ENVIRONMENTAL MANAGEMENT PROGRAMME

for

KELLERSHOOGTE 24G

on

Portion 4 of Farm 172 Kellershoogte

In terms of the

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

Prepared for Applicant: **Mooiplaas Trust**

Date: **14 February 2024**

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PURPOSE OF THIS REPORT:

Environmental Management Programme for 24G Application

APPLICANT:

Mooiplaas Trust

CAPE EAPRAC REFERENCE NO:

OUD670/01

SUBMISSION DATE

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In terms of the National Environmental Management Act (Act 107 of 1998), as amended, and the 2014 Environmental Impact Assessment Regulations (as amended).

Submitted for:
Stakeholder Review & Comment

Report Issued by:

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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.	See Annexure 5
A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description.	Section 1
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	Annexure 1 and Annexure 3
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.	Section 4 – Environmental Impacts and Mitigations Section 5 – Responsibilities Section 7 – Pre-Construction Design Section 8 – Construction Phase Section 9 – Operation Phase
A description and identification of impact management outcomes required for the aspects contemplated above.	Section 4
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;	Section 4 – Environmental Impacts and Mitigations Section 7 – Pre-Construction Design Section 8 – Construction Phase Section 9 – Operation Phase

(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.	
The method of monitoring the implementation of the impact management actions contemplated above.	Section 10 Section 12
The frequency of monitoring the implementation of the impact management actions contemplated above	Section 10
An indication of the persons who will be responsible for the implementation of the impact management actions.	Section 5
The time periods within which the impact management actions must be implemented.	Not applicable
A program for reporting on compliance, taking into account the requirements as prescribed in the Regulations.	Section 10
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.	Section 5 – Responsibilities Section 7 – Pre-Construction Design Section 8 – Construction Phase Section 9 – Operation Phase n Section 10 - Monitoring
Any specific information that may be required by the competent authority.	Not applicable

ABBREVIATIONS AND ACRONYMS

BSP 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.

CARA 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.

CBA Critical Biodiversity Area - areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan.

DEA National Department of Environmental Affairs – the national authority responsible for the sustainable environmental management and integrated planning.

DEA&DP Department of Environmental Affairs and Development Planning – the provincial authority for sustainable environmental management and integrated development planning. The competent authority is this case.

DAFF 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.

DWS Department of Water & Sanitation Affairs – National authority mandated to enforce the National Water Act (NWA).

EA Environmental Authorisation – Authorisation obtained on completion of an Environmental Impact Assessment in terms of the National Environmental Management Act (NEMA).

ECA Environment Conservation Act, 1989 - To provide for the effective protection and controlled utilization of the environment and for matters incidental thereto.

ECO Ecological Control Officer – independent site agent appointed to observe and enforce the implementation of environmental policies and principles on a development site.

EIA 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.

EMPr 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.

GIS Geographic Information System - system designed to capture, store, manipulate, analyse, manage, and present all types of geographical data.

GPS 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.

NEMA National Environmental Management Act (Act 107 of 1998, as amended) – national legislation that provides principles for decision-making on matters that affect the environment.

NEM:BA 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.

NFA National Forestry Act (Act No.84 of 1998) - provides for the protection of forests, as well as specific tree species within South Africa.

NSBA 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.

NWA National Water Act (Act No.36 of 1998) - ensures that South Africa's water resources are protected, used and managed.

1. INTRODUCTION

Cape Environmental Assessment Practitioners (Cape EAPrac) was appointed by the Applicant, ***Mooiplaas Trust***, to compile 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 on Portion 4 of Farm 172 Kellershoogte in Oudtshoorn.

The property is located adjacent to the R328, approximately 14 kilometres southwest of the town of Oudtshoorn – see **figure 1** and **Annexure 1**.

The Applicant commenced with clearing of indigenous vegetation with the aim of planting almond and pomegranate orchard crops. 13 hectares (ha) has been cleared on the property.

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.

