



**Propose clearance of approximately 13 hectares  
of indigenous vegetation for cultivating berries on  
portion 15 of the farm Sandford 291-KU,  
Hazyview, City of Mbombela, Mpumalanga  
Province**

Draft Basic Assessment Report

11 September 2020

**CORE Environmental Services**

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EAPASA: 2020/602

## EXECUTIVE SUMMARY

**Sandford Agri (Pty) Ltd** is proposing to clear approximately 13 hectares of indigenous vegetation to establish an agricultural area for the purpose of cultivating berries. In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required before more than 1 hectare of vegetation can be cleared.

**Sandford Agri (Pty) Ltd** subsequently appointed **Core Environmental Services** to apply for the EA by means of conducting a Basic Environmental Authorisation process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

The establishment and operation of the agricultural area are likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- *Impact on biodiversity;*
- *Generation of dust;*
- *Impact on soil;*
- *Impact on water resources;*
- *Impact on heritage resources*
- *Socio-economic impact.*

The table below summarises the impacts identified and assessed for the establishment and operational phases of the project:

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
<b>Establishment and Operational Impacts</b>		
Biodiversity Impact	Low	Very Low
Generation of dust	Medium	Low
Erosion	Low	Very Low
Soil Pollution	Low	Very Low
Impact on water resources	Medium	Low
Heritage Impacts	Low	Very Low
Job opportunities	Low (+)	Medium (+)
Health and Safety	Low	Very Low
<b>Operational Phase Impacts</b>		
Biodiversity Impact	Medium	Low
Erosion	Low	Very Low
Soil contamination	Medium	Low
Impact on water resource	Medium	Low
Socio-economic Impact	Low (+)	High (+)

The assessment of the possible impacts associated with the establishment and operational activities, concluded that the impact on the surrounding environment is of **medium to low significance**. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. It is recommended that the ephemeral drainage lines be protected during the operation of the agricultural activities and that pro-active measures are taken to minimise the spread of alien invasive vegetation. Recommendations for the mitigation of impact are included within Section 6 and also the Draft Environmental Management Plan attached.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

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## ABBREVIATIONS

BAR	Basic Assessment Report
CBA	Critical Biodiversity Area
EA	Environmental Authorisation
GNR	General Notice Regulation
I&AP	Interested and Affected Party
MDARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Administration
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
PPP	Public Participation Process
SACAA	South African Civil Aviation Authority

# 1. OVERVIEW OF THE PROJECT

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## 1.1 Introduction

**Sandford Agri (Pty) Ltd** is proposing to clear approximately 13 hectares of indigenous vegetation to establish an agricultural area for the purpose of cultivating berries. In accordance with the National Environmental Management Act 107 of 1998, GNR 983 of 2014 (as amended in 2017), an Environmental Authorisation (EA) is required before more than 1 hectare of vegetation can be cleared.

**Sandford Agri (Pty) Ltd** subsequently appointed **Core Environmental Services** to apply for the EA by means of conducting a Basic Environmental Authorisation process as regulated within General Notice Regulation 982, 2014 (as amended in 2017).

## 1.2 Location

The site proposed for the berry farming activities is located along the R38 Hazyview, on portion 15 of the farm Sandford 291-KU, Hazyview, City of Mbombela, at the following coordinates:

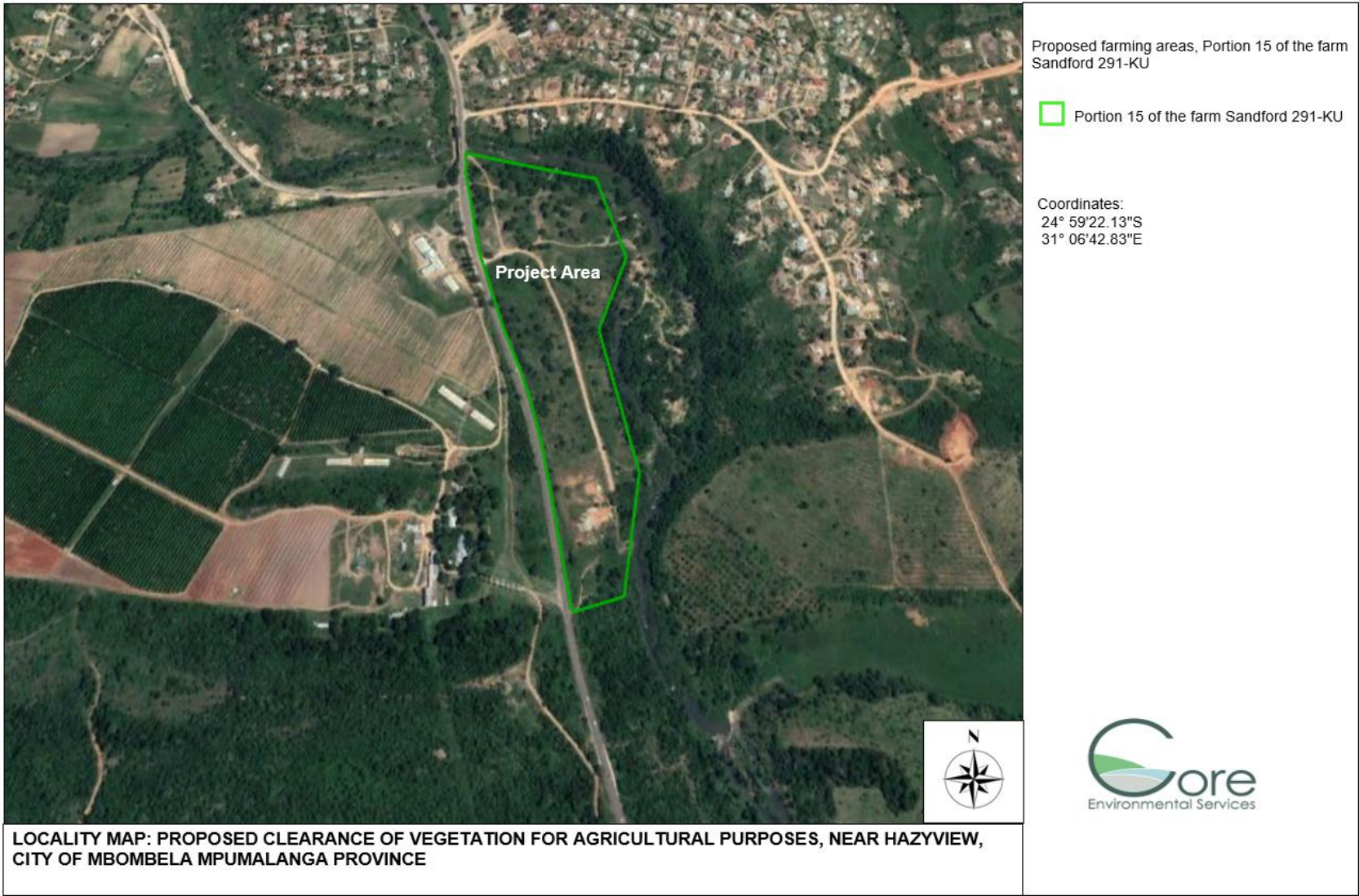
Coordinates:

