



Eco Route

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ENVIRONMENTAL MANAGEMENT PROGRAMME

In terms of the **National Environmental Management Act** (Act No. 107 of 1998, as amended) & 2017 Environmental Impact Regulations for:

PROPOSED DEVELOPMENT OF ERF 1058, WHITES ROAD, HOEKWIL (WILDERNESS HEIGHTS) GEORGE MUNICIPALITY, WESTERN CAPE.

DEA&DP REF: 16/3/3/6/7/1/D2/30/0241/23



PREPARED FOR THE APPLICANT:

PREPARED BY:

AUTHOR:

DATE:

MR A POLSON

ECO ROUTE

JOCLYN MARSHALL (EAPASA REG 2022/5006)

26/09/2023

EAP SIGNATURE: _____



ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS:

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

(1) An EMPr must comply with section 24N of the Act and include:-

<p>(a) Details of –</p> <ul style="list-style-type: none"> (i) The EAP who prepared the EMPr; and (ii) The expertise of the EAP to prepare an EMPr, including a curriculum Vitae; 	<p>This EMPr was prepared by Joclyn Marshall of Eco Route Environmental Consultancy. Joclyn has an MSc in Environmental Science and 10 years' experience in the environmental field. Please see attached CV of the EAP (Annexure 1).</p>
<p>(b) A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;</p>	<p>Section 2 provides specific project details.</p>
<p>(c) a map at an appropriate scale which superimposes the proposed activity, it associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;</p>	<p>Annexure 2 provides mapping which superimpose the proposed activity onto environmentally sensitive areas.</p>
<p>(d) A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including –</p> <ul style="list-style-type: none"> (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; 	<p>Addressed in Sections 3, 4 and 10.</p>
<p>(f) a description of proposed impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved, and must, where applicable, include actions to –</p> <ul style="list-style-type: none"> (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; 	<p>Addressed in Sections 3, 4 and 10.</p>



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(iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Addressed in Section 10.
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 7.1 and 10.
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 5 and 10.
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Sections 10.
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 10.
(l) a program for reporting on compliance, taking into account the requirements as prescribed by Regulations;	Section 7.
(m) an environmental awareness plan describing the manner in which – (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 7 and 10.
(n) any specific information that may be required by the competent authority.	Sections 10 and 14.



Glossary of Terms

BAR	Basic Assessment Report – A tool used by the EAP to submit to the competent authority if listed activities is triggered in Regulations GNR 327 and GNR 324 as per NEMA to make a decision regarding a proposed development.
DFFE	Department Forestry Fisheries and Environment – the national authority for sustainable environmental management and integrated development planning.
DFFE&DP	Department of Environmental Affairs and Development Planning – the provincial authority for sustainable environmental management and integrated development planning.
CBA	CBA Critical Biodiversity Area – Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure.
EAP	<p>Environmental Assessment Practitioner – An EAP and a specialist, appointed in terms of regulation 12(1) or 12(2) must –</p> <ul style="list-style-type: none"> (a) be independent. (b) Have expertise in conducting environmental impact assessments or undertaking specialist work as required, including knowledge of the Act, these regulations and any guidelines that have relevance to the proposed activity. (c) Ensure compliance with these Regulations (d) Perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the application. (e) Take into account, to the extent possible, the matters referred to in regulation 18 when preparing the application and any report, plan or document relating to the application; and (f) Disclose to the proponent or applicant, registered and affected parties and the competent authority all material information in the possession of the EAP and, where applicable, the specialist, that reasonably has or may have the potential of influencing – <ul style="list-style-type: none"> i. Any decision to be taken with respect to the application by the competent authority in terms of these regulations; or ii. The objectivity of any report, plan or document to be prepared by the EAP or specialist, in terms of these Regulations for submission to the competent authority; unless access to that information is protected by law, in which case it must be indicated that such protected information exists and is only provided to the competent authority. <p>(2) In the event where the EAP or specialist does not comply with sub regulation (1)(a), the proponent or applicant must, prior to conducting public participation as contemplated in chapter 5 of these regulations, appoint another EAP or specialist to externally review all work undertaken by the EAP or specialist, at the applicants cost.</p> <p>(3) An EAP or specialist appointed to externally review the work of an EAP or specialist as contemplated in sub regulation (2), must comply with sub regulation (1).</p>



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ECO/ESO	Environmental Control Officer – A site agent who needs to ensure that all environmental authorisation and conditions are adhered to during the construction phase of the project
EMPr	Environmental Management Programme – can be defined as “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 the positive benefits of the projects are enhanced”.
ESA	Ecological Support Area – Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of Pas or CBAs, and are often vital for delivering ecosystem services.
MMP	Maintenance Management Plan – means a maintenance management plan for maintenance purposes defined and adopted by the competent authority
NEMA	National Environmental Management Act (Act 107 of 1998) as amended 2017 – national environmental legislation that provides principles for decision-making on matters that affect the environment.
PA	Protected Area - A protected area is an area of land or sea that is formally protected by law and managed mainly for biodiversity conservation. Protected areas recognised in the National Environmental Management: Protected Areas Act (Act 57 of 2003) (hereafter referred to as the Protected Areas Act) are considered formal protected areas in the NPAES. This is a narrower definition of protected areas than the International Union for Conservation of Nature (IUCN) definition. ¹ The NPAES distinguishes between land-based protected areas, which may protect both terrestrial and freshwater biodiversity features, and marine protected areas.



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1. INTRODUCTION

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

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

Duty of care and remediation of environmental damage -

"(1) Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot be reasonably avoided or stopped, to minimise and rectify such pollution or degradation of the environment"

This EMPr must be read in conjunction with the Environmental Impact Assessment Report dated October 2022 and the accompanying specialist reports. All recommendations, relevant conditions and mitigation measures provided in these documents must also be adhered to.

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

These requirements will have a financial impact on the project's costings.

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

1.1. Purpose of the EMPr

The purpose of this EMPr is to ensure that the negative environmental impacts of the proposed activities are managed, mitigated and kept to a minimum during the planning, construction and operation of the proposed development. The EMPr focuses on avoiding damage or loss on ecosystems and the services they provide, and to enhance positive environmental impacts where possible.

The EMPr is a living document that is flexible and responsive to new and changing circumstances, however, should a change be made within the EMPr permission from DEA&DP must first be obtained.

Once the EMPr is approved by DEA&DP it is seen as a legal binding document on the following affected parties:

- 1 Project Proponent.
- 2 All contractors.
- 3 Sub-contractors and construction staff.
- 4 The appointed ECO monitoring the construction phase.



Copies of this EMPr must be kept on site and all senior personnel are expected to familiarise themselves with the content of this EMPr.

It is suggested that the EMPr be reviewed on a 5 yearly basis if required. Should any amendments need to be made during operational phase, written authorisation should be obtained from DEA&DP.

1.2. The Polluter-Pays Principle

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

2. PROJECT DETAILS

Eco Route Environmental Consultancy has been appointed by the proponent **Mr Alexander G. Polson** (Wealth Spring (Pty) Ltd) to prepare an Environmental Management Programme (EMPr) in compliance with the Basic Assessment Report Conditions set by Department of Environmental Affairs and Development Planning (DEA&DP) Western Cape Provincial Government, for Environmental Authorisation.

Erf 1058 Hoekwil is a vacant smallholding of 3.0108ha in extent, located in Hoekwil (Wilderness Heights). The zoning of the property is Agriculture Zone II in terms of the George Integrated Zoning Scheme By-law (2017). The property overlooks the Touw River and Ebb & Flow Rest Camp (Garden Route National Park) to the east, the Fairy Knowe-area and the Indian Ocean to the south, and the Village of Wilderness to the west. Access to the property is from Whites Road leading from the Village around the Wilderness Heights area with a circular route from the west to east and again reaching Heights Road in the west. The section of Whites Road passing Erf 1058 Hoekwil is a provincial road, Divisional Road 1621.

A low density residential and tourism development is proposed on Erf 1058, and will consist of the following:

- ❖ Main residential dwelling for the property owner (280m²).
- ❖ Outbuilding with homer office, garage, and storage space (170m²).
- ❖ Kitchen Yards(35m²).
- ❖ Driveway and parking for main dwelling (291m²).
- ❖ Three tourist accommodation units of 80m² each (240m²).
- ❖ Three jacuzzi decks for tourist accommodation units of 16m² each (48m²).
- ❖ Outdoor Lapa (42m²).
- ❖ Sauna House (40m²).
- ❖ Natural outdoor pool (240m²).
- ❖ Access to tourist accommodation and facilities (270m²).
- ❖ Parking for tourist accommodation and facilities (72m²).
- ❖ Footpaths (95m²).
- ❖ Green House (90m²).



2.1. Site Description

Erf Number:	Erf 1058 Hoekwil
Area:	30100.7 m ²
SG Code:	C02700050000105800000
Co-ordinates:	33.989186°S 22.598800°E

2.2. Locality



Erf 1058 Locality

Legend
 Farm Portions
 Erf

Map Center: Lon: 22°35'54.1"E
 Lat: 33°59'32.8"S

Scale: 1:18 056

Date created: September 19, 2022



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2.3. Key Issues

These are issues of importance and should be addressed during the Construction and Development Phases as well as the future management of the property.

The relevant Key Issues with regard to the Receiving Environment and the positive and negative aspects are described in Table 1 below:



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Table 1: Positive and Negative Aspects of the Project.

Specific Aspect of Proposal	Positive	Negative
Planning Policy, Documentation and Urban Edge.	The proposal aims to provide accommodation for the property owner and tourists on a section of the property which is not indicated as a specific spatial planning category. The Western Cape Land Use Planning Guidelines: Rural Areas (2019) states that overnight accommodation can be provided in a CBA-area with temporary structures preferred (e.g., wooden structures, tents, raised boardwalks, and/or tree canopy structures), with units carefully dispersed or clustered (depending on the landscape, habitat and existing infrastructure and access) to achieve least impact. The use of alternative porous materials and innovative eco-friendly design concepts are encouraged. The accommodation units are not to be provided within the demarcated CBA-areas.	No foreseeable negative aspects.
Rezoning	The rezoning of the property to Open Space Zone III (nature conservation area) will contribute to the conservation of the property and support the abutting Wilderness Lakes Protected Area.	The function of small holdings as a settlement type is described as low-density rural living, with an agricultural component with reference in the relevant LSDF. Wilderness Heights is one such small holding area. Loss of agricultural component of a small holding is not considered to be significant.
Bulk Services supply	There already is a connection point for the proposed development and there should be no pressure / demand on the current system. Access to the property is currently available through the existing roads network.	All wastewater, water supply and stormwater will need to be managed but this is achievable with all the correct mechanisms and mitigation in place.



