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# SCOPING AND ENVIRONMENTAL IMPACT ASSESSMENT:

**Langbos Citrus, Sundays River Valley Municipality**

**(DEDEAT Reference Number: EC06/C/LN2/M/51-2014)**

# FINAL ENVIRONMENTAL IMPACT ASSESSMENT REPORT

**February 2017**



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<i>Title:</i>	Final Environmental Impact Assessment Report, Langbos Citrus, Sundays River Valley Municipality (DEDEAT Reference Number: <b>EC06/C/LN2/M/51-2014</b> )
<i>Purpose of this report:</i>	<p>The Environmental Impact Assessment Report forms part of a series of reports and information sources that are being provided during the Environmental Impact Assessment (EIA) process for the proposed agricultural development of Langbos Citrus, approximately 255 ha, in the Sundays River Valley Municipality. In accordance with the EIA Regulations, the purpose of the Final EIA Report is to:</p> <ul style="list-style-type: none"> <li>• Provide a description of the proposed project, including a sufficient level of detail to enable stakeholders to raise issues and concerns;</li> <li>• Describe the local planning context and environment within which the project is proposed, to assist further in identifying issues and concerns;</li> <li>• Provide an overview of the process being followed in the EIA Phase, particularly the public participation process;</li> <li>• Present the issues and concerns identified to date from the stakeholder engagement process, together with an explanation of how these issues will be addressed through the EIA process.</li> </ul> <p>The Final EIA Report will be submitted to the Department of Economic Development, Environmental Affairs and Tourism for their decision making.</p>
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<i>Date:</i>	February 2017
<i>To be cited as:</i>	Wren S, Jacoby, M and Grobbelaar Z, 2017. Scoping and Environmental Impact Assessment – Langbos Citrus, Sundays River Valley Municipality. (DEDEAT Reference Number: EC06/C/LN2/M/51-2014), Final Environmental Impact Report.

## KEY CHANGES FROM THE DRAFT EIA REPORT TO THE FINAL EIA REPORT

As per the correspondence from the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT), dated 7 October 2014, amendments to the Final Report and associated Appendices that may differ to those addressed in the Draft Report and associated Appendices, must be clearly highlighted in the context of the report. These changes are outlined in the table below and are indicated in the body of the report by means of underlining.

General changes from the Draft EIA Report to the Final EIA Report e.g. Draft Report to Final Report and date changes, have **not been indicated with underlining**. These changes have been made to all relevant Sections, Chapters and Appendices of the Final EIA report.

SECTION	CHANGES
Executive Summary	<ul style="list-style-type: none"> <li>• Page ii – update on acknowledgement of receipt received from DEDEAT</li> <li>• Page ii – update on 21-day comment period to be provided on Final EIA Report</li> </ul>
Chapter 1	<ul style="list-style-type: none"> <li>• Page 1.5 – proximity of the entrance to Addo Elephant National Park to the boundary of the property assessed and the proposed development footprint</li> <li>• Page 1.6 – details regarding comment and review period of Draft EIA Report</li> <li>• Page 1.6 – Correction to table 1.1</li> <li>• Page 1.8 – details regarding comment and review period of Draft EIA Report</li> <li>• Page 1.8 – updated table 1.2</li> <li>• Page 1.13 – updated table 1.3 with reference to interaction with Eskom and SANParks</li> </ul>
Chapter 2	<ul style="list-style-type: none"> <li>• Page 2.6 – correction to photo 2.1 caption</li> </ul>
Chapter 3	<ul style="list-style-type: none"> <li>• Page 3.2 – proximity of the entrance to Addo Elephant National Park to the boundary of the property assessed and the proposed development footprint</li> </ul>
Chapter 4	<ul style="list-style-type: none"> <li>• Page 4.2 – update regarding release of Draft EIA Report for comment period</li> <li>• Page 4.11 – updated table 4.2</li> <li>• Page 4.12 – correction to table 4.3</li> <li>• Page 4.13 – update regarding release of Draft EIA Report for comment period</li> <li>• Page 4.13 – heading 4.3.3 changed to “Consultation with Authorities” and new sub-headings added</li> <li>• Page 4.13 and 4.14 – update on interaction with Eskom and SANParks</li> <li>• Page 4.14 – update regarding release of Draft EIA Report for comment period</li> <li>• Page 4.15 – authority consultation updated</li> <li>• Page 4.15 – update on comments received during the Draft EIA comment period and changes to the I&amp;AP database</li> <li>• Page 4.16 – summary of issues raised prior to the review of the Draft EIA and during the review of the Draft EIA</li> <li>• Page 4.23 to 4.27 – update to Comments and Responses Trail</li> </ul>
Chapter 5	<ul style="list-style-type: none"> <li>• Page 5.3 to 5.4 – elaboration on agricultural development of only historically transformed areas vs. including portions of untransformed areas</li> <li>• Page 5.7 – Map 5.4 (planting plan only) replaced with planting plan overlaid onto google earth image</li> </ul>
Chapter 11	<ul style="list-style-type: none"> <li>• Page 11.11 - elaboration on agricultural development of only historically transformed areas vs. including portions of untransformed areas</li> </ul>
Appendix B	<ul style="list-style-type: none"> <li>• Included cover letter for the submission of the Draft EIA Report for review</li> <li>• Included acknowledgment of receipt of the Draft EIA Report from DEDEAT</li> </ul>
Appendix C	<ul style="list-style-type: none"> <li>• Included letter to I&amp;APs: notification of Draft EIA Report comment period including comment form and executive summary of Draft EIA Report.</li> <li>• Included proof of correspondence: email to I&amp;APs – notification of Draft EIA Report comment period</li> <li>• Included copies of correspondence to SANParks</li> </ul>
Appendix D	<ul style="list-style-type: none"> <li>• Included copies of correspondence received from I&amp;APs during the Draft EIA Report comment and review period</li> <li>• Included copies of email correspondence from Eskom</li> </ul>
Appendix E	<ul style="list-style-type: none"> <li>• Included the updated I&amp;AP Project Database, as well as Juristic Organs of State/ State Departments, for the Final EIA Report.</li> </ul>
Appendix G	<ul style="list-style-type: none"> <li>• Corrected specialist declaration for Dr Almond</li> </ul>
Appendix I	<ul style="list-style-type: none"> <li>• Included proposed development plan</li> </ul>
Draft CEMPr	<ul style="list-style-type: none"> <li>• Included mitigation measures for Eskom infrastructure</li> </ul>

