

**June 2021**

**FINAL BASIC ASSESSMENT REPORT FOR THE CLEARING AND  
CULTIVATION OF 10.5 HA, ON PORTION 5 OF THE FARM GELUK 299  
JT, THE FARM BRUINT JIESLAAGTE 499 JT & PORTION 9 OF THE  
FARM KOEDOESHOEK 301 JT.**



Compiled for:  
FJ Joubert & Seuns (Pty) Ltd



## PROJECT DETAILS

**FILE REFERENCE NUMBER:** 1/3/1/16/1E-320

**TITLE:** Clearing and cultivation of 10.5ha on Portion 5 of the Farm Geluk 299 JT, the Farm Bruint Jieslaagte 499 JT and Portion 9 of the Farm Koedoeshoek 301 JT.

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**PROJECT NAME:** Clearing and cultivation of 10.5ha on Portion 5 of the Farm Geluk 299 JT, the Farm Bruint Jieslaagte 499 JT and Portion 9 of the Farm Koedoeshoek 301 JT.

**REPORT STATUS:** Final

**REPORT NUMBER:** 01

**SUBMISSION DATE:** June 2021



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(Nature Conservation Diploma)



agriculture, rural development,  
land & environmental affairs

MPUMALANGA PROVINCE  
REPUBLIC OF SOUTH AFRICA

**Basic assessment report in terms of the National Environmental Management Act,  
1998 (Act No. 107 of 1998), as amended and the Environmental Impact Assessment  
Regulations, 2014.**

(For applicant / EAP to complete)

File Reference Number:

**1/3/1/16/1E-320**

Project Title:

**The Clearing and cultivation of  
10.5ha on Portion 5 of the Farm  
Geluk 299 JT, the Farm Bruint  
Jieslaagte 499 JT and Portion 9  
of the Farm Koedoeshoek 301  
JT.**

Name of Responsible Official:

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(For official use only)

NEAS Reference Number:

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Date Received:

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## SECTION A: EXECUTIVE SUMMARY

Henwood Environmental Solutions, as Independent Environmental Consultants and Impact Assessors, has been appointed by FJ Joubert & Seuns (Pty) Ltd, to conduct the Environmental Impact Assessment for the proposed clearing and cultivation of 10.5ha on Portion 5 of the Farm Geluk 299 JT, the Farm Bruint Jieslaagte 499 JT and Portion 9 of the Farm Koedoeshoek 301 JT.

The project proposal has been informed by intensive planning so as to ensure that this proposed activity has a minimal negative impact, while promoting positive impacts, on the receiving environment. There are no locality alternatives for this project. The inputs received during Public Participation as well as those highlighted through consultation with various authorities, were used to revise and further inform specifics related to the development.

Specialist studies related to the terrestrial ecology, wetland ecology as well as the historical environment were commissioned.

In this regard, various mitigation measures have been recommended to minimize impacts. Furthermore, these measures have been incorporated into the Basic Assessment Report (Final) and Draft Environmental Management Plan.

### Public Participation

Public participation forms an integral component of the EIA process. The public participation process for the project initiation and Basic Assessment Phase is outlined in detail in Section 4 of this report.

The approach adopted for the FBAR phase of the project was to liaise predominantly with registered I&AP's or those directly affected by the proposed activities. Consequently, subsequent correspondence has only been directed to registered I&AP's and commenting Authorities.

The public participation process to date has entailed the following key components:

- Placing an advertisement in the Lowvelder (English). This advertisement served to advertise the proposed development and associated EIA process while inviting all potential I&AP's to register as I&AP's.
- Erecting site notices at the entrance to the site as well as in prominent places on the site's boundary.
- Lodging copies of the Draft Basic Assessment Report, for public review and comment.
- Submission of the Draft BAR to all departments and registered I&AP's for review and comment from 4<sup>th</sup> May 2021 to 10<sup>th</sup> June 2021. Registered I&AP's were contacted directly regarding the availability of the report

### Key Environmental Issues

The assessed impacts were identified in the planning phase and have been subjected to detailed investigation and assessment. These impacts include potential biophysical and social impacts that may arise during the operational phase of the proposed activities (i.e. long-term impacts) and construction phase impacts (i.e. short-term impacts).

The methodology was developed by Henwood Environmental Solutions and has been continually refined and improved based on our experience in applying it to many EIA processes. The methodology is broadly consistent to that described in the NEMA EIA Regulations and in the DEA Guideline Document for these regulations (DEAT, 2006).

Each issue identified for the proposed study area was taken into consideration in order to ascertain the most suitable layout that has the least possible impacts, or the most manageable impacts, on the environment.

The following table summarises the significance of the identified potential impacts (i) before mitigation; and (ii) once recommended mitigation measures are in place.

Ref. (Pg)	Description of impact	Significance of Impact	
		Without Mitigation	With Mitigation
<b>Construction Phase Impacts</b>			
50	Fauna and Flora	Medium (-)	Low (-)
53	Aquatic Ecosystems	Medium (-)	Low (-)
54	Historical	Low (-)	Low (-)
55	Loss of Topsoil and Soil Erosion (Hydrological)	Medium (-)	Low (-)
56	Ground and Surface Water Impact	Medium (-)	Low (-)
57	Noise Pollution	Medium (-)	Low (-)
58	Visual Impact	Medium (-)	Low (-)
59	Employment Opportunities	Low (+)	High (+)

Ref. (Pg)	Description of impact	Significance of Impact	
		Without Mitigation	With Mitigation
<b>Operational Phase Impacts</b>			
61	Stormwater Management	Moderate (-)	Low (-)
62	Visual Impact – “Sense of Place”	Low (-)	Medium (+)
59	Use of pesticides	Medium (-)	Low (-)

### Recommended Management Actions

A variety of mitigation measures have been identified that could mitigate the scale, intensity, duration or significance of the impacts. These measures, which have been informed by various related specialist studies, are included in this Final Basic Assessment Report (FBAR) and in the draft EMPr (attached). The FBAR and draft EMPr also includes guidelines to be applied during the construction and operational phases of the project.

### Conclusion

Development, by its very nature, implies impact. The EIA process identifies and quantifies these impacts. Where possible these impacts are avoided through planning revision. In other cases, mitigation is proposed to reduce the severity and significance of the impacts.

The FBAR provides a summary description of the feasible alternatives and potential impacts identified during the FBAR Phase; additional information on the affected environment, a description and assessment of the potential impacts associated with the various feasible alternatives as well as an indication of potential mitigation measures; conclusions and various recommendations with regard to the way forward; and a series of Appendices containing relevant information, including the various specialist studies.

The draft EMPr provides much more detailed mitigation measures and should all proposed mitigation measures be instituted it is not envisaged that the proposed development poses any negative impacts of high significance which cannot be mitigated.

It is the final considered opinion of the Environmental Assessment Practitioner (Henwood Environmental Solutions) that the proposed development (clearing and cultivation of 10.5ha on Portion 5 of the Farm Geluk 299 JT, the Farm Bruint Jieslaagte 499 JT and Portion 9 of the Farm Koedoeshoek 301 JT) will **not** have a detrimental negative impact on the surrounding environment if all mitigation measures are implemented.

It is therefore the **EAP's recommendation that authorisation be granted provided that good environmental practices be implemented**; and that this will include environmentally sensitive planning and design of all structures.

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## SECTION B: BACKGROUND INFORMATION

**Table 1: Details of Applicant and EAP**

<b>Project applicant:</b>	Lionel Eva	
<b>Trading name (if any):</b>	FJ Joubert & Seuns (Pty) Ltd	
<b>Contact person:</b>	Lionel Eva	
<b>Physical address:</b>	Farm Koedoeshoek, Schoemanskloof Road, Mpumalanga	
<b>Postal address:</b>	PO Box 29 Schagen, Nelspruit, Mpumalanga	
<b>Postal code:</b>	1207	Cell: 082 907 3817
<b>Telephone:</b>	013 733 3706	Fax: 013 733 3451
<b>E-mail:</b>	<a href="mailto:gm@joubertenseuns.co.za">gm@joubertenseuns.co.za</a>	
<b>Environmental Assessment Practitioner:</b>	Henwood Environmental Solutions (HES)	
<b>Contact person:</b>	Steven Henwood	
<b>Postal address:</b>	PO Box 12340, Steiltes, Nelspruit	
<b>Postal code:</b>	1213	Cell: 078 672 3645
<b>Telephone:</b>	078 672 3645	Fax:
<b>E-mail:</b>	<a href="mailto:shenwood@mweb.co.za">shenwood@mweb.co.za</a>	
<b>Qualifications:</b>	Nat. Dip. Nature Conservation	
<b>Professional affiliations (if any):</b>	IAIASA	
<b>Curriculum Vitae</b>	See Appendix F; Annexure D for the EAP's Curriculum Vitae	

**SECTION C: DETAILED DESCRIPTION OF THE PROPOSED ACTIVITY**

Describe the activity, which is being applied for, in detail. The description must include the size of the proposed activity (or in the case of linear activities, the length) and the size of the area that will be transformed by the activity.

**Table 2: Activity Description**

Lionel Eva (FJ Joubert & Seuns (Pty) Ltd) (the applicant) proposes clearing of indigenous vegetation and cultivation of macadamias on Portion 5 of the Farm Geluk 299 JT, the Farm Bruint Jieslaagte 499 JT and Portion 9 of the Farm Koedoeshoek 301 JT.

The proposed development site is adjacent to existing agricultural fields and therefore no new infrastructure will be developed on site. Although the site is zoned for Agriculture, it is currently undisturbed natural bush.

To this end the following components constitute the project:

**Macadamia Farming:**

- Macadamia trees will be planted on the suitable soils.
- A total area of 10.5ha is to be cleared and utilized for agriculture (macadamia tree)
- The trees will be farmed according to best practice standards.

See proposed layout for orientation and reference Appendix A.

**Table 3: Activity Description as per the project description that relates to the applicable listed activity.**

<b>Government Notice R983 Activity No.</b>	<b>Describe the relevant Basic Assessment Activity in writing as per Listing Notice 1 (GN No. R983)</b>	<b>Describe the portion of the development as per the project description that relates to the applicable listed activity</b>
Activity 27	<p><i>“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></p> <p><i>(i) the undertaking of a linear activity;</i></p> <p><i>or</i></p> <p><i>(i) maintenance purposes undertaken in accordance with a maintenance management plan.”</i></p>	<p>The cultivation of macadamias will result in an area of 10.5 ha (105000 meters squared) of indigenous vegetation being cleared.</p>

**SECTION D: PROPERTY/SITE DESCRIPTION**

Provide a full description of the preferred site alternative (farm name and number, portion number, registration division, erf number etc.):

**Table 4: Site Alternative Description**

Portion 5 of the Farm Geluk 299 JT, the Farm Bruint Jieslaagte 499 JT and Portion 9 of the Farm Koedoeshoek 301 JT, Mbombela Local Municipality, Mpumalanga.

T	0	J	T	0	0	0	0	0	0	0	0	0	2	9	9	0	0	0	0	5
T	0	J	T	0	0	0	0	0	0	0	0	0	4	9	9	0	0	0	0	0
T	0	J	T	0	0	0	0	0	0	0	0	0	3	0	1	0	0	0	0	9

Indicate the position of the activity using the latitude and longitude of the centre point of the preferred site alternative. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection. The position of alternative sites must be indicated in Section B of this document.

**Table 5: Activity Position**

<b>Latitude (S):</b>			<b>Longitude (E):</b>		
25°	24'	5.4773"	30°	37'	3.2427"

**In the case of linear activities:**

- Starting point of the activity
- Middle point of the activity
- End point of the activity

<b>Latitude (S):</b>		<b>Longitude (E):</b>	
°	'	°	'
°	'	°	'
°	'	°	'

**SITE OR ROUTE PLAN (SEE APPRNDIX A)**

A detailed site or route plan(s) must be prepared for each alternative site or alternative activity. It must be attached as an appendix to this document.

The site or route plans must be at least A3 and must include the following:

- 6.1 a reference no / layout plan no., date, and a legend / land use table
- 6.2 the scale of the plan which must be at least a scale of 1:2000.
- 6.3 the current land use as well as the land use zoning of each of the properties adjoining the site or sites.
- 6.4 the exact position of each element of the application as well as any other structures on the site.
- 6.5 the position of services, including electricity supply cables (indicate above or underground), water supply pipelines, boreholes, streetlights, sewage pipelines, storm water infrastructure and telecommunication infrastructure;
- 6.6 all indigenous trees taller than 1.8 meters and all vegetation of conservation concern (protected, endemic and/or red data species).
- 6.8 servitudes indicating the purpose of the servitude.
- 6.9 sensitive environmental elements within 100 meters of the site or sites including (but not limited thereto):
  - watercourses and wetlands.
  - the 1:100 year flood line.
  - ridges.
  - cultural and historical features.
- 6.10 10 meter contour intervals

**SITE PHOTOGRAPHS (SEE APPENDIX B)**

Colour photographs from the centre of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached as an appendix to this form.

**FACILITY ILLUSTRATION (SEE APPENDIX C)**

A detailed illustration of the activity must be provided at a scale of 1:200 as an appendix for activities that include structures. The illustrations must be to scale and must represent a realistic image of the planned activity. The illustration must give a representative view of the activity.

## SECTION E: BASIC ASSESSMENT REPORT

Prepare a basic assessment report that complies with Regulation 22 of the Environmental Impact Assessment Regulations, 2010. The basic assessment report must be attached to this form and must contain all the information that is necessary for the competent authority to consider the application and to reach a decision contemplated in Regulation 25, and must include:

**Table 6: Basic Assessment Content Check List**

(Checklist  
for official  
use only)

1. Details of the EAP, including curriculum vitae.	<b>Pages 2, 10 &amp; Appendix F</b>	
2. The location of the activity, including: <ul style="list-style-type: none"> <li>i. the 21 digit Surveyor General code of each cadastral land parcel.</li> <li>ii. where available, the physical address and farm name.</li> <li>iii. where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties.</li> </ul>	<b>Page 13 and 19 - 20</b>	
3. A plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale.	<b>Page 68 and Appendix A</b>	
4. A description of the scope of the proposed activity, including all listed and specified activities triggered and being applied for; and a description of the activities to be undertaken including associated structures and infrastructure	<b>Pages 11 and 12</b>	
5. Description of the policy and legislative context within which the development is proposed including- <ul style="list-style-type: none"> <li>i. an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and</li> <li>ii. how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments</li> </ul>	<b>Page 34</b>	
6. A motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location.	<b>Page 37</b>	
7. A motivation for the preferred site, activity and technology alternative.	<b>Pages 37 – 45</b>	

<p>8. A full description of the process followed to reach the proposed preferred alternative within the site, including:</p> <ul style="list-style-type: none"> <li>i. details of all the alternatives considered.</li> <li>ii. details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs.</li> <li>iii. a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them.</li> <li>iv. the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.</li> <li>v. the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts- <ul style="list-style-type: none"> <li>a. can be reversed.</li> <li>b. may cause irreplaceable loss of resources; and</li> <li>c. can be avoided, managed or mitigated.</li> </ul> </li> <li>vi. the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives.</li> <li>vii. positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects.</li> <li>viii. the possible mitigation measures that could be applied and level of residual risk.</li> <li>ix. the outcome of the site selection matrix.</li> <li>x. if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and</li> <li>xi. a concluding statement indicating the preferred alternatives, including preferred location of the activity;</li> </ul>	<ul style="list-style-type: none"> <li>i) Pages 37 – 45</li> <li>ii) Pages 35 – 37</li> <li>iii) Page 37</li> <li>iv) Pages 19 – 34</li> <li>v) Pages 48 – 67</li> <li>vi) Pages 45 – 48</li> <li>vii) Pages 45 – 48</li> <li>viii) Pages 48 – 67</li> <li>ix) Pages 67</li> <li>x) N/A</li> <li>xi) Pages 66 - 68</li> </ul>	
<p>9. 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> <ul style="list-style-type: none"> <li>i. a description of all environmental issues and risks that were identified during the environmental impact assessment process; and</li> <li>ii. (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</li> </ul>	<p><b>Pages 48 – 67</b></p>	

mitigation measures;		
10. an assessment of each identified potentially significant impact and risk, including- <ul style="list-style-type: none"> <li>i. cumulative impacts.</li> <li>ii. the nature, significance and consequences of the impact and risk.</li> <li>iii. the extent and duration of the impact and risk.</li> <li>iv. the probability of the impact and risk occurring.</li> <li>v. the degree to which the impact and risk can be reversed.</li> <li>vi. the degree to which the impact and risk may cause irreplaceable loss of resources; and</li> <li>vii. the degree to which the impact and risk can be avoided, managed or mitigated;</li> </ul>	<b>Pages 48 – 67</b>	
11. 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;	<b>Pages 16 – 36 and 48 – 67</b>	
12. An environmental impact statement which contains- <ul style="list-style-type: none"> <li>i. a summary of the key findings of the environmental impact assessment.</li> <li>ii. a map at an appropriate scale which superimposes the proposed activity and its associated</li> <li>iii. structures and infrastructure on the environmental sensitivities of the preferred site</li> <li>iv. indicating any areas that should be avoided, including buffers; and</li> <li>v. a summary of the positive and negative impacts and risks of the proposed activity and</li> <li>vi. identified alternatives;</li> </ul>	<b>Pages 48 - 67</b>	
13. 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 for inclusion in the EMPr.	<b>Pages 48 - 67</b>	
14. 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.	<b>Page 67</b>	
15. A description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed.	<b>Page 71</b>	
16. A reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be	<b>Pages 67</b>	



authorised, any conditions that should be made in respect of that authorisation;		
17. 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.	<b>N/A</b>	
18. An undertaking under oath or affirmation by the EAP in relation to the correctness of the information provided in the reports. <ul style="list-style-type: none"> <li>i. the inclusion of comments and inputs from stakeholders and I&amp;AP's.</li> <li>ii. the inclusion of inputs and recommendations from the specialist reports where relevant; and</li> <li>iii. 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 where applicable, details of any financial provisions for the rehabilitation, closure, and ongoing post decommissioning management of negative environmental impacts;</li> </ul>	<b>Appendix F</b>	
19. Any specific information that may be required by the competent authority; and	<b>None</b>	
20. Any other matters required in terms of section 24(4)(a) and (b) of the Act.	<b>None</b>	

### The basic assessment report must take into account -

- (a) any relevant guidelines; and
- (b) any departmental policies, environmental management instruments and other decision making instruments that have been developed or adopted by the competent authority in respect of the kind of activity which is the subject of the application.

\*In terms of Regulation 22(4), the EAP managing the application must provide the competent authority with detailed, written proof of an investigation as required by section 24(4)(b)(i) of the Act and motivation if no reasonable or feasible alternatives, as contemplated in sub regulation 22(2)(h), exist.

