



# ENVIRONMENTAL MANAGEMENT PROGRAMME

for

## FARM KLEINBOS 24G

on

Remaining Extent of Farm Kleinbos 57 and Portions 4 & 8 of Farm  
Landsekloof 55, Mossel Bay

**In terms of the**

National Environmental Management Act (Act No. 107  
of 1998, as amended) & 2014 Environmental Impact  
Regulations (as amended)

**Prepared for Applicant:** Group Editors Company (Pty) Ltd

**Date:** 4 May 2022

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**PURPOSE OF THIS REPORT:**

Environmental Management Programme for 24G Rectification Application

**APPLICANT:**

Group Editors Company (Pty) Ltd

**CAPE EAPRAC REFERENCE NO:**

MOS665/04

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### In terms of the

National Environmental Management Act (Act No. 107 of 1998, as amended) & 2014  
Environmental Impact Regulations (as amended)

*Submitted for:*

### *Stakeholder Review & Comment*

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## ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS

Appendix 4 of Regulation 982 of the 2014 EIA Regulations contains the required contents of an Environmental Management Programme (EMPr). The checklist below serves as a summary of how these requirements were incorporated into this EMPr.

Table 1: Checklist in terms of Appendix 4 of Regulation 982 of 2014 EIA Regulations

Requirement	Description
Details and expertise of the EAP who prepared the EMPr; including curriculum vitae.	Ms Melissa Mackay of Cape Environmental Assessment Practitioners. See Cover Page. Appendix 6.
A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description.	<u>Section 1</u>
A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that must be avoided, including buffers	Appendix 1
A description of the impact management objectives, 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 the phases of the development including – (i) Planning and design; (ii) Pre-construction activities; (iii) Construction activities; (iv) Rehabilitation of the environment after construction and where applicable post closure; and (v) Where relevant, operation activities.	<u>Section 4</u> – Environmental Impacts & Mitigations <u>Section 5</u> - Responsibilities <u>Section 6</u> – Pre-Construction Design <u>Section 7</u> – Construction Phase <u>Section 8</u> – Operation Phase
A description and identification of impact management outcomes required for the aspects contemplated above.	<u>Section 4</u>
A description of the proposed impact management actions, identifying the manner in which the impact management objectives and outcomes contemplated above will be achieved and must, where applicable include actions to – (i) Avoid, modify, remedy control or stop any action, activity or process which causes pollution or environmental degradation; (ii) Comply with any prescribed environmental management standards or practises; (iii) Comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.	<u>Section 4</u> <u>Section 6</u> <u>Section 7</u> <u>Section 8</u>
The method of monitoring the implementation of the impact management actions contemplated above.	<u>Section 9</u> <u>Section 11</u>
The frequency of monitoring the implementation of the impact management actions contemplated above.	<u>Section 9</u>



Requirement	Description
An indication of the persons who will be responsible for the implementation of the impact management actions.	<u>Section 5</u>
The time periods within which the impact management actions must be implemented.	Not Applicable
The mechanism for monitoring compliance with the impact management actions.	<u>Section 9</u>
A program for reporting on compliance, taking into account the requirements as prescribed in the Regulations.	<u>Section 9</u>
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.	<u>Section 5</u> <u>Section 6</u> <u>Section 7</u> <u>Section 8</u> <u>Section 9</u>
Any specific information that may be required by the competent authority.	Not Applicable.

## ABBREVIATIONS AND ACRONYMS

<b>BSP</b>	Biodiversity Sector Plan - to inform land use planning, environmental assessments, land and water use authorisations, as well as natural resource management, undertaken by a range of sectors whose policies and decisions impact on biodiversity.
<b>CARA</b>	Conservation of Agricultural Resources Act (Act 43 of 1983) - provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.
<b>CBA</b>	Critical Biodiversity Area - areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan.
<b>DEA</b>	National Department of Environmental Affairs – the national authority responsible for the sustainable environmental management and integrated planning.
<b>DEA&amp;DP</b>	Department of Environmental Affairs and Development Planning – the provincial authority for sustainable environmental management and integrated development planning. The competent authority is this case.
<b>DAFF</b>	Department of Agriculture, Forestry and Fisheries – the national authority responsible for the agricultural, forestry and fishery sector and its management. DAFF is mandated to enforce the National Forestry Act (NFA). Permits for the removal or pruning of protected tree species e.g. Milkwoods must be obtained from this entity.
<b>DWS</b>	Department of Water & Sanitation Affairs – National authority mandated to enforce the National Water Act (NWA).
<b>EA</b>	Environmental Authorisation – Authorisation obtained on completion of an Environmental Impact Assessment in terms of the National Environmental Management Act (NEMA).
<b>ECA</b>	Environment Conservation Act, 1989 - To provide for the effective protection and controlled utilization of the environment and for matters incidental thereto.
<b>ECO</b>	Ecological Control Officer – independent site agent appointed to observe and enforce the implementation of environmental policies and principles on a development site.
<b>EIA</b>	Environmental Impact Assessment - a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.
<b>EMPr</b>	Environmental Management Programme – an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented and that positive benefits of the projects are enhanced.
<b>GIS</b>	Geographic Information System - system designed to capture, store, manipulate, analyse, manage, and present all types of geographical data.

<b>GPS</b>	Global Positioning System - a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world.
<b>NEMA</b>	National Environmental Management Act (Act 107 of 1998, as amended) – national legislation that provides principles for decision-making on matters that affect the environment.
<b>NEM:BA</b>	National Environmental Management: Biodiversity Act (Act No.10 of 2004) – provides for the management and conservation of South African biodiversity within the framework of NEMA.
<b>NFA</b>	National Forestry Act (Act No.84 of 1998) - provides for the protection of forests, as well as specific tree species within South Africa.
<b>NSBA</b>	National Spatial Biodiversity Assessment – aims to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors.
<b>NWA</b>	National Water Act (Act No.36 of 1998) - ensures that South Africa's water resources are protected, used and managed.

# Mossel Bay

## Emergency and Important Numbers

<b>Emergency Response / Disaster Management</b>	<b>10177</b>
Eden Control Room	044 805 5055
Eden Fire Services	044 801 6376
<b>Police</b>	<b>10111</b>
Mossel Bay SAPS (George Road)	044 690 3334
National Disaster Management (Cell phone)	112
Disaster Management (Provincial)	021 937 0800
Life Bay View Private Hospital	044 691 3718
Provincial Hospital	044 691 2011
Ambulance	044 691 3170
ER 24 Private Ambulance Service	084 124
Mossel Bay Municipality	044 501 3000
<b>Emergency (All hours)</b>	<b>044 606 5000</b>
Fire & Rescue Services	044 691 3722
Traffic Department	044 606 5201
Water & Electricity	044 606 5041
Electricity Disruption (after hours)	044 805 5073
Sea Rescue (Provincial)	021 449 3500
NSRI Station 15	082 990 5954
Mossel Bay Surf & Life Saving Club	083 462 1182
Southern Cross Life Saving Club	082 740 7654
Mountain Rescue (Provincial)	021 948 9900
Andrew	082 339 1240
Rogan	082 323 4349
Western Cape Tygerberg Poison Centre	021 931 6129
Poisons Information Hotline	0861 555 777
African Snakebite Institute	082 494 2039
Child Emergency	0800 123 321
Citizens Advice Bureau	021 422 0300
SPCA	044 693 0824
CapeNature	044 802 5310
Marine & Coastal Management	044 691 2939
Heritage Western Cape	021 483 9685
Department of Water & Sanitation: Water Pollution	0800 200 200
ROSE Foundation	021 448 7492

# 1. INTRODUCTION

**Cape Environmental Assessment Practitioners (Cape EAPrac)** was appointed by the Applicant, Group Editors Company (Pty) Ltd to develop an Environmental Management Programme (EMPr) which will be used to promote and ensure environmental monitoring and control during all phases (construction, operation and possible decommissioning) associated with the clearing of vegetation for the development of crop orchards such as avocados on Remaining Extent of Farm Kleinbos 57 and Portions 4 & 8 of Farm Landsekloof 55, near Mossel Bay in the Western Cape.

The Applicant commenced with clearing of indigenous vegetation with the aim of planting up to 31ha for orchard crops such as avocados. To date, ±14.3ha has been cleared on the properties.

These activities required an Environmental Authorisation (EA) in terms of NEMA before they may proceed, and the process being followed in terms of the National Environmental Management Act (NEMA, Act 107 of 1998) is a 24G Rectification process. This document provides part of a series of documents that is being circulated for public and stakeholder input before being provided to the provincial competent authority, the Department of Environmental Affairs & Development Planning (DEA&DP) for decision making.