## **Executive Summary**

### **PROJECT BACKGROUND AND OVERVIEW**

The applicant, BF Joubert Familie Trust, is proposing to clear approximately 255 ha of vegetation for the phased establishment of citrus orchards and associated activities on three adjoining properties, which measure approximately 586,13 hectares in extent, namely:

- Portion 343 Commando Kraal No 113 (71.29 ha)
- Portion 276 of Farm Commando Kraal No 113 (350.37 ha) and
- Remainder of the Farm Vellore Outspan No 153 (164.47 ha)

The proposed agricultural development will include the establishment of approximately 220ha of citrus orchards and 35ha of associated infrastructure (internal roads, dam and water supply infrastructure, lay-down areas and windbreaks) totaling a development area of approximately 255 ha. The proposed vegetation clearing associated with the proposed agricultural development is proposed to be undertaken in three phases as follows:

- Phase 1: Clearance of ~37ha of vegetation on Portion 343 of Farm 113 for the establishment of ~34ha of citrus orchards.
- Phase 2: Clearance of ~94ha of vegetation on Portion 276 of Farm 113 for the establishment of ~82ha of citrus orchards.
- Phase 3: Clearance of ~113ha of vegetation on Portion 276 of Farm 113 for the establishment of ~104ha of citrus orchards.

The orchard development area is therefore proposed to be approximately 244ha. This will include areas required for roads, windbreaks and lay-down areas. An additional approximately 11ha will be required for the establishment of the dam and associated irrigation infrastructure as well as the Logistical Services area and associated infrastructure (access road, turning circle etc). Thus, the total development footprint is anticipated to be approximately 255ha.

The applicant proposes to construct a dam with a total capacity of ~50 000m<sup>3</sup> and a footprint of approximately 2.24ha (140m x 160m x 2.2m) on Portion 343 of Farm 113 in parallel with the vegetation clearing associated with Phase 1. The dam is proposed to be located adjacent to the existing manager's house and storage shed, in an area which is currently planted with lucerne.

The project will also include the construction of a logistical services/ handling area of approximately 4 200m<sup>2</sup>. This will consist of a storage shed/s for the storage of tractor trailers, chemicals, and an administration/ office area, the total building dimensions of which will be approximately 30m x 25m (750m<sup>2</sup>) as well as a suitably surfaced/paved area which is required for delivery and collection of products via tractor-trailer and trucks, associated with the agricultural activities (plastic crates, wooden pallets, collection of citrus). Associated infrastructure includes water, sanitation and effluent management.