**Table 7: Indication of evaluation of alternatives**

Have reasonable and feasible alternatives been identified, described and assessed?	YES ✓	
If NO, the motivation and investigation required in terms of Regulation 22(4) must be attached as an Appendix to this document		

## 1 Description of the Affected Environment by the Proposed Activity

The proposed site falls within the Legogote Sour Bushveld Veldtype, as defined in the Vegetation of Southern Africa, Lesotho and Swaziland, (Ladislav Mucina and Michael C. Rutherford 2006). Legogote Sour Bushveld is classified as an endangered vegetation type. More recently, Legogote Sour Bushveld has been listed as a Threatened Ecosystem and classified as Vulnerable.

Typical Legogote Sour Bushveld is characterised by open to dense woodland on gently to moderately undulating terrain with high density of trees and shrubs.

### 1.1 Locality and physical geography

The proposed development site is located approximately 35 km south-east of Mbombela, in the Mpumalanga Province (Figure 1). The area falls within the quarter degree grid unit 2530 BC. A large proportion of land in the area has been transformed under agriculture.

The area that is under proposal is small with a total area sampled of roughly 15 Ha (150 000 m<sup>2</sup>) in extent. The study area lies alongside and therefore drained by the Crocodile River; this is a perennial river of national importance that drains westwards. On the southern extent of the study site (forms the boundary) is the R539 – Schoemanskloof road. The north, east and western portions of land are all transformed from natural to agricultural lands.

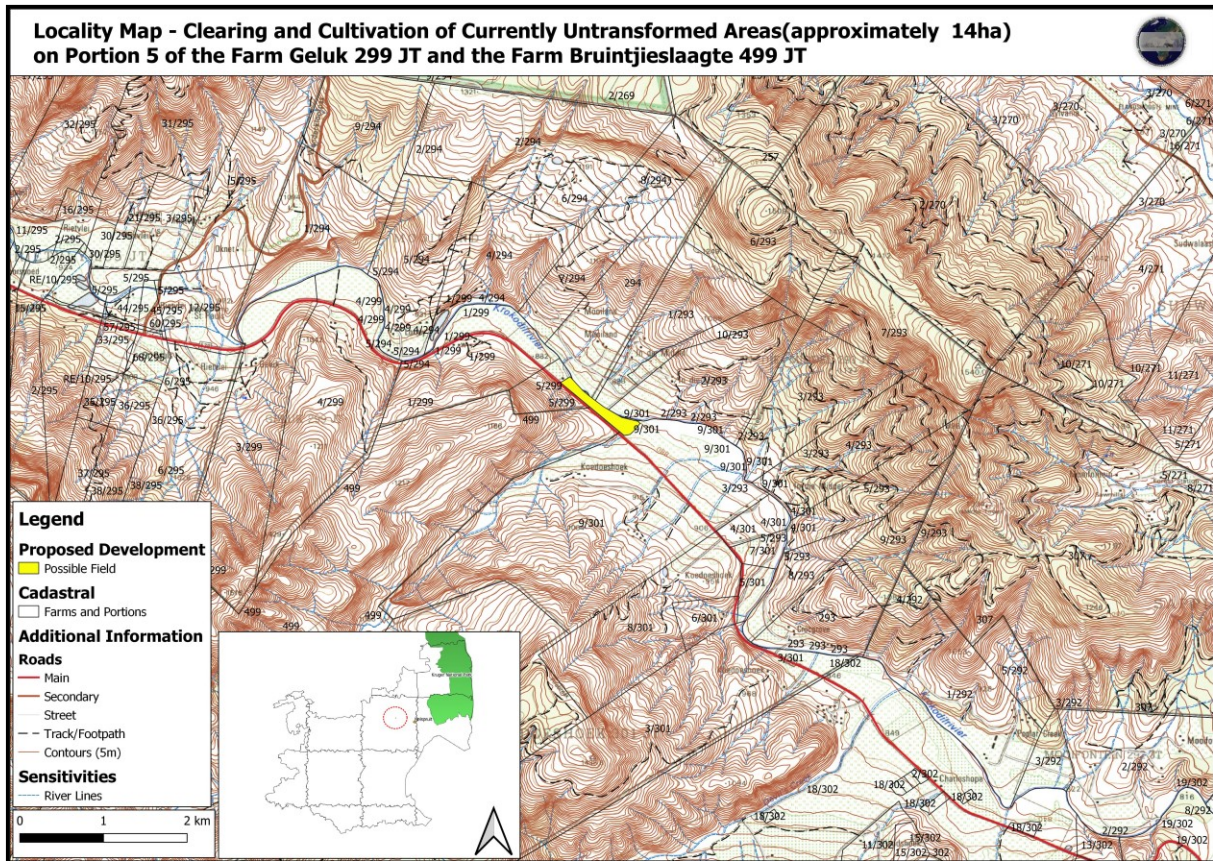


Figure 1: Locality

## 1.2 Geology and soils

### 1.2.1 General.

The site is in the north eastern part of the Transvaal Basin (Figure 2, Table 2). The Late Archaean to early Proterozoic Transvaal Supergroup is preserved in three structural basins on the Kaapvaal Craton (Eriksson et al., 2006). In South Africa are the Transvaal and Griqualand West Basins, and the Kanye Basin is in southern Botswana. The Griqualand West Basin is divided into the Ghaap Plateau sub-basin and the Prieska sub-basin. Sediments in the lower parts of the basins are very similar but they differ somewhat higher up the sequences. Several tectonic events have greatly deformed the south western portion of the Griqualand West Basin between the two sub-basins.

The Transvaal Supergroup comprises one of world's earliest carbonate platform successions (Beukes, 1987; Eriksson et al., 2006; Zeh et al., 2020). In some areas there are well preserved stromatolites that are evidence of the photosynthetic activity of blue green bacteria and green algae. These microbes formed colonies in warm, shallow seas.

In the Transvaal Basin the Transvaal Supergroup is divided into two Groups, the lower Chuniespoort Group and the upper Pretoria Group (with ten formations; Eriksson et al., 2006). The Chuniespoort Group is divided into the basal Malmani Subgroup that comprises dolomites and limestones and is divided into five formations based on chert content, stromatolitic morphology, intercalated shales and erosion surfaces. The top of the Chuniespoort Group has the Penge Formation and the Deutschland Formation.



In the lower part of the Pretoria Group formations, from the base to the top are the Rooihoogte, Timeball Hill, Boshhoek, Hekpoort, Dwaalheuwel, Strubenkop, Daspoort, Silverton and Magaliesberg Formations. There are five formations in the upper Pretoria Group.

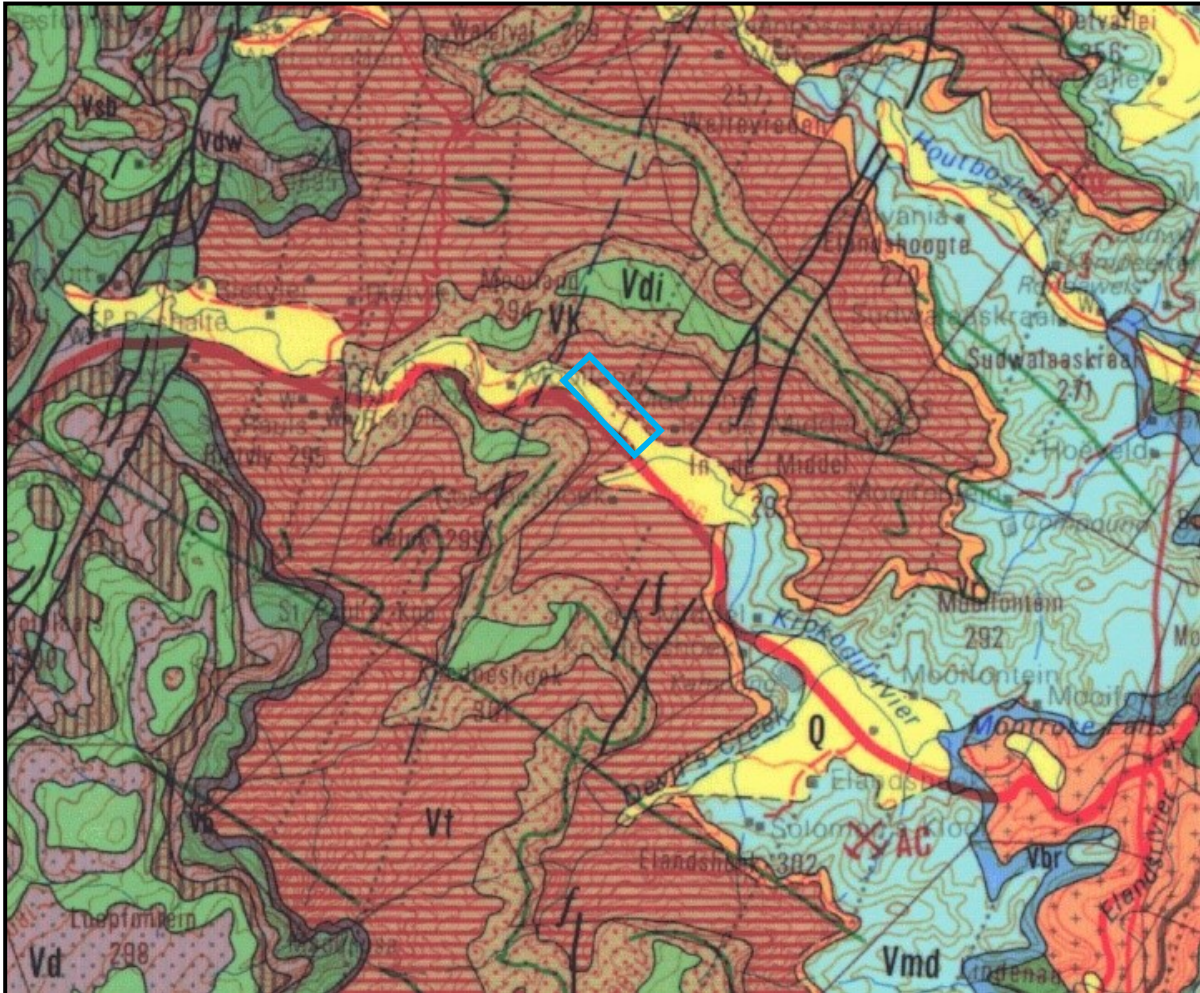


Figure 2: Geological map of the area around the farms Geluk and Koedoeshoek. The location of the proposed project is indicated within the turquoise rectangle. Abbreviations of the rock types are explained in Table 8. Map enlarged from the Geological Survey 1: 250 000 map 2530 Barberton.

**Table 8: Explanation of symbols for the geological map and approximate ages (Bekker et al., 2004; Eriksson et al., 2004; Hannah et al., 2006; Rasmussen et al., 2013). SG = Supergroup; Fm = Formation; Ma = million years; grey shading = formations impacted by the project.**

1. Symbol	2. Group/Formation	3. Lithology	4. Approximate Age
5. Q	6. Quaternary	7. Alluvium, sand, calcrete	8. Neogene, ca 2.5 Ma to present
9. Vdi	10. Diabase	11. Extrusive volcanic dolerite or diabase	12. Post Transvaal SG
13. Vt	14. Timeball Hill Fm Pretoria Group, Transvaal SG	15. Mudrocks, quartzite, shales	16. 2322-2266 Ma
17. Vmd	18. Malmani Subgroup, Chuniespoort Group, Transvaal SG	19. Dolomite, chert	20. Ca 2585-2480 Ma
21. Vbr	22. Black Reef Fm, Transvaal SG	23. Quartzite, conglomerate, shale, basalt	24. >2585 Ma

The Transvaal sequence has been interpreted as three major cycles of basin infill and tectonic activity with the first deep basin sediments forming the Chuniespoort Group, the second cycle deposited the lower Pretoria Group, and the sediments in this area are from the interim lowstand that preceded the third cycle. These sediments were deposited in shallow lacustrine, alluvial fan and braided stream environments (Eriksson et al., 2012). The third cycle is represented by the upper part of the Pretoria Group (not represented here).

Overlying the Rooihoogte Formation is the Timeball Hill Formation which is composed of thick shales and subordinate sandstones that were deposited in a fluvio-deltaic basin-filling sequence (Eriksson et al., 2006). A number of facies are included in this formation. At the base is black shale facies associated with subsurface lavas and pyroclastic rocks of the Bushy Bend Lava Member. Above these are rhythmically interbedded mudstones/siltstones and fine-grained sandstones that have been interpreted as turbidite deposits (Eriksson et al., 2006). These fine-grained sediments grade up into the medial Klapperkop Quartzite Member that has been interpreted as fluvio-deltaic sandstones which fed the more distal turbidites (ibid). Above this is an upper shale member and rhythmite facies. In the east of the Transvaal Basin the Upper Timeball Hill shales have undergone extensive soft-sediment deformation caused by the onset of tectonic instability that led to the eventual fan deposits of the Boshhoek Formation and the flood basalts of the Hekpoort Formation (ibid).

Considerably younger sediments have been deposited along the river courses, in this case they are Quaternary sands and alluvium (Figure 2).

### 1.2.2 Soils Assessment for the Site

A soil assessment for the entire Joubert en Seuns Farm was undertaken, with representative samples taken for the site that is part of this application.

Results indicate that the soils in the application site are marginal sandy and sandy clay loam soils, and these are good for macadamias and citrus. See an excerpt from the assessment (blue highlighted row at bottom) indicating soil characteristics of the application site inserted below<sup>1</sup>.

**Table 9: Soil Analysis**

Lab No	Verwysings no	pH (H <sub>2</sub> O)	P Mehlich	K	Na	Ca	Mg	UIT H+	%Ca	%Mg	%K	%Na	SUUR.V	Ca:Mg
			mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	cmol(+)/kg	%	%	%	%	%	1.5 - 4.5
CT21-03296.043	MOOILAND BEESKAMP	6.1	10	42	6	976	230	0.00	70.7	27.4	1.6	0.4	0.0	2.6

(Ca+Mg)/K	Mg:K	S-Waarde	Na:K	CEC	Digtheid	Fe	Mn	Cu	Zn	S	B
10.0 - 20.0	3.0 - 4.0	cmol(+)/kg			g/cm <sup>3</sup>	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
63.1	17.6	6.9	0.2	6.90	1.073	164.7	98.8	2.30	2.19	5.3	0.42

C	OM	TCEC	P (Bray1)	Weerstand	NH <sub>4</sub> -N	NO <sub>3</sub> -N
%	%		mg/kg	ohm	mg/kg	mg/kg
0	0		9			

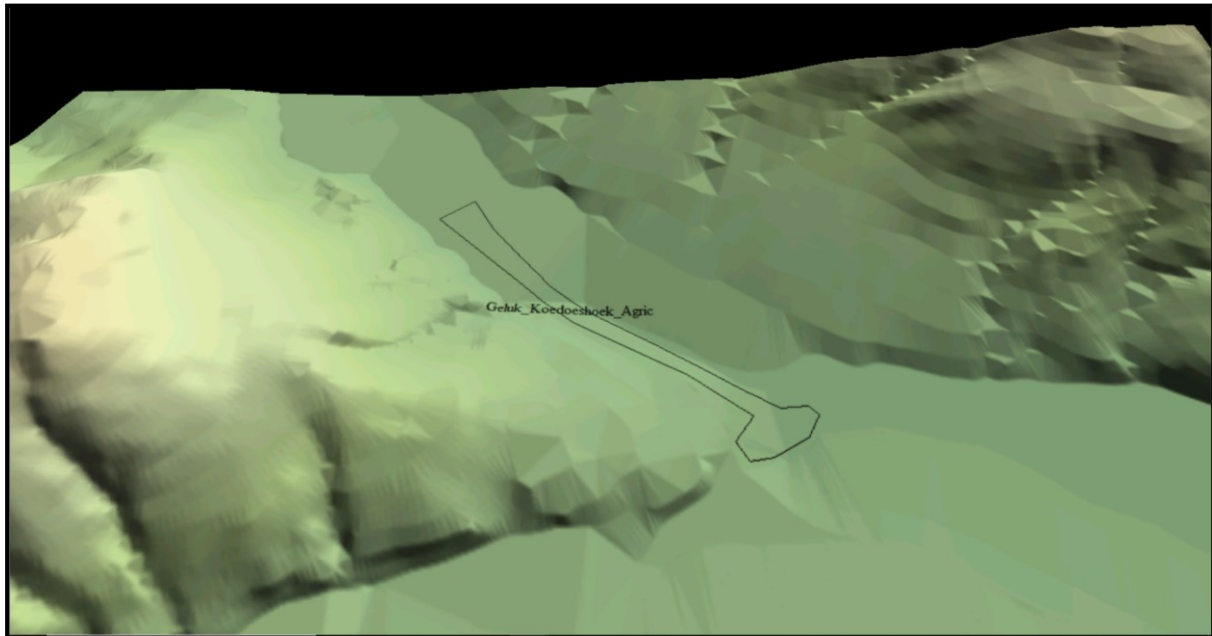
<sup>1</sup> Full spreadsheet attached as Appendix E Annexure F

### 1.3 Topography

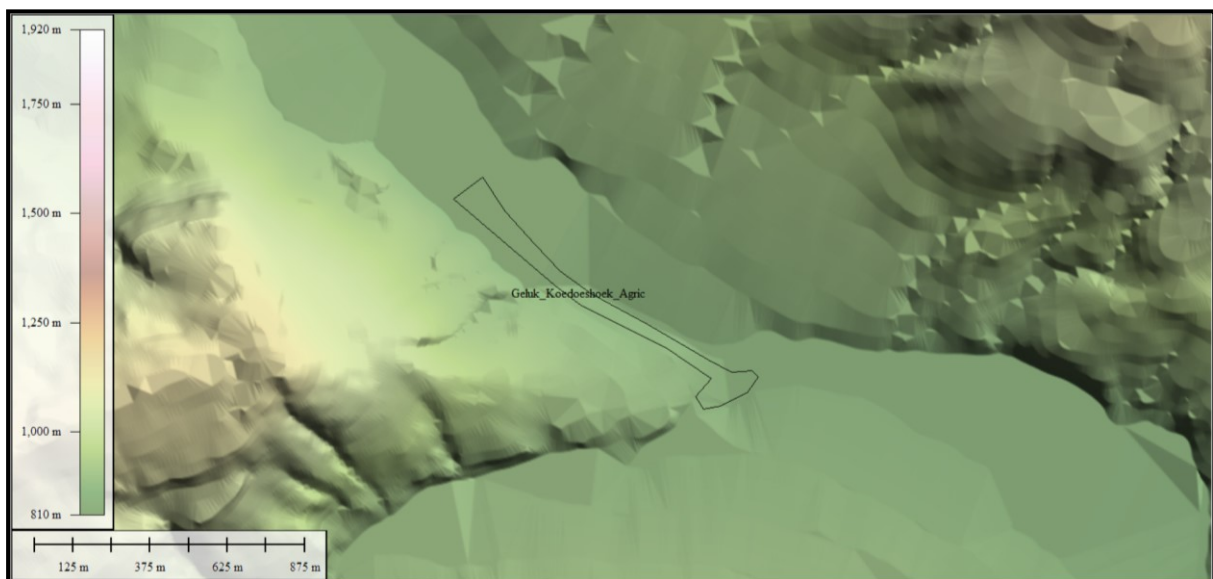
The topography of the proposed development area comprises an open valley, with a slight to moderate slope. Elevation within the Study Area is approximately 744 m amsl.

