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PROPOSED DEVELOPMENT OF A RESIDENTIAL DWELLING ON PORTION 76 OF THE FARM 216 UITZICHT, KNYSNA, WESTERN CAPE.

Date: February 2025

Compiled by: Ms Bianca Gilfillan (2023/7929)
DFFE Reference: TBC

EAP Signature:

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STATEMENT OF INDEPENDENCE

I, **Bianca Gilfillan** of Eco Route Environmental Consultancy, in terms of section 33 of the NEMA, 1998 (Act No. 107 of 1998), as amended, hereby declare that I provide services as an independent Environmental Assessment Practitioner (EAPASA Reg: **2023/7929**) and receive remuneration for services rendered for undertaking tasks required in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment Regulations, 2014 (as amended). I have no financial or other vested interest in the project.

Contents

1. INTRODUCTION

Environmental Management Programme Requirements

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

Objectives of EMPr

The purpose of this EMPr is to provide an easily interpreted reference document that ensures that the project environmental commitments, safeguards and mitigation measures from the environmental planning documents, project approvals, and scope of work are implemented.

The objectives for the EMPr are:

- To develop, implement and maintain effective management systems for the environmental aspects.
- To document details of environmental protection infrastructure and controls so that they can provide long-term protection for the natural environment.
- To ensure compliance with relevant legislation (National, Provincial and Local), regulatory requirements and environmental documents.
- To maximise the value and outcomes of environmental monitoring activities so that the information can be applied to the planning and implementation of future projects.
- To ensure that all Environmental Management considerations are implemented during the planning, operational and maintenance phases of the project.

All the environmental specifications and the procedures discussed in this document were also developed in accordance with the relevant legislation applicable to the development

The proposed development requires an EMPr during the construction and operation phase. Therefore, the EMPr will guide the implementation of the mitigation measures against various environmental impacts which have been identified during the impact assessment process.

The EMPr further provides a mechanism for monitoring the effectiveness of the mitigation measures throughout the construction and operation phase of the activity. This EMPr includes, among others:

- Details of the applicant and the EAP.
- Location of the proposed activity in the context of the local and regional environment.
- Detailed description of all components of the proposed activity.
- Detailed identification of environmental issues and associated risks.
- Mitigation measures for the construction and operation of the activity.
- Clear roles and responsibilities of parties during the implementation phase.
- Monitoring and auditing process during all phases of activity; and
- Specific timeframe for implementation of certain mitigation measures as well as clarity on the submission of audit reports.

Scope of the EMPr

In accordance with the requirements of the Environmental Impact Assessment (EIA) Regulations, 2014, the EMPr is to be implemented by the Developer/applicant as well as any employee, contractor, agent or sub-contractor appointed to act on behalf of the Developer in the development of the activity. Thus, the specifications outlined in this EMPr are applicable to all activities undertaken by the Developer as well as appointed contractors and all persons involved in the undertaking of the activities on the site.

An Environmental Code of Conduct has been established to outline a simplified set of regulations that all personnel engaged in the project must adhere to consistently. This code is to be prominently displayed at key locations to ensure ongoing environmental consciousness. The effectiveness of the EMPr hinges on the applicant's strict adherence to the stipulated conditions and measures within the EMPr, coupled with the vigilant monitoring of the EMPr.

EMPr as a dynamic document

The approach used for this EMPr is derived from the below Deming Cycle of continuous improvement that entails the reiterative actions of the plan, do, check, act, and back to the planning phase.

1. Plan

Project-specific planning involves consideration of the legal requirements, development details, and the nature of the receiving environment on the proposed development site as well as the existing socio-economic characteristics of the region. This is a starting point for targeted environmental impact management outcomes. Environmental performance indicators are then determined with measurable targets prescribed to monitor the environmental performance of the project.

a. Commencement of works

The site project contractors must timeously receive a copy of the EMPr and any other additional information that pertains to site conditions/amendments or deviations from the original site plan.

- This EMPr must be included to form part of the contractor's site specification documentation.
- A copy of the EMPr must be on-site at all times and available for presentation to any authority requesting to see such document.

b. No work on site may take place until

- The Declaration of Understanding/Environmental Contract is signed between the relevant parties.
- One week's seven (7) days] written notice given to the Department before the commencement of any construction activity (As per EA).
- On-Site Start-Up Meeting has been held.
- Site and No-Go areas have been identified and demarcated.
- Contractors are in possession of the EMPr and other relevant documentation.
- Contractors/Subcontractors have signed the Declaration of Understanding.
- All mandatory site equipment is in place.
- On-Site Environmental Education & Awareness training sessions must take place with all relevant construction personnel.

NB: Work refers to Camp Establishment, Earthmoving activities and any preliminary construction activities.

2. Do

Throughout the development's life span, the developer will be required to develop and maintain a Quality Management System (QMS) designed to ensure that best management practices are implemented on a day-to-day. The QMS should at least include the following information:

- Location and extent of development components and associated infrastructure (footprint).
- Associated activities such as the transportation of people and equipment where necessary.
- Resources and experience required (staffing).
- Materials and equipment to be used.
- Management actions.
- Human resources required.

a. Construction-monitoring activities

- Emergency/disaster incident and reaction procedures; and
- Rehabilitation procedures for the impacted environment. These topics will be cross-linked into the contracts related to the development of the project.

b. Check

A system of assessing monitoring results has been developed to check the environmental management performance. Continuous assessment facilitates proactive management of environmental issues so that mitigation measures can successfully be implemented on an ongoing basis to keep environmental indicators within their target thresholds. Regular auditing of environmental performance is prescribed to prove and preserve accountability.

c. Implement

The assessments and monitoring of the results and findings of the regular audits must be documented within a reporting system. Precautionary mitigation measures and corrective actions will be prescribed, and instructions given for implementation. The findings of monitoring and auditing programmes can also be used to update the EMPr. The EMPr is a dynamic project-specific document, which can be updated regularly to address potential changes in the receiving environment.

