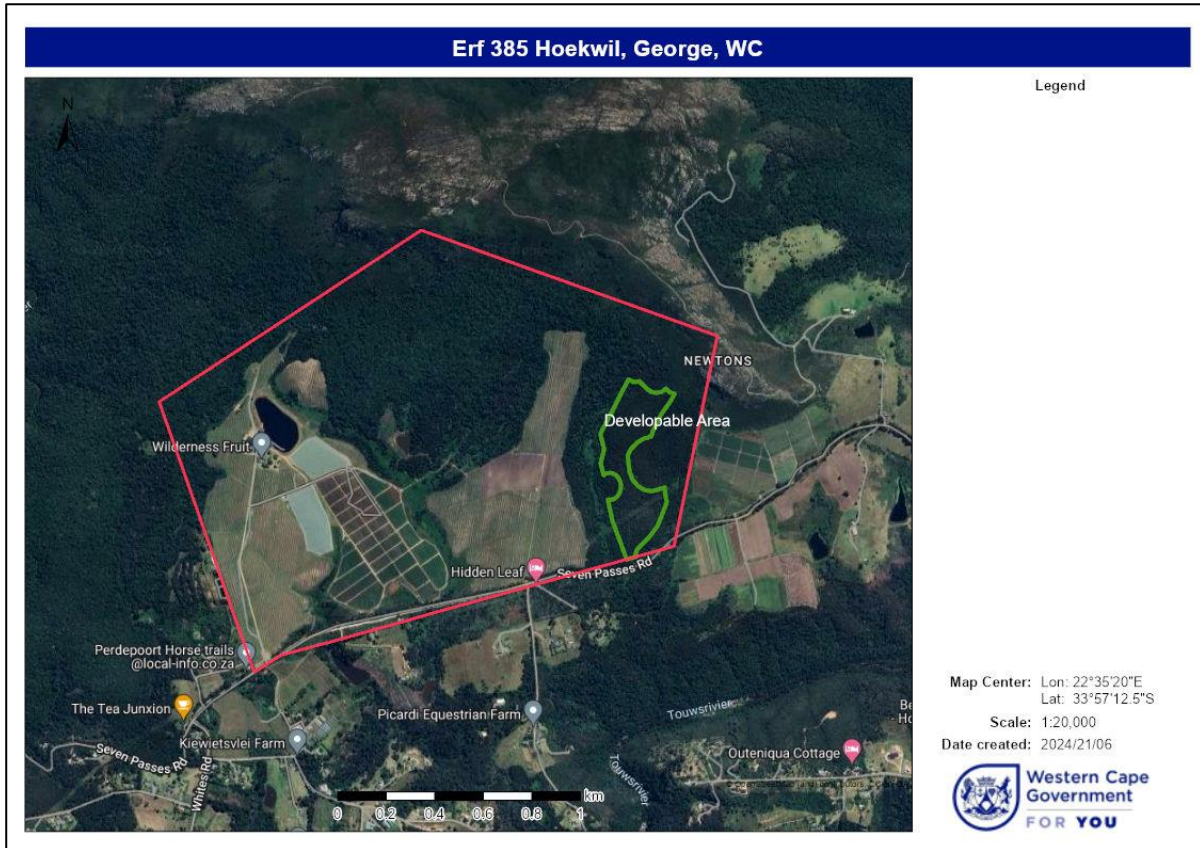




**PROPOSED CULTIVATION OF 11 HECTARES OF LAND TO PLANT MACADAMIA  
AND AVOCADO TREES ON ERF 385, SEVEN PASSES ROAD, HOEKWIL, GEORGE  
MUNICIPALITY, WESTERN CAPE**



Date: June 2025 (amended September 2025)

Compiled by: Samantha Teeluckdhari (2023/6443)

DEA&DP Reference: 16/3/3/1/D2/30/0006/25

EAP Signature: S. Teeluckdhari

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I, **Samantha Teeluckdhari** of Eco Route Environmental Consultancy, in terms of section 33 of the NEMA, 1998 (Act No. 107 of 1998), as amended, hereby declare that I provide services as an independent Environmental Assessment Practitioner (EAPASA Reg: **2023/6443**) and receive remuneration for services rendered for undertaking tasks required in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment Regulations, 2014 (as amended). I have no financial or other vested interest in the project.

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# 1. INTRODUCTION

## Environmental Management Programme Requirements

The National Environmental Management Act, 1998 (ACT NO. 107 OF 1998) regulation no.326 as amended, Appendix 4 stipulates the required information that must be incorporated within an Environmental Management Programme (EMPr). The checklist below serves as a summary of how these requirements were incorporated into this EMPr.

### **Content of environmental management programme (EMPr):**

1. (1) An EMPr must comply with Section 24N of the Act and include –

<p>(a) details of –</p> <ul style="list-style-type: none"> <li>i. The EAP who prepared the EMPr; and</li> <li>ii. The expertise of that EAP to prepare the EMPr, including a curriculum vitae;</li> </ul>	<p>This EMPr was prepared by Samantha Teeluckdhari of Eco Route Environmental Consultancy. Samantha has more than 9 years' experience as an Environmental Assessment Practitioner. Please see attached CV of the EAP.</p>
<p>(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;</p>	<p>This EMPr covers all aspects involved in the proposed cultivation of 11 hectares of land to plant macadamia and avocado trees on erf 385, Seven Passes Road, Hoekwil, George Municipality, Western Cape.</p>
<p>(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on environmental sensitivities of the preferred site, indicating any areas that should be avoided including buffers;</p>	<p>Sections 2 – 4 provides details of the proposed Project Section 5 has the Site Development Plan/SDP. The SDP is attached as Appendix B and accompanying GIS maps includes sensitive areas of the site.</p>
<p>(d) a description of the impact management <u>outcomes</u>, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –</p> <ul style="list-style-type: none"> <li>i. Planning and design</li> <li>ii. Pre-construction activities</li> <li>iii. Construction activities</li> <li>iv. Rehabilitation of the environment after construction and where applicable post closure; and</li> <li>v. Where relevant, operation activities</li> </ul>	<p>Addressed in Section 7</p>
<p>(f) a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to –</p> <ul style="list-style-type: none"> <li>i. Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation;</li> <li>ii. Comply with any prescribed environmental management standards and practises;</li> <li>iii. Comply with any applicable provisions of the Act regarding closure, where applicable; and</li> <li>iv. Comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;</li> </ul>	<p>Addressed throughout the EMPr, specifically Section 14</p>
<p>(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);</p>	<p>Addressed throughout the EMPr, specifically Section 14</p>
<p>(h) the frequency and monitoring the implementation of the impact management actions contemplated in paragraph (f);</p>	<p>Section 11.</p>
<p>(i) an indication of the persons who will be responsible for the implementation of the impact management actions;</p>	<p>Section 9-11.</p>
<p>(j) the time periods within which the impact management</p>	<p>Section 9-11, 14.</p>

actions contemplated in paragraph (f) must be implemented;	
(k) the mechanism for monitoring compliance with the impact management contemplated in paragraph (f)	Section 14.
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the regulations;	Section 14.
(m) an environmental awareness plan describing the manner in which – i. The applicant intends to inform his or her employees of any environmental risk which may result from their work; and ii. Risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 13 & 14.
(n) any specific information that may be required by the competent authority	All required information has been addressed.

In accordance with the Integrated Environmental Management Guidelines published by the Department of Environmental Affairs & Tourism (DEAT) in 1992, the purpose of an Environmental Management Programme (EMPr) is "to describe how negative environmental impacts will be managed, rehabilitated or monitored and how positive impacts will be maximised".

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

(i) Section 28 of NEMA (National Environmental Management Act, Act 107 of 1998) states that:

Duty of care and remediation of environmental damage

"(1) 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 or cannot be reasonably avoided or stopped, to minimise and rectify such pollution or degradation of the environment"

This EMPr must form an integral part of the contract documents, as it outlines the methodology & duties required so that the project objectives can be achieved in an environmentally sustainable manner; with particular reference to the prevention and mitigation of environmental impacts caused by construction activities associated with this project.

These requirements will have a financial impact on the projects costings.

This EMPr is a dynamic document that may need to evolve during its implementation period so that it recognises any new issues that may arise; or changes in the parameters of identified issues and can address these issues with the required/amended mitigation.

### **The Polluter-Pays Principle**

This principle provides for "the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimizing further pollution, environmental damage or adverse health effects must be paid for by those responsible for harming the environment." The Polluter Pays Principle will be rigorously applied throughout the construction and operational phases of this project.

### **The EMPr will address the environmental impacts during the:**

- i. Planning and design phase
- ii. Pre-construction activities
- iii. Construction activities
- iv. Rehabilitation of the environment after construction
- v. Where relevant, operation activities

The main objective of the EMPr is to ensure environmental protection throughout the life span of the project on the receiving environment.

The EMPr consists of various environmental specifications and recommendations in order to achieve the less negative environmental impacts on the receiving environment. The EMPr will indicate what measures needs to be implemented

to ensure appropriate restoration of areas affected by the proposed project and prevent long term environmental degradation.

The contractor must be made aware of the environmental obligations that are stipulated in the EMPr. The contractor must declare themselves to be conversant of all relevant environmental legislation, the conditions in the Environmental Authorisation (EA) and the EMPr.

## 2. PROJECT DETAILS

The property is zoned Agricultural I. Wilderness Fruit (Pty) Ltd is applying for an additional 11 hectares of cultivated land to practise their existing rights to plant Macadamia and Avocado Trees on Erf 385, Hoekwil. Historically, the agricultural lands have been utilised for farming practises; however, the project area of interest (PAOI) is currently heavily infested with alien invasive plants (AIPs). The site can be located at GPS coordinates 33° 57' 13.87" 22° 35' 18.01".

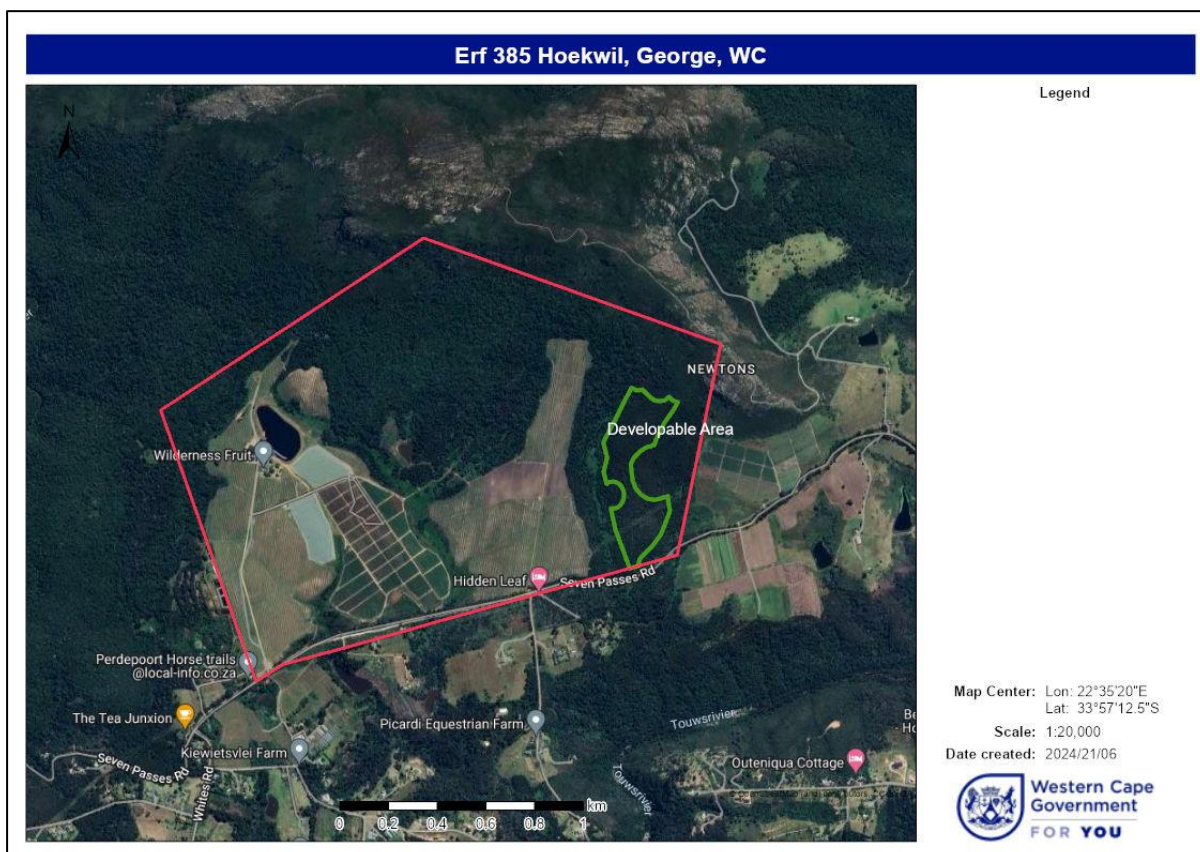


Figure 1 Locality Map

Alternative 1 (Preferred Alternative) –

The clearance of indigenous vegetation (heavily alien plant infested) for the development of a further 11 hectares of agricultural land for the purpose of planting Avocado trees and Macadamia nuts. The property has water rights and a dam on site. Irrigation pipes will be laid within the area; however, the proponent will manage the field as 'dryland' and some water will be used when fertilizer is required. The crops will be watered mainly by rainwater as the area receives sufficient annual rainfall for the proposed trees.

