

FINAL EIA REPORT

AGRICULTURAL EXPANSION ON PORTION 2 OF FARM 92, TREGARON, KNOWN AS SYLVANIA, SUNDAYS RIVER VALLEY MUNICIPALITY

DEDEAT Reference (ECO6/C/LN2/M/64-2017)

March 2018



Prepared for:

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| Title: | Final EIA Report, Agricultural Expansion on Portion 2 of Farm 92, Tregaron, known as Sylvania, Sundays River Valley Municipality (March 2018) |
| Purpose of this report: | <p>This Final EIA Report forms part of a series of reports and information documents that are being provided during the Environmental Impact Assessment (EIA) process for the proposed agricultural expansion on Portion 2 of Farm 92, Tregaron, known as Sylvania, in the Sundays River Valley Municipality.</p> <p>As per Appendix 3, Section 2 of GN R326, the objectives of the EIA process are to –</p> <ul style="list-style-type: none"> • Assess how the proposed activity complies with the relevant policy and legislative context; • Describe the need and desirability of the proposed activity, including in the context of the development footprint on the approved site as contemplated in the accepted Scoping Report; • Identify the location of the development footprint within the approved site as contemplated in the accepted Scoping Report based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment; • Determine the -- <ul style="list-style-type: none"> ○ Nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and ○ Degree to which these impacts - <ul style="list-style-type: none"> ▪ Can be reversed; ▪ May cause irreplaceable loss of resources, and ▪ Can be avoided, managed or mitigated; • Identify the most ideal location for the activity within the development footprint of the approved site as contemplated in the accepted Scoping Report based on the lowest level of environmental sensitivity identified during the assessment; • Identify, assess, and rank the impacts the activity will impose on the development footprint on the approved site as contemplated in the accepted Scoping Report through the life of the activity; • Identify suitable measures to avoid, manage or mitigate identified impacts; and • Identify residual risks that need to be managed and monitored. |
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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 2 November 2017 (point 7.2), amendments to the Final EIA (key changes) from the Draft EIA Report 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 associated 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"> Page ii – update on the public participation process for the review of the Draft EIA and submission of the Draft and Final EIA to DEDEAT |
| Chapter 1 | <ul style="list-style-type: none"> Page 1.1 – update on interaction with DEDEAT during Draft EIA review period and submission of the Final EIA Page 1.6 - update on the public participation process for the review of the Draft EIA and submission of the Draft, as well as Final EIA to DEDEAT Page 1.8 – update on public participation for the Draft EIA |
| Chapter 2 | <ul style="list-style-type: none"> Page 2.8 – Reference to proposed access via low-level water crossing and trench adjacent to the existing orchards east of the river. |
| Chapter 4 | <ul style="list-style-type: none"> Page 4.9 – update on overview of process Page 4.12 – update on the phase of the Scoping and EIA process and communication with DEDEAT on the Draft EIA Page 4.13 – update on authority consultation and database maintenance for review of the Draft EIA Page 4.14 – update on the review of the Draft EIA Page 4.15 – update on the submission of the Final EIA to DEDEAT Page 4.16 – update on comments received during the Draft EIA review period |
| Appendix B | <ul style="list-style-type: none"> Updated with correspondence to and from DEDEAT during Draft EIA 30-day comment period |
| Appendix D | <ul style="list-style-type: none"> Updated I&AP and Authority databases with interaction |
| Appendix E | <ul style="list-style-type: none"> Inclusion of copies of correspondence to I&APs and Authorities regarding the Draft EIA Comment Period and proof of delivery to Organs of State |

EXECUTIVE SUMMARY

PROJECT BACKGROUND AND OVERVIEW

The project applicant, San Miguel Fruits SA (Pty) Ltd, proposes to expand citrus production at their existing operations on Portion 2 of Farm 92, known as Sylvania, which measures ~243.82ha in extent. The farm portion under assessment falls within the Sundays River Valley Municipal area (SRVM) and the nearest town is Kirkwood, which is located ~9.3km northwest of the site. The closest boundary of the Addo Elephant National Park is located ~7.5km north of Sylvania.