The average slope within the proposed fields is between 2 and 4%.

Figures 3 and 4 below show the specific topography and Figure 5 the degree of slope, of the proposed development site.

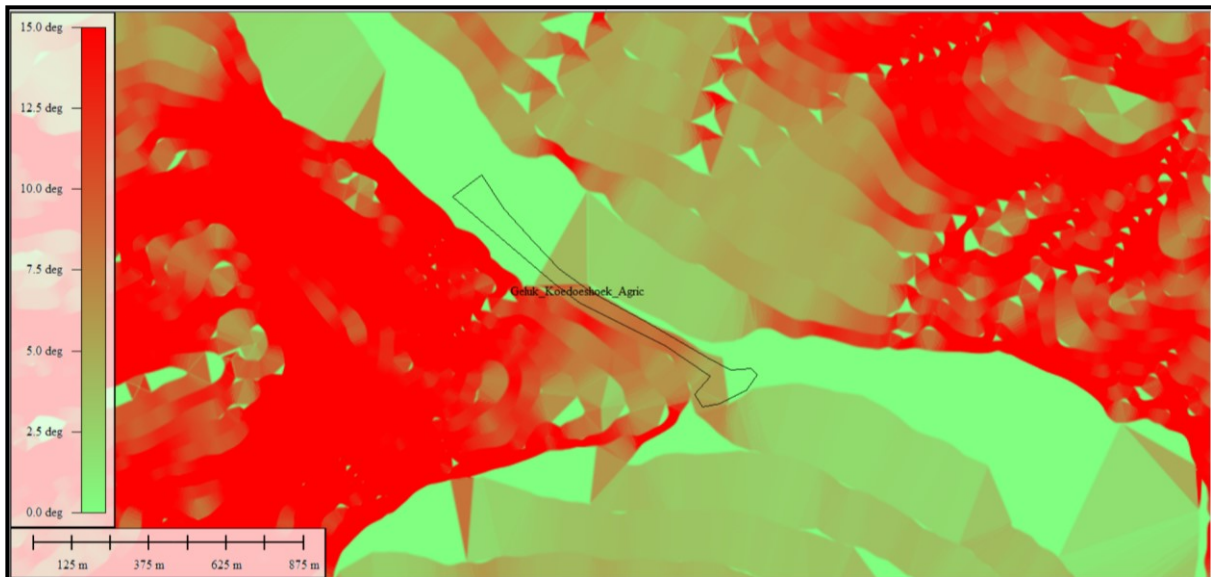


**Figure 3: 3D model of the site.**



**Figure 4: Topography of the site and surrounding area**





**Figure 5: The degree of slope of the site**

#### 1.4 Climate

Summer rainfall and dry winters occur, with MAP from 652mm (Schulze and Lynch, 2006), and 813 to 844mm (Hijmans et al. 2005). Mean monthly maximum and minimum temperatures 35.7° and 1.6° for October and July (Nelspruit), respectively.

#### 1.5 Biological aspects

##### 1.5.1 Terrestrial Ecology

##### Regional Context

According to Mucina & Rutherford (2006), falls within the Legogote Sour Bushveld (SVI 9) vegetation type (Mucina & Rutherford, 2006). According to Mucina & Rutherford (2006), the vegetation type is considered as Endangered with a conservation target of 19%. This vegetation type is described in more detail below:

##### Local Vegetation Communities

Three (3) vegetation communities were identified during the field surveys with the delineation based on overall vegetation structure (woodland, thicket), species composition (dominant species) and general location within the catena (mid-slope, riparian fringe.). Due to the limited scope and area of the survey (15 Ha), the separation of said communities is rather slight due to the lack of spatial separation however, for the purposes of the study, these fine scale vegetation communities are described in more detail below.

##### **Senegalia ataxacantha – Panicum maximum tall, closed thicket (Riparian zone)**

This vegetation community (5.3056 ha) extends as a narrow belt along the Crocodile River and falls exclusively within the riparian fringe. The zone is almost entirely inundated with alien plant species. The unit is extremely thick and dominated by species that make access next to impossible. It supports



some large and settled tree species including species such as *Vachellia erioloba*, *V. sieberiana* var. *woodii*. The herbaceous layer was almost absent from the zone apart from the dominant species of *Panicum maximum*, *Sporobolus africanus* and numerous *Aristida* sp. These riparian zones give the banks of the river structure and allow for adequate protection of soils during high rainfall periods and most importantly flood attenuation. This zone is extremely far from a natural state and requires immediate action in the form of a detailed and managed Alien and exotic plant removal plan. The vegetation structure is classified as tall, closed thicket (Edwards, 1983) with a dominance of woody plant species. The dominant tall trees are *Melia azedarach* (Alien), *Senegalia ataxacantha* and *S galpini*. Less common tall trees include *Combretum erythrophyllum*, *C mole*, *Dalbergia melanoxylon*. Dominant shrubs and small trees are *Combretum hererohense*, *Grewia flava*, *Peltophorum Africana*. Dominant herbaceous species included *Panicum maximum*, *Urochloa mozambicensus*, *Pogonarthria squarrosa*, and less dominant plants including *Brachiaria deflexa*, *Eragrostis rigidior*, *E superba*, *Chloris gayana* and *Tragus berteronianus*.

There was no SCC (Raimondo et al, 2009) identified during the survey in this zone..

#### **Vachillia erioloba– Panicum maximum open woodland**

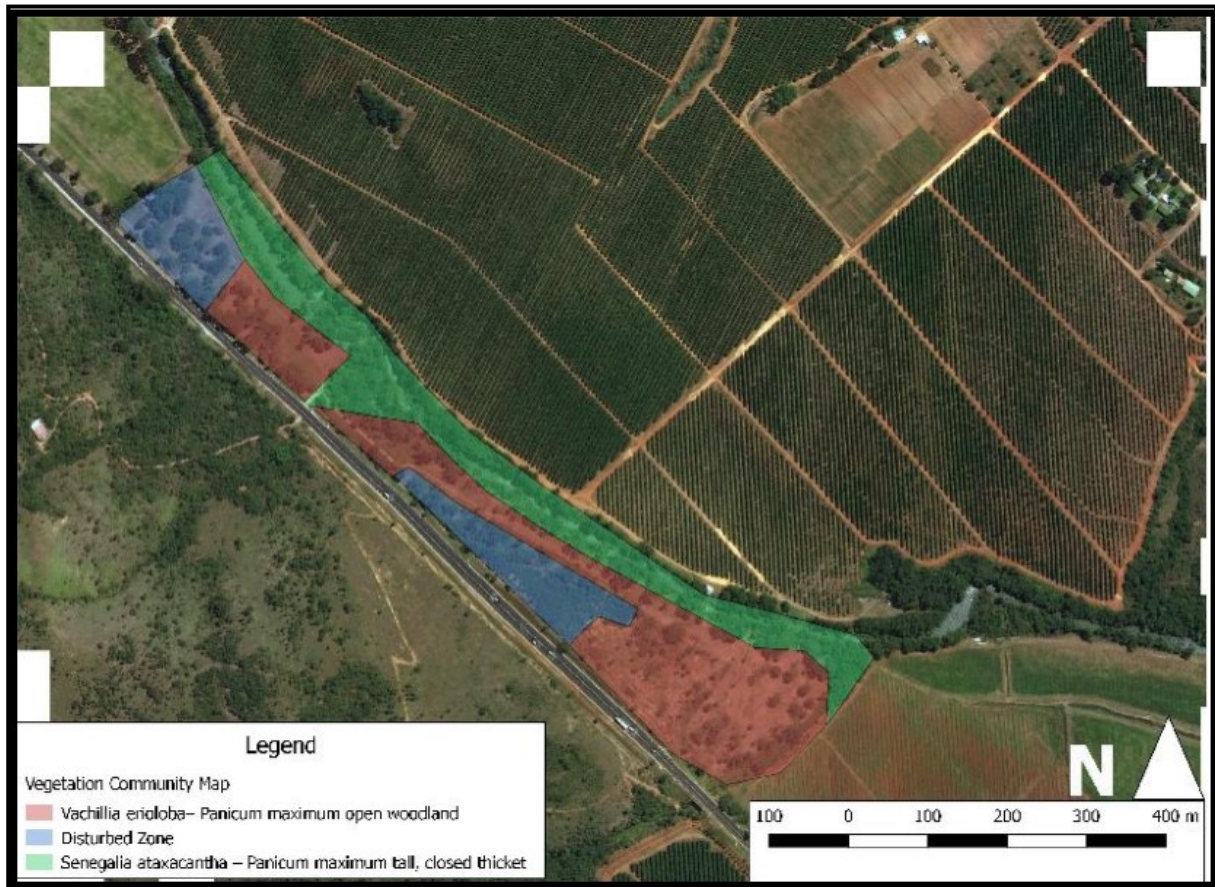
This community lies to the south and east of the building footprint and the zone made up approximately 73815 m<sup>2</sup> (7.3815 Ha) of the study area. The zone had particularly good ground cover with a moderate density of plant species identified. The herbaceous layer was dense with a moderate diversity of dominant species. The woody layer was open with scattered tall trees with a low species diversity. Evidence of wildlife movement through the zone was not evident. The site borders onto the Riparian zone above with a gradual ecotone evident in the northern half of the study area.

The structure of this vegetation community can be described as a tall, open woodland (Edwards, 1983). Large trees that dominate the zone include *Vachillia erioloba*, *V nilotica*, *Combretum apiculatum*, *C hererohense*, *Senegalia nigrescens* and *Peltophorum africanum*. Less common tall trees include *Ziziphus mucronata*, *Dalbergia melanoxylon*. Dominant shrubs include *Combretum zehyeri*, *C hererohense*, *C apiculatum*, *Peltophorum africanum*, *Grewia Flava*, and *Gymnosporia buxifolia*. The herbaceous layer was dominated by the graminoids *Panicum maximum*, *Digiteria eriantha*, *Heteropogon contortus*, *Eragrostis rigidior*, *E superba* and *Aristida* sp. There was no SCC (Raimondo et al, 2009) identified during the survey in this zone.

#### **Disturbed / existing infrastructure.**

This vegetation community falls to the South and east of the study area as well as a section on the south-central area that has been developed as a shooting range. The unit makes up roughly makes up roughly 30834 m<sup>2</sup> (3.0834 Ha) of the study area. The area is secondary in nature with low ground cover and supports a relatively low diversity of indigenous species. A large proportion of the plant species in this unit are exotic / alien species. There is a large, cleared area that has absolutely no vegetation cover and numerous dwellings and buildings that have been developed in the past thus indicating anthropogenic disturbance of the area. There are numerous access roads and cleared patches spread out throughout this unit.

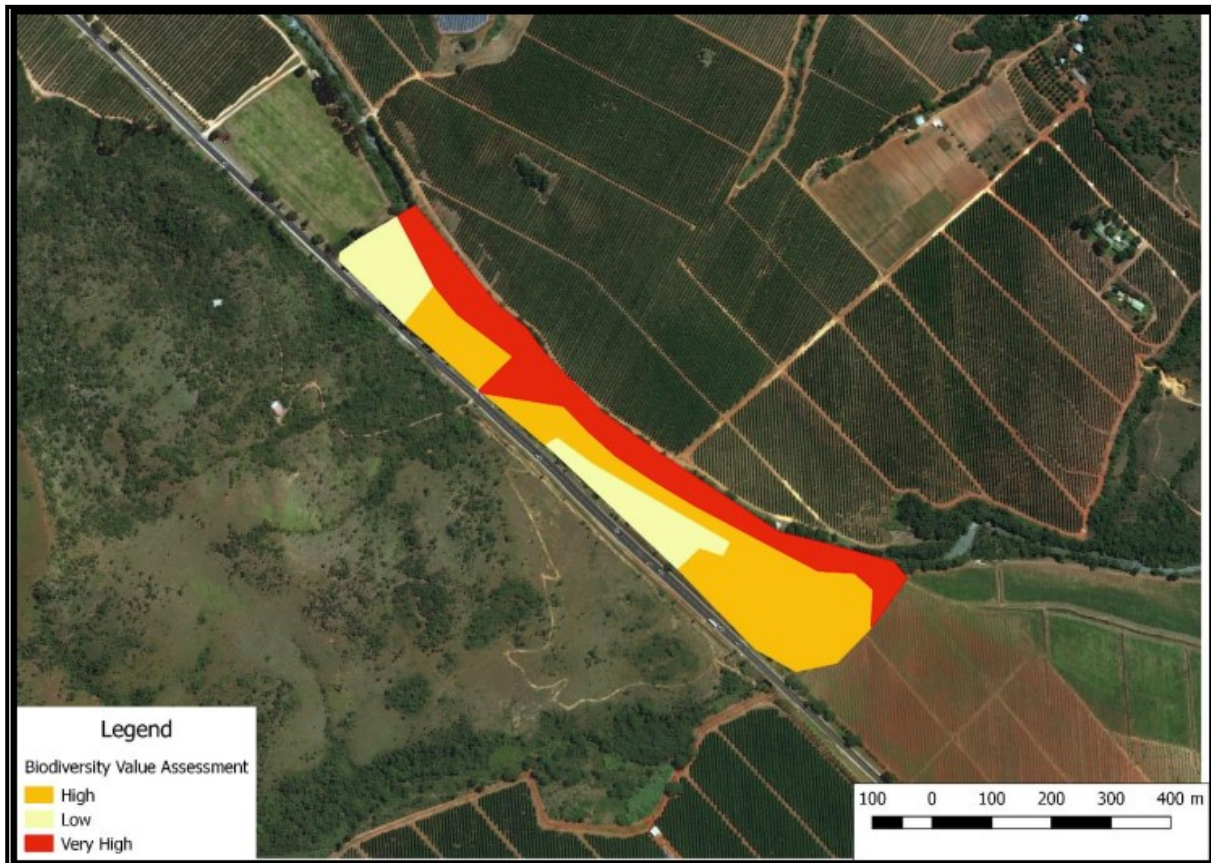
The overall structure of this unit can be described as sparse shrubland (Edwards, 1983). Large tree species in the area include *Senegalia nigrescens* and *Peltophorum africanum*, smaller trees and shrubs make up most of the woody strata and are dominated by *Euclea divinorum*, *Peltophorum africanum*, *Grewia flava*, *G flavescense* and *Ziziphus mucronata*. The herbaceous layer was extremely sparse with the dominant species being *Eragrostis ridigior*, *Sporobolus nitens*, *Aristida* sp, *Sporobolus ioclados*, *Pogonarthria squarrosa*, *Brachiaria deflexa* and *Chloris virgate*, and *C. gyana*. There was no SCC (Raimondo et al, 2009) identified during the survey in this zone.



**Figure 6: Vegetation communities identified within the study area.**

The riparian zone is of high biodiversity and ecosystem value and as such must not be developed or cleared for agricultural purposes.

The remaining extent of the study area, although within an area classified as “Threatened terrestrial ecosystem” is extremely fragmented and showing signs of anthropogenic impacts that have compromised the integrity of the area. The large proportion of the study area (11 HA) is secondary in nature and not considered as natural by this specialist. The Open woodland, dominated by *V. erioloba* (+- 5 Ha) is the closest remnant of the vegetation dynamics associated with the Legogote Sour Bushveld, however this limited patch is extremely fragmented from the remaining vegetation type and has a high density of alien and exotic plant species. If authorization is granted to transform the land, it is the specialist’s recommendation that the riparian zone (as per NEMA definition/s) is excluded.



**Figure 7: Biodiversity Values of Vegetation Communities in the Study Area**

### 1.5.2 Wetland Ecology

The proposed field is located in Schoemanskloof on the northern side of the N4. The proposed development comprises an area totalling 10.5 hectares (Figure 8). The Study Area for this report considered all aquatic ecosystems within 500 m of the proposed development, as required in terms of Government Notice 509 (26th August 2016).

#### 1.5.1.1 Context Aquatic Ecosystem Classification and Delineation

The proposed development could impact negatively on the riparian zone in this area.

The Riparian Health of the application area was assessed by Rob Palmer of Nepid Consultants during the compilation of an Aquatic Ecosystem Assessment and Rehabilitation Plan Associated with Unauthorised Cultivation of Eighteen Fields in Schoemanskloof<sup>2</sup>.

The Riparian Health of the site was recorded as being Fair but all riparian zones as delineated have been excluded from this proposed development.

<sup>2</sup> Aquatic Ecosystem Assessment and Rehabilitation Plan Associated with Unauthorised Cultivation of Eighteen Fields in Schoemanskloof, 2nd October 2018.



**MOOILAND: MU 15b**

-25.39855926; 30.61540953

**Description**

Management Unit 15b covers 1.15 hectares of riparian habitat on the left bank (facing downstream) of the Crocodile River between an access road and a bridge on the farm Mooiland. The length of the riparian zone is 458 m.



Figure A. Aerial photograph 2015.



Figure B. Google Earth 2018.



Figure C. [2018-07-03].



Figure D. [2018-07-03].

**Key Issues**

Clearing in Riparian Zone.  
Roads within Riparian Zone.  
Alien vegetation.

**Other Issues**

None.

**Riparian Health Index**

Criteria	Rating	Comment
Alien Vegetation	3.5	13 alien species recorded. Moderate abund.
Rubbish Dumping	0.5	Slight.
Bank Erosion	0.0	None
Inundation	0.0	None
Flow Modification	2.0	Stormwater slightly elevated; Kwena Dam
Water Quality	2.5	Turbidity
Vegetation Removal	4.5	Extensive removal of riparian vegetation.
Channel Modification	0.0	None
<b>Score:</b>	<b>13.0</b>	Ecological Condition
<b>% Modified:</b>	<b>33%</b>	<b>C: Fair</b>

**Alien Flora**

- Ageratum conyzoides* \*1b
- Bidens pilosa* \*1b
- Eucalyptus grandis* \*1b
- Grevillea robusta* \*3
- Jacaranda mimosifolia* \*
- Lantana camara* \*1b
- Melia azedarach* \*1b
- Morus alba* \*3
- Populus x canescens* \*2
- Senna septentrionalis* \*1b
- Solanum mauritianum* \*1b
- Tithonia rotundifolia* \*1b
- Verbena bonariensis* \*1b

**Rating**

- 2
- 2
- 3
- 2
- 1
- 4
- 1
- 3
- 3
- 2
- 3
- 2
- 2

**Actions**

1a) Control alien invasive woody vegetation from riparian zone.



**MOOILAND: MU 15c**

-25.40110996; 30.61797104

**Description**

Management Unit 15c covers 0.64 hectares of riparian habitat on the left bank (facing downstream) of the Crocodile River between two access roads on the farm Mooiland. The length of the riparian zone is 344 m.



Figure A. Aerial photograph 2015.



Figure B. Google Earth 2018.



Figure C. [2018-07-03].



Figure D. [2018-07-03].

**Key Issues**

- 1 Clearing in Riparian Zone.
- 2 Roads within Riparian Zone.
- 3 Alien vegetation. Particularly *Babusa balcooa*.

**Other Issues**

None.