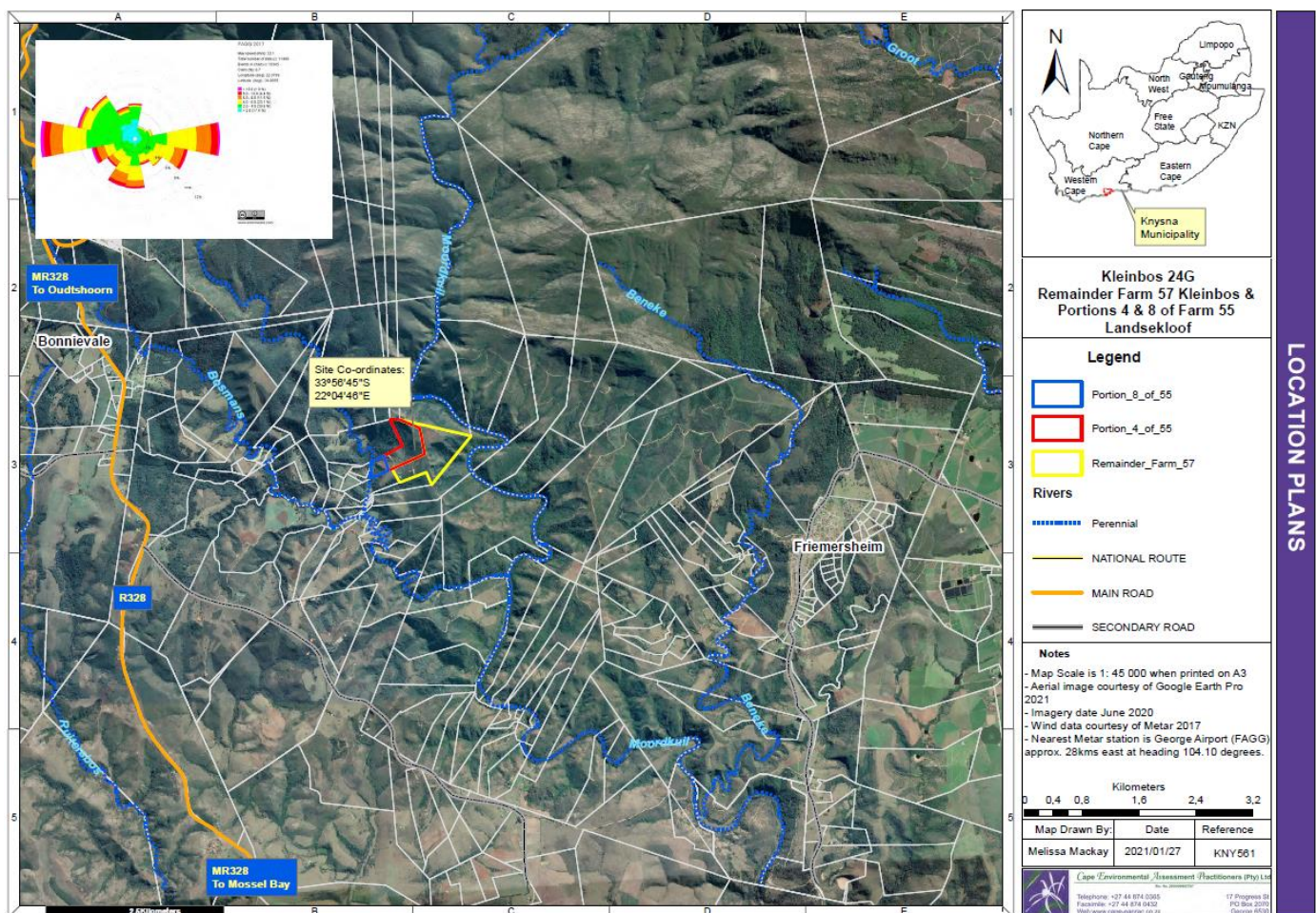


Figure 1: Location Plan



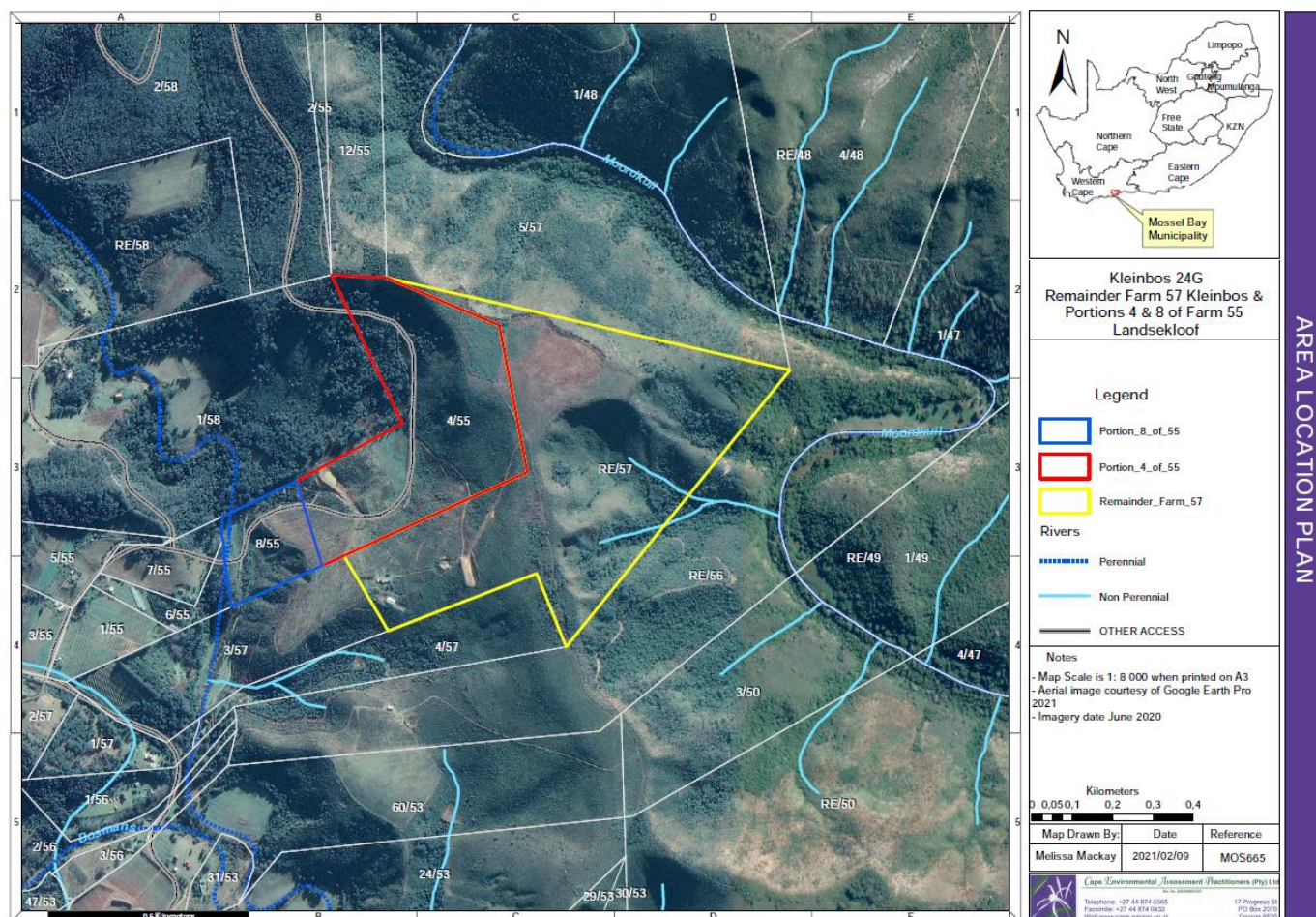


Figure 2: Property location

The properties were purchased in February 2017 by the current owner and clearing of land commenced shortly afterwards. Previous agriculture on the site appears to have been limited to livestock grazing and some pine plantations.

A small dam of approximately 0.31ha located within the cleared areas was constructed for water pumped from an existing abstraction point. The dam is not an instream dam. The dam replaces a previous dam that was infilled for inclusion in the crop area.

Two sections have been identified for orchard crops. These are indicated as being southern and northern clearings in the diagram below. The southern portion has already been cleared, whilst the northern portion was burnt out in a wildland fire and subsequently cleared of pine trees. It has not yet been prepped for orchards.