The applicant proposes to transform a portion on the western section of the farm. A development footprint of ~65ha is proposed within the ~115ha area that has been informed by various specialist assessments, as well as technical input. Map 2.2 in Chapter Two of the Final EIA Report (this report) indicates the preferred development footprint, associated structures and infrastructure proposed on Sylvania.

Portion 2 of Farm 92 Tregaron, known as Sylvania, measures ~243.82ha in extent. Based on the outcome of the various specialist assessments it is proposed that an area of ~65ha is cleared, as follows:

- Citrus orchards: ~50ha
- Associated infrastructure (~15ha) including:
 - Internal unpaved service roads (widths varying between 4m and 10m) within the orchards;
 - Upgrading of an existing low-level crossing over the Wit River and associated approach roads;
 - Upgrading of an existing access road;
 - Windbreaks (if required);
 - Irrigation pipelines of varying capacities (varying between 60mm to 355mm) and lengths (up to 200m).
- Construction of a new dam with a capacity to store ~30 000m³ (~2.1ha footprint) of water, with a maximum wall height of 5m.

In terms of the NEMA EIA Regulations, 2014 (as amended), published in GN R326, 327, 325 and 324, promulgated under Chapter Five of the National Environmental Management Act (Act 107 of 1998) (“NEMAA”), and published in Government Gazette 40772 on the 7 April 2017, the project requires full Scoping and Environmental Impact Assessment (S&EIA), prior to the commencement of any activities on the site. The applicant appointed Public Process Consultants as the independent Environmental Assessment Practitioner (EAP) to undertake the S&EIA for the project.

OVERVIEW OF THE EIA PROCESS AND PUBLIC PARTICIPATION

This Final EIA Report has been preceded by a comprehensive Scoping Process with the Final Scoping Report (FSR), including the Plan of Study for EIA, being submitted to the Department of Economic Development, Environmental Affairs and Tourism (DEDEAT) on the 29 November 2017. On the 2 February 2018 acceptance of the FSR and approval of the Plan of Study for EIA was received from the DEDEAT. This marked the end of the Scoping phase of the EIA process. The project then moved into the EIA phase of the assessment.

The key issues identified during the Scoping process, which have been the subject of separate specialist assessments during the EIA, are outlined below:

- Biophysical (Biological and Physical) site assessment including:
 - Potential project related impacts on natural vegetation and faunal habitat associated with the area under assessment.
 - The consideration of any potential impacts on the Addo Elephant National Park
 - An aquatic survey identifying, and mapping wetlands and watercourses associated with the area under assessment, as well as identifying impacts on these resources
 - Suitable buffers for aquatic resources identified on the Farm
 - Comment on the potential impact of the proposed development on Aquatic and Terrestrial CBAs, as identified in the ECBCP

- The determination of suitable buffers associated with meeting biodiversity conservation targets specific to the vegetation types on the Farm, and in line with those targets indicated by the relevant planning frameworks for the area
- The undertaking of a Heritage Impact Assessment to identify heritage resources, materials and artefacts that occur within the area under assessment and recommendations regarding the conservation thereof.
- The undertaking of a Traffic Impact Assessment to determine the impact of the additional trip generation and the suitability of the access points.
- The undertaking of a Soil Suitability Assessment in the form of a Reconnaissance Soil Survey, to determine the suitability of the soil for the rotational planting of fruits and vegetables, to inform the proposed layout

The primary objective of EIA phase of the assessment is to present to I&APs and affected Organs of State an overview of the predicted impacts, proposed mitigation measures (both positive and negative), closure outcomes, residual impacts of the activity and management actions required to avoid or mitigate the negative impacts; or enhance the positive impacts of the project. As required by the legislation, the Draft EIA and Environmental Management Programme (EMPr) was released for a 30-day I&AP and Authority review period, which extended from the 14 February to the 15 March 2018. Relevant organs of state were provided with a CD or hard copy of the report and the report was made available for download on the website www.publicprocess.co.za. No Comments were received from I&APs during the 30-day review period. The assessment process is currently at the stage where the Final EIA is being submitted to DEDEAT for their decision-making. All I&APs on the project database will be notified in writing of the submission of the Final EIA Report to DEDEAT as well as the outcome of the decision-making process.