In terms of the National Environmental Management Act (Act no 107 of 1998), as amended (NEMAA), and the NEMA EIA regulations, 2010 published in Government Notice R 543, 544, 545 and 546 on the 18 June 2010 in Government Gazette 33306 (as amended), the project requires full Scoping and Environmental Impact Assessment prior to the commencement of any activities on the site. As per the Transitional Arrangements of the 2014 EIA Regulations, Chapter Four of the EIA Report lists activities in the 2010 regulations similarly listed in the 2014 regulations, as well as any newly listed activities in terms of the 2014 EIA Regulations triggered by the project, which require assessment. The applicant appointed Public Process Consultants as the independent Environmental Assessment Practitioner (EAP) to undertake the Scoping and Environmental Impact Assessment for the project.

### **OVERVIEW OF THE EIA PROCESS AND PUBLIC PARTICIPATION**

This Final EIA was preceded by a comprehensive Scoping Process and the submission of a Final Scoping Report, including the Plan of Study for EIA, to the Provincial Department of Economic

Development, Environmental Affairs and Tourism (DEDEAT) on **16 September 2015**. Acceptance of the Scoping Report and Approval of the Plan of Study for EIA was received on **20 November 2015**, which marked the end of the Scoping phase of the EIA process. The project then moved into the impact assessment phase of the EIA. The key issues identified during the Scoping process, which have been the subject of separate specialist assessments during the EIA, are outlined below:

- Biophysical site assessment to include:
  - Identification and verification of Critical Biodiversity Areas on the site
  - Potential project related impacts on natural vegetation and faunal habitat need to be considered
  - The consideration of any potential impacts on the Addo Elephant National Park.
- A specialist Aquatic assessment in order to identify and delineate wetlands and watercourses on the site as well as provide appropriate no development buffers.
- A Desktop Palaeontological and Phase 1 Archaeological Impact Assessment are undertaken.
- A Traffic Impact Assessment to determine the best placement of the proposed development onto the R342.
- A Visual Impact Assessment to determine the visual impact (sense of place) of the proposed agricultural development on the Addo Elephant National Park.
- Soil suitability assessment to determine the suitability of the soil for citrus cultivation in order to provide input into the layout for citrus production.
- The determination of suitable buffers associated with:
  - The proximity of the site to Addo Elephant National Park and its buffer zone in order to maintain a sense of place as well as maintain biodiversity patterns and processes
  - Buffers required for Eskom servitudes and infrastructure (power lines and pylons)
  - Aquatic features on site
  - Conservation of vegetation types on site

The primary objective of this Final EIA Report is to present key stakeholders and affected organs of state an overview of the predicted impacts and associated management actions required to avoid or mitigate the negative impacts; or enhance the positive impacts of the project. The Draft EIA report was released for a 62 day I&AP review period to enable the authorities and I&APs to provide input and comment before the report is finalised and submitted to DEDEAT for their decision-making. The comment period for the Draft EIA extended from the **24 November 2016 to the 24 January 2017**. Acknowledgement of receipt of the submission of the Draft EIA to DEDEAT was received on the 29 November 2016.

A 21 day comment period is being provided on the Final EIA Report. All comments on the Final EIA report must be submitted directly to DEDEAT and a copy thereof is to be provided to Public Process Consultants. A copy of the Final EIA can be downloaded from the website [www.publicprocess.co.za](http://www.publicprocess.co.za)

## **ECOLOGICAL IMPACTS AND MITIGATION**

The key ecological impacts associated with the construction and operational phase of the development are as follows:

- Loss of vegetation due to clearing (biodiversity loss).
- Loss of Critical Biodiversity Area due to clearing (biodiversity loss).
- Loss of species of special concern due to clearing (biodiversity loss).
- Potential chemical pollution of surface and groundwater (hydrological processes and biodiversity loss).
- Potential sedimentation and erosional impacts on the drainage area / watercourse area (hydrological processes and biodiversity loss).
- Loss of watercourse and drainage areas with associated wetland habitat
- Loss of faunal Species of Special Concern due to vegetation clearing and poaching
- Destruction of faunal habitat

All these impacts can be reduced by implementing the mitigation and management recommendations found in Chapter Six of the EIA Report.

## Vegetation

The proposed clearing of vegetation for conversion to citrus orchards (Chapter Two) will result in the clearing of intact and degraded indigenous vegetation as well as a portion of historically modified vegetation. The loss of vegetation, subsequent faunal habitat and protected flora will be greatest where intact vegetation is present. The proposed development is anticipated to result in the clearing of approximately 255ha of vegetation in order to accommodate approximately 220ha of citrus and 35ha of associated infrastructure. Approximately 71ha (28%) of the area proposed for development is modified or degraded. The northern, western and southern boundaries of the three properties which form part of this assessment are adjacent to predominantly citrus orchards with small intact pockets of indigenous vegetation. An informal settlement is located adjacent to the southern boundary of Portion 343 Commando Kraal No 113.