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Conservation Status / value	This habitat unit is characterised by high levels of disturbance owing to its proximity to historical land-use and anthropogenic activities and main roads. Accordingly, the landcover is not congruent with the expected natural vegetation and therefore possesses low biodiversity value.	The development is partially within a CBA. Loss of a small area identified as a CBA.
Vegetation and Habitats	The location, ecological state, and size of the habitats within the Project Area denotes that it is unlikely that any functional habitat or SCC will be lost as a result of the impacts arising from the proposed development. Landscaping with indigenous plant species will contribute towards a potential positive biodiversity gain.	Loss of vegetation and potential habitats. This can be managed and mitigated to limit the disturbance of vegetation.
Fauna / ecological corridors	Faunal species of conservation concern were not identified on the property. The development does not pose a significant impact to ecological connectivity. Clearing of AIP and landscaping with indigenous plant species will contribute towards a potential positive biodiversity gain and increased habitat for indigenous fauna.	Potential fragmentation of areas of indigenous vegetation. Recommended mitigation measures to reduce the negative fragmentation effects of the development and enable the safe movement of fauna species. Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further during the construction phase
Erosion	Rehabilitation of disturbed areas with indigenous vegetation.	The steep slopes of the property will be vulnerable to erosion during clearance of the site and the construction phase. Appropriate erosion control measures will be implemented.
Noise and Visibility	The scale and location of the development should not result in these forms of pollution.	Visual and noise Impacts to adjacent residents during construction phase.
Alien Vegetation	Systematically remove invasive alien vegetation (also in the operational phase).	Loss of natural vegetation and increased fire risk if not removed. Restoration of indigenous vegetation where there is heavy AIP infestation.
Fire risk	Removal of alien vegetation to	Fire risk may be high if alien



	reduce fuel load.	vegetation is not removed.
Storm water	Stormwater generated on site will be managed according to Sustainable Drainage System (SuDS) principles – swales, detention ponds, permeable paving, and artificial wetlands.	Although the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts given the steep slopes within the property.
Site Access	Access to the property is currently available through the existing roads network.	Potential increased vehicle movement.

3. IMPACTS ASSOCIATED WITH THE PLANNING/DESIGN, CONSTRUCTION AND OPERATION OF THE ACTIVITY

3.1. Assessment Criteria

The criteria are based on the EIA Regulations, published by the Department of Forestry, Fisheries and the Environment (April 1998) in terms of the Environmental Conservation Act No. 73 of 1989. These criteria include:

Nature of the impact

This is an estimation of the type of effect the construction, operation and maintenance of a development would have on the affected environment. This description should include what is to be affected and how.

Extent of the impact

Describe whether the impact will be: local extending only as far as the development site area; or limited to the site and its immediate surroundings; or will have an impact on the region or will have an impact on a national scale or across international borders.

Duration of the impact

The specialist should indicate whether the lifespan of the impact would be short term (0-5 years), medium term (5-15 years), long term (16-30 years) or permanent.

Intensity

The specialist should establish whether the impact is destructive or benign and should be qualified as low, medium or high. The specialist study must attempt to quantify the magnitude of the impacts and outline the rationale used.

Probability of occurrence

The specialist should describe the probability of the impact actually occurring and should be described as improbable/unlikely (low likelihood), probable (distinct possibility), highly probable (most likely) or definite (impact will occur regardless of any prevention measures).

Reversibility



- Completely reversible – the impact can be reversed with the implementation of minor mitigation measures.
- Partly reversible – the impact is reversible but more intense mitigation measures are required
- Barely reversible – the impact is unlikely to be reversed even with intense mitigation measures
- Irreversible – the impact is irreversible, and no mitigation measures exist

Irreplaceable loss of resources

Describes the degree to which resources will be irreplaceably lost due to the proposed activity. It can be no loss of resources, marginal loss, significant loss or complete loss of resources.

Cumulative effect

An effect which in itself may not be significant but may become significant if added to other existing or potential impacts that may result from activities associated with the proposed development. The cumulative effect can be:

- Negligible – the impact would result in negligible to no cumulative effect
- Low – the impact would result in insignificant cumulative effects
- Medium – the impact would result in minor cumulative effects
- High – the impact would result in significant cumulative effects

Significance

Significance of impacts are determined through a synthesis of the assessment criteria and is described as –

- Low negative – where it would have negligible effects and would require little or no mitigation
- Low positive – the impact will have minor positive effects
- Medium negative – the impact will have moderate negative effects and will require moderate mitigation
- Medium positive – the impact will have moderate positive effects
- High negative – the impact will have significant effects and will require significant mitigation measures to achieve an accepted level of impact
- High positive – the impact will have significant positive effects
- Very high negative – the impact will have highly significant effects and are unlikely to be able to be mitigated adequately
- High positive – the impact will have highly significant positive effects.

3.2. Impacts foreseen during the Construction Phase

Project Phase	Construction	
Impact	Clearance of vegetation for the construction of the dwelling, accommodation units, and associated infrastructure	
Description of impact	Loss of indigenous vegetation, and habitat loss for terrestrial wildlife.	
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts
Potential mitigation	<ul style="list-style-type: none"> • Areas to be developed/disturbed must be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon. • Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further. • All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited. • the removal and translocation of protected plants if found should be undertaken prior to construction clearing activities. A permit is required prior to removal. 	



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	<ul style="list-style-type: none"> Protected plants must either be moved to a safer, no-go area on the property or taken to a nursery for temporary storage until rehabilitation takes place. Access by heavy machinery should be limited on the site. Only areas necessary for the development footprint should be cleared and the remainder of the property should be left natural. Laydown areas for construction materials must be contained within the clearing footprint of the proposed development. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Probable	Has occurred here or elsewhere and could therefore occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Minor - negative		Negligible - negative	
Comment on significance	The location, ecological state, and size of the habitats within the Project Area denotes that it is unlikely that any functional habitat or SCC will be lost as a result of the impacts arising from the proposed development. Landscaping with indigenous plant species will contribute towards a potential positive biodiversity gain.			
Cumulative impacts	The impact would result in insignificant cumulative effects			

Project Phase	Construction	
Impact	Disturbance to fauna and fragmentation of habitats	
Description of impact	Cut-off of natural dispersal and foraging movement by animals, fragmentation of ecological infrastructure, secondary impacts to wildlife such as noise and lighting.	
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts
Potential mitigation	<ul style="list-style-type: none"> Where fencing is required, wildlife gaps in the perimeter fence must be installed at appropriate intervals and be of a suitable dimension to allow for the movement of small animals. In situations fauna species are located at the site and need to be removed, the relevant specialists must be contacted to advise on how the species can be relocated. The areas to be disturbed must be specifically demarcated to prevent the movement of staff or any individual into the surrounding environments, barrier tape must be put up to enforce this. Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to nocturnal species which are more dependent on auditory signals for life processes. 	



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	<ul style="list-style-type: none"> No trapping, killing, or poisoning of any wildlife is to be allowed and Signs must be put up to enforce this. Monitoring must take place in this regard. Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible. Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Probable	Has occurred here or elsewhere and could therefore occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Partly reversible	The impact is reversible but more intense mitigation measures are required	Partly reversible	The impact is reversible but more intense mitigation measures are required
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Minor - negative		Negligible - negative	
Comment on significance	Habitat is heavily degraded and modified with high anthropogenic activity in close proximity to the majority of the Project Area. No SCC were recorded, nor expected.			
Cumulative impacts	The potential impact affects a negligible proportion of the overall habitat available for wildlife.			

Project Phase	Construction	
Impact	Waste Pollution	
Description of impact	Pollution of buffer zone and natural areas caused by waste generated by the construction process.	
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts
Potential mitigation	<ul style="list-style-type: none"> Waste management must be a priority and all waste must be collected and stored effectively and responsibly. Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Dangerous waste such as metal wires and glass must be safely stored before being moved off site as soon as possible. Under no circumstances may domestic waste be burned on site or buried on open pits. Separation and recycling of different waste materials should be supported. Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled. 	



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	<ul style="list-style-type: none"> Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site. Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site. Where a registered disposal facility is not available close to the Project Area, the Contractor shall provide a method statement with regards to waste management. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Negligible - negative	
Comment on significance	Construction activities are likely to generate significant quantities of solid waste that could pollute the buffer zone and natural areas.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	Construction	
Impact	Construction Vehicles	
Description of impact	Pollution caused by the operation of vehicles and heavy machinery.	
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts
Potential mitigation	<ul style="list-style-type: none"> Construction activities must be confined to clearly demarcated areas so as to prevent unnecessary disturbance the surrounding environment. No vehicles are to park or operate within "no-go" areas. Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work on site. Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any 	



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	possible spills. These areas must not be located within any natural drainage areas or preferential flow paths and must be located outside of buffer zones.			
	<ul style="list-style-type: none"> The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Likely	The impact may occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Negligible - negative	
Comment on significance	Operation of vehicles could result in spillages or leaks of hydrocarbons (fuel and oil) and could lead to unnecessary disturbance of natural areas.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	Construction			
Impact	Erosion Management			
Description of impact	Potential erosion during clearance of the site and increased stormwater runoff			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events. Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas. Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint. Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff. Revegetate exposed areas once construction has been completed. Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low Negative	



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Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Minor - negative		Negligible - negative	
Comment on significance	Steep slopes on the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on site caused by stormwater.			

Project Phase	Construction			
Impact	Disturbance / removal of topsoil			
Description of impact	Disturbance of topsoil, potential soil erosion and the loss of topsoil			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Areas that are disturbed through building activities (such as the excavations for pipelines) should be suitably rehabilitated without delay. Failure to do so will have a knock-on effect on biodiversity in the form of an increase in wind erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth. • Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes. • The stockpiling of topsoil for use in rehabilitation is required. • Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed. • Soil disturbance during the removal of alien invasive plants must be minimised as much as possible. • The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms. Any cut alien vegetation on site can be utilised for this purpose if it is without seed. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year



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Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Minor - negative	
Comment on significance	Clearing areas of the site in preparation for construction will expose bare soil which may lead to the potential loss of topsoil through runoff and incorrect storage. This is not envisaged to be a significant impact with mitigation measures in place. Topsoil can be reused on site for rehabilitation purposes.			
Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.			