## 3. LOCATION INFORMATION

<b>Province:</b>	Western Cape
<b>District Municipality:</b>	Garden Route Municipality
<b>Local Municipality:</b>	George Local Municipality

<b>Ward number(s):</b>	Ward 22
<b>Nearest town(s):</b>	George
<b>Erf number:</b>	385 Hoekwil

#### 4. PROPERTY INFORMATION

<b>Erf number</b>	Erf 385 Hoekwil
<b>Surveyor General 21 digit code:</b>	C02700050000038500000
<b>Zoning:</b>	Agriculture I
<b>Urban Edge:</b>	No
<b>Applicant name:</b>	Wilderness Fruit (Pty) Ltd
<b>Registration number (if applicant is a company):</b>	2019/213818/07
<b>Trading name (if any):</b>	Wilderness Fruit (Pty) Ltd
<b>Responsible person name:</b>	Mr. Basil Jacobs
<b>Applicant/ Responsible person ID number:</b>	8407115331083
<b>Responsible position, e.g. Director, CEO, etc.:</b>	
<b>Physical address of applicant:</b>	
<b>Postal address:</b>	Postnet Suite MW313 Private BagX1828 Middelburg
<b>Postal code:</b>	1050
<b>Telephone:</b>	+27(0) 82 856 3909
<b>Fax:</b>	
<b>E-mail:</b>	admin@wildernessfruit.co.za
<b>GPS point middle of property:</b>	33° 57' 13.87" 22° 35' 18.01"

#### 5. SITE DEVELOPMENT PLAN

The below map indicates the proposed activity, its associated structures and infrastructure and environmental sensitive (no-go areas including a buffer area) areas of the site. Maps are attached as appendix B to this document to view in detail.

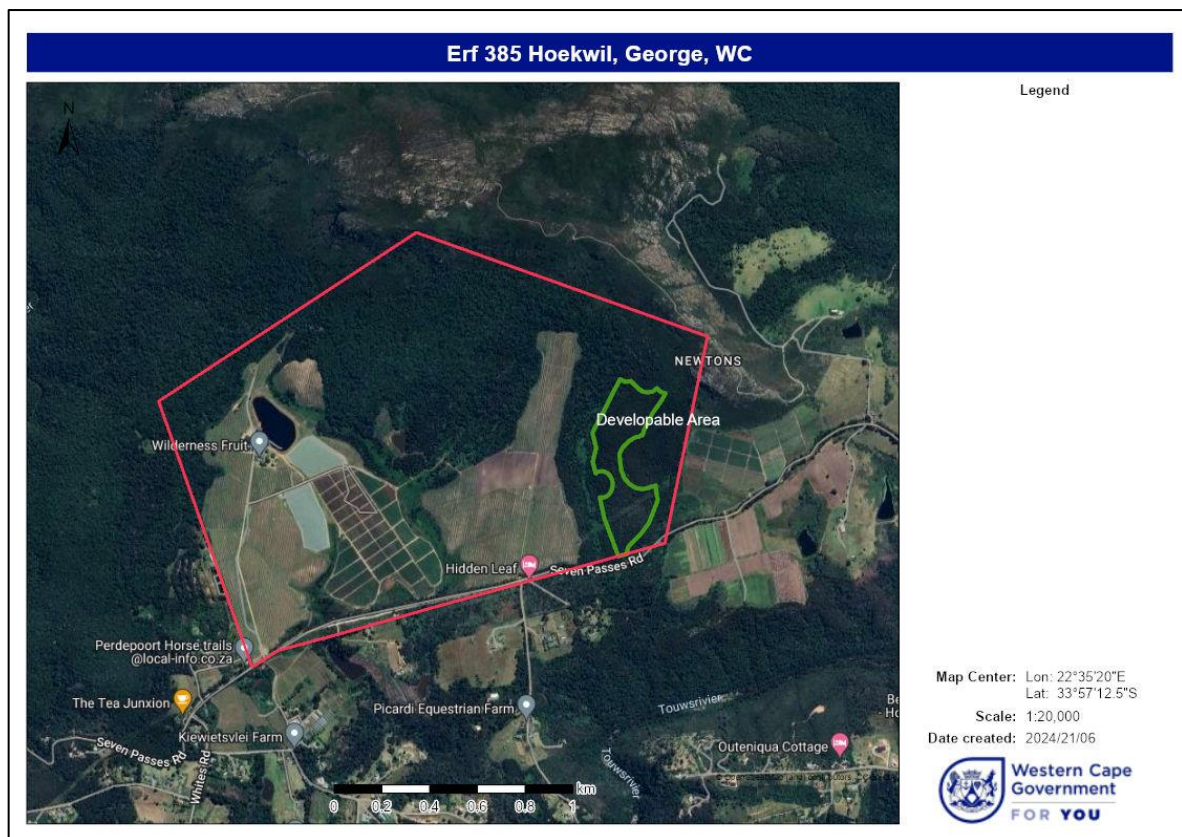


Figure 2 Preferred Alternative Layout

## 6. ENVIRONMENTAL SENSITIVITY MAPS

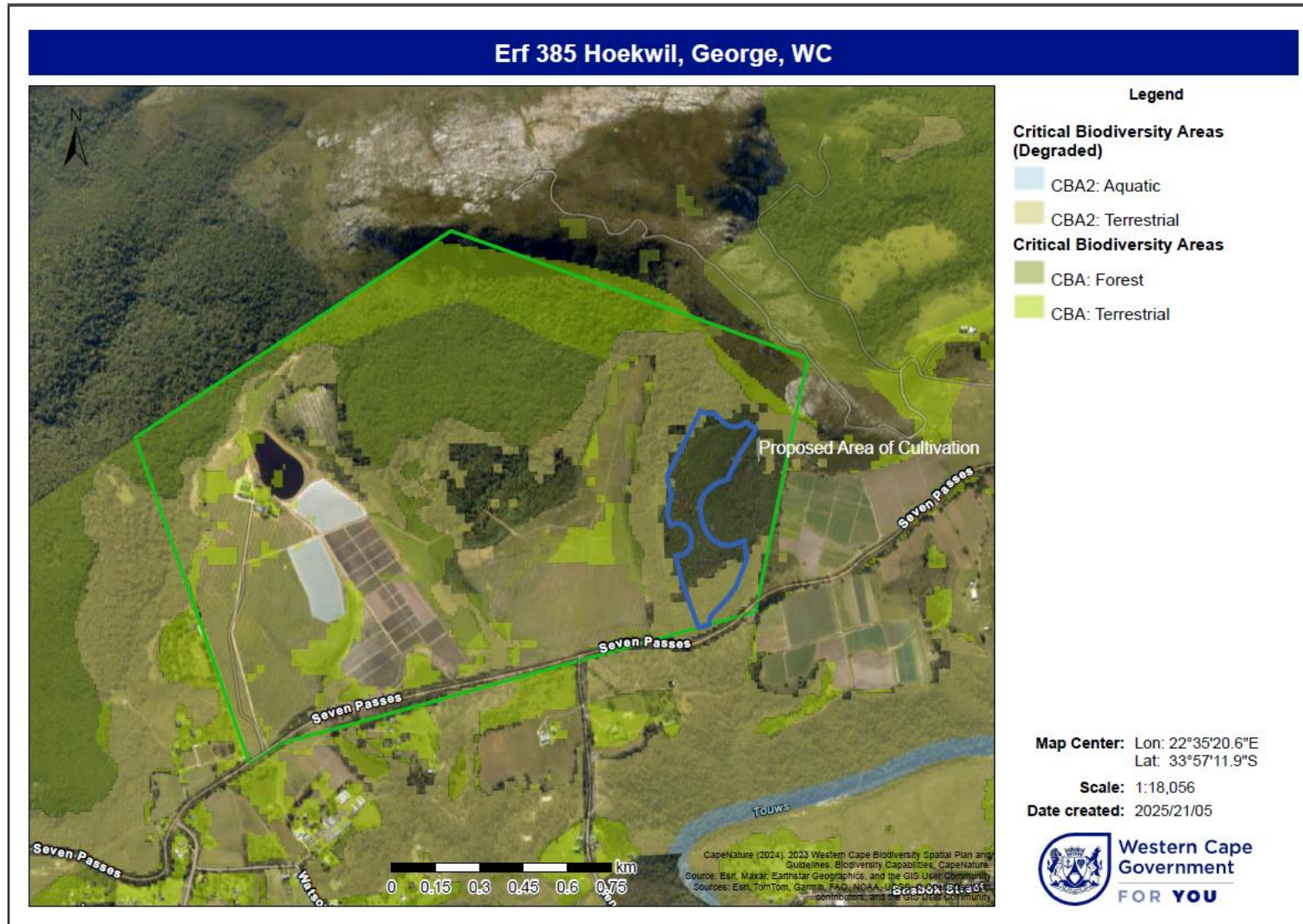


Figure 3: Critical Biodiversity Map – the proposed cultivation area will be partially within CBA2