Notwithstanding the above, vegetation in the less dense areas does provide important faunal habitat, as dense thicket tends to exclude many faunal species. A fauna and flora search and rescue operation must be conducted before and during vegetation clearing activities. Relevant permits will also be required before search and rescue can commence.

The total area which has been identified as “No-Go” for development totals approximately 280ha, the majority of which is intact indigenous vegetation (Sundays Spekboom Thicket).

The following recommendations are made with regards to the mitigation and management of impacts on vegetation:

- Adopt the Biodiversity No-Go Areas as indicated in Chapter Six (and expanded upon in Chapter Two).
- It is highly recommended that the north-eastern portion of Farm Vellore Outspan is protected either formally or informally, and that it is appropriately managed for this purpose.
- Plant indigenous windbreaks.
- Rehabilitation of disturbed areas post establishment with indigenous species
- Plant species of special concern (in particular, *Drimia altissima*) should be transplanted from the disturbance footprint to refuge areas on the site (e.g. remaining intact thicket).
- License applications to the Department of Economic Development, Environmental Affairs and Tourism and the Department of Agriculture, Forestry and Fisheries for the respective protected species.
- An alien plant control program should be implemented which ensures that all invasive exotic plants (Prickly Pear) must be removed from the site and alien plant control must take place on an ongoing basis.
- Areas indicated as No-Go must be demarcated prior to vegetation clearing and not disturbed during the vegetation clearing and site preparation phase

## Fauna

The applicant has indicated that the majority of the game on the farm will be captured and re-located to a farm in the Ikwezi Municipality (near Jansenville) prior to vegetation clearing and site preparation. Should some of the faunal species remain on the farm they will in all likelihood move off to undisturbed portions of the site as soon as site preparation commences.

The following provides recommendations for the management of impacts on fauna:

- Most of the remaining mobile fauna are expected to vacate the area that is to be developed once vegetation clearing and other site preparation activities commence and will seek refuge in intact natural or near-natural areas that are not proposed for transformation.
- Measures should be implemented to ensure that fauna on site are not harmed during site preparation or operational phase activities associated with the development, e.g. environmental induction process for construction personnel and / or farm workers.

- Removal of animals from the affected areas before the start of site clearing and relocating these to safe areas would be a valid mitigation option primarily in the case of tortoises and other slow-moving species which are unlikely to vacate the area as soon as vegetation clearing commences.
- Such species must be caught and released in the no-go areas.
- A professional reptile remover (with the necessary permits) needs to be contacted to remove dangerous reptiles when in conflict with the workers.
- Search and rescue operations before and during the site preparation phase will decrease the impacts considerably.

### **Biodiversity Patterns and Processes**

Most of the farm is classified as Critical Biodiversity Area. Ideally no CBA should be removed for citrus cultivation. Although the loss of CBA is considered MEIDUM in terms of extent of loss on the Farm, it is still classed as HIGH due to the importance of CBA in the larger landscape i.e. loss of CBA in one area means that other biodiversity target areas in the Sundays River Valley (SRV) should be classed as CBA to compensate for the loss of this target area. At this level of assessment, all existing and future land use changes in the SRV that have and will result in the loss of CBA cannot be determined.

However, it must be noted that portions of phase 2 cultivation area is highly modified, which is not considered to be CBA and therefore should not contribute to the loss of CBA in terms of biodiversity targets. If the entire northern portion is maintained as proposed, then approximately 57% of the existing Sundays Thicket on Farm Langbos will be conserved (Farm Vellore Outspan No 153). This significantly exceeds the biodiversity pattern targets of 18 % and 19 %.

The following provides recommendations for the management of impacts with regards to biodiversity patterns and processes:

- The compromise for the loss of remaining near-natural CBA is to adopt the Biodiversity No-Go Areas which ensures that the northern portions of the farm are maintained as near-natural cover for conservation purposes, which is higher than the biodiversity target for Sundays (Spekboom) Thicket.
- It is highly recommended that the north-eastern portion of Farm Vellore Outspan is conserved, and that it is appropriately managed for this purpose.
- No activities, inclusive of site preparation related pedestrian or vehicle traffic, should be allowed within wetlands and watercourses or any of the areas designated as No-go areas in Chapter Six of the EIA Report.
- Conservation of the northern half of the farm will ensure the continued maintenance of biodiversity and ecological corridors across the property and relative to the AENP.
- Drainage line / watercourse crossings may be required for the internal roads to service the citrus orchards, however, wherever possible existing vehicle tracks should be used and no other development (establishment of citrus orchards) should be allowed within the designated buffer areas.