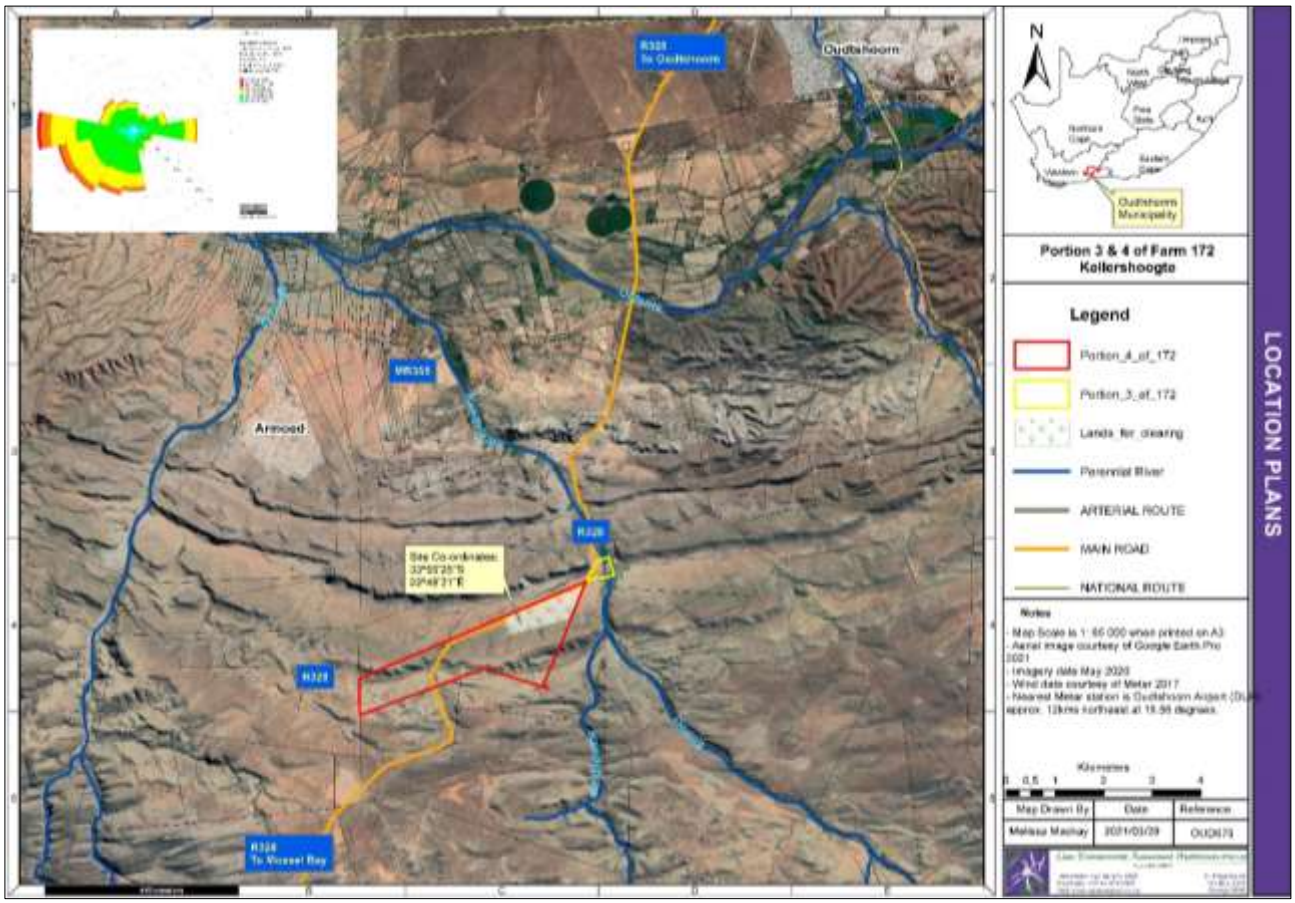

Figure 1: Locality Map

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 Activity Description

The site was used previously for agricultural activity including ostrich grazing on the site.

The area cleared was previously used for agricultural activities but has been lying fallow for more than 10 years. Therefore, the activity is considered "new" in terms of NEMA. The area that has been cleared is a portion of the total area that the applicant wants to make available for crop production. Approximately 13 ha have been cleared to date for almond tree production under drip irrigation.

A 200 mm pipeline inside a 250 mm sleeve and a 220 V power cable inside a 63 mm sleeve was laid from Portion 19 of Farm 170 by means of a pipeline across Remainder Farm 172, Portion 11 of 170, Portion 3 of Farm 172 to Portion 4 of Farm 172 to provide drip irrigation to the orchard. The pipeline crosses a non-perennial watercourse. The sleeves were placed in an earth trench and covered. The pipeline is approximately 1.1 km in length and the disturbed area is approximately 563 m². The 200 mm pipeline placed in the earth trench has complete.

Of the 70 ha that the applicant wanted to clear, only 13 ha has been cleared by the applicant. The remainder of the proposed orchard area has not been cleared. This is area is being subject to this S24G Application.

The drip irrigation for the 13 ha already cleared and planted has been installed and in operation. The applicant has commenced with the laying of the irrigation system on a portion of the area south of the already planted area. The piping is not connected to any water or power sources.

Water supply has been laid on to the already planted orchards from borehole pumps on Portion 19 of Farm 170 by means of a pipeline across Remainder Farm 172, Portion 11 of 170, Portion 3 of Farm 172 to Portion 4 of Farm 172. The pipeline to the orchards has been placed underneath the R328 in a culvert of a non-perennial drainage line.

See Annexure 2: Site Plan.

1.2 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.

1.3 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

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.

2.2 Construction Phase

The construction phase refers to the actual construction of the development on the property. In terms of this application, this phase relates site preparation work and remedial work as recommended by specialists.

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 of the ‘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. Since the activities are long-term, it is unknown when, if at all, closure may occur. Since this is unknown, specific management recommendations are not included with this EMPr. If 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 principles of sustainable development, and 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. The principals 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.

13 ha of Portion 4 of Farm 172 Kellershoogte has been cleared for the crop planting already undertaken. The applicant wishes to clear approximately 55 ha for almond and pomegranate production, thus triggering Activity 27 of Listing Notice 1 (GNR No. 327 of 2017) and Activity 15 of Listing Notice 2 (GNR No. 325 of 2014).

The Environmental Authorisation must be attached to this EMPr (Annexure 6) should approval be granted.

3.2 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. Alien invasive species (AIS) are present on the site, and must be cleared in terms of the NEM:BA and as such an AIS Control Plan is provided as guidance (see Annexure 4).

The vegetation type is identified as Eastern Little Karoo that is listed as Vulnerable in terms of the National Environmental Management Biodiversity Act National Ecosystem List (GN 1002 of 2011).

3.3 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.

3.4 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.

3.5 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). Should the application be approved, the Water Use Licence must be attached to this EMPr as Annexure 6.

3.6 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.

3.7 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 to HSO to conduct any required audits and as such only the appointment of an HSO will be auditable in terms of this document.

4. ENVIRONMENTAL IMPACTS AND MITIGATION

The Biodiversity Map of the site is included as **Annexure 3** of this EMPr.

The following specialist impact assessments were undertaken for the proposal:

4.1 Aquatic Sensitivities

The Aquatic specialist identified the aquatic sensitivities affected by the unlawful commencement of activities on the site and the proposed affected areas as a result of cultivation of a portion of the remaining property. Figure 2 shows the aquatic sensitive areas affected by the commencement activities. Figure 3 shows the sensitivities in relation to the 2017 Western Cape Biodiversity Spatial Plan (WCBSP) indicating the CBA and ESA areas on the property and how the activity has resulted in a loss of a portion of ESA 1 and ESA: Aquatic areas.

Figure 2: Aquatic map showing the affected watercourses on site (boreholes KH1 and KH2) and 5m buffers of those watercourses (extracted from Aquatic Assessment Report, 2022).