Content of environmental management programme (EMPr):

1. (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 that EAP to prepare the EMPr, including a curriculum vitae.	This EMPr was prepared by Ms Bianca Gilfillan of Eco Route Environmental Consultancy. Bianca has more than 20 years of experience as an Environmental Assessment Practitioner. Please see the attached CV of the EAP.
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	This EMPr encompasses all aspects related to the proposed development of a residential dwelling on Portion 76 of Farm 216, located in Uitzicht, Knysna, Western Cape. Sections 2 to 4. - Detailed information regarding the proposed project.
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on environmental sensitivities of the preferred site, indicating any areas that should be avoided including buffers;	Section 5 contains the Site Development Plan, which is attached as Appendix B. The accompanying Geographic Information System (GIS) maps delineate the sensitive areas present within the site.
(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 Section 7
(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 and practises; iii. Comply with any applicable provisions of the Act regarding closure, where applicable; and iv. Comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	Addressed throughout the EMPr, specifically Section 14
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Addressed throughout the EMPr, specifically Section 16.
(h) the frequency and monitoring of the implementation of the impact management actions contemplated in paragraph (f);	Section 11.
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 9 – 11.
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Sections 9-11, 14.
(k) the mechanism for monitoring compliance with the impact management contemplated in paragraph (f)	Section 14.
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the regulations;	Section 14.
(m) an environmental awareness plan describing the manner in which –	Sections 13 & 14.

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	
(n) any specific information that may be required by the competent authority	All required information has been addressed.

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

National Environmental Management Act, (Act 107 of 1998)

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

Duty of care and remediation of environmental damage

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

The Environmental Management Plan (EMPr) shall be considered an integral component of the contract documents, as it delineates the methodologies and responsibilities necessary to achieve the project objectives in an environmentally sustainable manner. This plan specifically focuses on the prevention and mitigation of environmental impacts that may arise from the construction activities associated with this project.

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

This Environmental Management Plan (EMPr) is intended to be a dynamic document that may require modification during its implementation period. It is essential that the plan adapts to recognise emerging issues or changes in the parameters of identified issues. Furthermore, it must address these challenges with the appropriate or revised mitigation measures.

The Polluter-Pays Principle

This principle provides that "*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 meticulously implemented throughout both the construction and operational phases of this project.

The EMPr will address the environmental impacts during the:

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

The principal objective of the EMPr is to ensure the protection of the environment throughout the entire lifespan of the project in relation to the surrounding ecosystem.
The EMPr encompasses a series of environmental specifications and recommendations designed to mitigate negative impacts on the surrounding environment. The programme will delineate the measures that must be implemented to facilitate the appropriate restoration of areas affected by the proposed project and to avert long-term environmental degradation.

The contractor must be informed of the environmental responsibilities outlined in the EMPr. Furthermore, the contractor is required to affirm their familiarity with all pertinent environmental legislation, as well as the conditions stipulated in the Environmental Authorisation (EA) and the EMPr itself.

2. PROJECT DETAILS

Portion 76 of the Farm Uitzicht NO 216 is situated within the Knysna Municipal Area, Western Cape and the Southern Property boundary the Brenton Beach. The entire property is classed as a Critical Biodiversity Area (CBA) which is defined as areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. The main objective of a CBA area is to maintain it in a natural or near natural state, with no further loss of natural habitat. Degraded areas should be rehabilitated. Only Low impact, biodiversity sensitive land uses are appropriate.

Taking the CBA into consideration a low impact route was followed during the planning stages of the alternatives in order to have the least impact on the receiving environment. The Ecosystem Threat status indicates that the Northern Portion of the property is classed as Critical Endangered and the Southern Portion as Least Threatened. This is as a result of the vegetation found on site. The Northern Portion is identified as having Knysna Sand Fynbos with an ecological status of Critically Endangered and the Southern Portion as Goukamma Dune Thicket with an ecological status of Least Threatened.

The property is currently vacant with no residential dwellings on site. The site can be located at GPS coordinates -34.068388 S and 23.002727E.

Figure 1 Locality Map

Preferred Development

The proposal is to exercise the primary land use rights of the property, (i.e. construction of a main farmhouse and farm manager's house). The development proposal entails the following:

(i) The construction of one (x1) main dwelling house to be situated in the southwestern corner of the property (3000m²).
(ii) The construction of a new internal road to provide access to the southern portion of the property.

The Main Dwelling House:

The primary dwelling unit will be situated in the southwestern portion of the property consisting of the following interleading rooms:

- Six (6) bedrooms.
- An Open plan living area consisting of a kitchen, lounge area, dining area, kitchen, bar, scullery, bathroom and wine cellar.
- Open deck and swimming pool.

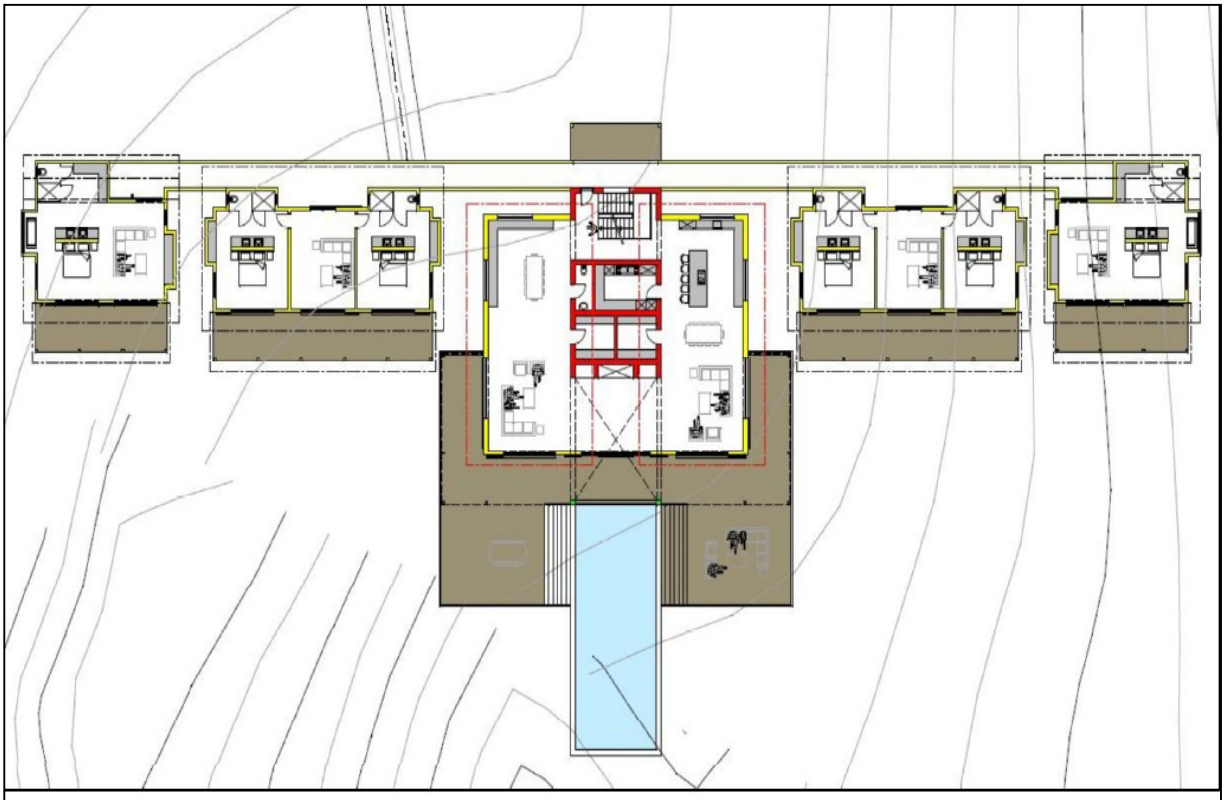


FIGURE 1: PROPOSED MAIN DWELLING HOUSE

Access to Portion 76 of the Farm Uitzicht 216:

