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REGISTRATION NO. 1998/031976/23

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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:

The Proposed Development of a Beachfront Security Estate on Portion 66 & 67 of Farm 443, Plettenberg Bay, Western Cape.

DEA&DP REF: 16/3/3/1/D1/14/0028/22

PREPARED FOR THE APPLICANT:	ATHINA DEVELOPMENT PTY LTD
PREPAPRED BY:	ECO ROUTE
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ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS:

Appendix 4 of Regulation 982 of the 2014 EIA Regulations contains the required contents of an Environmental Management Programme (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:-

(a) Details of – (i) The EAP who prepared the EMPr; and (ii) The expertise of the EAP to prepare an EMPr, including a curriculum Vitae;	This EMPr was prepared by Janet Ebersohn of Eco Route Environmental Consultancy. Janet has a BSc. Honours in Environmental Management and has 14 years' experience as an Environmental Assessment Practitioner. Please see attached CV of the EAP (Annexure A).
(b) A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 2 provides specific project details.
(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;	Section 4 provides mapping which superimpose the proposed activity onto environmentally sensitive areas.
(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 – (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;	Addressed in Sections 3, 4 and 10.
(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 – (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;	Addressed in Sections 3, 4 and 10.

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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.

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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	**Environmental Assessment Practitioner –** An EAP and a specialist, appointed in terms of regulation 12(1) or 12(2) must – (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 applicant 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 – 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. (2) In the event where the EAP or specialist does not comply with sub regulation (1)(a), the applicant 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. (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).

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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.

This Environmental Authorisation is granted for the period from date of issue until **31 July 2028**, during which period the Holder must ensure that the—

- physical implementation of all the authorised listed activities is started with and concluded at the site;
- construction monitoring and reporting requirements are undertaken at the site and submitted to the Competent Authority in time to allow said authority to process such documents timeously;
- post construction rehabilitation and monitoring requirements is undertaken and completed at the site; and
- environmental auditing requirements are complied with, and that such auditing is finalised in time to allow the competent authority to be able to process the environmental audits timeously within the specified validity period.

The construction phase of the Environmental Authorisation is subject to the following:

- The Holder must finalise the post construction rehabilitation and monitoring requirements within a period of 3-months from the date the development activity (construction phase) is concluded.

The Holder is authorised to undertake the listed activities specified in the Environmental Authorisation in accordance with the Preferred Alternative described in the FBAR dated 5 April 2023 on the site as described in Section 2 below.

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The Environmental Authorisation is only for the implementation of the Preferred Alternative which entails:

- The Holder is herein authorised to undertake the following activities that includes the listed activities as it relates to the development of structures and infrastructure within 100 metres of the high-water mark of the sea and the littoral active zone, the clearance of indigenous vegetation of more than 300m2 , development of roads wider than 4 metres and the excavation of more than 5m3 of sand within 100 metres of the high-water mark of the sea and littoral active zone for the development of a small beachfront estate (9 residential stands) on Portion 66 and 67 of the Farm 443.
- The development must be implemented in accordance with the layout developed by Objek Architects (dated 16/06/2022) Drawing number 10_02 (Annexure B).

The Environmental Authorisation may only be implemented in accordance with an approved Environmental Management Programme ("EMPr").

The Holder shall be responsible for ensuring compliance with the conditions by any person acting on his/her behalf, including an agent, sub-contractor, employee or any person rendering a service to the Holder.

Any changes to, or deviations from the scope of the alternative described in section B above must be accepted or approved, in writing, by the Competent Authority before such changes or deviations may be implemented. In assessing whether to grant such acceptance/approval or not, the Competent Authority may request information in order to evaluate the significance and impacts of such changes or deviations, and it may be necessary for the Holder to apply for further authorisation in terms of the applicable legislation.

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, mitigatedand kept to a minimum during the planning, construction and operation of the proposed housing 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 Applicant.
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.

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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 applicant **Athina Development (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.

The proposal is to consolidate the two land portions and to create a small exclusive beachfront security estate. The development concept includes 9 residential stands that vary between ±1319m² and ±1987m² in size. Each house will be positioned within the pre-defined disturbance area, as per the SDP (figure ..). The maximum bulk of the homes will be restricted to 850m² per stand, with the exception of outbuildings and garages. All houses are limited to two storeys, up to a maximum height of 8m for the five front (sea row) and 8,5m for the other four units, above natural ground level (NGL). The five units along the sea front will require a setback of 2m at the first floor level along the East side of the disturbance area.

The entrance driveway will be paved, leading to a security entrance gate and guard house. The driveway is purposely made as short as possible, servicing the entrances to each stand. Access will be directly from Robberg Bay Road (Minor Road 4(a)K).

The property will be fenced and gated, however access to the frontal / coastal beach walking trail, will not be denied. The whole of the property will be fenced in with 1,8m high Clearview Fencing. This patent-type fencing is designed to be very unobtrusive and non-evasive, compared to other types of boundary walls or fences.

The development will be controlled by a Homeowners Association and the design of houses will be subject to Architectural Design Guidelines that will ensure an aesthetically pleasing development that blends in with the surroundings. The Architectural Design Manual covers all aspects of the 'look and feel' of the proposed development, to assure that the colour schemes blend in with the landscape, the height restriction fits in with the Local Authority scheme regulations, and that all efforts to make the visual impact on the landscape as minimal as possible.

The engineer is responsible for monitoring the compliance of the contractor to the approved EMPr. To assist the Engineer and to bring environmental expertise to his team, it is required that the Engineer appoints an appropriately qualified Environmental professional with expertise in EMPr's to act as the Environmental Control Officer (ECO) for the project.

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2.1. Site Description

Erf Number:	Portion 66 and 67 of the Farm Brakkloof 443
Area:	16909.97m^2 8658.85m^2
SG Code:	C03900000000044300066
Co-ordinates:	34° 05 '24" S 23° 22'13" E

2.2. Locality

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 and included in the *Home Owners / Resident and Rate Payers Constitutions*.

The relevant Key Issues with regard to the Receiving Environment include:

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- Areas of Ecological Importance/sensitivity must be identified and demarcated as "No Go Areas", particularly the **primary dune system** to the east of the property.
- A **stormwater drainage** system is necessary, the system should lead run off water away from sensitive areas, in order to prevent soil erosion and contamination. The use of grass blocks on paved driveways, roadway kerb and channel side drain, and stilling gabion chamber/retention chamber to assist percolations of stormwater.
- **Sedimentation and pollutant runoff** from the development during construction may impact the wetland and its buffer area to the west of the property.
- **Removal of topsoil** must only be allowed in the disturbance area and undertaken prior to commencement of construction activities and stored for later use during the Rehabilitation Phase of the development. This will largely determine the success and rate of rehabilitation.
- Allow for the maintenance of **animal movement** through the creation of ecological corridors specifically in an east-west direction. Establish a six (6) metre wide ecological corridor along the northern boundary of the development, maintained as a servitude for conservation purposes. No structures or infrastructure may be constructed in this servitude without authorisation. The 6 meter wide servitude to the north will remain unfenced, and rehabilitated with indigenous vegetation to encourage animal movement between the wetland and dune systems. 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.
- **Alien plant infestation** (particularly by *Acacia cyclops*) impacting biodiversity and ecological processes. This will be systematically removed on construction of the development and controlled throughout the operational phase.
- **Fire risk** mostly posed by alien vegetation. The previous fire on the affected area was largely due to dense infestation of flammable alien plants on these and adjacent properties. The removal of the alien vegetation will mitigate fire risk to a large extent. There are well-placed/planned defensible spaces (landscaped area within portion) around the structures/houses which will offer additional structural protection against possible wildfires moving into the development. These defensible spaces should be properly maintained. Highly burnable vegetation or flammable material should not be present within these defensible spaces. The road network within the development will also limit any spread of fires within the proposed development. The main road to the west of the property will also add additional protection and should offer reasonable protection. It cannot be expected landowners/homeowners to make provision for extreme wildfire events.
- **Erosion and blow-outs** due to removal of organic rich topsoil and disturbance of vegetation on sandy environment. 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. The disturbed open space areas will be rehabilitated with indigenous vegetation.
- The **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.

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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

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- 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 and associated infrastructure**			
Description of impact	Loss of sensitive dune vegetation, habitat loss for terrestrial wildlife, mortalities to various species unable to evade the disturbance, loss of viable propagules, fragmentation of ecological infrastructure			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• 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. • 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. • Only areas necessary for the development footprint should be cleared and the remainder of the property should be left natural. • During the construction phase of the proposed development, disturbance to the primary dune system must be avoided. • 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	High	Natural and/ or social functions and/ or processes are significantly altered	Low	Natural and/or social functions and/or processes are somewhat altered

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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	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	High	The resource is damaged irreparably but is represented elsewhere	Low	The resource is not damaged irreparably or is not scarce
Significance	**Minor - negative**		**Negligible - negative**	
Comment on significance	The high infestation of alien species at the site, together with the absence of plant SCC (high confidence) translates to a **LOW** site sensitivity.			
Cumulative impacts	The impact would result in insignificant cumulative effects			

Project Phase	**Construction**			
Impact	**Primary Dune System**			
Description of impact	Impacts on natural coastal foredune habitat, increased wind erosion			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• The primary dune system at the beach front (mostly outside the properties) must not be disturbed during the construction phase of the development. • This area must be actively excluded from the developed area and must not suffer the dumping and other negative impacts that so often accompany building projects. • The area must be designated as a "No Go" area. • Invasive alien vegetation must be removed from the dunes to restore the fragmented areas along the dune. • Areas cleared of AIP must be rehabilitated with indigenous endemic species according to the Plant List (Appendix 12).			
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	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	High	Substantive supportive data exists to verify the assessment	Medium	Determination is based on common sense and general knowledge

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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	Medium	The resource is damaged irreparably but is represented elsewhere	Low	The resource is not damaged irreparably or is not scarce
Significance	**Minor - negative**		**Negligible - negative**	
Comment on significance	This is an important coastal habitat that should be conserved for biodiversity conservation, to prevent increased wind erosion and as a minor faunal corridor along the edge of the property.			
Cumulative impacts	The impact would result in insignificant cumulative effects			

Project Phase	**Construction**			
Impact	**Sedimentation**			
Description of impact	Sedimentation of the wetland caused by erosion from the construction site and road upgrade.			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• A silt fence must be installed perpendicular to the angle of the slope to trap any soil or sediment mobilised from the site during the construction phase. • Silt fences must be installed between the site and the Robberg Road, and in between Robberg Road and the buffer. • The site must be monitored after every rainfall event to ensure that no sediment is being washed into the wetland by erosion. • The laydown area and stockpiles of construction materials or excavated materials must be located on as flat an area as possible and should not drain towards the wetland. If necessary, stockpiles must be protected (e.g. through use of sandbags and/or tarpaulins) to prevent materials being washed downslope towards the wetland. • The vegetated buffer zone of the wetland must not be disturbed during construction and road upgrade.			
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

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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	The lower section of the development slopes down towards the wetland. Clearing areas of the site and the road in preparation for construction will expose bare soil which could potentially be mobilised into the wetland during heavy rainfall events. The buffer is however expected to provide good protection under such circumstances.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	**Construction**			
Impact	**Stormwater runoff and erosion**			
Description of impact	Erosion from exposed surfaces / earthworks for installation of services and roadways			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• Adequate drainage and erosion protection must be provided around the site and where necessary. • Erosion prevention and control measures must be implemented. This may be by the use of mulch bags or silt fences. • Pipelines to be placed in consultation with and to recommendations of the ECO. • Install a series of berms across the internal access road to retard flow from higher areas. • The proposed gabion retention pond needs to be constructed first with site runoff discharged into it. • The gabion retention/silt pond needs to be cleaned out prior to handing over the internal services. • Building sites need to be surrounded with a trench and berm arrangement to contain all building site runoff. • Wind erosion should be limited by using mesh netting set up around any cleared footprints as soon as clearing has taken place. • Install permeable paving (e.g. grass blocks) in parking areas / driveways as this encourages water infiltration instead of surface runoff. • Revegetate all bare areas of soil post-construction with indigenous vegetation.			
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	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

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				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	The development has a small catchment area. The development has permeable dune sand soil conditions and noticeable runoff is not envisaged. There are also large open areas where runoff can be dissipated.			
Cumulative impacts	Without mitigation this impact could result in potential erosion downhill of the site caused by stormwater flow.			

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	• Topsoil for trenching along the route for installation of services to be removed to 150 mm deep, maintained and replaced as the final compacted layer in the road reserves. • Regular compaction tests to be done to ensure adequate soil compaction in pipeline trenches. • In trenches of slopes over 25% grade - bio textiles and reseeding to be used to rehabilitate and protect the compacted topsoil. • 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
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

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				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 and the road 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 downhill of the site caused by stormwater flow.			