Project Phase	Construction			
Impact	Noise pollution			
Description of impact	Noise caused by machinery and staff			
Mitigable	Low	Mitigation does not exist; or mitigation will slightly reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> Construction activities must only take place during normal working times between 07:00-17:00 on weekdays. Machinery may be fitted with silences to dampen noise. Staff must be reminded that they are working within a residential area and noise levels must be kept low. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Brief	Impact will not last longer than 1 year	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Very low	Natural and/or social functions and/or processes are slightly altered	Negligible	Natural and/or social functions and/or processes are negligibly altered
Probability	Almost certain / Highly probable	It is most likely that the impact will occur	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge



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Reversibility	High	The affected environmental will be able to recover from the impact	High	The affected environmental will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	Some extent of noise pollution during construction is expected; however, with mitigation the impact will be reduced.			
Cumulative impacts	No cumulative impacts exist.			

Project Phase	Construction			
Impact	Visual impact			
Description of impact	Visual & aesthetic consequences of the proposed project			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • The necessary measures be implemented during the construction phase to protect the natural vegetation, to control the noise, dust and visual intrusion. • The potential visual impacts and proposed mitigation thereof must be undertaken by a professionally registered landscape architect that must be part of the design team (including engineers and architects). The brief of the landscape architect (LA) must include: <ul style="list-style-type: none"> ○ The LA must consult with both engineers and architects to ensure that sensitive earthwork and building design development occurs, which will allow for reducing the construction and operation phase visual impacts. ○ The LA must work with the project surveyor, arborist and planners in establishing which trees are to remain on site for visual screening and taking this information into the design development of the civil and building works. ○ The LA must prepare a landscape plan, design development thereof and monitoring implementation and thereafter maintenance. The plan must include the tree survey and what trees are, what indigenous vegetation is, to be retained, what is to be removed, the planting of indigenous trees, new trees and shrub planting along roadways and in open spaces in the built areas and a guideline document for private gardens within the development. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative	
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Likely	The impact may occur
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment



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Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	The proposal is sensitive towards the character of the area and attempts to create a unique sense of place that will blend in and compliment the ambience of the surrounding area.			
Cumulative impacts	No cumulative impacts exist.			

Project Phase	Construction			
Impact	Employment			
Description of impact	Empowerment of the local community members living in the area relating to temporary employment opportunities			
Mitigable	Medium	Mitigation only exists to ensure that the positive impact is followed through.		
Potential mitigation	<ul style="list-style-type: none"> Use existing social structures and communication channels to ensure social representation. Use local labour and source local materials as far as possible. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Short term	Impact will last between 1 and 5 years	Short term	Impact will last between 1 and 5 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Low	Natural and/ or social functions and/ or processes are somewhat altered
Probability	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Not relevant		Not relevant	
Resource irreplaceability	Not relevant		Not relevant	
Significance	Negligible - negative		Negligible - positive	
Comment on significance	Due to the proposed development being on a small-scale, there is a low difference in impacts between without mitigation and with mitigation. However, as the impact would be positive for the local community to be employed during construction, mitigation is recommended to ensure this occurs.			
Cumulative impacts	Minor upliftment for the local community.			



3.3. Impacts foreseen during the Operational Phase

Project Phase	Operation			
Impact	Visual / Sense of place			
Description of impact	Visual impacts of structures / aesthetic consequences due to incorrect or excessive lighting, especially outdoor lighting			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • Municipal by-laws need to be adhered to. • Re-vegetation and Landscaping of open space areas with suitable indigenous vegetation. • Systematic removal and follow-up operations of invasive alien plants. • Adhere to the Landscape Plan. • Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Negative Low	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Medium Term	Impact will last between 5 and 15 years
Extent	Local	Extending across the site and to nearby settlements	Local	Extending across the site and to nearby settlements
Intensity	Low	Natural and/ or social functions and/ or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Probable	Has occurred here or elsewhere and could therefore occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Not relevant		Not relevant	
Significance	Minor - negative		Negligible - negative	
Comment on significance	Lighting, specifically outdoor lighting is not only aesthetic, but it provides a level of security to property owners. Therefore, outdoor lighting is essential, but should be implemented in a way which does not cause negative impacts to neighbours.			
Cumulative impacts	Without mitigation the development would not be meeting design guidelines enforced by the municipality. Specifically design guidelines for the local area.			



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Project Phase	Operation			
Impact	Stormwater Management			
Description of impact	Accelerated erosion / pollution into sub-surface water.			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> • A sustainable stormwater design must be implemented to prevent excessive run-off that will lead to erosion of the surrounding landscape. • Stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. The following measures, <i>inter alia</i>, should be considered: <ul style="list-style-type: none"> ○ Rainwater harvesting tanks must be installed; ○ Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site; ○ Use of permeable paving to encourage infiltration into the soil; and ○ Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Low Negative	
Duration	Short term	Impact will last between 1 and 5 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Low	Natural and/or social functions and/or processes are somewhat altered	Very low	Natural and/or social functions and/or processes are slightly altered
Probability	Almost certain	It is most likely that the impact will occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	High	Substantive supportive data exists to verify the assessment
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	High	The affected environment will be able to recover from the impact
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Low	The resource is not damaged irreparably or is not scarce
Significance	Negligible - negative		Minor - negative	
Comment on significance	A key impact related to residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.			



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Cumulative impacts	Without mitigation this impact could result in potential erosion on the site caused by stormwater flow.
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Project Phase	Operation			
Impact	Eradication of Alien Vegetation			
Description of impact	Impacts on biodiversity / natural habitats / increased fire risk			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species. Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species. An Alien Control Plan should be implemented to systematically remove and control alien plant species. Follow-up operations must be done. Minimise disturbance to the natural vegetation using low impact manual labour techniques. Reduce fire hazard on site. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Limited	Limited to the site and its immediate surroundings	Limited	Limited to the site and its immediate surroundings
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Medium	Natural and/or social functions and/or processes are notably altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the impact will definitely occur	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this project although this has rarely been known to result elsewhere
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Low	The affected environment will not be able to recover from the impact - permanently modified	Medium	The affected environment will only recover from the impact with significant intervention
Resource irreplaceability	Not relevant		Not relevant	
Significance	Moderate - negative		Moderate - positive	
Comment on significance	An approved AIP Control Plan is in place, and much of the property has already been legally eradicated of AIP. The control of AIP on the property has a positive impact on biodiversity.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			



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Project Phase	Operation			
Impact	Landscaping			
Description of impact	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor			
Mitigable	Low	Mitigation will slightly reduce the significance of impacts		
Potential mitigation	<ul style="list-style-type: none"> The Landscape Plan must be implemented and adhered to. Areas that are not required for development purposes should remain natural with indigenous vegetation. All alien invasive plants must be removed from the site on an on-going basis. All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited. 			
Assessment	Without mitigation		With mitigation	
Nature	Negative		Positive	
Duration	Brief	Impact will not last longer than 1 year	Permanent	Impact may be permanent, or in excess of 20 years
Extent	Limited	Limited to the site and its immediate surroundings	Very limited	Limited to specific isolated parts of the site
Intensity	Negligible	Natural and/ or social functions and/ or processes are negligibly altered	Very low	Natural and/ or social functions and/ or processes are slightly altered
Probability	Highly unlikely / None	Expected never to happen	Almost certain / Highly probable	It is most likely that the impact will occur
Confidence	Medium	Determination is based on common sense and general knowledge	Medium	Determination is based on common sense and general knowledge
Reversibility	Medium	The affected environment will only recover from the impact with significant intervention	Not relevant	
Resource irreplaceability	Low	The resource is not damaged irreparably or is not scarce	Not relevant	
Significance	Negligible - negative		Minor - positive	
Comment on significance	With mitigation the impact is likely to have more beneficial impact to retaining natural biodiversity, than without mitigation.			
Cumulative impacts	Without mitigation this impact could result in the spread of alien invasive plants and the loss of indigenous vegetation.			



4. SPECIALIST RECOMMENDATIONS/MANAGEMENT ACTIONS

4.1. Aquatic Compliance Statement

❖ Stormwater Management

A key impact related to residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.

Given the location of the property in a FEPA and SWSA, it is therefore important that stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. For example, the City of Cape Town guideline is that developments must provide for 24-hour extended detention of the 1-year return interval 24-hour storm event. In this respect the following measures, inter alia, should be considered:

- Rainwater harvesting tanks must be installed;
- Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site;
- Use of permeable paving to encourage infiltration into the soil; and
- Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site.

❖ Erosion Management

The steep slopes of the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented, which include inter alia, the following:

- Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.
- Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.
- Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint.
- Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff.
- Revegetate exposed areas once construction has been completed.
- Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion.

4.2. Terrestrial Ecology Compliance Statement

❖ Management outcome: Vegetation and Habitats

- Laydown and construction preparation activities (such as cement mixing, temporary toilets, etc.) must be limited to already modified areas and should take up the smallest footprint possible.



Eco Route

ENVIRONMENTAL CONSULTANCY

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- It is recommended that areas to be developed/disturbed be specifically demarcated so that during the construction/activity phase, only the demarcated areas be impacted upon.
 - Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further..
 - Any materials may not be stored for extended periods of time and must be removed from the Project Area once the construction phase has been concluded.
 - A hydrocarbon spill management plan must be put in place to ensure that should there be any chemical spill out or over that it does not run into the surrounding areas. The Contractor shall be in possession of an emergency spill kit that must always be complete and available on site.
 - Drip trays or any form of oil absorbent material must be placed underneath vehicles/machinery and equipment when not in use.
 - All contaminated soil / yard stone shall be treated in situ or removed and be placed in containers.
 - Appropriately contain any generator diesel storage tanks, machinery spills (e.g., accidental spills of hydrocarbons oils, diesel etc.) in such a way as to prevent them from leaking and entering the environment.
 - Construction activities and vehicles could cause spillages of lubricants, fuels and waste material negatively affecting the functioning of the ecosystem.
 - All vehicles and equipment must be maintained, and all re-fuelling and servicing of equipment is to take place in demarcated areas.
 - A Fire Management Plan needs to be implemented to restrict the impact any potential fires would have on the surrounding areas.
 - All construction waste must be removed from site and disposed off in a legal manner.
 - Precautions must be taken against erosion damage that would be caused by rainfall over cleared areas. Temporary measures include the use of bunds, silt fences/sediment traps and geo-textiles.
 - All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.
- ❖ Management outcome: Fauna
- Laydown and construction preparation activities (such as cement mixing, temporary toilets, etc.) must be limited to already modified areas and should take up the smallest footprint possible.
 - It is recommended that areas to be developed/disturbed be specifically demarcated so that during the construction/activity phase, only the demarcated areas be impacted upon.
 - Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further.
 - Any materials may not be stored for extended periods of time and must be removed from the Project Area once the construction phase has been concluded.
- ❖ Management outcome: Alien species
- Alien Invasive Plants must be controlled within the Project Area.
- ❖ Management outcome: Waste Management
- Waste management must be a priority and all waste must be collected and stored effectively and responsibly. Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Dangerous waste such as metal wires and glass must be safely stored before being moved off site as soon as possible. Under no circumstances may domestic waste be burned on site or buried on open pits.



- Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled.
 - Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site.
 - Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site.
 - Where a registered disposal facility is not available close to the Project Area, the Contractor shall provide a method statement with regards to waste management.
- ❖ Management outcome: Environmental Awareness training
- All personnel and contractors are to undergo Environmental Awareness Training. Discussions are required on sensitive environmental receptors surrounding the Project Area to inform contractors and site staff of the presence of avoidance areas.
- ❖ Management outcome: Erosion
- A sustainable stormwater design must be implemented to prevent excessive run-off that will lead to erosion of the surrounding landscape.
 - All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.

4.3. Heritage Statement

It is recommended that Heritage Western Cape consider and/or require that the following be included in the Environmental Authorisation / Environmental Management Program, if the project is approved:

- ❖ if any human remains or significant archaeological materials are exposed during mining activities, then the find should be protected from further disturbance and work in the immediate area should be halted and Heritage Western Cape must be notified immediately. These heritage resources are protected by Section 36(3)(a) and Section 35(4) of the NHRA (Act 25 of 1999) respectively and may not be damaged or disturbed in any way without a permit from the heritage authorities. Any work in mitigation, if deemed appropriate, should be commissioned and completed before construction continues in the affected area and will be at the expense of the developer.

4.4. Visual Impact Assessment

The potential visual impacts and proposed mitigation thereof must be undertaken by a professionally registered landscape architect that must be part of the design team (including engineers and architects). The brief of the landscape architect (LA) must include:

- ❖ The LA must consult with both engineers and architects to ensure that sensitive earthwork and building design development occurs, which will allow for reducing the construction and operation phase visual impacts.
- ❖ The LA must work with the project surveyor, arborist and planners in establishing which trees are to remain on site for visual screening and taking this information into the design development of the civil and building works.



The LA must prepare a landscape plan, design development thereof and monitoring implementation and thereafter maintenance. The plan must include the tree survey and what trees are, what indigenous vegetation is, to be retained, what is to be removed, the planting of indigenous trees, new trees and shrub planting along roadways and in open spaces in the built areas and a guideline document for private gardens within the development.

4.5. Geotechnical

It is important to note that the recommendations are based primarily on the profiling of test pits and the interpolation of information between test pits. It is therefore possible that variations from the expected conditions can occur.

- ❖ Classification of soils – Three (3) CBR tests were done and the results varied between 6 and 19% @ 95% Mod AASHTO, reflecting low to medium bearing capacities of approximately 54 to 171 KPa. The typical materials sampled on site classified as G8 to >G9 according to the COLTO classification system.
- ❖ Excavatability - No significant problems were noted, with no refusals encountered at depths shallower than 800mm. Excavation constraints may be expected at depths exceeding 1meter.
- ❖ Geohydrology - Excavations are to be adequately drained should rain water fill trenches during construction or if the water tables rise.
- ❖ Construction Material - The low expansive materials found on this site are suitable for floor fill purposes. Where encountered, clayey materials should be cut to spoil.
- ❖ Stability of Excavations - Excavations were all stable and no side walls collapsed.
- ❖ The NHBRC engineering geological zoning of this site is as follows: S. The Site Classes are S1 (100%). All the site classes are indicated on the soil profiles.
- ❖ Site Class S1 – Reinforced strip foot foundations are recommended as will be decided upon by the Structural Engineer. All trenches have to be inspected by the appointed Structural Engineer before steel is placed (if required) and concrete is poured.



5. LEGISLATIVE REQUIREMENTS

5.1 Signing of the EMPr

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

5.2. Legislation

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

Title of legislation, policy or guideline:	Administering authority:	Date:
Constitution of the Republic of South Africa. (Act 108 of 1996)	All State and Provincial Departments as well as Local Authorities that have been identified as relevant Competent Authorities.	Relevant Consideration
Environmental Conservation Act (Act 73 of 1989)	Department of Economic Development, Environmental Affairs & Tourism	Relevant Consideration
National Environmental Management Act (Act 107 of 1998)	Department of Economic Development, Environmental Affairs & Tourism	Authorization – December 2022/January 2023
National Environmental Management: Biodiversity Act (Act 10 of 2004)	Department of Economic Development, Environmental Affairs & Tourism	Relevant Consideration
National Environmental Management: Integrated Coastal Management Act (Act 24 of 2008)	Department of Forestry, Fisheries, and the Environment (DFFE), Branch Oceans & Coasts (O&C)/ Department of Economic Development, Environmental Affairs & Tourism	Comment/ Relevant Consideration
National Environmental Management: Protected Areas Act (Act 57 of 2003)	Department of Economic Development, Environmental Affairs & Tourism	Relevant Consideration
National Water Act (Act 36 of 1998)	Department of Water and Sanitation	Relevant Consideration
Water Services Act (Act 108 of 1997)	Department of Water and Sanitation	Relevant Consideration
Sea Shore Act (Act 21 Of 1935)	Department of Forestry, Fisheries, and the Environment (DFFE), Branch Oceans & Coasts (O&C)/	Relevant Consideration



	Department of Economic Development, Environmental Affairs & Tourism	
Conservation Of Agricultural Resources Act (Act 43 of 1983)	Department of Agriculture, Forestry and Fisheries	Relevant Consideration
National Heritage Resources Act (Act 25 of 1999)	Eastern Cape Provincial Heritage Resources Authority	Comment/ Relevant Consideration

5.3. Project Responsibilities

Responsibility for the implementation of the EMPr lies with the Proponent who must retain the services of a suitably experienced Environmental Control Officer (ECO) who will monitor the construction processes and activities periodically.

The project proponent will be responsible for the following:

- Adhering to the approved EMPr.
- Ensure that all employed Contractors and Engineers are aware of and understand the conditions of the EMPr.
- Has the right to remove any person or appointed contractors or personnel from site if the contravene with the EMPr.
- Ensure that all contracts with contractors/engineers include the authorised EMPr.
- Appoint an Environmental Control Officer.
- The project proponent (holder of the Environmental Authorisation of the EMPr) must notify the competent authority of the commencement of maintenance management activities 14 days prior to such commencement taking place.

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

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



The Engineers and Contractors are responsible for the construction of the residential estate. The responsibilities indicated here are also relevant to Sub-Contractors. The responsibilities of the Engineers and Contractors include but are not limited to the following:

- Adhere with the conditions and recommendations of the EMPr or any other legally binding 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.
- Ensure compliance of all site personnel and / or visitors to the EMPr and any other authorisations.

All fines for noncompliance of EMPr to be predetermined by Engineer, Eco and Project Proponent, this needs to be included in method statement.

6. REPORTING PROCEDURES

6.1. Documentation

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

An Environmental File which includes:

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

6.2. Environmental Register

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

- Nature of complaint / incident.
- Causes of complaint / incident.



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

6.3. Non-Conformance Report

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

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

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

6.4. Emergency Response

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

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

- Employees shall be adequately trained in terms of incidents and emergency situations;
- Details of the organisation (i.e. manpower) and responsibilities, accountability and liability of personnel;
- A list of key personnel and contact numbers;
- Details of emergency services (e.g. the fire department / on-site fire detail, spill clean-up services) shall be listed;
- Internal and external communication plans, including prescribed reporting procedures;



- Actions to be taken in the event of different types of emergencies;
- Incident recording, progress reporting and remediation measures to be implemented; and
- Information on any hazardous materials, including the potential impact associated with each, and measures to be taken in the event of accidental release.

7. COMPLIANCE WITH THE EMPr

7.1 Monitoring and Compliance

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

- The ECO has the authority to instruct the Proponent to cease a particular operation causing or liable to cause significant environmental damage, and issue fines or penalties for non-compliance of the Environmental Management Programme/ EMPr.
- An Environmental Control Officer (ECO) must audit the site and compile an audit report on a monthly basis until rehabilitation is successful.
- The holder of the environmental authorisation (the Proponent) is responsible to ensure that an environmental audit report is submitted to the Department of Environmental Affairs and Development Planning (DEA&DP) as per the timeframes stipulated in the Environmental Authorisation (EA).

7.2 Auditing Process

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

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

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

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



7.3 Non-Compliance

Definition

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

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

Types of non-compliances issued

Two types of non-compliances may be issued:

A. Stop Works Non-Compliance

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

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

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

B. General Non-Compliance

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

7.4 Issuing a Non-Compliance

Non-compliance may be issued to:

- The Proponent
- Any representative of the Proponent

7.5 Process of Issuing Non-Compliance

The appointed Environmental Control Officer (ECO) may issue a formal non-compliance to the Proponent. A copy of the non-compliance issued will be placed in the EMPr file. The Proponent will be responsible for returning a formally signed off corrective action (as per template) to the ECO to be placed in the EMPr file.



The ECO will be required to sign-off on the corrective action, indicating that it has been completed within the timeframes and to the satisfaction of the ECO.

7.6 Failure to complete corrective actions

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

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

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

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

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

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

The penalty associated with a chemical spill is not a set amount but will depend on the nature and extent of the spill; the cost of any soil and /or groundwater monitoring and any soil and /or groundwater remediation required by authorities will be to the Proponent's account.