24° 59'24.44"S

31° 06'43.52"E

Surveyor General Code: TOKU00000000029100015

Please refer to the locality map below, Figure 1 and 2.



**FIGURE 1: LOCALITY MAP – PROPOSED FARMING AREA ON PORTION 15 OF THE FARM SANDFORD 129-KU**



## 1.3 Details of the EAP

Ms. Anne-Mari White, is an Environmental Specialist, who started her studies at the North-West University (NWU) and completed her Bachelor of Science: Environmental Management at the University of South Africa (UNISA) in 2007. Ms. White is registered with the Environmental Assessment Practitioners Association of South Africa (EAPASA Reg No: 2020/602) as well as the South African Council for Natural Scientific Professionals as a Certificated Natural Scientist (Reg. No 300067/15). In addition to her qualification, she completed short courses in soil classification and wetland delineations (Terrasoil Science), Geographic Information Systems (University of KwaZulu-Natal), and Environmental Impact Assessments (NWU).

## 1.4 Policy, Legal and Administrative Framework

TABLE 1: LEGISLATION APPLICABLE TO THE PROJECT

Applicable legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments considered	Project application and type (permit / licence / authorisation / comment)
The Constitution of South Africa, Act No. 108 of 1996	Sandford Agri (Pty) Ltd will be required to adhere to the Environmental Management Programme (EMPr) requirements to ensure that social and environmental management considerations are considered and implemented.  As per Section 25 the Constitution, a public participation process (PPP) was and will continue to be undertaken, as this is considered to be an essential mechanism for informing stakeholders of their rights and obligations in terms of the project.
National Environmental Management Act, 1998 (Act No. 107 of 1998)	Environmental Authorisation will subsequently be applied for by means of conducting a Basic Environmental Authorisation process as regulated within GNR982 of 2014 (as amended in 2017).
National Biodiversity Act, 2004 (Act No. 10 of 2004)	The act provides for the management and conservation of South Africa's biodiversity within the framework of the National Environmental Management Act, 1998; the protection of species and ecosystems that warrant national protection; the sustainable use of indigenous biological resources, the fair and equitable sharing of benefits arising from bioprospecting involving indigenous biological resource; the establishment and functions of a South African National Biodiversity Institute; and for matters connected therewith.

	The National Biodiversity Act, 2004, must therefore be considered prior to the clearance of vegetation to minimise the impact on the terrestrial biodiversity.
Occupational Health and Safety Act, 1998 (Act No. 85 of 1998)	The Act provides for the health and safety of people at work and for the health and safety of people using plant and machinery.  During establishment, work must be conducted with strict adherence to the Occupational Health and Safety Act 85 of 1998.
National Heritage Resources Act, 1999 (Act No 25 of 1999)	This legislation aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations.
City of Mbombela Integrated Development Plan (IDP) (2017 - 2022)	The primary objectives of the IDP is to foster economic growth that creates jobs and improve infrastructure within the Province.  Job opportunities will be created by the proposed agricultural activities which supports economic growth within the area.

## 1.5 National Environmental Management Act 107 of 1998

In accordance with the National Environmental Management Act 107, of 1998, the following listed activities will be triggered by the proposed development and will require approval prior to commencement:

*GNR 983, Activity 27, 2014 (as amended in 2017), activity 27:*

*The clearance of an area of 1 hectare 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; or*

*Maintenance purposes undertaken in accordance with a maintenance management plan.*

## 1.6 Description of the project

**Sandford Agri (Pty) Ltd** is proposing to clear approximately 13 hectares of indigenous vegetation to establish an agricultural area for the purpose of berry farming activities. It is proposed that the berries will be cultivated in bags. The berries will therefore not be planted and therefore the main activity relates to the clearance of vegetation.

The larger portion of the proposed project area is heavily invested with alien invasive species and it is evident that the areas was previously cultivated.

Water for the surrounding agricultural area is currently being abstracted from the Marite River. It is proposed that the water required for the additional area to be cultivated, will also be obtained from the Marite River.

## 1.7 Need and Desirability

- In total, 80% of South African berries are exported, the most important markets being the UK and Europe.
- South African berries are in demand in the northern hemisphere because of counter-cyclical seasonality, especially during their winter when their local supply is limited.
- Berry Farming is considered as an economic driver.
- Global demand for berries is booming and there has been a corresponding surge in growth at home to feed this market.
- The South Africa blueberry industry continues to set record-breaking growth trends, with export volumes for 2019/2020 increasing more than 50% compared with the previous season.
- Blueberry and raspberry production have grown roughly tenfold in the last five years.
- Berry farming is a growing market in South Africa and is therefore an attractive and desirable investment opportunity and farmers will therefore get a return on investment in approximately 2 to 3 years.
- Employment in this industry had quadrupled from roughly 1 000 jobs in 2014 to over 5 700 in 2018, with numbers further increasing to 8 000 during the past two years.

With the growing demand for berries, there is a definite need for more berry farms which would in turn provide job opportunities to the surrounding community members.

## 2. PUBLIC PARTICIPATION PROCESS

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The purpose of this chapter is to provide an outline of the public participation process (PPP) to date and the way forward with respect to the Basic Assessment process.

Consultation with the public forms an integral component of the EA process. This process enables Interested and Affected Parties (I&APs) (e.g. directly affected landowners, national-, provincial- and local authorities, and local communities etc.) to raise their issues and concerns regarding the proposed activities, which they feel should be addressed in the BA process. The PPP has thus been structured such as to provide I&APs with an opportunity to gain more knowledge about the proposed project, to provide input through the review of documents/reports, and to voice any issues or concerns at various stages throughout the BA process.