Access is obtained from the Northern portion of the property from an existing servitude road that runs along the boundary of the property. The current access will remain in place

The existing public access road is shown on the General Plan (SG 6783/1951) and is indicated as a public access servitude (Kerk Laan), measuring 60 Cape Feet wide (i.e. 18,891m wide). Kerk Laan forms the northern boundary of the application area.

FIGURE 2: APPLICATION AREA IN RELATION TO EXISTING ACCESS SERVITUDE

Internal Road

The proposal entails the construction of a new internal road to provide access to the southern part of the property.

Services

Electricity

There is currently no electrical infrastructure present on the farm or in the adjacent road reserve to the north. It is advisable to consider the installation of a solar power facility in this location.

Solar plant

Type and System

The solar plant will be developed as an off-grid installation, utilizing solar energy to supply the load during daylight hours while recharging the batteries at night. Furthermore, grid-tied photovoltaic inverters may be integrated into this micro-grid configuration through AC coupling, should the energy demand surpass the generation capacity.

Plant location

It is advisable to consider the installation of a roof-mounted solar power system on the roofs of both the main residence and the adjacent outbuilding units, should there be a requirement for increased energy generation capacity. The northern-facing roof of the main residence, which has an approximate area of 46 square meters, is capable of accommodating approximately 23 solar panels, providing a total capacity of 7 kilowatts.

Plant capacity

The proposed system is designed with a capacity of 15 kWh, while the anticipated peak consumption is estimated to reach 30 kWh per day.

Energy Storage

A sealed Lithium Iron Phosphate battery system is proposed, which is expected to provide a lifespan exceeding 10 years at a depth of discharge of 70%. Additionally, this system offers an expedited charging time, enhancing its operational efficiency.

Distribution Network

A small distribution network of underground cabling is necessary to establish connections from the main house to all units. It is standard practice to excavate a trench measuring 450 mm in width and 800 mm in depth for the burial of the cables. Alternatively, the cables may be secured to walkways utilising cable trays.

Remote equipment that requires electrical power, such as boreholes, can be effectively sustained through the use of solar pumps with dedicated photovoltaic panels. Alternatively, a cable may be installed, contingent upon the distance from the main residence and the applicable regulations governing such installations.

Area/Street lighting

The road lighting system will utilise low-intensity, low-level bollard luminaires. Each luminaire will be powered by an individual small solar cell and will activate solely upon detecting motion.

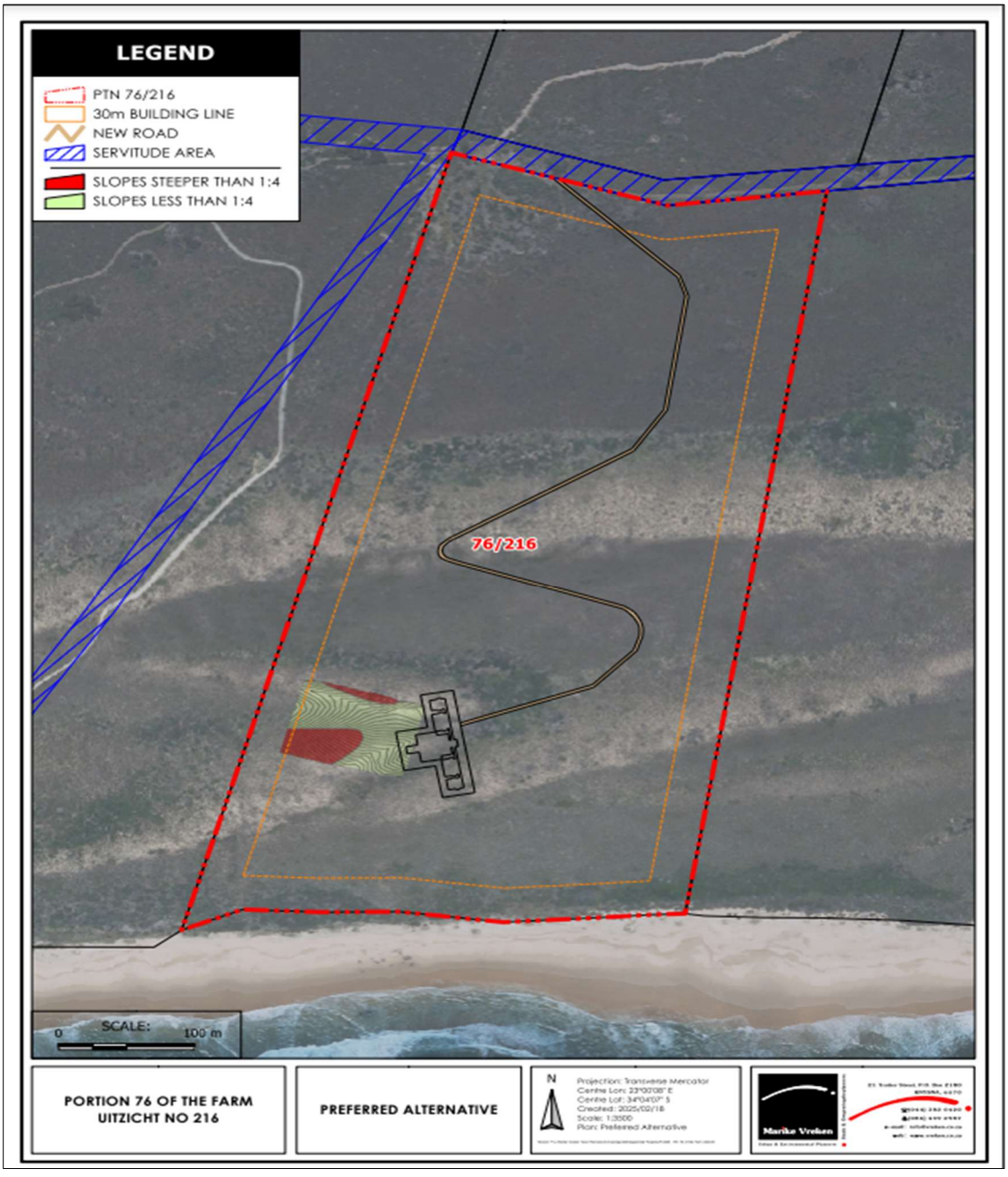


Figure 2 Aerial Map of the proposed development

Description of the Alternative 2 Development

The proposal is to exercise the primary land use rights of the property, (i.e. construction of a main farmhouse and the farm manager's house). The development proposal entails the following:

- The construction of 1one (x1) main dwelling house to be situated in the south-western corner of the property (4000m²).
- The construction of one (x1) farm manager's house in the north-western corner of the property (1200m²).
- The construction of a new internal road to provide access to the southern portion of the property.