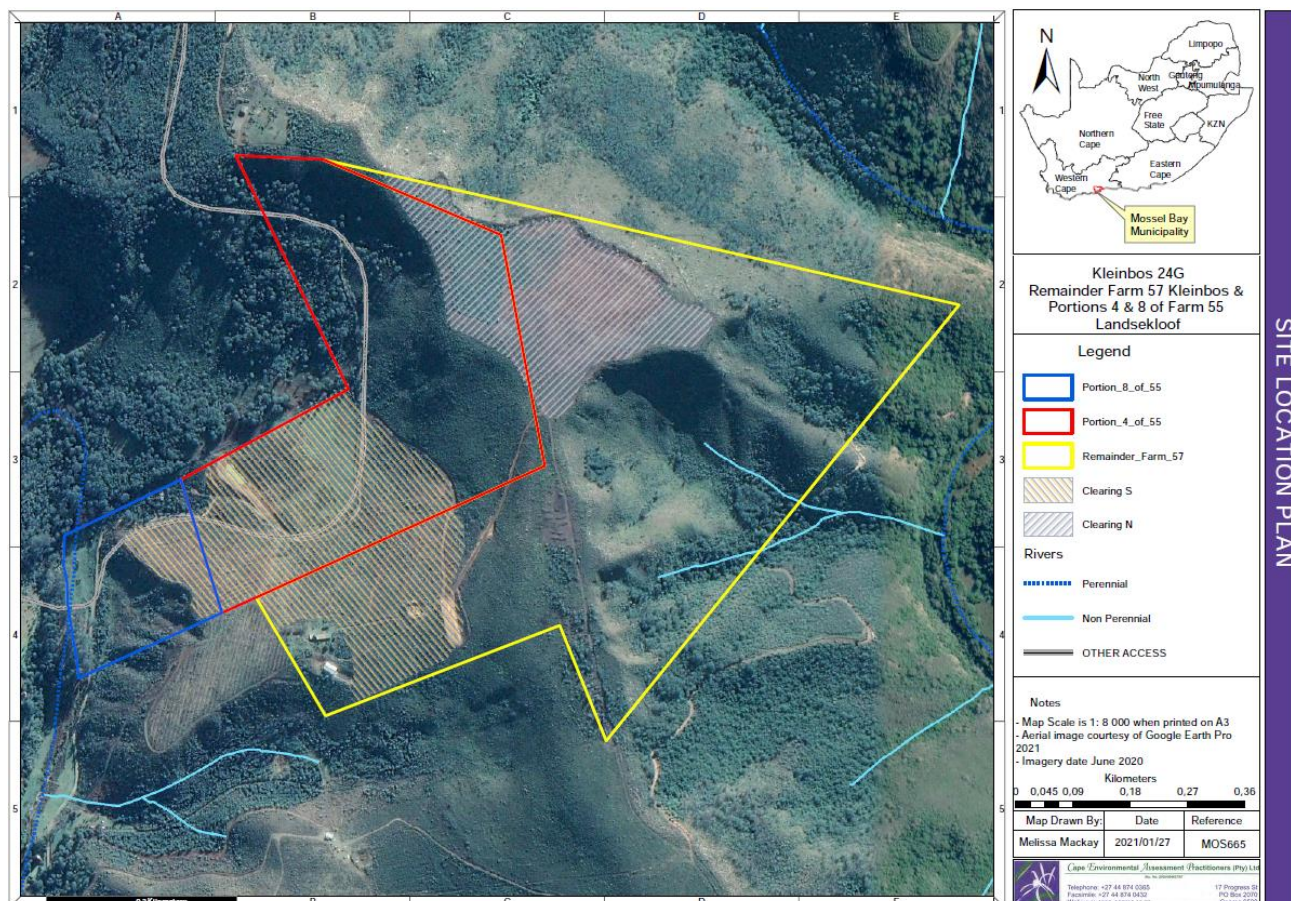


Figure 3: Site location

This EMPr contains **management requirements** and **recommendations** made by *Cape EAPrac*, the appointed specialists (freshwater) as well as in terms of the regulations contained in the **National Environmental Management Act** (NEMA, Act 62 of 2008), the **National Environmental Management: Waste Act** (NEM:WA, Act 59 of 2008) and best practice principles. The EMPr should be updated to include any conditions of the **Environmental Authorisation** (EA) as issued.

### 1.1 PURPOSE OF THE EMPR

The purpose of this EMPr is to ensure that the environmental impacts and management of the various phases of the development on the receiving environment are managed, mitigated and kept to a minimum (i.e.. the **outcome** of implementing the EMPr). The EMPr must provide easily understood and provide clearly defined **actions** that must be implemented during each phase of the development of the proposal. The EMPr is a dynamic document that is flexible and responsive to new and changing circumstances.

The document is binding on the Applicant, all contractors and sub-contractors and visitors to the site. It must be included as part of any tender documents / agreements, as well as contractual documents between the Applicant and any contractors. Copies of this EMPr must be kept on site and all **senior personnel** are expected to familiarise themselves with the content of this EMPr.

Any changes or deviations to this EMPr must be authorised by the competent authority.

### 1.2 STATUS OF THE EMPR

It is of utmost importance that this EMPr be read in conjunction with any legally obtained authorisations such as an Environmental Authorisation (EA). This EMPr is viewed as a dynamic document that must be reviewed and updated on a continual basis.

The EMPr is valid for the duration of the project with each applicable phase corresponding to the identified requirements.



## **2 EMPR PHASING**

### **2.1 PRE-CONSTRUCTION PHASE**

The pre-construction phase refers to the design phase of the project. This will ensure that any requirements and best practise mechanisms are built into the planning / design phase to be developed in the construction and operational phase. In term of this application, the pre-construction refers to the changes proposed by the specialists to improve and mitigate the areas that were unlawfully cleared. The application should also apply the principles of Conservation Agriculture to the design of irrigation systems, land preparation and soil management.

### **2.2 CONSTRUCTION PHASE**

The construction phase refers to the actual construction of the development on the property and includes all earthworks and installation of bulk services (water, sewerage, roads, stormwater, electricity etc.). In terms of this application, this phase relates to the remedial work that will have to be performed to implement the recommendations of the specialist, as well as the remaining portion of land to be cleared for orchard production

### **2.3 OPERATIONAL PHASE**

The Operation Phase of this project relates to the ongoing management required to ensure sustainable agricultural practises and farm management. In terms of this application, this mostly refers to alien invasive management control and maintenance.

The Applicant must ensure that the Operational Phase maintains the underpinning principles 'Duty-of-Care-to-the-Environment' and ideals of sustainable development.

### **2.4 CLOSURE AND DECOMMISSIONING PHASE**

Decommissioning refers to the process of removing the operating assets of any development after completion of the operating life cycle.

Agriculture is a long term commitment to production on land. This means that enterprise is a long term one and it is thus not known when, if at all, closure may occur. However, since this is an unknown co-efficient, specific management recommendations are not included with this EMP. In the event that decommissioning is required, all relevant legal processes must be complied with.

## **3 LEGISLATIVE REQUIREMENTS**

The project Applicant is required to comply with all necessary legislation and policies applicable to development and management of the development. These include but are not limited to:

### **3.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA, ACT 107 OF 1998 )**

The National Environmental Management Act (**NEMA**, Act 107 of 1998, as amended), makes provision for the identification and assessment of **activities** that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the provincial Department of Environmental Affairs & Development Planning (DEA&DP)) based on the findings of an Environmental Impact Assessment (EIA).

**NEMA** embraces the notion of sustainable development as contained in the Constitution of South Africa (Act 106 of 1996) in that everyone has the right:

- to an environment that is not harmful to their health or wellbeing; and
- to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.

**NEMA** aims to provide for cooperative environmental governance by establishing principles for decision-making on all matters relating to the environment and by means of Environmental Implementation Plans (EIP) and Environmental Management Plans/Programmes (EMPr), of which this CMP is one.

Principles contained in Section 2 of the NEMA, amongst other things, prescribe that environmental management must:

- In order of priority aim to: avoid, minimise or remedy disturbance of ecosystems and loss of biodiversity;
- Avoid degradation of the environment and avoid jeopardising ecosystem integrity;
- Pursue the best practicable environmental option by means of integrated environmental management;
- Protect the environment as the people's common heritage;
- Control and minimise environmental damage; and
- Pay specific attention to management and planning procedures pertaining to sensitive, vulnerable, highly dynamic or stressed ecosystems.

It is incumbent upon the landowner, to ensure that the abovementioned principles, entrenched in this EMPr are upheld and complied with.

Since the applicant commenced with the listed activity without applying for prior Environmental Authorisation, this application falls under the ambit of the NEMA 24G Rectification requirements.

### **3.2 ENVIRONMENT CONSERVATION ACT, 1989 (ECA)**

The EIA regulations contained in the Environmental Conservation Act (ECA) have been replaced by NEMA. However, property owners must comply with the draft regulations pertaining to noise as published in the province of Western Cape Provincial Extraordinary Gazette as provision made in section 25 of the ECA), as well as Section 24 of the ECA regarding waste management and Section 20 of the ECA dealing with waste management under Part IV, Control of Environmental Pollution.

### **3.3 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (NEM:BA) (ACT 10 OF 2004)**

This Act controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 & 53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing, significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

The National List of Threatened Ecosystems (Notice 1477 of 2009, Government Gazette No. 32689, 6 November 2009) was gazetted in 2014. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (NSBA) 2004 & 2011.

The South African National Biodiversity Institute (SANBI) released the National Biodiversity Assessment (NBA) 2018. The NBA is the primary tool for monitoring and reporting on the state of biodiversity in South Africa and is prepared as part of the SANBI mandate under the National Environmental Management: Biodiversity Act (Act 10 of 2004). This report provided some changes in classification of ecosystem types and classifications.

In the case of this application, the property is zoned for agriculture and has a history of agricultural practise, including the establishment of pine plantations. There are some areas heavily infested with alien invasive vegetation on the site. The clearing of the AIS is a requirement of NEM:BA and as such an AIS Control Plan is provided as guidance (see appendices).

The vegetation types on the site has been identified as follows:

- Garden Route Shale Fynbos, VU (2011), VU (2018)
- South Outeniqua Sandstone Fynbos, LC (2011), LC (2018)
- Swellendam Silcrete Fynbos, VU (2011), EN (2018)

The clearing activities took place mostly in the southern area of the properties, with the northern portion cleared of alien invasive species. The vegetation has recovered well where the alien species have been removed and it is a strong recommendation that this must be ongoing to ensure that indigenous vegetation is promoted to support ecosystem functioning.