Project Phase	**Construction**			
Impact	**Waste Pollution**			
Description of impact	Pollution of wetland and buffer caused by waste generated by the construction process.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	• All construction waste generated on-site during construction must be adequately managed. Separation and recycling of different waste materials should be supported. • All construction waste materials must be collected and disposed of at a suitable waste facility. • No dumping of construction material within the wetland or wetland buffer may take place. • The buffer and wetland area must be monitored on a weekly basis to clean-up any waste that may have been blown from the construction site; and • Adequate sanitary facilities and ablutions must be provided for all personnel throughout the project area. Use of these facilities must be enforced (these facilities must be kept clean so that they are a desired alternative to the surrounding vegetation).			
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

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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 wetland and buffer area. In addition, the high numbers of construction workers present on site will generate a significant amount of human waste, which could also pollute the wetland.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	**Construction**			
Impact	**Construction Vehicles**			
Description of impact	Impairment of water quality and disturbance to buffer caused by the operation of vehicles and heavy machinery within close proximity to the wetland.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	• Construction activities must be confined to clearly demarcated areas so as to prevent unnecessary disturbance to the wetland and buffer. • No vehicles are to park or operate within the buffer of the wetland (i.e. all activities must be restricted to Robberg Road or the eastern side of Robberg Road). • 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. • No fuel storage, refuelling, vehicle maintenance or vehicle depots to be allowed on the slope leading towards the wetland. • 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 the buffer of the wetland. • 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

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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 in close proximity to the wetland could result in spillages or leaks of hydrocarbons (fuel and oil) and could lead to unnecessary disturbance of the wetland and its buffer.			
Cumulative impacts	The impact would result in insignificant cumulative effects.			

Project Phase	**Construction**			
Impact	**Geotechnical restraints due to sandy soils**			
Description of impact	Settlement issues, slope stability problems, potential erosion.			
Mitigable	High	Mitigation exists and will considerably reduce significance of impacts		
Potential mitigation	• 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 of complete cover of locally chipped woody material (for example *Acacia cyclops* stems and branches but not the seed pods). **Foundations:** • The four stands positioned to the west of the site are on top of the respective dunes and care is required to minimize damage to the surrounding environment and here mini or bored piles could be employed after a platform has been cut. • On the remainder of the sites (five eastern stands) where the existing ground level is more even rafts and re-compaction operations can be done and side slopes can be protected by shoring. • The founding conditions improve with depth in these dune sand areas. • Organic matter, such as roots and humus/topsoil should be removed from the footprint of structures and stockpiled separately for landscaping purposes. • Excavations may be highly unstable at angles steeper than 35° and battering or shoring of excavation sidewalls may be required. Lateral support systems may be required along site boundaries. • Piled foundations should only be considered for excessively heavy structures as this method is generally uneconomical in the area due to high establishment costs of specialist contractors.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Negative	
Duration	Permanent	Impact may be permanent, or in excess of 20 years	Brief	Impact will not last longer than 1 year
Extent	Very limited	Limited to specific isolated parts of the site	Very limited	Limited to specific isolated parts of the site
Intensity	Very high	Natural and/ or social functions and/ or processes are majorly altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Certain / Definite	There are sound scientific reasons to expect that the	Rare / improbable	Conceivable, but only in extreme circumstances, and/or might occur for this

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		impact will definitely occur		project although this has rarely been known to result elsewhere
Confidence	High	Substantive supportive data exists to verify the assessment	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**		**Negligible - negative**	
Comment on significance	The natural angle of repose is at least approximately 40° but excavated faces in the neighboring property remained marginally stable for extended periods at over 50°. This was especially evident where there were fine roots present in the excavated face. Shoring was not required in cut of up to 2m deep.			
Cumulative impacts	Without mitigation, the geotechnical restraints on the site could result in significant destruction to the development site.			

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	• 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 and Landscaping**			
Description of impact	Visual & aesthetic consequences of the proposed project			
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts		
Potential mitigation	• The Architectural Design Guidelines proposed for the development must be adopted to mitigate the colours, heights, disturbance areas, maximum footprint, vegetation, etc, which will all contribute to a smaller visual impact on the landscape. • The necessary measures be implemented during the construction phase to protect the natural vegetation, to control the noise, dust and visual intrusion. • Appoint a Landscape consultant to recommend and implement the introduction of an indigenous landscape plan to protect the existing indigenous vegetation and to prepare a landscape plan for implementation in the private and common areas. • Cultivated landscaping must be minimized and the indigenous coastal vegetation must instead be encouraged. • The design of any new dwellings / structures must be executed with excessive sensitivity to any existing indigenous trees and coastal vegetation. • Implement external lighting restrictions and guidelines.			
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	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	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
Reversibility	Medium	The affected environment will only recover from the	High	The affected environmental will be able to recover from the impact

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		impact with significant intervention		
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	• 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.			

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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	• Municipal by-laws need to be adhered to. • Re-vegetation and landscaping of open space areas with suitable indigenous vegetation. • Indigenous landscape plan to be followed to protect the existing indigenous vegetation and for management of private and common areas. • Systematic removal and follow-up operations of invasive alien plants. • Adhere to Architectural Guidelines and Design Manual.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		Negative Low	
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	Low	Natural and/ or social functions and/ or processes are somewhat altered	Negligible	Natural and/ or social functions and/ or processes are negligibly 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 environmental 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. The planned residential development will be similar to existing and planned residential developments to the north and south of the property. The site lies within the urban edge for Plettenberg Bay and the proposed upmarket residential development is compatible with surrounding land uses. 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.			

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Cumulative impacts	Without mitigation the development would not be meeting design guidelines enforced by the municipality. Specifically design guidelines for the local area.

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	• A storm water drainage system as indicated in the EMPr must be adhered to and the system should lead run- off water away from sensitive areas, in order to prevent any soil erosion. • Use rainwater collection tanks to serve as a retention vessel in downpours. • Driveways can be constructed from grass blocks to allow for effective retarding of surface flow and facilitate percolation. • The common roadways will have a kerb and channel side drain where mostly water from the road is collected, transported and transferred to a trapezoidal grass block side drain and discharged into an effective 1,2m deep stilling gabion chamber that will also serve as a silt trap. • The retention chamber will facilitate percolation and will not have an outlet.			
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 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**		**Minor - negative**	
Comment on significance	The development has a small catchment area. The development has permeable dune sand soil conditions and noticeable runoff is not envisaged. There are also large open areas where runoff can be dissipated.			
Cumulative impacts	Without mitigation this impact could result in potential erosion downhill of the site caused by stormwater flow.			

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Project Phase	**Operation**			
Impact	**Stormwater Runoff into Wetland**			
Description of impact	Alteration of surface flows into the wetland caused by increased stormwater runoff.			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• Stormwater from erven on the west facing slope of the development must be attenuated on site. • Stormwater from the access road leading into the development must be attenuated onsite (prior to any discharge into the buffer of the wetland). • A suitable stormwater plan must be compiled for the section of Robberg Road that will be tarred and upgraded. The plan must discharge stormwater into the adjacent buffer area without causing any erosion. The runoff velocity of stormwater must therefore be reduced with energy dissipaters prior to discharge into the wetland buffer.			
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	Very limited	Limited to specific isolated parts of the site	Very limited	Limited to specific isolated parts of the site
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat 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	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	**Minor - negative**		**Negligible - negative**	
Comment on significance	The development will result in an increase in the area of paved/hardened surfaces. This will generate increased volumes of stormwater runoff which will flow down towards the wetland. The main entrance road leading from Robberg Road into the development is also likely to become an important conduit for stormwater down towards the wetland, as will the upgraded section of Robberg Road. Existing developments along tarred sections of Robberg Road (to the south) have not resulted in obvious impacts the wetland as a result of stormwater runoff. Adequate management of stormwater should therefore effectively minimise the intensity of this impact.			
Cumulative impacts	Without mitigation this impact could result in potential stormwater runoff downhill of the site towards the wetland.			

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Project Phase	Operation			
Impact	Impervious Surfaces and Foundations			
Description of impact	Alteration of sub-surface flows into the wetland caused by impervious surfaces and foundations			
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts		
Potential mitigation	• Stormwater management should encourage infiltration of water into the soil profile and other on site attenuation (i.e. using grass pavers etc.).			
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	Very limited	Limited to specific isolated parts of the site	Very limited	Limited to specific isolated parts of the site
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	Probable	Has occurred here or elsewhere and could therefore 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	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	Minor - negative		Negligible - negative	
Comment on significance	Hardened surface and establishment of foundations for houses may impede sub-surface flows towards the wetland, although these are not expected to form a major or important contribution to the water balance of the wetland. This is supported by the fact that the numerous developments around the wetland do not appear to have affected the size of the wetland area over time.			
Cumulative impacts	Without mitigation this impact could result in the impediment of sub-surface flow to the wetland.			

Project Phase	Operation	
Impact	Pollution entering surrounding environment	
Description of impact	Sewage spills caused by operation of the new sewage pipeline	
Mitigable	High	Mitigation exists and will considerably reduce the significance of impacts
Potential mitigation	• Undertake routine maintenance of pumps and other critical infrastructure according to a prescribed schedule. • Plan sewage transfers so as to avoid unnecessary overloading of the pumpstation or the rising main, particularly during peak periods. • The design of the pumpstation will allow for 11 hours of emergency storage – which is almost three times the requirement of 4 hours and should therefore be able to accommodate loadshedding schedules.	

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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 specific isolated parts of the site	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	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	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	**Minor - negative**		**Negligible - negative**	
Comment on significance	The sewage reticulation will require the construction of a sewage pumpstation to pump sewage from the development along a new sewage rising main and into the existing municipal gravity network. Spillage from pumpstations frequently occur due lack of maintenance and, more recently, due to loadshedding. Impacts from spillages are not anticipated to have a high intensity impact on the wetland due to the wide buffer in between the wetland and the development. Furthermore, the lack of flow through the wetland system will result in a very localised impact should spillages occur. Finally, the dense vegetation throughout the wetland will further limit the migration of spills and break harmful bacteria down relatively quickly.			
Cumulative impacts	Without mitigation this impact could result in accumulation of pollutants in the wetland.			

Project Phase	**Operational**
Impact	**Landscape Connectivity**
Description of impact	Cut-off of natural dispersal and foraging movement by animals, impacts on suitable link or important corridor, fragmentation of ecological infrastructure
Mitigable	Low — Mitigation will slightly reduce the significance of impacts
Potential mitigation	• The 6m wide servitude along the northern boundary of the development area can serve as a minor corridor for smaller wildlife, linking the wetland to the west with the coastal dunes to the east. • The eastern and western border of the servitude running along the northern boundary of the development must remain unfenced to allow wildlife to move between the coastal dune system and the wetland. Vegetation within this servitude should also not be cleared and must be maintained in a natural state. Control of alien invasive species must be undertaken if necessary.

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	• Biodiversity conservation of the important coastal foredune habitat that serves as a minor faunal corridor along the edge of the property.			
Assessment	**Without mitigation**		**With mitigation**	
Nature	Negative		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	Very limited	Limited to the site and its immediate surroundings	Very limited	Limited to the site and its immediate surroundings
Intensity	Medium	Natural and/or social functions and/or processes are notably altered	Low	Natural and/or social functions and/or processes are somewhat altered
Probability	Almost certain	It is most likely that the impact will 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	Medium	The affected environment will only recover from the impact with significant intervention
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**		**Minor - negative**	
Comment on significance	The natural fauna in the foredune and wetland areas may be intact, but the line of development along the coast has effectively cut-off natural dispersal and foraging movement by animals (with the exception of some birds) between the two habitat types in the area. The study site thus represents a very narrow and relatively natural link between the natural habitats between the foredune area and the wetland. This link is however not considered to be a suitable link or important corridor due to its narrow width and its generally poor condition, translating to a **LOW** site sensitivity. The properties fall within an ESA that has been designated as an ecological corridor. It is likely that some wildlife may use the wetland as a refuge and move in between the wetland and the coastal dune system. The development of the property will fragment this ESA which could affect the movement of wildlife.			
Cumulative impacts	The impact would result in insignificant cumulative effects			

Project Phase	**Operational**	
Impact	**Primary Dune System**	
Description of impact	Impacts on natural coastal foredune habitat, increased wind erosion	
Mitigable	Medium	Mitigation exists and will notably reduce significance of impacts
Potential mitigation	• The primary dune system at the beach front (mostly outside the properties) must not be disturbed during the operational phase of the development. • This area must be actively excluded from the developed area and must not suffer the dumping and other negative impacts associated with the operational phase. • Access to the beach must be restricted to one existing footpath as per the SDP. • No additional or new access routes to the beach is allowed. Any access routes other than the existing footpath as per the SDP must be closed and rehabilitated. • The footpath must be designated using appropriate signage ("Keep Off Sensitive Dune", "Stay on Path", "Conservation Area").	

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	• Areas on the footpath susceptible to erosion, such as steep slopes, should be stabilised using suitable measures, as discussed with the ECO. • The development must provide the public unrestricted access to the coastal public property. A coastal access point should be established and maintained on the site.			
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	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	High	Substantive supportive data exists to verify the assessment	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	Medium	The resource is damaged irreparably but is represented elsewhere	Low	The resource is not damaged irreparably or is not scarce
Significance	**Minor - negative**		**Negligible - negative**	
Comment on significance	This is an important coastal habitat that should be conserved for biodiversity conservation, to prevent increased wind erosion and as a minor faunal corridor along the edge of the property.			
Cumulative impacts	The impact would result in insignificant cumulative effects			

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	• 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. • The suitable planting list of trees and shrubs must be used, and is incorporated into this EMP (Section 12). • An Alien Control Plan should be compiled 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**

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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	Very high	Natural and/ or social functions and/ or processes are majorly 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	**High - negative**		**Moderate - positive**	
Comment on significance	The habitats available on the study site are all anthropogenically impacted, to a variable degree, but the current situation is set to deteriorate swiftly due to the devastating impact of invasive alien *Acacia cyclops*, which in the last few years has spread over much of the site and which will mature to the further detriment of all indigenous plant and animal species.			
Cumulative impacts	Without mitigation the development would not be meeting design guidelines enforced by the municipality. Specifically design guidelines for the local area.			