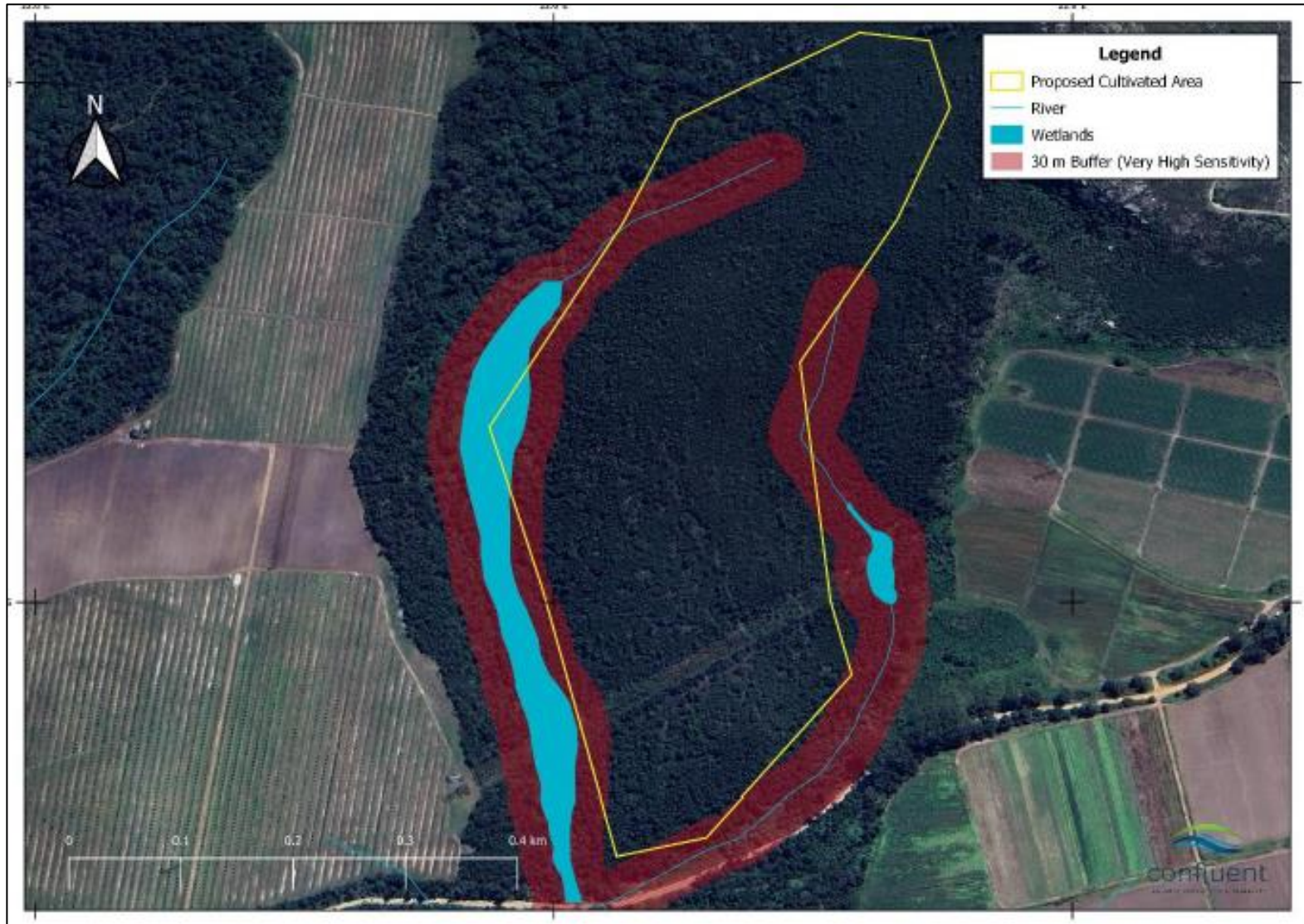


Figure 4: Watercourse and 30m buffer area

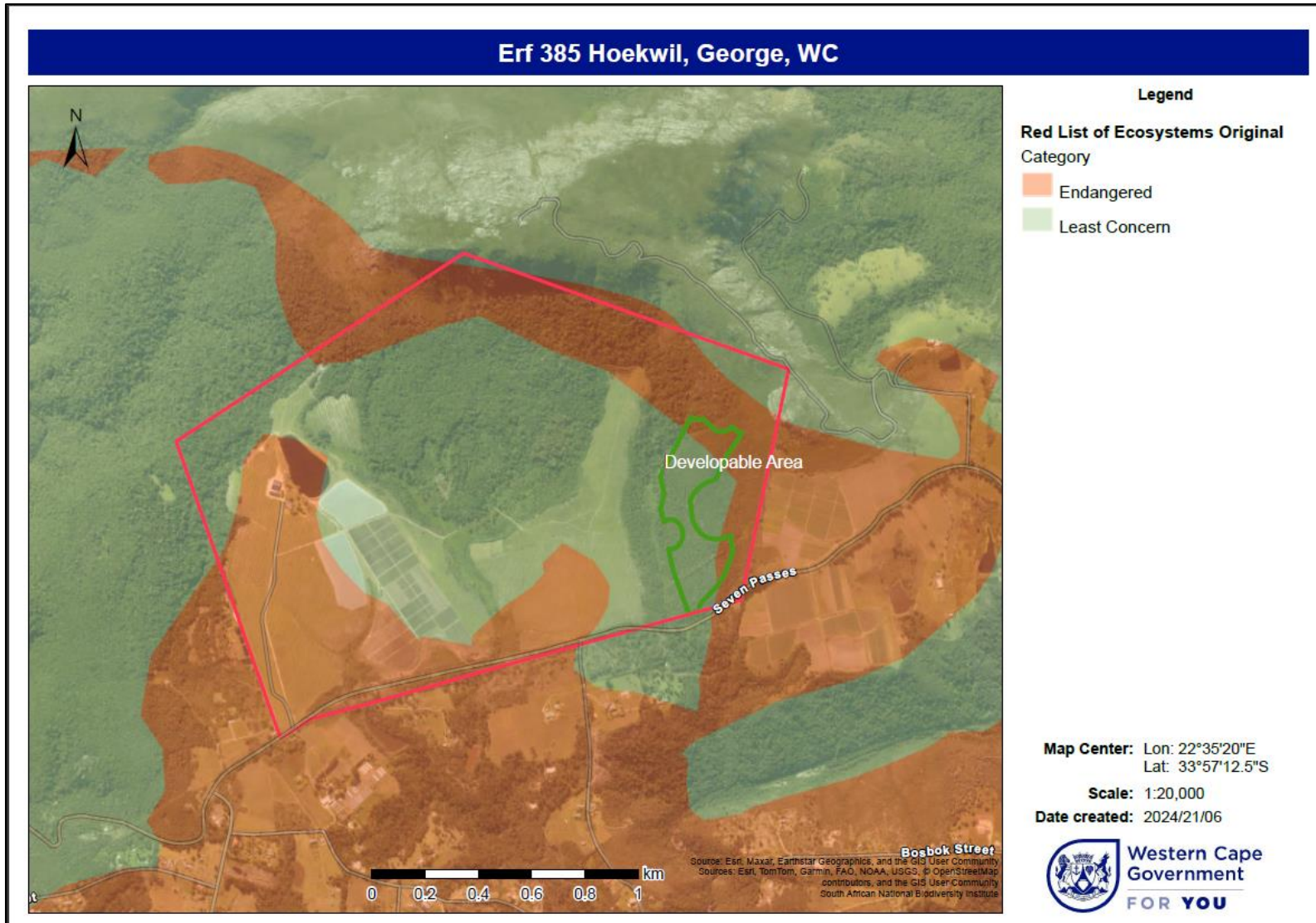


Figure 5: SANBI Red List of Ecosystems

## 7. MITIGATION AND MANAGEMENT MEASURES

Impacts foreseen during the design and planning phase:

The planning and design phase entails identified no-go areas and sensitivities on the site by specialists. These findings have been incorporated into the final SDP and must be adhered to .

The landowner must seek advice from Fire Advisor with regards to the National Veld and Forest Fire Act (NVFFA): Mr. P. Gerber: 0828055840; pgerber@dffe.gov.za

<b>Impact 1 – Loss of Terrestrial Biodiversity</b>					
<b>Cultivation of up to 15 ha including Intact and Semi-intact habitat.</b>					
<b>Impact</b>	<b>Preferred Alternative NOT APPLICABLE</b>		<b>Alternative 2</b>		<b>No-Go</b>
	Without mitigation	With mitigation	Without mitigation	With mitigation	
<b>Duration</b>			Long term	Long term	Long term
<b>Extent</b>			Very limited	Very limited	Very limited
<b>Intensity</b>			High	Moderate	Moderate
<b>Probability</b>			Certain / definite	Certain / definite	Certain / definite
<b>Confidence</b>			High	High	High
<b>Reversibility</b>			Low	Low	Low
<b>Resource irreplaceability</b>			Medium	Medium	Low
<b>Significance</b>			<b>Moderate - negative</b>	<b>Minor - negative</b>	<b>Minor - negative</b>
<b>Cumulative impacts</b>	The loss of 15 ha on this site would result in the loss of Medium and High sensitivity areas and species of conservation concern, and would result in a Medium to High negative residual impact which would require a biodiversity offset.				
<b>Mitigation:</b>					
<ol style="list-style-type: none"> <li>1. The calculated potentially developable area is 11 ha. If this area were to be developed it would result in a Low negative impact if mitigation is applied.</li> <li>2. Mitigation includes the search and rescue of one SCC the Vulnerable Sensitive species 419 and the rehabilitation of the areas excluded from the development footprint.</li> </ol>					

<b>Impact 2 - Degradation of wetland habitat caused by upgrading the access road.</b>					
<p><b>Additionally, infilling across the wetland can alter the natural hydrological and geomorphological characteristics of the wetland by restricting flow across the road. This has the effect of increasing the extent of inundation and sedimentation upstream of the road and reducing (or channelising) flow and sediment inputs downstream of the road, leading to a reduced extent or erosion of the wetland. Mitigation measures must therefore be implemented with a view to maintaining the natural hydrological and geomorphological characteristics of the wetland are maintained. In this respect the road must be upgraded to continue to allow diffuse flow through the road which can be achieved by installing multiple appropriately sized culverts through the road.</b></p>					
<p><b>Alternative A (Alternative 2): The existing road crossing the western wetland has been completely inundated and revegetated by wetland plant species and will need to be upgraded in order to make it passable to vehicles. This would require infilling along the existing alignment of the road, which will result in loss of permanent wetland habitat.</b></p>					
<p><b>Alternative B (Preferred Alternative): The alternative crossing is located across a narrower portion of the wetland which has been previously disturbed, is far less saturated and thus exhibits less prominent permanent</b></p>					

wetland features.					
Impact	Alternative A (Alternative 2)		Alternative B (Preferred Alternative)		No-Go  NOT APPLICABLE
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Permanent	Permanent	Permanent	Permanent	
Extent	Very limited	Very limited	Very limited	Very limited	
Intensity	Very High	Moderate	High	Low	
Probability	Almost Certain	Likely	Almost Certain	Likely	
Confidence	High	High	High	High	
Reversibility	High	High	High	High	
Resource irreplaceability	Low	Low	Low	Low	
Significance	Moderate - negative	Minor - negative	Moderate - negative	Minor - negative	
Cumulative impacts					

**Mitigation:**

- Multiple culverts (at least 300 mm diameter) must be placed through the road (every 5 m along the delineated width of the wetland) to facilitate diffuse flow beneath the road.
- The invert of each culvert must be level with bed of the wetland upstream and downstream of the road as the bed Figure 12.
- The width of the road surface must not exceed 4 m.
- An ECO must be appointed to oversee the upgrade of the road to ensure that the above-mentioned mitigation measures are implemented.
- For Alternative A: As the road crosses the wetland at an angle, culverts must be orientated parallel to the direction of flow through the wetland and must NOT be orientated perpendicular to the alignment of the road (see Figure 11).

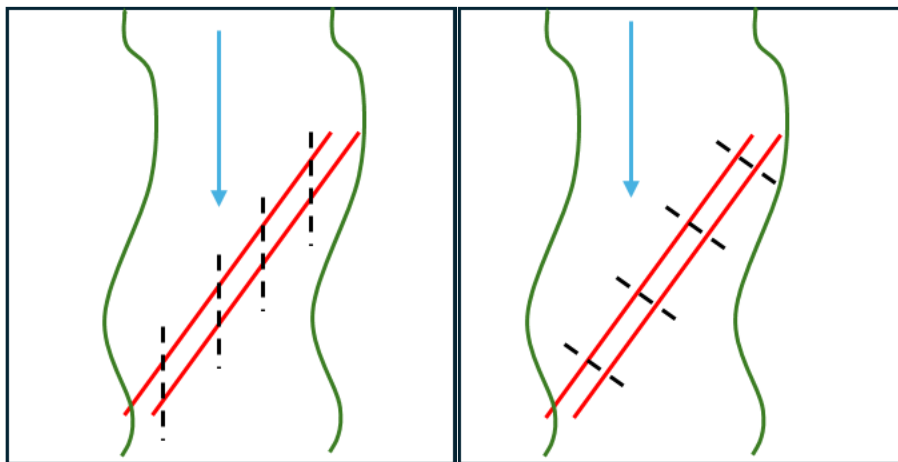


Figure 11: Sketch indicating orientation of correct orientation of culverts (black dashed lines) relative to the flow of water (blue arrow) and the alignment of the road (red lines).

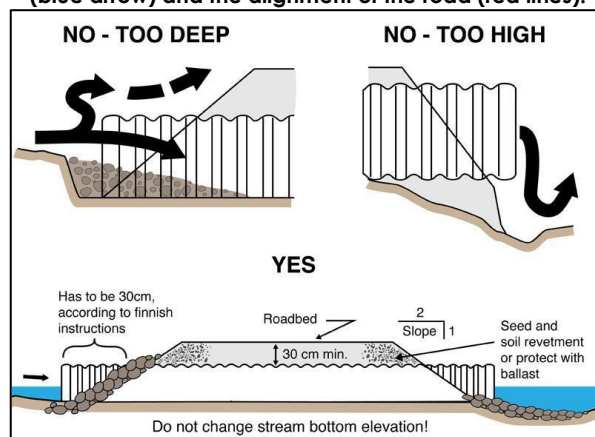


Figure 12: Diagram illustrating the ideal placement of culverts relative to the bed of the wetland.

**Impacts foreseen during the construction phase:**

**Impact 3 – Loss of terrestrial ecology including: vegetation type, ecological processes, indigenous vegetation, ecologically important species, terrestrial habitat and ecological connectivity.**

Impact	Preferred Alternative (11 ha)		Alternative 2 (15 ha)		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	
<b>Duration</b>	Long term	Long term	Long term	Long term	Long term
<b>Extent</b>	Very limited	Very limited	Very limited	Very limited	Very limited
<b>Intensity</b>	Moderate	Low	High	Moderate	Moderate
<b>Probability</b>	Certain / definite	Certain / definite	Certain / definite	Certain / definite	Certain / definite
<b>Confidence</b>	High	High	High	High	High
<b>Reversibility</b>	Low	Low	Low	Low	Low
<b>Resource irreplaceability</b>	Medium	Medium	Medium	Medium	Low
<b>Significance</b>	Minor - negative	Minor - negative	Moderate - negative	Minor - negative	Minor - negative
<b>Cumulative impacts</b>	<p>The loss of 15 ha on this site would result in the loss of Medium and High sensitivity areas and species of conservation concern, and would result in a Medium to High negative residual impact which would require a biodiversity offset.</p> <p>The calculated potentially developable area is 11 ha. If this area were to be developed it would result in a Low negative impact if mitigation is applied.</p>				

**Mitigation:**

1. Avoidance of the Intact forest (including a 50m buffer), Semi-intact fynbos and Degraded fynbos habitats which are of High and Medium sensitivity.
2. Avoidance of the subpopulation of *Leucospermum glabrum* (including a 100m buffer) and Sensitive species 419 on the eastern side of the site.
3. Ensure that natural fire cycles can occur within this area.
4. Avoidance of the freshwater features (including a 30m buffer) to ensure connectivity of lowland and upland habitat.
5. The 'search and rescue' of the Sensitive species 419 from the western side of the site.
6. The vegetation from the fynbos habitat that is not developed must be rehabilitated to a state where it is representative of the original fynbos ecosystem and supports ecological functioning to a moderate or high level.
7. The rehabilitation must be undertaken in a phased approach, according to a rehabilitation plan and undertaken by a qualified botanist or restoration ecologist.
8. The initial step will require the removal and control of all IAPs on the property and erosion control if necessary. Passive rehabilitation on the parts of the site where no earthworks have taken place can be allowed for one winter season following the removal of IAPs. Thereafter the site must be assessed by the restoration contractor to determine the level of active rehabilitation input. Active rehabilitation will be required for areas where topsoil has been disturbed, and areas that do not naturally recover from stored soil seedbank.
9. The restoration contractor should monitor the populations of SCC to ensure that they persist on the site, and additional propagation of these species may be required.
10. Follow-up clearing of all exotic and listed IAPs is required every 6 months for the first three years, and annually thereafter to ensure that the IAPs do not dominate the fynbos.