I&APs were identified during the public participation phase of the project. All the parties identified as an I&AP (surrounding landowners, relevant departments, stakeholders, local and district authorities) have automatically been registered in the I&APs database for the project. The registered I&AP list is attached as **Annexure C.1**.

In effort to engage potential stakeholders, different communication methods were used to inform them about the project and how to get involved in the BA process. These methods include:

- Distributing English Background Information Documents (BIDs) to all registered I&APs, proof of which is attached in **Annexure C.2**;
- Placement of media advert in a local newspaper (The Lowvelder) on 30 July 2020 (see **Annexure C.3**).
- Placing of a notice at the proposed site took place on 29 July 2020 (see **Annexure C.4**);

The draft Basic Assessment Report will be made available for public review from September 2020 – October 2020.

To date no comments have been received by I&AP's.

## 3. CONSIDERATION OF ALTERNATIVES

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The EIA process requires the developer to identify and investigate/assess feasible and reasonable alternatives. The project alternatives range from the location where the activity is proposed, type of activity to be undertaken, design the of activity, technology to be used in the activity to the option of not implementing the activity (No-Go Alternative).

The assessment of the alternatives is a complicated and multi-faceted issue, which is essential to the success of this application and ultimately to the proper, responsible and sustainable operation of the proposed project.

### 3.1 Alternative Selection

#### 3.1.1 Location alternatives

The portion of the property proposed for cultivation, was previously used for agricultural purposes and is subsequently heavily modified. As the proposed location was previously used for agricultural activities and of low ecological significance, no other location alternatives were investigated.

#### 3.1.2 Layout alternatives

An Ecological and Heritage Impact Assessment was conducted to identify any sensitivities within the project area to be of ecological or heritage significance. The specialist reports therefore informed the layout and area to be used for agricultural purposes.

#### 3.1.3 No-Go alternative

The no-go alternative would be to not authorise the application for the clearance of vegetation for agricultural purposes. Should this alternative be favourable, the project area will not be cleared and used for agriculture, however, no impact was identified to be so severe in order for the no-go alternative to be further investigated.

## 4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

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The description of the affected environment below draws on existing knowledge from published data, previous studies, specialist investigations, site visits to the area and is used to understand the possible effects of the proposed project on the environment.

### 4.1 Topography

The topography of the of the proposed project area, is approximately 507m - 515m above mean sea level. The project area is mostly flat and fit for agricultural purposes.

### 4.2 Climate

Mpumalanga is a province where the climate varies due to its topography. The project site is located on the Lowveld Region and has a tropical climate with warm sub-tropical temperatures and experiences high summer rainfalls. It is characterized by moderate climatic conditions with a mean maximum temperature of 28°C during January and 22°C during June.

The study area experiences a humid and hot weather during summer seasons. The climatic trends of the area suggest summer season precipitation and dryer periods during winter. Winter rainfall is almost non-existent. Its lowest rainfall (4mm) is in June and highest (158mm) in January. The area receives a total of about 800-1000 mm of rain over 12 months.

### 4.3 Ecology

On a National level, the larger study area can be classified as Lowveld (A10), according to Acocks (1988) and Sour Lowveld Bushveld according to Low & Rebelo (1998). Classified on a regional scale and according to a more detailed system the study area comprises several distinct vegetation units (Mucina & Rutherford, 2006):

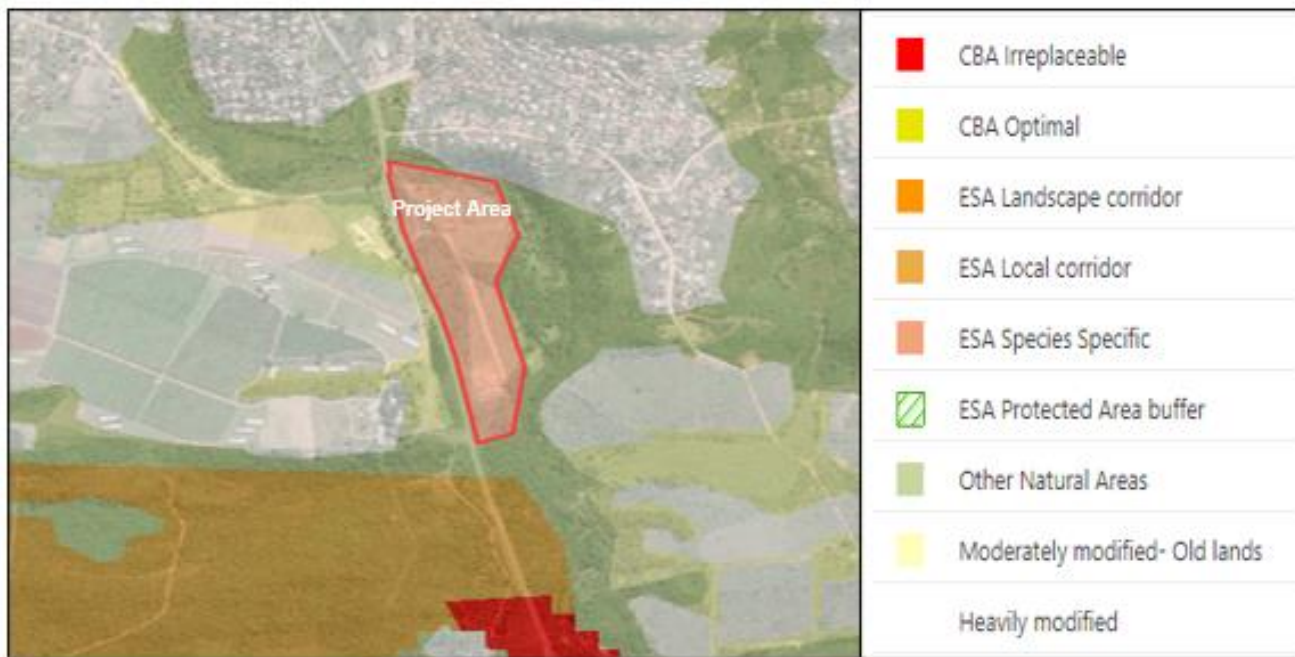
#### **Terrestrial Ecology:**

According to the Mpumalanga Biodiversity Sector Plan of 2014, the site falls within the class namely, *Moderately to Heavily Modified (Old Lands)* as seen below in Figure 3.

