientific and Industrial Research (CSIR)
<b>Duration:</b>	August 2015- Currently
<b>Job title:</b>	Environmental Assessment Practitioner Intern
<b>Responsibilities:</b>	Project manager for Basic Assessment Reports, Conduct Public Participation, GIS Mapping, Conduct site visits, Project assistant for EMF development and Report Compilation
<b>Company:</b>	City of Tshwane Metropolitan Municipality
<b>Duration:</b>	November 2014- July 2015
<b>Job title:</b>	Environmental Intern
<b>Responsibilities:</b>	Assisting senior officials with, amongst others, reviewing of development applications (EIA, Basic Assessments) seeking environmental authorization, inspecting proposed development sites, thematic mapping using ArcGIS, participating in EIA forum meetings as well as data capturing between Excel & ArcMap, site inspection reports as well as planning and designing of CoT green spaces, parks, gardens, cemeteries, city gateways
<b>Company:</b>	University of Pretoria
<b>Duration:</b>	July 2014- October 2014
<b>Job title:</b>	Assistant Lecturer
<b>Responsibilities:</b>	<ul style="list-style-type: none"> <li>• Teaching the students core concepts of the module</li> <li>• Responsible for the Administration in Mamelodi</li> </ul>
<b>Company:</b>	University of Pretoria
<b>Duration:</b>	February 2013- June 2014
<b>Job title:</b>	IT lab Teaching assistant
<b>Responsibilities:</b>	<ul style="list-style-type: none"> <li>• Assisting students who are struggling with the module</li> <li>• Assist the lecture in class</li> <li>• Responsible for the class register</li> <li>• Responsible for making sure that the lab is in a good condition, enforcing rules on students i.e. chairs pushed in, computers are off and there is no eating in the labs</li> </ul>
<b>Company:</b>	SEISPRO (Seidet school projects)
<b>Duration:</b>	September 2012- August 2013
<b>Job title:</b>	Advisory member of Student society
<b>Responsibilities:</b>	Assist the leadership with the day to day running of the society
<b>Company:</b>	Tuks Student Christian Fellowship
<b>Duration:</b>	September 2011- August 2012
<b>Job title:</b>	Vice catering leader Groenkloof
<b>Responsibilities:</b>	<ul style="list-style-type: none"> <li>• Assisted the leader with the administrative work</li> </ul>

## APPENDICES

	<ul style="list-style-type: none"> <li>• Organising catering meetings</li> <li>• Catered food for church events</li> </ul>
<b>Company:</b>	Centre for the Study of Aids
<b>Duration:</b>	8 weeks
<b>Job title:</b>	Voluntary 8 week entry-level course on HIV and AIDS
<b>Training:</b>	<ul style="list-style-type: none"> <li>• Basic information on HIV/AIDS</li> <li>• Preventing HIV infection,</li> <li>• Living positively with HIV/AIDS</li> <li>• An introduction to counselling</li> <li>• HIV/AIDS and human rights education</li> <li>• Peer education</li> <li>• Leadership and citizenship</li> </ul>
<b>Company:</b>	Zinnia Residence
<b>Duration:</b>	September 2011- August 2012
<b>Job title:</b>	IT lab assistant
<b>Responsibilities:</b>	Assist with opening and closing of the IT lab

### CONFERENCES AND WORKSHOPS:

2015 Practical Adaptation for vulnerable communities by Adaptation Network, Kirstenbosch Botanical Gardens, Cape Town, August 2016.

2016 International Association for Impact Assessors South Africa (IAIAsa) National Annual Conference, August 2016, Port Elizabeth.

### REFERENCES:

<b>Name:</b>	Willie Mothowamodimo
<b>Relation:</b>	Deputy Director Landscape and Urban Planning
<b>Company:</b>	City of Tshwane Metropolitan Municipality
<b>Contact:</b>	076 1912243
<b>Name:</b>	Vusi Makwela
<b>Relation:</b>	Catering leader
<b>Company:</b>	Tuks Student Christian Fellowship
<b>Contact:</b>	073 1341192
<b>Name:</b>	Minnelise Levendal
<b>Relation:</b>	Senior Project Manager
<b>Company:</b>	Council for Scientific and Industrial Research
<b>Contact:</b>	012 4205349

### LANGUAGES

<i>Language</i>	<i>Speaking</i>	<i>Reading</i>	<i>Writing</i>
<i>Tswana</i>	<i>Excellent</i>	<i>Excellent</i>	<i>Excellent</i>
<i>English</i>	<i>Excellent</i>	<i>Excellent</i>	<i>Excellent</i>

## APPENDICES

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Reinett Mogotshi

A handwritten signature in black ink, consisting of a large, stylized capital letter 'R' followed by the name 'Mogotshi' in a cursive script.

March 2017