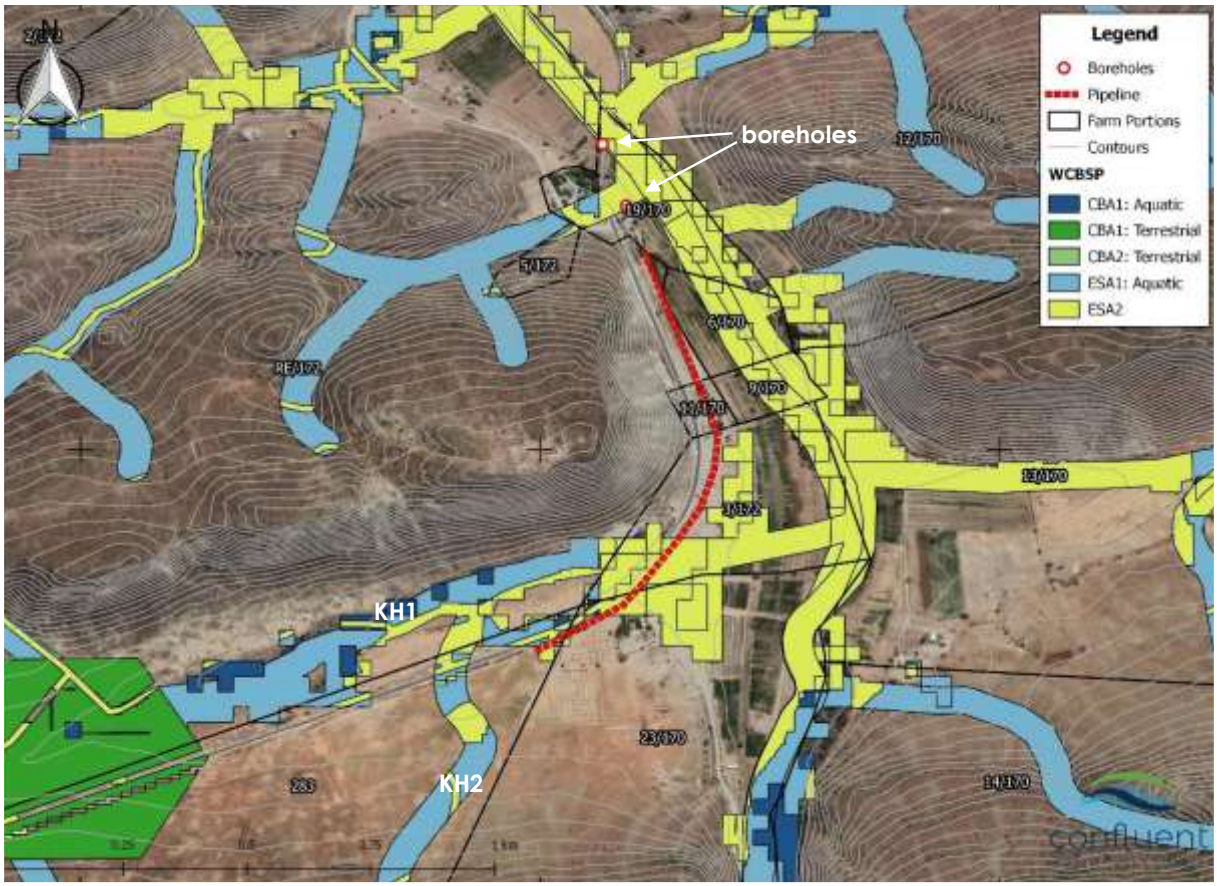

Figure 3: Aquatic map showing the affected watercourses on site (boreholes KH1 and KH2) and 5m buffers of those watercourses (extracted from Aquatic Assessment Report, 2022).

Table 2 indicates the environmental impacts of the development identified and assessed by the aquatic specialist and the recommended mitigation measures to reduce negative impacts.

Table 2: Aquatic impacts identified and mitigation measures

Impacts during construction phase	***Mitigation measures***
Disturbance of river and riparian habitat (Kandelaars River) during the construction of the boreholes	None
Disturbance of river and riparian habitat as a result of the excavation of the trench to lay the pipeline across KH1.	The small disturbed riparian area on the northern bank must be revegetated with plant species typical of the surrounding area.
Sedimentation of river habitat during the excavation of the trench crossing the KH1.	None

Loss of aquatic biodiversity due to loss of instream and riparian habitat caused by establishing agricultural fields across KH2.	– Runoff from the undisturbed section of the river reach is discharging into the prepared fields and creating a new channel. This channel should be allowed to re-establish through these fields (which are currently not planted) until water infiltrates into the soil. A five metre buffer should be established along this channel to allow water to flow freely (and avoid further erosion to fields and damage to crops). – Indigenous vegetation should be allowed to re-establish within the five metre buffer and control of alien invasive plant species must take place to ensure that these do not establish. – Further expansion of agricultural fields must avoid modifying additional non-perennial watercourses located to the west of KH2. Five metres buffers must be established around these watercourses; – No fields or infrastructure must be located within the five metre buffer for these watercourses.
Impacts during operation phase	***Mitigation measures***
Drawdown of the alluvial aquifer and associated base flows caused by abstraction of water from the boreholes.	None
Impedance of flow caused by infilling of the trench crossing the unnamed non-perennial tributary (KH1) of the Kandelaars River.	– While the pipeline has been buried deep beneath the riverbed, the crossing must be routinely inspected to ensure that flows following high rainfall events have not scoured potentially loosely compacted soil from the infilled trench causing the formation of a nick-point, which could potentially result in further erosion of the riverbed; and – The formation of nick-points or localised areas of scour must be immediately filled (using material from the riverbed) or re-profiled and compacted to ensure a continuous slope along the river reach.
Impedance of flow caused by establishing agricultural fields across the non-perennial watercourse (KH2).	– Runoff from the undisturbed section of the drainage line is discharging into the prepared fields and creating a new channel. This channel should be allowed to re-establish through these fields (which are currently not planted) until water infiltrates into the soil. A five metre buffer should be established along this channel to allow water to flow freely (and avoid further erosion to fields and damage to crops) – Indigenous vegetation should be allowed to re-establish within the 5 m buffer and control of alien invasive plant species must take place to ensure that these do not establish.