**Riparian Health Index**

Criteria	Rating	Comment
Alien Vegetation	3.5	Six alien species recorded. Moderate abund.
Rubbish Dumping	0.5	Slight.
Bank Erosion	0.0	None
Inundation	0.0	None
Flow Modification	2.0	Stormwater slightly elevated; Kwena Dam
Water Quality	2.5	Turbidity
Vegetation Removal	4.5	Extensive removal of riparian vegetation.
Channel Modification	0.0	None
<b>Score:</b>	<b>13.0</b>	Ecological Condition
<b>% Modified:</b>	<b>33%</b>	<b>C: Fair</b>

**Alien Flora**

Alien Flora	Rating
<i>Bambusa balcooa</i> *1b	4
<i>Lantana camara</i> *1b	2
<i>Melia azedarach</i> *1b	1
<i>Populus x canescens</i> *2	2
<i>Psidium guajava</i> *2	1
<i>Solanum mauritanium</i> * 1b	2

**Actions**

- 1a) Control alien invasive woody vegetation from riparian zone.



**MOOILAND: MU 15d**

-25.4026555; 30.62056675

**Description**

Management Unit 15d covers 0.57 hectares of riparian habitat on the left bank (facing downstream) of the Crocodile River between two access roads on the farm Mooiland. The length of the riparian zone is 302 m.



Figure A. Aerial photograph 2015.

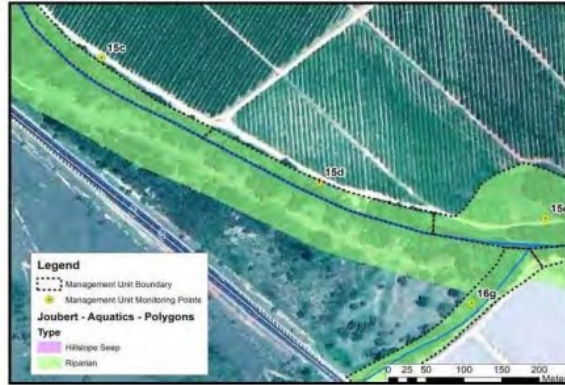


Figure B. Google Earth 2018.



Figure C. [2018-07-03].



Figure D. [2018-07-03].

**Key Issues**

Clearing in Riparian Zone.  
Roads within Riparian Zone.  
Alien vegetation.

**Other Issues**

None.

**Riparian Health Index**

Criteria	Rating	Comment
Alien Vegetation	3.5	Six alien species recorded. Moderate abund.
Rubbish Dumping	0.5	Slight.
Bank Erosion	0.0	None
Inundation	0.0	None
Flow Modification	2.0	Stormwater slightly elevated; Kwena Dam
Water Quality	2.5	Turbidity
Vegetation Removal	4.5	Extensive removal of riparian vegetation.
Channel Modification	0.0	None
<b>Score:</b>	<b>13.0</b>	Ecological Condition
<b>% Modified:</b>	<b>33%</b>	<b>C: Fair</b>

**Alien Flora**

Species	Rating
<i>Bidens pilosa</i>	2
<i>Grevillea robusta</i> *3	1
<i>Morus alba</i> *3	3
<i>Ricinus communis</i> *2	1
<i>Senna septemtrionalis</i> *1b	1
<i>Solanum mauritianum</i> *1b	1
<i>Verbena bonariensis</i> *1b	2

**Actions**

1a) Control alien invasive woody vegetation from riparian zone.

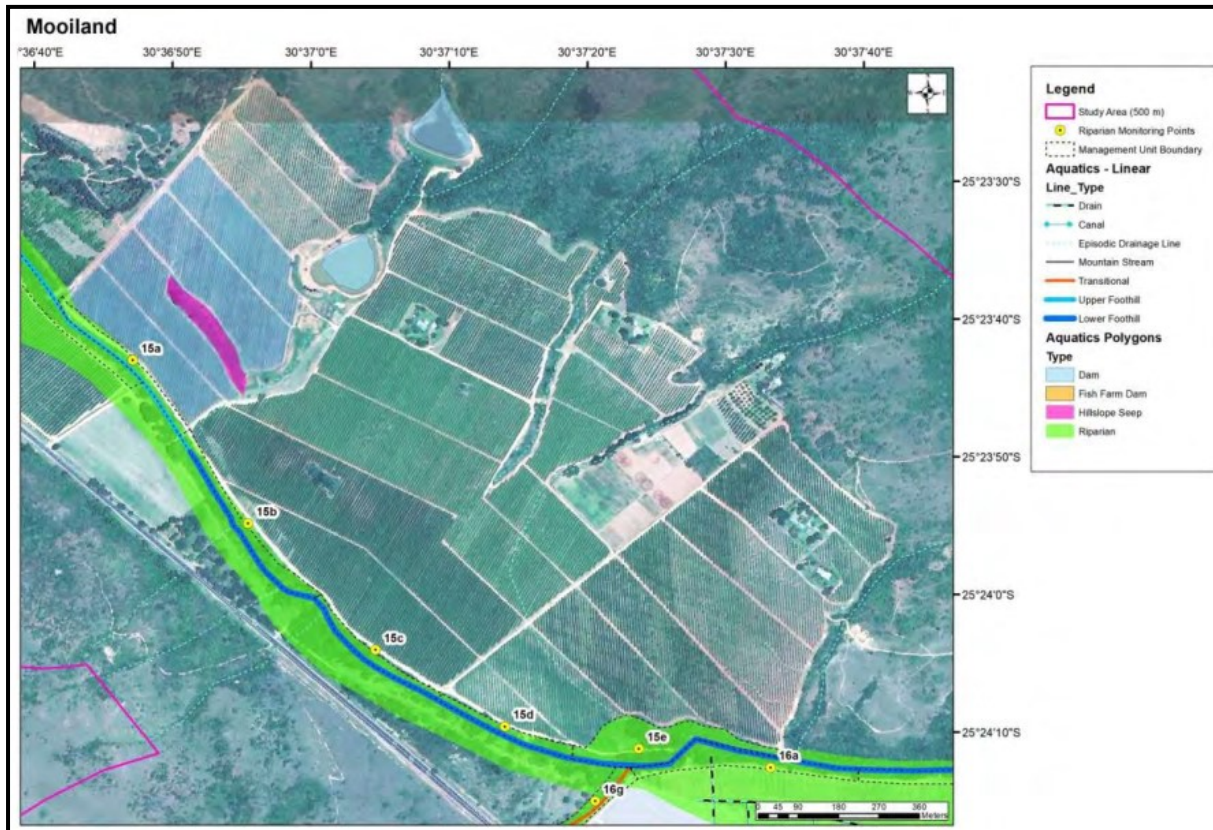


Figure 8: Aquatic Ecosystem Classification and Delineation – Proposed Fields.

## 1.6 Social and economic aspects

The land on which the proposed agriculture, is to take place, is owned by the applicant and is currently classified as agricultural land. Sustainable farming on this property appears to be achievable.

- **Economy of the local and greater area**

Sustainable development ensures that we meet our present needs without compromising our ability to meet future needs. Considerations of sustainability become increasingly important as global climate change poses new challenges for the future of humanity and social issues become more relevant to the growing world population. As a significant regional player in the agricultural sector, FJ Joubert & Seuns (Pty) Ltd focuses on optimising the social and environmental impact of its operations, without compromising economic viability. It is the group's goal to position itself as employer and partner of choice for employees, communities, business initiatives and governments.

The proposed project encompasses all of the above and should be seen as having the potential to strengthen the local area economically.

- **The Rural Economy**

As a large employer, FJ Joubert & Seuns (Pty) Ltd plays an increasingly significant economic role in the broader Mbombela area. As a farming company, they proactively support the socio-economic upliftment of the community residents of the areas in which we operate.

This project will play a key role in affording the local community the chance to grow and develop in a positive social and economic way.

- **Local Employment**

The group provides permanent employment for a large number of people. Employees are generally sourced from communities in close proximity to the farming operations and the wages and benefits earned support many more people than those directly employed.

## 1.7 Cultural aspects

An Archaeological and Heritage Impact Assessment was undertaken by Kudzala Antiquity CC in respect of the proposed clearing of vegetation for agricultural development on suitable portions of an area of approximately 14,5 hectares on the farms Bruintjieslaagte 465 JT, Geluk 299 JT and Koedoeshoek 301 JT in the Schoemanskloof near Mbombela, Mpumalanga Province. The study was done with the aim of identifying sites which are of heritage significance on the identified project areas and assess their current preservation condition, significance and possible impact of the proposed action. This forms part of legislative requirements as appears in section 38 of the National Heritage Resources Act (Act No. 25 of 1999). This report can be submitted in support of the National Environmental Management Act (Act 25 of 1998).

In terms of the historical landscape, the following was noted:

- In terms of section 34 of the National Heritage Resources Act (NHRA, 25 of 1999), no significant buildings or structures were located.
- In terms of section 35 of the NHRA, no archaeological sites were recorded.
- In terms of section 36 of the NHRA, one site which may represent a grave was documented. However, it is located outside of the proposed development area.



## 2 Detailed description of the proposed development.

### 2.1 Water supply

Water will be supplied to the site via extraction within the ambit of existing water rights. In this regard

**Table 10: Water Balance**

Montrose Water Balance				
Property	Water allocation m <sup>3</sup> /annum	Ha equivalent	Water Used (ha)	Water Balance (ha)
Montrose Ptn 2 (Croc River)	40000	5	see below	see below
Montrose Ptn 0 (Croc River)	18400	2,3	see below	see below
Montrose Ptn 0 (Croc River)	228000	28,5	see below	see below
BARCLAYS Vale Ptn 0 (Croc River)	158400	19,8	see below	see below
Montrose Ptn 0 (Houtbosloop abstraction)	439320	54,9	see below	see below
<b>Total</b>	<b>884120</b>	<b>110,5</b>	<b>60,4</b>	<b>50,1</b>

**★★Note a total of 8000m<sup>3</sup> per Ha per year water rights has been allocated. This equates to a total of 110,5 ha that may be cultivated and watered.**

**Of this a total of 60,4 ha have been cultivated to date. This leaves a surplus of 50,1 ha that may still be planted and irrigated from the current allocation. ★★**

## 2.2 Electrical supply

Electricity will be supplied to the site via an existing powerline and transformer.

## Sanitation and Waste

The development of macadamia trees will be an extension of existing agricultural activities in the area and would require no development of sanitation or waste facilities.

## 2.3 Access

Access to the site will be via an existing road. See layout and locality maps in this regard.

## 2.4 Storm water

It is not anticipated that runoff will increase from current site activities.

## 3 Prescribed Environmental Management Standards, Practices, Policies, Guidelines or Legislation

The following legislation, guidelines, departmental policies, environmental management instruments and/or other decision making instruments that have been developed or adopted by a competent authority in respect of activities associated with a development of this nature, were identified and considered in the preparation of this basic assessment report:

- a. Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), as amended.
- b. DEA (2010), Public Participation 2010, Integrated Environmental Management Guideline Series 7, Department of Environmental Affairs, Pretoria, South Africa.
- c. DEA&DP (2010) Guideline on Alternatives, EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning (DEA&DP).
- d. DEAT (2002) Specialist Studies, Information Series 4, Department of Environmental Affairs and Tourism (DEAT), Pretoria.
- e. DWA (2007), Guideline for Developments within a Floodline (Edition 1), Department of Water Affairs and Forestry, Pretoria, South Africa.
- f. DWAF (2004) General Authorisation No. 399 in the Government Gazette No. 26187 dated 26 March 2004.
- g. Ferrar, A.A. & Lotter, M.C. 2007. Mpumalanga Biodiversity Conservation Plan Handbook. Mpumalanga Tourism & Parks Agency, Nelspruit.
- h. Government Notice No. R. 543, R. 544, R. 545, R. 546 and R. 547 in Government Gazette No. 33306 of 18 June 2010.
- i. Haydorn, A.E.F. (2006) Rational Assessment of Development in Sensitive Environments (*Ref: ENPLCRIT*). Tel/Fax: (021) 887 4382. eMail: [heydaef@adept.co.za](mailto:heydaef@adept.co.za)

- j. National Environmental Management Act, 1998 (Act No. 107 of 1998) (“NEMA”).

#### 4 Public Participation Process

The Public Participation Process (PPP) was undertaken according to Regulation 54 of the EIA Regulations, 2014, and took into consideration the Public Participation 2010 Guideline Document (DEA, 2010).

The level of public participation was determined by taking into account the scale of the anticipated impacts of the proposed project, the sensitivity of the affected environment and the degree of controversy of the project, and the characteristics of the potentially affected parties. Based on the findings of the aforementioned consideration, there was no reason to elaborate on the minimum requirements of the public participation process outlined in the EIA Regulations, 2014 or use reasonable alternative methods for people desiring of but unable to participate in the process due to illiteracy, disability, or any other disadvantage.

Potentially interested and affected parties were notified of the proposed application by –

- Fixing a notice board at a place conspicuous to the public. (APPENDIX E, Annexure A & B). There was no reasonable alternative site (Section D6).
- Giving written notice to owners and occupiers of land adjacent, (APPENDIX E; ANNEXURES C, D, G and H), and organs of state having jurisdiction in respect of the proposed activity. The applicant, FJ Joubert & Seuns (Pty) Ltd, is the owner of the land. Consequently, a Background Information Document (BID) was prepared and distributed via email (APPENDIX E, Annexure C & D) to:

**Table 11: List of Stakeholders**

The owner or person in control of that land if the applicant is not the owner or person in control of the land: <i>The applicant is the owner or person in control of the land.</i>				
The occupiers of the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken: <i>The applicant occupies the site where the activity is to be undertaken (FJ Joubert &amp; Seuns (Pty) Ltd). There was no reasonable alternative site (Section D 7).</i>				
Owners and occupiers of land adjacent to the site where the activity is or is to be undertaken or to any alternative site where the activity is to be undertaken:				
Mr	J	Schoeman	Chairman: Schoemanskloof Farmers Association	<a href="mailto:martinslydenburg@xwi.co.za">martinslydenburg@xwi.co.za</a>
Mrs	D	Cort	Schoemanskloof Fish Farm	<a href="mailto:cortfish@lantic.net">cortfish@lantic.net</a>
Mr	L	Eva	Joubert en Seuns	<a href="mailto:gm@joubertenseuns.co.za">gm@joubertenseuns.co.za</a>
The municipal councillor of the ward in which the site or alternative site is situated and any organisation of ratepayers that represent the community in the area:  The site is not designated a ward.				
The municipality which has jurisdiction in the area: <b>Mbombela Municipality (MLM)</b> Sihle Mthembu ( <a href="mailto:Sihle.Mthembu@mbombela.gov.za">Sihle.Mthembu@mbombela.gov.za</a> )				
Any organ of state having jurisdiction in respect of any aspect of the activity:  <b>Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs (DARDLEA)</b> Robyn Luyt ( <a href="mailto:Rluyt@mpg.gov.za">Rluyt@mpg.gov.za</a> , 082 672 7868)  <b>Mpumalanga Tourism and Parks Agency (MTPA)</b> Phumla Nkosi ( <a href="mailto:Phumla.nkosi@mtpa.co.za">Phumla.nkosi@mtpa.co.za</a> ) Khumbelo Malele ( <a href="mailto:Khumbelo.Malele@mtpa.co.za">Khumbelo.Malele@mtpa.co.za</a> )  <b>Department of Agriculture</b> Mr Frans Mashabela ( <a href="mailto:FransMas@nda.agric.za">FransMas@nda.agric.za</a> )				

- Placing an advertisement in a local newspaper, the Lowvelder on Thursday 18<sup>th</sup> of February 2021. (APPENDIX E, Annexure E & F). No official Gazette existed at the time of the application. The proposed activity shall not have an impact that extends beyond the boundaries of the metropolitan or local municipality in which it will be undertaken.
- Submission of the Draft BAR to all departments and registered I&AP's for review and comment from 4<sup>th</sup> May 2021 to 10<sup>th</sup> June 2021. Registered I&AP's were contacted directly regarding the availability of the report

In terms of regulation 55(1), all organs of state which have jurisdiction in respect of the proposed activity and all persons who submitted written comments or requested, in writing, to be registered were placed on the register (APPENDIX E, Annexure I & J).

A summary of the issues raised (**APPENDIX E, Annexure J**) -

### **Table 12: Comments and Responses**

**See Section 11 of this report as well Appendix E Annexure J.**

## **5 Need and Desirability**

The FJ Joubert & Seuns (Pty) Ltd wishes to cultivate macadamias and expand their current farming activities within their farms. They intend to plant macadamias.

In order to cultivate the proposed field, the area must be cleared of the natural bush that occurs on the site. In addition to this, and due to the current agricultural scale of economy, the applicant wishes to extend his current farming area thus increasing the total area available for planting.

The desire to utilise the proposed field, was precipitated by the fact that the most economically viable option available to the owner is to optimize the use of existing resources, while adding further value by extending and incorporating additional sections of arable land. A large section adjacent to the proposed field is currently disturbed.

The proposed site is ideal for agriculture (specifically growing macadamias), as the soils, water and growing region are ideal.

## **6 Feasible and Reasonable Alternatives**

### **6.1 Legislative Background**

The very consideration of a development in terms of EIA is about the consideration of alternatives related to the development. The NEMA prescribes that all environmental impact assessments, which are to be utilised in informing an application for environmental authorisation, must identify and investigate the alternatives to the activity on the environment and include a description and comparative assessment of the advantages and disadvantages that the proposed activity and feasible and reasonable alternatives will have on the environment and on the community, that may be affected by the activity. If, however, after having identified and investigated alternatives, no feasible and reasonable alternatives exist, no comparative assessment of alternatives, beyond the comparative assessment of the preferred alternative and the option of not implementing the activity, is required during the assessment phase. In this instance, the EAP managing the application must provide the

competent authority/DARDLEA with detailed, written proof of the investigation(s) undertaken and motivation indicating that no reasonable or feasible alternatives, other than the preferred alternative and the no-go option.

## 6.2 Definition of Alternatives

“Alternatives”, in relation to a proposed activity, means different means of meeting the general purposes and requirements of the activity, which may include the following types of alternatives:

- The property on which, or location where, it is proposed to undertake the activity.
  - Refers to both alternative properties as well as alternative sites on the same property.
- The type of activity to be undertaken.
  - Provision of public transport rather than increasing the capacity of roads.
- The design or layout of the activity.
  - Different architectural and or engineering designs.
  - Consideration of different spatial configurations of an activity on a particular site (Site Layout)
- The technology to be used in the activity.
  - Option of achieving the same goal by using a different method or process.
- The operational aspects of the activity.
- Demand
  - When a demand for a certain product or service can be met by some alternative means, i.e. the demand for electricity/storm water controls could be met by supplying more energy or using energy more efficiently by managing demand.
- Input
  - Input alternatives for projects that may use different raw materials or energy sources in their processes.
- Routing
  - Alternative routes generally applies to linear developments (pipeline routes).
- Scheduling and Timing
  - Where a number of measures might play a part in an overall programme, but the order in which they are scheduled will contribute to the overall effectiveness of the end result.
- Scale and Magnitude
  - Activities that can be broken down into smaller units and can be undertaken on different scales, i.e. for a housing development there could be the option 10, 15 or 20 housing units.
- The option of not implementing the activity (no-go option).
  - The no-go option is taken to be the existing rights on the property, and this includes all the duty of care and other legal responsibilities that apply to the owner of the property. All the applicable permits must be in place for a land use to be an existing right.