The Main Dwelling House

The primary dwelling unit will be situated in the south-western portion of the property consisting of the following inter-leading room's ±3000m²:

- 6 Bedrooms.
- Open plan living area consisting of the kitchen, lounge area, dining area, kitchen, bar, scullery, bathroom and wine cellar.

The Farm Manager's House

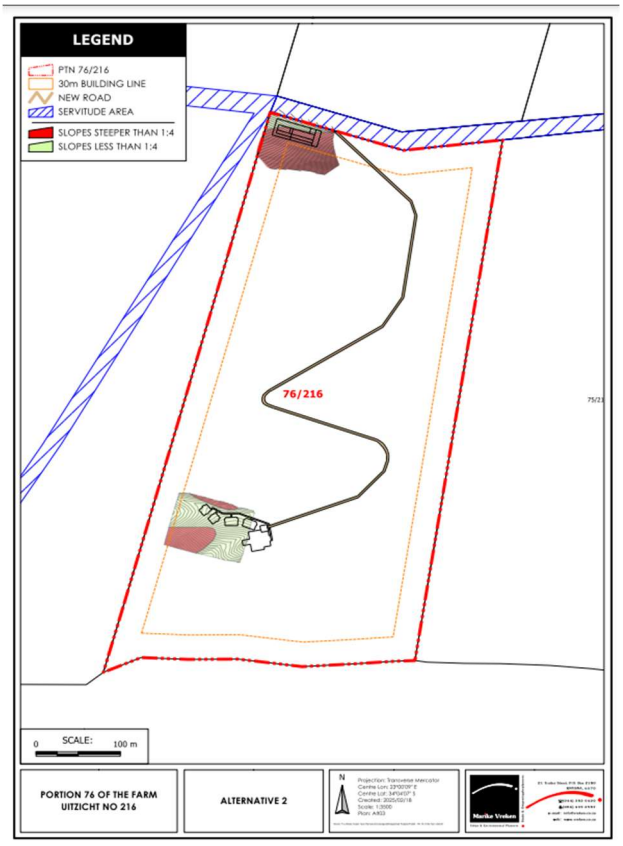
The Dwelling house to be situated in the north-western corner will encroach the prescribed 30m building line, and therefore an application must be made for a permanent departure for the relaxation of the northern and western building lines.

The main reason why the house encroaches on the prescribed building line is to prevent unnecessary disturbance of sensitive, pristine fynbos. The proposed footprint in the building line area is an existing transformed area, and consists of the following:

- Ground Floor: 600m²
- First Floor: 400m²
- Footprint: 600m²
- Disturbance area: 1200m²

The Internal Road

The internal road will be 830 meters in length. The road surface area will be 2.5 meters wide and the disturbed area for construction of the road varies between 4 to 5.5 meters wide. The internal road is to access the south- western side of the property.



The No Go Alternative

The proposed redevelopment of Portion 76 of the Farm Uitzicht 216 will remain unutilised and vacant, thereby restricting the landowner's ability to exercise their right to construct a residential dwelling.

3. LOCATION INFORMATION

Province:	Western Cape
District Municipality:	Eden Municipality
Local Municipality:	Knysna Municipality
Ward number(s):	Ward 5
Nearest town(s):	Knysna
Farm name(s) and number(s):	Farm Uitzicht No 216
Portion number(s):	Portion 76

4. PROPERTY INFORMATION

Farm Name	Portion 76 of the Farm Uitzicht NO 216
Surveyor General 21-digit code:	C03900000000021600076
Zoning:	Agriculture I
Urban Edge:	Property located outside urban edge of Brenton on sea
Applicant name:	Midnight Storm Investments 180(Pty)Ltd
Registration number (if applicant is a company):	2004/207248/07
Trading name (if any):	Midnight Storm Investments 180(Pty)Ltd
Responsible person name:	Dr Andre Peach and Dr HJ Swart
Applicant/ Responsible person ID number:	6501175015081 / 5409145091086
Responsible position, e.g. Director, CEO, etc.:	Directors
Physical address of applicant:	653 Kamdebos Road, Florauna 0182
Postal address:	PO Box 59000 Karenpark
Postal code:	0118
Telephone:	083 271 9532
Fax:	012 3359591
E-mail:	andrepeach@lantic.net
GPS point middle of property:	Lat: -34.068388 | Lon: 23.002727