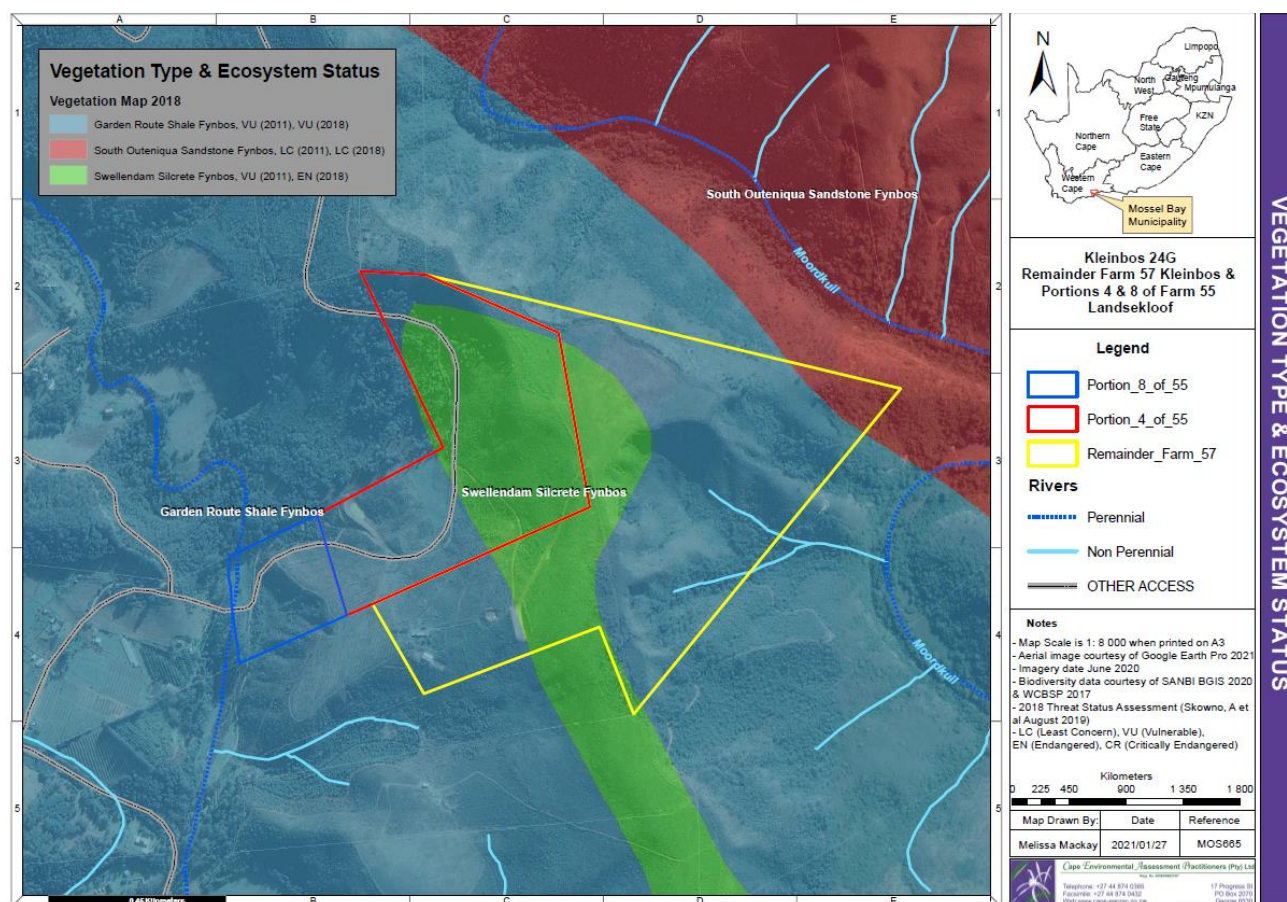


Figure 4: Vegetation Type & Ecosystem Status

### 3.4 NATIONAL WASTE MANAGEMENT STRATEGY

The National Waste Management Strategy presents the South African government's strategy for integrated waste management for South Africa.

It deals among others with: Integrated Waste Management Planning, Waste Information Systems, Waste Minimisation, Recycling, Waste Collection and Transportation, Waste Treatment, Waste Disposal and Implementing Instruments.

In the case of the property, an integrated waste management system must be adopted, which includes waste minimisation, waste recycling and the proper storage and disposal of waste, which does not impact of the health of the environment and human health.

### **3.5 CONSERVATION OF AGRICULTURAL RESOURCES ACT (CARA)**

The CARA aims to provide for the conservation of natural agricultural resources by maintaining the production potential of land, combating and preventing erosion and weakening or destruction of water resources, protecting vegetation and combating weeds and invader plant species.

As with NEM:BA, alien invasive plant / weed species listed in terms of CARA must be controlled and/or removed. In the case of the operation of the development, the conservation of soil and water resources is applicable, in the sense that measures must be in place to avoid the pollution or degradation of these resources within the open space areas of the property.

### **3.6 NATIONAL WATER ACT (NWA, ACT 36 OF 1998)**

The National Water Act (NWA) gives effect to the constitutional right of access to water. The Act's overall purpose is to ensure that South Africa's water resources are protected, used and managed in ways which take into account a number of factors, including inter-generational equity, equitable access, redressing the results of past racial and gender discrimination, promoting sustainable and beneficial use, facilitating social and economic development, and providing for water quality and environmental protection.

The NWA makes persons who own, control, occupy or use land responsible for taking measures to prevent pollution of water resources, and empowers Government authorities to take measures to enforce this obligation.

A Water Use License Application (WULA) has been submitted to the Breede Gouritz Catchment Management Agency (BGCMA) for the expansion of the dam and the clearing of the vegetation and damage to watercourse banks.

### **3.7 NATIONAL FOREST ACT (ACT 84 OF 1998)**

The NFA provides for the **protection of forests**, as well as **specific tree species**, quoting directly from the Act: "no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated". The Department of Agriculture, Forestry & Fisheries (DAFF) is responsible for the implementation and enforcement of the NFA, which includes **prohibition of damage to indigenous trees in any natural forest without a licence** (Section 7 of the NFA), as well as the prohibition of the cutting, disturbing, damaging destroying or removing **protected trees** without a licence (Section 15 of the NFA).

In the case of the development, no protected trees have been identified on the developable areas.

### **3.8 NATIONAL VELD AND FOREST FIRE ACT (ACT 101 OF 1998)**

The purpose of the National Veld and Forest Fire Act is to **prevent and combat veld, forest and mountain fires** throughout the RSA and to provide institutions, methods and practices for achieving this purpose. Institutions include the formations of such bodies as **Fire Protection Associations** (FPA's) and **Working on Fire**. The Act provides the guidelines and constitution for the implementation of these institutions as well as their functions and requirements.

All landowners are required in terms of this Act to prepare and maintain **firebreaks** on the boundary of their property and any adjoining land. Only the Minister may exempt a landowner from providing firebreaks.

In areas that are considered a high fire risk, especially in vegetation types that tend to be fire driven ecosystems, it is recommended that a fire management plan is put in place, or the owner becomes a

member of the local FPA and fall under the umbrella of the regional fire management strategy. **The Southern Cape is considered to be a fire driven ecosystem.**

The clearance of high risk AIS is significant in this area which has been inundated with serious, life threatening fires in the past years.

### **3.9 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)**

The purpose of the National Heritage Resources Act is to:

- Introduce an integrated and interactive system for the management of the national heritage resources;
- Promote good government at all levels,
- Empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations;
- To lay down general principles for governing heritage resources management throughout South Africa;
- To introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa;
- To establish the South African Heritage Resources Agency together with its Council to co-ordinate and promote the management of heritage resources at national level;
- To set norms and maintain essential national standards for the management of heritage resources in South Africa and to protect heritage resources of national significance;
- To control the export of nationally significant heritage objects and the import into South Africa of cultural property illegally exported from foreign countries;
- To enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources;
- To provide for the protection and management of conservation-worthy places and areas by local authorities; and
- To provide for matters connected therewith.

The development does not impact on any heritage resources. In terms of the proposed development, if any evidence of archaeological remains are unearthed, this must be communicated to the Heritage Western Cape immediately. See the Heritage Requirements in this report for detailed instructions as to communicating any finds.

### **3.10 OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)**

The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work.

In terms of this Act, a Health and Safety Officer and Protocol must be implemented on any sites. The appointment of a Health and Safety Officer is the responsibility of the proponent and contractor and is included in this report to ensure due diligence on construction sites. It is the responsibility of the appointed HSO to conduct any required audits and as such only the appointment of an HSO will be auditable in terms of this document.

### **3.11 SANS 10400 APPLICATION OF THE NATIONAL BUILDING REGULATIONS**

The application of the National Building Regulations contains performance parameters relating to fire safety, sanitation systems, moisture penetration, structural safety, serviceability and durability. It also takes into account how the above can be established to reflect social expectations in a manner which supports sustainable development objectives.

This is currently not applicable to this application as no buildings are proposed. However, in the event that any structures associated with the agricultural business are required, the relevant application to the local municipality must be submitted.

### **3.12 NATIONAL BUILDING REGULATIONS**

The National Building Regulations and Building Standards Act as amended must be complied with. This act addresses, inter alia:

- Specifications for draftsmen, plans, documents and diagrams;
- Approval by local authorities;
- Appeal procedures;
- Prohibition or conditions with regard to erection of buildings in certain conditions;
- Demolition of buildings;
- Access to building control officers;
- Regulations and directives; and
- Liability.

This is currently not applicable to this application as no buildings are proposed. However, in the event that any structures associated with the agricultural business are required, the relevant application to the local municipality must be submitted.

## **4 ENVIRONMENTAL IMPACTS & MITIGATIONS**

The following specialist impact assessments were undertaken for the proposal:

- Aquatic Impact Assessment

The following environmental impacts of the development were identified and assessed during the EIA process, based on which the associated mitigation measures were recommended for implementation (to reduce negative impacts & enhance positive ones):

- Loss of indigenous vegetation; and
- Impacts on riparian areas and non-perennial watercourse.