The key criteria when identifying and investigating alternatives are that they should be “feasible” and “reasonable”. The “feasibility” and “reasonability” of and the need for alternatives must be determined by considering, *inter alia*, (a) the general purpose and requirements of the activity, (b) need and desirability, (c) opportunity costs, (d) the need to avoid negative impact altogether, (e) the need to minimise unavoidable negative impacts, (f) the need to maximise benefits, and (g) the need for equitable distributional consequences. The (development) alternatives must be socially, environmentally and economically sustainable. They must also aim to address the key significant

impacts of the proposed residential development by maximising benefits and avoiding or minimising the negative impacts.

### **Identification and Investigation of Alternatives Including Motivations**

Given the aforementioned definition and description of alternatives, alternatives for investigation in this assessment were first identified by considering whether the different types of alternatives could meet the general purposes and requirements of the need to expand FJ Joubert & Seuns (Pty) Ltd business model and offer increased capacity/services to the macadamia growers in the region, and subsequently constitute a comparable activity. Thereafter, the need for an alternative was assessed to determine whether it warranted further investigation. Certain alternatives could not be considered as legitimate alternatives for comparable assessment from the onset of the assessment process because they apply to aspects/parts of the proposed activity. Consequently, they were considered throughout the assessment process to address site-specific impacts when the need for mitigation was identified by the relevant specialist studies.

### **Purpose and Requirements of clearing and planting macadamias**

The purpose for clearing and planting macadamias is to increase FJ Joubert & Seuns (Pty) Ltd business model.

### **Alternative No. 1: Property and Location**

#### **Purpose and Requirements**

The development of the proposed site is a right held by the owners and will also improve the ability of the owner's to successfully run and operate their business in a financially viable manner. Moreover, the size and suitability of the proposed site as well as the fact that this site is owned by the applicant, precludes consideration of alternative properties. Because macadamias do not yield as much as other tree crops, it is necessary to have more trees for a viable operation. The addition of this "new area" to the existing macadamia crops will add immense value and improve the economic viability of the entire operation.

An alternative property does **not** meet the needs as described above. Neither does an alternative site, given that the proposed site is located adjacent to currently disturbed areas and that the site itself was rated as having a moderate to low biodiversity value. In addition to this and considering the aesthetic value and relatively high ecological sensitivity of properties and other sites in the area, an alternative location is **unable** to meet the needs as described. The applicant would thus like to plant and develop the site identified as field 1.

### **Methodology**

NA

### **Criteria used to investigate and assess alternatives**

NA

### **Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

Activity can only occur on land within close proximity to their current operation and moreover, the size and suitability of the proposed site as well as the fact that this site is owned by the applicant,

precludes consideration of alternative properties. To suggest an alternative site in the surrounding ecologically sensitive areas would also be *unreasonable*.

## **Alternative No. 2: Type of Activity**

### **Purpose and Requirements**

The specific nature of this activity, fundamentally to increase FJ Joubert & Seuns (Pty) Ltd business model, does **not** afford alternative types of activities that can meet the same purposes or requirements, specifically providing the owners of the land the ability improve, successfully market, run and ultimately operate their business in a financially viable manner.

### **Methodology**

NA

### **Criteria used to investigate and assess alternatives**

NA

### **Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner, **cannot** be achieved by using an alternative type of activity. Consequently, this type of alternative is **not applicable**.

## **Alternative No. 3: Design and Layout**

### **Purpose and Requirements**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner, **can** be achieved using different layout and or engineering designs, and by considering different spatial configurations of the development on the particular site (Site Layout).

### **Methodology**

Specialist studies were undertaken during the assessment process to identify potential impacts on the environment and community/neighbours and recommend appropriate mitigations to avoid or minimise negative impacts or enhance beneficial impacts. Those mitigations informed the final and preferred Site Layout (Appendix A, Annexure B).

### **Criteria used to investigate and assess alternatives**

The Site Layout was designed to take cognisance of and address specific impacts. The assessment of the specific impacts associated with the Site Layout included a study of the nature of the impact, the extent and duration of the impact, the probability of the impact occurring, the degree to which the impact can be reversed, the degree to which the impact may cause irreplaceable loss of resources, and the degree to which the impact can be mitigated (Section D 6).

### **Reasoned explanation why an alternative was or was not found to be reasonable or feasible**



Whilst alternative designs and or site layouts are reasonable, particularly given the need to avoid negative impacts or to minimise unavoidable negative impacts, the extent of those changes is restricted by the site itself and surrounding ecological sensitivities. Furthermore, the changes are informed by the findings contained in the relevant specialist studies. Consequently, this type of alternative had to be considered throughout the assessment process and evolve incrementally as and when the impacts were identified by the relevant specialist studies. The final and preferred site layout is an outcome of the aforementioned process or the 'end result'. The fact that it could not be predicted from the onset of the assessment process made it impossible to propose as an alternative for assessment.

## **Alternative No. 4: Technology**

### **Purpose and Requirements**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner, **can** be met by this type of alternative, specifically by using different technologies (methods or processes during the construction)

### **Methodology**

Various technologies for the planting of macadamias were evaluated by the project team. Specialist studies were undertaken during the assessment process to identify potential impacts on the environment and community and recommend appropriate mitigations to avoid or minimise negative impacts or enhance beneficial impacts. Those mitigations informed the final and preferred technologies and materials to be used.

### **Criteria used to investigate and assess alternatives**

Recommendations made regarding the utilisation of proper and suitable technologies to plant macadamias were undertaken to address specific impacts. The assessment of the specific impacts associated with the site layout included a comparison of the nature of the impact, the extent and duration of the impact, the probability of the impact occurring, the degree to which the impact can be reversed, the degree to which the impact may cause irreplaceable loss of resources, and the degree to which the impact can be mitigated

### **Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

The purpose and requirements of the proposed development **can** be achieved by using this type of alternative, 'technology'. Consequently, this type of alternative is applicable. In addition, alternative technologies were sought throughout the assessment process to address specific impacts identified by the specialist studies, in the manner described in the above-mentioned alternative for 'Design and Layout (Alternative No. 3).

## **Alternative No. 5: Operational Aspects**

### **Purpose and Requirements**

Whilst alternative operational aspects (procedures) can meet the purpose for increasing FJ Joubert & Seuns (Pty) Ltd business model, they **cannot** meet the purpose of realising the owner's right to improve, run and ultimately operate their business in a financially viable manner. Consequently, the proposed development has been proposed to directly address operational and management flaws that could not be accomplished by simply revising operational procedures.

**Methodology**

NA

**Criteria used to investigate and assess alternatives**

NA

**Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

Comparative assessment of alternative operational aspects (procedures) against the development of planting macadamia trees, highlight that alternative operational procedures (within the existing ambit) could not reasonably achieve the same operational efficiency requirements that the proposed project would.

**Alternative No. 6: Demand****Purpose and Requirements**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner **cannot** be met by this type of alternative, specifically by reducing the demand (or need) for the proposed activity. The owner is entitled to expand current operations and in so doing improve, successfully market, run and ultimately operate their business in a financially viable manner. Within reason this right cannot be unreasonably withheld.

**Methodology**

NA

**Criteria used to investigate and assess alternatives**

NA

**Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner **cannot** be achieved by using this type of alternative, 'demand'. Consequently, this type of alternative is not applicable. Nevertheless, alternative means were sought throughout the assessment process to address specific impacts identified by the specialist studies, in the manner described in the above-mentioned alternative for 'Design and Layout (Alternative No. 3)'.

**Alternative No. 7: Input****Purpose and Requirements**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model region and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner **can** be met using different raw materials or energy sources.

**Methodology**

NA

**Criteria used to investigate and assess alternatives**

NA

**Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

However, the need for alternative inputs (to address site-specific impacts) cannot be predicted at the onset of the assessment process and is, therefore, not reasonable. However, alternative raw materials or energy sources were sought throughout the assessment process to address specific impacts identified by the specialist studies, in the manner described in the above mentioned alternative for 'Design and Layout (Alternative No. 3).

**Alternative No. 8: Routing**

**Purpose and Requirements**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner **cannot** be met using an alternative route. This specific type of alternative generally applies to linear developments, such as pipeline routes.

**Methodology**

NA

**Criteria used to investigate and assess alternatives**

NA

**Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

This type of alternative, 'Routing', is not applicable. Nevertheless, alternative routes for internal services were sought throughout the assessment process to address specific impacts identified by the specialist studies, in the manner described in the above-mentioned alternative for 'Design and Layout (Alternative No. 3).

**Alternative No. 9: Scheduling and Timing**

**Purpose and Requirements**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model as well as the services/capacity rendered to the macadamia growers in the region and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner **can** be met using alternative scheduling and timing, specifically changing the order in which activities are scheduled to contribute to the overall effectiveness of the end result.

**Methodology**

NA

**Criteria used to investigate and assess alternatives**

NA

**Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

However, the need for alternative scheduling or timing (to address site-specific impacts) cannot be predicted at the onset of the assessment process and is, therefore, not reasonable. However, alternative scheduling or timing was sought throughout the assessment process to address specific

impacts identified by the specialist studies, in the manner described in the above-mentioned alternative for 'Design and Layout (Alternative No. 3). For example, rehabilitation should not be left until the end of construction, etc.

### **Alternative No. 10: Scale and Magnitude**

#### **Purpose and Requirements**

The purpose and requirements for increasing FJ Joubert & Seuns (Pty) Ltd business model as well as the services/capacity rendered to the macadamia growers in the region and realising the owner's right to improve, successfully market, run and ultimately operate their business in a financially viable manner **cannot** be met using an alternative scale or magnitude, specifically a smaller physical footprint.

#### **Methodology**

NA

#### **Criteria used to investigate and assess alternatives**

NA

#### **Reasoned explanation why an alternative was or was not found to be reasonable or feasible**

This type of alternative, 'Scale and Magnitude', is not applicable. The growing of macadamias is limited by financial and operational viability and this is directly linked to an economy of scale.

### **Alternative No. 11: No-go Option**

The option of not implementing the activity (no-go option), was used as the benchmark against which all impacts associated with the proposed development were assessed.

#### **Conclusion**

Some types of alternatives were not applicable to the nature of the proposed activity, including its purpose or requirements ('Type of Activity', 'Technology', 'Demand', 'Routing' and 'Scale and Magnitude'). A range of different types of alternatives did exist, but not all warranted investigation ('Property and Location', 'Design and Layout', 'Input', 'Scheduling and Timing'). Based on the findings of the investigation that was undertaken (of 'Operational Aspects') and reasoned motivation there was no verifiable evidence for the existence of any reasonable and feasible alternative(s) other than the preferred option and the no-go option, at the time of this environmental impact assessment process. Consequently, no reasonable and feasible alternatives other than the preferred option and the no-go option were identified, described and assessed. Having said that, alternatives, specifically modifications and changes to activities in order to prevent and/or mitigate environmental impacts, were considered throughout the assessment process. The development proposal was amended in an incremental manner throughout the EIA process to address impacts and issues, as and when the need for mitigation was identified.

## 7 Environmental Impacts

The purpose of the assessment is to synthesise and analyse information relevant to the environmental impacts of a proposal. In order to achieve this, two elements, namely the outline of methodology used, and the systematic assessment of the impacts are required.

The environmental significance scale is an attempt to evaluate the importance of a particular impact. This evaluation needs to be undertaken in the relevant context, as an impact can be ecological, economic, social, or all of the aforementioned. The evaluation of the significance of an impact relies heavily on the values of the person making the judgement. For this reason, impacts of especially a social nature need to reflect the values of the affected society.

Sub-Section 7.4 identifies the issues associated with the proposed development, providing the significance scale and mitigation measures to reduce negative impacts and enhance positive impacts. Section 7.1 provides an explanatory note on the methodology adopted for assessing the significance of the identified impacts.

To facilitate informed decision-making, EIA's must endeavour to come to terms with the significance of the potential environmental impacts associated with particular development activities. Despite their attempts at providing a completely objective and impartial assessment of the environmental implications of development activities, EIA processes can never completely escape the subjectivity inherent in attempting to define significance. Recognising this, we have attempted to address potential subjectivity in the current process as follows:

- Being explicit about the difficulty of being completely objective in the determination of significance, as outlined above.
- Developing an explicit methodology for assigning significance to impacts and outlining this methodology in detail in this BAR. Having an explicit methodology not only forces the assessor to come to terms with the various facets contributing toward determination of significance, thereby avoiding arbitrary assignment, but also provides the reader of the BAR with a clear summary of how the assessor derived the assigned significance.
- Wherever possible, differentiating between the likely significance of potential environmental impacts as experienced by the various affected parties.

Although these measures may not totally eliminate subjectivity, they provide an explicit context within which to review the assessment of impacts.

## 7.1 Assessment Methodology

This section outlines the methodology used to assess the significance of the potential environmental impacts. For each impact, the EXTENT (spatial scale), MAGNITUDE and DURATION (time scale) are described. These criteria are used to ascertain 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 represents the full range of plausible and pragmatic measures and does not imply that they would or should be implemented. The tables below show the scale used to assess these variables, and define each of the rating categories.

**Table 13: Assessment criteria for the evaluation of impacts**

CRITERIA	CATEGORY	DESCRIPTION
Extent or spatial influence of impact	<b>Regional</b>	Beyond 5 km of the proposed activity.
	<b>Local</b>	Within 5 km of the proposed activity.
	<b>Site specific</b>	On site or within 100 m of the site boundary.
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>Construction</b>	Up to 2 years.
	<b>Short Term</b>	0-5 years (after construction).
	<b>Medium Term</b>	5-15 years (after construction).
	<b>Long Term</b>	More than 15 years (after construction).

The SIGNIFICANCE of an impact is derived by taking into account the temporal and spatial scales and magnitude. The means of arriving at the different significance ratings is explained in Table 14.

Table 14: Definition of significance ratings

SIGNIFICANCE RATINGS	LEVEL OF CRITERIA REQUIRED
<b>High</b>	<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>
<b>Medium</b>	<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 short term duration or a site specific extent and long term duration.</li> <li>High magnitude with either a local extent and short term 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 short term or regional and long term.</li> <li>Low magnitude with a regional extent and long term duration.</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>High magnitude with a site specific extent and short term duration.</li> <li>Medium magnitude with a site specific extent and short term duration.</li> <li>Low magnitude with any combination of extent and duration except site specific and short term.</li> <li>Very low magnitude with a regional extent and long term duration.</li> </ul>
<b>Very low</b>	<ul style="list-style-type: none"> <li>Low magnitude with a site specific extent and short term duration.</li> <li>Very low magnitude with any combination of extent and duration except regional and long term.</li> </ul>
<b>Neutral</b>	<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 of this impact occurring as well as the CONFIDENCE in the assessment of the impact, are estimated using the rating systems outlined in Table 15 and Table 16 respectively. It is important to note that the significance of an impact should always be considered in concert with the probability of that impact occurring. Lastly the REVERSIBILITY is estimated using the rating system outlined in Table 17.

Table 15: Definition of probability ratings

PROBABILITY RATINGS	CRITERIA
<b>Definite</b>	Estimated greater than 95 % chance of the impact occurring.
<b>Highly probable</b>	Estimated 80 to 95 % chance of the impact occurring.
<b>Probable</b>	Estimated 20 to 80 % chance of the impact occurring.
<b>Possible</b>	Estimated 5 to 20 % chance of the impact occurring.
<b>Unlikely</b>	Estimated less than 5 % chance of the impact occurring.

Table 16: Definition of confidence ratings

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



**Table 17: Definition of reversibility ratings**

REVERSIBILITY RATINGS	CRITERIA
<b>Irreversible</b>	The activity will lead to an impact that is permanent.
<b>Long Term</b>	The impact is reversible within 2 to 10 years after construction.
<b>Short Term</b>	The impact is reversible within the 2 years of construction.

## 7.2 Subjectivity in Assigning Significance

To facilitate informed decision-making, EIA's must endeavour to come to terms with the significance of the potential environmental impacts associated with particular development activities. Despite their attempts at providing a completely objective and impartial assessment of the environmental implications of development activities, EIA processes can never completely escape the subjectivity inherent in attempting to define significance. Recognising this, we have attempted to address potential subjectivity in the current process as follows:

- Being explicit about the difficulty of being completely objective in the determination of significance, as outlined above.
- Developing an explicit methodology for assigning significance to impacts and outlining this methodology in detail in this BAR. Having an explicit methodology not only forces the assessor to come to terms with the various facets contributing toward determination of significance, thereby avoiding arbitrary assignment, but also provides the reader of the BAR with a clear summary of how the assessor derived the assigned significance.
- Wherever possible, differentiating between the likely significance of potential environmental impacts as experienced by the various affected parties.

Although these measures may not totally eliminate subjectivity, they provide an explicit context within which to review the assessment of impacts.

## 7.3 Consideration of Cumulative Impacts

The National Environmental Management Act requires the consideration of cumulative impacts as part of any environmental assessment process. EIA's have traditionally, however, failed to come to terms with such impacts, largely as a result of the following considerations:

- Cumulative effects may be local, regional or global in scale and dealing with such impacts requires co-ordinated institutional arrangements; and
- EIA's are typically carried out on specific developments, whereas cumulative impacts may result from broader biophysical, social and economic considerations, which typically cannot be addressed at the project level.

In terms of the proposed agriculture and new processing plant the following cumulative impacts have specifically been identified:

- Storm water control.
- Loss of indigenous vegetation.
- Loss of topsoil and sedimentation
- Use of pesticides

## 7.4 Construction Phase Impacts

The construction phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the construction<sup>3</sup> phase of the proposed project. They are inherently temporary in duration but may have longer lasting effects. The construction phase impacts could potentially include:

**The bio-physical issues identified include:**

- Fauna and Flora (Destruction of habitat)
- Impact on wetland
- Loss of topsoil / Soil Erosion
- Ground and surface water impact
- Geology and soils

**The socio-economic impacts identified include:**

- Noise pollution
- Visual pollution
- Traffic impact
- Historical impact
- Employment Opportunities (+)

A summary of the construction phase impacts (assessed within the Final BAR) is provided below.

**Table 18: Summary of construction impacts**

Ref. (Pg)	Description of impact	Significance of Impact	
		Without Mitigation	With Mitigation
<b>Construction Phase Impacts</b>			
50	Fauna and Flora	Medium (-)	Low (-)
53	Aquatic Ecosystems	Medium (-)	Low (-)
54	Historical	Low (-)	Low (-)
55	Loss of Topsoil and Soil Erosion (Hydrological)	Medium (-)	Low (-)
56	Ground and Surface Water Impact	Medium (-)	Low (-)
57	Noise Pollution	Medium (-)	Low (-)
58	Visual Impact	Medium (-)	Low (-)
59	Employment Opportunities	Low (+)	High (+)

A summary of the integrated construction phase impacts:

<sup>3</sup> In this regard construction should be interpreted as those activities associated with the clearing and planting of the proposed fields as well as those of developing the processing plant.