### **Aquatic Features (artificial and natural)**

#### Wetlands

Thirteen waterbodies were mapped within the 500 m radius (or buffer) of the farm boundary and citrus expansion area. All were classified as artificial wetlands, four of which did not support wetland habitat.

#### Ephemeral Watercourses / Drainage Lines

A natural ephemeral drainage area lies along the central portion of the Farm Langbos, which originates at the northern boundary of Phase 3 cultivation area. The drainage area presented with a defined channel, which was extremely high and vertical in places, up to 2 m - 3 m, although no typical riparian or hydrophytes occurred along or within the channel. To the south of Phase 3, the drainage area was undefined and indiscernible in terms of species composition (riparian habitat) or geomorphology (no bank or channel structure present).

The following mitigation and management is recommended to protect the aquatic resources on site:

- Maintain 15 m aquatic buffers around the watercourse and associated dam wetland habitats.
- The 15 m buffer should commence from the top of the banks and/or steep slopes where the watercourse is defined, northwards of dam wetland habitat 3.
- The 15 m buffer should commence from the centre line where the watercourse is undefined, southwards of dam wetland habitat 3.
- Minimize the number of access tracks crossing the undefined drainage area, southwards of Phase 3. Possibly utilize the existing access tracks.
- The maintenance of natural indigenous vegetation in the northern portion of the site.
- Fertilizer applications should be used at the right time and at the required rates (i.e. excess fertilization can increase available nitrogen or phosphates entering aquatic features).
- Use of slow release nitrogen fertilizers are encouraged as this can improve nitrogen efficiency and reduce leaching of nitrogen.
- Chemicals and hazardous waste storage areas should be in storage buildings.
- Hazardous and chemical wastes (includes old containers) should be disposed of at registered landfill sites.
- Strict use and management of potential sources of chemical pollution (e.g. pesticides, fertilizers, hydrocarbons from vehicles and machinery, etc.) i.e. waste management procedures.
- Chemical application by the applicant via handgun and mist blowers should preferably not be undertaken during high wind periods.
- Plant indigenous windbreaks along the R334 boundary, which is adjacent to the Greater Addo Elephant National Park to minimize chemical drift.
- Compile and implement a stormwater and erosion control plan to prevent / mitigate alterations to watercourse processes and channels.
- Minimize the extent of bare soil, as far as practically feasible.

### Summary and Additional Recommendations

The following provides a summary of the key direct and indirect impacts associated with the development. Only impacts that are rated as having a potential *Medium to High or Very High* negative impact are listed below:

ENVIRONMENTAL IMPACT	DEVELOPMENT PHASE	PRE-MITIGATION	POST MITIGATION
Loss of vegetation due to clearing (biodiversity loss)	Establishment & Operational	MEDIUM	MEDIUM
Loss of Critical Biodiversity Area due to clearing (biodiversity loss)	Establishment & Operational	HIGH	HIGH
Loss of species of conservation/special concern due to clearing (biodiversity loss).	Establishment & Operational	MEDIUM	LOW
Potential chemical pollution of surface and groundwater (hydrological processes and biodiversity loss).	Establishment & Operational	MEDIUM	LOW
Potential loss of watercourse and dam wetlands (hydrological processes and biodiversity loss)	Establishment & Operational	HIGH	NO IMPACT
Loss of faunal Species of Special Concern due to vegetation clearing	Establishment	MEDIUM	LOW
Destruction of faunal habitat	Establishment	MEDIUM	LOW
Loss of faunal Species of Special Concern due to poaching	Establishment & Operational	MEDIUM	LOW

It is recommended that the following are included as conditions in the Environmental Authorisation:



- No-go areas for development (including aquatic and ecological buffer areas) must be demarcated on site before vegetation clearing commences.
- Any lay-down areas must be contained within the proposed disturbance area and may not encroach on any no-go areas on the site.
- Before site clearing commences the development area should be surveyed for plant SSC by a suitably qualified biophysical specialist. Plant species of special concern should be translocated to the remaining patches of intact vegetation or buffer areas on the property, or stored in a suitably prepared nursery area during the site preparation phase and used later in rehabilitation.
- Heavily degraded and transformed portions that fall within the No-go areas must be rehabilitated using the intact vegetation that is cleared during the site preparation phase.
- Exotic plants present on the site, which are listed in CARA (Conservation of Agricultural Resources Act 43 of 1983) should be progressively removed from the site. In addition, regular follow-up clearing should be conducted for the duration of the project lifetime to ensure that the No-go areas are kept free of these plants.