	– Further expansion of agricultural fields must avoid modifying additional non-perennial watercourses located to the west of KH2. Five metre buffers must be established around these watercourses; – No fields or infrastructure must be located within the 5 m buffer for these watercourses.

The five metre buffer noted in the mitigation measures in table 2 above, is illustrated in figure 4 overleaf.

Figure 4: Aquatic map showing watercourses on site (KH1 and KH2) and 5m buffers of those watercourses (extracted from Aquatic Assessment Report, 2022).

4.2 Terrestrial Biodiversity

The vegetation type of the property is Little Eastern Karoo. The status of the Eastern Little Karoo vegetation type is Vulnerable in terms of the National Environmental Management Biodiversity Act National Ecosystem List (GN 1002 of 2011).

According to the 2017 WCBSP, a small portion of the site is within a CBA1: Terrestrial area and continues beyond the boundaries of the site. Figure 5 is the biodiversity Map for the property.

The specialist identifies the no-go areas for development, based on the different habitat areas on the property – the ridge, kloof, footslopes, and plains. The sensitivity of the site is determined by the Site Ecological Importance (SEI) rating for each habitat area. Figure 6 shows the no-go areas.

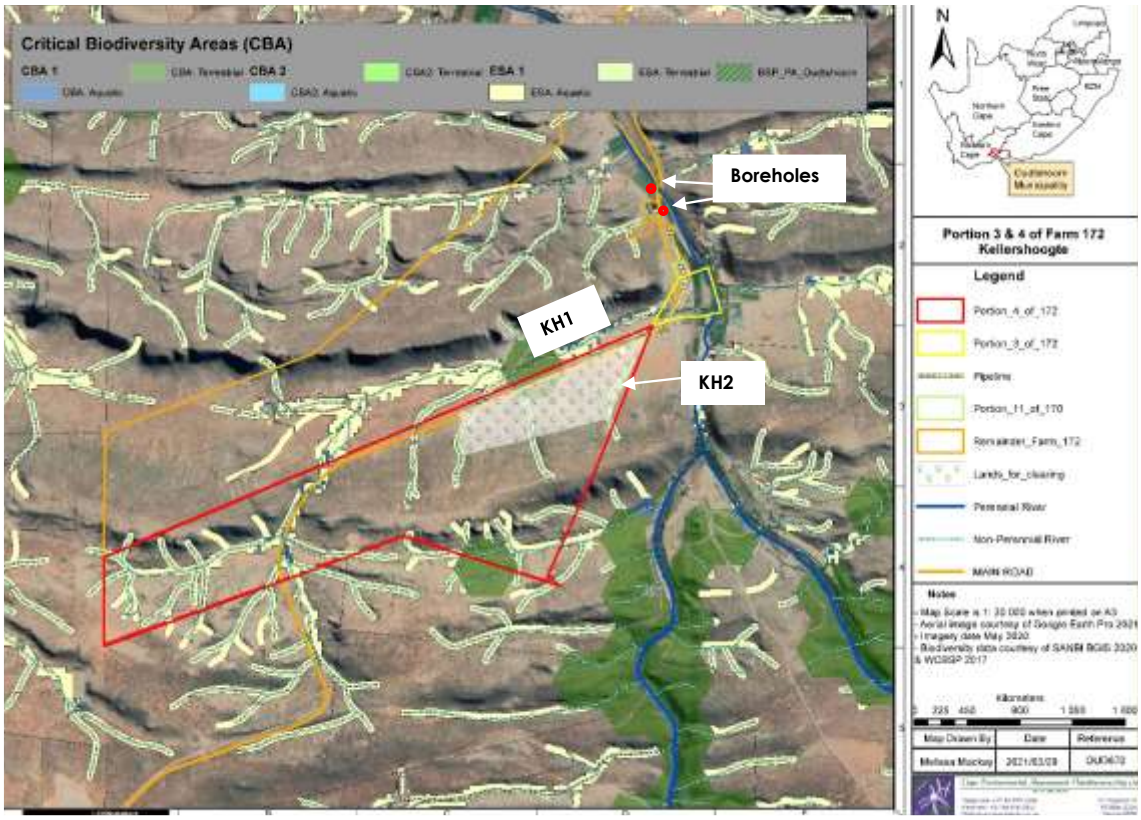

Figure 5: 2017 WCBSP Map for Portion 4 of Farm 172 Kellershoogte.