**Impact 4 – Loss of Species of Conservation Concern/ SCC**

**Flora: Loss of at least one *Ocotea bullata* seedling. Potential loss of two other SCC from site.**

**Fauna: one species of conservation concern (C. duthiae) may be impacted by the development,**

Impact	Preferred Alternative (11 ha)		Alternative 2 (15 ha)		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Long term	Long term	Long term	Long term	Long term
Extent	Very limited	Very limited	Very limited	Very limited	Very limited
Intensity	High	Low	High	Low	Moderate
Probability	Certain / definite	Certain / definite	Certain / definite	Certain / definite	Certain / definite
Confidence	High	High	High	High	High
Reversibility	Low	Low	Low	Low	Low
Resource irreplaceability	Medium	Low	Medium	Low	Low
Significance	Moderate - negative	Minor - negative	Moderate - negative	Minor - negative	Minor - negative
Cumulative impacts	N/A				

**Mitigation:**

1. Avoidance of the subpopulation of *Leucospermum glabrum* (including a 100m buffer) and Sensitive species 419 on the eastern side of the site.
2. The 'search and rescue' of the Sensitive species 419 from the western side of the site.
3. A buffer of 50m from intact forest habitats (Figure 9). This boundary is intended to mitigate any potential edge effects that may result from the clearing of adjacent vegetation. Forest species tend to be intolerant of disturbance and therefore this buffer intends to reduce disturbance during the construction and operational phases of developments.
4. Removal of all Invasive Alien Plants (IAPs) in buffers. The removal of these plants is key to allow for the recovery of the natural edaphic climax community, thereby improving habitat quality for resident faunal populations. The rehabilitation must be undertaken in a phased approach, according to a rehabilitation plan and undertaken by a qualified botanist or restoration ecologist.
5. Strict adherence to guidelines regarding use of pesticides, herbicides and other agricultural chemicals.
6. Avoid using heavy machinery in close proximity to buffer zones, and where possible limit human presence within buffer zones.

**Impact 5 - Loss of wetland habitat during the establishment of orchards**

The extent of the proposed cultivated area (Alternative 2) will extend into sections of wetland habitat and will provide minimal buffer area and associated protection of the wetland. In addition, preparation of orchards during the construction phase could potentially result in the degradation of wetland habitat if these take place in too close proximity to orchards. This will result in loss and degradation of wetland habitat over time, particularly considering the steep slopes and poor buffering capability of uncleared vegetation.

Impact	Preferred Alternative (11 ha)		Alternative 2 (15 ha)		No-Go NOT APPLICABLE
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Permanent	Long term	Permanent	Long term	
Extent	Limited	Very limited	Limited	Very limited	
Intensity	Very high	Low	Very high	Low	
Probability	Certain / definite	Unlikely	Certain / definite	Unlikely	
Confidence	High	High	High	High	
Reversibility	High	High	High	High	
Resource irreplaceability	Low	Low	Low	Low	
Significance	Moderate - negative	Negligible - negative	Moderate - negative	Negligible - negative	
Cumulative impacts	Loss of ecological habitats and SCC.				

**Mitigation:**

- Implementation of a 30 m buffer to protect the watercourse during the establishment of the orchards. The outer edge of the buffer must be clearly demarcated and activities within the buffer must be avoided;
- No orchards are to be established within the buffer;
- No equipment or materials to be stored or stockpiled in the buffer;
- No heavy machinery to operate within buffer;
- Apart from the road crossing the wetland, no roads to be established within the buffer; and
- An ECO must be appointed to oversee the establishment of the cultivated area relative to the delineation of the 30 m buffer.

**Impact 6 - Disturbance and pollution of aquatic habitat caused by construction of the road crossing.**

**Alternative A: The existing road crossing the western wetland has been completely inundated and revegetated by wetland plant species and will need to be upgraded in order to make it passable to vehicles. This would require infilling along the existing alignment of the road, which will result in loss of permanent wetland habitat.**

**Alternative B: The alternative crossing is located across a narrower portion of the wetland which has been previously disturbed, is far less saturated and thus exhibits less prominent permanent wetland features.**

In addition, for both alternatives, construction of the crossing will require that vehicles and machinery will need to access the watercourse which can result in:

- Physical disturbance of aquatic habitat (beyond the footprint of the road);
- Pollution through leaks and spills of hydrocarbons (i.e. fuel and oil from construction vehicles and machinery) and other construction materials (e.g. cement) and
- Mobilisation of sediment due excavation of the bed and banks and operation of construction vehicles in the watercourse.

Impact	Alternative A		Alternative B (has become the preferred alternative after assessing the impacts in this phase)		No-Go NOT APPLICABLE
	Without mitigation	With mitigation	Without mitigation	With mitigation	
<b>Duration</b>	Permanent	Permanent	Permanent	Permanent	
<b>Extent</b>	Very limited	Very limited	Very limited	Very limited	
<b>Intensity</b>	High	Moderate	Low	Very low	
<b>Probability</b>	Certain / definite	Certain / definite	Certain / definite	Certain / definite	
<b>Confidence</b>	High	High	High	High	
<b>Reversibility</b>	High	High	High	High	
<b>Resource irreplaceability</b>	Low	Low	Low	Low	
<b>Significance</b>	Moderate - negative	Moderate - negative	Moderate - negative	Minor - negative	
<b>Cumulative impacts</b>					

**Mitigation:**

- Construction of the road crossing must occur during the drier summer season;
- Working areas must be clearly demarcated and no vehicle access or disturbance must take place outside of demarcated areas;
- Rehabilitate and naturalise areas beyond the development footprint, which have been affected by the construction activities, using indigenous grass species;
- Use excavators instead of bulldozers to reduce sedimentation and consolidate the entry and exit points to reduce scouring;
- Vehicles must be restricted to travelling only on designated roadways to limit the ecological footprint of the proposed development activities;
- Restrict vehicle access to the watercourse to single points that are clearly demarcated;

- Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work in the watercourse;
- No fuel storage, refuelling, vehicle maintenance or vehicle depots to be allowed within 30 m of the edge of the delineated watercourse;
- Ensure that all stockpiles are well managed and have measures such as berms and hessian sheets implemented to prevent erosion and sedimentation. Stockpiles must be located more than 30 m from the edge of the wetland;
- Contractors used for the project should have spill kits available to ensure that any fuel or oil spills are cleaned and disposed correctly;
- Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation) and must be routinely serviced; and
- No dumping of construction or waste material is permitted. All construction and waste materials must be removed from the wetland and correctly disposed.

#### Impacts foreseen during the operation phase:

#### Impact 7 – Pollution of watercourse caused by surface runoff of sediments, pesticides and nutrients from orchards.

Cultivated fields will be established on relatively steep slopes which could mobilise nonpoint source pollution of sediments, nutrients and pesticides via surface runoff into watercourses.

Impact	Preferred Alternative (11 ha)		Alternative 2 (15 ha)		No-Go  NOT APPLICABLE
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Long term	Long term	Long term	Long term	
Extent	Local	Limited	Local	Limited	
Intensity	High	Moderate	High	Moderate	
Probability	Certain / definite	Probable	Certain / definite	Probable	
Confidence	High	High	High	High	
Reversibility	High	High	High	High	
Resource irreplaceability	Low	Low	Low	Low	
Significance	Moderate - negative	Minor - negative	Moderate - negative	Minor - negative	
Cumulative impacts	Pollution of the greater water catchment area.				

#### Mitigation:

1. Planting rows must be planted along the contours as opposed to perpendicular to the contours;
2. A permanent cover crop must be cultivated on the orchard row (underneath the trees) and in work rows (rows between the trees) which will improve water retention and soil structure and control unwanted weeds and also minimise transport of soil, nutrients and pesticides in surface runoff;
3. Implementation and maintenance of 30 m buffer between cultivated fields and watercourses; and
4. Control of alien invasive plant species must be carried out within buffer areas to encourage recolonisation by indigenous vegetation and improve the structural integrity of the buffer.

#### Impact 8 – Pollution of watercourse caused by spray drift during pesticide application.

Drift of pesticides into sensitive non-target areas during spraying can result in high concentrations of toxic pesticides being deposited in watercourses. While contamination is likely to be short-term, the high concentrations typically associated with spray drift events can lead to chronic and/or acute toxicological effects to aquatic and other biota inhabiting watercourses. The most effective measure to reduce drift deposition in watercourses is a) to increase the distance between the closest point of application and the watercourse through the establishment of a buffer and b) encourage growth of vegetation within the buffer which effectively intercepts spray droplets and minimises deposition in the watercourse.

Impact	Preferred Alternative (11 ha)	Alternative 2 (15 ha)	No-Go



	Without mitigation	With mitigation	Without mitigation	With mitigation	<b>NOT APPLICABLE</b>
<b>Duration</b>	On-going	On-going	On-going	On-going	
<b>Extent</b>	Local	Limited	Local	Limited	
<b>Intensity</b>	High	Low	High	Low	
<b>Probability</b>	Certain / definite	Probable	Certain / definite	Probable	
<b>Confidence</b>	High	High	High	High	
<b>Reversibility</b>	High	High	High	High	
<b>Resource irreplaceability</b>	Low	Low	Low	Low	
<b>Significance</b>	<b>Moderate - negative</b>	<b>Minor - negative</b>	<b>Moderate - negative</b>	<b>Minor - negative</b>	
<b>Cumulative impacts</b>	Pollution of the greater water catchment area and loss of SCC.				
<b>Mitigation:</b>					
<ol style="list-style-type: none"> <li>1. Implementation and maintenance of a vegetated 30 m buffer between cultivated fields and watercourses.</li> <li>2. Strict adherence to application of herbicide/pesticide protocols.</li> <li>3. Avoid applying aerosolized herbicide/pesticide during windy conditions.</li> </ol>					

<b>Impact 9 – Impairment of wetland habitat caused by increased stormwater inputs.</b>					
<b>Hardened road surfaces act as conduits for the conveyance of high energy stormwater flows directly into watercourses which can lead to erosion of the bed and banks and discharge of sediments and pollutants into watercourses.</b>					
<b>Impact</b>	<b>Preferred Alternative (11 ha)</b>		<b>Alternative 2 (15 ha)</b>		<b>No-Go NOT APPLICABLE</b>
	Without mitigation	With mitigation	Without mitigation	With mitigation	
<b>Duration</b>	On-going	On-going	On-going	On-going	
<b>Extent</b>	Limited	Limited	Limited	Limited	
<b>Intensity</b>	High	Low	High	Low	
<b>Probability</b>	Likely	Unlikely	Likely	Unlikely	
<b>Confidence</b>	High	High	High	High	
<b>Reversibility</b>	High	High	High	High	
<b>Resource irreplaceability</b>	Low	Low	Low	Low	
<b>Significance</b>	<b>Minor - negative</b>	<b>Negligible - negative</b>	<b>Minor - negative</b>	<b>Negligible - negative</b>	
<b>Cumulative impacts</b>	N/A				
<b>Mitigation:</b>					
<ol style="list-style-type: none"> <li>1. Water on the road approaching the wetland must be diverted off of the road as quickly as possible, to minimise the amount of water running directly down the road and into the wetland. The drainage must lead the water to vegetated filter strips or swales alongside the road, which remove sediment and other pollutants from the water.</li> <li>2. Having more frequent drains on the approach to the wetland ensures that the least amount of water is discharged directly into the wetland and reduced sediment loading.</li> </ol>					

## 8. SPECIALIST RECOMMENDATIONS/MITIGATION MEASURES

### 8.1 TERRESTRIAL BIODIVERSITY ASSESSMENT (GREG NICOLSON, CAPENSIS ECOLOGICAL CONSULTING, MAY 2024) –

Mitigation options are generally considered in terms of the following mitigation hierarchy: (1) avoidance, (2) minimization, (3) restoration and (4) offsets. A distinction is also made between essential mitigation (non-negotiable

mitigation measures that lower the impact significance) and non-essential mitigation (best practise measures that do not lower the impact significance).

In this instance, a number of essential mitigation measures are necessary to reduce the impact of the development.

1. Avoidance of the Intact forest (including a 50m buffer), Semi-intact fynbos and Degraded fynbos habitats which are of High and Medium sensitivity.
2. Avoidance of the subpopulation of *Leucospermum glabrum* (including a 100m buffer) and Sensitive species 419 on the eastern side of the site.
3. Ensure that natural fire cycles can occur within this area.
4. Avoidance of the freshwater features (including a 30m buffer) to ensure connectivity of lowland and upland habitat.
5. The 'search and rescue' of the Sensitive species 419 from the western side of the site.
6. The vegetation from the fynbos habitat that is not developed must be rehabilitated to a state where it is representative of the original fynbos ecosystem and supports ecological functioning to a moderate or high level.
7. The rehabilitation must be undertaken in a phased approach, according to a rehabilitation plan and undertaken by a qualified botanist or restoration ecologist.
8. The initial step will require the removal and control of all IAPs on the property and erosion control if necessary. Passive rehabilitation on the parts of the site where no earthworks have taken place can be allowed for one winter season following the removal of IAPs. Thereafter the site must be assessed by the restoration contractor to determine the level of active rehabilitation input. Active rehabilitation will be required for areas where topsoil has been disturbed, and areas that do not naturally recover from stored soil seedbank.
9. The restoration contractor should monitor the populations of SCC to ensure that they persist on the site, and additional propagation of these species may be required.
10. Follow-up clearing of all exotic and listed IAPs is required every 6 months for the first three years, and annually thereafter to ensure that the IAPs do not dominate the fynbos.

#### **Best practise mitigation**

1. Mark off the areas that are not going to be developed prior to undertaking any works, and ensure that no unnecessary loss of adjacent vegetation occurs.
2. Mark off all SCC, especially the central subpopulation of *Leucospermum glabrum*, to ensure that it is not disturbed during construction.
3. Sites for building material stocks, vehicles, toilets etc must be clearly marked and restricted to the building footprint, exiting roads or existing disturbed areas.