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

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

7.7 Unlawful Activity/ies

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

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



8. AMENDMENTS TO THE EMPr

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

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

9. ENFORCING THE EMPr

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

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

TABLE OF RESPONSIBLE PARTIES BELOW:

Responsibility	Name of Responsible Party
Proponent	Mr Alexander G. Polson (Wealth Spring (Pty) Ltd)
Environmental Control Officer/ ECO	(To be appointed)
Contractor	(To be appointed)

10. ENVIRONMENTAL MANAGEMENT PROGRAMME

10.1 CONSTRUCTION PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Authorisations, Licences and Permits	Environmental Authorisations		
	All necessary authorisations, permits and licences must be obtained by the Proponent prior to construction commencement. This includes permits for the removal of protected plants.	Proponent	Once-off
Appointment of Environmental Control Officer	Appointment of Environmental Control Officer		
	An Independent ECO must be appointed at the Proponent's cost to monitor the implementation of the EMPr.	Proponent & ECO	Once-off
	Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence which includes site preparation and demolition.		
	The nomination of the ECO must be given to DEA&DP, in writing fourteen (14) days prior to construction commencement. The notification must include contact details for the ECO and details pertaining to the ECO's relevant experience.		
Should the ECO for the development change at any time, this must be communicated, in writing, to DEA&DP, within fourteen (14) days of appointing the new ECO. The notification must include contact details for the ECO, details pertaining to the ECO's relevant experience and reasons for the change in ECO.		As required	
Preparation of Method Statements	Method Statements		
	Method Statements must be submitted by the Proponent/ Contractor to the ECO and must be adhered to by the Proponent/ Contractor. These relate to water and stormwater management requirements, solid waste management requirements, the storage of hazardous materials (if applicable), and standard emergency procedures.	Proponent/ Contractor	Prior to commencement of construction and during construction (if necessary)
	The ECO will monitor the implementation of the statements.	ECO	On-going
Notifying Relevant I&APs	Notice of Environmental Authorisation (EA)		
	A written notice must be given to all relevant I&APs notifying them of the EA. The notice must include a date on which the EA was received and the	Proponent	Prior to commencement

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	reference number for the EA. Commencement of construction may not begin until 21 days after the notification, provided no appeals have been lodged against the EA.		
Education of Site Staff on General and Environmental Conduct <i>A general regard for the social and ecological wellbeing of the site and adjacent areas is expected of the site staff.</i>	Environmental Awareness and Training		
	Construction staff must be adequately educated by the ECO as to the provisions included in the EMPr, and in terms of general environmentally-friendly practice.	ECO	Once-off and as required
	<p>The ECO must ensure that all staff, and if applicable, Contractors / Sub-contractors / Suppliers / Service Providers are trained on the environmental, occupational safety and/or legal responsibilities expected from them.</p> <p>The training must take into account language and literacy requirements as well as measures to determine the effectiveness of the training. Proof of training must be attached to the ECO's audit reports.</p>		
	<p>Consideration of the implications of the EA and EMPr must form part of the formal site induction for all contractors, sub-contractors and casual labourers, preferably in their native language.</p> <p>The induction training will, as a minimum, include the following:</p> <ul style="list-style-type: none"> ➤ The importance of conformance with all environmental policies; ➤ The environmental impacts, actual or potential, of their work activities; ➤ The environmental benefits of improved personal performance; ➤ Their roles and responsibilities in achieving conformance with the environmental policy and procedures and with the requirement of the Consultant's environmental management systems, including emergency preparedness and response requirements; and ➤ The mitigation measures required to be implemented when carrying out their work activities. 		
	All contractors, sub-contractors and casual labourers must acknowledge their understanding of the EMPr and environmental responsibilities by signing an induction attendance record.	ECO	Once-off
	Staff, operating equipment, shall be adequately trained and sensitised to any potential hazards associated with their tasks.	Proponent	During staff induction, followed by on-going monitoring
	Translators are to be used where necessary during staff training.	ECO	
The ECO must be on hand to explain more difficult / technical issues and to answer questions which may be raised.	ECO		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	<p>Staff must be made aware that they are not to make excessive noise e.g. shouting, hooting.</p> <p>All employees must undergo the necessary safety training and wear the necessary protective clothing at all times.</p> <p>No alcohol / drugs to be present on site; no vehicles or machinery are to be operated whilst under the influence of alcohol or drugs.</p> <p>No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel).</p> <p>No unsocial behaviour will be permitted.</p> <p>Bringing pets onto site is forbidden.</p> <p>Staff must make use of facilities provided for them, as opposed to ad-hoc alternatives (e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden). No fires to be permitted on site.</p> <p>Trespassing on private / commercial properties adjoining the site is forbidden.</p> <p>No worker may be forced to do work that is potentially dangerous or for what he / she is not so trained</p> <p>The staff conduct rules are described in a separate table of rules in the EMPr. This is aimed at providing staff with the basic information regarding worker conduct on site.</p>	ECO & Proponent	
Site Management	<p>Access</p> <p>No vehicles may drive onto the adjacent properties and any other no-go areas.</p> <p>No vehicles are to park or operate within "no-go" areas.</p> <p>Heavy Machinery</p> <p>Construction activities must be confined to clearly demarcated areas so as to prevent unnecessary disturbance the surrounding environment.</p> <p>Excavators and all other machinery and vehicles must be checked for oil and fuel leaks daily. No machinery or vehicles with leaks are permitted to work on site.</p> <p>Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills. These areas must not be located within any natural drainage areas or preferential flow paths and must be located outside of buffer zones.</p> <p>The contractors used for the project should have spill kits available to ensure that any fuel or oil spills are clean-up and discarded correctly.</p>	Proponent / Contractor	On-going

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	<p>Site Management</p> <p>To ensure that the ecological integrity of the surrounding environment is maintained and preserved, the proponent and contractor must ensure that the construction footprint is limited to the construction area. The extent of the construction must be marked out to satisfaction of the engineer and ECO.</p> <p>The Contractor must restrict all activities, materials, equipment, and personnel within the area specified or restricted activities to areas that are necessary to undertake the work.</p> <p>The Contractor must ensure that materials are appropriately secured to ensure safe passage between destinations, loads including, but not limited to, sandstone chips, fine vegetation or refuse should have appropriate cover to prevent pollution of adjacent properties.</p> <p>The proponent will be held responsible for any clean-up in the dune environment resulting from failure by the contractors or suppliers to properly secure material.</p> <p>Adequate drainage and erosion protection must be provided around the site and where necessary.</p> <p>Access points and other cleared surfaces must be dampened whenever necessary and especially in dry and windy conditions to avoid excessive dust. Alternatively, a binding product such as Dustex (supplied by Patch Industrial Supplies) could be used.</p>	Proponent/ Contractor	On-going
Sewage and Sanitation	<p>Ablutions</p> <p>Toilets at the recommended Health and Safety standards must be provided. Portable toilets must be emptied regularly to prevent overflow. Once no longer required, they must be pumped dry to prevent leakage into the surrounding environment and removed from site.</p> <p>Toilets facilities must comply with local authority regulations, shall be maintained in a clean and hygienic condition. Their use shall be strictly enforced. They must be positioned in an appropriate place, also taking into consideration, gradient of the land.</p> <p>The Contractor must ensure that toilets are cleaned weekly or more regularly, if found to be necessary.</p> <p>Unauthorised spilling of waste from the septic tank into the environment and burying of waste are strictly prohibited.</p> <p>Ablution facilities must not cause any pollution to any water resource, and it must not be a health hazard to the general public.</p>	Contractor	<p>Immediately & on-going</p> <p>Weekly</p> <p>On-going</p>

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Social Impacts	Communication Between Contractor, Site Staff and I&APs		
	Should the staff be approached by members of the public or other stakeholders, they must assist them in locating the Contractor, or provide a number on which they may contact the Proponent/ Contractor.	Proponent / Contractor	On-going
	The conduct of the staff when dealing with the public or stakeholders shall be in a manner that is polite and courteous at all times.		
	Drivers of heavy-duty vehicles must exercise care when travelling to and from the site – and adhere to all legally enforceable requirements.		
	Noise pollution		
	Construction activities must only take place during normal working times between 07:00-17:00 on weekdays.	Contractor	On-going
	Machinery may be fitted with silences to dampen noise.		
	Staff must be reminded that they are working within a residential area and noise levels must be kept low.		
	Visual impact		
	The necessary measures be implemented during the construction phase to protect the natural vegetation, to control the noise, dust and visual intrusion.	Proponent / Contractor	On-going
The potential visual impacts and proposed mitigation thereof must be undertaken by a professionally registered landscape architect that must be part of the design team (including engineers and architects). The brief of the landscape architect (LA) must include: <ul style="list-style-type: none"> o The LA must consult with both engineers and architects to ensure that sensitive earthwork and building design development occurs, which will allow for reducing the construction and operation phase visual impacts. o The LA must work with the project surveyor, arborist and planners in establishing which trees are to remain on site for visual screening and taking this information into the design development of the civil and building works. o The LA must prepare a landscape plan, design development thereof and monitoring implementation and thereafter maintenance. The plan must include the tree survey and what trees are, what indigenous vegetation is, to be retained, what is to be removed, the planting of indigenous trees, new trees and shrub planting along roadways and in open spaces in the built areas and a guideline document for private gardens within the development. 	Proponent / Landscape Architect	On-going	
Storage Areas			

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Equipment lay-down and storage	Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to "No Go" areas, general on-site topography and water erosion potential of the soil. Impervious surfaces, bunded areas or drip trays must be provided where necessary.	Contractor	On-going
	Material stockpiles must be protected against rain and flooding.		
	Equipment lay-down and storage areas must be designated, demarcated and signed.		
Conservation of the Natural Environment	Vegetation and Habitats		
	Laydown and construction preparation activities (such as cement mixing, temporary toilets, etc.) must be limited to already modified areas and should take up the smallest footprint possible.	Proponent / Contractor	Throughout the duration of the project
	Areas of indigenous vegetation, even secondary communities outside of the direct project footprint, should not be fragmented or disturbed further.		
	Areas to be developed/disturbed must be specifically demarcated so that during the construction phase, only the demarcated areas be impacted upon.	Contractor	Immediately
	All landscaping must comprise of flora species indigenous to the region. The sole use of exotics and the planting of NEMBA listed Alien Invasive Plants is prohibited.	Proponent / Landscape Architect	On-going
	The removal and translocation of protected plants if found should be undertaken prior to construction clearing activities. A permit is required prior to removal.		
	Protected plants must either be moved to a safer, no-go area on the property or taken to a nursery for temporary storage until rehabilitation takes place.		
	Access by heavy machinery should be limited on the site.	Contractor	
	Only areas necessary for the development footprint should be cleared and the remainder of the property should be left natural.		
	Laydown areas for construction materials must be contained within the clearing footprint of the proposed development.		
	Fauna and Flora		
Areas which are identified by the Environmental Control Officer (ECO) as being ecologically sensitive on or adjacent to the site are to be suitably demarcated to prevent damage by construction practices. These areas are to be recognised as "no-go" areas.	Proponent / Contractor	On-going	
In situations fauna species are located at the site and need to be removed, the relevant specialists must be contacted to advise on how the species can be relocated.			
The areas to be disturbed must be specifically demarcated to prevent the movement of staff or any individual into the surrounding environments, barrier tape must be put up to enforce this.			