Project Phase	**Operation**			
Impact	**Formal gardens**			
Description of impact	Habitat loss for terrestrial wildlife, fragmentation of ecological corridor			
Mitigable	Low	Mitigation will slightly reduce the significance of impacts		
Potential mitigation	• 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. • Investing landowners within the proposed development should be encouraged to avoid planting exotic plants in favour of locally indigenous plants. • Semi-formalised gardens must be entirely endemic indigenous and no Kukuyu grass will be permitted. • Many of the dune-scrub plants are easy to propagate and many are available at nearby nurseries. A list of suitable plants is be included in this EMP (Section 12).			
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

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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	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. Palaeontological

- No palaeontological material of any importance was observed and no mitigation is therefore specified.
- It does however remain possible that after the bush has been cleared, or during construction, large mammal bones may be uncovered – associated with midden deposits, former hyena dens or on their own.
- Should any such materials be suspected to be present, during clearing, levelling or excavation of foundations a palaeontologist should immediately be contact to assess the occurrence.

4.2. Terrestrial Plant Species

- Permission must be attained from the relevant authority (DEFF) to remove any of the specially protected Milkwood trees (*Sideroxynoninerme*) that still occur on the properties, even though they are small due to the recent fire.

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- The primary dune system at the beach front (mostly outside the properties) should not be disturbed during the construction or operational phases of the development. If access will be allowed to the beach, then a board walk system will have to be constructed to minimize disturbance of this sensitive area.

In their comments DEA&DP also suggested that a fire management plan may have to be provided. I believe this is not necessary as:

- The proposed development will not have any flammable natural vegetation remaining.
- The fire risk was mostly posed by alien vegetation, which will be removed by the development.
- The previous fire on the affected area was largely due to dense infestation of flammable alien plants on these and adjacent properties.

4.3. Animal Species and Terrestrial Biodiversity

Despite the fact that the site is not important for the sensitive animal species that were identified by means of the screening tool, there are nevertheless a number of practical mitigatory measures that can be applied in relation to the proposed development. These measures are aimed at general habitat protection and improvement, and they are:

Foredune conservation:
This is an important coastal habitat that should be conserved for biodiversity conservation, to prevent increased wind erosion and as a minor faunal corridor along the edge of the property. This area must be actively excluded from the developed area and must not suffer the dumping and other negative impacts that so often accompany building projects.

Alien plant eradication:
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. The suitable planting list of trees and shrubs is incorporated into the EMP (Section 11) as must a list of the alien plants and how they should be controlled.

Garden plants:
Investing landowners within the proposed development should be encouraged to avoid planting invasive alien plants in favour of locally indigenous plants. Many of the dune-scrub plants are easy to propagate and many are available at nearby nurseries. A list of suitable gardening plants should be included in the EMP (Section 12).

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. This aspect must also be outlined in the EMP.

Substrate conservation: 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

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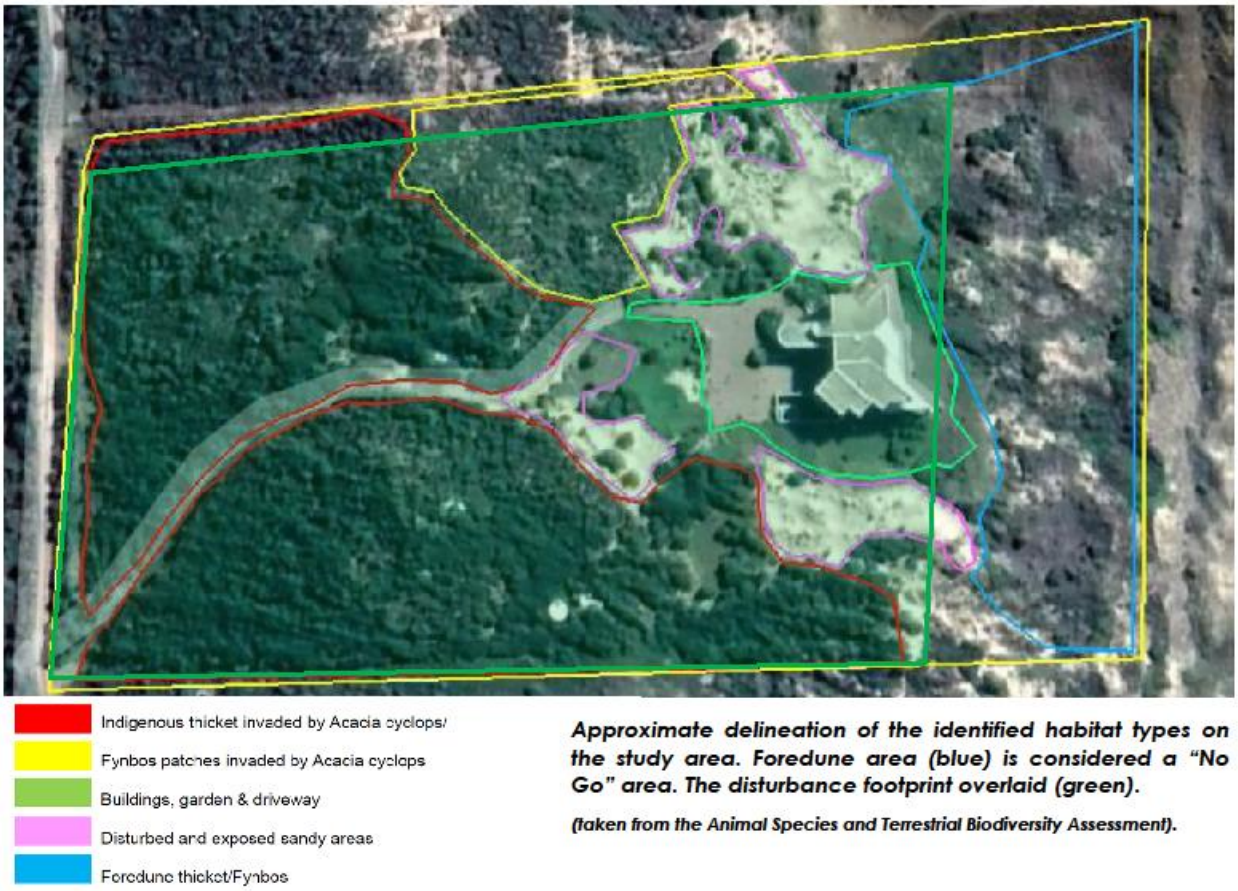
that are essential for plant growth. The detailed methodology can be described in the EMP but should incorporate a complete cover of locally chipped woody material (for example *Acacia cyclops* stems and branches but not the seed pods)

Servitude corridor: The 6m wide servitude along the northern boundary of the development area can serve as a minor corridor for smaller wildlife, linking the wetland to the west with the coastal dunes to the east, provided that it is kept clear of invasive alien plants.



Approximate delineation of the identified habitat types on the study area. Foredune area (blue) is considered a "No Go" area. The disturbance footprint overlaid (green).

(taken from the Animal Species and Terrestrial Biodiversity Assessment).

4.4. Geotechnical

Geology and substrate of the site:

The site is typical of the local coastal dune area with uneven slopes. The site geology consists of wind- blown free draining dune sands to unknown depths but from previous excavations in the area the dune sand extends at least 3.5 m deep. Typical Density tests by DCP have shown that the in-situ soil bearing capacity is between 60 and 120 kPa. The natural angle of repose is at least approximately 40 degrees but excavated faces in the neighbouring property remained marginally stable for extended periods at over 50 degrees. This was especially evident where there were fine roots present in the excavated face. Shoring was not required in cut of up to 2m deep. Standing water was not noted on the specific site or on the neighbouring site even after extended downpours.

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Foundations to be used for construction:

Various options exist to found the house structures but piling, rafts and re-compaction with reinforced strip footings are proposed. The type of foundations will depend on site density tests, slopes and architecture of the house. The sites PO 1 to 4 are on top of the respective dunes and care is required to minimize damage to the surrounding environment and here mini or bored piles could be employed after a platform has been cut. It has been our experience that the founding conditions improve with depth in these dune sand areas. On the remainder of the sites- front plots where the existing ground level is more even rafts and re-compaction operations can be done and side slopes can be protected by shoring. Standard reinforced footings can be used.

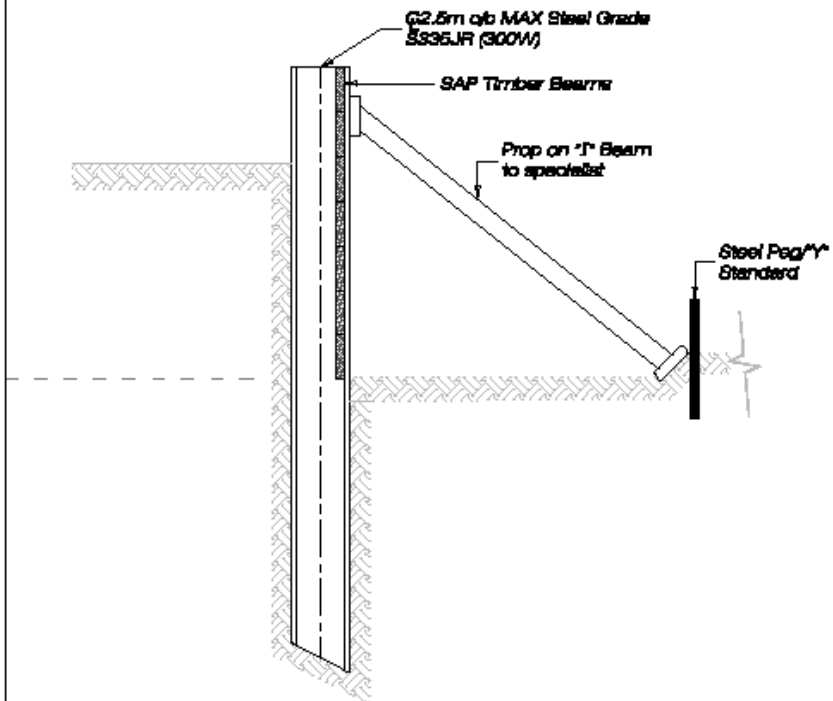
Stormwater drainage:

The development has a small catchment area. The development has permeable dune sand soil conditions and noticeable runoff is not envisaged. There are also large open areas where runoff can be dissipated. As stated above, the sands are very permeable and undevelopable areas have been provided for, this allows for fee drainage of general runoff from the houses. Each house is required by local law to provide at least one 5000 liter rainwater collection tank. This will serve as a retention vessel in downpours. Due to the large open space, runoff from the roofs and hardened surfaces can easily be dealt with on each plot without erosion. Driveways can be constructed from grass blocks to allow for effective retarding of surface flow and facilitate percolation. The common roadways will have a kerb and channel side drain where mostly water from the road is collected, transported and transferred to a trapezoidal grass block side drain and discharged into an effective 1,2m deep stilling gabion chamber that will also serve as a silt trap. The retention chamber will facilitate percolation and will not have an outlet.

Erosion prevention during construction:

The possible erosion during construction of the roadway and installation of services is limited to the road reserve and the chances of enough water collecting to do damage is remote. The necessary precautions need however to be taken that will include a series of berms across the internal access road to retard flow from higher areas. The proposed gabion retention pond needs to be constructed first with site runoff discharged into it. The gabion retention/silt pond needs to be cleaned out prior to handing over the internal services. Building sites need to be surrounded with a trench and berm arrangement to contain all building site runoff. The civil contract to include an environmental management plan specification where the control of on site stormwater must be specified.

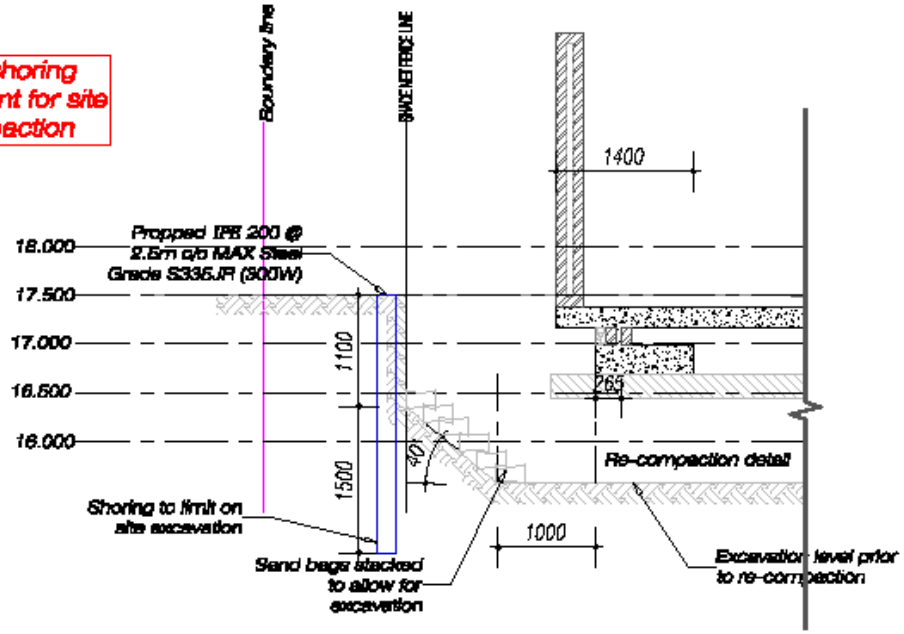
Clearing of vegetation for the construction phase must be undertaken in a phased approach such that clearing for the roads and services are undertaken first, and clearing for construction of dwellings is undertaken on approval of building plans and OSCAE permit. Details to be provided in method statement that must be compiled by the appointed Contractor for each phase of the development.