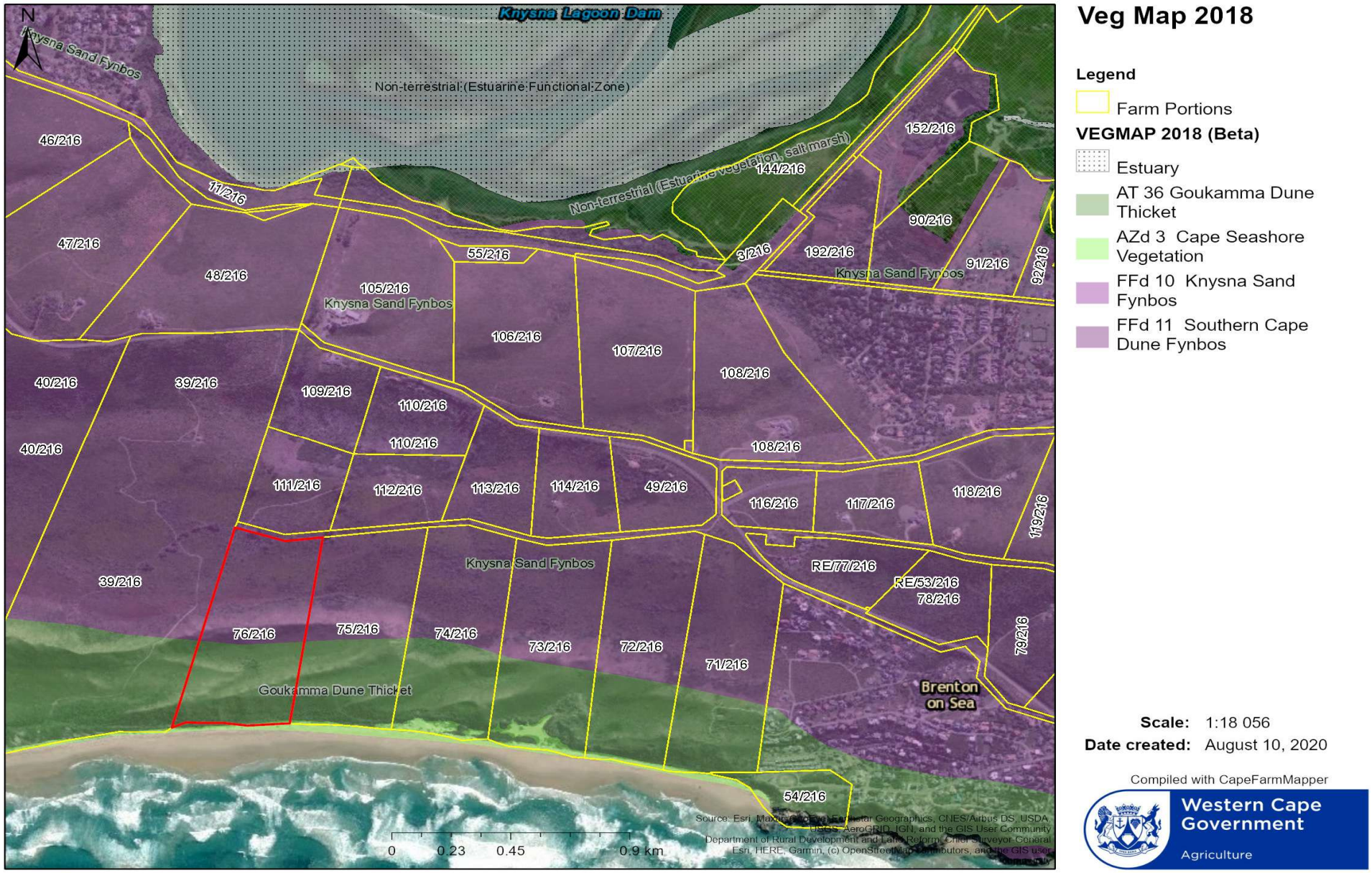
5. SITE DEVELOPMENT PLAN

The map presented below illustrates the proposed activity, including its associated structures, infrastructure, and areas designated as environmentally sensitive (no-go zones) within the site. A detailed map can be found in **Appendix B** of this document for further examination.

Figure 3 Preferred Alternative Layout

6. ENVIRONMENTAL SENSITIVITY MAPS

Figure 4: Critical Biodiversity Map – Portion 76 is within the Critical Biodiversity Area 1 (CBA 1)



Veg Map 2018

Legend

- Farm Portions

VEGMAP 2018 (Beta)

- Estuary
- AT 36 Goukamma Dune Thicket
- AZd 3 Cape Seashore Vegetation
- FFd 10 Knysna Sand Fynbos
- FFd 11 Southern Cape Dune Fynbos

Scale: 1:18 056
Date created: August 10, 2020

Compiled with CapeFarmMapper

Western Cape Government
Agriculture

Figure 5: Vegetation Map

7. MITIGATION AND MANAGEMENT MEASURES

Impacts foreseen during the construction phase:

Impact 1 – Loss of natural vegetation

The entire property is classed as a Critical Biodiversity Area (CBA) which is defined as areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. The Ecosystem Threat status indicates that the Northern Portion of the property is classed as Critical Endangered and the Southern Portion as Least Threatened. This is as a result of the vegetation found on site. The Northern Portion is identified as having Knysna Sand Fynbos with an ecological status of Critically Endangered and the Southern Portion as Goukamma Dune Thicket with an ecological status of Least Threatened.

The loss of Knysna Sand Fynbos (northern portion), which is listed as critically endangered (CR) under the NEM:BA Act (2022 and Goukamma Dune Thicket (southern section), which is categorized as Least Threatened.

The No-Go option would result in the vegetation remaining as is, however the right of the applicant to construct a dwelling on the property.

Impact	**Preferred Alternative**		**Alternative 2**		**No-Go**
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Permanent	Permanent	Permanent	Permanent	On-going
Extent	Very limited	Very limited	Limited	Limited	Limited
Intensity	Medium	Low	High	Medium	Negligible
Probability	Certain/definite	Certain/definite	Certain/definite	Certain/definite	Likely
Confidence	High	High	High	High	High
Reversibility	Low	Medium	Medium	Medium	Low
Resource irreplaceability	Medium	Low	High	Medium	Low
Significance	**Medium - negative**	**Low - negative**	**High - negative**	**Medium - negative**	**Minor - negative**
Cumulative impacts	Loss of ecological corridors: The southern section is categorized as Least Threatened, featuring Goukamma Dune Thicket, should mitigation measures not be implemented during construction.				

Mitigation:

It is imperative that impacts on the continuity of ecological processes and corridors must be taken into consideration irrespective of the type of land use proposed or envisaged in the region as a whole.

1. Removal of Alien Invasive Species during the construction phase.
2. An onsite nursery must be created and a search and rescue of all plants needs to be conducted prior to construction occurring on site. The plants rescued are to be re-used in the rehabilitation of the site after construction.
3. Appointment of an Environmental Control Officer.
4. During construction: New roads need to be made using the same / similar materials and methods as the neighbouring road.

The development will not have an unnecessary significantly negative impact on biodiversity conservation, the sense of place of the area and transform and fragment the Knysna Sand Fynbos Coastal Corridor.

Impact 2 – Aesthetic impact

At present, the site is vacant and devoid of any existing structures. Construction activities may have a visual impact on neighbouring properties and commuters in the area. The proposed development will be visible from Brenton Beach.
The subject property is situated outside the urban edge of the Brenton on Sea area. The landowner will be exercising their primary land use rights for Agriculture Zone I properties. The proposed dwelling will not be highly visible from the Brenton Township or from the main road into Brenton. The main house is positioned between two ridges.