Table 19: Summary of integrated construction impacts for Montrose 288, JT

	Preferred Layout	
	Without mitigation	With mitigation
Extent	Site specific/ Local	Site specific/ Local
Magnitude	High (-)	Medium Low (-)
Duration	Construction	Construction
Significance	Medium (-)	Low (-)
Probability	Highly Probable	Highly Probable
Confidence	Certain	
Reversibility	Short Term	

Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)

#### 7.4.1 Fauna and Flora

##### Description of the environment

Three (3) vegetation communities were identified during the field surveys

1. **Senegalia ataxacantha – Panicum maximum tall, closed thicket (Riparian zone)**

This vegetation community extends as a narrow belt along the Crocodile river and falls exclusively within the riparian fringe and was identified as having a high biodiversity value.

2. **Vachillia erioloba– Panicum maximum open woodland**

This community lies to the south and east of the building footprint and the zone made up approximately 50000 m<sup>2</sup> (5 Ha) of the study area. The zone had particularly good ground cover with a moderate density of plant species identified. This was identified as having a moderate biodiversity value.

3. **Disturbed / existing infrastructure.**

This vegetation community falls to the South and east of the study area as well as a section on the south-central area that has been developed as a shooting range. The unit makes up roughly makes up roughly 35000 m<sup>2</sup> (3.5 Ha) of the study area. The area is secondary in nature with low ground cover and supports a relatively low diversity of indigenous species.



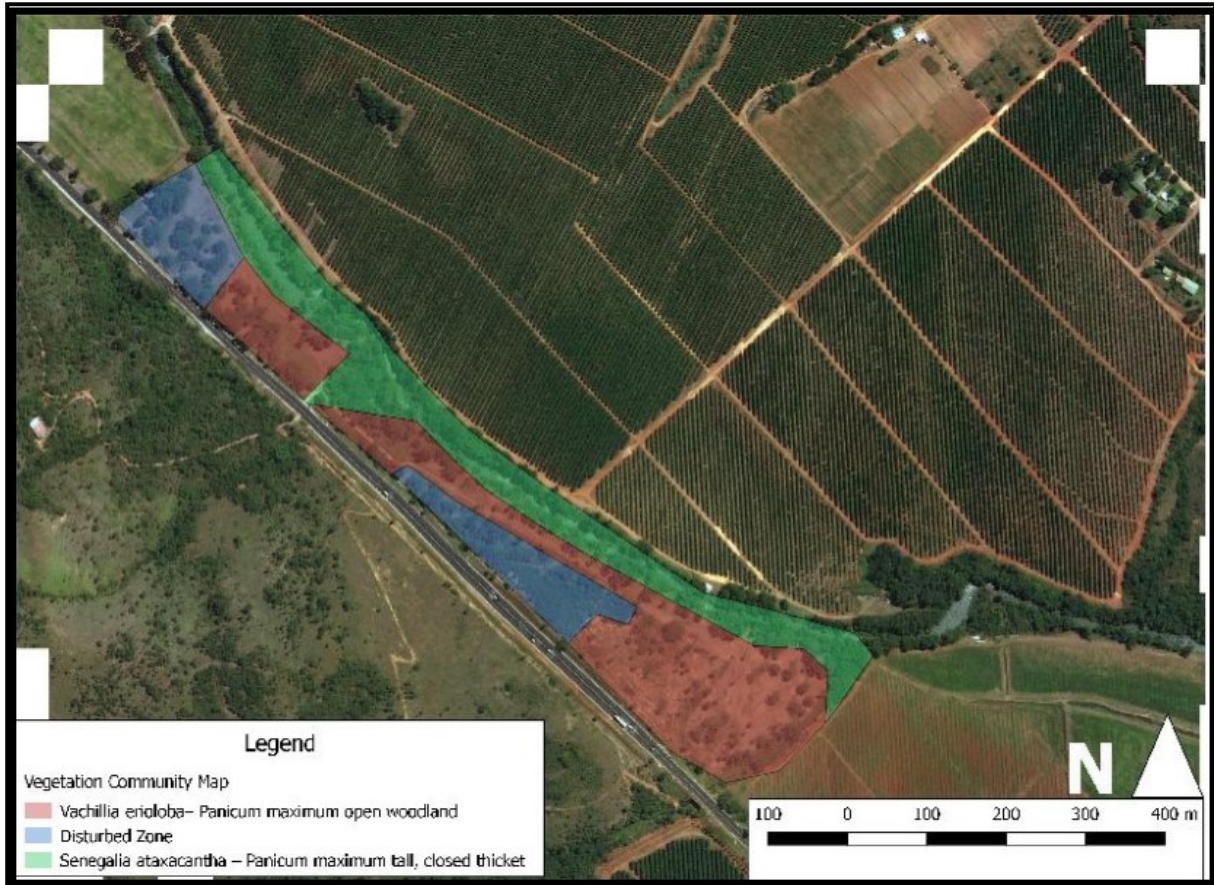


Figure 9: Vegetation communities identified within the study area

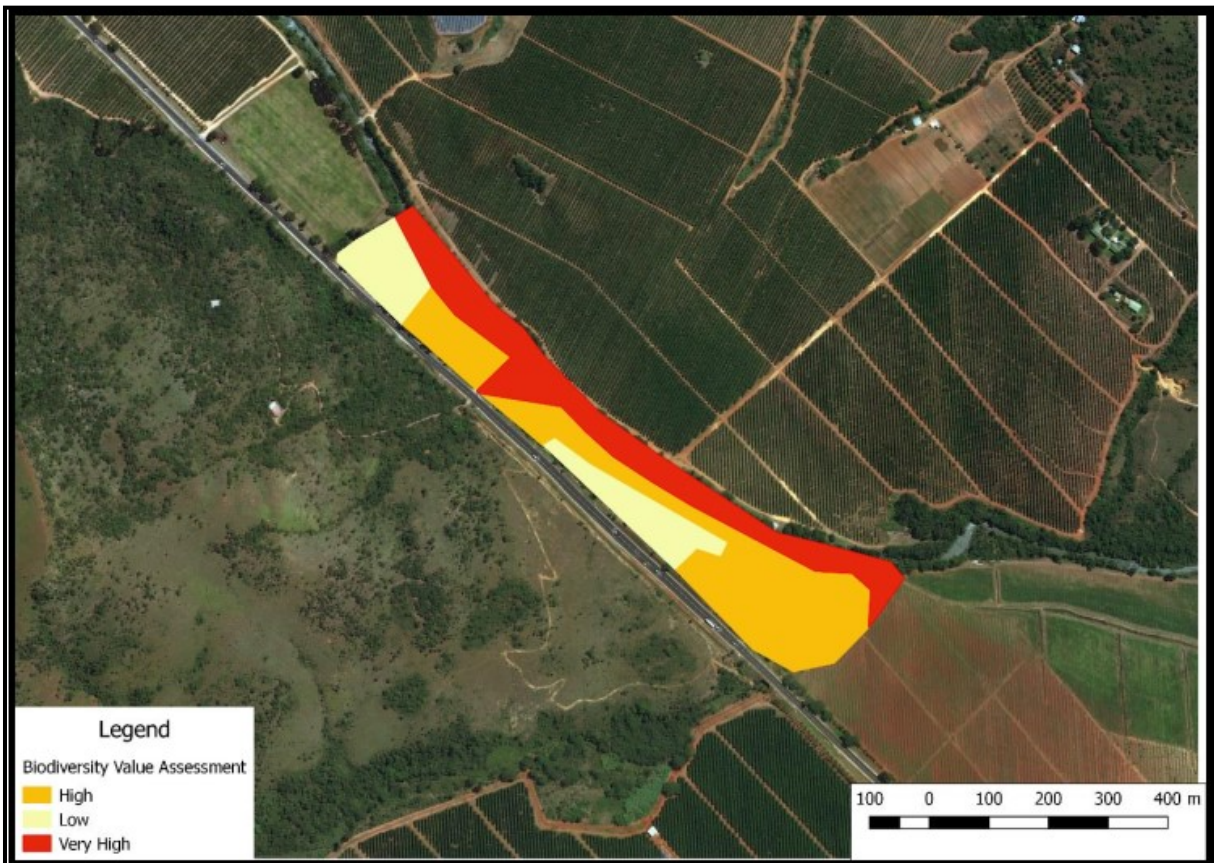


Figure 10: Biodiversity Values of Vegetation Communities in the study area

Table 20: Fauna and Flora

	Preferred Layout	
	Without mitigation	With mitigation
Extent	Regional	Site
Magnitude	Medium (-)	Low (-)
Duration	Short term	Short term
Significance	Moderate (-)	Low (-)
Probability	Low (-)	Low (-)
Confidence	Sure	
Reversibility	Irreversible	

Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)

### Impact assessment

Impact on the riparian zone is negated as this area has been excluded from the proposed development. The significance of the impact on biodiversity by new agricultural activity on the Open Woodland and Disturbed areas is considered to be moderate but can be reduced to **Low**

### Mitigation measures

- A program to limit further introduction of alien vegetation, other than the intended agricultural species, must be implemented.
- All necessary permits must be obtained for flora that will be pruned or removed.
- Clearing and planting activities must strictly adhere to the approved & demarcated footprints. In this regard:
  - The Riparian Forest Community must be designated as a zone of “No Development”.
- No harvesting or flora is permitted outside the footprint, including harvesting of medicinal plants.
- Poaching could be a significant threat. If any external labour teams are used during construction, then these teams should preferably be accommodated off site; if this is not possible then teams should be carefully monitored to ensure that no unsupervised access to animal resources takes place

Provided the recommendations suggested in this report are followed, there is no objection to the proposed developments on Montrose in terms of the terrestrial ecosystems of the study area.

### Cumulative impact

The clearing and subsequent loss of limited and degraded indigenous vegetation, is unavoidable. This would add to the overall loss of indigenous vegetation within this area.

However, sections of the surrounding vegetation show signs of previous impact, which detracts from its localized conservation importance. If, combined with concerted efforts to and buffer areas potential loss of indigenous vegetation may be adequately compensated.

**7.4.2 Impact on Aquatic Ecosystems**

**Description of the environment**

*The proposed development could impact negatively on the riparian zone in this area.*

The Riparian Health of the application area was assessed by Rob Palmer of Nepid Consultants during the compilation of an Aquatic Ecosystem Assessment and Rehabilitation Plan Associated with Unauthorised Cultivation of Eighteen Fields in Schoemanskloof<sup>4</sup>.

The Riparian Health of the site was recorded as being Fair.

**Table 21: Impact on aquatic ecosystems**

	Preferred Layout	
	Without mitigation	With mitigation
<b>Extent</b>	Site	Site
<b>Magnitude</b>	High (-)	Medium (-)
<b>Duration</b>	Short term	Short term
<b>Significance</b>	Moderate (-)	Low (-)
<b>Probability</b>	Highly Probable	Probable
<b>Confidence</b>	Sure	
<b>Reversibility</b>	Irreversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

**Impact assessment**

The Ecological and Functional Importance of the waterbodies and associated riparian zone is rated as Moderate. It is recommended that the moderate impact significance can be reduced to **Low** if the mitigation measures highlighted in the aquatic report are implemented and all riparian zones are excluded from the development footprint.

**Mitigation measures**

- The proposed development may continue.
- Clearing and planting activities must strictly adhere to the approved & demarcated footprints. In this regard:
  - The Riparian Forest Community must be designated as a zone of “no Development”.
- Alien invasive vegetation within the properties should be controlled. Personnel tasked to control alien vegetation should receive appropriate training in the following: methods and control measures; equipment and techniques; types of herbicides and dosages applied; mixing techniques; storage of chemicals and equipment; health and safety issues; plant identification; procedures for equipment washing; equipment maintenance; record keeping, inter alia.
- Annual monitoring of ecological restoration of the Houtbosloop riparian zone by a suitably qualified aquatic ecologist is recommended until the area is restored.

If all proposed activities are kept within the clearable areas and mitigation measures are implemented, then this impact is of potentially **medium** significance.

**Cumulative impact**

None

<sup>4</sup> Aquatic Ecosystem Assessment and Rehabilitation Plan Associated with Unauthorised Cultivation of Eighteen Fields in Schoemanskloof, 2nd October 2018.



### 7.4.3 Historical

#### Description of the environment

An Archaeological and Heritage Impact Assessment was undertaken by Kudzala Antiquity CC in respect of the proposed clearing of vegetation for agricultural development on suitable portions of an area of approximately 14,5 hectares on the farms Bruintjieslaagte 465 JT, Geluk 299 JT and Koedoeshoek 301 JT in the Schoemanskloof near Mbombela, Mpumalanga Province. The study was done with the aim of identifying sites which are of heritage significance on the identified project areas and assess their current preservation condition, significance and possible impact of the proposed action. This forms part of legislative requirements as appears in section 38 of the National Heritage Resources Act (Act No. 25 of 1999). This report can be submitted in support of the National Environmental Management Act (Act 25 of 1998).

In terms of the historical landscape, the following was noted:

- In terms of section 34 of the National Heritage Resources Act (NHRA, 25 of 1999), no significant buildings or structures were located.
- In terms of section 35 of the NHRA, no archaeological sites were recorded.
- In terms of section 36 of the NHRA, one site which may represent a grave was documented. However, it is located outside of the proposed development area.

**Table 22: Heritage impacts**

	Preferred Layout	
	Without mitigation	With mitigation
Extent	Site	Site
Magnitude	Medium (-)	Low (-)
Duration	Short term	Short term
Significance	Low (-)	Low (-)
Probability	Probable	Unlikely
Confidence	Sure	
Reversibility	Irreversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

#### Impact assessment

As no sites of cultural importance were identified on the site, the significance of this impact is rated **low**.

#### Mitigation measures

- The proposed development may continue.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artefacts is always a distinct possibility. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence.

If all proposed activities are kept within the clearable areas and mitigation measures are implemented, then this impact is of potentially **low** significance.

#### Cumulative impact

None

#### 7.4.5 Loss of topsoil and soil erosion

One of the potential impacts of clearing and cultivation is the loss of topsoil and sedimentation of the downstream environment. This is due to the clearing of land, which leads to the runoff from the site having a high sediment load. Potential sedimentation is therefore of particular concern.

##### Description of the environment

The fields are located within a relatively flat topographical unit. However, increased runoff due to agricultural activities would increase the potential loss of soil. The surrounding areas are all vulnerable to erosion if not managed correctly. The proximity of the fields to streams and wetlands, increases the possibility of these streams being silted up if proper stormwater management is not implemented.

**Table 23: Loss of topsoil and soil erosion.**

	Preferred Layout	
	Without mitigation	With mitigation
<b>Extent</b>	Local	Local
<b>Magnitude</b>	Medium (-)	Low (-)
<b>Duration</b>	Short term	Short term
<b>Significance</b>	Medium (-)	Low (-)
<b>Probability</b>	Probable	Unlikely
<b>Confidence</b>	Sure	
<b>Reversibility</b>	Irreversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

##### Impact assessment

Where possible, clearing and agricultural activities should be scheduled to occur outside of the rainy period, thereby reducing the volume of runoff during clearing and planting. If this is not possible then extra precaution needs to be taken to reduce this impact. This potential impact is considered to be of **low significance** with mitigation measures implemented.

##### Mitigation measures

- Outflow from cut-off drains and stormwater diversions should be attenuated sufficiently to prevent erosion of receiving environment
- Topsoil must be windrowed along the edge of the footprint, including in situ vegetation.
- Adequate stormwater measures must be installed to ensure runoff does not result in erosion and export of soils, particularly topsoil.
- Clearing activities in and around watercourses should be planned for the dry season, to reduce likelihood of sedimentation of same watercourses.
- The contractor must ensure that all vehicles and equipment are in a sound state of repair and do not leak hydrocarbons onto the ground beneath.
- All existing roads must have suitable erosion containment measures in place.
- All residual material must be removed once no longer needed, to ensure they do not inhibit the restoration of ecological function to the area, especially in the buffer zones.

##### Cumulative impact

One of the potential impacts of clearing and planting is the sedimentation of downstream environments. This is due to the clearing of land, which leads to the runoff from the site having a high sediment load. Potential sedimentation of the tributary is therefore of particular concern.

#### 7.4.6 Ground and Surface water impact

During clearing, planting and the construction of the processing plant, pollutants may find their way into drainage channels and watercourses. Typical sources of pollution include oils and fuels from vehicles.

#### Description of the environment

Due to the fact that the site is in close proximity of the Houtbosloop, the possible impact of agricultural activities is a reality and should therefore be assessed.

**Table 24: Ground and Surface Water Impact**

	Preferred Layout	
	Without mitigation	With mitigation
<b>Extent</b>	Local	Local
<b>Magnitude</b>	Medium (-)	Low (-)
<b>Duration</b>	Short term	Short term
<b>Significance</b>	Medium (-)	Low (-)
<b>Probability</b>	Probable	Unlikely
<b>Confidence</b>	Sure	
<b>Reversibility</b>	Irreversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

#### Impact assessment

Surface and Groundwater pollution can be caused by various activities during the clearing and cultivation phase if not properly managed. These activities include:

- Preparation of fields -
  - Levelling of sites
  - Production of litter from staff
  - Inadequate ablution facilities
  - Construction and operation of storm water management system
  - Increase in surface run-off water due to hardened surfaces
  - Oil dripping from standing vehicles
  - Spills from servicing or re-fuelling
  - Leaks from stored fuel and oil

#### Mitigation measures

- All maintenance and repair work of vehicles will be carried out within an area designated for this purpose, equipped with the necessary pollution containment measures.
- The ground under the servicing and refuelling areas must be protected against pollution caused by spills and/or tank overfills.
- In the event of a breakdown or emergency repair, any accidental spillage must be cleaned up or removed immediately.
- All equipment and machinery must be maintained in good order. Regular checks must be undertaken for leaks and any found must be immediately repaired.
- The farm manager must ensure that reasonable precautions are taken to prevent the pollution of the ground and water resources on and adjacent to the sites during the clearing and cultivation phase.
- No natural watercourse is to be used for the cleaning of tools or any other apparatus. This includes for purposes of bathing, or the washing of clothes etc. All washing operations will take place at a location where wastewater can be disposed of in an acceptable manner.
- The farm manager must maintain good housekeeping practices that ensure that all work sites are kept tidy and litter free, ensuring no runoff of refuse into surrounding watercourses.

- No spills may be hosed down into the surrounding natural environment. All contaminated soil is to be excavated to the depth of contaminant penetration, placed in 200 litre drums and removed to an appropriate registered landfill site.
- A drainage diversion system is to be installed to divert run-off from areas of potential pollution. Internal storm water reticulation is to be constructed early on in the project in order to significantly reduce the storm water effluent during clearing and planting,
- There should be monitoring and inspection of the site's drainage system to ensure that the water flow is unobstructed.

### Cumulative impact

There are no cumulative impacts associated with this impact.

### 7.4.7 Noise pollution

#### Description of the environment

The area has a rural agricultural and natural sense of place.