Typical Shoring Detail to minimize environmental damage

NTS

Typical shoring arrangement for site re-compaction



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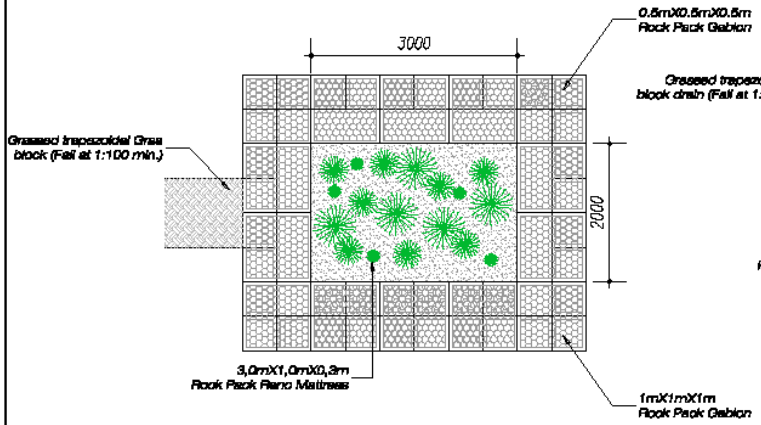
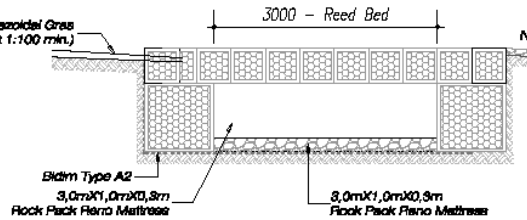
Project	Proposed Development on Ptn 66&67/443 Plettenberg Bay Athena
Layout Description	Proposed Shoring Detail
Scale:	AS SHOWN
Prepared By	KD
Proj No.	TP750/13-304/10-22
Date	20/10/2022
Dwg No.	D1
Rev	2



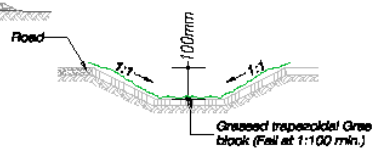
Gabion Silk Trap Detail 1

NTS



Typical Section Detail 1

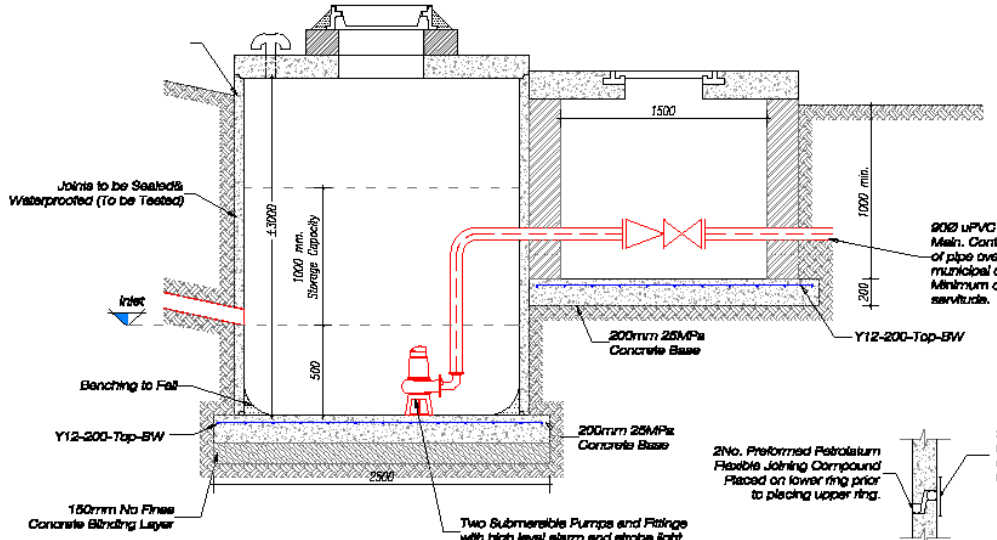
NTS



Typical Grass Block Side Drain Detail 2

NTS

Note: Emergency Storage required = 4 Hours, Actual storage= 11hours



Sewer Pump Station Section

NTS

Joint Sealer Detail

NTS

No.	Detail	Init.
1	Revised Service	22-10-27

TUINIQUA

Project

Athena

For

Proposed Sewer System
on Ptn 66&67/443
Plettenberg Bay
Athena

Description

Proposed Detail
Sewer/Stormwater

Scale: —— AS SHOWN

Prepared By: KD

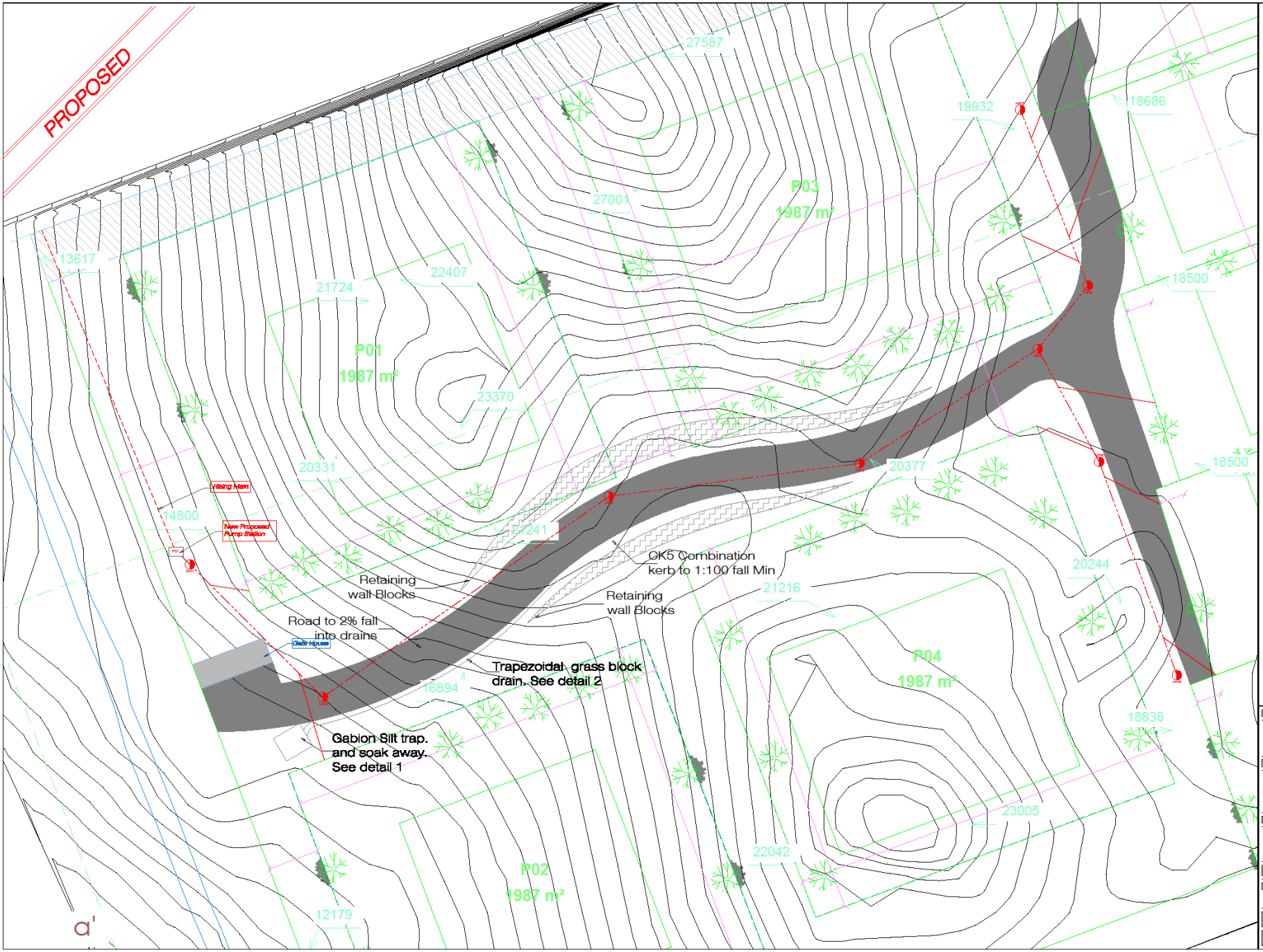
Approved By: F. Schall c Pr. Eng Reg no. 910944

Date: 20 - 10 - 2022

Drg No: B1a

Project No.: TP750/13-304/10-22

Rev: 2


PROPOSED
27587
19932
18686
27001
P03
1987 m²
13617
21724
22407
18500
P01
1987 m²
23370
20331
20377
18500
Rising Main
14800
New Proposed Pump Station
21241
OK5 Combination kerb to 1:100 fall Min
Retaining wall Blocks
Retaining wall Blocks
20244
21216
Road to 2% fall into drains
Gate House
P04
1987 m²
Trapezoidal grass block drain. See detail 2
16894
18838
Gabion Silt trap. and soak away. See detail 1
23005
22042
P02
1987 m²
12179
a'
Legend
Water main
Ø75mm Class 12 uPVC water main
Ø50mm Class 9 uPVC water main
Gate Valve
Pressure Reducing Valve
Fire Hydrant
Ø160mm Sewer main
Ø100mm Sewer main
Conservancy Tank
Ø160mm uPVC Class 34 HD Sewer main
Ø110mm uPVC
Rodding Eye
Sewer Manhole
Convert Existing Conservancy Tank To Sewer Pumpstation
Existing Gravel Road Centreline
New Gravel Road
New Paved Road
Project
Athena Estate
For
Proposed Development
Ptn 66 & 67 of 443
Plettenberg Bay
Athena Estate
Description
Proposed Sewer & Stormwater layout
Scale
1:250
Prepared By
KD
Date
20 - 10 - 2022
Drg No
B1b
Project No.
TP790/8725/05-20
Rev
P02

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4.5. Freshwater

The proposed development occurs adjacent to a large depression wetland. The PES of the wetland is B, indicating that despite the extensive urban development in the surrounding area the natural hydrological and geomorphological functions of the wetland have remained largely unaltered. The wetland is ecologically important at a local scale, most notably in terms of its connection to the Robberg peninsula (Robberg Nature Reserve) and the broader Robberg Coastal Corridor. The development will however occur well outside of the delineated area of the wetland which is also buffered by a well-vegetated buffer zone that ranges between 20 and 40 m in width, that is expected to provide adequate protection from surface runoff impacts (e.g. sediment inputs). Impacts associated with the development and the associated upgrade of Robberg Road are expected to be relatively minor and no significant modification to the hydrology, geomorphology or vegetation of the wetland is anticipated – provided that the recommended mitigation measures are implemented.

In terms of the DWS Risk Assessment, while construction and operational phase activities present a low risk to the wetland and are unlikely to affect the current PES of the wetland, the new rising sewage main that connects the development to municipal network is an exclusion under the General Authorisation. The applicant will therefore need to apply for a Water Use License.

In summary the development is unlikely to affect the current PES of the wetland and is therefore considered to be acceptable from an aquatic biodiversity perspective

4.6. Fire Management

One could argue that the landowner does have an obligation to protect the people/residence inside his/her property/development therefore he/she could be held accountable for damages to infrastructure/houses inside his/her property should a wildfire spread onto the development from neighbouring property and there were no boundary firebreaks in place. This goes beyond boundary firebreaks. Then defendable spaces must/should be created around the structures. Removing vegetation around structures within a property is regulated by other environmental legislation.

The NVFFA only focuses on reducing/limiting the spread of wildfires/vegetation fires from one property/owner to another/neighbouring property/landowner therefore the system of boundary firebreaks. If the landowner has several properties next to each other he/she does not have to have firebreaks on the boundaries of his own properties only between his/her property and the owner of the neighbouring land/property.

The last mentioned is not the only responsibility but one of the actions to be taken to limit or reduce the spread of wildfires. Protecting structures/homes inside development is another aspect that needs attention. The only other option is to reduce/remove the burnable fuel loads near the structures/houses.

By nature, veldfires do not respect property or boundaries. Without preventive measures, veldfires will continue to burn for as long as the weather is favourable and there is vegetation to burn. Anyone owning land has the first responsibility to control fires on his or her own land. But when fires burn in severe conditions they quickly extend beyond any one property, and become a problem that cannot be handled by individuals, but can only be controlled by joint, co-ordinated efforts. Veldfires are a matter of common concern. For this reason, in South Africa as in other countries, effective policies and plans for preventing and

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combating veldfires must be clear about individual responsibility as well and co-operative and co-ordinated roles and responsibilities. The landowner is an FPA member. We will engage with the landowner and will provide advice to cover the other aspects related to his/her compliance to the NVFFA (equipment needed and actions to be taken when there is a vegetation fire on the property).

Recommendations:

- Implementing regulations/rules around "braai" fires /open flame fires that should be considered especially when high fire danger weather conditions are predicted.
- ensuring that access roads are kept clear for firefighting vehicles to have unobstructed access to the structures/houses.
- work collaboratively with local authorities - develop an emergency preparedness plan that outlines the steps to take in the event of a fire. The plan should include protocols for notification, evacuation, and communication with local authorities.
- overall, the goal of the fire management plan should be to prevent wildfires from starting and spreading within the development and to minimize the impact of any fires that do occur.