## **8.2 ANIMAL SPECIES SPECIALIST REPORT (ADAM LABUSCHAGNE AND JACOBUS VISSER, CAPENSIS ECOLOGICAL CONSULTING, MAY 2024) –**

In terms of essential mitigation measures the following actions are necessary to reduce the impact of the development:

1. A buffer of 50m from intact forest habitats (Figure 9). This boundary is intended to mitigate any potential edge effects that may result from the clearing of adjacent vegetation. Forest species tend to be intolerant of disturbance and therefore this buffer intends to reduce disturbance during the construction and operational phases of developments.
2. A 30m buffer along all water courses and wetland habitats (Figure 9), as per the Aquatic Specialist Report (James, 2024). Due to the steep topography, there is a high risk of runoff in both the construction and operational phases of the development. This can be in the form of increased sediment loads as a result of erosion, or through runoff containing

agricultural products such as pesticide or herbicide. This is vital to ensure the viability of amphibian and aquatic invertebrate populations that are sensitive to poor water quality.

3. Removal of all Invasive Alien Plants (IAPs) in buffers. The removal of these plants is key to allow for the recovery of the natural edaphic climax community, thereby improving habitat quality for resident faunal populations. The rehabilitation must be undertaken in a phased approach, according to a rehabilitation plan and undertaken by a qualified botanist or restoration ecologist.

4. Strict adherence to guidelines regarding use of pesticides, herbicides and other agricultural chemicals.

5. Avoid using heavy machinery in close proximity to buffer zones, and where possible limit human presence within buffer zones.

Whilst not an essential mitigation measure, it is recommended that any particularly large IAP individuals be ring barked and left to stand within buffer zones, where possible. Referred to as snags in forestry, these dead trees will provide good quality nesting sites for *Campethera notata* and other woodpeckers species as well as raptors such as *Stephanoetus coronatus* or *Polemaetus bellicosus*.

#### **Best practise mitigation**

1. Mark off the areas that are not going to be developed prior to undertaking any works, and ensure that no unnecessary loss of adjacent vegetation occurs.

2. Sites for building material stocks, vehicles, toilets etc must be clearly marked and restricted to the developmental footprint, existing roads or existing disturbed areas.

3. Avoid using heavy machinery within the prescribed buffer zones. This reduces the risk of soil compaction which would have a deleterious effect on the burrowing behaviour of any remaining mole species within these habitats.

### **8.3. SPECIALIST AQUATIC BIODIVERSITY ASSESSMENT (DR. JAMES DABROWSKI, CONFLUENT ENVIRONMENTAL, MAY 2025) –**

Two wetlands and associated streams were identified either side of the proposed cultivated area on Erf 385. These wetlands occur within a catchment area that has been classified as a FEPA and a SWSA. Any further development in the catchment area must therefore be done in a sensitive manner so as to maintain watercourses and the larger Touws River catchment in a good ecological condition. Extensive agricultural activities are one of the main threats to aquatic biodiversity that have been identified in the broader catchment area. Impacts associated with agriculture are primarily related to loss of aquatic habitat due to encroachment of cultivated areas into riparian zones and wetlands and nonpoint source pollution of watercourses by nutrients, sediment and pesticides. All of these impacts can be effectively mitigated through the implementation of adequately sized buffers that protect watercourses from habitat loss but also play an important role in attenuating and filtering nonpoint source pollutants. In this respect, and considering the sensitivity of the catchment area, a mandatory 30 m buffer between watercourses and planned cultivated fields must be implemented. Provided that the buffer and other mitigation measures are implemented, impacts associated with the proposed establishment of cultivated areas are acceptable from an aquatic biodiversity perspective.

Both road crossing alternatives would require infilling of wetland habitat and can also alter the natural hydrological and geomorphological characteristics of the wetland by restricting flow across the road. Mitigation measures must therefore be implemented with a view to ensuring the natural hydrological and geomorphological characteristics of the wetland are maintained. In this respect the road design must continue to allow diffuse flow through the road which can be achieved by installing multiple appropriately sized culverts through the road. Alternative B results in a lower impact and risk to the wetland – and is therefore the recommended alternative.

### **8.4. SOIL SUITABILITY ASSESSMENT AND AGRICULTURAL COMPLIANCE STATEMENT (JOHANN LANZ, SOIL ZA, MAY 2025) –**

The overall conclusion of this assessment is that the proposed development enhances future agricultural production potential and therefore has a positive agricultural impact. The soils across the site are suitably similar for orchard establishment to the other recently established orchard adjacent to the site. They are predominantly reasonably drained podzol soils of the Groenkop 2110 soil form and family with approximately 8% clay in the A and B horizons. Depth to the underlying saprolite varies from 400 mm to 1000 mm. They are suitable for irrigated cropping once soil preparation that includes deep ripping has been done. Although the steep slopes make the land susceptible to erosion, it will be completely controlled through standard farming practices that are used on the adjacent, established orchards. This assessment confirms that the site is suitable and viable for irrigated orchards, and that the soil resources on the site will not be damaged by this activity.

From an agricultural impact point of view, it is recommended that the proposed development be approved. The conclusion of this assessment on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.

### 8.5 SUMMARY OF MITIGATION MEASURES FOR NO-GO AREAS

1. Avoidance of the Intact forest (including a 50m buffer), Semi-intact fynbos and Degraded fynbos habitats which are of High and Medium sensitivity.
2. Avoidance of the subpopulation of *Leucospermum glabrum* (including a 100m buffer) and Sensitive species 419 on the eastern side of the site.
3. Avoidance of the freshwater features (including a 30m buffer) to ensure connectivity of lowland and upland habitat.
4. 'Search and Rescue' of the Sensitive species 419 from the western side of the site.
5. The outer edge of all buffers must be clearly demarcated and activities within the buffer must be avoided.

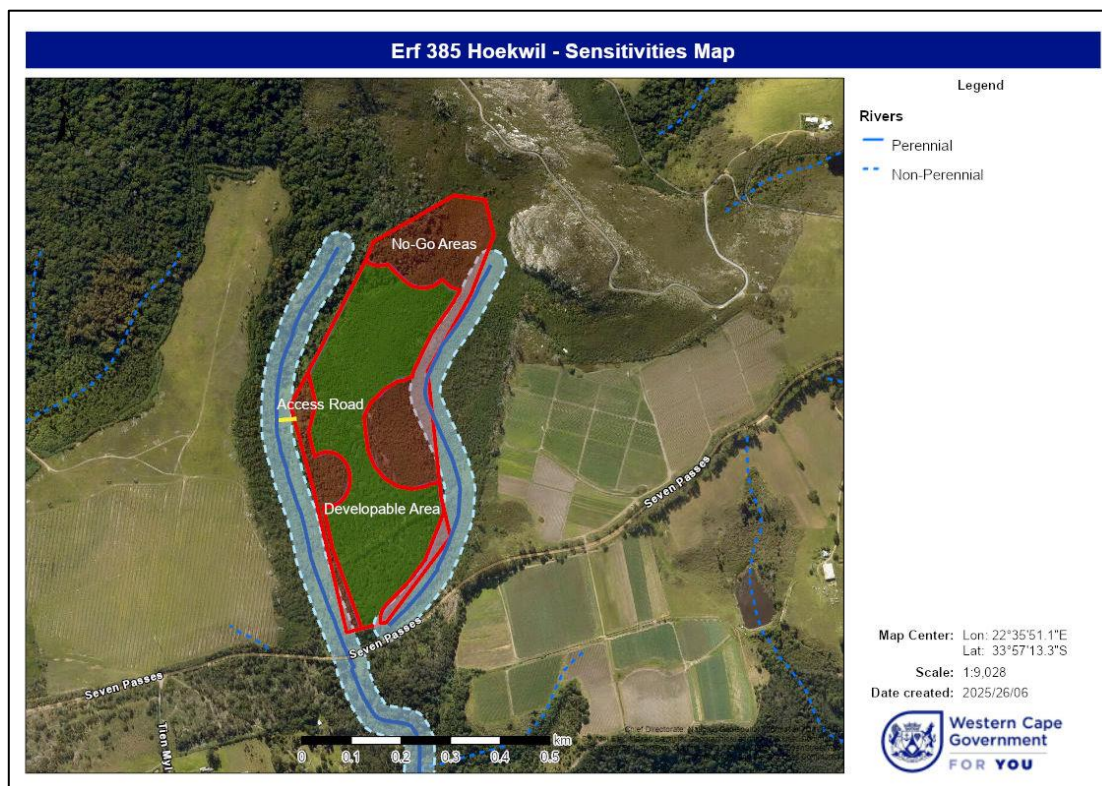


Figure 6: No-Go Areas (indicated in red) and Buffer Zones (Indicated in dashed blue lines) Map

### 8.6 MITIGATION MEASURES TO ADDRESS EUTROPHICATION RISKS

#### 1. Fertiliser and Nutrient Management

- Soil and leaf analysis must be undertaken before any fertiliser application to guide nutrient budgeting.
- Apply fertilisers in split applications (smaller, more frequent doses) rather than single large doses.

- Use slow-release or organic fertilisers to reduce leaching and nutrient spikes.
- Prohibit fertiliser application within 30 m of wetlands and rivers (buffer zone).
- No application before heavy rainfall events to avoid nutrient wash-off.

## 2. Buffer Zones and Vegetative Barriers

- Maintain minimum 30 m vegetated buffers around wetlands, rivers, and drainage lines.
- Establish filter strips with indigenous grasses and shrubs downslope of orchards to intercept nutrients.
- Protect and rehabilitate Critical Biodiversity Areas (CBAs) to strengthen natural nutrient absorption and filtration.

## 3. Stormwater and Runoff Control

- Implement contour drains, swales, and infiltration trenches to slow stormwater and promote nutrient uptake.
- Install sediment traps/settlement ponds at low points to capture particulate-bound nutrients before discharge.
- Ensure separation of clean and contaminated water to prevent mixing of natural runoff with nutrient-laden stormwater.

## 4. Pesticide and Herbicide Use

- Integrated Pest Management (IPM) approach to minimise chemical dependency.
- No mixing, storage, or cleaning of chemical containers near watercourses.
- Empty agrochemical containers to be disposed of at a licensed hazardous waste facility.

## 5. Monitoring and Adaptive Management

- Conduct **quarterly** water quality monitoring (nitrates, phosphates, turbidity) upstream and downstream of the site. Submit findings to the Competent Authority and SANParks.
- Maintain a fertiliser application logbook to track type, amount, and timing of applications.
- Review monitoring results annually to adjust nutrient management practices if signs of eutrophication emerge.

## 6. Capacity Building

- Train farm workers in best practice fertiliser and agrochemical handling.
- Awareness training on the importance of protecting wetlands and rivers from nutrient loading.

## 9. LEGISLATIVE REQUIREMENTS

### 9.1 SIGNING OF THE EMPR

The acknowledgement form at the back of the approved EMPr is to be signed by the holder of the Environmental Authorisation (the Proponent), the Site Manager and the ECO; acknowledging that all parties are familiar with the requirements of the EMPr. All employees, especially the machine and equipment operators, are to be made aware of the conditions as contained in the EMPr as well as the contractual conditions relating to the environment as contained in the contract document.

### 9.2 LEGISLATION

Of importance are all national, provincial and municipal by-laws and regulations. Statutes are amended periodically, and it is the Proponent's responsibility to identify legislation relevant to the proposed activity.

LEGISLATION	ADMINISTERING AUTHORITY	TYPE
		Permit/ license/ authorization/comment
NATIONAL ENVIRONMENTAL	Department of Environmental Affairs	AUTHORISATION

<b>MANAGEMENT ACT (ACT 107 OF 1998)</b>	& Development Planning	
<b>NATIONAL ENVIRONMENTAL MANAGEMENT AMENDMENT ACT (ACT 62 OF 2008)</b>	Department of Environmental Affairs & Development Planning	AUTHORISATION
<b>NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (ACT NO 10 OF 2004)</b>	SANParks, CapeNature and Department of Forestry, Fisheries and the Environment: WC Forestry Branch	COMMENT
<b>NATIONAL WATER ACT (ACT 36 OF 1998)</b>	Department of Water Affairs/ Breede-Olifants Catchment Management Agency	COMMENT/ GENERAL AUTHORISATION
<b>WESTERN CAPE NATURE CONSERVATION LAWS AMENDMENT ACT (ACT 3 OF 2000)</b>	CapeNature	RELEVANT CONSIDERATION
<b>CONSERVATION OF AGRICULTURAL RESOURCES ACT (ACT 43 OF 1983)</b>	Department of Forestry, Fisheries and the Environment: WC Agriculture Branch	COMMENT
<b>NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)</b>	Heritage Western Cape	RELEVANT CONSIDERATION
<b>OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)</b>	Department of Health	RELEVANT CONSIDERATION

## Policies

National Environmental Management Act (NEMA, Act 107 of 1998)	<p>The proposed activity was assessed through a Basic Assessment Process under NEMA.</p> <p>Sustainable development principles (e.g. protection of biodiversity, efficient use of resources) have been integrated into the site design and mitigation measures.</p>
National Biodiversity Framework & Biodiversity Act (NEMBA)	<p>The development avoids Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs) where possible.</p> <p>A 30 m buffer from wetlands and rehabilitation of degraded areas aligns with biodiversity conservation objectives.</p>

	Alien invasive species will be cleared and managed.
National Water Act (Act 36 of 1998)	<p>Water will be sourced from an existing lawful allocation, with no potable water used.</p> <p>Existing water use: the dam on the property was previously lawfully consolidated from 4 dams into 1 in 2019.</p> <p>Stormwater and pesticide runoff are managed through buffers, swales, and no-spray zones.</p> <p>The development avoids construction within wetland areas, and road crossings use culverts to maintain natural flow.</p>
George municipal spatial development framework 2023/27	<p>The site is zoned Agricultural I, and the use of the land for orchards is aligned with the SDF's designation for rural agricultural intensification.</p> <p>The project contributes to local food security, rural economic development, and job creation in line with SDF objectives.</p>
Western Cape Provincial Spatial Development Framework (PSDF)	<p>Supports sustainable resource use (soil, water) and climate-resilient agriculture.</p> <p>The development avoids expansion into natural vegetation, aligning with PSDF biodiversity targets.</p>
Western Cape Biodiversity Spatial Plan (WCBSP 2017 and 2023)	<p>The layout was revised to avoid CBA1, CBA2, and wetland zones.</p> <p>Areas within buffers and no-go zones will be rehabilitated and managed for biodiversity enhancement.</p>
National Development Plan (2030)	The project supports job creation in rural areas, climate-smart agriculture, and low-impact land use, directly contributing to the NDP's goals.