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Noise must be kept to an absolute minimum during the evenings and at night to minimise all possible disturbances to nocturnal species which are more dependent on auditory signals for life processes.		
	No trapping, killing, or poisoning of any wildlife is to be allowed and Signs must be put up to enforce this. Monitoring must take place in this regard.		
	Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible.		
	Any holes/deep excavations must be dug in a progressive manner and shouldn't be left open overnight. Should any holes remain open overnight they must be properly covered temporarily to ensure that no small fauna species fall in. Holes must be subsequently inspected for fauna prior to backfilling.		
	Disturbance to birds, animals and reptiles and their habitats must be minimized wherever possible.		
	Preservation of natural habitats		
	Wherever there are sections of undisturbed natural habitat within the development area, they should not be impacted by the building activities and should be conserved as small islands of natural resources for the small wildlife of the area. These animals include skinks, rodents, birds and invertebrates. Any area of natural habitat that is not required for the approved development should be conserved for small wildlife.	ECO & Contractor	Immediate and On-going
	Landscape Connectivity		
	Where fencing is required, wildlife gaps in the perimeter fence must be installed at appropriate intervals and be of a suitable dimension to allow for the movement of small animals.	ECO & Contractor	Immediate
Drainage Line			
Establish and maintain a 36-meter buffer from the non-perennial drainage line to the west of the property.	ECO & Contractor	Immediate and On-going	
Land Degradation	Erosion Management		
	Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.	Proponent / Engineer	On-going
	Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.	Contractor	Immediate and On-going

Activity	Management / Mitigation	Responsibility	Frequency / Timing	
	Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint.		On-going	
	Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff.			
	Revegetate exposed areas once construction has been completed.		On completion of construction phase	
	Stormwater Management			
	Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion.	Proponent / Engineer	On-going	
	Disturbance and removal of topsoil			
	Areas that are disturbed through building activities (such as the excavations for pipelines) should be suitably rehabilitated without delay. Failure to do so will have a knock-on effect on biodiversity in the form of an increase in wind erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth.	Proponent / Contractor	On-going	
	Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes. The stockpiling of topsoil for use in rehabilitation is required.			
	Stockpiles must not exceed 1.5m in height, must be covered with shade cloth or similar, to prevent erosion and any invasive alien species that begin to grow within it must be removed.			
	Soil disturbance during the removal of alien invasive plants must be minimised as much as possible.			
The site must be stabilised where necessary using available materials, where possible. It is recommended that exposed soils are covered with wood chips, and tree branches used to create berms. Any cut alien vegetation on site can be utilised for this purpose if it is without seed.				
Waste Management	On-Site Waste Management			
Waste management must be a priority and all waste must be collected and stored effectively and responsibly. Refuse bins will be responsibly emptied and secured. Temporary storage of domestic waste shall be in covered and secured waste skips. Dangerous waste such as metal wires and glass must be safely stored	Proponent / Contractor	On-going and monitored weekly		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	before being moved off site as soon as possible. Under no circumstances may domestic waste be burned on site or buried on open pits.		
	Separation and recycling of different waste materials should be supported.		
	Littering on the site is forbidden and the site shall be cleared of litter at the end of each working day.		
	Litter, spills, fuels, chemical and human waste in and around the Project Area must be minimised and controlled.	Contractor	Daily
	Cement mixing may not be performed on the ground. It is recommended that only closed side drum or pan type concrete mixers be utilised. Any spills must be immediately contained and isolated from the natural environment, before being removed from site.		Every Occurrence
	Waste must be removed from the site on a weekly basis.		Weekly
	Where a registered disposal facility is not available close to the Project Area, the Contractor shall provide a method statement with regards to waste management	Proponent / Contractor	On-going
Handling of Hazardous Materials (if necessary)	Hazardous Materials		
	Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs must additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.		
	Cement and other potential environmental pollutants must be stored within an impermeable bunded, roofed and sign posted area.	Contractor	On-going
	The mixing of cement must be done on Rhino board.		
	All empty contaminated containers must be stored within a hazardous bunded area until collection by a reputable hazardous waste collection company. Waybills must be presented to the ECO for review and filing purposes.		
	No vehicles transporting hazardous materials to the site may be washed on or near site. They must return to the supplier of such material to be cleaned out.		
Cultural Environment	Archaeology and Artefacts		
	No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from Heritage Western Cape.		
	If any archaeological sites/materials are exposed, mitigation regarding the finds must be conducted with the Heritage Western Cape regarding the destiny of the material.	Proponent / Contractor	Immediate and On-going

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	<p>Examples of heritage resources are as follow:</p> <ul style="list-style-type: none"> • Human remains • Coins/Gold/Silver • Fossils • Fossils shell middens/ marine shell heaps • Pottery/ceramics 		
	<p>If Heritage Western Cape agrees to the removal of the material, an archaeologist must apply for a permit to scientifically excavate/collect the material.</p>		
	<p>All costs must be financed by the applicant. This may include: All monitoring and mitigation expenses regarding the excavations/collecting of material, travel, accommodation and subsistence, analysis of the material, radiocarbon date(s) of the site(s) and a one-off curation/storage fee payable to the Western Cape Repository for Archaeological material.</p>		
Safety and Security	Safety and Security On-Site		
	<p>Material stockpiles or stacks must be stable and well secured to avoid collapse and possible injury to site workers / local residents.</p>	Contractor	On-going
	<p>Firefighting equipment must be present on site at all times. All equipment on site must be used in accordance with the Occupational Health and Safety Act regulations of South Africa (OHSA), Act No. 85 of 1993); staff must be trained in firefighting procedures.</p>		
	<p>No unauthorised person may be permitted to enter the site without prior permission of the Proponent.</p>		
	Fire Management		
	<p>Firefighting equipment should be present on site at all times as per Occupational Health and Safety Act.</p>	Proponent / Contractor	On-going
	<p>All project staff must be trained in fire hazard control and firefighting techniques and know the proper procedure in case of a fire occurring on site.</p>		
	<p>All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.</p>		
<p>No open fires will be allowed on site.</p>			
<p>Smoking must not be permitted in areas considered to be a fire hazard.</p>	Proponent	Immediate	
<p>A Fire Management Plan needs to be implemented to restrict the impact any potential fires would have on the surrounding areas.</p>			

10.2. OPERATIONAL PHASE

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Vegetation Rehabilitation – progressive rehabilitation must be carried out	Vegetation		
	All disturbed areas, or areas which have been disturbed for the purpose of the development, are to be re-vegetated. This will aid in preventing erosion within the site. A 100% indigenous planting plan must be adhered to in terms of all planting carried out on the site. Consultation must be made with a Botanical Specialist for a site-specific vegetation list.	Contractor & ECO	Project completion
	Erosion prevention and control measures must be implemented. Organic mulch or sand bags must be used to contain all sediment and prevent erosion during rehabilitation.	Contractor	Rehabilitation
	All rehabilitated areas must be maintained through weekly inspections until a 100% success rate has been achieved.	Contractor & ECO	Weekly
	Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation. This would need to be undertaken by the ECO or a designated specialist.	Proponent, Contractor & ECO	Project completion and Maintenance
	Landscaping		
	Re-vegetation and Landscaping of open space areas with suitable indigenous vegetation.	Proponent / Contractor	Project completion and Maintenance
	Systematic removal and follow-up operations of invasive alien plants.		
	Adhere to the Landscape Plan.	Proponent / Landscape Architect	
	Outside lighting should be designed and limited to minimise impacts on fauna. All outside lighting should be directed away from any sensitive areas. Fluorescent and mercury vapor lighting should be avoided, and sodium vapor (green/red) lights should be used wherever possible		
Landscape Connectivity	Permeable fencing		
	Wherever fences are needed in the development area and on its boundary, it will be necessary to ensure that wildlife can move through the fences to enable their movement across the landscape. Consultation with CapeNature will be required to determine the best methods to use and spacing of permeability. It will also need to be determined where wildlife crosses the fence line. Permeability of the fence will be done according to CapeNature's requirements.	Proponent & ECO	Project completion
	Fencing around the property must be visible to wildlife, including birds, by fitting reflective or colourful weather-resistant flags (e.g., aluminum, or plastic strips) to the wire.	Proponent	Project completion

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Alien Invasive Plants	Alien plant eradication	Proponent / Contractor	Immediate and On-going
	All invasive alien plants should be completely cleared from the property, and where a tree or bush cover is desired, replaced with suitable indigenous species.		
	Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.		
	The Alien Control Plan should be implemented to systematically remove and control alien plant species.		
	Follow-up operations must be done.		
	Minimise disturbance to the natural vegetation using low impact manual labour techniques.		
	Reduce fire hazard on site.		
Land Rehabilitation	Land	Contractor & ECO	Project completion
	Rehabilitation must be executed in such a manner that surface runoff will not cause erosion of disturbed areas during and after rehabilitation.		
	Any rubble is to be removed from site to an appropriate disposal site. Burying of rubble on site is prohibited.	Contractor	
	The site is to be cleared of all litter.		
	The surface of all disturbed areas must be left rough to facilitate binding of topsoil and vegetation.		
Areas that are disturbed through building activities (such as the excavations for sewerage pipelines) should be suitably rehabilitated without delay. Failure to do so will have a knock-on effect on biodiversity in the form of an increase in wind erosion, soil exposure and a loss of the soil micro-organisms that are essential for plant growth. Use complete cover of locally chipped woody material (for example Acacia cyclops stems and branches but not the seed pods).	Contractor	Progressive rehabilitation and on Project completion	
Removal and Repair of Materials and Infrastructure	Materials and Infrastructure	Contractor	Project completion
	All material used for the construction must be removed from site after construction.		
	The Contractor must repair any damage that the construction works may have caused to adjacent areas.		
	Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the ECO.		
All areas where temporary services were installed are to be rehabilitated to the satisfaction of the ECO.			