The owner's responsibility towards wildfires regarding the NVFFA will change when the development takes place. In future when and if the neighbouring properties are also being developed (wall to wall) there will be no need for firebreaks between properties. The more vegetation is cleared/removed inside the property so will the risk factor change. Also, there is no applicable legislation/regulations that focus on the protection of structures/houses within a property or development relating to wildfires/vegetation fires. There are many building codes and regulations on gas installations, and electrical installation certification but nothing on defensible areas around structures. My advice will be to remove all the burnable vegetation around the houses/structures but this will be in contravention of other environmental legislation (for instance OSCA).

The way the structures/houses are spaced, and the defensible spaces and roads indicated on the site plan should provide/offer reasonable protection for the proposed structures on the property. Much more opposed to if the vegetation is allowed to grow continuously up to the structures. Again, it is not reasonable to expect a landowner to make provision for extreme wildfire conditions. If this was the case then all the surrounding burnable vegetation should be removed around and near structures/houses. I can only give advice related to the NVFFA. Even if the alien vegetation is being reduced the natural indigenous vegetation (Fynbos) will/can also pose a risk if not managed properly. This might include the use of fire to manage the fuel loads or regularly brush-cutting the surrounding vegetation on the property and even on the surrounding/neighbouring properties. Again, by nature, veldfires do not respect property or boundaries. Without preventive measures, veldfires will continue to burn for as long as the weather is favourable and there is vegetation to burn.

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 Applicant), the Site Manager and the ECO; acknowledging that all parties are familiar with the requirements of the EMPr. All employees, especially the machine and equipment operators, are to be made aware of the conditions as contained in the EMPr as well as the contractual conditions relating to the environment as contained in the contract document.

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5.2. Legislation

Of importance are all national, provincial and municipal by-laws and regulations. Statutes are amended periodically and it is the Applicant'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)/ Department of Economic Development, Environmental Affairs &Tourism	Relevant Consideration
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

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5.3. Project Responsibilities

Seven calendar days' notice, in writing, must be given to the Competent Authority before commencement of any activities. The notice must make clear reference to the site details and EIA Reference number given. The notice must also include proof of compliance with Conditions 7, 10 and 12 described in the EA. Seven calendar days' written notice must be given to the Competent Authority on completion of the construction activities.

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

The project applicant 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 applicant (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 Applicant, Site Manager and the ECO.

The Site Manager 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 Site Manager 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.

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- 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.
- Brief all contractors, sub-contractor and delivery personnel on the Construction Phase Management Rules, appended to the EMPr.
- Provide Method Statements for the construction phase of the project including but not limited to stormwater, erosion, shoring (if required), dust control, stockpile and storage areas, site preparation and construction, installation of services and roadways, road upgrade, spill (hazardous material and concrete).

All fines for noncompliance of EMPr to be predetermined by Site Manager, ECO and Project Applicant, this needs to be included in method statement. Breach of the Construction Phase Management Rules can be consulted in this regard.

6. REPORTING PROCEDURES

6.1. Documentation

The EMPr must be included in all contract documentation for all phases of implementation. 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.

A copy of the Environmental Authorisation, EMPr, any independent assessments of financial provision for rehabilitation and environmental liability, closure plans, audit reports and compliance monitoring reports must

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be kept at the site of the authorised activities and be made available to anyone on request, and where the Holder has website, such documents must be made available on such publicly accessible website.

Access to the site referred to in Section 2 must be granted, and the environmental reports mentioned above must be produced, to any authorised official representing the Competent Authority who requests to see it for the purposes of assessing and/or monitoring compliance with the conditions contained herein.

6.2. Environmental Register

The Applicant 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 Applicant 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 Applicant in writing. Preceding the issuing of a NCR, the Applicant 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 Applicant should sign the Close-Out portion of the Non-Conformance Form and file it with the contract documentation.

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6.4. Emergency Response

The Applicants 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 Holder must appoint a suitably experienced Environmental Control Officer ("ECO"), for the duration of the construction and rehabilitation phases of implementation. The ECO must–

- be appointed prior to commencement of any works (i.e. removal and movement of soil);
- ensure compliance with the EMPr and the conditions contained herein;
- keep record of all activities on the site; problems identified; transgressions noted, and a task schedule of tasks undertaken by the ECO;
- remain employed until all development activities are concluded, and the post construction rehabilitation and monitoring requirements are finalised; and
- the ECO must conduct site inspections at least every 2 (two) weeks and must submit ECO Monitoring Reports on a monthly basis to the competent authority.

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

- The ECO must conduct site inspections every two weeks during the construction phase (The frequency may be increased to weekly site inspections).
- An Environmental Control Officer (ECO) must audit the site and compile an audit report on a monthly basis until rehabilitation is successful.
- All ECO monitoring reports compiled monthly during the construction phase must be submitted to the competent authority quarterly (every three months), except when there is non-compliance

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observed, in which case the ECO must bring to the competent authority's immediate attention by means of a written report.

- The ECO must conduct site inspections every two weeks during the rehabilitation phase and submit the ECO monitoring reports during this phase monthly.
- The ECO has the authority to instruct the Applicant to cease a particular operation causing or liable to cause significant environmental damage, and issue fines or penalties for non-compliance of the Environmental Management Programme/ EMPr.
- The holder of the environmental authorisation (the Applicant) 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 Holder must, for the period during which the environmental authorisation and EMPr remain valid ensure the compliance with the conditions of the environmental authorisation and the EMPr, is audited. The frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr, must adhere to the following programme:

Auditing during the non-operational phase (construction activities):

During the period which the development activities have been commenced with on the site, the Holder must ensure annual environmental audit(s) are undertaken and the Environmental Audit Report(s) submitted annually to the Competent Authority. A final Environmental Audit Report for the construction phase (non-operational component) must be submitted to the Competent Authority within three (3) months of completion of the construction phase. The Environmental Audit Report(s), must–

- be prepared and submitted to the Competent Authority, by an independent person with the relevant environmental auditing expertise. Such person may not be the ECO or EAP who conducted the EIA process;
- provide verifiable findings, in a structured and systematic manner, on–
  - the level of compliance with the conditions of the environmental authorisation and the EMPr and whether this is sufficient or not; and
  - the ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.
- identify and assess any new impacts and risks as a result of undertaking the activity;
- evaluate the effectiveness of the EMPr;
- identify shortcomings in the EMPr;
- identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;
- indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;
- indicate the date on which the maintenance/ rehabilitation was commenced with and the progress of the rehabilitation;
- include a photographic record of the site(s) applicable to the audit; and
- be informed by the ECO reports.

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The Holder must, within **7 calendar days** of the submission of the audit report to the Competent Authority, notify all potential and registered I&APs of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).

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 Applicant from the environmental conditions and requirements as set out in the EA and EMPr,or;
- Any contravention by the Applicant 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:

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- Total disregard by the Applicant 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 Applicant
- Any representative of the Applicant

7.5 Process of Issuing Non-Compliance

The appointed Environmental Control Officer (ECO) may issue a formal non-compliance to the Applicant. A copy of the non-compliance issued will be placed in the EMPr file. The Applicant 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 Applicant 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 Applicant.

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

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

On receiving a notice of non-compliance the Applicant 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.

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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 Applicant'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.

The manner and frequency for updating the EMPr is as follows:
(a) Any further amendments to the EMPr must be approved in writing by the relevant competent authority.
(b) An application for amendment to the EMPr must be submitted to the Competent Authority if any amendments are to be made to the impact management outcomes of the EMPr. Such amendment(s) may only be implemented once the amended EMPr has been approved by the competent authority.

The onus is however on the Holder to confirm the legislative process requirements for the above scenarios at that time.

Where an amendment to the impact management outcomes of an EMPr is required before an environmental audit is required in terms of the environmental authorisation, an EMPr may be amended on application by the Holder of the environmental authorisation.

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9. ENFORCING THE EMPr

Non-compliance with a condition of this environmental authorisation or EMPr is an offence in terms of Section 49A(1)(c) of the National Environmental Management Act, 1998 (Act no. 107 of 1998, as amended).

The Environmental Authorisation is granted for a set period from date of issue, during which period the listed activity must be commenced with and concluded, including the post-construction rehabilitation; monitoring requirements and environmental auditing requirements which must be concluded. The validity period and conditions of the environmental authorisation has been structured to promote the effective administration of the environmental authorisation and guidance has been provided to ensure the compliance thereof within the validity period, for example the following milestones should not be missed:

- Failure to submit the revised EMPr to the Competent Authority at least 90-days prior to the construction activities commencing on site, may result in the competent authority not being able to process / review the revised EMPr prior to the intended date of commencement.
- Failure to complete the post construction rehabilitation and monitoring requirements at least six months prior to expiry of the validity period of an environmental authorisation may result in the Holder not being able to comply with the environmental auditing requirements in time.
- Failure to complete the final auditing requirements at least three months prior to expiry of the validity period of the environmental authorisation may result in the Holder not being able to comply with all the environmental auditing and reporting requirements and may result in the competent authority not being able to process the audit timeously.
- Failure to lodge an application for amendment prior to the expiry of the validity period of the Environmental Authorisation will result in the lapsing of the Environmental Authorisation

It is advised that if any of the milestones as indicated above, might not be achieved, the Holder must consider extending the validity period through an amendment process.

The Environmental Authorisation is subject to compliance with all the peremptory conditions. Failure to comply with all the peremptory conditions prior to the physical implementation of the activities (including site preparation) will render the entire EA null and void. Such physical activities shall be regarded to fall outside the scope of the Environmental Authorisation and shall be viewed as an offence in terms of Section 49A(1)(a) of NEMA. In the event that the Environmental Authorisation should lapse, it is an offence in terms of Section 49A(1)(a) of NEMA for a person to commence with a listed activity, unless the competent authority has granted an Environmental Authorisation for the undertaking of the activity. Offences in terms of the NEMA and the Environmental Impact Assessment Regulations, 2014, will render the offender liable for criminal prosecution.

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.

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TABLE OF RESPONSIBLE PARTIES BELOW:

Responsibility	Name of Responsible Party
Applicant	Athina Development (Kyle Powter)
Environmental Control Officer/ ECO	(To be appointed)
Site Manager	(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 Applicant prior to construction commencement. This includes permits for the removal of protected plants.	Applicant	Once-off
Appointment of Environmental Control Officer	**Appointment of Environmental Control Officer**		
	An Independent ECO must be appointed at the Applicant's cost to monitor the implementation of the EMPr.	Applicant & 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 Applicant/ Contractor to the ECO and DEA&DP for approval. Method Statements must be adhered to by the Applicant/ Contractor. These relate to but are not limited to: ❖ Stormwater management ❖ Erosion control ❖ Shoring (if required) ❖ Dust control ❖ Stockpile and storage areas	Applicant/ Contractor	Prior to commencement of construction and during construction (if necessary)

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	❖ Site preparation and construction ❖ Installation of services and roadways ❖ Road upgrade ❖ Solid waste management ❖ Storage of hazardous materials (if applicable) ❖ Standard emergency procedures		
	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 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.	Applicant	Prior to commencement
Education of Site Staff on General and Environmental Conduct *A general regard for the social and ecological wellbeing of the site and adjacent areas is expected of the site staff.*	**Environmental Awareness and Training**		
	All contractors, sub-contractor and delivery personnel will be required to be briefed on the Construction Phase Management Rules (Appended to the EMPr). The main contractor must do these briefings before his staff will be allowed to work on the Estate. The main contractor remains the liable person.	Contractor	Once-off and as required
	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
	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. 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.		
	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. The induction training will, as a minimum, include the following: ➢ 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;		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	➢ 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.	Applicant	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	
	Staff must be made aware that they are not to make excessive noise e.g. shouting, hooting.	ECO & Applicant	
	All employees must undergo the necessary safety training and wear the necessary protective clothing at all times.		
	No alcohol / drugs to be present on site; no vehicles or machinery are to be operated whilst under the influence of alcohol or drugs.		
	No firearms allowed on site or in vehicles transporting staff to / from the site (unless used by security personnel).		
	No unsocial behaviour will be permitted.		
	Bringing pets onto site is forbidden.		
	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.		
	Trespassing on private / commercial properties adjoining the site is forbidden.		
	No worker may be forced to do work that is potentially dangerous or for what he / she is not so trained		
	The 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.		
Site Management	**Access**		
	No vehicles may drive onto the adjacent properties and any other no-go areas.	Contractor/ Site Manager	On-going

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Site Management		
	To ensure that the ecological integrity of the surrounding environment is maintained and preserved, the applicant 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.	Applicant/ Contractor/ Site Manager	On-going
	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.		
	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.		
	The applicant will be held responsible for any clean-up in the dune environment resulting from failure by the contractors or suppliers to properly secure material.		
	Adequate drainage and erosion protection must be provided around the site and where necessary.		
	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.		
Sewage and Sanitation	**Ablutions**		
	Contractors must make adequate provision for drinkable water and temporary toilets situated on the building site for the use of their employees until such time as the water-borne sewer drainage is available. This must be done prior to any work done on site.		
	All site temporary toilets are to be serviced and cleaned at least once a week. The contractor is to keep an onsite weekly record of the servicing/emptying of the temporary ablution facilities.	Contractor/ Site Manager	Immediately & on-going
	Unauthorised spilling of waste from the septic tank into the environment and burying of waste are strictly prohibited.		
	Ablution facilities must not cause any pollution to any water resource and it must not be a health hazard to the general public.		
Social Impacts	**Communication Between Site Manager, 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 Site Manager, or provide a number on which they may contact the Applicant/ Site Manager.	Site Manager	On-going