*Moderately / Heavily modified:* MTPA objectives for these areas are quoted as follows: Such areas offer the most flexibility regarding potential land-uses, but these should be managed in a biodiversity-sensitive manner, aiming to maximize ecological functionality and authorization is still required for high impact land uses.

Overall, the site is located within the Savannah Biome. The Savanna Biome is the largest Biome in southern Africa, occupying 46% of its area, and over one-third the area of South Africa. It is well developed over the lowveld and Kalahari region of South Africa. It is characterized by a grassy ground layer and a distinct upper layer of woody plants. The vegetation type is classified as the Pretoriuskop Sour Bushveld. It is found in Mpumalanga and Limpopo Provinces along the eastern foothills of the

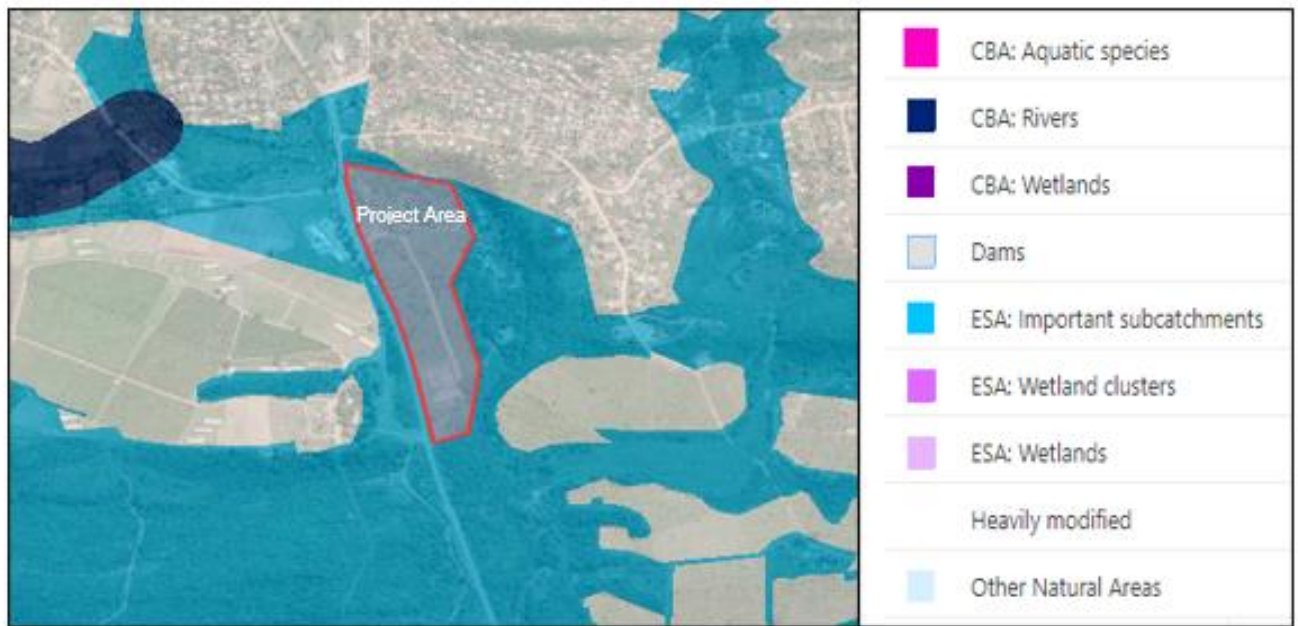
northeastern escarpment. Characteristic trees and shrubs are *Dichrostachys cinerea* and *Terminalia sericea*. The area is classified as open savannah with various *Acacia* species and occurs on the upland areas. The geology is mainly granite from Nelspruit Suite and the soil is shallow to medium deep.



**FIGURE 2: TERRESTRIAL ECOLOGY ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014**

*Freshwater Ecology:* The area is classified as an Ecological Support Area (Important Sub catchment). The MTPA requirements for an Ecological Support Area (important sub catchment) are quoted as follows: This sub-category includes National Freshwater Ecosystems Priority Areas (FEPA) sub-catchments and Fish Support Areas. A river FEPA is the river reach that is required for meeting biodiversity targets for river ecosystems and threatened fish species. In managing the condition of a river FEPA, it is important to manage not only the river itself, but also the network of streams and wetlands as well as land-based activities in the sub-catchment that supports the river FEPA. A proportion of tributaries and wetlands need to remain healthy and functional in order for the river FEPA to be kept in a good ecological condition. This requires that management activities are focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment.

The vegetation cover is however dominated by alien invasive vegetation and the degree of invasive vegetation is severe. It is therefore assumed that the area was previously used for cultivation. Due to the degree of alien invasive vegetation, the biodiversity and ecological sensitivity of the proposed footprint is very low.



**FIGURE 3: FRESHWATER ECOLOGY ACCORDING TO THE MPUMALANGA BIODIVERSITY SECTOR PLAN, 2014**

#### 4.4 Surface and Groundwater

A perennial river, the Marite River, is located approximately to the east of the area proposed to be cleared. This river is a 4<sup>th</sup> order perennial watercourse, draining the eastern foothills of the Escarpment mountains and it is a tributary of the Sabie River, on the Lowveld plains, a short distance to the east. Historically the riparian vegetation of this River was lush and large obligate riparian trees were abundant.

A relatively small wetland zone is located immediately adjacent to the R40 road. This is flat wetland and is connected to a seepage zone on the property to the west of the road. This wetland has been largely modified and flow has been diverted through a culvert beneath the road into the flat wetland. This wetland is permanent and no seasonal or temporary zones are present.

#### 4.5 Land use

The area is zoned for agricultural purposes and most of the surrounding land is being used for agricultural purposes. Unlawful road construction, vegetation clearing and sand mining activities have devastated large sections of the riparian habitat.

The local land use varies from degraded natural areas to agriculture. Large areas of the surrounding environment have been transformed to residential (formal and informal).

#### 4.6 Geology and Soils

The regional geology comprises of Archaean granite of the Nelspruit Suite. Which have weathered down to form shallow, leached, red to yellow–brown sand to sandy loam of the Glenrosa, Hutton and



Clovelly forms. According to the geological map of the area, the Hazyview area is on Archaeozoic, Swazian, Archaean super group.