### 9.3 PROJECT RESPONSIBILITIES

Responsibility for the implementation of the EMPr lies with the Proponent who must retain the services of a suitably experienced independent Environmental Control Officer (ECO) who will monitor the construction process and rehabilitation/mitigation measures periodically.

The ECO's responsibilities must include, *inter alia*:

- ❖ To keep record of all activities on site, problems identified, transgressions noted, and a task schedule of tasks undertaken by the ECO.

- ❖ Secure the protection and rehabilitation of the environment.
- ❖ Guide, advise and consult the relevant authority on environmental issues during construction.
- ❖ Guide, advise and consult any sub-contractors, suppliers etc. who will be involved in this project.
- ❖ Revise the EMPr as required and inform the relevant parties of the changes. An amended EMPr must be subject to a public participation process, which has been agreed to by the Department, prior to submission of the amended/updated EMPr to the Department for approval.
- ❖ Ensure that the EMPr has been accepted and understood as a contractually binding document on all parties involved with this project.
- ❖ Ensure that staff operating equipment are adequately trained, certified and sensitised to any potential hazards associated with their tasks.
- ❖ Educate staff as to the need to refrain from indiscriminate waste disposal and/or pollution of local soil and water resources, ensure that they (the staff) have received the necessary safety training, and are aware of the importance of a "clean-site policy."
- ❖ The management guidelines contained in this document must form part of the contractual agreements between the Proponent, Site Manager and the ECO.

## 10. REPORTING PROCEDURES

### 10.1 DOCUMENTATION

The following documentation must be kept on site in order to record compliance with the EMPr:

An Environmental File which includes:

- ❖ Copy of the Environmental Authorisation;
- ❖ Copy of the approved EMPr
- ❖ Copy of all other licences/permits;
- ❖ Environmental Method Statements;
- ❖ Non-conformance Reports;
- ❖ Environmental register, which shall include:
  - Communications Register – including records of complaints, minutes and attendance registers of all environmental meetings;
  - Monitoring Results – including environmental monitoring reports, register of audits, non-conformance reports; and
  - Incident book – including copies of notification of Emergencies and Incidents, this must be accompanied by a photographic record.
- ❖ Waste Documentation such as, but not necessarily limited to: Waste Manifest Documents, Safe Disposal Certificates (SDCs) and Sewerage Disposal Receipts;
- ❖ Material Safety Data Sheets (MSDSs) for all hazardous substances; and
- ❖ Written Corrective Action Instructions.

### 10.2 ENVIRONMENTAL REGISTER

The Proponent will put in place an Environmental Register and will ensure that the following information is recorded for all complaints / incidents:

- ❖ Nature of complaint / incident.



- ❖ Causes of complaint / incident.
- ❖ Party/parties responsible for causing complaint / incident.
- ❖ Immediate actions undertaken to stop / reduce / contain the causes of the complaint / incident.
- ❖ Additional corrective or remedial action taken and/or to be taken to address and to prevent reoccurrence of the complaint / incident.
- ❖ Timeframes and the parties responsible for the implementation of the corrective or remedial actions.
- ❖ Procedures to be undertaken and/or penalties to be applied if corrective or remedial actions are not implemented.
- ❖ Copies of all correspondence received regarding complaints/incidents.

### 10.3 NON-CONFORMANCE REPORT

A Non-Conformance Report (NCR) will be issued to the Proponent as a final step towards rectifying a failure in complying with a requirement of the EMPr. This will be issued by the ECO to the Proponent in writing. Preceding the issuing of a NCR, the Proponent must be given an opportunity to rectify the issue.

Should the ECO assess an incident or issue and find it to be significant (e.g. non-repairable damage to the environment), it will be reported to the relevant authorities and immediately escalated to the level of a NCR. The following information should be recorded in the NCR:

- ❖ Details of non-conformance;
- ❖ Any plant or equipment involved;
- ❖ Any chemicals or hazardous substances involved;
- ❖ Work procedures not followed;
- ❖ Any other physical aspects;
- ❖ Nature of the risk;
- ❖ Actions agreed to by all parties following consultation to adequately address the non-conformance in terms of specific control measures and should take the hierarchy of controls into account;
- ❖ Agreed timeframe by which the actions documented in the NCR must be carried out; and
- ❖ The ECO should verify that the agreed actions have taken place by the agreed completion date. When completed satisfactorily, the ECO and Proponent should sign the Close-Out portion of the Non-Conformance Form and file it with the contract documentation.

### 10.4 ENVIRONMENTAL EMERGENCY RESPONSE

The Proponents environmental emergency procedures must ensure appropriate responses to unexpected / accidental actions / incidents that could cause environmental impacts.

The Environmental Emergency Response Plan is separate to the Health and Safety Plan as it is aimed at responding specifically to environmental incidents and must ensure and include the following:

- ❖ Employees shall be adequately trained in terms of incidents and emergency situations;
- ❖ Details of the organisation (i.e. manpower) and responsibilities, accountability and liability of personnel;
- ❖ A list of key personnel and contact numbers;
- ❖ Details of emergency services (e.g. the fire department / on-site fire detail, spill clean-up services) shall be listed;
- ❖ Internal and external communication plans, including prescribed reporting procedures;
- ❖ Actions to be taken in the event of different types of emergencies;
- ❖ Incident recording, progress reporting and remediation measures to be implemented; and
- ❖ Information on any hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.

## 11. COMPLIANCE WITH THE EMPr

### 11.1 MONITORING AND COMPLIANCE

The monitoring and compliance of the development should take place as follows:

- ❖ The ECO has the authority to instruct the Proponent to cease a particular operation causing or liable to cause significant environmental damage, and issue fines or penalties for non-compliance of the Environmental Management Programme/ EMPr.
- ❖ The ECO must be involved with the identification and demarcation of the no-go areas (and buffer areas) to prevent any clearing activities in such areas.
- ❖ The ECO must during **construction** activities monitor the site **weekly during the initial development period. Visits by the ECO may taper, at the discretion of the ECO thereafter.**
- ❖ The ECO must prepare environmental monitoring reports **monthly**. These reports must contain photographic evidence and be submitted to **Compliance Monitoring** of the Department monthly.
- ❖ Water quality monitoring tests must be undertaken by the Proponent **quarterly** and the ECO is to ensure that the results are attached to the environmental monitoring report for submission to the Competent Authority and SANParks.
- ❖ An Independent Environmental Auditor must be appointed to submit an environmental audit report to the Department **within 30 days of completion of the construction phase** (i.e., within 30 days of site handover). Auditing requirements must comply with Regulation 34 of the EIA Regulations, 2014 (as amended).
- ❖ All documentation e.g. audit/monitoring/compliance reports and notifications, required to be submitted to the Department in terms of the Environmental Authorisation, must be submitted to the **Compliance Monitoring** of the Department.
- ❖ Environmental audit reports must be compiled in accordance with Appendix 7 of the EIA Regulations 2014, as amended and must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the Environmental Authorisation conditions as well as the requirements of the approved EMPr.
- ❖ Operation of the activity – a written notification of operation must be given to the Department no later than **fourteen (14) days** prior to the commencement of the activity operational phase.
- ❖ An ECO must be appointed to submit **bi-annual** environmental monitoring reports to the Competent Authority for 2 years during the **operational phase**.

### 11.2 AUDITING PROCESS

The terms of reference for the audits must comprise the following:

- ❖ Develop a checklist against which the criteria can be referenced during the audit.
- ❖ During the audit process, key individuals involved with the management of the project are to be given the opportunity to comment on issues being audited and will be invited to accompany the auditor during the site inspection.
- ❖ Compile an audit report on the implementation of the EMPr and compliance to the Environmental Authorisation and submit this report to the competent authority (Department of Environment Affairs and Development Planning/ DEA&DP).

Compliance ratings against which the listed criteria are assessed are as follows:

Symbol	Rating	Interpretation
Y	Yes	Evidence of compliance
P	Partial	Evidence of partial compliance
N	No	Evidence of non-compliance
NR	Not Relevant	The condition or commitment is not relevant at this stage of the development or it is inappropriate
NA	Not Audited	Not audited

### 11.3 NON-COMPLIANCE

#### Definition

The non-compliance is defined as, and will be issued for:

- ❖ Any deviation by the Proponent from the environmental conditions and requirements as set out in the EA and EMPr - or;
- ❖ Any contravention by the Proponent of environmental legislation - or;
- ❖ Any unforeseen environmental impact resulting from direct or indirect actions or activities on site that would be considered as a significant impact. Significance will be determined by the Environmental Control Officer (ECO) but will be informed by geographic extent, duration, lasting effects of the impact and extent of remediation to the impact.

#### Types of non-compliances issued

Two types of non-compliances may be issued:

##### A. Stop Works Non-Compliance

Stop Works Non-Compliance will require that all works as described in the non-compliance will stop immediately and may only continue on a formal written permission from the ECO.

Stop Works Non-Compliance will be issued under the following conditions:

- ❖ Total disregard by the Proponent to the environmental conditions and requirements listed in the EA and EMPr;
- ❖ An activity that if left unattended will escalate the degree, severity or extent of the environmental impact.

##### B. General Non-Compliance

A general non-compliance will allow work and activity by the receiving party to continue while the corrective action takes place.

### 11.4 ISSUING A NON-COMPLIANCE

Non-compliance may be issued to:

- ❖ The Proponent
- ❖ Any representative of the Proponent

### 11.5 PROCESS OF ISSUING NON-COMPLIANCE

The appointed Environmental Control Officer (ECO) may issue a formal non-compliance to the Proponent. A copy of the non-compliance issued will be placed in the EMPr file. The Proponent will be responsible for returning a formally signed off corrective action (as per template) to the ECO to be placed in the EMPr file. The ECO will be required to sign-off on the corrective action, indicating that it has been completed within the timeframes and to the satisfaction of the ECO.

## 11.6 FAILURE TO COMPLETE CORRECTIVE ACTIONS

In the event that the Proponent fails or refuses to complete the corrective action, either at all or within the allocated timeframe, the ECO shall,

- ❖ Inform DEA&DP in writing that a condition of approval for the project is not being met.

The DEA&DP office is responsible for resolving the impasse with the Proponent.

The Proponent is deemed not to have complied with the EA and EMPr if:

- ❖ Within the boundaries of the site and site extensions there is evidence of contravention of clauses;
- ❖ Environmental damage occurs due to negligence; inappropriate actions taken by the Proponent or any of his staff.

On receiving a notice of non-compliance the Proponent is required to swiftly address the issue/s taking all corrective actions required to rectify the situation. Penalties will be applied for non-compliant situations. Penalties/fines are advocated to ensure corrective measures are successfully undertaken and the necessary standard of rehabilitation is achieved.

Penalties associated with a non-compliance is not a set amount but will depend on the nature and extent of the impact. The cost of any soil and /or groundwater monitoring and any soil and /or groundwater remediation required by authorities will be to the Proponent's account.

The imposition of such a penalties / fines shall not preclude the relevant competent authority from applying an additional penalty in accordance with statutory powers.

Failure to redress the cause shall be reported to the relevant authority for them to deal with the transgression as deemed fit.

## 11.7 UNLAWFUL ACTIVITY/IES

Section 28 (15) of NEMA entitles authorities to administer a fine not exceeding R1 million or to imprisonment for a period not exceeding 1 year or both such a fine and imprisonment.

Section 31N of NEMA entitles environmental authorities to administer a fine not exceeding R 5 million or 10 years imprisonment and/or a fine and imprisonment for a person guilty of an unlawful activity. The Act makes allowance for the rectification of unlawful activity and may charge up to R1 million administration fees over and above the remediation costs.

NEMA makes provision for damages to be awarded by the courts where loss or damage has occurred as a result of a contravention of other environmental statutes. Importantly, NEMA provides for the liability of conviction of employees, managers, agents and directors for any offences resulting from the failure to take all the reasonable steps that were necessary under the circumstances to prevent the commission of an offence.

## 12. AMENDMENTS TO THE EMPr

This EMPr outlines the environmental practices and mitigation measures to be adhered to during the construction, operational, and rehabilitation phases; in order to curtail and/or minimise potential negative impacts and promote sound environmental practises.

Any significant issues not covered in the EMPr as submitted, will be addressed as an addendum to this EMPr, and submitted for approval. The EMPr is a living document and is subject to change from time to time in consultation with the DEA&DP. Any amendments to the EMPr will require approval from the DEA&DP.