### **PALAEONTOLOGICAL IMPACTS AND MITIGATION**

The Langbos Citrus study area to the north of Addo lies in the Sundays River Valley and is underlain at depth by Early Cretaceous marine sediments of the Sundays River Formation (Uitenhage Group). This mudrock-dominated succession with subordinate sandstones has yielded rich fossil assemblages. However, in the low-lying areas that are earmarked for the proposed agricultural developments the Sundays River Formation is probably largely or entirely mantled by Pleistocene to Holocene alluvial soils that are, at most, very sparsely fossiliferous. Significant impacts on fossil heritage are therefore not anticipated here.

It is concluded that no further palaeontological heritage studies or specialist mitigation are required for this agricultural development project, *pending* the discovery or exposure of any substantial fossil remains (e.g. vertebrate bones and teeth, large blocks of petrified wood, marine shells) during the construction phase.

### **Recommendations**

- Should fossil remains be discovered during construction, these should be safeguarded (preferably in situ) and the ECO should alert the Eastern Cape Provincial Heritage Resources Authority (ECPHRA. Contact details: Mr Sello Mokhanya, 74 Alexander Road, King Williams Town 5600; Email: smokhanya@ecphra.org.zaso) so that appropriate mitigation (e.g. recording, sampling or collection) can be taken by a professional palaeontologist.
- The specialist involved would require a collection permit from SAHRA (Contact details: Mrs Colette Scheermeyer, P.O. Box 4637, Cape Town 8000; Tel: 021 462 4502; Email: cscheermeyer@sahra.org.za). Fossil material must be curated in an approved repository (e.g. museum or university collection) and all fieldwork and reports should meet the minimum standards for palaeontological impact studies developed by SAHRA.

### **ARCHAEOLOGICAL IMPACTS AND MITIGATION**

Two 'historical' sites, one within the area proposed for development and one outside were observed. The site within the area earmarked for clearing appears to be an old farmyard and several structures and features were observed regardless of the fact that these were all demolished completely some time ago (general GPS reading: 33.28.799S; 25.42.470E). Most of the remains appear to be 'modern'/less than 60 years old. The ruins of the old Coerney Hotel are situated outside the area earmarked for clearing. The hotel was abandoned during the 1990s and became a shelter for homeless people, but became so dilapidated that it was bulldozed in about 2010 (general GPS reading: 33.27.501S; 25.43.247E).

A few Middle Stone Age stone tools (older than 30 000 years) were observed where the river gravels were exposed and in a vehicle track near the top of a gentle rise. These quartzite Middle Stone Age stone tools display typical faceted striking platforms and were found randomly without any recognised distribution patterns. Most of the tools were thick, small 'informal' flakes and chunks, were in secondary

context and not associated with any other archaeological material. No further action is needed. One would have also expected to find Earlier Stone Age hand axes and cleavers (dating between 1,5 million and 250 000 years old) in these river gravels, but none were observed. Apart from the occasional stone tools no other archaeological sites/materials were found. However, because the proposed development is near the Sunday's River, it is possible that freshwater shell middens may be exposed during the clearing of the dense vegetation.

There are no known graves or buildings older than 60 years on the areas surveyed and in general it would appear that these areas are of low cultural sensitivity and that it is unlikely that any sensitive archaeological remains will be exposed during the development.

The potential impact on archaeological resources at the site is rated as low negative without mitigation but can be mitigated to neutral by implementing the recommendations proposed.

### **Recommendations**

- Although it would seem unlikely that any significant archaeological remains will be exposed during the development, there is always a possibility that human remains and/or other archaeological such as freshwater shell middens and historical material may be uncovered during the development. Should such material be exposed during construction, all work must cease in the immediate area (depending on the type of find) and it must be reported to the archaeologist at the Albany Museum in Grahamstown (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 6422811), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.
- All clearing activities and other developments must be monitored. Managers/foremen should be informed before clearing/construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. Alternatively it is suggested that a person must be trained (ECO) as a site monitor to report to the foreman when heritage sites/materials are found.
- It is suggested that an archaeologist should conduct a walkthrough of the area after the vegetation is cleared and before development starts to check if any significant sites/materials were exposed. Further recommendations will follow after the investigation.

### **TRAFFIC IMPACTS AND RECOMMENDATIONS**

The following conclusions can be drawn from the traffic specialist study:

- Access to the development can be provided directly from MR450 via the proposed access road;
- A total of 6 trips per day will be generated at full development during harvesting season and will have minimal impact on the operational capacity of the adjacent road network;
- The proposed access point is situated with sight distances in excess of the prescribed minimum.