The most extensive soil types within the area are shallow, sandy lithosols. The average topsoil cover is 200mm. The topsoil layer, which is +/- 200mm, comprises of sandy material with vegetation root. The remaining layer, from 600mm, comprises of light reddish mixture type from depth below 600mm.

## 4.8 Heritage

A Heritage Impact Assessment was conducted. According to the Heritage Impact Assessment Report, the proposed study area is entirely situated on historically disturbed agricultural fields. The agricultural lands have been lying fallow for more than ten years, after which pioneer vegetation has colonized the lands and disturbed areas. The 2004 image shows the location of two large pack houses in the southern corner, which were subsequently demolished in 2017. This area was cleared and later used as a depot. The property was also used for other purposes such as sand mining (since 2009 / 2013 / 2014). The survey did not reveal any archaeological or historical features.

It is recommended that the owners be made aware that distinct archaeological material or human remains may only be revealed during the development of the proposed agricultural operations. In such instance, a qualified archaeologist must be contacted to monitor the activities and make a recommendation.

## 4.9 Socio-Economic Environment

The area is located within the City of Mbombela. The larger portion of the 695 913 individuals within the Mbombela Local Municipality, lives in peri-urban and rural areas. Approximately 75% of the people live within communal areas on the eastern axis of the City which is far from the city.

The City of Mbombela currently has an unemployment rate of 28% with 50% of the people living below the poverty line. The levels of skill and qualifications of the population is also fairly low which is problematic for future economic development.

The socio-economic context of the surrounding environment can therefore be described as a community with a low percentage of education and high unemployment rate.

Forty (40) permanent job opportunities will be created by the establishment of the farming activities of which all 40 accrued to previously disadvantaged individuals. Seasonally, the farming activities will be providing more job opportunities on a temporary basis.

The livelihood of the individuals is therefore impacted positively by agricultural activities.

## 5. SPECIALIST ASSESSMENT REQUIREMENTS AS IDENTIFIED IN THE SCREENING REPORT

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The following specialist assessments were identified within the Department of Environmental Affairs Screening Report to be conducted as part of the Basic Environmental Impact Assessment:

- Visual Impact Assessment

The proposed area is currently zoned for agricultural purposes and all surrounding properties are currently cultivated or invaded by informal settlements. The cultivation of an area of approximately 13 hectares, will therefore fit with all the surrounding land uses and will therefore not have a significant visual impact. For this reason, no visual impact assessment was conducted.

- Heritage Impact Assessment

A Heritage Impact Assessment was conducted on the 13-hectare property to identify any possible artefact or structures which could be of heritage or cultural significance. The specialist assessment concluded that there were no archaeological or historical features within the perimeter of the proposed site. Please also see above in Section 4.8 as well as Appendix E.

- Paleontological Assessment

The Screening Report issued by the Department of Environmental Affairs showed no paleontological sensitivities. The proposed activities will also have no impact on the geological formations of the site as all activities are surface based. For this reason, no paleontological assessment was conducted.

- Terrestrial Biodiversity Assessment / Plant and Animal Species Assessment

An Ecological Impact Assessment was conducted on the 13-hectare property to identify any ecological sensitive areas within the project area. The specialist assessment concluded that, the recommended activity sites are of **Low** biological and ecological sensitivity. However, important natural communities remain intact (wetland and riparian habitats) adjacent to the proposed development site. It is recommended that these natural areas should be conserved to ensure that the present state of biodiversity is not affected and that the operational plan be designed to conserve these areas within a buffer zone

- Avian Impact Assessment

As the proposed project area is heavily invested with alien invasive species, the main anticipated impact on the environment will not be the loss or fragmentation of natural habitat and therefore a comprehensive faunal assessment was not deemed to be necessary.

- Socio-economic Assessment

The proposed project will not have any negative impact on the socio-economic environment. Contrary to this, additional job opportunities will be created during the operational phase of the project, which will impact the surrounding community positively.

As no negative socio-economic impact is expected with the proposed project, it is the opinion of the EAP that no Socio-Economic Impact Assessment is required.

## 6. METHODOLOGY OF ASSESSING THE SIGNIFICANCE OF IMPACTS

This section outlines the method used for assessing the significance of the potential environmental impacts during the construction/establishment, operational and decommissioning phases.

For each impact, the **EXTENT** (spatial scale), **MAGNITUDE** and **DURATION** (time scale) would be described, as shown in **Table 2**. These criteria are then used to determine the **SIGNIFICANCE** of the impact, firstly in the case of no mitigation and then with the most effective mitigation measure(s) in place. The mitigation described in the Report represents the full range of plausible and pragmatic measures but does not necessarily imply that they would be implemented.

The following tables show the scale used to assess these variables and defines each of the rating categories.

**TABLE 2: ASSESSMENT CRITERIA FOR THE EVALUATION OF IMPACTS**

Criteria	Category	Description
Extent or spatial influence of impact	<b>Regional</b>	Beyond a 30km radius of the candidate site.
	<b>Local</b>	Within a 30km radius of the candidate site.
	<b>Site-specific</b>	On site or within 100 m of the candidate site.
Magnitude of impact (at the indicated spatial scale)	<b>High</b>	Natural and/ or social functions and/ or processes are <i>severely</i> altered
	<b>Medium</b>	Natural and/ or social functions and/ or processes are <i>notably</i> altered
	<b>Low</b>	Natural and/ or social functions and/ or processes are <i>slightly</i> altered
	<b>Very low</b>	Natural and/ or social functions and/ or processes are <i>negligibly</i> altered
	<b>Zero</b>	Natural and/ or social functions and/ or processes remain <i>unaltered</i>
Duration of impact	<b>Long-term</b>	More than 10 years after construction
	<b>Medium-term</b>	Up to 5 years after construction
	<b>Construction-term</b>	Up to 3 years

The **SIGNIFICANCE** of an impact is derived by taking into account magnitude, duration and extent of each impact. The criteria employed in arriving at the different significance ratings is shown in Table 3.