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Stormwater Management	Increased stormwater runoff		
	A sustainable stormwater design must be implemented to prevent excessive runoff that will lead to erosion of the surrounding landscape.	Contractor	During Operational phase
	Stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. The following measures, <i>inter alia</i> , should be considered: <ul style="list-style-type: none"> o Rainwater harvesting tanks must be installed; o Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site; o Use of permeable paving to encourage infiltration into the soil; and o Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site. 	Contractor / Engineer	
	Impervious surfaces and foundations		
Stormwater management must encourage infiltration of water into the soil profile and other onsite attenuation through the use of grass pavers etc.	Contractor	Project completion	
Waste	Removal of Hazardous and Non-Hazardous Waste		
	All hazardous materials and containers must be collected by a reputable hazardous waste collection company and disposed of appropriately. Collection and disposal of non-hazardous waste to a registered landfill site must occur at least once a week.	Proponent	During Operational phase
Fire management	No burning of vegetation to be permitted, even as part of alien plant management.	Proponent	On-going
	Ensure that no refuse waste is buried or burnt on the site or surrounds.		
	Smoking must not be permitted in areas considered to be a fire hazard.		
	Undeveloped areas must be managed so that they do not pose a fire risk.		
The Southern Cape Fire Protection Association should be consulted regarding firebreaks, and fire management for the property in case of wildfires. It is recommended that the landowner become a member of the SCFPA.		Immediate	

10.3. REHABILITATION AND MAINTENANCE

***All rehabilitation measures must be implemented with consultation with an Alien Invasive Plant Control Plan**

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Vegetation Rehabilitation	Vegetation		
	A 100% indigenous planting plan must be adhered to in terms of all planting carried out on the site.	Proponent & ECO	On-going site maintenance
	Erosion prevention and control measures must be fully implemented (if necessary).		
	All rehabilitated areas must be maintained through weekly inspections until the 80% success rate has been achieved (if applicable).		
Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation.			
Stormwater Management	Stormwater		
	Any negative stormwater effects, related to the operational phase, must be remediated.	Proponent	On-going site maintenance
On-going monitoring and assessing of stormwater drainage must occur on site during the operational phase of the proposed project.			

13. STAFF CONDUCT CONTROL AND INFORMATION SHEET

ALL STAFF MUST OBEY THE FOLLOWING RULES:	
1	DO NOT tamper with or destroy nesting sites, lairs or any other form of animal shelter.
2	DO NOT feed the native animals.
3	DO NOT leave the project site untidy and strewn with rubbish that will attract pests.
4	DO NOT bring any pets onto the project site.
5	DO NOT trespass onto private properties not linked to the project.
6	DO NOT carry a weapon onto the project site or in the vehicles transporting workers to and from the site.
7	DO NOT set fires.
8	DO NOT cause any unnecessary disturbing noise at the project site or at any designated worker collection/drop off points.
9	DO NOT drive a vehicle under the influence of alcohol.
10	DO NOT exceed the national speed limits on public roads or exceed the recommended speed limits in this management plan (where applicable)
11	DO NOT drive a vehicle that is generating excessive noise (noisy vehicles must be reported and repaired as soon as possible).
12	DO NOT litter along the roadsides, including both public and private roads.
13	DO NOT remove or destroy vegetation around the site without the prior consent of the Proponent and Environmental Control Officer.
14	DO NOT tamper with, destroy or remove vegetation from any areas that have been fenced off or marked.
15	DO NOT pollute watercourses, whether flowing or not.
16	DO NOT drive through watercourses.
17	DO NOT operate critical items of mechanical equipment without having been trained and certified.
18	ALL employees must undergo the necessary safety training and wear the necessary protective clothing at all times.
19	NO unsocial behaviour will be permitted e.g., excessive shouting, hooting etc.
20	NO ad-hoc activities are to be undertaken e.g. fires for cooking, the use of surrounding bush as a toilet facility is strictly forbidden
21	NO trespassing on private / commercial properties adjoining the site is forbidden.
22	NO worker may be forced to do work that is potentially dangerous or for what he / she is not trained to do.

14. RESPONSIBILITIES

The “Responsibility” column is merely a guide and does not relieve the Proponent of his responsibilities in terms of overall compliance with the EA and EMPr.

FUNCTION	RESPONSIBILITY
Proponent	<ul style="list-style-type: none"> • The Proponent is ultimately responsible for the ensuring compliance with all the requirements associated with the construction, operation, rehabilitation and decommissioning phases of the project. • The Proponent is responsible to ensure that all necessary communication and submission of required documentation concerning this project is submitted to the relevant authorities.
Contractor	<ul style="list-style-type: none"> • The Contractor is required to adhere to the EMPr and is responsible to ensure that all staff appointed also adhere the EMPr. • Ensures that all staff are made aware of the need to conduct activities in an environmentally responsible manner. • (Contractor) On instruction by the ECO, ensures that storm/surface water controls are established. • Ensures prompt remediation of any sewage spills. • Stockpiles are protected from aeolian effects, stormwater effects, or being driven over by workers. • Ensures that a “clean-site” policy is applicable at all times. • Ensures that all complaints by residents are dealt with promptly. • Is responsible for any contravention/s by staff or any non-compliance with the EMPr.
Environmental Control Officer (ECO)	<ul style="list-style-type: none"> • The ECO is to have access to the site at all times, for the purpose of inspections to ensure that the environmental conditions of the EMPr as well as the conditions stipulated to in the EA and the recommendations made in the EIR are being implemented and adhered to. • The ECO must report on the environmental aspects of the project to the responsible person/authority at agreed intervals. • The need for any deviations or variations in the environmental conditions must be reported to the DEDEAT for approval prior to these being undertaken. • The ECO must be fully cognisant with the contents of the Environmental Authorisation as well as this EMPr and any other applicable legislation
Competent Authority	<ul style="list-style-type: none"> • The Compliance Officer appointed by the Competent Authority is responsible for the ensuring that the Proponent, Contractor, and ECO are compliant with the provisions of the EA and EMPr.

ACKNOWLEDGEMENT FORM

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

PROJECT NAME:

PROPOSED DEVELOPMENT OF ERF 1058, WHITES ROAD, HOEKWIL (WILDERNESS HEIGHTS) GEORGE MUNICIPALITY & DIVISION, WESTERN CAPE.

DEA&DP REF: 16/3/3/6/7/1/D2/30/0241/23

PROPONENT:

Signed: Date:

CONTRACTOR:

Signed: Date:

ENVIRONMENTAL CONTROL OFFICER

Signed: Date:

ANNEXURE 1: CV of the EAP

Joclyn Joe Marshall

Heatherhill Farm, P.O. Box 19, Rheenendal, 6576

Contact: 072 126 6393

Email: joclynjoe@gmail.com

CAREER HISTORY

July 2022 – current

**Eco Route Environmental Consultancy
Environmental Assessment Practitioner**

- ❖ Environmental Impact Assessments, Basic Assessment Reports, and Environmental Impact reports pertaining to:
 - Residential housing developments
 - Security Estates and Eco Estates
 - Industrial Developments
 - Dams and Agri-industrial developments
- ❖ Environmental Impact Assessments for Section 24 G Applications pertaining to:
 - Rectification of Illegal Dams
 - Rectification of vegetation clearing for residential developments
- ❖ Environmental Management Programmes and Maintenance Programmes, and Rehabilitation Plans pertaining to:
 - Maintenance of golf course water ways.
 - Construction and Operational Environmental Management of Eco Estates.
 - Slipway and jetty maintenance.
- ❖ EIA Checklists, Environmental Screening Reports, and Part 1 Amendments to Environmental Authorisation.
- ❖ Outeniqua Sensitive Coastal Area Extension Regulations / OSCAE Permits.
- ❖ Environmental Auditing and Environmental Control Officer duties.
- ❖ Liaise with clients, specialists, and competent authorities.
- ❖ Prepare Public Participation documents and registers.

August 2020 – August 2022

**Moira Cloete Environmental Assessment Practitioner
Sub-Consultant**

- ❖ Perform tasks and functions as set out in the EIA Regulations 2014, as amended, specifically in line with Appendices 1-4 thereof.
- ❖ Complete environmental screening tool reports.
- ❖ Complete EIA/BAR application forms.
- ❖ Draft Scoping Reports.
- ❖ Draft EIAs/BARs.
- ❖ Prepare Public Participation documents, EMPs and BID documents.
- ❖ Completed Projects:
 1. BAR for Retail Development on Erf 1027 Klein Brak River.
 2. EIA for proposed construction of a water storage dam on Argyll Farm 218 for irrigation of 80ha of lucerne.
 3. EIA for proposed construction of a water storage dam on Coldstream Farm 970 for irrigation of 80ha of lucerne.
 4. BAR for proposed development of a poultry facility for egg production on Confluence Farm 143.
 5. EMP for operating an organic composting facility for Meat Traders Abattoir (completed).

February 2012 – April 2019

**Knysna Municipality
Senior Environmental Officer**

- ❖ Preparation of EMP's, MMP's, EMS's for the municipality.
- ❖ Carrying out ECO work on municipal projects and other construction sites.
- ❖ Commenting on Land Use applications, EIA applications and issuing of OSCAER permit.
- ❖ Conducting various site inspections and audits including taking water samples for analysis.

- ❖ Applying environmental legislation and regulations to applications and other environmental matters.
- ❖ Liaising with other Governmental Departments, NGO's, Forums, Committees and Conservancies.
- ❖ Campaigning in environmental education and development of educational programmes.
- ❖ Report writing, research and project development.
- ❖ Advising and assisting public on environmental matters and various related tasks.

February 2011 – January 2012

Allanson Associates c.c.

Research assistant at the Knysna Basin Project

- ❖ Field work that included water sample collection and analysis, critical observations of environmental health, monitoring of Waste Water Treatment Works outflow;
- ❖ Lab work that included water quality analysis (including chemical methodology), fluorometry, microscopy and scientific report writing and publication.

June - July 2010

Department of Environmental Science, Rhodes University

Field assistant

- ❖ Harvesting, transporting, shredding and drying spekboom material.

2009 – 2010

Department of Environmental Science, Rhodes University

Graduate Assistance

- ❖ Assisted in second year practicals and field trips, and data input.

2007

Departments of Zoology and Botany, Rhodes University

Demonstrator

- ❖ Assisted in first year practicals and field trips, and marking practical reports.

ACADEMIC QUALIFICATIONS

2009 – 2010

Masters in Environmental Science by research dissertation

Rhodes University

Thesis: Population assessments of priority plant species used by local communities in and around four Wild Coast Reserves, Eastern Cape, South Africa

2008

Honours in Biodiversity and Conservation (*Joint Botany and Environmental Science*)

Rhodes University

2005 -2007

Bachelor of Science with Majors in Botany and Zoology

Rhodes University

1998 – 2004

Heatherhill College (Cambridge University International Examination)

HIGCSE: Art and Design (2), First Language English (3), Biology (1), Mathematics (2), Physical Science (2), Afrikaans as a Second Language (3). IGCSE: Information Technology (B)

PUBLICATIONS

- ❖ B.R. Allanson & J.J. Fearon (2012): Growth rate of juvenile *Siphonaria compressa* (Gastropoda: Pulmonata), *Invertebrate Reproduction & Development*, DOI:10.1080/07924259.2011.646447

OTHER SKILLS AND TRAINING

- ❖ Registered as an Environmental Assessment Practitioner with Environmental Assessment Practitioner Association of South Africa (EAPASA). Registration No. 2022/5006.
- ❖ Registered as a Candidate Natural Scientist in Environmental Science. Registration No. 100121/1.
- ❖ SAGIC Invasive Species Training, 15-18 May 2018. Stellenbosch, Western Cape.
- ❖ Certificate of competence in Herbicide Applicator – Noxious Weeds, 18 May 2018. Invader Plant Specialists (Pty) Ltd. Stellenbosch, Western Cape.
- ❖ Certificate attained for Management of Estuaries in South Africa short learning programme. NMMU, Stellenbosch, Western Cape.
- ❖ Certificate attained for Urban Interface Fire Management Short Course, 10-12 November 2015. NMMU Saasveld.