### **4.1 IMPACTS & MITIGATIONS**

The following impacts and proposed mitigations have been provided by the specialists:

Impacts	Significance rating of impacts after mitigation (Low, Medium, Medium-High, High, Very High):
<b>Construction</b>	
<b>Clearance of vegetation:</b>	
Loss of habitat of an endangered ecosystem type	<b>High</b>
Loss of ecosystem services	<b>Medium</b>
Loss of ecosystem function, pattern and process	<b>Medium</b>

<p>Loss of distinct biodiversity features</p> <p>Designate an area to offset the impacts of clearing for the same vegetation types.</p>	<b>Medium</b>
<p><b>Creation of business and employment and opportunities</b></p> <p>Local contractors and workers were appointed to undertake the work. This represents the enhancement measures that would typically be recommended for construction related activities.</p>	<b>Moderate (positive)</b>
<p><b>Security and safety risks to adjacent farms posed by workers.</b></p> <p>The presence of construction workers in the area has the potential to impact on the safety and security of local residents and farms in the area.</p>	<b>Low</b>
<p><b>Noise, dust, traffic related impacts associated with construction related activities.</b></p> <p>Construction related activities can impact negatively on adjacent landowners and road users. The typical impacts include noise, dust and traffic related impacts. Based on the findings of the SIA the majority of the impacts were confined to the site and did not impact on adjacent landowners or other road users. Given the nature of the activities, the volume of construction related traffic along the DR1630 and OP6824 was likely to have been low and limited to a short period of time (3-4 months).</p>	<b>Low</b>
<b>Cultural - Historical</b>	<b>None</b>
<p><b>Noise</b></p> <p>The farmlands are isolated and farming noise is unlikely to bother anyone.</p>	<b>Negligible</b>
<b>Visual</b>	<b>None</b>
<b>Operation</b>	
<p><b>Creation of employment and business opportunities</b></p> <p>Opportunity to up-grade and improve skills levels in the area.</p>	<b>High positive</b>
<p><b>Implementation of alien clearing and fire management plan.</b></p> <p>Development and implementation of an alien clearing and fire management plan.</p>	<b>High positive</b>
<b>Cultural – Historical</b>	<b>None</b>
<b>Noise</b>	<b>None</b>



<b>Visual</b>	<b>None</b>
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The Aquatic specialist provided management recommendations in terms of best practise. These have been included as management actions in this EMP.

#### **Aquatic Compliance Statement:**

As no watercourses have been directly impacted by the clearing of vegetation a detailed specialist report and impact assessment is not required. There are however some areas that do need to be managed and mitigated, which relate primarily to the management and prevention of erosion along steep gradients in close proximity to watercourses. These include the following:

- a. Orchards must not be established within the drainage area indicated. The delineated area provides sufficient protection for the steep embankments and an additional buffer (approximately 10 – 15 m) beyond the top of the embankments;
- b. Exposed sections of embankments in the drainage area indicated must be revegetated with an indigenous fynbos reclamation mix;
- c. The culvert at bottom of the drainage area must be cleared and erosion protection placed at the outlet;
- d. Orchards must be withdrawn from 15 m away from the edge of the plateau on Portion 4 of 55 and RE/57 to avoid erosion and deterioration of watercourses in the Moordkuil River valley below. This 15 m area must be treated as a buffer which should be rehabilitated and revegetated to provide protection to watercourses located down the steep slopes of the escarpment;
- e. The drainage area and buffer around the orchards established on the plateau must be routinely monitored for erosion; and
- f. Tree rows for newly established orchards must be planted parallel to contour lines to minimise soil loss and erosion from the proposed orchard areas.

## **5 RESPONSIBILITIES**

This section deals with the responsibilities of various parties during the Construction Phase of any development.

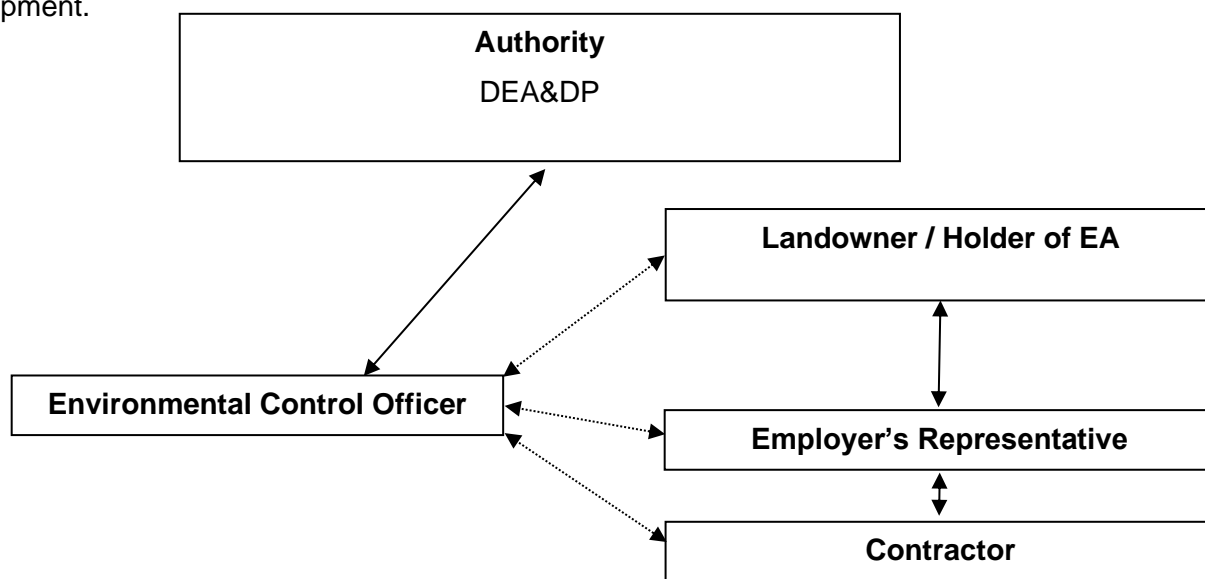


Figure 5: Responsibilities

## **5.1 HOLDER OF THE EA**

The holder of the EA / property owner is the overseeing entity responsible for ensuring that all activities undertaken on the property comply with the Environmental Authorisation (EA) and associated Environmental Management Programme (EMPr) (& any other approval / licence / permit), as well as the management and maintenance of the open space areas (protected vegetation).

The responsibilities of the holder of the EA / property owner include, but are not limited to the following:

- Ensure that **all tender documentation** include reference to, and the need for compliance with, the EA and EMPr as well as any other legally binding documentation, which include and are not limited to:
  - the Municipal Approval/s (, service agreements & building plans etc.);
- Be conversant with, and ensure that all Contractors, Sub-contractors, Engineers (and future senior site managers / personnel) are made aware of, and understand the conditions and recommendations, contained in the abovementioned documentation;
- Ensure that all Contractors, Sub-contractors, Engineers (during construction activities), as well as all future visitors and service providers (during operation) are made aware of their 'Duty of Care to the Environment' and that any damage or degradation of the natural environment within the bounds of the property will be not be tolerated and must be dealt with / remedied at the cost of the perpetrator;
- Take remedial and/or disciplinary action in circumstances where persons are found to be in contravention of the abovementioned legally binding documentation.

## **5.2 ENGINEERS, CONTRACTORS & SERVICE PROVIDERS**

The Engineers, Contractors and Service Providers are often the parties responsible for physically carrying out the activities for which majority of the recommendations in this EMPr are intended. Service providers and Contractors include: services, building contractors, 'handy-men' and engineers overseeing the installation and maintenance of services etc. The responsibilities indicated here are also relevant to Sub-Contractors.

The responsibilities of these parties include but are not limited to the following:

- Be conversant and compliant with the EA, the EMPr, and any relevant License, Permit or any legally binding documentation relevant to their operations;
- Have a responsibility to adhering to any conditions and recommendations laid out in above mentioned documentation;
- Prevent actions that may cause harm to the environment;
- Be responsible for any remedial activities in response to an environmental incident within their scope of influence;
- Liaise with the holder of the EA in complying with the EMPr, and in the event that any industry regulated standards are in contradiction with the EMPr or any other authorisations.
- Review and amend to any construction activities to align with the EMPr and Best Practice Principles;
- Ensure compliance of all site personnel and / or visitors to the EMPr and any other authorisations.

## **5.3 ECOLOGICAL CONTROL OFFICER (ECO)**

It is recommended that a suitably qualified Environmental Control Officer (ECO) be appointed to oversee all activities for the duration of the construction phase (i.e. land clearance). The ECO must have a minimum of a tertiary level qualification in the natural sciences field. The ECO must have at least 3 years' experience and proven competency as an ECO.