**TABLE 3: DEFINITION OF SIGNIFICANCE RATINGS**

Significance ratings	Level of criteria required
High	<ul style="list-style-type: none"> <li>• High magnitude with a regional extent and long-term duration</li> <li>• High magnitude with either a regional extent and medium-term duration or a local extent and long-term duration</li> <li>• Medium magnitude with a regional extent and long-term duration</li> </ul>
Medium	<ul style="list-style-type: none"> <li>• High magnitude with a local extent and medium-term duration</li> <li>• High magnitude with a regional extent and construction period or a site-specific extent and long-term duration</li> <li>• High magnitude with either a local extent and construction period duration or a site-specific extent and medium-term duration</li> <li>• Medium magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>• Low magnitude with a regional extent and long-term duration</li> </ul>
Low	<ul style="list-style-type: none"> <li>• High magnitude with a site-specific extent and construction period duration</li> <li>• Medium magnitude with a site-specific extent and construction period duration</li> <li>• Low magnitude with any combination of extent and duration except site specific and construction period or regional and long term</li> <li>• Very low magnitude with a regional extent and long-term duration</li> </ul>
Very low	<ul style="list-style-type: none"> <li>• Low magnitude with a site-specific extent and construction period duration</li> <li>• Very low magnitude with any combination of extent and duration except regional and long term</li> </ul>
Neutral	<ul style="list-style-type: none"> <li>• Zero magnitude with any combination of extent and duration</li> </ul>

Once the significance of an impact has been determined, the **PROBABILITY** and **CONFIDENCE** of this impact are determined using the rating systems outlined in **Table 4** and **Table 5**. The significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly, the **REVERSIBILITY** of the impact is estimated using the rating system outlined in **Table 6**.

**TABLE 4: DEFINITION OF PROBABILITY RATINGS**

Probability ratings	Criteria
Definite	Estimated greater than 95 % chance of the impact occurring.
Probable	Estimated 5 to 95 % chance of the impact occurring.
Unlikely	Estimated less than 5 % chance of the impact occurring.

**TABLE 5: DEFINITION OF CONFIDENCE RATINGS**

<b>Confidence ratings</b>	<b>Criteria</b>
Certain	Wealth of information on and sound understanding of the environmental factors potentially influencing the impact.
Sure	Reasonable amount of useful information on and relatively sound understanding of the environmental factors potentially influencing the impact.
Unsure	Limited useful information on and understanding of the environmental factors potentially influencing this impact.

**TABLE 6: DEFINITION OF REVERSIBILITY RATINGS**

<b>Reversibility ratings</b>	<b>Criteria</b>
<b>Irreversible</b>	The activity will lead to an impact that is in all practical terms permanent.
<b>Reversible</b>	The impact is reversible within 2 years after the cause of the impact is removed.

## 7. ENVIRONMENTAL IMPACT ASSESSMENT

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The biophysical and social environment will be impacted during the establishment and operational phases of the agricultural activities. For this reason, the impacts below are assessed for both phases.

### 7.1 Impacts during establishment of the agricultural area

The establishment of the agricultural area is likely to result in environmental and socio-economic impacts. The identified impacts are listed below and discussed thereafter:

- *Impact on biodiversity;*
- *Generation of dust;*
- *Impact on soil;*
- *Impact on water resources;*
- *Impact on heritage resources*
- *Socio-economic impact.*

#### 7.1.1. Impact on biodiversity

##### **Description of the potential impact**

During the establishment of the agricultural area, vegetation within the footprint of the site must be cleared.

According to the Mpumalanga Biodiversity Sector Plan, 2014, the site falls within heavily modified areas, however, the degree of alien invasive vegetation is severe and subsequently, the habitat is of low sensitivity. Due to the low sensitivity of the habitat and the fragmentation of habitat caused by the surrounding land uses (agriculture), the fauna assemblage is already impacted negatively.

##### **Significance of the impacts**

As the proposed activity site footprint is limited to areas of **Low** biodiversity and ecological sensitivity it is not anticipated that the activity will compromise biodiversity maintenance or ecological functions. No sensitive biota or ecological features / functions are present on site or in the surrounding area.

The proposed agricultural areas are limited to the areas which has previously been modified and been rated to be of low biodiversity and ecological sensitivity. The riparian habitat is therefore excluded from the proposed agricultural area.

Furthermore, no threatened or RDL biota was recorded on the sites and none is expected to be negatively affected.

As the proposed activity site footprint is limited to areas of very low biodiversity and ecological sensitivity, therefore the impact is of low significance.

**TABLE 7: SIGNIFICANCE OF BIODIVERSITY IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on biodiversity <b>[NEGATIVE]</b>	Low	Probable	Sure	Reversible	Low	Very Low

**Mitigation measures**

- Where possible, large trees on site must be retained;
- No development activities that will lead to a loss of natural vegetation are recommended within the wetland and riparian area;
- A buffer zone of 10m must be implemented to protect the above-mentioned habitats. The buffer zone may include a fence and a service road/firebreak;
- Implement an alien invader vegetation control program;
- Spoil material may not be pushed into the natural habitats, buffer zones or riparian and wetland habitats.
- It is recommended that an Environmental Control Officer (ECO) is appointed who will be responsible to actually delineate the buffer zone on site (considering actual on-site conditions and to ensure that large trees are not destroyed for this purpose).
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the establishment and operational phases of the project.

7.1.2. Generation of dust

**Description of the potential impact**

Vegetation will be removed, and soil will be disturbed during the establishment of the agricultural area. Heavy moving vehicles used to clear vegetation on site, could generate dust affecting adjacent owners and road users.

**Significance of the impact**

There are no residents living within a close proximity of the agricultural site, which could be affected by the generation of dust. However, road users making use of the road could be affected during excessive windy conditions. The impact is therefore of medium significance prior to the implementation of mitigation measures.

Mitigation measures must however be implemented to minimise the possibility of the impact occurring.

**TABLE 8: DUST GENERATION**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Dust generation <b>[NEGATIVE]</b>	Low	Probable	Sure	Reversible	Medium	Low

**Mitigation measures**

- Areas may not be disturbed and left for unattended for long periods of time.
- Heavy moving vehicles and other vehicles must adhere to a speed limit of 40km/h.
- The impact can be minimised further by planting indigenous trees along the boundary of the site if required.

**7.1.3 Impact on soil**

**Description of the potential impact**

Removal of vegetation will disturb the soil surface and increase the possibility of soil erosion. The topography of the site is however relatively flat and therefore the possibility of erosion occurring during the establishment phase is relatively low. Mitigation measures to minimise the possibility of erosion is however imperative.