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 and Ecological Support Area due to clearing of vegetation (biodiversity loss).
- Loss of species of conservation/ special concern due to clearing (biodiversity loss).
- Fragmentation of habitat on Tregaron due to clearing (biodiversity loss).
- Loss of faunal Species of Special Concern due to vegetation clearing and poaching.
- Destruction of faunal habitat.
- Potential loss of 'riparian' systems (vegetation along the undefined drainage areas) due to clearing of vegetation for agricultural activities (biodiversity and hydrological process loss).
- Potential loss and disturbance of wetland and riparian habitat along the tributary of the Wit River due to vegetation clearing for the agricultural activities (biodiversity and hydrological process loss).
- Potential loss of floodplain and riparian system along the Wit River due to clearing of vegetation for agricultural activities (biodiversity and hydrological process loss).
- Potential modification of wetland habitat due to loss of floodplain and riparian system along the Wit River due to clearing of vegetation for agricultural activities (biodiversity and hydrological process loss).
- Potential sedimentation and erosional impacts on undefined drainage areas due to agricultural activities (hydrological processes and biodiversity loss).
- Potential sedimentation and erosional impacts on the Wit River and tributary, including dam wetland habitat, due to agricultural activities (hydrological processes and biodiversity loss).
- Potential increased water levels/ saturation in the Wit River and tributary and associated wetlands due to drip irrigation (hydrological processes and biodiversity modification).
- Potential chemical pollution in the Wit River, the tributary and associated wetlands, including groundwater (hydrological processes and biodiversity loss).
- Potential loss of Wit River floodplain and riparian area along access tracks due to maintenance (hydrological processes and biodiversity loss).

Potential Cumulative Impacts on the N40C catchment as a result of the proposed development include:

- Loss of vegetation due to clearing for agricultural activities in the N40C catchments (biodiversity loss).
- Potential cumulative loss of Critical Biodiversity Area and Ecological Support Area due to clearing of vegetation in the N40C catchments (biodiversity and hydrological process loss).
- Potential cumulative loss species of special concern due to clearing of vegetation in the N40C catchment (biodiversity loss).
- Cumulative loss and modification of wetland habitat in the larger catchments
- Cumulative impacts on hydrological process of rivers and associated riparian areas in the N40C catchments (flow, water quality, erosion, sedimentation etc.).

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

Vegetation, Biodiversity Patterns and Processes

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

- Adoption of the Biodiversity Target, No-Go and Offset areas indicated in Chapter Six and in the layout map attached as Appendix H, will ensure that all CBA, remaining ESA and Other Natural Areas on Sylvania are not cultivated in the future.
- Remove only the required amount of vegetation for citrus/ crop cultivation activities i.e. minimize the extent of bare and exposed soils.
- If windbreaks are to be planted, plant indigenous windbreaks, if possible.
- Maintain the other natural areas on Sylvania.
- Rehabilitation of disturbed areas post establishment with indigenous species.
- Plant species of special concern must be transplanted from the disturbance footprint to refuge areas on the site (e.g. remaining intact thicket) by suitably qualified individuals.
- Permit applications to the Department of Economic Development, Environmental Affairs and Tourism for the protected species.
- An alien plant control program should be implemented which ensures that all invasive exotic plants (*Opuntia ficus-indica* and *O. aurantiaca*) must be removed from the site and alien plant control must take place on an ongoing basis.
- The Environmental Control Officer to approve development footprints (based on the no-go areas), prior to clearing and to monitor clearing within demarcated areas.

Fauna

The vegetation on the area proposed for development provides suitable habitat for a range of faunal species. However, given the transformed nature of the surrounding landscape – cultivation to the south, east and west – as well as the town of Bersheba to the north, it is likely that faunal species diversity and abundance will be low.

The artificial wetlands created by the numerous irrigation dams on the farm and the Wit River and associated drainage areas, are providing habitat for a variety of avifaunal species. It is anticipated that most of the faunal species remaining on the farm 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:

- The mobile fauna which may be occurring on the site 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 development.
- 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.
- Before site preparation and vegetation clearing commences, affected areas should be thoroughly searched for fauna that can be relocated. This is to be undertaken by a professional faunal specialist (with the necessary permits) and released into no-go areas or other suitable refuge areas.