The responsibilities of the ECO include but are not limited to the following:

- Provide environmental induction training to Contractors on site prior to construction activities commencing
- Provide maintenance, update and review of the EMPr if necessary;
- Liaison between the Project Holder of the EA, Contractors, Authorities and other lead stakeholders on all environmental concerns, including the implementation of the EMPr;
- Compilation of Environmental Control Reports (ECR) to ensure compliance with the EA, EMPr and duty of care requirements, where necessary;
- Compilation of the Environmental Audit Report or Environmental Completion Statement, after completion of construction (or as otherwise defined in the Environmental Authorisation), where necessary;
- Ensuring / guiding and monitoring compliance with the EA and EMPr and any legally binding documentation;
- Facilitating consultation with relevant environmental authorities (e.g. DEA&DP, GRDM, CapeNature or Municipality);
- Facilitating the application for any required environmental authorisation, permit or licence;
- Provide guidance and interpretation of the EA and EMPr where necessary;
- Issuing site instructions to the contractor for corrective actions required;
- The ECO is required to conduct regular site visits for the duration of the construction period, in order to ensure the Contractor receives the necessary induction and that all procedures are in place. Additional visits may be undertaken in the event of any unforeseen environmental accidents;
- The duration and frequency of these visits may be increased or decreased at the discretion of the ECO;
- Attendance of site meetings if required;
- Maintain a record of environmental incidents (e.g. spills, impacts, legal transgressions etc.) as well as corrective and preventative measures taken. This information must also be included in the ECR;
- Maintain a public complaints register in which all complaints and action taken must be recorded. This information must also be included in the ECR.

#### **5.4 ECO SITE VISIT FREQUENCY**

The following site frequency for ECO site visits has been determined:

- Every second week during land clearing works;
- Six months after construction is completed to inform the Completion Statement;
- Ad hoc site visits may be undertaken in the event of any incidents or specific requests from the project holder of the EA or project team.

#### **5.5 ENVIRONMENTAL INDUCTION & TRAINING**

The holder of the EA in consultation with the Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EA and EMPr. The presentation shall be conducted, as far as is possible, in the employees' language of choice. The Contractor must provide a translator from their staff for the purpose of translating, if this is deemed necessary.

As a minimum, training must include:

- Explanation of the importance of complying with the EA and EMPr and the employees accountability;
- Discussion of the potential environmental impacts of construction activities;
- The benefits of improved personal performance;

- Employees' roles and responsibilities, including emergency preparedness ;
- Explanation of the mitigation measures that must be implemented when carrying out their activities;
- Explanation of the specifics of this EMP and its specification (no-go areas, etc.);
- Explanation of the management structure of individuals responsible for matters pertaining to the EMP.

Where staff turnover is high and with additional appointment of Sub-contractors, it may be necessary to undertake additional induction training sessions. The Contractor must keep records of all environmental training sessions, including names, dates and the information presented.

## 6 PRE CONSTRUCTION DESIGN CONSIDERATIONS

It is recommended that sustainable design considerations are implemented during the planning phase in order to ensure that the impacts associated with the development are avoided, minimised or managed before construction commences.

### 6.1 WATER RESOURCE PROTECTION

Management Statement			Impacts & Risks Avoided		
To minimise the destruction of water resources by improving consumption methods			Protection of water resources / drainage areas during construction		
Management Actions					
a. Erosion control mechanisms					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Planting plan and visual inspection during land clearance	Weekly	Contractor / farm manager	Permanent	Method Statement / Audit	Monthly

#### Additional Considerations where necessary:

- Orchards must not be established within the drainage area below the new dam location. The delineated area provides sufficient protection for the steep embankments and an additional buffer (approximately 10 – 15 m) beyond the top of the embankments;
- Exposed sections of embankments in the drainage area below the new dam location must be revegetated with an indigenous fynbos reclamation mix;
- The culvert at bottom of the drainage area must be cleared and erosion protection placed at the outlet;
- Orchards must be withdrawn from 15 m away from the edge of the plateau on Portion 4 of 55 and RE/57 to avoid erosion and deterioration of watercourses in the Moordkuil River valley below. This 15 m area must be treated as a buffer which should be rehabilitated and revegetated to provide protection to watercourses located down the steep slopes of the escarpment;
- The drainage area and buffer around the orchards established on the plateau must be routinely monitored for erosion; and

- Tree rows for newly established orchards must be planted parallel to contour lines to minimise soil loss and erosion from the proposed orchard areas.

## 6.2 DEMARCATIION OF WORK AND NO-GO AREAS

Management Statement			Impacts & Risks Avoided		
To clearly define the work area and avoid impacting on non-works areas.			Negative construction impacts on natural and rehabilitated areas		
Management Actions					
a. Clearly identify and demarcate the planting areas.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off
b. Fuel and chemicals may only be stored in a designated work area.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off

## 7 CONSTRUCTION CONSIDERATIONS

These Construction Phase requirements are aimed at using Best Practise Principles and / or specialist recommendations to manage the impacts on the environment during the construction of the development.

### 7.1 WORKING NEAR DRAINAGE AREAS

Management Statement	Impacts & Risks Avoided
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To minimise stress on aquatic communities when working in a waterway.			Avoid negative impacts associated with land clearing affecting watercourses		
Management Actions					
a. Establish special practices so that impacts on the drainage area are minimised.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor	Continuously during construction	Audit	Monthly
b. Prepare a contingency plan for high-rain events.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor	Continuously during construction	Audit	Monthly
c. Erosion control mechanisms on slopes					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Planting plan and visual inspection during land clearance	Weekly	Contractor / farm manager	Permanent	Method Statement / Audit	Monthly
Additional Considerations where necessary:					
<ul style="list-style-type: none"><li>• Orchards must not be established within the drainage area below the new dam location. The delineated area provides sufficient protection for the steep embankments and an additional buffer (approximately 10 – 15 m) beyond the top of the embankments;</li><li>• Exposed sections of embankments in the drainage area below the new dam location must be revegetated with an indigenous fynbos reclamation mix;</li><li>• The culvert at bottom of the drainage area must be cleared and erosion protection placed at the outlet;</li><li>• Orchards must be withdrawn from 15 m away from the edge of the plateau on Portion 4 of 55 and RE/57 to avoid erosion and deterioration of watercourses in the Moordkuil River valley below. This 15 m area must</li></ul>					

be treated as a buffer which should be rehabilitated and revegetated to provide protection to watercourses located down the steep slopes of the escarpment;

- The drainage area and buffer around the orchards established on the plateau must be routinely monitored for erosion; and
- Tree rows for newly established orchards must be planted parallel to contour lines to minimise soil loss and erosion from the proposed orchard areas.

## 7.2 STORMWATER MANAGEMENT

Management Statement	Impacts & Risks Avoided
To minimise the generation of contaminated stormwater.	Minimise sedimentation, erosion and / or nutrification of the watercourse / drainage area

### Management Actions

a. Minimise the quantity of stormwater entering cleared areas.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off

b. Ensure that ridge rows are parallel to contour lines.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement / Planting Plan	Once off	Owner / contractor	Construction period	Audit	Once off

## 7.3 DUST CONTROL

Management Statement	Impacts & Risks Avoided
To ensure there is no health risk or loss of amenity due to emission of dust to the environment.	Ensure land coverage with crops / vegetation to minimise dust from vehicles



Management Actions					
a. Implement a dust prevention strategy, developed at the project planning stage					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off
7.4 <u>NOISE &amp; VIBRATION</u>					
Management Statement			Impacts & Risks Avoided		
To ensure nuisance from noise and vibration does not occur.			Limited impact due to the location of the property		
Management Actions					
a. Fit and maintain appropriate mufflers on earth-moving and other vehicles on the site					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly.  As required if complaints registered.	Contractor	During construction and operation	Audit	As required
b. Enclose noisy equipment such as generators and pumps.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly.  As required if complaints registered.	Contractor	During construction	Audit	As required
c. Provide noise attenuation screens, where appropriate.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly.  As required if complaints registered.	Contractor	During construction	Audit	As required
d. Where an activity is likely to cause a noise nuisance to nearby residents, restrict operating hours to between 7 am and 6 pm weekdays and 7 am to 1 pm Saturday, except where, for practical reasons, the activity is unavoidable.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	As required if complaints registered.	Contractor	During construction	Audit	As required
<b>7.5 <u>WASTE MANAGEMENT</u></b>					
Management Statement			Impacts & Risks Avoided		
To minimise the waste load discharged to the environment.			Improve waste disposal methods during construction  Reduce waste volumes to landfill sites		

Management Actions					
a. Reduce wastes by selecting, in order of preference, avoidance, reduction, reuse and recycling.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Record of volumes of material removed	As required	Contractor	As required	Audit	Records
b. Maintain a high quality of housekeeping and ensure that materials are not left where they can be washed or blown away to become litter.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Photographic	Weekly	Contractor	As required	Audit	Records
c. Provide bins for construction workers and staff at locations where they consume food.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Photographic	Weekly	Contractor	As required	Audit	Records
d. Conduct ongoing awareness with staff of the need to avoid littering.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Induction	Once off	Contractor	As required	Audit	Attendance register

## 7.6 STOCK PILE MANAGEMENT

Management Statement			Impacts & Risks Avoided		
To manage soil stockpiles so that dust and sediment in run-off are minimised.			Pollution due to dust and sediment run off		
Management Actions					
a. Minimise the number of stockpiles, and the area and the time stockpiles are exposed.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Photographic	As required	Contractor	As required	Audit	Records
b. Keep topsoil and underburden stockpiles separate.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	Daily when stripping topsoil	Contractor	Continuously during construction	Audit	Records
c. Locate stockpiles away from drainage lines, at least 10 metres away from natural waterways and where they will be least susceptible to wind erosion.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	Daily when stripping topsoil	Contractor	Continuously during construction	Audit	Records
d. Ensure that stockpiles and batters are designed with slopes no greater than 2:1 (horizontal/vertical).					