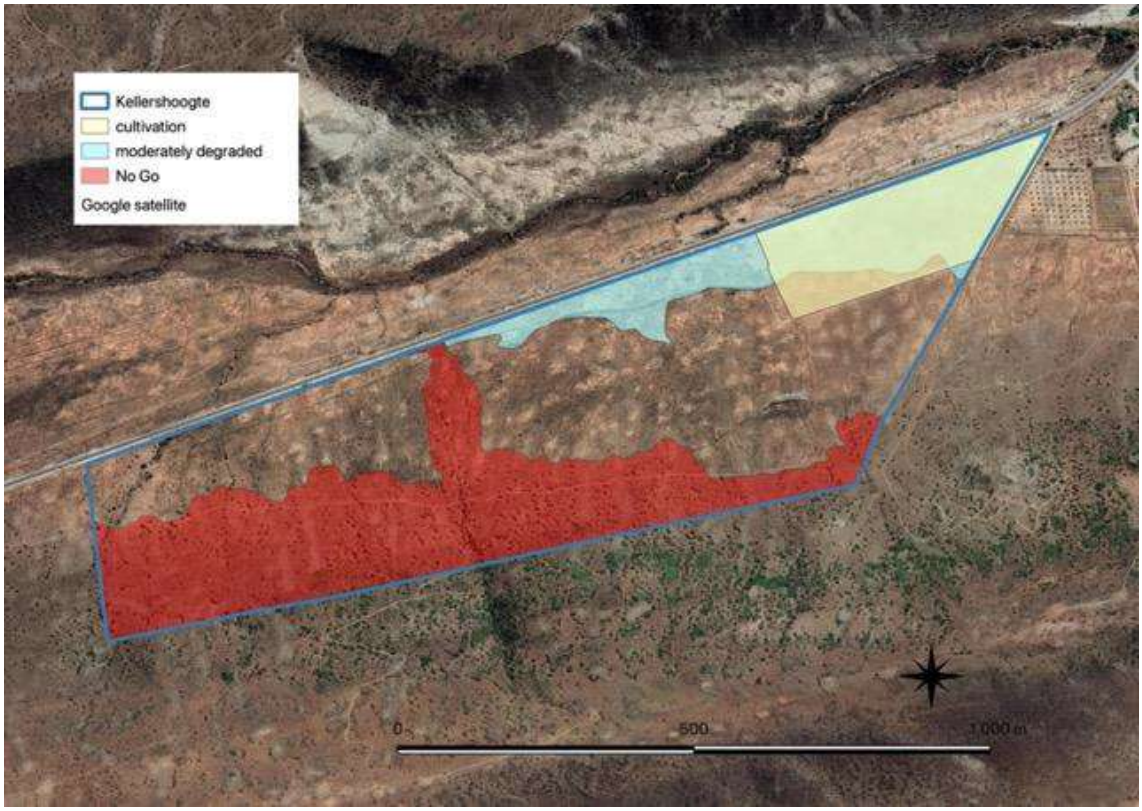

Figure 6: Terrestrial biodiversity no-go areas (extracted from Terrestrial Biodiversity Assessment Report, 2022).

Table 3 indicates the environmental impact identified and assessed by the specialist and the recommended mitigation measures to reduce negative impacts

Table 3: terrestrial biodiversity impacts identified and mitigation measures

Impacts during construction phase	***Mitigation measures***
Loss of succulent karoo plains habitat	– Retain natural habitat within the High SEI class, namely Ridge, Footslope and Kloof, as well as a buffer of 30 m. The No-Go area should also include the main drainage line that runs from the Kloof towards the north (see figure 6 above) – Ensure all possible steps are taken to limit erosion of surfaces, including proper management of storm-water runoff, so that downslope areas are protected from runoff and erosion. – Attempt to position any additional cultivation adjacent to the main road, which would include areas already (historically) degraded. – Compile and implement an alien management plan, which highlights control priorities and areas and provides a programme for long-term control. – Undertake regular monitoring to detect alien invasions early so that they can be controlled, as per the Alien Management Plan.

4.3 Plant Species Compliance Statement

The botanist refers to the small portion of CBA on the site as shown in figure 5. However, it is noted that there is nothing noteworthy of the plant diversity or ecological condition of the CBA. The 13 ha of almond trees that has been planted is on land that was mostly indigenous but not in pristine ecological state as a result of the extensive ostrich grazing some years ago, and the abundance of indicators of disturbance.

Figure 7 shows the sensitive area of the site in terms of the botany on site.

Figure 7: Plant species sensitivity map (green area: most sensitive area | red polygon: 13 ha already planted) (Extracted from the Botanical Report, Vlok 2022)

As a mitigation measure to reduce further impact on the vegetation on the property, the botanist notes that no development should occur in the sensitive area, and no ostrich grazing within the sensitive area for a period of 20 years. See figure 7 for the sensitive area.

4.4 Terrestrial Animal Species Compliance Statement

Three animal species were identified in the Screening Tool Report - *Aquila verreauxii, Bunolagus monticularis*, and *Aneuryphymus montanus*. The specialist noted that the presence of the species on the site is unlikely and that the site has low sensitivity in respect to the species. No mitigation measures are recommended in this regard.

4.5 Agriculture

The soil investigation undertaken confirms that the soil is suitable for almond orchards. However, the soil and the borehole water partly used for irrigation has salinity limitations. If the borehole water was the only water used for irrigation, the sustainability of the orchards would have been at risk. However, low salinity water from the Kandelaarsrivier is available. The water yield from the borehole is considered sufficient for the orchard.

The specialist recommends:

- Salinity management is required dependent on leaching salts from the soil though non-saline river water usage.
- To facilitate water infiltration, mulch should be used on tree rows.
- Soil preparation: deep cross-ripping is required to facilitate drainage out of the soil that will each salinity from the root zone.

4.6 Heritage

A Notice of Intent was submitted to Heritage Western Cape noting that:

- There is no evidence of the construction of the pipeline negatively impacting heritage resources; and
- The transformation of the landscape from natural to agriculture is considered appropriate considering surrounding land uses and in the landscape along the R328 road.

4.7 Summary of impact assessment

Impacts	Significance rating of impacts AFTER mitigation (Low, Medium, Medium-High, High, Very High):
PLANNING, DESIGN AND CONSTRUCTION PHASE	
Disturbance of river and riparian habitat as a result of the excavation of the trench to lay the pipeline across KH1.	**Negligible**
Loss of aquatic biodiversity due to loss of instream and riparian habitat caused by establishing agricultural fields across KH2.	**Minor**
Loss of succulent karoo plains habitat	**Low**
During the construction phase, employment opportunities will be created	**Medium positive**
Dust nuisance	**Very low to negligible**
OPERATION PHASE	
Drawdown of the alluvial aquifer and associated base flows caused by abstraction of water from the boreholes.	**Negligible**
Impedance of flow caused by infilling of the trench crossing the unnamed non-perennial tributary (KH1) of the Kandelaars River.	**Negligible**
Impedance of flow caused by establishing agricultural fields across the non-perennial watercourse (KH2).	**Minor**
During the operation phase, employment opportunities will be created	Medium (positive)
Implementation of alien clearing management plan will improve the management of alien species on the property and assist with water security.	Medium to high (positive)

5. RESPONSIBILITIES

This section deals with the responsibilities of various parties during the Construction Phase of any development. figure 8 shows the line of communication between the Authority, ECO and Holder of the EA.