- A professional reptile remover 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.
- No fauna encountered on site to be intentionally harmed.

Aquatic Features (artificial and natural)

The field survey concluded that eight artificially created wetland habitats, occur within the within the 500m radius of the area under assessment. Two of these include large irrigation dams for cultivation purposes and one large water supply dam for potable water. The remaining artificially created wetlands include a small dam and depressions due to excavations. The Wit River, with extensive riparian floodplain and a tributary, flows through the farm along the western boundary of the potential cultivation area. Two natural drainage areas or surface water run-off areas, not indicated on the 1:50 000 topographical map, were digitized for this assessment. The river is comprised of three functional zones, namely: (1) Wit River channel, (2) active channel riparian; and (3) riparian floodplain.

The active channel riparian zone extended from the Wit River channel banks, where there was a distinct increase in elevation i.e. above the channel bank. Within this zone there was a mix of riparian indicator species and terrestrial species.

The floodplain is extensive, measuring up to approximately 360m from the active channel and instream habitat in places, with mostly very steep inclines. The riparian floodplain area is distinguished from the active channel riparian area due to dominance of *V. karroo* and elevation. In terms of elevation, a foot path is located just to the west of the active channel riparian area. The riparian floodplain area is distinguished from the terrestrial vegetation, Sundays Spekboom Thicket, due to species composition and elevation, where the riparian floodplain terminates roughly around the 80m – 85m contour (for most of the outer boundary), and the absence of *V. karroo* can be discerned.

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

- Adopt the recommended biodiversity No-Go areas including the 20m buffer around the Wit River riparian floodplain and active channel riparian area, including around the tributary and natural drainage areas.
- Further comment from the Department of Water and Sanitation with regards to requirements of Section 21c and 21i of the National Water Act (36 of 1998).
- Compliance with regulations pertaining to the Conservation of Agricultural Resources Act (43 of 1983), which does not permit cultivation within the flood area of a watercourse or within 10m horizontally outside the flood area of a watercourse.
- In order to reduce surface water run-off from orchard areas, establish stormwater management measures, including trenches (with indigenous grasses, not concrete lined) to encourage increased infiltration.
- Limit vegetation removal during the construction/ establishment phase to the proposed development footprint.
- As an additional precautionary measure, a shallow trench should be placed strategically, to trap surface run-off (with fertilizer and herbicide substances) i.e. parallel along the outer edge of the 20m buffer. Ideally these should be grassed (indigenous) for absorption of chemicals.
- 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.
- Avoid over irrigation. Drip irrigation is encouraged/ supported (as is the standard practice to reduce loss or over-use of water).
- The use of organic fertilizers and mulching is encouraged, as much as possible.
- 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 pesticides and insecticides used should be the safest and least harmful to the environment. Biodegradable products should be used as far as possible.

- International standards to be complied with.
- Chemicals and hazardous waste storage areas should be in the existing storage buildings (as proposed).
- Hazardous and chemical wastes (includes old containers) should be disposed of at registered landfill sites.
- Implement appropriate measures and soil drainage to prevent increase in the salinity of groundwater and surface water features i.e. Wit River and tributary etc.
- Mulching, if feasible, to increase retention of soil moisture in-situ/ at tree.
- Minimizing bare and exposed soils and implementing drip irrigation (as proposed/ standard practice).
- Audit reporting by the Environmental Control Officer during establishment of orchards.
- These buffers and mitigation measures should be maintained and monitored by the Applicant/ Farm Manager.
- The Applicant, and Farm Manager, to ensure that no work activities or deposition of gravel should occur outside of the existing tracks in the floodplain or riparian habitat, i.e. to prevent widening of the tracks and indiscriminate clearing (associated with the low-level water crossing).