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly
e. Stabilise stockpiles and batters that will remain bare for more than 28 days by covering with mulch or anchored fabrics or seeding with sterile grass.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly
f. Establish sediment controls around unstabilised stockpiles and batters.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly
g. Suppress dust on stockpiles and batters, as circumstances demand.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly
<b>7.7 <u>STORING FUELS &amp; CHEMICALS</u></b>					
<b>Management Statement</b>			<b>Impacts &amp; Risks Avoided</b>		

To ensure that fuel and chemical storage is safe, and that any materials that escape do not cause environmental damage.			Avoid hydrocarbon pollution to soil and watercourses		
Management Actions					
a. Minimise fuels and chemicals stored onsite.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
b. Install bunds and take other precautions to reduce the risk of spills.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
c. Implement a contingency plan to handle spills, so that environmental damage is avoided.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
7.8 FIRE MANAGEMENT					
Management Statement			Impacts & Risks Avoided		



To ensure prevention of unnecessary fires that may cause risk to the environment and human health.			Prevents unnecessary fires from causing damage to the vegetation and soils, as well as protecting infrastructure and lives.		
Management Actions					
a. In case of an emergency, the contact details of the local fire and emergency services must be readily available (see contact list on page x above)					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Emergency information to be displayed on site	Once off	Contractor	Once off	Audit	Photographs

## 7.9 MINIMISING EROSION

Management Statement			Impacts & Risks Avoided		
To minimise the quantity of soil lost during construction due to land-clearing.			<ul style="list-style-type: none"><li>Avoid overland flow by capture and store water from roof</li><li>Avoid siltation by installing silt traps</li></ul>		
Management Actions					
a. Schedule measures to avoid and reduce erosion by phasing the work program to minimise land disturbance in the planning and design stage.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
b. Keep the areas of land cleared to a minimum, and the period of time areas remain cleared to a minimum					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

Method statement	As required	Contractor	As required	Audit	Method statement records
c. Base control measures to manage erosion on the vulnerability of cleared land to soil loss, paying particular attention to protecting slopes.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
d. Mulch, roughen and seed cleared slopes and stockpiles where no works are planned for more than 28 days, with sterile grasses.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
e. Keep vehicles to well-defined haul roads.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site plan	As required	Contractor	As required	Audit	Final site plan
f. Rehabilitate cleared areas promptly.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor	Continuously during construction	Audit	Final Rehabilitation statement

**7.10 BOTANICAL MANAGEMENT**

Management Statement			Impacts & Risks Avoided		
To ensure that degradation to existing botanical components are minimised and that any rehabilitation is undertaken with conservation orientated approach.			To minimise the disturbance to existing flora  To minimise the introduction and/or spread of weed species		
Management Actions					
a. Implement the AIS management on an ongoing basis					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor	Continuously	Audit	Visual / photographic
b. Limit vegetation clearing to the approved site area only. Use of a Planting Plan is recommended.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor	Pre construction & construction	Audit	Visual / photographic
<ul style="list-style-type: none"><li>Recommendation by the specialist for an offset area to conserve remainder of the endangered vegetation types on the property. All areas outside of the approved agricultural areas must be retained as indigenous.</li></ul>					

**7.11 SOCIAL REQUIREMENTS**

Management Statement	Impacts & Risks Avoided
To ensure equitable, fair and safe social interaction on construction sites	Loss of employment opportunities to the region
Management Actions	

a. It is strongly recommended that the Contractor make use of local labour as far as possible for the construction phase of the project.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Employment records	Ad hoc	Contractor	Ad hoc	Audit	Once off
b. Theft and other crime associated with construction sites is not only a concern for surrounding residents, but also the Developer and the Contractor.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off
7.12 <u>HERITAGE REQUIREMENTS</u>					
Management Statement			Impacts & Risks Avoided		
To minimise the impacts of development, operation and maintenance of the Project on the heritage values in the Project area.			Ensure heritage impacts are minimised, and impacts outside of the approved disturbance area are avoided.		
Management Actions					
a. No disturbance of heritage values outside of the approved disturbance area.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off
<ul style="list-style-type: none"><li>Should any heritage remains of potential cultural value be exposed during excavations, these must be immediately reported to the ECO and the Provincial Heritage Resource Authority of the Western Cape, namely Heritage Western Cape in terms of the national Heritage Resources Act (Act No. 25 of 1999). Heritage remains uncovered or disturbed during earthworks may not be disturbed further until the necessary approval has been obtained from Heritage Western Cape.</li><li>Should any archaeological remains including (but not limited to) fossil bones, fossil shells, coins, indigenous ceramics, colonial ceramics, marine shell heaps, stone artefacts, bone remains, rock art, rock engravings and any antiquity be discovered during construction, they must be</li></ul>					

immediately reported to the ECO and Heritage Western Cape and not disturbed further until the necessary approval has been obtained.

- Should any human remains be uncovered, they must immediately be reported to the ECO and the HWC archaeologist, who can be contacted on **(021) 483 9685**. Construction in the area must cease immediately and the site may not be disturbed further until the necessary approval has been obtained.

### 7.13 METHOD STATEMENTS

Management Statement			Impacts & Risks Avoided		
To ensure efficient communication mechanisms in the implementation of environmental performance requirements			Prevention of potential impacts are avoided during construction by means of correct communication		
Management Actions					
a. Method statements are written submissions by the Contractor to the ECO in response to the requirements of this EMP or to a request by the ECO. The Contractor shall be required to prepare method statements for several specific construction activities and/or environmental management aspects.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	Ad hoc	Contractor / farm management	As required	Audit	Once off
Based on the specifications in this EMP, the following method statements are required as a minimum (more method statements may be requested as required at any time under the direction of the ECO):					
<ul style="list-style-type: none"><li>• Planting Plan</li><li>• Demarcation of No-Go areas</li><li>• Site clearing</li><li>• Hazardous substances and their storage.</li><li>• Cement and concrete batching.</li><li>• Solid waste control system.</li><li>• Fire control and emergency procedures</li><li>• Petroleum, chemical, harmful and hazardous materials storage, if any.</li></ul>					

### 7.14 WATER MANAGEMENT

Southern Africa is the second region in the world to be confronted by a debilitating water deficit (the first was the Middle East and North Africa) (Turton, 2000). Within the region, South Africa stands out as one of the most water-scarce countries. The country is also characterised by extremely variable

rainfall, both geographically and over time. In the 12% of the country that is suitable for the production of rain-fed crops, productivity tracks rainfall, making farming a challenging business. Climate change predictions are that rainfall will be more infrequent but more intense. This will shrink the country's arable land and increase agricultural unpredictability. Farmers will find it increasingly difficult to increase productivity to meet the growing demand for food. This highlights the need for sound cropping and rangeland production practices to retain soil integrity despite these predicted intense rainfall events.

It has been shown over and over that managing soils and removal of alien vegetation are the two most effective management strategies to improve water yield.

The following Best Practice in terms of water use must be implemented where applicable to this application:



### Increasing supply

- ✓ Remove invasive alien plants and replace with indigenous vegetation.
- ✓ Restore and protect wetlands (remove alien plants, control burning and grazing, do not cultivate).
- ✓ Leave at least a 30–40 m natural vegetation buffer zone between cultivated land and a river, and a 25–70 m buffer around a wetland.

### Reducing demand

- ✓ Build up soil organic matter to reduce evaporative water loss and maximise the soil's water-holding capacity.
- ✓ Use more efficient irrigation systems, such as drip irrigation.
- ✓ Ensure efficient irrigation techniques that take into account soil type, crop type, soil water status and weather conditions.
- ✓ Maintain irrigation systems regularly.
- ✓ Where necessary, register water use with the Department of Water Affairs.
- ✓ Record actual water use to compare against registered use.
- ✓ Implement water-harvesting and water-recycling techniques where possible.
- ✓ Use drought-resistant crop and livestock varieties.

Figure 6: Best Practise Water Use (WWF,2010)

## 7.15 **BEST PRACTISE PRINCIPLES**

Implementing Best Practise in agriculture is strongly supported both in terms of NEMA and by conservation organisations. As a general rule the following principles should be incorporated into the farming business:





Figure 7: WWF Best Practise Principles (WWF, 2010)

## **7.16 HEALTH AND SAFETY**

The Contractor must ensure compliance with the Occupational Health and Safety (No. 85 of 1993). Of key importance is the following (Section 8 of the aforesaid act):

### **8. General duties of employers to their employees:**

- (1) Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.
- (2) Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular-
  - (a) the provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health;
  - (b) taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees, before resorting to personal protective equipment;
  - (c) making arrangements for ensuring, as far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances;
  - (d) establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures must be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures;

- (e) providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees;
- (f) as far as is reasonably practicable, not permitting any employee to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken;
- (g) taking all necessary measures to ensure that requirements of this Act are complied with by every person in his employment or on premises under his control where plant or machinery is used;
- (h) enforcing such measures as may be necessary in the interest of health and safety;
- (i) ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who have the authority to ensure that precautionary measures taken by the employer are implemented; and
- (j) causing all employees to be informed regarding the scope of their authority as contemplated in section 37 (1) (b).

The Occupational Health and Safety Act aims to provide for the health and safety of persons at work and for the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety.

Health & Safety on site is the responsibility of the contractor and the proponent.