**Table 25: Noise Pollution**

	Preferred Layout	
	Without mitigation	With mitigation
<b>Extent</b>	Local	Local
<b>Magnitude</b>	Medium (-)	Low (-)
<b>Duration</b>	Short term	Short term
<b>Significance</b>	Medium (-)	Low (-)
<b>Probability</b>	Probable	Unlikely
<b>Confidence</b>	Sure	
<b>Reversibility</b>	Irreversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

#### Impact assessment

Clearing and agricultural activities, vehicles and personnel on site would cause an increase in noise in the area, which may impact negatively on adjoining landowners and users. This impact is considered of **moderate** significance prior to mitigation and could be reduced to **low**.

## Mitigation measures

Impacts of noise generation during clearing, planting and construction in general could be mitigated by ensuring that all regulations relating to noise generation are observed and by restricting work to normal working hours. Further to this the following mitigation measures are of relevance:

- Landowners and neighbours should be informed prior to any activities that are bothersome taking place.
- Notify adjacent landowners of after-hours work and of any other activity that could cause a nuisance.
- No loud music is permitted on site.
- Noise from labourers to be controlled
- If noise levels at the boundaries of the site exceed 7dB above ambient levels, then the local health authorities are to be informed.
- Respond to community complaints with regard to noise generation, taking reasonable action to eliminate and/or minimise the impact.
- Where complaints cannot be addressed to the satisfaction of all parties, then the farm manager will, upon instruction by the ECO, provide an independent and registered Noise Monitor to undertake a survey of the noise output levels. Recommendations to reduce noise to legislated levels must be implemented.

This potential impact could be readily managed by effective implementation of an EMP.

## Cumulative impact

None

### 7.4.8 Visual Impact – “Sense of Place”

#### Description of the environment

The clearing and planting of the fields as well as the construction of a processing plant, could have a visual impact on the scenic views and sense of place immediately surrounding the sites.

Sense of place refers to a unique experience of an environment by a user, based on his or her cognitive experience of the place. Visual criteria and specifically the visual character of an area (informed by a combination of aspects such as topography, level of development, vegetation, noteworthy features, cultural / historical features, current landuse, etc...) play a significant role.

A visual impact on the sense of place is one that alters the visual landscape to such an extent that the user experiences the environment differently, and more specifically, in a less appealing or less positive light.

The most noteworthy aspect contributing to the sense of place of the proposed development area, is the presence of open farmland, undeveloped and natural bush.

**Table 26: Visual Impact – “Sense of Place”.**

	Preferred Layout	
	Without mitigation	With mitigation
<b>Extent</b>	Local	Local
<b>Magnitude</b>	Medium (-)	Low (-)
<b>Duration</b>	Short term	Short term
<b>Significance</b>	Medium (-)	Low (-)
<b>Probability</b>	Probable	Unlikely
<b>Confidence</b>	Sure	
<b>Reversibility</b>	Irreversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

### Impact assessment

The anticipated visual impact of clearing and cultivating (due to the natural surroundings on the property) on the visual character of the landscape is expected to be of **moderate** significance and may be mitigated to **low**.

### Mitigation measures

- In terms of screening, all existing vegetation on the periphery of the site is to be maintained as a visual buffer. This should be a minimum of 20 meters.
- This visual buffer zone must systematically have alien species removed and the natural vegetation remaining should be augmented with additional indigenous species.
- In terms of all infrastructure, it is recommended the access road and all structures be planned so that the unnecessary clearing of vegetation is avoided. This implies making use of already disturbed sites rather than pristine areas wherever possible and avoiding large tree specimens and dense established vegetation areas.
- Mitigation of visual impacts associated with the clearing, albeit temporary, entails proper planning, management and rehabilitation. In addition, it is vital that vegetation is not unnecessarily cleared or removed.
- The fields and buildings must be maintained in a neat and visually acceptable state throughout the operational life.

### Cumulative impact

There are no cumulative impacts associated with this impact.

### 7.4.9 Employment opportunities

#### Description of the environment

There will definitely be a positive economic impact during the clearing and planting phase as temporary employment will be provided through the installation of services as well as the actual clearing, grubbing and planting. There is the potential for local suppliers to also benefit from the proposed activity.

This positive impact will, however, be negated if out-of-town contractors are employed who utilise non-local workers and make use of supplies brought in from other provinces (i.e. Gauteng). If local labour and suppliers are utilised during the construction phase this potential **positive** socio-economic impact will go from a **low to high (+) significance**.

**Table 27: Employment opportunities**

	Preferred Layout	
	Without mitigation	With mitigation
Extent	Local	Local
Magnitude	Low (+)	Medium (+)
Duration	Short term	Short term
Significance	Low (+)	High (+)
Probability	Probable	Probable
Confidence	Sure	
Reversibility	Reversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

### Cumulative impact

Not applicable.



## 7.5 Environmental Management Plan and Environmental Control Officer

As alluded to under Section 6 and 7, all of the aforementioned construction phase impacts could be addressed and minimised by the development and effective implementation of an Environmental Management Programme (EMPr). Accordingly, a draft EMPr for both construction and operational phases will be prepared (see draft report attached as **Appendix F; Annexure A**). Prior to construction, an appropriately qualified environmental consultant should ensure that the draft EMPr be amended to take cognisance of any further requirements included in the RoD. This EMPr should be incorporated into the Civil Tender Document, since this would ensure that:

- The Contractor is made aware of the EMPr “up front”;
- The EMPr is presented in a form and language familiar to the Contractor;
- The Contractor is able to cost for compliance with the EMPr; and
- The EMPr is binding within a well-developed legal framework.

To give appropriate effect to the environmental controls, it is essential that this EMPr be enforced by an appropriately qualified, independent Environmental Control Officer (ECO). The roles and responsibilities of the ECO should include:

- Ensuring that the necessary environmental authorisations and permits have been obtained;
- Monitoring and verifying that the EMPr is adhered to at all times and taking action if the specifications are not followed;
- Monitoring and verifying that environmental impacts are kept to a minimum;
- Reviewing and approving construction method statements with input from the Engineers;
- Assisting the Contractor in finding environmentally responsible solutions to problems;
- Giving a report back on the environmental issues at the monthly site meetings and other meetings that may be called regarding environmental matters;
- Keeping records of all activities/ incidents on Site in the Site Diary concerning the environment;
- Inspecting the site and surrounding areas regularly with regard to compliance with the EMPr;
- Keeping a register of complaints in the Site Office and recording and dealing with any community comments or issues;
- Monitoring the undertaking by the Contractor of environmental awareness training for all new personnel coming onto site;
- Ensuring that activities on site comply with other relevant environmental legislation;
- Ordering, via the Engineer’s Representative, the removal of person(s) and/or equipment not complying with the specifications;
- Issuing of fines for contraventions of the EMPr;
- Completing monitoring checklists; and
- Keeping a photographic record of progress on Site from an environmental perspective.

**7.6 Operational Phase Impacts**

The operational phase impacts are those impacts on the biophysical and socio-economic environment that would occur during the operational phase of the proposed project and are inherently long-term in duration. The operational phase impacts could potentially include:

**The bio-physical issues identified include:**

- Storm water management

**The socio-economic impacts identified include:**

- Visual Impact – “Sense of Place”
- Use of pesticides
- Noise

A summary of the operation phase impacts (assessed within the Final BAR) is provided below.

**Table 28: Operational Phase Impacts**

Ref. (Pg)	Description of impact	Significance of Impact	
		Without Mitigation	With Mitigation
<b>Operational Phase Impacts</b>			
61	Stormwater Management	Moderate (-)	Low (-)
62	Visual Impact – “Sense of Place”	Low (-)	Medium (+)
59	Use of pesticides	Medium (-)	Low (-)

**7.5.1 Storm water management**

**Description of the environment**

A potential increase in bare soil under trees due to shading will increase the storm water runoff.

**Table 29: Storm water management**

	Preferred Layout	
	Without mitigation	With mitigation
<b>Extent</b>	Local	Local
<b>Magnitude</b>	Medium (-)	Low (-)
<b>Duration</b>	Short term	Short term
<b>Significance</b>	Moderate (-)	Low (-)
<b>Probability</b>	Probable	Unlikely
<b>Confidence</b>	Sure	
<b>Reversibility</b>	Irreversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

**Impact assessment**

Erosion and siltation can be caused by stormwater runoff from the site if not properly managed. During the Operational phase, the significance of this impact may be mitigated to **Low** as crops established will provide natural stabilisation of the terrain against erosion. Stormwater infrastructure will be designed to manage runoff.

**Mitigation measures**

All rainwater drainage points from hardened surface should be designed to reduce water velocity and prevent erosion of wetlands, streams and surrounding natural vegetation, at the point of water entry into the systems.

Topsoil is to be replaced by direct return where feasible (i.e. replaced immediately on the area where planting is complete), rather than stockpiling it for extended periods, and may not be used for building or maintenance of roads.

Erosion protection measures should include, but not be limited to:

- Topsoil must be windrowed along the edge of the footprint, including in situ vegetation.
- Adequate stormwater measures must be installed to ensure runoff does not result in erosion and export of soils, particularly topsoil.
- Clearing activities in and around watercourses should be planned for the dry season, to reduce likelihood of sedimentation of same watercourses.
- The contractor must ensure that all vehicles and equipment are in a sound state of repair and do not leak hydrocarbons onto the ground beneath
- All existing roads must have suitable erosion containment measures in place.
- All residual material must be removed once no longer needed, to ensure they do not inhibit the restoration of ecological function to the area, especially in the buffer zones.

### Cumulative impact

None.

### 7.5.2 Visual impact

#### Description of the environment

The operation and maintenance of the fields could have a visual impact on the scenic views and sense of place immediately surrounding the sites.

Sense of place refers to a unique experience of an environment by a user, based on his or her cognitive experience of the place. Visual criteria and specifically the visual character of an area (informed by a combination of aspects such as topography, level of development, vegetation, noteworthy features, cultural / historical features, current landuse, etc...) play a significant role.

A visual impact on the sense of place is one that alters the visual landscape to such an extent that the user experiences the environment differently, and more specifically, in a less appealing or less positive light.

The most noteworthy aspect is the presence of open farm land, undeveloped and natural bush.

**Table 30: Visual Impact**

	Preferred Layout	
	Without mitigation	With mitigation
<b>Extent</b>	Local	Local
<b>Magnitude</b>	Medium (-)	Low (-)
<b>Duration</b>	Short term	Short term
<b>Significance</b>	Low (-)	Medium (+)
<b>Probability</b>	Probable	Unlikely
<b>Confidence</b>	Sure	
<b>Reversibility</b>	Irreversible	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

#### Impact assessment

The anticipated visual impact of maintaining the macadamia trees (due to the natural surroundings on the property) on the visual character of the landscape is expected to be of **low** significance and may be mitigated to **medium positive**.

### Mitigation measures

- In terms of screening, all existing vegetation on the periphery of the site is to be maintained as a visual buffer. This should be a minimum of 20 meters.
- This visual buffer zone must systematically have alien species removed and the natural vegetation remaining should be augmented with additional indigenous species.
- In terms of all infrastructure, it is recommended the access road and all structures be planned so that the unnecessary clearing of vegetation is avoided. This implies making use of already disturbed sites rather than pristine areas wherever possible and avoiding large tree specimens and dense established vegetation areas.
- Mitigation of visual impacts associated with the clearing, albeit temporary, entails proper planning, management and rehabilitation. In addition, it is vital that vegetation is not unnecessarily cleared or removed.
- The fields and processing plant must be maintained in a neat and visually acceptable state throughout the operational life.

### Cumulative impact

None.

### 7.5.3 Use of pesticides

#### Description of the environment

The area in which the proposed activities are to be situated, falls within a Conservation Biodiversity Area and is surrounded by relatively intact vegetation and functional wetlands. This habitat in turn plays host to a plethora of fauna and flora including insects, birds and fish.

Crops must be protected against unwanted consumption by fauna. Possible risk of loss of crops to disease must also be minimised.

It is normal practice to control possible crop damage by utilising pesticides.

**Table 31: Use of pesticides**

	Preferred Layout	
	Without mitigation	With mitigation
<b>Extent</b>	<b>Site</b>	<b>Site</b>
<b>Magnitude</b>	<b>Low (-)</b>	<b>Very Low (-)</b>
<b>Duration</b>	<b>Short term</b>	<b>Short term</b>
<b>Significance</b>	<b>Medium (-)</b>	<b>Low (-)</b>
<b>Probability</b>	<b>Possible</b>	<b>Unlikely</b>
<b>Confidence</b>	<b>Sure</b>	
<b>Reversibility</b>	<b>Irreversible</b>	

**Significance: positive impacts indicated by no shading & (+), negative impacts indicated by shading & (-)**

### Impact assessment

Pesticides are widely used to control the growth and proliferation of undesirable organisms that, if left unchecked, would cause significant damage to forests, crops, stored food products, ornamental and landscape plants, and building structures. The use of pesticides in both agricultural and non-agricultural settings provides important benefits to society, contributing to an abundant supply of food and fibre and to the control of a variety of public health hazards and nuisance pests.

Owing to the fact that they are designed to be biologically active, pesticides have potential to cause undesirable side effects. These include adverse effects on workers, consumers, community health and safety, groundwater, surface waters, and non-target wildlife organisms. In addition, pesticide use raises concerns about the persistence and accumulation of pesticides in food chains quite distant from the original point of use, and about the role of certain pesticides in causing reproductive failure

and endocrine system abnormalities in both wildlife and humans and other species that are not their intended target. It is therefore, important to control the use of pesticides, by carefully weighing the benefits that they confer against any possible adverse effects.

The relatively small scale and given that all mitigation measures as indicated below, are implemented it is expected that the significance of this impact will **low**.

## Mitigation measures

### General Mitigation:

- Chemical control of pests on Montrose
- may not take the form of pesticides that pose unmanageable risk such as:
  - Those containing Endocrine Disrupting Properties (EDP),
  - Those containing Persistent Organic Pollutants (POPs),
  - Those containing carcinogenic and immunotoxic potential,
  - Those containing formulations classified by WHO as Extremely Hazardous (class 1a) and Highly Hazardous (class 1b), as well as
  - Pesticides associated with frequent and severe poisoning incidents.
- To maintain healthy populations of natural enemies and pollinators, use pesticides sparingly and in accordance with the label and local regulations. Also consider these general guidelines for pesticide applications:
  - Choose selective pesticides
  - Identify the pest, and use resources available to determine which pesticides will specifically control that pest. Avoid broad-spectrum insecticides such as organophosphates, carbonates, and pyrethroids, which indiscriminately kill everything. Also avoid broad-spectrum herbicides, which reduce floral plants that attract pollinators.
  - Choose nonpersistent pesticides
  - Some pesticides leave residues that kill natural enemies and pollinators long after the initial application (residual toxicity); in addition to immediately killing them (contact toxicity).
  - Choose less harmful formulations
  - Generally, dusts, powders, and microencapsulated pesticides are the most harmful to honey bees, and aerial spraying is the most hazardous method of application. Liquid solutions and granules are the least detrimental to pollinators.
  - Spot-treat
- Targeting your application to specific areas where the pest is a problem will reduce the harm to natural enemies and pollinators.
  - Time applications
- To protect pollinators and other fauna, avoid spraying when flowers are in bloom. Apply pesticides during the evening or early morning when pollinators are less active. Do not apply when temperatures will be especially low or when dew is expected. Risk of pesticide toxicity is prolonged under these conditions since residues remain on plants longer.
- Consider water management practices that reduce pesticide movement off-site
- Consult relevant publications.
- Consider practices that reduce air quality problems:
  - When possible, reduce volatile organic compound (VOC) emissions by decreasing the amount of pesticide applied, choosing low-emission management methods, and avoiding emulsifiable concentrate (EC) formulations.
- Protection of water quality:
  - Include instituting buffer zones, restricting aerial spraying in a certain proximity to surface water bodies.
- Food Safety:
  - Ensure that pesticides are properly labelled, and the producers apply those pesticides in accordance with the label. To ensure compliance with relevant legislation.

- Worker Protection:
  - The Occupational Health and Safety Act (OHSA). 1993 (Act No. 85 of 1993) regulates health and safety at the workplace for all workers. This Act places the onus on employers to maintain a safe workplace. The regulation makes provision for various mandatory safety measures to protect the health of workers handling hazardous chemicals, such as risk assessment, safety training, safe practices and medical, biological and environmental monitoring of all workplaces.
- Pesticide disposal and container management
  - South Africa has enacted several laws in an attempt to ensure that toxic wastes are disposed of without becoming a danger to people or the environment. This legislation includes the Hazardous Substance Act, 1973 (Act No. 15 of 1973), the Environmental Conservation Act, 1989 (Act 73 of 1989), the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), and the National Environmental Management Act, 1998 (Act 107 of 1998).

#### Specific Mitigation:

- Before an application:
  - Ensure that spray equipment is properly calibrated to deliver the desired pesticide amount for optimal coverage.
  - Use appropriate spray nozzles and pressure to minimize off-site movement of pesticides.
  - Avoid spraying during these conditions:
    - Wind speed over 8 km/h
    - Temperature inversions
    - Just prior to rain or irrigation (unless it is specifically recommended, as when incorporating a soil-applied pesticide)
    - At tractor speeds over 3 km/h
  - Identify and take special care to protect sensitive areas (for example, waterways or riparian areas) surrounding your application site.
  - Review and follow labelling for pesticide handling, personal protection equipment (PPE) requirements, storage, and disposal guidelines.
  - Check and follow restricted-entry intervals (REI) and preharvest intervals (PHI).
- After an application:
  - Record application date, product used, rate, and location of application.
  - Follow up to confirm that treatment was effective.

#### Cumulative impact

The increase in the number of areas planted to macadamia or any other crop and the necessity to control pests that affect the success of these crops, could lead to the increased utilisation of pesticides. This in turn could lead to possible negative impacts on the fauna surrounding the fields. However, the wise and judicious use of chemicals to control pests as well as the implementation of mitigatory measures listed above would reduce the significance of this impact to **LOW**.



## 7.7 Final Conclusions and Recommendations

The essence of all EIA processes is aimed at ensuring informed decision-making and environmental accountability. Furthermore, it assists in achieving environmentally sound and sustainable development. In terms of NEMA (No 107 of 1998), the commitment to sustainable development is evident in the provision that “development must be socially, environmentally and economically sustainable and requires the consideration of all relevant factors. In addition, the preventative principle is required to be applied, i.e. that the disturbance of ecosystems and loss of biological diversity are to be “...avoided, or ... minimised and remedied” and “disturbance of the landscape and the nation’s cultural heritage is avoided and where it cannot be altogether avoided is minimised and remedied”. Therefore, negative impacts on the environment and on people’s environmental rights in terms of the Constitution (Act 108 of 1996)) should be anticipated and prevented, and where they cannot be altogether prevented, they must be minimised and remedied in terms of “reasonable measures”. “Reasonable measures” implies that “every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law and cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment”.

### 7.7.1 Conclusions

The preceding chapters provide a detailed assessment of the anticipated environmental impacts on specific components of the biophysical and social environments associated with the proposed development and operation of the processing plant and macadamia plantation. This FBAR has provided a comprehensive assessment of the potential environmental impacts, identified by the EIA team and I&AP’s, associated with the proposed project. **This investigation has not identified any potential impacts on the biophysical or social environments that are so severe as to suggest that the proposed activity should not proceed.** The design has taken cognisance of the various environmental considerations and accordingly, incorporates remedial measures aimed at curtailing the significance of the potential negative environmental impacts associated with the proposed development, as well as enhancing the potential positive environmental (including Socio-economic) impacts.