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 | HIGH | MEDIUM |
| Loss of Critical Biodiversity Area and Ecological Support Area due to clearing (biodiversity loss) | Establishment | HIGH | MEDIUM |
| Loss of species of conservation/special concern due to clearing (biodiversity loss). | Establishment | HIGH | LOW |
| Fragmentation of habitat due to clearing (biodiversity loss) | Establishment | MEDIUM | LOW |
| Loss of 'riparian' systems (vegetation along the undefined drainage areas) due to clearing of vegetation for agricultural activities (biodiversity and hydrological process loss). | Establishment | MEDIUM | NEUTRAL |
| Loss and disturbance of wetland and riparian habitat along the tributary of the Wit River due to vegetation clearing for the agricultural activities (biodiversity and hydrological process loss) | Establishment | LOW | NEUTRAL |
| Loss of floodplain and riparian system along the Wit River due to clearing of vegetation for agricultural activities (biodiversity and hydrological process loss) | Establishment | HIGH | LOW |
| Modification of wetland habitat due to loss of floodplain and riparian system along the Wit River due to clearing of vegetation for agricultural activities (biodiversity and hydrological process loss) | Establishment | MEDIUM | LOW |
| Potential sedimentation and erosional impacts on undefined drainage areas due to agricultural activities (hydrological processes and biodiversity loss) | Establishment | MEDIUM | LOW |
| Potential sedimentation and erosional impacts on the Wit River and tributary, including dam wetland habitat, due to agricultural activities (hydrological processes and biodiversity loss) | Establishment and Operational | HIGH | LOW |
| Potential increased water levels/saturation in the Wit River and tributary and associated wetlands due to drip irrigation (hydrological processes and biodiversity modification) | Operational | MEDIUM | LOW |

| | | | |
|---|-------------------------------|--------------------------------|-----------------------------|
| Potential chemical pollution in the Wit River, tributary and associated wetlands, including groundwater (hydrological processes and biodiversity loss). | Operational | HIGH | LOW |
| Potential loss of Wit River floodplain and riparian area along existing access tracks due to maintenance (hydrological processes and biodiversity loss) | Operational | LOW | NEUTRAL |
| 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 and Operational | MEDIUM | LOW |
| CUMULATIVE IMPACTS | | | |
| Potential cumulative loss of vegetation due to clearing for agricultural activities in the N40C catchment (biodiversity loss) | Establishment | HIGH | LOW |
| Potential cumulative loss of CBA and ESA due to clearing of vegetation in the N40C catchments (biodiversity and hydrological process loss) | Establishment | MEDIUM | LOW |
| Potential cumulative loss of species of special concern due to clearing of vegetation in the larger catchments (biodiversity loss) | Establishment | HIGH | MEDIUM |
| Cumulative loss of Critical Biodiversity Area and Ecological Support Area buffers due to clearing of vegetation in the larger catchments (biodiversity and hydrological process loss) | Establishment | HIGH | LOW |
| Cumulative loss and modification of wetland habitat in the N40 C larger catchments | Establishment | HIGH | MEDIUM |
| Cumulative impacts on hydrological process of rivers and associated riparian areas in the N40C catchments (flow, water quality, erosion, sedimentation etc.) | Operational | (Sylvania) MEDIUM | (Sylvania) MEDIUM |
| | | (N40C Catchments) MEDIUM | (N40C Catchments) 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 must be surveyed for plant and faunal SSC by a suitably qualified specialist. Plant species of special concern must be translocated to the remaining patches of intact vegetation or buffer areas on the property. Permits must be obtained from the relevant authorities for the removal or transfer of protected flora and faunal species.
- No fauna encountered on site to be intentionally harmed.
- 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.

HERITAGE IMPACTS AND MITIGATION

A number of heritage resources were identified during the field survey (Table 10.4), although these were limited to the very restricted areas accessible to the archaeologist. Of these 21 sites, 14 were archaeological, and of MSA or ESA origin, while three related to built structures, all of which were in a ruined state; a single graveyard, associated with the structures, was identified. The graveyard consisted of more than 25 stone packed graves in an east-west alignment. Most of the graves appeared to have headstones of either stone or metal. The recent dates noted on some graves (approximately a decade old) would indicate that the graveyard was still in use until recently. The end of use of the graveyard probably coincides with the demolition of the settlement (Figure 10.3 and 10.4). All of these sites were determined to be Grade IIIc (of low local significance), with the exception of the graveyard, which was accorded Grade IIIa status (of high local significance). Two geological cuttings were identified which

provided insight into the substrate in the area, and the presence of a possible palaeosol was noted; these features are not conservation worthy.