Other activities which could have an impact on soil, include the uncontrolled use of hazardous substances and/or heavy machinery. Hazardous substances such as oil, diesel etc., could be spilled while refuelling or using machinery, leading to the pollution of soil which can alter microbial processes and be toxic to soil organisms.

**Significance of the impact**

During establishment, soil could be impacted by the following:

- Erosion; and
- Contamination with the use and possible spillage of hazardous substances.

The slope of the proposed project area is relatively flat and for this reason the possibility of erosion occurring is unlikely. The impact is subsequently classified to be of low significance prior to the implementation of mitigation measures.



Another factor impacting soil would be the possible spillage of hazardous substances. This impact is of medium magnitude, site specific and short duration and for this reason the impact is of also of low significance prior to the implementation of mitigation measures.

**TABLE 9: IMPACT ON SOIL**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Erosion [NEGATIVE]	Low	Unlikely	Sure	Reversible	Low	Very Low
Soil pollution [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Low	Very Low

**Mitigation measures**

- To minimise the possibility of erosion, it is recommended that no disturbed areas be left unattended. Disturbance and clearance of vegetative cover must be restricted to the proposed footprint.
- Measures to reduce the velocity of water, must be taken on areas prone to erosion.
- Should there be any spillage of hazardous substances during the establishment phase, soil must be removed up to a depth of 300mm and be disposed of at a registered hazardous waste disposal facility. Proof of such disposal must be kept on file.

**7.1.4 Impact on water resources**

**Description of the potential impact**

In terms of the area’s freshwater ecological classification, the proposed project area falls within an Ecological Support Area (ESA). Ecological Support Areas are not essential for meeting biodiversity targets but play an important role in supporting the ecological functioning of Critical Biodiversity Areas (CBA). This requires that management activities are focused on maintaining water quantity and quality and the integrity of natural habitat in the sub-catchment.

Water resources could be impacted by the following during the establishment phase:

- Removal of riparian vegetation;
- Activities within the identified seepage wetland area; and
- Pollution of water resources.

**Significance of the impact**

If any activities were to take place within the river and the delineated wetland area, water resources would be impacted negatively. However, as a buffer of 10m will be implemented to protect the river

and wetland area within the project area, the possibility of impacting the water resource during the proposed clearance activities are very low and therefore the significance of the impact is also very low.

**TABLE 10: IMPACT ON WATER RESOURCES**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on water resources <b>[NEGATIVE]</b>	Medium	Unlikely	Sure	Reversible	Medium	Low

**Mitigation measures**

- No activities may take place within the 10m buffer of the riparian and/or wetland area.
- Water use must be monitored and used sparingly;
- The use of pesticides and herbicides must be managed to prevent any substances from entering the watercourse.

**7.1.5 Impact on heritage resources**

**Description of the potential impact**

A Heritage Impact Assessment was conducted on the 13-hectare property to identify any possible artefact or structures which could be of heritage or cultural significance. The specialist assessment concluded that there were no archaeological or historical features within the perimeter of the proposed site

**Significance of the impact**

The significance of the impact on heritage resources is of low significance.

**TABLE 11: HERITAGE RESOURCES**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on heritage resources <b>[NEGATIVE]</b>	Low	Unlikely	Sure	Reversible	Low	Very Low

## Mitigation Measures

Distinct archaeological material or human remains may only be revealed during the development of the proposed agricultural operations. In such instance, a qualified archaeologist must be contacted to monitor the activities and make recommendations.

### 7.1.7 Socio-economic Impact

#### Description of the potential impact

During establishment, various temporary job opportunities will be created for the clearance and preparation of the agricultural area.

In terms of safety and security, there is always risk associated when working with machinery and therefore it is essential that all workers comply with the Health and Safety Act 85 of 1993.

#### Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the 'employment opportunities' and impact associated with health and safety of employees respectively.

The job opportunities during the establishment is short-lived and therefore the impact is only of medium (+) significance. In terms of the health and safety aspects of workforce, the significance of the impact has been rated to be of low significance due to the short construction timeframe. Mitigation measures must however be adhered to.

**TABLE 12: SOCIO-ECONOMIC IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Job opportunities <b>[POSITIVE]</b>	Medium	Definite	Sure	Reversible	Low	Medium (+)
Health and Safety <b>[NEGATIVE]</b>	Medium	Probable	Sure	Reversible	Low	Very Low

#### Mitigation measures

The applicant and/or farm manager must ensure that local residents receive preference for job opportunities where local labour might be required.

It is imperative that all personnel adhere to the Occupational Health and Safety Act 85 of 1998 and that no personnel enter any other surrounding properties.

## 7.2 Operational Phase Impacts

During operation, the agricultural activities are likely to result in the following environmental and socio-economic impacts:

- *Impact on biodiversity;*
- *Impact on soil;*
- *Impact on water resources; and*
- *Socio-economic*

### 7.2.1. Biodiversity Impact

#### Description of the potential impact

Although the area is already heavily invested with alien invasive plant species, during operation, this must be managed and mitigated. Invasive plant species within the perimeter will impact the biodiversity of the surrounding areas.

#### Significance of the impacts

Invasive plant species within the perimeter of the site will be problematic if not adequately removed or managed. The impact is therefore of medium significance prior to the implementation of mitigation measures.

**TABLE 13: IMPACT ON BIODIVERSITY**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on biodiversity (Alien invasive species) <b>[NEGATIVE]</b>	Medium	Definite	Sure	Reversible	Medium	Low

#### Mitigation measures

- An Invasive Species Management Programme must be compiled and complied with during the operational phase of the project;
- Stipulations of the Environmental Management Program (EMPr) should be adhered to during the establishment and operational phases of the project.

## 7.2.2 Impact on soil

### Description of the potential impact

During operation, pesticides and herbicides are applied to agricultural land to control pests that disrupt crop production. Soil will become contaminated when pesticides persist and accumulate in soils, which can alter microbial processes and are toxic to soil organisms.

### Significance of the impact

During operation, soil could be impacted by the following:

- Erosion; and
- Contamination by means of the use of pesticides.

The slope of the area on which cultivation is proposed is relatively flat and therefore, the probability of erosion occurring is low. For this reason, the impact is classified to be of very low significance.