Impact	**Preferred Alternative**	**Alternative 2**	**No-Go**

	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Permanent	Long term	Permanent	Long term	On-going
Extent	Limited	Very limited	Local	Local	Limited
Intensity	Medium	Low	High	Medium	Negligible
Probability	Likely	Likely	Likely	Likely	Rare / improbable
Confidence	High	High	High	High	Medium
Reversibility	Low	Medium	Low	Medium	Low
Resource irreplaceability	Medium	Low	Medium	Low	Medium
Significance	**Medium-negative**	**Low - negative**	**High - negative**	**Medium - negative**	**Negligible - negative**
Cumulative impacts	The site will be less visually intrusive during the construction phase. As is evident portion 76/216 is only barely visible in the distance from the road leading to and from Brenton-on-Sea. Consequently, the proposed development will have no visual impact on the aesthetic value of the affected area. On heritage grounds, due to the entire absence of heritage resources or themes in and around 76/216, the proposed development will have negligible to no impact on the visual or aesthetic heritage value of the area.				

Mitigation:

- The construction site should be fenced and screened off from the surrounding areas, including chemical toilets (if required).
- Good housekeeping must be implemented at all times and the site must be kept tidy and clean (no litter etc.). Indigenous vegetation must be used for landscaping.
- During the construction phase, the proposed development will be effectively screened from the N2 motorway using green shade cloth.

Impact 3 – Socio-economic

Job creation- Positive Impact. No negative impacts on the socioeconomic aspects are foreseen as the proposed construction will not negatively impact on any person's social rights. Employment opportunities (temporary) will be generated during the construction phase. The positive socio-economic impact, including a few short-, medium- and long-term jobs outweigh the negligible to zero negative impacts this project may have on heritage resources.

Impact	**Preferred Alternative**		**Alternative 2**		**No-Go**
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Temporary	Temporary	Temporary	Temporary	Medium-term
Extent	Limited	Limited	Limited	Limited	Limited
Intensity	High	High	High	High	High
Probability	Likely	Likely	Likely	Likely	Likely
Confidence	High	High	High	High	High
Reversibility	Low	Low	Low	Low	Medium
Resource irreplaceability	Medium	Medium	Medium	Medium	Low
Significance	**Medium - positive**	**Medium - positive**	**Medium - positive**	**Medium - positive**	**Low - negative**
Cumulative impacts	Employment opportunities for people from the local community.				

Mitigation:

The contractor should employ people from the local community where possible and ensure that skill transfer and training are provided where feasible.

Impact 4 – Safety

It is essential to consider and mitigate occupational exposure, the risks of fires and explosions, as well as health hazards during the construction phase.

Impact	Preferred Alternative		Alternative 2		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Temporary	Temporary	Temporary	Temporary	On-going
Extent	Local	Local	Local	Local	Local
Intensity	Medium	Low	Medium	Low	Low
Probability	Unlikely	Unlikely	Unlikely	Unlikely	Not Probably
Confidence	Medium	Medium	Medium	Medium	Medium
Reversibility	Medium	High	Medium	High	Medium
Resource irreplaceability	Medium	Low	Medium	Low	Low
Significance	**Medium-negative**	**Low - negative**	**Medium - negative**	**Low - negative**	**Negligible**
Cumulative impacts	1. **Occupational Exposure:** Prolonged exposure to dust, noise, and hazardous materials could affect workers' health. 2. **Fire and Explosion Risks:** The use of flammable materials, heavy machinery, and electrical equipment increases the potential for fire and explosions. 3. **Health Hazards:** Construction activities can expose workers to physical hazards (e.g., falls, machinery accidents), chemical hazards (e.g., solvents, adhesives), and ergonomic risks.				

Mitigation:

- Adequate measures must be in place to ensure the safety of staff on-site, such as proper training of operators, first aid treatment, medical assistance, emergency treatment, prevention of inhalation of dust, protective clothing, footwear and gloves.
- Manuals and training regarding the correct handling of materials and operation of equipment should be in place and updates as new or updated material safety data sheets become available; and monitoring should be carried out on a regular basis, including accident reports.
- All employees are to be managed in strict accordance with the OH&S Act.
- Sufficient water must be available for firefighting purposes.
- All personnel must be trained in responsible fire protection measures. Regular inspections should be carried out to inspect and test fire-fighting equipment and pollution control measures.
- Relevant SANS Standards shall be implemented at the facility.
- **Personal Protective Equipment (PPE):** Provide appropriate PPE such as helmets, gloves, safety boots, ear protection, and respiratory masks.
- **Dust and Noise Control:** Implement dust suppression techniques (e.g., water spraying) and use noise barriers to reduce exposure levels.
- **Workplace Safety Training:** Conduct regular training sessions on safe work practices, emergency response, and hazard identification.
- **Ventilation Systems:** Ensure adequate ventilation in enclosed spaces to prevent the build-up of hazardous fumes.
- **Electrical Safety Protocols:** Maintain electrical equipment properly, avoid overloading circuits, and ensure safe installation practices.
- **First Aid and Emergency Preparedness:** Maintain fully equipped first aid kits on-site and ensure trained first-aid personnel are always available.

Impact 5 – Noise Disturbance

Impacts associated with general building construction noise. The construction phase will result in a temporary increase in ambient noise levels from moving machinery, equipment and additional people on site.

Impact	Preferred Alternative		Alternative 2		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Temporary	Temporary	Temporary	Temporary	-
Extent	Very limited	Very limited	Very limited	Very limited	-

Intensity	Low	Low	Medium	Low	-
Probability	Unlikely	Unlikely	Unlikely	Unlikely	-
Confidence	High	High	High	High	-
Reversibility	Medium	Medium	Medium	Medium	-
Resource irreplaceability	Low	Low	Medium	Low	-
Significance	**Low - negative**	**Low - negative**	**Medium-negative**	**Low - negative**	N/A
Cumulative impacts	Reduced noise levels during the construction phase.				

Mitigation:

- Construction work will take place during the daytime.
- No construction activities must occur on Sundays or public holidays.
- The equipment and machinery used must be regularly maintained to reduce the potential noise disturbance.

Impact 6 – Geotechnical Impacts

Compaction of soil for the internal road and the main dwelling house. Groundwater may be impacted on during construction if substances, such as fuels and oils associated with the usage of machinery and equipment, are allowed to leak onto soil and potentially leach into the groundwater.

Soil

Mixing cement directly on the ground could also result in contamination. Contaminated soil will have to be rehabilitated or disposed of, depending on the level and nature of the contamination. Soil erosion and topsoil loss are not expected during construction as activities will be limited to the development footprint.

Air pollution

Dust will be generated during the construction activities, particularly during excavations. During the construction phase of the associated infrastructure dust will be generated. The effect on air quality is expected to be minor and localised, as well as of short-term duration as the construction phase is temporary. The contribution of exhaust fumes from the associated construction equipment and vehicles will be negligible.