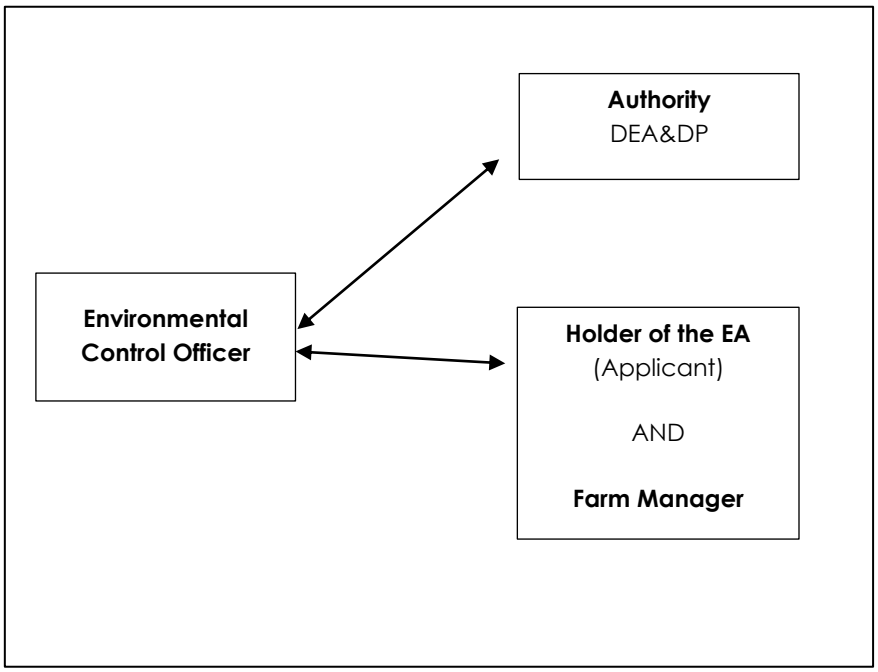

Figure 8: Line of communication between various parties.

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) (and 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 contract documentation include reference to, and the need for compliance with, the EA and EMPr as well as any other legally binding documentation.
- Be conversant with, and ensure that all Contractors, Sub-contractors, personnel are made aware of, and understand the conditions and recommendations, contained in the abovementioned documentation;
- Ensure that all Contractors, Sub-contractors, personnel as well as 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 environmental 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 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 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 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, 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;

- 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 EMPr and its specification (no-go areas, etc.);
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

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. 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

Method statements are written submissions by the Contractor to the ECO in response to the requirements of this EMPr 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 EMPr, 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):

- Planting Plan
- Demarcation of No-Go areas
- Site clearing
- Hazardous substances and their storage.
- waste management
- Dust control
- Stockpile management
- Fire control and emergency procedures
- Petroleum, chemical, harmful and hazardous materials storage, if any.

7. PRE-CONSTRUCTION DESIGN CONSIDERATIONS

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

7.1 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 duringconstruction		
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	farm manager	Permanent	Method Statement / Audit	Monthly
Additional Considerations: • Topsoil stockpiles should be protected from erosion. • Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ER and in consultation with ECO. • Perform periodic inspections and maintenance of soil erosion measures					

7.2 Demarcation 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 planting areas					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	farm manager	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 formonitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	farm manager	Pre-implementation	Audit	Once off

8. 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.

8.1 Working near watercourses

Management Statement			**Impacts & Risks Avoided**		
To minimise stress on aquatic communities			Avoid negative impacts associated with land clearing that may affect watercourses		
Management Actions					
a. Disturbance of river and riparian habitat as a result of the excavation of the trench to lay the pipeline across KH1.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Farm manager	Continuously during construction	Audit	Monthly
Specialist recommendations: The small disturbed riparian area on the northern bank must be revegetated with plant species typical of the surrounding area.					
b. Loss of aquatic biodiversity due to loss of instream and riparian habitat caused by establishing agricultural fields across KH2.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Farm manager	Continuously during construction	Audit	Monthly
Specialist recommendations: – Runoff from the undisturbed section of the river reach is discharging into the prepared fields and creating a new channel. This channel should be allowed to re-establish through these fields (which are currently not planted) until water infiltrates into the soil. A five metre buffer should be established along this channel to allow water to flow freely (and avoid further erosion to fields and damage to crops).					

- Indigenous vegetation should be allowed to re-establish within the five metre buffer and control of alien invasive plant species must take place to ensure that these do not establish.
- Further expansion of agricultural fields must avoid modifying additional non-perennial watercourses located to the west of KH2. Five metres buffers must be established around these watercourses;
- No fields or infrastructure must be located within the five metre buffer for these watercourses.

See figure 4 for 5m buffer areas.

8.2 Terrestrial biodiversity / botanical management

Management Statement			Impacts & Risks Avoided		
To minimise stress on vegetation areas			Avoid negative impacts associated with land clearing		
Management Actions					
a. Loss of succulent karoo plains habitat					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Farm manager	Continuously	Audit	Monthly
Specialist recommendations: The small disturbed riparian area on the northern bank must be revegetated with plant species typical of the surrounding area.					
b. Loss of vegetation					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Farm manager	Continuously during construction	Audit	Monthly
Specialist recommendations: • Do not develop sensitive area as shown in figure 7. • Prevent further ostrich grazing in sensitive site					

8.3 Water management

Management Statement			Impacts & Risks Avoided		
To avoid water wastage on site					
Management Actions					
a. To avoid water wastage on site					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual	As required	farm manager	Continuously	Audit	Monthly

Additional considerations

Evidence shows that managing soils and the removal of alien vegetation are the two most effective management strategies to improve water yield. Figure 9 provides Best Practices in terms of water use (WWF, 2010)[1].