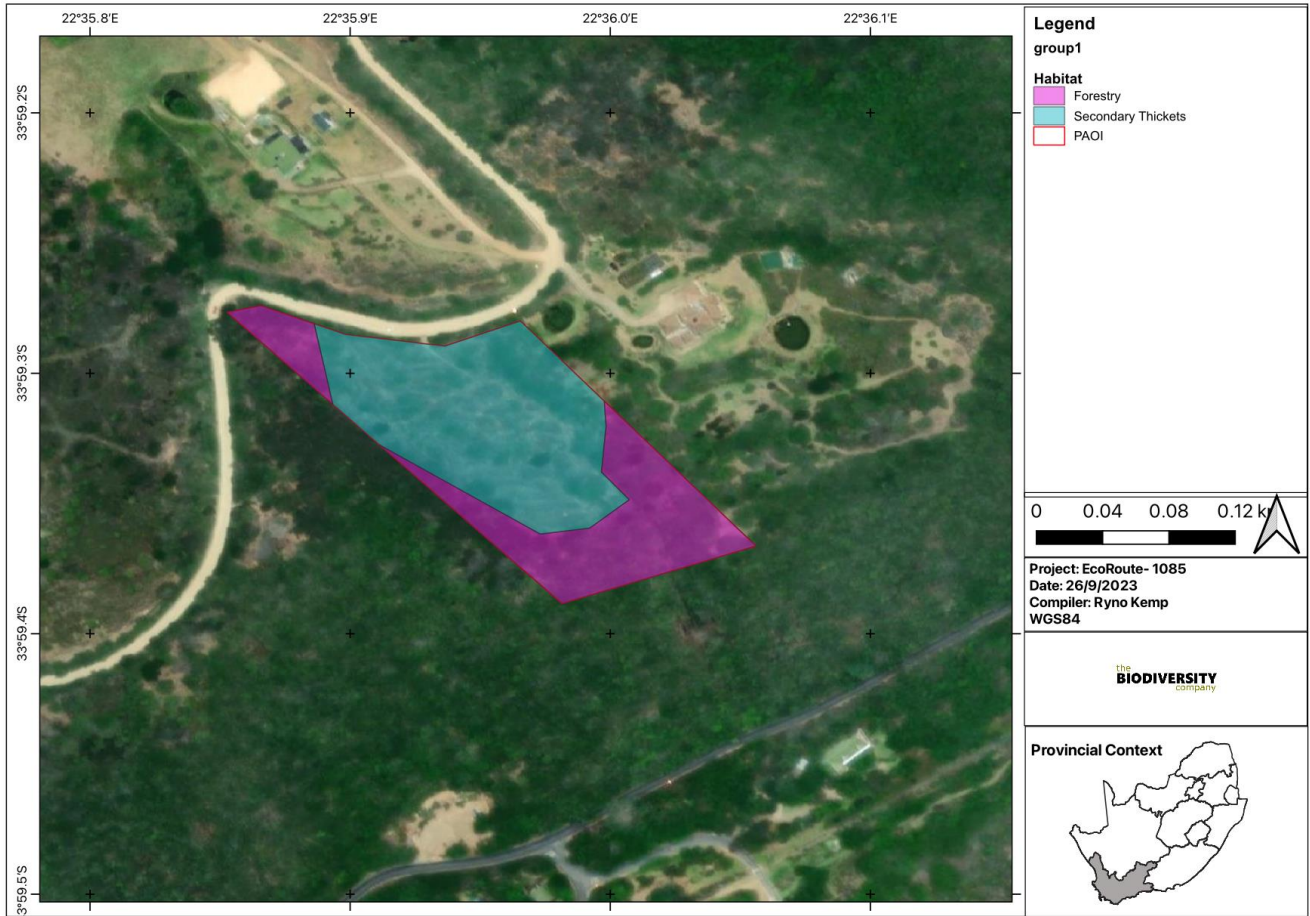
- ❖ Certificate of attendance attained for ArGIS Basic Training, 4 May – 8 May 2015. ESRI South Africa.
- ❖ Certificate attained for Basic Training Course for Environmental Management Inspector, 17 November 2014 - 15 December 2014. Western Cape Department of Environmental Affairs and Development Planning.
- ❖ Certificate attained for Fire Ecology and Conservation Short Course, 14-18 July 2014. NMMU Saasveld.
- ❖ Certificate attained for EIA Short Course, 13-17 May 2013. Rhodes University.
- ❖ Computer literacy: Microsoft Office including Word, Excel, Powerpoint, Access and photodraw V2, Statistica, StatPlus, FISAT II, ArcView GIS 3.2, ArcMap GIS, Coral Draw.
- ❖ Drivers license code 08

REFERENCES ARE AVAILABLE ON REQUEST

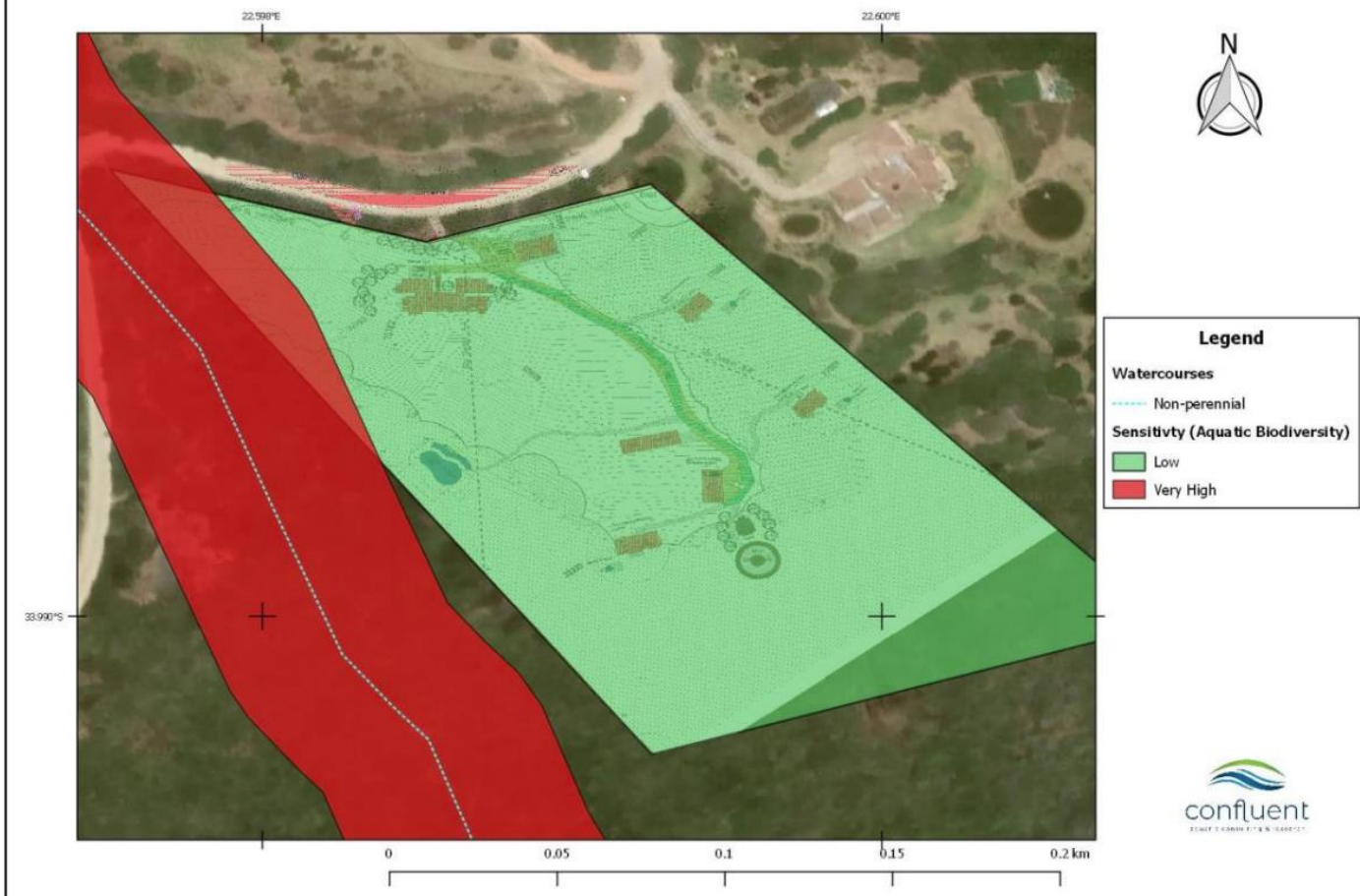
Janet Ebersohn
Lead EAP: Eco Route Environmental Consultancy
Email: janet@ecoroute.co.za

Pamela Booth
Manager: Environmental Management Department, Knysna Municipality
Email: pbooth@knysna.gov.za / Cell: 060 998 6967

ANNEXURE 2: Mapping of Environmentally Sensitive Areas



Sensitivity (Aquatic Biodiversity)



ANNEXURE 3: Site Development Plan (SDP)

HOEKWIL ERF 1058
scale 1:500 @ A1

Proposed Site Development Plan
V17

Drawn: M Badenhorst
Plan no. SDP17
16/08/2023

COVERAGE:		COVERAGE:	
Total Site Area :	30108m ²	100 %	
BUILDINGS		HARD LANDSCAPING	
Main House	280m ²	Driveway & Park	291m ²
Garage/Office	170m ²	Kitchen Yard	35m ²
Tourist Accom		Service Road	270m ²
Unit 01	80m ²	Swimming Pool	240m ²
Unit 02	80m ²	3 x Jacuzzi Decks	48m ²
Unit 03	80m ²	Footpaths	95m ²
Sauna House	40m ²	Outdoor Lapa	42m ²
Rehab Area	90m ²	Shaded Parking	72m ²
TOTAL TOP		TOTAL	
STRUCTURES :	820m ²	2,8 %	LANDSCAPES :
			1093m ²
			3,6 %