The foot survey that was undertaken provided a sufficient characterisation of the heritage resources in the area and our findings were consistent with those of other studies in the immediate vicinity. However, it is clear from the relative frequency of artefacts in the disturbed, open areas, that more artefacts are likely to be present in the undisturbed, heavily vegetated areas. It is further possible that there might be settlement or activity sites, given the presence of smaller chips and flakes in the assemblage.

Despite the presence of the potentially highly fossiliferous, Early Cretaceous Kirkwood Formation, the thick mantling of these deposits by low sensitivity, Late Caenozoic alluvium in this area mitigates against the likelihood of this development impacting on significant palaeontological deposits (Almond, 2016). Similarly, the small relict patches of Pliocene Kudu's Kloof Formation tend locally to be of low palaeontological significance (Almond, 2016). Interesting geological features noted during the field assessment included two geological cuttings observed in the eastern part of the study area that revealed the cobble substrate at between 0.40m and 1.2m below the topsoil and a potential palaeosol.

The following actions are recommended:

- A Fossil Finds Protocol must be implemented during the construction phase;
- The areas indicated by the archaeologist should be monitored by a suitably qualified archaeologist during vegetation clearing.
- The graveyard should be avoided by all development activities. To ensure this, a suitable fence should be erected around the graveyard, at a distance of no less than 5m from the outer perimeter of the graves. This fence should include entry gates to allow visits from relatives and family friends, and access to the graveyard must be allowed in perpetuity. This area should be treated as a no-go area, and its location should be marked on all development maps. No development should occur within 15 meters of the proposed fence line (ie a 20m buffer area is maintained around the graveyard).
- If in situ archaeological resources or human burials are found, work must cease and these findings must be reported to the Eastern Cape PHRA and SAHRA, and a suitably qualified archaeologist must be contacted.

TRAFFIC IMPACTS AND RECOMMENDATIONS

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

- Access to the new orchard areas can be provided directly from DR01999 via existing access points;
- During periods when the river is impassable, preventing access to DR01999, emergency access will be provided from DR02006 through Enon via the municipal road network onto the Canal access road as indicated on Figure 8.2;
- A maximum of 28 trips per day generated at full development for three one-week periods during harvesting season will have minimal impact on the operational capacity of the adjacent road network;
- The proposed access points are via existing access points.

The following provides a summary of the key direct and indirect impacts associated with the development that have been identified by the traffic specialist. 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 |
|--|-------------------|----------------|-----------------|
| Traffic Safety Impact due to slow moving traffic | Establishment | HIGH | MEDIUM |
| Traffic Safety Impact due to additional traffic | Operational | HIGH | MEDIUM |
| Deterioration of Public Road Network | Operational | HIGH | LOW |
| Generation of Dust | Operational | MEDIUM | MEDIUM POSITIVE |

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

- This TIS be approved by the Eastern Cape Department of Roads and Public Works;
- Access to the new orchards be provided via the proposed access points on DR01999;
- During periods when access across the river is not possible, emergency access be gained through Bersheba;
- The route through Bersheba should be upgraded by the developer in order to minimise damage to the road;
- Traffic calming measures be provided along the route through Bersheba to control vehicle speed;
- Suitable warning signage be erected on the approaches to the proposed access points.

ASSESSMENT OF ALTERNATIVES

The following alternatives were identified for consideration in this assessment:

- No-go alternative - No agricultural development
- Property/ Location alternatives (reason for elimination)
- Land-Use alternatives
 - Grazing/ game
 - Citrus orchard establishment
- Layout alternatives - Alternative layouts based on various site constraints

The no-go option would result in the loss of potentially productive agricultural land in an area known for citrus production and at a site that is largely surrounded by agricultural development. The no-go option would result in the loss of a capital investment estimated to be approximately R17 million. The operational phase of the project will result in the creation of 4 permanent employment opportunities with an annual income of approximately R154 000 and 28 seasonal employment opportunities with an additional annual income of R470 000. The no-go option would result in a loss of these economic opportunities, as well as the increased production of food for local and international markets, which is considered to be a negative impact. While the no-go option will have no significant negative biophysical environmental impacts, it will result in the loss of positive social and economic benefits which are associated with the go option. Finally, the no-go option will result in the Farm not being optimally utilized for agriculture, for which it is zoned and well-positioned.