The key impact identified by this assessment (High Negative Pre-mitigation) is the impact of the proposed development on traffic safety due to slow moving traffic during the construction and operational phases. The mitigation proposed by the specialist would be to erect appropriate warning traffic signs (in accordance with the South African Road Traffic Signs Manual) to protect road users. The application of this mitigation would reduce the impact to Low Negative significance.

### **Recommendations**

In view of the findings of this study, it is recommended that:

- The TIS be approved by the Department of Transport of the Eastern Cape;
- Access to the proposed development be provided via the proposed access point on MR450 as indicated in Chapter Seven of the EIA Report), with any cost relating to the access points to be met by the developer.

## **VISUAL IMPACTS AND RECOMMENDATIONS**

The Langbos Citrus development covers a large area of land which is visible from the R342 as well as low lying areas close to the road in the Addo Elephant National Park. Most of the visual points range between 2.5 and 5km from the proposed development. Depending on the whereabouts of the view point, the overall visibility and sensitivity may vary from LOW to MODERATE, none of the points were regarded as having an overall significance that is HIGH.

However, overall, it is concluded that for all viewpoints, the impact is:

- LOW/MODERATE, where the impact should have an influence on the decision unless it is mitigated.

The following impacts were identified:

- Phase 1 will have no visual impact on the environment as it is currently almost entirely surrounded by agriculture. No mitigations will be required.
- Phase 2 & 3 will have an impact on the scenic resource and will require mitigation.

### **Recommendations**

#### Mitigation against lighting

- Logistical Service Areas (LSAs) and other facilities, where practical, should be situated off the ridgelines so as to minimise the view catchment of associated lighting.
- All lighting should be fitted with deflectors to avoid light spillage and minimise visual impact of lights at night. The developer should specifically plan the type, placement and direction of lighting to ensure that light pollution is minimised.

#### Mitigation against visual intrusion in the landscape

The proposed agricultural development is large and could dominate the landscape for those in close proximity to the development especially when viewed from the east. Views from the west will not impact the visual sense of place as there are vast areas of existing citrus development occurring. Considering the size and extent of the facility, the options for “concealing” the development are limited. Recommended mitigation measures may include:

- Increase the visual absorption capacity of the landscape along the R342 by maintaining a buffer consisting of natural vegetation approximately 10m wide where there is existing vegetation along the R342. This will help reduce the visual scarring during the clearing phase especially for road users.
- The buffer may be removed during the final stages of setup.

Due to the fact that there is not existing vegetation adjacent to the fenceline for most of the southern portion of Phase 2, the temporary 10m vegetation buffer that has been recommended is only proposed to be enforced from the GPS co-ordinate: 33°28'49.86"S; 25°42'40.06"E northwards for approximately 965 metres.

## **ASSESSMENT OF ALTERNATIVES**

The following alternatives have been assessed during this assessment process:

- No-go alternative - No agricultural development
- “Go” Alternative – Project proposal as outlined in this report with consideration given to the following alternatives:
  - Layout Alternatives
    - Agricultural development of only historically transformed areas vs. including portions of untransformed areas.
    - Alternative layouts based on various site constraints
  - Technology Alternatives
    - Organic farming methods vs. traditional, currently utilised methods.
    - Indigenous windbreak species vs. exotic windbreak species
  - Activity Alternatives
    - Commercial game farming vs. agricultural development

The **no-go option** would result in the loss of potentially productive agricultural land in an area known for citrus production. The no-go option would result in the loss of a capital investment estimated to be approximately R60 million. The operational phase of the project will result in the creation of 23 skilled employment opportunities with an annual income of approximately R690 000 and 230 seasonal employment opportunities (six months of the year) with an additional annual income of R2.76 million. The no-go option would result in a loss of these economic opportunities for the region, which is considered to be a negative impact.

Positive impacts associated with the **go option** are utilising the use of available agricultural land close to existing supporting infrastructure (LSRWUA canal, road, existing agriculture), capital injection into the local economy and positive impacts associated with employment creation. In addition, it is anticipated the go-option will minimize the loss of animals to poaching. The agricultural development of only previously transformed (modified/degraded) areas is therefore not considered the preferred alternative because portions of the transformed areas are not suitable/available for the establishment of citrus orchards and agricultural development of the available 71ha is not deemed ecologically sustainable. The proposed development footprint has been informed by the relevant specialist assessments (soil, aquatic, vegetation) and mitigation measures have been recommended in order to reduce the impact of the proposed development on the biophysical environment. The use of *traditional farming methods* and use of the *indigenous species* as a windbreak is recommended. Game farming on the site is not deemed a viable alternative to *commercial citrus production* due to the frequency of poaching being experienced.

A full discussion of the assessment of alternatives is contained in Chapter Five of the EIA Report.