Impact	**Preferred Alternative**		**Alternative 2**		**No-Go**
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	On-going	Short term	On-going	Short term	-
Extent	Local	Local	Local	Local	-
Intensity	Medium	Low	Medium	Low	-
Probability	Likely	Unlikely	Likely	Unlikely	-
Confidence	High	High	High	High	-
Reversibility	Medium	Medium	Medium	Medium	-
Resource irreplaceability	Medium	Low	Medium	Low	-
Significance	**Medium - negative**	**Low- negative**	**Medium - negative**	**Low - negative**	N/A
Cumulative impacts	Potential contamination of stormwater run-off, soil, groundwater, and nuisance as a result of dust generation will be minimised by implementing mitigation measures.				

Mitigation:

As per the Geotechnical Report:

The road layout must take into account the natural contours and drainage lines present on the site to minimise the extent of earthworks required. It is essential that deep box cuts are properly retained. Typically, box cuts will not encounter rock, and excavated soil can be utilized for filling, excluding the organic-rich topsoil. The in-situ subgrade material varies in quality, generally ranging from G7 to G9. Consequently, it is advisable to provide for the importation of at least one selected subgrade layer of G7 quality, in addition to the standard layer works, which include subbase, base materials, pavers, and cement slabs, for lightly trafficked internal roads and parking areas.

Drainage: The soil is highly permeable and site drainage is not envisaged to be a problem. No subsoil drains are deemed necessary along roads but are recommended behind retaining walls as standard.

- ✓ Rainwater tanks will be placed around the main dwelling to collect rainwater for reuse from roofs.
- ✓ Stockpiles of excavated materials or spoils during the construction phase should be strategically positioned to mitigate wind erosion and avoid adverse impacts on drainage lines.

- ✓ Dust suppression measures should be implemented in accordance with specific site conditions. Vehicles transporting materials prone to being displaced by wind must be securely covered. Ingress and egress points onto public roads must be cleared of any dust or mud.
- ✓ To minimise emissions resulting from exhaust fumes, regular maintenance of vehicles and equipment is essential to ensure optimal working conditions.
- ✓ Blanket clearing of the site.
- ✓ It is proposed that steel or concrete piling be utilised for the building structures, thereby limiting the exposure of bare soils and wind-blown dust.
- ✓ Erosion protection measures must be implemented in disturbed areas.
- ✓ Topsoil and soil stockpiles should be covered, wetted or otherwise stabilised to prevent wind erosion and dust generation.
- ✓ A water cart must be employed on windy days to wet soils that would be prone to wind erosion to limit dust generation.
- ✓ Disturbed areas should be rehabilitated in parallel with construction completion.
- ✓ Compile and implement an Environmental Management Programme; and audit reporting by an ECO during construction.
- ✓ During construction: New roads need to be made using the same/similar materials and methods as the neighbouring road.

Construction activities

- Storage of potential pollutants such as fuel, oil, cement, etc. should be confined to a sealed surface with a bund wall to prevent soil contamination from accidental leaks and spills.
- Only the volume of fuel required for the day should be stored. The use of potentially polluting substances should be strictly controlled and handled in designated areas under the supervision of competent and trained personnel as stipulated in the EMPr.
- No vehicle or equipment will be serviced on-site.
- Appropriately sized drip trays must always be used in emergency situations.
- Approved absorbent material must be kept on-site in sufficient quantities to deal with small spills.
- Absorbent material and contaminated soil should be disposed of at a registered hazardous waste site.
- No cement mixing is to occur directly on the ground and any cement or hydrocarbon spills should be cleared away immediately.

The generation of dust during the construction phase is expected to be minimal.

- Stockpiles of fine construction materials should be positioned such that they are not exposed to wind erosion or drainage lines.
- Dust suppression should be implemented according to the prevailing site-specific conditions.
- Construction vehicles transporting construction materials must be suitably covered to prevent materials from being blown off.
- Vehicles and machinery will be kept in good working order to avoid excess emissions.
- All development activities must remain within the demarcated construction area.
- Chemical toilets should be provided for construction workers if the on-site ablution facilities are not adequate (1 toilet per 30 workers). Their use should be enforced.
- Chemical toilets will be serviced by an appropriate service provider, provided with toilet paper and cleaned regularly.
- Servicing will include emptying without spills and appropriate disposal by the service provider.

- It is essential to maintain an onsite nursery, and the search-and-rescue plants should be repurposed for the rehabilitation of the site following construction activities.

The impact assessment identifies Alternative 1 as the optimal layout, while Alternative 2 is deemed less favourable. The removal of the farm manager's house will prevent adverse effects on the sensitive vegetation in this area, which will significantly mitigate the overall impact on the surrounding flora.

Impact 7 – Waste Generation

Waste generated through construction activities (general and hazardous) that is not correctly managed may result in pollution of water, air and soil resources.

Impact	Preferred Alternative		Alternative 2		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Temporary	Temporary	Temporary	Temporary	-
Extent	Very limited	Very limited	Very limited	Very limited	-
Intensity	Medium	Low	Medium	Low	-
Probability	Likely	Unlikely	Likely	Unlikely	-
Confidence	High	High	High	High	-

Reversibility	Medium	Medium	Medium	Medium	-
Resource irreplaceability	Medium	Low	Medium	Low	-
Significance	**Medium - negative**	**Low - negative**	**Medium - negative**	**Low- negative**	N/A
Cumulative impacts	Litter/contamination of potential soil, water or air pollution.				

Mitigation:

- Appropriate containers for different types of waste should be provided throughout the site.
- The containers must have sufficient capacity and be removed frequently.
- Environmental awareness training should include a section on the impacts of waste generation and improper waste management.
- Ensure that rubble and construction waste are sorted on site and that recyclable material is separated from disposable waste.
- The contractor should keep safe disposal certificates for record purposes.

Impact 8 – Cultural-historical

Heritage resources may be encountered during excavation activities on-site. A NID was submitted to Heritage Western Cape. A Heritage Impact Statement was prepared by Dr Peter Nilssen and stated the following:
The SAHRIS PalaeoSensitivity map shows that the study area is white/clear meaning that palaeontological sensitivity is UNKNOWN and that "these areas will require a minimum of a desktop study.