## 13. ENFORCING THE EMPr

The holder of the Environmental Authorisation (EA) has a responsibility to ensure that all those people involved in the project are aware of and familiar with the environmental requirements for the project (this includes casual labour, etc.). The EA and approved EMPr shall be part of the terms of reference for all stakeholders.

All senior and supervisory staff members shall familiarise themselves with the full contents of the EA and approved EMPr. They shall know and understand the specifications of the EA and approved EMPr and shall be able to assist other staff members in matters relating to the EA and approved EMPr.

## 14. ENVIRONMENTAL MANAGEMENT PROGRAMME

### 14.1 CONSTRUCTION PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
<b>Authorisations, Licences and Permits</b>	<b>Environmental Authorisations</b>		
	All necessary authorisations, permits and licences must be obtained by the Proponent prior to the commencement of construction.	Proponent	Once-off
<b>Appointment of Construction Team</b>	<b>Appointment of Contractor</b>		
	The Developer must ensure that this EMPr forms part of any contractual agreements with a Contractor(s) and sub-contractors for the execution of the proposed project. The Contractor must make adequate provision in their budgets for the implementation of the EMPr.	Developer & Contractor	Once-off
	The Principal Contractor (including sub-contractors and suppliers) must comply with the relevant provisions of the EMPr, applicable environmental legislations, by-laws and associated regulations promulgated in terms of these laws.		
	Local labourers should be used for such methods.		
	<b>Appointment of Environmental Control Officer</b>		
	An Independent ECO must be appointed at the Proponent's cost to monitor the implementation of the EMPr.	Proponent, Site Manager & ECO	Once-off
The nomination of the ECO must be given to DEA&DP in writing 14 days prior to commencement. Commencement in this case includes site clearing. The notification must include contact details for the ECO, details pertaining to the ECO's relevant experience, the date on which it is anticipated that the activity will commence, as well as a reference number.			
Should the ECO for the development change at any time, this must be communicated, in writing, to DEA&DP, within fourteen (14) days of appointing the new ECO. The notification must include contact details for the ECO, details pertaining to the ECO's relevant experience and reasons for the change in ECO.	As required		
<b>Preparation of Method Statements</b>	<b>Method Statements</b>		
	Method Statements must be submitted by the Proponent to the ECO and must be adhered to by the Proponent. These relate to water and stormwater management requirements, solid waste management requirements, the storage of hazardous materials (if applicable), standard emergency procedures, and fire management.	Proponent	Once-off
	The ECO will monitor the implementation of the Statements.	ECO	On-going
<b>Notifying Relevant I&amp;APs</b>	<b>Notice of Environmental Authorisation (EA)</b>		
	A written notice must be given to all relevant I&APs notifying them of the EA. The notice must include a date on which the EA was received and the reference number for the EA.	Proponent	Once-off – pre-construction
<b>Education of Site Staff on General and Environmental Conduct</b> <i>A general regard for the social and ecological</i>	<b>Environmental Awareness and Training</b>		
	Staff must be adequately educated by the ECO as to the provisions included in the EMPr, and in terms of general environmentally-friendly practice. The ECO & Site Manager must ensure that all staff, and if applicable, Contractors / Sub-contractors / Suppliers / Service Providers are trained on the environmental,	ECO & Site Manager	Once-off and as required

Activity	Management / Mitigation	Responsibility	Frequency / Timing		
<p><i>wellbeing of the site and adjacent areas is expected of the site staff.</i></p>	<p>occupational safety and/or legal responsibilities expected from them.</p> <p>The training must take into account language and literacy requirements as well as measures to determine the effectiveness of the training.</p> <p>Proof of training must be attached to the ECO's audit reports.</p>				
	<p>Consideration of the implications of the EA and EMPr must form part of the formal site induction for all contractors, sub-contractors and casual labourers, preferably in their native language.</p> <p>The induction training will, as a minimum, include the following:</p> <ul style="list-style-type: none"> <li>➤ The importance of conformance with all environmental policies;</li> <li>➤ The environmental impacts, actual or potential, of their work activities;</li> <li>➤ The environmental benefits of improved personal performance;</li> <li>➤ Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Consultant's environmental management systems, including emergency preparedness and response requirements; and</li> <li>➤ The mitigation measures required to be implemented when carrying out their work activities.</li> </ul>				
	<p>All contractors, sub-contractors and casual labourers must acknowledge their understanding of the EMPr and environmental responsibilities by signing an induction attendance record.</p>			ECO & Site Manager	Once-off
	<p>Staff operating equipment shall be adequately trained and sensitised to any potential hazards associated with their tasks.</p>			Proponent & Site Manager	During staff induction, followed by on-going monitoring
	<p>Translators are to be used where necessary during staff training.</p>			Site Manager	
	<p>Use of environmental awareness posters on site is advocated.</p>			Site Manager	On-going monitoring
	<p>Staff must be made aware that they are not to make excessive noise e.g. shouting, hooting.</p>				
	<p>All employees must undergo the necessary safety training and wear the necessary protective clothing at all times.</p>				
	<p>No alcohol / drugs to be present on site; no vehicles or machinery are to be operated whilst under the influence of alcohol or drugs.</p>				
	<p>No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel).</p>				
<p>No unsocial behaviour will be permitted.</p>					
<p>Bringing pets onto site is forbidden.</p>					
<p>Staff must make use of facilities provided for them, as opposed to ad-hoc alternatives (e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden). No fires are permitted on site.</p>					

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Trespassing on private / commercial properties adjoining the site is forbidden.		
	No worker may be forced to do work that is potentially dangerous or for what he / she is not so trained		
	The Site Manager is to ensure that conditions of the EMPr are included in the Toolbox Talks.		
<b>Site Management</b>	<b>Access</b>		
	No vehicles may drive onto the adjacent properties and any other no-go areas.	Site Manager	On-going
	All no-go areas will be indicated during Toolbox Talks and/or indicated with warning signs in all relevant languages.		
	<b>Site Management</b>		
	Adequate drainage and erosion protection must be provided around the site and where necessary.	Site Manager	On-going
	Access points and other cleared surfaces must be dampened whenever necessary and especially in dry and windy conditions to avoid excessive dust. Alternatively, a binding product such as Dustex (supplied by Patch Industrial Supplies) could be used.		
No-go areas (this includes buffers to protect water sources) must be identified and clearly cordoned off prior to the start of construction.			
<b>Sewage and Sanitation</b>	<b>Ablutions</b>		
	Toilets must be no closer than 32m from any watercourse. Such facilities, which shall comply with local authority regulations, shall be maintained in a clean and hygienic condition. Their use shall be strictly enforced. They must be positioned in an appropriate place, also taking into consideration, gradient of the land.	Site Manager	Immediately & on-going
	The Site Manager must ensure that toilets are cleaned weekly or more frequently, if required.		On-going
	Unauthorised spilling of waste into the environment and burying of waste is strictly prohibited.		
Ablution facilities must not cause any pollution to any water resource and it must not be a health hazard to the general public.			
<b>Social Impacts</b>	<b>Communication between Site Manager, Site Staff and I&amp;APs</b>		
	A complaints register must be kept on site. Details of complaints must be incorporated into the audits as part of the monitoring process. This must be in 3 carbon copy format, with numbered pages.	Site Manager	Immediately and on-going
	Should the staff be approached by members of the public or other stakeholders, they must assist them in locating the Site Manager, or provide a number on which they may contact the Proponent/ Site Manager.		On-going
	The conduct of the staff when dealing with the public or stakeholders shall be in a manner that is polite and courteous at all times.		
	Drivers of heavy-duty vehicles must exercise care when travelling to and from the site – and adhere to all legally enforceable requirements.		
Due to the concentration of a workforce in the area, the Site Manager must implement an HIV/AIDS Awareness Programme on site. The Site Manager must appoint an HIV/AIDS Awareness Officer for the duration of the construction period. Activities for HIV/AIDS awareness and prevention will be broad based, targeting both individuals and groups.	Immediately and as required		



Activity	Management / Mitigation	Responsibility	Frequency / Timing
	<p>They may consist of:</p> <ul style="list-style-type: none"> <li>➤ Peer educators (reference people) drawn from the local labour force and trained in HIV/AIDS issues for discussions with colleagues (estimate 1 per 30 employees);</li> <li>➤ Small focus group discussions and information covering key issues should be held;</li> <li>➤ Inclusion of HIV/AIDS activities at site meetings and other discussions; and</li> <li>➤ Voluntary Counselling and Testing.</li> </ul> <p>Education will cover:</p> <ul style="list-style-type: none"> <li>➤ Stigma and discrimination issues;</li> <li>➤ Preventative behaviours including on-site safety and awareness; and</li> <li>➤ Referral to local health centres and services available.</li> </ul>		
<b>Equipment lay-down and storage</b>	<b>Storage Areas</b>		
	<p>Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to water bodies, general on-site topography and water erosion potential of the soil. Impervious surfaces, bunded areas or drip trays must be provided where necessary.</p> <p>Equipment lay-down and storage areas must be designated, demarcated and signed.</p>	Site Manager	On-going
<b>Conservation of the Natural Environment</b>	<b>Erosion and Stormwater Control</b>		
	Soil disturbance must be restricted to the current extent of the project, unless for the removal of alien invasive plants.		Throughout the duration of the project
	Storm water control must be undertaken to prevent soil loss from the site.		Immediately
	Erosion prevention and control measures must be implemented. These control measures must be advised by the ECO as control measures are unique to site, activity, and dependent on severity and extent.	Site Manager & ECO	On-going
	Provision shall be made for storm water management measures that will ensure effective run-off control and prevent erosion at run-off points and ponding.		
	Continuous monitoring for evidence of erosion must be undertaken around the site.		
	Earth, stone or rubble is to be properly disposed of so as not to obstruct natural water pathways over the site.		
	Stormwater management must ensure that flow from the development does not result in negative impacts.		
	<b>Fauna and Flora</b>		
Areas which are identified by the Environmental Control Officer (ECO) as being ecologically sensitive and which are adjacent to the site are to be suitably demarcated to prevent damage during construction practices. These areas are to be recognised as "no-go" areas.	ECO & Site Manager	Immediately	
No natural vegetation may be cleared without prior permission from the ECO and if applicable from any relevant authority. Indigenous vegetation that is removed is to be replanted either back to the point from which it was taken or must be replaced by new		On-going	

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	relevant indigenous vegetation.		On-going
	The ECO must identify and make known to the team all Red Data listed vegetation species. All permits for the removal/ translocation of the identified protected vegetation species must be obtained prior to any ground clearance from the Department of Forestry (DFFE).		
	All alien invasive plant species must be continuously removed around the site. The best way to do this is to remove the plants from the roots by hand and leave the plants in the sun to dry out and die before disposal. Please refer to the appended Alien Plant Control Programme for specific methods of removal.	ECO & Site Manager	Immediate and On-going
	When removing alien invasive plants from the riparian area, caution must be taken to ensure that indigenous species are not being removed and all embankments are stable. Indigenous plants must be planted immediately to rehabilitate these areas.		
	Disturbance to birds, animals and reptiles and their habitats must be minimized wherever possible.	Site Manager	
<b>Conservation of Water Resources</b>	<b>Water Sources</b>		
	Under no circumstances may any materials or waste generated from the project be disposed of into the adjacent riparian areas, including the buffer zone.	Site Manager	On-going
	All parked vehicles/ trucks must have drip trays placed underneath the vehicle where potential leaks may occur.	Site Manager	On-going
<b>Waste Management</b>	<b>On-Site Waste Management</b>		
	The excavation and use of rubbish pits is forbidden.		On-going and monitored weekly
	Burning of waste is forbidden. <i>A possible exception to this may be that the alien invasive vegetation which is removed from the site should be burned to prevent the spread of the plants; however, permission to burn AIPs must first be obtained from the competent authority and other conservation boards. The transportation of Alien Invasive Plants is strictly forbidden in terms of the Conservation of Agricultural Resources Act (CARA), especially if in seed; unless stored in a completely sealed container.</i>		
	Littering on the site is forbidden and the site shall be cleared of litter at the end of each working day.		
	An adequate number of general waste bins must be arranged around the site to collect all domestic refuse, and to minimise littering.		On-going monitoring
	Solid waste must be managed and separated into recyclable and non-recyclable materials and disposed of accordingly.		
	All waste generated during the construction phase is to be disposed of at a facility registered in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).		
<b>Handling of Hazardous Materials (if necessary)</b>	<b>Hazardous Materials</b>		
	Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs must additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.	Site Manager	On-going
Cement and other potential environmental pollutants must be stored within an impermeable bunded, roofed and sign posted area.			