Figure 9: Best Practise Water Use (WWF,2010)

[1] WWF. 2010. Agriculture: Facts & Trends South Africa. WWF, South Africa.

8.4 Minimise erosion

Management Statement			Impacts & Risks Avoided		
To minimise the quantity of soil lost during construction due to land-clearing.			Avoid overland flow		
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 formonitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Farm manager	As required	Audit	Method statement records

8.5 Stormwater management

Management Statement			Impacts & Risks Avoided		
To reduce the potential impact of stormwater			Minimise sedimentation, erosion and / or nutrification of the 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 formonitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Farm manager	Pre implementation	Audit	Once off

8.6 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					
b. Implement a dust management strategy to prevent dust nuisances					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Farm manager	Pre implementation	Audit	Once off
Additional considerations:					

(a) Reasonable and practical measures must be undertaken to minimise the generation of dust due to all construction phase related activities, including during vegetation clearing / site preparation works.

(b) Removal/clearing of vegetation must be or delayed until such time as soil stripping is required.

(c) Excavation, handling, and transport of erodible materials must be avoided under high wind conditions and/or when a visible dust plume is present.

(d) Where possible, soil stockpiles must be covered where they are not exposed to the erosive effects of the wind.

(e) Stockpiles may not exceed two (2) metres.

(f) Where erosion of stockpiles becomes a problem, erosion control measures must be implemented.

(g) Vehicle speeds must not exceed 20km per hour.

(h) Appropriate dust suppression measures must be used when dust generation is unavoidable, e.g., dampening with non-potable water; particularly during prolonged periods of dry weather in summer.

(i) Where there is uncertainty, the ECO should be consulted.

8.7 Waste management

Management Statement			**Impacts & Risks Avoided**		
To minimise the waste load discharged to the environment.			Improve waste disposal methods during construction		
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 formonitoring Compliance	Programme for reporting on Compliance
Record of volumes of material removed	As required	Farm manager	As required	Audit	Records
b. Maintain a high quality of housekeeping and ensure that materials are not left where they can be blown away to become litter.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Farm manager	Pre implementation	Audit	Once off
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 formonitoring Compliance	Programme for reporting on Compliance
Photographic	Weekly	Farm Manager	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 formonitoring Compliance	Programme for reporting on Compliance
Induction	Once off	Farm Manager	As required	Audit	Attendance register

Additional Considerations:

(a) Under NO circumstances may any waste be spoiled (destroyed) on the site.

(b) The farm manager shall ensure that the site is kept free of litter. The farm manager shall provide litter bins, containers/skips and refuse collection facilities for regular disposal.

(c) Solid waste must be removed as often as required to a licensed waste disposal facility.

(d) Recyclable waste should be separated on-site and recycled if at all possible. Opportunities should be provided on-site to facilitate the collection of recyclable waste products.

(e) No burning, on-site burying or dumping of waste is allowed.

8.8 Stockile 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 formonitoring Compliance	Programme for reporting on Compliance
Photographic	As required	Contractor	As required	Audit	Records

b. 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 formonitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	Daily when stripping topsoil	Contractor	Continuously during construction	Audit	Records

Additional considerations:

(a) Removal/clearing of vegetation must be or delayed until such time as soil stripping is required.

(b) Excavation, handling, and transport of erodible materials must be avoided under high wind conditions and/or when a visible dust plume is present.

(c) Where possible, soil stockpiles must be covered where they are not exposed to the erosive effects of the wind.

(d) Stockpiles may not exceed two (2) metres.

(e) Where erosion of stockpiles becomes a problem, erosion control measures must be implemented.

(f) Vehicle speeds must not exceed 20km per hour.

(g) Appropriate dust suppression measures must be used when dust generation is unavoidable, e.g., dampening with non-potable water; particularly during prolonged periods of dry weather in summer.

(h) Where there is uncertainty, the ECO should be consulted.

8.9 Storing fuels and chemicals

Management Statement	Impacts & Risks Avoided
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. 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 formonitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

Additional considerations:

(a) Drip trays should be available on site to hold fuel or chemical containers when busy on the site. No container holding hazardous waste should be placed directly on the ground.

(b) A mini-spill kit should be on site in the event of a spill.

(c) Spillages must be cleaned immediately and the contaminated material appropriately disposed of. Any material to be disposed of that has been contaminated by oil, fuel, etc., must be disposed of as hazardous material.

8.10 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. As far as possible, local labor should be used as far as possible during the construction phase.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Employment records	Ad hoc	Contractor	Ad hoc	Audit	Once off

8.11 Heritage requirements

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					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off

Additional considerations:

(a) 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.

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

(c) 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.

8.12 Best Practise Principles

Implementing Best Practise in agriculture is strongly supported. As a general rule the following principles should be incorporated into the farming business:

Figure 10: WWF Best Practise Principles (WWF, 2010)

8.13 Health and Safety

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.

Compliance with Section 8 of the Occupational Health and Safety (No. 85 of 1993) is of key importance:

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).

9. OPERATIONAL PHASE CONSIDERATIONS

The Operational Phase of this EMPr refers to the daily 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.