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	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.		
Equipment lay-down and storage	**Storage Areas**		
	The contractor will be allowed to erect green storage sheds/huts within the boundaries of the building site and to a maximum height of 2,4 m. The position of such structures must be indicated on the site diagram, which must be approved by Estate Management & ECO.	Site Manager/ Contractor & ECO	On-going
	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.	Site Manager & Contractor	On-going
	Material stockpiles must be protected against rain and flooding.		
	Equipment lay-down and storage areas must be designated, demarcated and signed.		
Erosion and Stormwater Control	**Soil erosion and runoff**		
	Soil disturbance during the removal of alien invasive plants must be minimised as much as possible.	Site Manager & Contractor	On-going
	Storm water control must be undertaken to prevent soil loss and erosion impacts from the site.		
	Erosion prevention and control measures must be implemented. This may be by the use of mulch bags or silt fences. The engineer must provide a method statement for site specific erosion methods.		
	Provision shall be made for storm water management measures that will ensure effective run-off control and prevent erosion at run-off points.		
	Continuous monitoring for evidence of erosion must be undertaken around the site.		
	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.		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	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.		
	Installation of services and roadways		
	Topsoil for trenching along the route for installation of services to be removed to 150 mm deep, maintained and replaced as the final compacted layer in the road reserves.	Site Manager / Contractor & ECO	During service installation
	Pipelines to be placed in consultation with and to recommendations of the ECO.		
	Regular compaction tests to be done to ensure adequate soil compaction in pipeline trenches.		Following completion installation of services
	In trenches of slopes over 25% grade - bio textiles and reseeding to be used to rehabilitate and protect the compacted topsoil.		
	Install a series of berms across the internal access road to retard flow from higher areas.	Site Manager & Contractor	Throughout the duration of the project
	Building sites need to be surrounded with a trench and berm arrangement to contain all building site runoff.		
	The gabion retention/silt pond needs to be cleaned out prior to handing over the internal services.		
	The proposed gabion retention pond needs to be constructed first with site runoff discharged into it.		Immediately
Conservation of the Natural Environment	**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.	Site Manager/ Contractor & ECO	Immediately
	No natural vegetation may be cleared without prior permission from the ECO and if applicable from any relevant authority. Indigenous vegetation that is removed is to be replanted either back to the point from which it was taken or must be replaced by new relevant indigenous vegetation.		On-going
	All alien invasive plant species must be continuously removed around the site. The best way to do this is to remove the plants from the roots by hand and leave the plants in the sun to dry out and die before disposal. Please refer to the Alien Plant Control Programme.		Immediate and On-going
	Disturbance to birds, animals and reptiles and their habitats must be minimized wherever possible.		
	Preservation of natural habitats		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Prior to the commencement of clearing the proposed building site, the contractor must undertake vegetation search-and-rescue on the site. This operation is a legal requirement to ensure that any endangered vegetation species is transplanted prior to work commencing on the erf.	Site Manager/ Contractor & ECO	Immediate and On-going
	Permission must be attained from the relevant authority (DEFF) to remove any of the specially protected Milkwood trees (*Sideroxynon inerme*) that still occur on the properties, even though they are small due to the recent fire.		
	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.		
	A Landscape consultant must be appointed prepare a landscape plan for implementation in the private and common areas.		
	Landscape Connectivity		
	A six (6) metre wide ecological corridor along the northern boundary of the development must be establish and maintain. The 6m wide servitude serves as a minor corridor for smaller wildlife, linking the wetland to the west with the coastal dunes to the east. The servitude must not be disturbed during construction activities and be cleared of invasive alien plants.	Site Manager/ Contractor & ECO	Immediate
	No structures or infrastructure may be constructed in this servitude without authorisation. This ecological servitude must not be fenced on the eastern and western boundaries.		
	The erection of perimeter fencing must exclude the eastern and western boundary of the corridor to allow for free movement of wildlife through the corridor.		
	Services (i.e., sewer line, pipeline, electrical cable etc.) must remain outside the west to east corridor.		
	Foredune conservation		
	The primary dune system must be designated as a "No Go" area and no encroachment will be allowed.	Site Manager/	Immediate and On-going

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	The primary dune system at the beach front (mostly outside the properties) should not be disturbed during the construction or operational phases of the development. This is an important coastal habitat that should be conserved for biodiversity conservation, to prevent increased wind erosion and as a minor faunal corridor along the edge of the property. This area must be actively excluded from the developed area and must not suffer the dumping and other negative impacts that so often accompany building project.	Contractor & ECO	
	The invasive alien vegetation must be removed from the dunes to restore the fragmented areas along the dune. This must be done under the guidance of an Invasive Alien Plant Control Plan.		
Waste Management	**On-Site Waste Management**		
	The excavation and use of rubbish pits is forbidden.	Site Manager & Contractor	On-going
	Burning of waste is forbidden. *A possible exception to this may be that the alien invasive vegetation which is removed from the site should be burned to prevent the spread of the plants. The transportation of Alien Invasive Plants is strictly forbidden in terms of the Conservation of Agricultural Resources Act (CARA), especially if in seed; unless stored in a completely sealed container.*		On-going and monitored weekly
	Littering on the site is forbidden and the site shall be cleared of litter at the end of each working day.		On-going monitoring
	An adequate number of general waste bins must be arranged around the site to collect all domestic refuse, and to minimise littering.		
	Solid waste must be managed and separated into recyclable and non-recyclable and disposed of accordingly.		
	Waste must be removed from the site on a weekly basis.		
	The contractor must make adequate provision for removal of building rubble and excess material. No material or building rubble will be spoiled on the Estate. Stockpiling of sand to be completely covered with netting or hessian.		
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.	Site Manager & Contractor	On-going
	Cement and other potential environmental pollutants must be stored within an impermeable bunded, roofed and sign posted area.		
	The mixing of cement must be done on Rhino board.		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	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**		
	Should any heritage remains be exposed during excavations or any other actions on the site(s), these must immediately be reported to the Provincial Heritage Resources Authority of the Western Cape, Heritage Western Cape.	Site Manager & Contractor	Immediate and On-going
	Heritage remains uncovered or disturbed during earthworks must not be further disturbed until the necessary approval has been obtained from Heritage Western Cape. Heritage remains may only be disturbed by a suitably qualified heritage specialist working under a directive from the relevant Heritage Resources Authority.		
	Heritage remains include meteorites, archaeological and/or paleontological remains (including fossil shells and trace fossils); coins; indigenous and/or colonial ceramics; any articles of value or antiquity; marine shell heaps; stone artefacts and bone remains; structures and other built features with heritage significance; rock art and rock engravings; shipwrecks; and/or graves or unmarked human burials including grave goods and/or associated burial material.		
	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.		
	If Heritage Western Cape agrees to the removal of the material, an archaeologist must apply for a permit to scientifically excavate/collect the material.		
	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.		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Safety and Security	**Safety and Security On-Site**		
	Material stockpiles or stacks must be stable and well secured to avoid collapse and possible injury to site workers / local residents.	Site Manager & Contractor	On-going
	Firefighting equipment must be present on site at all times. All equipment on site must be used in accordance with the Occupational Health and Safety Act regulations of South Africa (OHSA), Act No. 85 of 1993); staff must be trained in firefighting procedures.		
	No unauthorised person may be permitted to enter the site without prior permission of the site manager.		
	Fire Management		
	Firefighting equipment should be present on site at all times as per Occupational Health and Safety Act.	Site Manager & Contractor	On-going
	No fires will be allowed on any part of the Estate including the building site. Fire extinguishers are required to be on all sites at all times.		
	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.		
	All flammable substances must be stored in dry areas which do not pose an ignition risk to the said substances.		
	No open fires will be allowed on site.		
	Smoking must not be permitted in areas considered to be a fire hazard.		

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 an acceptable success rate has been achieved.	Contractor & ECO	Post Construction/ Maintenance Phase
	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.	Site Manager / Contractor & ECO	Project completion and Maintenance
	Landscaping		
	Investing landowners within the proposed development should be encouraged to avoid planting exotic plants in their garden areas in favour of locally indigenous plants. Many of the dune-scrub plants are easy to propagate and many are available at nearby nurseries.	Site Manager & Contractor	Project completion
	A Landscape consultant be appointed to recommend and implement the introduction of an indigenous landscape plan to protect the existing indigenous vegetation and to prepare a landscape plan for implementation in the private and common areas.		
	All disturbed open space areas are to be rehabilitated using locally occurring indigenous vegetation (plant list available in Section 12).	Site Manager / Contractor & ECO	Project completion and Maintenance
	Minor wildlife corridor		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
Landscape Connectivity	The 6-meter-wide servitude along the northern boundary of the development area will serve as a corridor for smaller wildlife, linking the wetland to the west with the coastal dunes to the east. The eastern and western border of the 6-meter-wide servitude must remain unfenced to allow wildlife to move between the coastal dune system and the wetland.	Site Manager	On-going
	Indigenous vegetation within this servitude should not be cleared and must be maintained in a natural state, as far as possible.		
	The servitude / corridor must be rehabilitated and maintained with locally indigenous plant species and kept clear of alien invasive vegetation.		
	Control of invasive alien plants must be undertaken.		
	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.	Site Manager, Contractor & 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.	Site Manager, Contractor & ECO	Project completion
	Wildlife gaps in the seawards boundary fence that adjoins the foredune must be installed at appropriate intervals and be of a suitable dimension to allow for small animals.		
Coastal Access	**Coastal Public Property**		
	The development must provide the public unrestricted access to the coastal public property. A coastal access point should be established and maintained on the site.	Site Manager	On-going
Conservation of the Natural Environment	**Foredune conservation**		
	Beach pathways must be clearly delineated. No movement should be allowed outside of the delineated areas to avoid trampling and to reduce erosion on the foredune.	Site Manager	Project completion
	Gardening and landscaping should not result in removal or destruction of vegetation which will either destabilize a primary or significant dune or cause a significant adverse effect on the dune system due to increased erosion by natural coastal processes or human movement, or detrimentally affect the ecology or habitat.	Site Manager	On-going

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Domestic predators		
	Dogs and cats shall be kept within the confines of the Erf on which they are resident. Dogs need to be kept within a fenced area. Cats can be kept in-doors at night which is when they do most of their hunting.	Site Manager	On-going
	Residents may not keep any poisonous, exotic, or other undomesticated or wild animals, poultry, pigeons, aviaries, or livestock on their property.		
	Not more than a total of four (4) domestic animals may be kept on a property at any one time strictly limited to a maximum of two (2) dogs and/or two (2) cats.		
	Each cat must wear an audible bell on its collar, to protect the estate birdlife.		
Alien Invasive Plants	**Alien plant eradication**		
	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. Section 11 details methods for Alien Invasive Plant Control.	ECO & Site Manager	Immediate and On-going
	An Alien Invasive Plant Control Plan must be implemented, as encroachment of alien vegetation may increase as a result of the construction process disturbances.		
	Any action taken to control and eradicate a listed invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.		
	The methods employed to control and eradicate a listed invasive species must also be directed at the offspring, propagating material and re-growth of such invasive species in order to prevent such species from producing offspring, forming seed, regenerating or re-establishing itself in any manner.		
Land Rehabilitation	**Land**		
	Rehabilitation must be executed in such a manner that surface runoff will not cause erosion of disturbed areas during and after rehabilitation.	Contractor & ECO	Project completion
	Any rubble is to be removed from site to an appropriate disposal site. Burying of rubble on site is prohibited.	Contractor	Project completion
	The site is to be cleared of all litter.	Site Manager & Contractor	Project completion and Maintenance
	The surface of all disturbed areas must be left rough to facilitate binding of topsoil and vegetation.	Contractor	Progressive rehabilitation and on Project completion

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	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**		
	All material used for the construction must be removed from site after construction.	Contractor	Project completion
	The Contractor must repair any damage that the construction works may have caused to adjacent areas.		
	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.		
Stormwater Management	**Increased stormwater runoff**		
	Stormwater from erven on the west facing slope of the development must be attenuated on site.	Contractor	Project completion
	Stormwater from the access road leading into the development must be attenuated onsite (prior to any discharge into the buffer of the wetland).		
	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.	Contractor	Project completion
	Collection and disposal of non-hazardous waste to a registered landfill site must occur at least once a week.	Site Manager	During Operational phase
	Residents must be made aware of the dangers that accompany the irresponsible use of harmful chemicals.	Site Manager	During Operational phase
Fire management	No burning of vegetation to be permitted, even as part of alien plant management.	Site Manager	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.		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	Undeveloped areas must be managed so that they do not pose a fire risk.		
	The Southern Cape Fire Protection Association must be consulted regarding firebreaks, and fire management for the property in case of wildfires. **The estate has become a member of the SCFPA.** The responsibilities of people in control of land - All owners on whose land a veldfire may start or burn or from whose land it may spread must: • prepare firebreaks on their side of the boundary if there is a reasonable risk of veldfire • have such equipment, protective clothing and trained personnel for extinguishing fires as are: prescribed (in the regulations) • If there are no regulations, reasonably required in the circumstances take all reasonable steps to notify the FPO of the local FPA (if there is one) when a fire breaks out do everything in their power to stop the spread of the fire. The Act also requires that if the owner is absent, he or she must have a responsible person present on or nearby his or her land to: • extinguish a fire if one broke out, or assist others to do so. • take all reasonable steps to alert the neighbours and the FPA (if there is one). • The owner may appoint an agent to act on his or her behalf to perform these duties.		During Operational phase
	Implement regulations/rules around "braai" fires /open flame fires especially when high fire danger weather conditions are predicted.		
	Ensure that access roads are kept clear in order for firefighting vehicles to have unobstructed access to the structures/houses.		
	Work collaboratively with local authorities to develop an emergency preparedness plan that outlines the steps to take in the event of a fire. The plan should include protocols for notification, evacuation, and communication with local authorities.		
	The goal of the management plan should be to prevent wildfires from starting and spreading within the development and to minimize the impact of any fires that do occur.		
	Residents, security guards, and estate manager must report any sign of smoke or a vegetation fire immediately to their local Municipal Fire and Rescue Services.		