Positive impacts associated with the **go option** are maximizing 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. 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. A full discussion of the assessment of alternatives is contained in Chapter Five of the EIA Report.

OVERALL EVALUATION OF IMPACTS

Local labor is sourced from both the SRVM, as well as the NMBM, hence reference to both the SRVM Final IDP (2015/2016), the SRVM Spatial Development Plan (April 2013), as well as the NMBM Integrated Development Plan (IDP, 2016-2017). The Final IDP (2015/2016) for the Sundays River Valley Municipality (SRVM) estimates that the current unemployment rate in the municipal area is 38.54% of the economically active population. The Agricultural sector provides room for growth in terms of employment opportunities, as it currently represents approximately 11% of the employment for the SRVM area (Final SRVM IDP 2015/2016).

“The agricultural sector is one of the key economic drivers of the Sundays River Valley Municipality.”, according to the SRVM Spatial Development Plan (April 2013) (pg. 8).

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 LSRWUA canal system; the suitability/ fertility of the soils, as well as the available work force from local communities. The suitability of Sylvania for the proposed agricultural expansion is supported by the existing agricultural areas that have been established towards the eastern portions of the Farm.

By making use of this labor 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 estimated the capital investment of the development, upon completion of construction, will be ~R17 million. It is estimated that the construction phase of the development will create approximately six (6) new employment opportunities at a value of R403 200 (over a two-year period).

Upon completion of construction and during the operational phase of the development, it is estimated that four (4) new permanent employment opportunities will be created at a value of R153 600 annually, and 28 seasonal opportunities at an annual value of R470 400. Labour will be sourced locally from communities in the SRVM and Nelson Mandela Bay Municipality (NMBM).

In addition to the direct employment opportunities that are created as part of the farming operations, a number of indirect jobs will also be created by the proposed development particularly within the packaging and logistics industries, amongst others.

Approximately 49% (~120ha) of the farm (Ptn 2 of Farm 92 Tregaron) has been transformed for agriculture. The portion of Sylvania which is proposed for development measures ~65ha, which represents 27% of the farm. The additional clearance of ~65h will result in ~21% of the vegetation on the Farm remaining intact. It is recommended by the Ecological Specialist that all other Natural Areas on Sylvania should be considered CBA/ESA and should therefore be retained.

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

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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ABBREVIATIONS

| | |
|--------|--|
| CARA | Conservation of Agricultural Resources Act |
| CBA | Critical Biodiversity Area |
| CSR | Consultation Scoping Report |
| DAFF | Department of Agriculture, Forestry and Fisheries |
| DEA | National Department of Environmental Affairs |
| DEDEAT | Provincial Department of Economic Development, Environmental Affairs and Tourism |
| DWS | Department of Water and Sanitation |
| EA | Environmental Authorisation |
| ECBCP | Eastern Cape Biodiversity Conservation Plan |
| EIA | Environmental Impact Assessment |
| EIS | Ecological Importance and Sensitivity |
| EMPr | Environmental Management Programme |
| ESA | Ecologically Sensitive Area |
| FEPAs | Freshwater Ecosystems Priority Areas |
| FSR | Final Scoping Report |
| I&AP | Interested and Affected Party |
| LSRWUA | Lower Sundays River Water Users Association |
| NBA | Nation Biodiversity Assessment (2011) |
| NEMA | National Environmental Management Act (Act 107 of 1998), as amended |
| NEMAA | National Environmental Management Amendment Act (Act 107 of 1998) |
| NFEPA | National Freshwater Ecosystem Priority Areas |
| NHRA | National Heritage Resources Act (Act 25 of 1999) |
| NMBM | Nelson Mandela Bay Municipality |
| NPAES | National Protected Areas Expansion Strategy |
| 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 Assessment |
| ToR | Terms of Reference |