Although this is not the function of the ECO, it is a standard requirement for building construction and must be monitored and evaluated by a suitably qualified Health & Safety person. It will not form part of any environmental audit in the future.

## 8 OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

The Operational Phase of this EMPr refers to the day to day management activities that are required to ensure sustainability and the achievement of the principles and objectives of the development. The requirements are applicable to the proponent, all employees and all visitors to the property.

8.1 <u>ALIEN INVASIVE MANAGEMENT</u>					
Management Statement			Impacts & Risks Avoided		
To ensure management and prevention of the spread of alien invasive vegetation leading to biodiversity impacts			To minimise the disturbance to existing flora  To minimise the introduction and/or spread of weed species		
Management Actions					
a. The following alien invasive plant species are known to occur on the property and must be removed / eradicated as part of the initial site clearing and rehabilitation:.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
AIS Control	Ongoing	Contractor / landowner	As required	Audit	Audit
<ul style="list-style-type: none"><li>Identify alien invasive vegetation on site.</li><li>Implement an alien invasive management plan.</li><li>Apply Best Practise management principles as per Appendix 5 of this EMPr.</li></ul>					

### 8.2 IRRIGATION MANAGEMENT

Irrigation infrastructure should be developed in such a way that the right amount of water is applied to the crop at the right time so that energy is used as efficiently as possible, production is optimized and as little water as possible is lost to non-beneficial consumption.

Conservation Agriculture approaches farming holistically, linking biodiversity management, soil health and water management to good farming practice. Healthy soil retains more water so there is less run-off into water systems, and less need for using pesticides and fertilisers.

Technology and good agricultural practices should be used to optimize irrigation water management. These include:

- Remove invasive alien plants and replace with indigenous vegetation. Invasive alien plants that establish in watercourse are spread downstream.
- Restore and protect watercourses (remove alien plants, control burning and grazing, do not cultivate).

- Maintain good river buffers or corridors of natural vegetation to trap run-off and sediment.
- Build up soil organic matter to reduce evaporative water loss and maximise the soil's water-holding capacity.
- Mulching orchards can cut irrigation frequency from once a day to once every three days.
- Use more efficient irrigation systems and schedule irrigation to avoid unnecessary evaporation and water wastage.
- Ensure efficient irrigation techniques that take into account soil type, crop type, soil water status and weather conditions.
- Implementing and monitoring soil moisture to determine correct irrigation schedules.
- Implementing and monitoring flow rates to provide correct and up to date data on water usage.
- Record actual water use to compare against registered use.
- Implement water-harvesting and water-recycling techniques where possible.
- Use drought-resistant crop and livestock varieties.
- Planting of crops in correct soil types to ensure optimal growth with efficient water usage.
- Implement and monitoring of water pressure in pipes.
- Ensuring that all equipment (pumps, pipes and irrigation mechanisms) are maintained and in good working order. This will minimise leaks and other water loss and ensure a longer life cycle for equipment.
- Use of cut off valves on storage facilities (where applicable) to prevent overflow.
- Efficient use of energy by means of timing and control devices.

## 9 MONITORING

Monitoring is an important tool in determining the effectiveness of management actions by measuring changes in the environment. These could be in the form of fixed point photography where an area is photographed on a regular / seasonal basis to ascertain changes, monitoring of a particular aspect such as water quality parameters, recordings of animal movement from fixed point etc. The most important aspect of any monitoring programme is consistency and continuity. This will ensure a level of scientific accuracy to determine baselines / thresholds and measure changes / deviations, which then drive management reactions.

Any required monitoring reports as considered in Section 5.3 of this EMPr must be made available to the competent authority as required.

The type and frequency of monitoring must include:

- During construction / land clearance photographs must be taken from pre identified fixed points and a comprehensive record maintained;
- Incident Reports;
- Records of water use and irrigation volumes must be maintained.

## 9.1 **MONITORING TIMEFRAMES SUMMARY**

Table 2: Monitoring Timeframe Summary

<b>MONITORING TIMEFRAMES</b>		
Type	Frequency	Criteria
Management team record keeping during construction	Monthly	Site photographs, method statements
	6 month post construction	Completion Statement
Erosion hotspot monitoring	After rainfall events	Evaluate the road and orchard areas for erosion hotspots and keep a record of these inspections.
Auditing	Annually for the first 2 years after construction completion	Compliance with the EA, EMP, municipal permits, and any other approvals

## 9.2 **ENVIRONMENTAL AUDITS**

Annual post construction audits must be undertaken annually for a period of two (2) years and must include details of identified offset areas.

This audit report must include the monitoring results as above, where applicable to construction.

## 9.3 **AUDIT REPORTS FREQUENCIES AND FORMAT**

The table below provides a summary of the timeframes for the various Audit Reports specified in the EA.

Table 3: Audit Reports Timeframe Summary

<b>ENVIRONMENTAL AUDIT TIMEFRAMES</b>		
Type	Frequency	Criteria
Construction Audit	Annually for a period of two (2) years	Yearly from date of completion of construction activities
Final Construction Audit	6 months after completion of construction / land clearing	At least 6 months from the date of completion of construction.
Operational Audit	None	

In terms of the 2014 EIA Regulations, Audit Reports must be submitted to the registered Interested & Affected Parties within 7 days of submission to the competent authority.

In order to comply with the 2014 EIA Regulations, any audits must be undertaken using the following format:

Table 4: Environmental Audit Requirements

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.	
Objective	Description
The objective of the environmental audit report is to -	
(a) Report on – (i) the level of compliance with the conditions of the environmental authorisation and the EMPr, and where applicable, the closure plan; and (ii) the extent to which the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan achieve the objectives and outcomes of the EMPr, and closure plan.	
(b) Identify and assess any new impacts and risks as a result of undertaking the activity.	
(c) Evaluate the effectiveness of the EMPr, and where applicable, the closure plan.	
(d) Identify shortcomings in the EMPr, and where applicable, the closure plan.	
(e) Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan.	
Requirement	Description
(1) An Environmental audit report prepared in terms of these Regulations must contain -	
(a) Details of – (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report.	
(b) A declaration that the independent auditor is independent in a form as may be specified by the competent authority.	
(c) An indication of the scope of, and the purpose for which, the environmental audit report was prepared.	



Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.

Objective	Description
(d) A description of the methodology adopted in preparing the environmental audit report.	
(e) An indication of the ability of the EMPr, and where applicable the closure plan to – <ul style="list-style-type: none"> <li>(i) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity on an on-going basis;</li> <li>(ii) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and</li> <li>(iii) Ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan.</li> </ul>	
(f) A description of any assumptions made, and any uncertainties or gaps in knowledge.	
(g) A description of an consultation process that was undertaken during the course of carrying out the environmental audit report.	
(h) A summary and copies of any comments that were received during any consultation process.	
(i) Any other information requested by the competent authority.	

Any other requirements of the EA or any other authorisations must be incorporated into an Audit where necessary.

## 10 DECOMMISSIONING PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

It is not likely that decommissioning of this facility will take place in the near future. However, in the event that decommissioning does occur, all relevant legislation and policies must be complied with for the given period.

In general, in the future event that the facility be decommissioned, the following must be undertaken:

- Only identified infrastructure must be removed within a demarcated area to prevent unnecessary damage to the surrounding area;
- Materials that can be recycled must be correctly sorted and stacked for removal to appropriate waste stream sites.

## 11 NON-COMPLIANCE

Any person is liable on conviction of an offence in terms of regulation 49(a) of the National Environmental Laws Second Amendment Act (Act 30 of 2013) to imprisonment for a period not exceeding ten (10) years or to a fine not exceeding R10 million or an amount prescribed in terms of the Adjustment of Fines Act, 1991 (Act No. 101 of 1991).

It is the responsibility of the ECO to report matters of non-compliance to the Employer's Representative (e.g. Project Engineer), who in turn is tasked with reporting such matters to the Holder of the EA. It is the responsibility of the Holder of the EA, and not the ECO, to report such matters of non-compliance to the competent Authority.

### 11.1 PROCEDURES

The Holder of the EA shall comply with the environmental specifications and requirements of this EMP, any Approval / License issued and Section 28 of NEMA, on an on-going basis and any failure on his part to do so will entitle the authorities to **impose a penalty**<sup>1</sup>.

In the event of non-compliance the following recommended process shall be followed:

- The competent authority shall issue a **Notice of Non-compliance** to the Holder of the EA, stating the nature and magnitude of the contravention.
- The Holder of the EA shall **act to correct the transgression** within the period specified in by the authority.
- The Holder of the EA shall provide the competent authority with a **written statement** describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- In the case of the Holder of the EA failing to remedy the situation within the predetermined time frame, the competent authority may recommend halting the activity.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the competent authority shall be entitled to undertake or to cause to be undertaken such **remedial works** as may be required to make good such damage at the cost of the Project applicant.
- In the event of a dispute, difference of opinion, etc. between any parties in regard to or arising out of interpretation of the conditions of the EMP, disagreement regarding the implementation or method of implementation of conditions of the EMP, etc. any party shall be entitled to require that the issue be referred to **specialists and / or the competent authority** for determination.
- The competent authority shall at all times have the right to **stop work** and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

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<sup>1</sup> A penalty may not necessarily be a monetary fine but could also be a stoppage in work time, additional mechanisms to prevent pollution or degradation at the cost of the proponent or even a directive to cease activities from the competent authority.

## 12 REFERENCES

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