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	<p>Cement and other potential environmental pollutants must be mixed on an impermeable surface that is bunded to prevent the leakage of pollutants onto the ground (if necessary).</p> <p>All empty contaminated containers must be stored within a hazardous bunded area until collection by a reputable hazardous waste collection company. Waybills must be presented to the ECO for review and filing purposes.</p> <p>No vehicles transporting hazardous materials to the site may be washed on or near site. They must return to the supplier of such material to be cleaned out.</p>		
<b>Cultural Environment</b>	<b>Archaeology and Artefacts</b>		
	No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from Heritage Western Cape.	Site Manager	On-going
	The Fossil Finds Procedure (FFP) must be followed: If fossil bones are uncovered during excavations, stop work and report to Heritage Western Cape (HWC) immediately.		
<b>Safety and Security</b>	<b>Safety and Security On-Site</b>		
	Material stockpiles or stacks must be stable and well secured to avoid collapse and possible injury to site workers / local residents.	Site Manager	On-going
	Firefighting equipment must be present on site at all times. All equipment on site must be used in accordance with the Occupational Health and Safety Act regulations of South Africa (OHSA), Act No. 85 of 1993); staff must be trained in firefighting procedures.		
	No unauthorised person may be permitted to enter the site without prior permission of the site manager.		
	Vehicle speeds shall not exceed 20km/h when traversing unconsolidated and non-vegetated areas.		
	The proponent should register with the Southern Cape Fire Protection Association		

## 14.2 REHABILITATION AND OPERATIONAL PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
<b>Vegetation Rehabilitation – progressive rehabilitation must be carried out</b>	<b>Vegetation</b>		
	All disturbed areas, or areas which have been disturbed for the purpose of the activity, and are not part of the cultivation fields, are to be re-vegetated. This will aid in preventing erosion within the site. A 100% indigenous planting plan must be adhered to in terms of all planting carried out on the site. Consultation must be made with a Botanical Specialist for a site-specific vegetation list.	Contractor & ECO	Project completion
	Erosion prevention and control measures must be implemented. Organic mulch or sand bags must be used to contain all sediment and prevent erosion during rehabilitation.	Contractor	Rehabilitation
	All rehabilitated areas must be maintained through weekly inspections until a 100% success rate has been achieved.	Contractor & ECO	Post Construction/ Maintenance Phase

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation. This would need to be undertaken by the ECO or a designated specialist.	Developer, Contractor & ECO	Project completion and Maintenance
<b>Land Rehabilitation</b>	<b>Land</b>		
	Rehabilitation must be executed in such a manner that surface runoff will not cause erosion of disturbed areas during and after rehabilitation.	Contractor & ECO	Project completion
	Any rubble is to be removed from site to an appropriate disposal site. Burying of rubble on site is prohibited.	Contractor	Project completion
	The site is to be cleared of all litter.	Developer & Contractor	Project completion and Maintenance
	The surface of all disturbed areas must be left rough to facilitate binding of topsoil and vegetation.	Contractor	Progressive rehabilitation and on Project completion
<b>Removal and Repair of Materials and Infrastructure</b>	<b>Materials and Infrastructure</b>		
	All material used for construction must be removed from site after construction.	Contractor	Project completion
	The Contractor must repair any damage that the construction works may have caused to adjacent areas.	Contractor	Project completion
	Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the ECO.	Contractor	Project completion
	All areas where temporary services were installed are to be rehabilitated to the satisfaction of the ECO.	Contractor	Project completion
<b>Stormwater Management</b>	<b>Stormwater</b>		
	Any negative stormwater effects, related to the construction phase, must be remediated.	Contractor	Project completion
	On-going monitoring and assessing of stormwater drainage must occur on site during the operational phase of the proposed project.	Developer	During Operational phase
<b>Waste</b>	<b>Removal of Hazardous and Non-Hazardous Waste</b>		
	All hazardous materials and containers must be collected by a reputable hazardous waste collection company and disposed of appropriately.	Contractor	Project completion
	Collection and disposal of non-hazardous waste to a registered landfill site must occur at least once a week.	Developer	During Operational phase
<b>Fire Management</b>	<b>Fire</b>		
	A Fire Management Plan must be implemented on the property. The landowner must register with the Southern Cape Fire Protection Agency/SCFPA to ensure that the property has addressed all necessary fire management protocols.	Landowner	During Operational phase

### 14.3 FINANCIAL PROVISION FOR REHABILITATION

In accordance with Section 24N(2)(a) of the National Environmental Management Act, 1998 (Act No. 107 of 1998), the applicant, Wilderness Fruit (Pty) Ltd, shall ensure that adequate financial provision is made for the rehabilitation of the environment affected by the activity.

This financial provision must:

- Cover costs for rehabilitation and post-construction monitoring.
- Be reviewed annually and adjusted to account for inflation or changes in project scope.

### 15. ALIEN PLANT CONTROL

**\*The below information is a broad instructional on alien invasive plant removal. Attached to this EMPr is a site-specific programme that must be utilised.**

#### ***Benefits of control***

- Elimination of spread of these species into non-affected areas.
- Improvement of water quality and quantity.
- Legal compliance: landowners are required to eradicate or control declared weed and alien invader plants in terms of the Conservation of Agricultural Resources Act 43 of 1983 and the National Environmental Management: Biodiversity Act 10 of 2004.
- Improvement of biodiversity in conservation areas. Fast growing invader plants suppress indigenous flora, with a resultant loss in overall biodiversity.
- Commercial reasons: alien vegetation can spread from conservation areas into production land resulting in greater weed control costs.

#### ***Important factors influencing the effectiveness of a control programme***

- Timely implementation of control operations is important for alien plants.
- Operations must be directed towards killing alien vegetation. This is best achieved by using an effective herbicide chosen by the ECO and applied by using the "cut-stump; frilling or ring barking methods. Under no circumstances may spraying with a "Rose" or multi-stream nozzle head be done.

#### ***Requirements for an effective alien vegetation control programme***

- Identify the problem: extent, location and species of problem plant.
- Divide the problem areas into manageable units, taking budget and resource constraints into account.
- Identify any sensitive ecosystems, rare or endangered plants etc. which may be affected by a control programme. Identify the original ecosystem applicable to the area.
- Make provision for a number of follow up operations. The initial clearing operation is only part of the total programme. Failure to follow up will result in a failure of the entire programme.

While the importance of removing or clearing of alien or exotic vegetation is recognised, there should be control over the way in which this takes place. Often what generally appears to be covered by alien vegetation, actually contains pockets of sensitive vegetation or protected species. It is for this reason that clearing of such areas must be undertaken by hand (Guidelines for the Control and Management of Activities in Sensitive Coastal Areas, first edition, 1998).

It is important to note that all of the above must be performed with instruction by a suitably qualified Botanical Specialist, as well as in the presence of the specialist.

Alien Invasive Plant species present on site:

<b>Plant Species</b>	<b>NEMBA Category</b>
Catharanthus roseus	1b
Hakea sericea	1b
Lantana camara	1b
Paraserianthes lophantha	1b
Phytolacca octandra	1b
Senna septemtrionalis	1b
Solanum mauritianum	1b

Alien Vegetation Clearing can be broken down into the following PHASES:

PHASE 1: Removal by cutting, excavating, burning, ringbarking, hand pulling, herbicide spraying and biological measures.

PHASE 2: The removal of all biomass by either burning, chipping or removing usable material.

PHASE 3: (Follow up) which is critical to the success of the AIS clearing to achieve the following:

- Rehabilitation of the infested area to its natural or near natural state or
- To exercise the land rights as per the agricultural rights (horticultural or agricultural purposes).

PHASE 4: Implement a long term maintenance plan in order to combat further germination of AIS as a result of:

- The seedbank has been exposed and disturbed as a result of clearing, this will result in germination of the seeds from within the AIS seedbank in situ.
- The resulting germination rate and density will far higher than the original infestation.
- There will still be further germination of seeds disbursed by wind /birds from surrounding properties that are infested with AIS.

#### Types of Recommended Treatments for AIS

##### 1. Felling and Herbicide Treatment:

- This method applies to AIS that can regenerate by coppicing (regrow from the cut stump). When felling. Always cut the AIS as horizontal and close to the ground as possible so as not to leave sharp points that could be a danger to others.

- A registered herbicide with the Department of Agriculture is then applied to the cut stump.

- A sticker agent may also be needed depending on the type of herbicide used plus the use of vegetable dye should be added to your herbicide mix to allow for tracking of what has and what has not been sprayed.

- Herbicide when used in this method is applied via solid cone nozzle the herbicide must be applied to the cut stump as soon as possible to allow the herbicide to be absorbed by the plant via the xylum phloem canals ( a plants version of veins and arteries).

- These veins are found cambium layer which is the area between the bark and the wood, and this is where the herbicide must be applied. i.e the outer rim of the cut stump.

- Cut material (biomass) needs to be removed / stacked depending further use or burnt / chipped. When felling AIS don't to block riparian zones with cut material.

##### 2. Felling:

- This applies to species of invasive plants that cannot regenerate by coppicing e.g. most pine species. As with treatment 1 cut as horizontally and close to the ground as possible.

- Cut material (biomass) needs to be removed / stacked depending further use or burnt / chipped. When felling AIS don't to block riparian zones with cut material.

### 3. Ringbarking:

- Used on AIS in areas where it is impossible to remove the biomass or where felling would damage the surrounding indigenous habitat.

- This involves simply cutting a ring half a meter up the trees trunk exposing cambium layer then painting the exposed cambium layer with approved herbicide from the Department of Agriculture.

### 4. Folio Spraying with Herbicide:

- This method is mainly restricted to follow up phases over areas where the seed bank has germinated on mass.

- When doing this wait till the newly germinated AIS have reached a height of 1 meters as at this point of growth this will result in killing the early and late germinating seedlings.

- This process will have to be repeated depending on the depth of the seedbank which correlates to the frequency of AIS germination.

### 5. Hoeing or pulling seedlings by hand:

- This method should be a way of life i.e. if AIS species is observed, hand pulling is recommended where possible. It is best to pull by hand after rainfall.

- This method also applies to areas that are sensitive, e.g. riparian zones where herbicide is not allowed or areas where the use of an herbicide could harm surrounding natural ecosystems or commercial crops.

### Monitoring

Monitoring involves repeated observations or recording of data to be able to track progress and determine the efficacy of control methods. A very basic monitoring programme applies to private land.

WHAT	FREQUENCY	HOW	RESPONSE
How effective are the control measure	4-6months after every operation	Survey cleared areas and look for regrowth	Continue with methods or adapt to be more effective
Do the infestation levels decrease	Annually	Visual, photos	Continue clearing
How much herbicides were used	After every operation	Herbicides records	Keep track of cost and ensure no wastage
Does fynbos / forest recover in cleared area	Annually	Photos, surveys	If it does, look at clearing methods, clearing intervals or consult an expert.

### Objectives

#### Objective 1: Prevention

To put measures into place for prevent the introduction of new NEMBA listed plants and animals onto the property, and invasive species from spreading from neighbouring properties.

Preventative action:

- No listed invasive and alien plant will be planted
- Areas bordering onto neighboring land will be prioritized for control to prevent existing invasive plants from spreading beyond the boundaries of the property
- No listed invade animal species will be introduced to property.

- These prevention measures will be communicated to all users of the property (where applicable)

#### Objective 2: Early detection and rapid response (EDRR)

To put measures into place whereby new and secondary invasive species are detected early and removed before establishing sustainable populations and start spreading.

Early detections and rapid response actions:

- Regularly survey property to detect any new or emerging invasive plant species.
- Report category 1a species immediately to the Department of Environmental Affairs and ask for assistance with control of the species.
- Do not allow new or emerging species to produce seeds or off-spring, or start growing vegetatively, act immediately by removing them.
- Update list by including these species and indicate where on the property they were located.
- Increase surveillance in the area where species occur to ensure the plant don't re-sprout or re-occur

#### Objective 3: Restrictive activity and duty of care

To adhere to the restrictive activity and duty of care as determined by NEMBA & Regulations concerning invasive and alien species

Action NEMBA Regulations (6a-g) restricted Activities:

- Prevent spreading or allowing spread of, any specimen of a listed invasive species.

While the importance of removing or clearing of alien or exotic vegetation is recognised, there should be control over the way in which this takes place. Often what generally appears to be covered by alien vegetation, actually contains pockets of sensitive vegetation or protected species. It is for this reason that clearing of such areas must be undertaken by hand (*Guidelines for the Control and Management of Activities in Sensitive Coastal Areas, first edition, 1998*).

**It is important to note that all of the above must be performed with instruction by a suitably qualified Botanical Specialist, as well as in the presence of the specialist.**

## 16. SPECIFIC INFORMATION THAT MAY BE REQUIRED BY THE COMPETENT AUTHORITY

In compliance with Appendix 4(1)(n) of the EIA Regulations, the following mitigation measures were incorporated into the EMPr:

1. Application of a 30m wetland buffer - Section 7
2. Appointment of an Environmental Control Officer (ECO) - Section 9.3 and 14
3. Invasive Alien Plant (IAP) management plan – Appendix C

Where further information is required or new conditions are added to the Environmental Authorisation, the EMPr will be amended accordingly.



**ACKNOWLEDGEMENT FORM**

Record of signatures providing acknowledgment of being aware of and committed to complying with the contents of this Environmental Management Programme (EMPr), which relates to the environmental mitigation measures for the project outlined below, and the environmental conditions contained in all other contract documents.

**PROJECT NAME:**

**PROPOSED CULTIVATION OF 11 HECTARES OF LAND TO PLANT MACADAMIA AND AVOCADO TREES ON ERF 385, SEVEN PASSES ROAD, HOEKWIL, GEORGE MUNICIPALITY, WESTERN CAPE**

**PROPONENT:**

Signed: ..... Date: .....

**SITE MANAGER:**

Signed: ..... Date: .....

**ENVIRONMENTAL CONTROL OFFICER**

Signed: ..... Date: .....

## APPENDIX A: CV OF EAP

## APPENDIX B: SITE DEVELOPMENT PLAN

## APPENDIX C: ALIEN INVASIVE PLANT REMOVAL PROGRAMME

# APPENDIX D: STORMWATER MANAGEMENT PLAN