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.	Applicant, Site Manager & 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.	Applicant & Site Manager	On-going site maintenance
	On-going monitoring and assessing of stormwater drainage must occur on site during the operational phase of the proposed project.		

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11. ALIEN PLANT CONTROL PROGRAMME

Please consult a Botanical specialist before attempting to remove Alien Invasive Plants.

11.1. INTRODUCTION

Benefits of control

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

Important factors influencing the effectiveness of a control programme

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

Requirements for an effective alien vegetation control programme

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

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

It is important to note that all of the above must be performed with instruction by the ECO, as well as in the presence of an ECO at all times.

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11.2. LEGISLATION

The National Environmental Management Act, No 107 of 1998, creates a duty of care towards the environment. Within the preface of this Act, it is stated thus:

"Everyone has the right to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that prevent pollution and ecological degradation; promote conservation; and secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development: the environment is a functional area of concurrent national and provincial legislative competence, and all spheres of government and all organs of state must co-operate with, consult and support one another."

Any person or business found to be responsible for illegally introducing an invasive plant or species, and allowing it to spread, may be compelled, by this Act to desist with their actions and remove the source of invasion.

The Conservation of Agricultural Resources Act, No 43 0f 1983 (CARA) was passed to protect soil, water resources and vegetation. This included measures to manage and control weeds and invader vegetation species. The CARA regulations declare several species of "weeds" or "invader plants." These species have been divided into three categories:

Category 1a Listed Invasive Species:

Category 1a Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the National Environmental Management: Biodiversity Act/ NEMBA (Act 10 of 2004) as species which must be combatted and eradicated.

A person in control of a Category 1a Listed Invasive Species must-

(a) comply with the provisions of section 73(2) of the NEMBA;

(b) immediately take steps to combat or eradicate listed invasive species in compliance with sections 75(1), (2) and (3) of the NEMBA; and

(c) allow an authorised official from the Department to enter onto land to monitor, assist with or implement the combatting or eradication of the listed invasive species.

If an Invasive Species Management Programme has been developed in terms of section 75(4) of the NEMBA, a person must combat or eradicate the listed invasive species in accordance with such programme.

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Category 1b Listed Invasive Species:

1) Category 1b Listed Invasive Species are those species listed as such by notice in terms of section 70(1)(a) of the NEMBA as species which must be controlled.

2) A person in control of a Category 1b Listed Invasive Species must-

(a) control the listed invasive species in compliance with sections 75(1), (2) and (3) of the NEMBA.

(b) must allow an authorised official from the Department to enter onto the land to monitor, assist with or implement the control of the listed invasive species, or compliance with the Invasive Species Management Programme contemplated in section 75(4) of NEMBA.

3) If an Invasive Species Management Programme has been developed in terms of section 75(4) of the NEMBA, a person must combat or eradicate the listed invasive species in accordance with such programme.

Category 2 Listed Invasive Species:

1) Category 2 Listed Invasive Species are those species listed by notice in terms of section 70(1)(a) of the NEMBA as species which require a permit to carry out a restricted activity within an area specified in the Notice or an area specified in the permit, as the case may be.

2) Unless otherwise indicated in the Notice, no person may carry out a restricted activity in respect of a Category 2 Listed Invasive Species without a permit.

3) A landowner on whose land Category 2 Listed Invasive Species occurs or person in possession of a permit, must ensure that the specimens of the species do not spread outside of the land or the area specified in the Notice or permit.

4) Unless otherwise specified in the Notice, any species listed as Category 2 Listed Invasive Species that occurs outside the specified area contemplated in sub-regulation (1), must, for purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to Regulation 3 above.

5) Notwithstanding the specific exemptions relating to existing plantations in respect of Listed Invasive Plant Species published in *Government Gazette* No. 37886, Notice 599 of 1 August 2014 (as amended), any person or organ of state must ensure that the specimens of such Listed Invasive Plant Species do not spread outside of the land over which they have control.

6) If an Invasive Species Management Programme has been developed in terms of section 75(4) of the NEMBA, a person must combat or eradicate the listed invasive species in accordance with such programme.

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Category 3 Listed Invasive Species:

1) Category 3 Listed Invasive Species are species that are listed by notice in terms of section 70(1)(a) of the NEMBA, as species which are subject to exemptions in terms of section 71(3) and prohibitions in terms of section 71A of the NEMBA, as specified in the Notice.

2) Any plant species identified as a Category 3 Listed Invasive Species that occurs in riparian areas, must, for the purposes of these regulations, be considered to be a Category 1b Listed Invasive Species and must be managed according to regulation 3 below.

3) If an Invasive Species Management Programme has been developed in terms of section 75(4) of the NEMBA, a person must combat or eradicate the listed invasive species in accordance with such programme.

Should any invasive plant species occur, other than those stated in The Act, the land user must control them by species-specific control methods. Caution should ALWAYS be taken when dealing with noxious chemicals, and care should be taken to cause the least amount of harm to the environment.

11.3. Ways to Eradicate Invasive Alien Plants

This IAP eradication and control program comprises the following three steps:

Step 1

The first step of the Invasive Alien Plant Eradication Programme will be to undertake an inception and educational meeting, where the people employed to undertake this activity are able to identify the correct species as aliens and the manner in which to remove and control them.

Step 2

The second step will be to identify the Invasive Alien Plants (IAP) and start a process of removing the individuals that occur on the site. The removal of the alien species must be in a stepwise manner and be undertaken within a single area at a time. This will ensure that all individuals are removed at the same time to reduce re-infestations. Below are a number of methods that may be employed to undertake the activity of removing alien plant species. These methods are dependent on the size and nature of the plant that is to be removed.

11.3.1. Managing IAP Invasions

Once an invasion has been identified and quantified there are four methods that managers and landowners can take to deal with IAPs that includes prevention of new infestations and the early identification and eradication, containment or suppression of existing invasions. In the case of introduced, naturalised or invasive species, pre-introduction measures are no longer possible (apart

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from preventing additional introductions), therefore post-introduction management is focused on controlling infestations with chemical, mechanical or biological means.

- **Prevention**

This includes the monitoring of the area so that new infestations can be prevented. This also includes rehabilitating disturbed areas and keeping the disturbance of natural areas to a minimum.

- **Early identification and eradication**

When an IAP is spotted during prevention monitoring it must be swiftly dealt with using the methods described below.

- **Containment, control, and suppression**

If there are already an established infestation of an IAP on site which cannot be eradicated, then it should be contained to the site. New propagules should be removed so that the infestation doesn't worsen. Efforts should be made to ensure the infestation is reduced as far as physically and economically possible.

11.3.2. Mechanical Methods

- ***Hand-pulling***

This method of removal is only really an option during the summer months and when the IAP that are requiring removal are very small, and their root system is not very well established. The only precautionary note here is that many alien plant species may look similar to indigenous species when they emerge, so the labour force must be extremely well versed in the individuals that will require removal.

- ***Up-rooting***

This method is similar to hand-pulling but is undertaken on slightly older individuals of the target species. It only has one drawback; a relatively large area can be disturbed with the soils being altered and opening the area up to re-infestation.

- ***Lasso & Winch***

This method is the upgraded version of the up-rooting, with the same principles applying, that is of trying to remove the entire plant with all the root system attached, to prevent re-growth. This can have a serious destabilizing effect on the receiving environment and should definitely not be undertaken on slopes or sandy soils.

- ***Cutting / Slashing***

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This method is not a suitable method for control and long term management if used as a stand-alone technique because many of the IAP will simply coppice or re-sprout during the summer periods. Many, if not most, alien plants species are annual species, and through their natural life strategy (r-selected) are able to withstand disturbance, even extreme disturbance as in this instance.

- ***Ring-barking***

This involves the removal of bark in a 30 centimetre band. This technique is used to desiccate the plant through killing the phloem and xylem and thus preventing transpiration. Further it also facilitates pathogen infestation. It is very effective on large trees if undertaken correctly.

- ***Strip-barking***

As with ring-barking, just at a larger scale.

- ***Frilling / Girdling***

Girdling and frilling are methods of killing standing trees that may be done with or without an herbicide. Girdling involves cutting a groove or notch into the trunk of a tree to interrupt the flow of sap between the roots and crown of the tree. The groove must completely encircle the trunk and should penetrate into the wood to a depth of at least 1.5 centimetres on small trees, and 2.5 to 4 centimetres on larger trees. Girdling can be done with an axe, panga or chain saw. When done with an axe or panga, the girdle is made by striking from above and below along a line around the trunk so that a notch of wood and bark is removed. The width of the notch varies with the size of the tree. Effective girdles may be as narrow as 2.5 to 5 centimetres on small-diameter trees, and as wide as 15 to 20 centimetres on very large-diameter trees. When a chain saw is used to girdle, two horizontal cuts between 5 and 10 centimetres apart are usually made completely around the tree when no herbicide is used and one horizontal cut is made completely around the tree when herbicide is used.

Frilling is a variation of girdling in which a series of downward angled cuts are made completely around the tree, leaving the partially severed bark and wood anchored at the bottom. Frilling is done with an axe or panga.

By themselves, girdling and frilling are physical methods to deaden trees that require very little equipment and may be done without herbicides. Both techniques require considerable time to carry out, particularly with an axe or panga. The effectiveness of girdling and frilling depends on the tree species and on the size and completeness of the girdle or frill. To be effective, girdles and frills must completely encircle the tree. Because frills can heal-over more easily, girdling is usually more effective.

The effectiveness of both girdling and frilling can be increased by using herbicides. With frilling and girdling, water soluble forms of herbicides are most commonly used to get maximum movement of herbicide within the plant. When using water-soluble herbicides, the herbicide/water mixture is

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commonly applied by squirting it on the girdle or frill until the cut surface is wet. Hand-held, spray bottles, such as those available at local garden stores, are ideal for applying herbicide to the girdle. Again, note that a single, rather than double chain saw girdle is used when a water soluble herbicide is to be applied.

11.3.3. Chemical Methods

The use of chemicals in controlling and removing of IAP should not be excluded as a possible option. Once the IAP are more manageable the use of chemicals should be reduced or excluded completely. The best option would be to pursue a combination of mechanical and chemical control in the early stages.

The only negative impact of the use of chemicals is that if used incorrectly may result in plant species being able to develop some form of resistance to the herbicide. If herbicides are used as a foliar spray, drift will cause non-target species to be impacted upon. The only method that should be undertaken is the cutting of the plants prior to the treatment of the remaining stems using a "stem painting" technique.

It is imperative that the herbicides used are dye treated or that the end-user add a dye to ensure that all stems that have been treated are easily identified. Note, the application of the chemical solution must follow directly after the cutting of the vegetation. Therefore, a small area should be selected and all cutting and stem painting be undertaken on that area prior to moving to the next area.

DFFE herbicide quantity estimation (Invasive alien plant control management plan | Department of Environmental Affairs (dffe.gov.za)) is attached to this document as a guide.

11.3.4. Biological Control

This entails using a natural enemy (bacteria, fungus, weevils, mites) of the intended IAP to attack specific parts of the plant (roots, stem, flowers) to either kill the plant, reduce its vigour, or reduce reproductive output. Only certain species have registered bioagents, the most successful stories of biocontrol being the *Opuntia* genus and *Acacia species*. Please contact DFFE or SANBI for directions on how to obtain these agents.

DFFE have provided a guide on bio-control agents for terrestrial plant species (Invasive alien plant control management plan | Department of Environmental Affairs (dffe.gov.za)), attached to this document.

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11.4. Environmental Safety

In order to minimise the impact of the operation on the natural environment the following must be observed.

- Area contamination must be minimised by careful accurate application with a minimum amount of herbicide to achieve good control.
- All care must be taken to prevent contamination of any water bodies. This includes due care in storage, application, cleaning equipment and disposal of containers, product and spray mixtures.
- Equipment should be washed where there is no danger of contaminating water sources and washings carefully disposed of at a suitable site.
- To avoid damage to indigenous or other desirable vegetation product should be selected that will have the least effect on non-target vegetation.
- Coarse droplet nozzles should be fitted to avoid drift onto neighbouring vegetation, e.g. TG-1 or equivalent.
- The correct protective clothing is to be used in line with manufacturer's instructions and / or the Occupational Health & Safety Act, Act 85 of 1993 (and amendments) and,
- All MSDS sheets are to be made available on site along with a Medical First Aid Kit.

11.4.1. Disposal of IAP Vegetation

- Plant material should be used beneficially wherever possible, as opposed to disposing of it at a landfill site where it takes up valuable airspace, or let it further propagate on unchecked, vacant land.
- Woody and dry material, provided no seeds are present, can be chipped and used as mulch or made available to the local community for firewood.
- Wet material and aquatic weeds should be combined with other organic matter and composed. Alternatively, it may be possible to use it for basket making, animal feed or other uses.
- Burning of alien vegetation waste material is prohibited.
- Burying of alien vegetation waste material in or near the stream, drainage lines, dams, wetlands and their buffer zones is prohibited.
- Any vegetation which is not viable for use must be disposed of at a registered disposal unit.