The significance of the potential environmental (biophysical and social) impacts associated with the proposed macadamia plantation are summarised in Table 32.

It should be noted that the impacts have been assessed with a reasonable amount of confidence, i.e. in terms of the defined confidence ratings presented in Table 16.

From Table 32 it is apparent that there is **no** long term or operational phase impacts of significant concern. The negative impacts associated with the operational phase are likely to be of **medium** to **low** significance, particularly if the proposed mitigation measures are implemented. Moreover, there are a number of potential positive impacts associated with the proposed development, viz., the creation of positive construction and operational phase impacts on employment.

With regards to the short term or construction phase impacts, the significance of the construction phase impacts are likely to be curtailed by the relatively short duration of the construction phase. Moreover, many of the construction phase impacts could be mitigated by the effective implementation of the mitigation measures outlined above. If these measures were put into practice the significance of all construction phase impacts would be reduced to **low**. While the probability of the construction phase impacts occurring is relatively high without mitigation, the effective implementation of the mitigation measures will reduce the probability of the impacts occurring.

Table 32: Summary of the significance and probability of the potential positive and negative impacts associated with the proposed development.

Ref. (Pg)	Description of impact	Significance of Impact	
		Without Mitigation	With Mitigation
<b>Construction Phase Impacts</b>			
50	Fauna and Flora	Medium (-)	Low (-)
53	Aquatic Ecosystems	Medium (-)	Low (-)
54	Historical	Low (-)	Low (-)
55	Loss of Topsoil and Soil Erosion (Hydrological)	Medium (-)	Low (-)
56	Ground and Surface Water Impact	Medium (-)	Low (-)
57	Noise Pollution	Medium (-)	Low (-)
58	Visual Impact	Medium (-)	Low (-)
59	Employment Opportunities	Low (+)	High (+)

Ref. (Pg)	Description of impact	Significance of Impact	
		Without Mitigation	With Mitigation
<b>Operational Phase Impacts</b>			
61	Stormwater Management	Moderate (-)	Low (-)
62	Visual Impact – “Sense of Place”	Low (-)	Medium (+)
59	Use of pesticides	Medium (-)	Low (-)

*It is felt that the proposed agriculture will have no detrimental negative impact on the environment and should the necessary mitigation measures be implemented there are no impacts envisaged of high significance or any fatal flaws.*

*In this regard, the EAP sees no reason as to why the proposed activity may not be authorised.*

## 7.6.2 Recommendations and Environmental Impact Statement

Should the proposed activity be authorised, the most important mitigation measures, which should be stipulated as requirements in any authorisation include the following:

- The Construction Phase EMPr that addresses, *inter alia*, the issues discussed under Construction Phase impacts, viz. Ecological sensitivity, erosion and sedimentation, deterioration of water quality, heritage impact, noise disturbance and socio-economic impacts, traffic, windblown dust, litter/waste and safety should be effectively implemented for the duration of the project.
- A suitably qualified professional should be appointed to act as the ECO and oversee the implementation of the EMPr during construction.
- In terms of screening, all existing vegetation on the periphery of the site is to be maintained as a visual buffer.
- Clearing and planting activities must strictly adhere to the approved & demarcated footprints. In this regard:
  - The Riparian Forest Community must be designated as a zone of “no Development”.
- In terms of screening, all existing vegetation on the periphery of the site is to be maintained as a visual buffer. This should be a minimum of 20 meters.
- If any human remains are discovered during earth moving activities, excavations must stop at the location of these findings and these must be treated with respect. The South African Heritage Resources Agency must be notified immediately. An archaeologist may be required to remove the remains at the expense of the developer.
- Effective design of all stormwater outlet areas to prevent erosion and flooding at the point of discharge and immediately downstream.
- Appropriate landscaping and rehabilitation of indigenous vegetation should be included in the development of the site.
- Construction should be planned so that the unnecessary clearing of vegetation is avoided.
- Measures are taken to ensure that personnel and the general public are safe at all times.

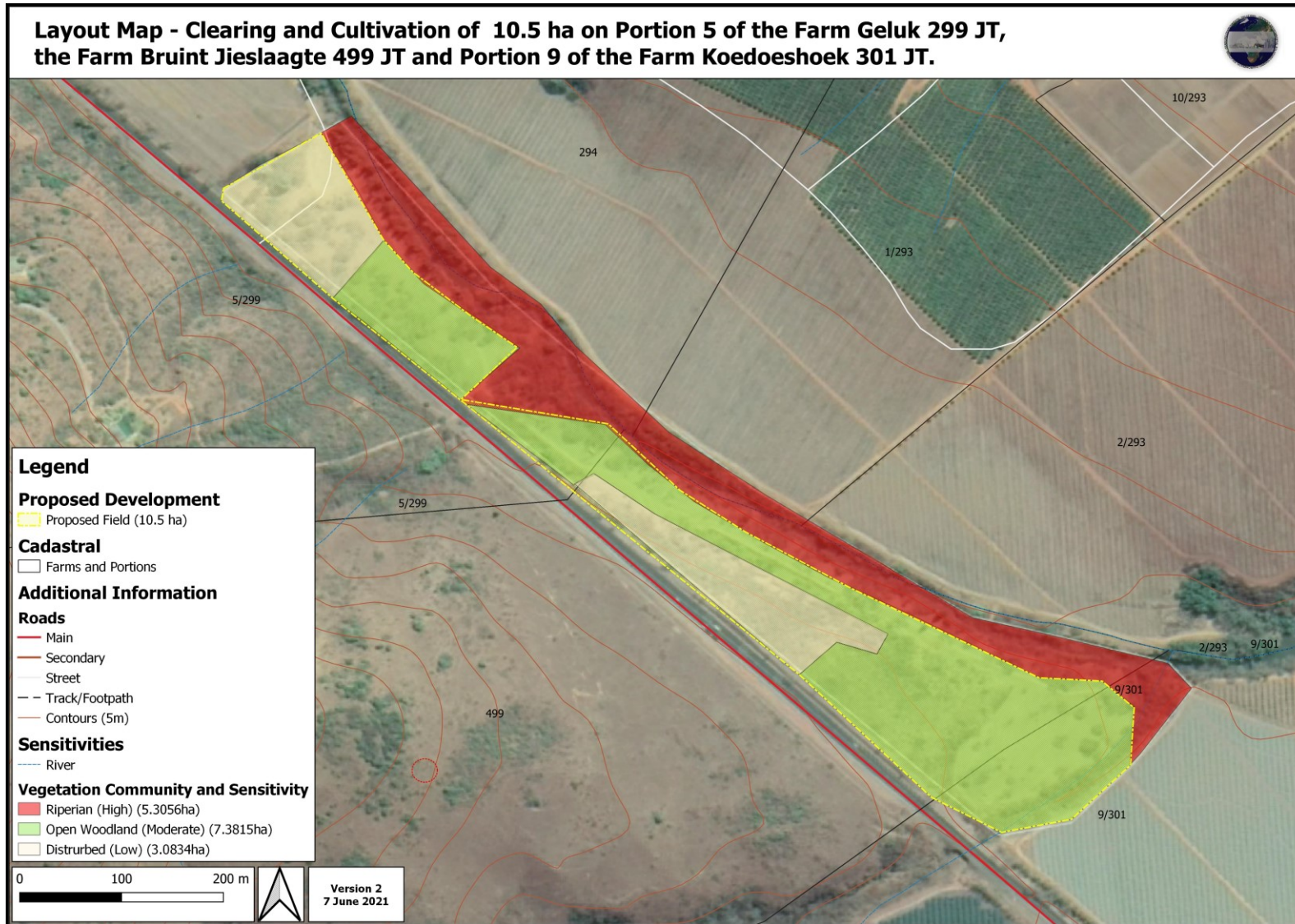


Figure 11: Sensitivity Map



## 8 The way forward

The competent environmental authority (i.e. DARDLEA) will review the final BAR and decide whether or not to grant authorisation.

Once DARDLEA has reviewed the Final BAR they will either issue a Record of Decision based on the information contained in the Final BAR or indicate that further information is required in order to make an informed decision with regard to the proposed activities. If a Record of Decision is issued, this would be communicated by means of letters to all identified I&AP's. Following the issuing of the Record of Decision, there will be a 10-day notice of intent to appeal period, followed by a 30-day appeal period within which I&AP's will have an opportunity to appeal against DARDLEA's decision to the Provincial MEC for Environmental Affairs and Development Planning in terms of the National Environmental Management Act.

## 9 References

- ALTENKIRK, M (2021) Geluk, Koedoeshoek And Bruint Jieslaagte Terrestrial Ecological Assessment.
- CILIER, JP (2017) Phase 1 Archaeological and Heritage Impact Assessment on on Portion 5 of the Farm Geluk 299 JT, the Farm Bruint Jieslaagte 499 JT and Portion 9 of the Farm Koedoeshoek 301 JT.
- DEAT (2006a) *Guideline 3: General Guide to the Environmental Impact Assessment Regulations, 2006, Integrated Environmental Management Guideline Series*. National Department of Environmental Affairs and Tourism (DEAT), Pretoria.
- DEAT (2006b) *Guideline 5: Assessment of Alternatives and Impacts in Support of the Environmental Impact Assessment Regulations, 2006, Integrated Environmental Management Guideline Series*. National Department of Environmental Affairs and Tourism (DEAT), Pretoria.
- KEATIMILWE, K. & ASHTON, P.J. (2005) *Guideline for the review of specialist input in the EIA process*. Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning (DEA&DP), Cape Town.
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- MÜNSTER, F. 2005. (2005) *Guideline for determining the scope of specialist involvement in the EIA process*. Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning (DEA&DP), Cape Town.
- OBERHOLZER, B. (2005) *Guideline for involving visual and aesthetic specialists in the EIA process*. Provincial Government of the Western Cape, Department of Environmental Affairs and Development Planning (DEA&DP), Cape Town.
- PALMER, R (2018), Aquatic Ecosystem Assessment and Rehabilitation Plan Associated with Unauthorised Cultivation of Eighteen Fields in Schoemanskloof, 2nd October 2018

## 10 Assumptions, Uncertainties and Gaps in Knowledge

In undertaking this investigation and compiling the EIA Report, the following has been assumed:

- The information provided by the applicant is accurate and unbiased.
- The scope of this investigation is limited to assessing the environmental impacts associated with the proposed development and associated infrastructure.

## 11 Representations and Comments

**Table 33: Comment and Response Report**

<p><b>Khumbelo Malele/Johan Eksteen (MTPA)</b></p>	<p>Lionel Eva (FJ Joubert &amp; Seuns) (Pty) is proposing to clear approximately 10.5 hectares of indigenous vegetation to establish an agricultural area for macadamia farming activities on the proposed footprint</p>	<p><b>Steven Henwood (EAP)</b></p>	<p>Noted.</p>
<p><b>Khumbelo Malele/Johan Eksteen (MTPA)</b></p>	<p>The terrestrial and freshwater sensitivity of the above farm in which the proposed activity is likely to occur was assessed using the Mpumalanga Biodiversity Sector Plan (MBSP, MTPA.2014). This sensitivity is assessed in terms of terrestrial and freshwater assessments. In the MBSP, sensitive areas are identified in terms of Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs). CBAs and ESAs are deemed to be necessary to ensure protection of biodiversity, environmental sustainability, and human well-being, and are to remain unaltered.</p>	<p><b>Steven Henwood (EAP)</b></p>	<p>Noted.</p>
<p><b>Khumbelo Malele/Johan Eksteen (MTPA)</b></p>	<p>According to the MBSP based terrestrial assessment map (Fig. 1), the proposed agricultural area is within the CBA irreplaceable and some of the proposed areas are within the 5km ESA-protected area buffer of</p>	<p><b>Steven Henwood (EAP)</b></p>	<p>Noted.</p>



	<p>Wonderkloof Nature Reserve. Although there are CBA areas within the proposed area of development, the site assessment and biodiversity mapping of the layout has excluded the riparian zone of high biodiversity and ecosystem value. The areas that will be cleared will be those that are fragmented, infested with alien invasive species and impacted by anthropogenic impacts. These areas are found favourable by the MTPA</p>		
<p><b>Khumbelo Malele/Johan Eksteen (MTPA)</b></p>	<p>According to the MBSP based freshwater assessment map (Fig. 2), the proposed agricultural area is within the ESA Strategic Water Source area and the ESA Important sub-catchment area.</p>	<p><b>Steven Henwood (EAP)</b></p>	<p>Noted.</p>

<p><b>Khumbelo Malele/Johan Eksteen (MTPA)</b></p>	<p>Recommendations</p> <ul style="list-style-type: none"> <li>• The clearance of vegetation must be limited to the site level, there should be no unnecessary loss of vegetation.</li> <li>• All declared alien plants must be identified and managed under the Conservation of the Agricultural Resource Act, 1983 (Act no 43 of 1983).</li> <li>• Stringent alien invasive eradication plan must be in place to avoid the prevalence of alien invasive species; all disturbed areas must be rehabilitated as soon as possible.</li> <li>• A storm water management plan must be established to reduce or prevent storm water run-offs as well as the sedimentation of</li> </ul>	<p><b>Steven Henwood (EAP)</b></p>	<ul style="list-style-type: none"> <li>• Clearance will be limited to the site as per the application. No further areas may be cleared without prior authorisation. All areas to be cleared will be clearly demarcated.</li> <li>• Noted. There is currently an alien plant control programme in progress on the farm. This will be further strengthened by implementation of the EMPr.</li> <li>• Noted as above.</li> <li>• Noted. This has been included as an addendum to the EMPr.</li> <li>• Noted. MTPSA are in support of the application.</li> </ul>
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	<p>freshwater systems.</p> <ul style="list-style-type: none"> <li>• The MTPA has no objection to the proposed clearing of vegetation for the cultivation of approximately 10.5 ha on the proposed development areas. The implementation of the proposed mitigations will result in the activity having a low negative impact on the surrounding environment</li> </ul>		
<p><b>Thokozile Sithole (DARDLEA)</b></p>	<p>Please clarify why a soil analysis was not conducted for the proposed development. You are reminded that this Department will not consider authorising the removal of indigenous vegetation from land that is not arable</p>	<p><b>Steven Henwood (EAP)</b></p>	<p>Apologies this was an oversight. A soil analysis was conducted for the application site and soils have been assessed as being suitable for agriculture. See page 22 and Appendix D Annexure F of the FBAR in this regard.</p>
<p><b>Thokozile Sithole (DARDLEA)</b></p>	<p>Please clarify the threshold of the indigenous vegetation that will be cleared (Page 11 makes reference to 9.2ha and elsewhere in the BAR, 10.5ha is referred to), whereas the Terrestrial Ecology Study states that the Open Woodland vegetation type comprises 5ha and the Disturbed Zone is 3.5ha, bringing the total area to be cleared to 8.5ha.</p>	<p><b>Steven Henwood (EAP)</b></p>	<p>The total area to be cleared and planted is <b>10.5 ha</b> the reference to 9.2 ha was erroneous and has been changed.</p> <p>The terrestrial ecology report has been amended to record the exact sizes of the vegetation units and not estimates.</p> <p>In finality and according to the EAP's GIS Mapping calculations the following vegetation areas are applicable:</p> <ol style="list-style-type: none"> <li>1. <b><u>Senegalia ataxacantha – Panicum maximum tall, closed thicket (Riparian zone) – 53056 m<sup>2</sup> (5.3056 ha)</u></b></li> <li>2. <b><u>Vachillia erioloba– Panicum maximum open woodland 73815 m<sup>2</sup> (7.3815 ha)</u></b></li> <li>3. <b><u>Disturbed / existing infrastructure - 30834 m<sup>2</sup> (3.0834 ha)</u></b></li> </ol> <p>The layout and sensitivity map has been updated accordingly.</p>

<p><b>Thokozile Sithole (DARDLEA)</b></p>	<p>Please be advised that this province does not yet have a bioregional plan in place. Activity 12(f)(ii) of LN3 is therefore not applicable.</p>	<p><b>Steven Henwood (EAP)</b></p>	<p>Noted. This activity has been removed from the list of activities applied for.</p>
<p><b>Thokozile Sithole (DARDLEA)</b></p>	<p>The applicant must demonstrate that water is available at the required capacity for irrigation purposes. You must confirm whether the water allocation is currently fully utilized, or whether the allocation can accommodate new uses.</p>		<p><b><u>Note a total of 8000m<sup>3</sup> per Ha per year water rights has been allocated. This equates to a total of 110,5 ha that may be cultivated and watered. Of this a total of 60,4 ha have been cultivated to date. This leaves a surplus of 50,1 ha that may still be planted and irrigated from the current allocation. ★★</u></b></p> <p>See water balance on page 33 of the FBAR.</p>
<p><b>Thokozile Sithole (DARDLEA)</b></p>	<p>The final basic assessment report must provide proof that all potential and registered I&amp;APs, including organs of state, were provided with access to and an opportunity to comment on the draft BAR following submission of the application form, as per the requirements of Regulation 40(3).</p>		<p>Noted. See the ppp section and Appendix E for proof.</p>
<p><b>Thokozile Sithole (DARDLEA)</b></p>	<p>The final basic assessment report must include an issues and responses report, as well as copies and responses to comments received from all I&amp;APs, including these comments.</p>		<p>Noted. See above as well as the ppp section and Appendix E for proof.</p>

## 12 Specific Information

To date no other specific information was required by the Mpumalanga Department of Economic Development, Environment and Tourism.

## 13 Matters Required in terms of sections 24(4)(a) and (b) of the Act

None

**SECTION F: APPENDICES****APPENDIX A: SITE PLAN(S)**

- Annexure A: Locality Map
- Annexure B: Preferred layout including onsite sensitivities.

**APPENDIX B: SITE PHOTOGRAPHS**

- Annexure A: Site photos

**APPENDIX C: FACILITY ILLUSTRATION(S)****APPENDIX D: SPECIALIST REPORTS**

- Annexure A: Wetland Delineation and Risk Assessment
- Annexure B: Ecological Sensitivity Assessment
- Annexure D: Historical Impact Assessment
- Annexure E: Palaeontological Report
- Annexure F: Soil Sample

**APPENDIX E: PUBLIC PARTICIPATION PROCESS**

- Annexure A: Site notice text
- Annexure B: Proof of displayed notice boards
- Annexure C: Background Information Document (BID) text
- Annexure D: Proof of given Background Information Document (BID) and DBAR.
- Annexure E: Advertisement text
- Annexure F: Proof of placed advertisement
- Annexure G: Letter of notification of EIA
- Annexure H: Proof of given Letter of notification.
- Annexure I: List of registered Interested and Affected Parties (I&AP's)
- Annexure J: Comments and responses

**APPENDIX F: OTHER**

- Annexure A: Draft Environmental Management Programme
- Annexure C: Curriculum Vitae of EAP
- Annexure D: Declaration by EAP.