## **OVERALL EVALUATION OF IMPACTS**

The Sundays River Valley Local Municipality is characterised by low levels of employment and a high percentage of people who are not economically active. This in turn accounts for the high poverty levels and low income levels. Only 33.9% of the population between the ages of 15 and 64 are employed (SRVM SDF, April 2013). Adjacent to the southern boundary of Portion 343 of Commando Kraal No 113 is an informal settlement. Approximately 2 km south of the site is the Addo, Nomathamsanqa settlement, which provides ready access to a labour force, from communities with a high unemployment rate. By making use of this labour market the proposed development would also support the vision of the Sundays River Valley Local Economic Strategy as outlined in the SDF (April 2013) which indicates *Agriculture* as a Local Economic Development Priority and identifies the need to *expand the agricultural section in the region* as an Economic Development Objective.

It is the applicant's intention to build on this economic base in the SRVM, by making optimum use of the available resources the area has to offer, i.e. the availability of a sustainable supply of irrigation water from the Lower Sunday River Water Users Association canal system; and the suitability / fertility of the soils on the property under assessment. The suitability of the site for such agricultural activities is supported by the cultivation practices on the adjacent citrus farms to the north, west and south of the area under assessment.

Based on 25 skilled and 25 unskilled employment opportunities for the construction phase of the project it is anticipated that additional income to be generated by the project annually will be approximately R1.35 million. The operational phase of the project will result in the creation of 23 skilled employment opportunities with an annual income of approximately R690 000 and 230 seasonal employment opportunities (six months of the year) with an additional annual income of R2.76 million.

The applicant has agreed to set aside a large portion in the northern section of the area under assessment (~262ha) which will be set aside for conservation purposes in perpetuity and which can thus be considered a "biodiversity offset" for the transformation of ~255ha of natural vegetation (including intact, modified and degraded) to be cleared to accommodate the proposed development.

By applying the mitigatory measures proposed *Construction Phase* direct and indirect impacts of medium to high significance can mostly be reduced to impacts of low to very low negative or neutral impacts.

The key direct and indirect impacts associated with the *Operational Phase* of the development can, by applying the mitigatory measures proposed is reduced from negative impacts of medium significance to impacts of low significance and high positive significance.

The loss of Critical Biodiversity Area is regarded as a High Negative impact due to the impact that this will have on the biodiversity target areas that have been identified in terms of the Sundays River Valley Biodiversity Sector Plan. The compromise for the loss of CBA is to adopt the Biodiversity No-Go Areas indicated by the vegetation specialist, which represents approximately 262.4 (57.1 %) of the extant Sundays Thicket on Farm Langbos. This significantly exceeds the biodiversity targets of 18 % and 19 %. Consequently, it is not considered to be a fatal flaw, especially since the biodiversity target for Sundays Spekboom Thicket (on this property) is exceeded and because much of the areas to the south (Phase 2) are highly modified and degraded, representing vegetation cover that is not of high quality biodiversity pattern target area.

The Environmental Assessment process has not identified any negative impacts that should be considered “fatal flaws” from an environmental perspective, and thereby necessitate substantial re-design or termination of the project. Taking into consideration the findings of the EIA process, it is the opinion of the Environmental Assessment Practitioner that the project benefits outweigh the negative residual environmental impacts, provided that the specified mitigation measures are applied effectively, it is proposed that the project receive environmental authorization in terms of the EIA process.

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APPENDIX F	Water Use Entitlements
APPENDIX G	Specialist Declarations
APPENDIX H	Supporting Documentation
APPENDIX I	Planting Plan
PART B	Draft Environmental Management Programme

## ABBREVIATIONS

DEDEAT	Department of Economic Development, Environmental Affairs and Tourism
DWAF	Department of Water Affairs and Forestry
EC DEDEAT	Eastern Cape Department of Economic Development, Environmental Affairs and Tourism
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMPr	Environmental Management Programme
FEPAs	Freshwater Ecosystems Priority Areas
FSR	Final Scoping Report
I&AP	Interested and Affected Party
NEMA	National Environmental Management Act (Act 107 of 1998)
NEMAA	National Environmental Management Amendment Act (Act 107 of 1998)
NHRA	National Heritage Resources Act (Act 25 of 1999)
NMBM	Nelson Mandela Bay Municipality
PES	Present Ecological State
POS	Plan of Study
SABIF	South African Biodiversity Information Facility
SAHRA	South African Heritage Resources Agency
SDF	Spatial Development Framework
SEA	Strategic Environmental Assessment
STEP	Subtropical Thicket Ecosystem Project
S24G	Section 24G
ToR	Terms of Reference