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11.5. LIST OF INVASIVE ALIEN PLANT SPECIES

Please consult a Botanical specialist or Horticulturist to identify Invasive Alien Plants before attempting to undertake IAP removal.

IAP species that may occurring on the site according to the Terrestrial Plant Study:

Name	***Common Name***	***Category***
Acacia cyclops	Rooikrans	*2*
Acacia saligna	Port Jackson willow	*2*
Bromus diandrus	Great brome / ripgut brome.	*Not listed*
Pennisetum clandestinum	Kikuyu grass	*Not listed*

RED EYE *(ACACIA CYCLOPS)*

TARGET TREE	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT/ HECTARE
SEEDLINGS & SAPLINGS	HAND PULL OR HOE			OPEN STAND	
	SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER	DENSE STAND	2l / ha
TREES UP TO 2m TALL	CUT LOW DOWN				
	FOLIAR SPRAY	GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER		4l / ha
LARGE TREES	CUT LOW DOWN			DO NOT APPLY HERBICIDE	
	FRILL	TIMBREL 3 A * (TRICLOPYR AMINE SALT 360g / l)	300ml /10L WATER		1.5 l / ha

NOTE: CUT DOWN LOW, TO PREVENT COPPICING.
* CONSULT THE WFW TECHNICAL ADVISOR.

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PORT JACKSON WILLOW *(ACACIA SALIGNA.)*

TARGET TREES	METHOD	PRODUCT	RATE	COMMENTS	ESTIMATED PRODUCT / HECTARE
SEEDLINGS	HAND PULL OR HOE			OPEN STANDS	
	FOLIAR SPRAY	MAMBA (GLYPHOSATE 360g/l)	2 – 4l / ha	SPOT SPRAY 1.5% SOLUTION	2-4 l / ha
		TOUCHDOWN (GLYPHOSATE TRI-MESIUM 480g/l)	2 – 4 l / ha		2-4 l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml/10L WATER	SEE NOTE BELOW	l.5 l / ha
				NOTE: USE GARLON 4 or VIROAXE, IF OTHER PIONEER GRASS SEEDLINGS PRESENT.	
SAPLINGS AND YOUNG TREES	HAND PULL OR HOE				
	FOLIAR SPRAY	TOUCH DOWN (GLYPHOSATE)	4 l/ha	PLANTS UP TO 600mm HIGH	4 l / ha
		GARLON 4 / VIROAXE (TRICLOPYR ESTER 480g/l)	50ml / 10L WATER	PLANTS UP TO 2m HIGH	3 l / ha
BIG TREES	CUT STUMP	TIMBREL 3A (TRICLOPHYR AMINE SALT 360 g/l)	300ml / 10L WATER		1.5 l / ha
	FRILL	TIMBREL 3A (TRICLOPHYR AMINE SALT 360 g/l)	300ml / 10L WATER		1.5 l / ha

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12. SPECIES PLANTING LIST

A Botanical specialist should be consulted for a comprehensive list in this regard.

Plant list of common species in surrounding area (Reitz Tree Care cc):

TREES	SHRUBS	SMALL SHRUBS/GROUND COVERS
- *Sideroxylon inerme* - *Maytenus procumbens* - *Tarchonanthus camphoratus* - *Euclea racemose*	- *Searsia crenata* - *Searsia pterota* - *Searsia lucida* - *Salvia Africana-lutea* - *Metalasia muricaa* - *Passerina spp*	- *Agathosma capensis* - *Sea cushion bush* - *Chironia baccifera* - *Solanum africanum* - *Helichrysum teretifolium* - *Knowltonia*

The species recorded on the properties are typical of Goukamma Dune Thicket in being a mix of Thicket clumps in a Fynbos matrix. A total of 52 indigenous species were recorded and they are as follows:

Trees: *Apodytesdimidiata, Colpooncompressum, Euclearacemosa, Gymnosporiabuxifolia, Searsia crenata, A. glauca, Hippobromuspauciflorus, Mystrozylonaethiopicum, Syderoxyloninerme*and*Tarchonanthuslittoralis*.

Shrubs and herbs: *Agathosmaapiculata, Anthospermumaethiopicum, Arctotis pinnatifida, Chaenostomacampanulatum, Grewia occidentalis, Helichrysum cymosum, H. teretifolium, Limoneumscabrum, Metalasia muricata, Osteospermummoniliferum, Passerina vulgaris, Pelargonium capitatum, Pharnaceumthunbergii, Polygala myrtillifolia, Salvia africana-lutea, Senecio elegans Tetragoniafruticosa* and *Zaluzianskya capensis*.

Creepers: *Asparagus aethiopicus, Cissampelos capensis, Cynanchumellipticum, C. obtusifolium, Rhoicissus tridentata* and *Solanum africanum*.

Graminoids: *Cynodondactylon, Cyperus ustitatus, Ehrhartavillosa,Ficiniaarenicola, F. oligantha, F. ramosissima, Hellmuthiamembracacea, Imperata cylindrica, Melicaracemosa, Pentameris pallida, Restioeleocharis*and*Stipagrostiszeyheri.*

Geophytes: *Anemone vesicatoria, Chasmanthe aethiopica* and*Cyanella lutea*.

Succulents: *Carpabrotus edulis*, *Crassula expansa* and *Mesembryanthemum crystallinum*.

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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 site manager 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.

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14. RESPONSIBILITIES

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

FUNCTION	RESPONSIBILITY
Applicant	• The Applicant is ultimately responsible for the ensuring compliance with all the requirements associated with the construction, operation, rehabilitation and decommissioning phases of the project.
Site Manager	• The Site Manager is responsible to ensure that all necessary communication and submission of required documentation concerning this project is submitted to the relevant authorities. • The site manager 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. • (Site Manager) 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)	• 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	• The Compliance Officer appointed by the Competent Authority is responsible for the ensuring that the Applicant, Site Manager and ECO are compliant with the provisions of the EA and EMPr.

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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:

The Proposed Development of a Beachfront Security Estate on Portion 66 & 67 of Farm 443, Plettenberg Bay, Western Cape.

DEA&DP REF: 16/3/3/1/D1/14/0028/22

APPLICANT:

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

SITE MANAGER:

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

ENVIRONMENTAL CONTROL OFFICER

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

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Annexure A: CV of the EAP

FORM TECH-6
(CONTINUED)

CURRICULUM VITAE (CV)

Position Title and No.	Senior Environmental Assessment Practitioner
Name of Expert:	Janet Ebersohn
Date of Birth:	23/05/1977
EAPASA REG:	2019/1286
Country of Citizenship/Residence	South Africa

Education:
Institution: Tshwane University of Technology and Unisa
Year: 1998
Degree: National Diploma in Food Service Management

Institution: University of South Africa
Year: 2012
Degree: BSc. Hons in Environmental Management

Institution: Stellenbosch University
Year: 2012
Degree: Certificate on Flood Line Determination

Institution: Rhodes University
Year: 2013
Degree: Certificate on Wetland Delineation.

Employment record relevant to the assignment:

Period	Employing organization and your title/position. Contact info for references	Country	Summary of activities performed relevant to the Assignment
1998 - 2008	Various positions in Food Service Management Reference: Voughan Havenga	South Africa	Chef, Food procurement, Menu Development, Client Liaison
2008 -2010	Junior Environmental Assessment Practitioner Reference: Dr C Ebersohn / Peet Joubert	South Africa	Oscaer Permits, DAFF permits, Basic Assessment Reports
2010 -2022	Senior Environmental Assessment Practitioner Reference: Dr C Ebersohn / Danie Smit	South Africa	Social Impact Assessments, Wetland Delineation, Environmental Impact Assessments and Environmental Impact Reports pertaining to: • Residential Developments • Industrial Developments • Game Farm Management • Water use license

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		applications • Waste management license applications • Air quality license applications • Permit applications for developments in identified sensitive areas Environmental Management Programmes & Frameworks pertaining to: • Residential Developments • Industrial Developments • Game Farm Management • Water use license applications • Waste management license applications • Air quality license applications • Permit applications for developments in identified sensitive areas Environmental Assessments for the determination of: • Coastal set back lines • Erosion set back lines • Flood line determinations • Wetland delineation • Sensitive areas set back lines Integrated Environmental and Conservation Planning with Multi Spectrum Participation: • Environmental Management Programmes and training for companies • Environmental Management Programmes and training for NGO's

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Membership in Professional Associations:

Environmental Assessment Practitioners of South Africa

Language Skills:

Languages	Speaking	Reading	Writing
English	Excellent	Excellent	Excellent
Afrikaans	Good	Good	Good

Adequacy for the Assignment:

Detailed Tasks Assigned on Consultant's Team of Experts:	Reference to Prior Work/Assignments that Best Illustrates Capability to Handle the Assigned Tasks
{List all deliverables/tasks as in TECH- 5 in which the Expert will be involved)	Ms Janet has completed various Environmental Impact Assessment Applications, Environmental Management Programmes and social impact assessment reports. She has worked on the assessment of goods and services that the wetlands provide, thereby aiding informed planning and decision making.

Expert's contact information: (e-mail : janet@ecoroute.co.za, phone : +27 082 5577122)

Certification:

I, the undersigned, certify that to the best of my knowledge and belief, this CV correctly describes myself, my qualifications, and my experience, and I am available to undertake the assignment in case of an award. I understand that any misstatement or misrepresentation described herein may lead to my disqualification or dismissal by the Client, and/or sanctions by the Bank.

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Janet Ebersohn	J. Ebersohn	06/06/2014
Name of Expert	Signature	Date

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Annexure B: Approved Site Development Plan

SITE PLAN
1 : 500

N
W
E
S

0m 10m 20m 30m 40m 50m

ZONING	
Proposed	Residentail
Current	Farms

LAND USE	
Proposed	Residentail
Current	Farms

Services -
all below ground to the spec and detail of an appointed Engineer

	Sewer main line -
	Sewer Manhole
	Water main line
FH	Fire Hydrant
	Pressure reducing valve

Costal Setback Lines

	HWM final
	100 year erosion
	Bitou CML
	50 year Erosion
	20 year Erosion
	Wetland

KEY	
	natural vegetation undisturbed
	landscaped area
	landscaped area within portion
	Foot path
	roadway
	buildplate
	guardhouse
	servitude
	existing erven boundary
	portion boundary
PB	parking bay
PL	Proposed build plate level
	Services - all below ground all servies to civil engineer spec and detail

NOTE -
Build Plate refers to an allocated area where a building may be erected.
Build plate level to comply with local building regulations

GENERAL NOTES A1

ALL DIMENSIONS ARE IN "mm" UNLESS OTHERWISE INDICATED.

DO NOT SCALE THIS DRAWING.

ALL RELEVANT DETAILS, LEVELS AND DIMENSIONS ARE TO BE CHECKED ON SITE PRIOR TO COMMENCEMENT OF WORK

RC STRUCTURE TO STRUCTURAL ENGINEER'S DETAIL AND SPECIFICATION

ALL PENETRATIONS THROUGH STRUCTURAL ELEMENTS TO BE VERIFIED WITH RELEVANT CONSULTANTS.

ALL WORK TO BE CARRIED OUT STRICTLY IN ACCORDANCE WITH NATIONAL BUILDING REGULATIONS AND LOCAL AUTHORITY REGULATIONS.

THE ARCHITECT ACCEPTS NO RESPONSIBILITY FOR ERRORS RESULTING FROM MISINTERPRETATION OF THE DRAWINGS

ANY DISCREPANCIES TO BE REPORTED TO THE ARCHITECT IMMEDIATELY

REVISIONS

REV	DATE	
A	2022-06-30	Issue for Information
B	2023-02-28	REVISED SDP
1	2023-03-01	Issue for submission
2	2023-04-05	CAD issued
3	2023-08-04	revised note

ATHINA ESTATE

Property Schedule	
Name	Area
P09	1925.39 m²
P08	1318.64 m²
P07	1332.61 m²
P06	1346.57 m²
P05	1346.90 m²
P03	1986.72 m²
P01	1986.72 m²
P04	1986.72 m²
P02	1986.72 m²
9	15216.98 m²

Property Schedule Copy 1	
Name	Area
ERF 67 / 443	8658.85 m²
ERF 66	16909.97 m²
2	25568.82 m²

Application Description:
Consolidation of 2 erven 66/443 and 67/443, subdivided into 9 erven with common area remainder

OBJEK
ARCHITECTS | INTERIORS | DESIGN
114 bree street | 8001 - 021 461 3759
info@objek.co.za
- WITH -
Jeanne + GOSS
INTERIOR | ARCHITECTURE | DESIGN
LEVEL 3, 73 LOOP STREET, CAPE TOWN - 021 461 3759

project name
ERF 66 & 67 KNYSNA

project description
New development - 9 plots

property address
Plettenberg Bay

client name
The Keep

sheet name
Site Development Plan - SDP

project status
For Council Submission

project number	sheet number	current rev
2020-01	10_03	3

drawing scale	drawn by	checked by
As indicated	Author	Checker

issued date
04/08/2023 09:05:58

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GENERAL NOTES

A1

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	Sewer Manhole
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project name
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project description
New development - 9 plots

property address
Plettenberg Bay

client name
The Keep

sheet name
Site Development Plan - SDP - with house ~~foot print~~

project status
For Council Submission

project number	sheet number	current rev
2020-01	10_03	3

drawing scale	drawn by	checked by
As indicated	Author	Checker

issued date
04/08/2023 09:11:13

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