9.1 Aquatic sensitivities

Management Statement			**Impacts & Risks Avoided**		
To minimise stress on aquatic sensitivities			Avoid negative impacts associated with agricultural activities		
Management Actions					
a. Impedance of flow caused by infilling of the trench crossing the unnamed non-perennial tributary (KH1) of the Kandelaars River.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual / photographic	On-going	Farm manager	Continuously	Audit	Audit
Specialist recommendations: – While the pipeline has been buried deep beneath the riverbed, the crossing must be routinely inspected to ensure that flows following high rainfall events have not scoured potentially loosely compacted soil from the infilled trench causing the formation of a nick-point, which could potentially result in further erosion of the riverbed; and – The formation of nick-points or localised areas of scour must be immediately filled (using material from the riverbed) or re-profiled and compacted to ensure a continuous slope along the river reach.					
b. Impedance of flow caused by establishing agricultural fields across the non-perennial watercourse (KH2).					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual / photographic	On-going	Farm manager	Continuously	Audit	Audit
Specialist recommendations: • Runoff from the undisturbed section of the drainage line is discharging into the prepared fields and creating a new channel. This channel should be allowed to re-establish through these fields (which are currently not planted) until water infiltrates into the soil. A five metre buffer should be established along this channel to allow water to flow freely (and avoid further erosion to fields and damage to crops) • Indigenous vegetation should be allowed to re-establish within the 5 m buffer and control of alien invasive plant species must take place to ensure that these do not establish. • Further expansion of agricultural fields must avoid modifying additional non-perennial watercourses located to the west of KH2. Five metre buffers must be established around these watercourses;					

- No fields or infrastructure must be located within the 5 m buffer for these watercourses.

9.2 Botanical management

Management Statement			Impacts & Risks Avoided		
To minimise stress on natural vegetated areas			Avoid negative impacts on land not demarcated for cultivation		
Management Actions					
c. Loss of vegetation					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Farm manager	Continuously	Audit	Audit

Specialist recommendations:

- No development should occur in the sensitive area, and
- No ostrich grazing within the sensitive area for a period of 20 years. See figure 7 for the sensitive area.

9.3 Agriculture – water management

Management Statement			Impacts & Risks Avoided		
To ensure sustainability of the orchards			Avoid negative impacts as a result of high salinity from water from boreholes		
Management Actions					
d. Ensure Sustainability of the orchards as a result of the high salinity limitations of the water from the boreholes.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism formonitoring Compliance	Programme for reporting on Compliance
Visual / photographic / water testing	As required	Farm manager	Continuously	Audit	Audit

Specialist recommendations:

- Salinity management is required dependent on leaching salts from the soil though non-saline river water usage.
- To facilitate water infiltration, mulch should be used on tree rows.
- Soil preparation: deep cross-ripping is required to facilitate drainage out of the soil that will each salinity from the root zone.

9.4 Alien Invasive Species Management

<table>
<tr><th colspan="3">Management Statement</th><th colspan="3">Impacts & Risks Avoided</th></tr>
<tr><td colspan="3">To ensure management and prevention of the spread of alien invasive vegetation leading to biodiversity impacts</td><td colspan="3">• To minimise the disturbance to existing flora
• To minimise the introduction and/or spread of weedspecies</td></tr>
<tr><th colspan="6">Management Actions</th></tr>
<tr><td colspan="6">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</td></tr>
<tr><td>Method of monitoring implementation</td><td>Frequency of Monitoring</td><td>Responsible Party for implementing management action</td><td>Time period</td><td>Mechanism formonitoring Compliance</td><td>Programme for reporting on Compliance</td></tr>
<tr><td>AIS Control</td><td>Ongoing</td><td>Farm Manager</td><td>As required</td><td>Audit</td><td>Audit</td></tr>
<tr><td colspan="6"><u>Specialist recommendations:</u>
• Identify alien invasive vegetation on site.
• Implement an alien invasive management plan.
• Apply Best Practice management principles as per Annexure 4 of this EMPr.</td></tr>
</table>

9.5 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.
- 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 considers 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.
- 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) is 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.

10. 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.

10.1 Monitoring Timeframes Summary

Table 4: Monitoring Timeframe Summary

MONITORING TIMEFRAMES		
Type	Frequency	Criteria
Management team recordkeeping 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, EMPr, municipal permits, and any other approvals

10.2 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.

10.3 Audit reports frequencies and format

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

Table 5: Monitoring Timeframe Summary

ENVIRONMENTAL AUDIT TIMEFRAMES		
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 6: 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 howthese objectives & requirements were incorporated into this Audit Report.
Objective
The objective of the environmental audit report isto -
(a) Report on – (i) the level of compliance with theconditions of the environmental authorisation andthe 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 closureplan achieve the objectives and outcomes of the EMPr, and closure plan.
(b) Identify and assess any new impacts and risksas a result of undertaking the activity.
(c) Evaluate the effectiveness of the EMPr, andwhere applicable, the closure plan.
(d) Identify shortcomings in the EMPr, and whereapplicable, the closure plan.
(e) Identify the need for any changes to the avoidance, management and mitigationmeasures provided for in the EMPr, and where applicable, the closure plan.
Requirement
(1) An Environmental audit report prepared interms of these Regulations must contain -
(a) Details of – (i) The independent person who prepared the environmental auditreport; 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 specifiedby the competent authority.
(c) An indication of the scope of, and the purpose for which, the environmental audit report was prepared.
(d) A description of the methodology adopted inpreparing the environmental audit report.
(e) An indication of the ability of the EMPr, andwhere applicable the closure plan to – (i) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity onan on-going basis; (ii) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and (iii) Ensure compliance with the provisions of environmental authorisation, EMPr, and whereapplicable, the closure plan.
(f) A description of any assumptions made, andany uncertainties or gaps in knowledge.
(g) A description of an consultation process thatwas undertaken during the course of carrying out the environmental audit report.
(h) A summary and copies of any comments that were received during any consultationprocess.
(i) Any other information requested by thecompetent authority.

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

11. DECOMMISSIONING PHASE REQUIREMENTS

It is not likely that decommissioning of this facility will take place in the near future. However, should 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.

12. 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. 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.

12.1 Procedures

The Holder of the EA shall comply with the environmental specifications and requirements of this EMPr, 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 penalty1.

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 EMPr, disagreement regarding the implementation or method of implementation of conditions of the EMPr, 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.