Another factor impacting soil would be the use of pesticides and herbicides which could accumulate in soil, altering the microbial process. This impact is however of medium magnitude, local extent and long duration and for this reason the impact is of medium significance prior to the implementation of mitigation measures.

**TABLE 14: IMPACT ON SOIL**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Erosion [NEGATIVE]	Medium	Unlikely	Sure	Reversible	Low	Very Low
Soil contamination [NEGATIVE]	High	Probable	Sure	Reversible	Medium	Low

### Mitigation measures

- It is recommended that alternatives for the management of pests are investigated. Only approved pesticides and herbicides may be used for the management of pests.

## 7.2.3 Impact on water resources

### Description of the potential impact

No activities are proposed within the adjacent watercourse and wetland area delineated, however, water will be required for irrigation purposes and will be abstracted from the Marite River, which forms part of portion 15 of the farm Sandford 291-KU and is located approximately 60m east of the proposed project site.

Although no activities are planned within any watercourse or wetland area, water resources could be impacted by the following:

- Excessive water use;
- Removal of riparian vegetation;
- Activities within the delineated wetland area; and
- Pollution of water resources if pesticides accumulates in soil and enters the watercourse.

### Significance of the impact

Water is a scarce resource in South Africa and therefore unsustainable abstraction from rivers can change the natural flow regime which will result in lower flows and reduced water table levels. The applicant does however not intend on extracting more than what is required. As water is a scarce commodity, the impact is however of medium significance and appropriate measures must be adhered to ensure proper management of water use.

The wetland and watercourse could also be affected negatively if activities were to take place within these areas (i.e removal of wetland or riparian vegetation). The impact is therefore of medium significance if the recommended buffer zones are not adhered to.

Pesticides could enter the watercourse located to the north-east of the project site which eventually drains towards the Marite River. This could lead to surface water being polluted if not mitigated properly.

**TABLE 15: IMPACT ON WATER RESOURCES**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Impact on water resources <b>[NEGATIVE]</b>	<b>High</b>	<b>Probable</b>	<b>Sure</b>	<b>Reversible</b>	<b>Medium</b>	<b>Low</b>

### Mitigation Measures

- Water abstraction must be regulated and monitored.
- No activities may take place within the delineated buffer zones (wetland and riparian area)

- The use of pesticides and herbicides must be managed to prevent any substances from entering the watercourse.

## 7.2.4 Employment opportunities

### Description of the potential impact

Although the agricultural activities will not have a significant socio-economic impact on the local community, the agricultural activities will however provide permanent job opportunities for previously disadvantaged individuals and seasonally, the farming activities will be providing more job opportunities on a temporary basis.

### Significance of the impacts

Based on the methodology detailed in **Section 5**, the following ratings have been assigned to the 'employment opportunities' impact before and after mitigation. As job opportunities are limited, the impact is of medium (+) significance.

**TABLE 16: SIGNIFICANT IMPACT OF THE 'EMPLOYMENT OPPORTUNITIES' IMPACT**

IMPACT	BEFORE MITIGATION					AFTER MITIGATION
	Significance	Probability	Confidence	Reversibility	Impact Rating	Impact Rating
Job opportunities [POSITIVE]	Medium	Definite	Sure	Reversible	Low	High (+)

### Mitigation measures

Creating jobs and business opportunities for the local community will have a positive impact. No mitigation measures would be required to further enhance this impact; however, the applicant must ensure that local residents receive preference for job opportunities.

## 7.3 Environmental Impact Statement

The table below summarises the impacts identified and assessed for the establishment and operational phases of the project:

**TABLE 17: ENVIRONMENTAL IMPACT STATEMENT**

IMPACT	SIGNIFICANCE BEFORE MITIGATION MEASURES	SIGNIFICANCE AFTER MITIGATION MEASURES
<b>Establishment and Operational Impacts</b>		
Biodiversity Impact	Low	Very Low
Generation of dust	Medium	Low
Erosion	Low	Very Low
Soil Pollution	Low	Very Low
Impact on water resources	Medium	Low
Heritage Impacts	Low	Very Low
Job opportunities	Low (+)	Medium (+)
Health and Safety	Low	Very Low
<b>Operational Phase Impacts</b>		
Biodiversity Impact	Medium	Low
Erosion	Low	Very Low
Soil contamination	Medium	Low
Impact on water resource	Medium	Low
Socio-economic Impact	Low (+)	High (+)



## 8. CONCLUSION AND WAY FORWARD

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### 8.1 Assumptions and Limitations

In undertaking this investigation and compiling the Draft Basic Assessment Report, the following has been assumed:

- The information provided by the proponent is accurate and unbiased, and no information that could change the outcome of the Environmental Authorisation process has been withheld.
- The scope of this investigation is limited to assessing the environmental impacts associated with the establishment and operation of the agricultural area.
- The conclusion and recommendations proposed are based solely on the information, scope of works as agreed with the proponent.

### 8.2 Conclusion

The essence of all environmental assessment processes is aimed at ensuring informed decision-making and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. The impact assessment for this project has been undertaken in line with the requirements prescribed in the NEMA regulations.

The assessment of the possible impacts associated with the establishment and operational activities, concluded that the impact on the surrounding environment is of **medium to low significance**. Recommendations have however been made to address the impacts which could affect the biophysical and socio-economic environment. Recommendations for the mitigation of impact are included within Section 6 and also the Draft Environmental Management Plan attached.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed project are discussed in detail under **Section 6**.

It is the opinion of the EAP that the EA for this project should be granted, and the proposed mitigation included as the conditions of the authorisation.

### 8.2 Way Forward

The next steps for the Basic Assessment process will be to distribute the Draft Basic Assessment Report and make it available to the public (including the registered I&APs) and Organs of State for a period of 30 days, during which the Competent Authority (DARDLEA) will also be given the opportunity to provide comments on the report. After the 30-day comment period, all comments will be addressed by the EAP and incorporated within the Final Basic Assessment Report to be submitted to the DARDLEA for decision making. All registered I&APs will be notified of the decision and will be given an opportunity to appeal as per the NEMA requirements.

## 9. REFERENCES

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*National Environmental Management Act 107 of 1998 (NEMA 107, 1998)*

*General Notice Regulation 982, 983, 984 and 985 of 2014 (as amended in 2017)*

*Mpumalanga Biodiversity Conservation Plan, 2014*