Impact	**Preferred Alternative**		**Alternative 2**		**No-Go**
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Temporary	Temporary	Temporary	Temporary	-
Extent	Very limited	Very limited	Very limited	Very limited	-
Intensity	Medium	Low	Medium	Low	-
Probability	Unlikely	Unlikely	Unlikely	Unlikely	-
Confidence	High	High	High	High	-
Reversibility	Medium	Medium	Medium	Medium	-
Resource irreplaceability	Low	Low	Low	Low	-
Significance	**Low - negative**	**Low - negative**	**Low - negative**	**Low- negative**	N/A
Cumulative impacts	Potential loss of cultural or historical resources, should it be encountered during construction activities. However, this is not expected. Potential loss of cultural or historical resources should they be encountered during construction activities, but this is not expected. Because there are no significant heritage resources associated with the property, it does not meaningfully contribute to the already altered cultural landscape of the area. For the same reason, there will be negligible to no cumulative impact on the heritage value of the area. On heritage grounds, due to the entire absence of heritage resources or themes in and around 76/216, the proposed development will have negligible to no impact on the visual or aesthetic heritage value of the area. The positive socio-economic impact, including a few short-, medium- and long-term jobs outweigh the negligible to zero negative impacts this project may have on heritage resources.				

Mitigation:

There are no cultural or historical features on-site. However, the provisions of the National Heritage Resources Act will apply.

- Environmental awareness training should be presented to all employees at the site.
- Such training should include the identification of potential heritage resources and how to react if the presence of heritage resources is suspected.
- If any sign of a heritage or cultural site is unearthed during excavations, then all activities must cease until a heritage specialist has been consulted and had the opportunity to investigate the findings.
- In case of the unexpected uncovering of fossil bones in the surficial coversands and soil, or buried archaeological material, or unmarked graves, it is recommended that a protocol for finds of potential fossil material (and buried artefacts), the Fossil Finds Procedure (FFP), is included in the Environmental Management Plan (EMP) for the

Construction Phase of the project. Adjustments to the development plan are not expected to change this recommendation".

Impacts foreseen during the operation phase:

Impact 1 – Geotechnical Impacts

The internal road and the main dwelling house.

Surface water run-off
Inadequate waste management, specifically in the form of litter, can result in surface water pollution.
Soil erosion and topsoil loss are not expected during operation and will be limited to the development footprint.

Impact	Preferred Alternative		Alternative 2		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	On-going	On-going	On-going	On-going	-
Extent	Limited	Limited	Limited	Limited	-
Intensity	Low	Low	Low	Low	-
Probability	Unlikely	Unlikely	Unlikely	Unlikely	-
Confidence	High	High	High	High	-
Reversibility	Medium	Medium	Medium	Medium	-
Resource irreplaceability	Low	Low	Low	Low	-
Significance	**Low- negative**	**Low- negative**	**Low- negative**	**Low- negative**	N/A
Cumulative impacts	Potential contamination of stormwater run-off, soil, and groundwater and soil erosion.				

Mitigation:

Drainage: The soil is highly permeable and site drainage is not envisaged to be a problem. No subsoil drains are deemed necessary along roads but are recommended behind retaining walls as standard.

The stormwater drainage system must be adhered to, and the system should lead runoff water away to prevent soil erosion.

- Use rainwater collection tanks to serve as a retention vessel in downpours.
- Driveways must also be utilised for rainwater harvesting.
- Stormwater management should encourage the collection and infiltration of water into the soil profile.

Impact 2 – Habitat and biodiversity loss

The loss of Knysna Sand Fynbos (northern portion), which is listed as critically endangered (CR) under the NEM:BA Act (2022 and Goukamma Dune Thicket (southern section), which is categorized as Least Threatened.

Impact	Preferred Alternative		Alternative 2		No-Go
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Permanent	Permanent	Permanent	Permanent	-
Extent	Local	Local	Local	Local	-
Intensity	Low	Low	Low	Low	-
Probability	Unlikely	Unlikely	Unlikely	Unlikely	-
Confidence	High	High	High	High	-
Reversibility	-	-	-	-	-
Resource irreplaceability	-	-	-	-	-
Significance	**Low - negative**	**Low - negative**	**Low - negative**	**Low - negative**	N/A
Cumulative impacts	Loss of ecological corridors: The southern section is categorized as Least Threatened, featuring Goukamma Dune Thicket, the northern section of the property is classified as Critically Endangered				

Mitigation:

It is essential to maintain an onsite nursery, and the search-and-rescue plants should be repurposed for the rehabilitation of the site following construction activities.

The impact assessment identifies Alternative 1 as the optimal layout, while Alternative 2 is deemed less favourable. The removal of the farm manager's house will prevent adverse effects on the sensitive vegetation in this area, which will significantly mitigate the overall impact on the surrounding flora.

Alternative 1 is preferable because it minimizes project footprint, reduces fire risk, limits landscape fragmentation, and results in less than 1% transformation of the property, compared to over 2% for other options.

The development of the Main dwelling will not have an unnecessary significantly negative impact on biodiversity conservation, the sense of place of the area and transform and fragment the Knysna Sand Fynbos Coastal Corridor.

Impact 3 – Aesthetic impact

The proposed development will be visible from Brenton Beach.

Impact	**Preferred Alternative**		**Alternative 2**		**No-Go**
	Without mitigation	With mitigation	Without mitigation	With mitigation	
Duration	Permanent	Permanent	Permanent	Permanent	-
Extent	Local	Local	Local	Local	-
Intensity	Low	Low	Low	Low	-
Probability	Unlikely	Unlikely	Unlikely	Unlikely	-
Confidence	High	High	High	High	-
Reversibility	-	-	-	-	-
Resource irreplaceability	-	-	-	-	-
Significance	**Low - negative**	**Low - negative**	**Low - negative**	**Low - negative**	N/A
Cumulative impacts	The character of the portion of the site is changed.				

Mitigation:

- The design of the proposed development must take into account the visual impacts.
- It is essential for the buildings to integrate seamlessly with the natural environment.
- Employing down lighting, utilising earthy colours, and strategically positioning satellite dishes are recommended measures to achieve effective mitigation of visual disturbances.

As is evident portion 76/216 is only barely visible in the distance from the road leading to and from Brenton-on-Sea. Consequently, the proposed development will have no visual impact on the aesthetic value of the affected area. On heritage grounds, due to the entire absence of heritage resources or themes in and around 76/216, the proposed development will have negligible to no impact on the visual or aesthetic heritage value of the area.

8. SPECIALIST RECOMMENDATIONS

8.1. Heritage Statement (Dr. Peter Nilssen, November 2023) –

The southern boundary of 76/212 aligns with the high-water mark of the Indian Ocean, while the northern boundary is approximately 650 m north of it. The main dwelling is proposed to be about 120 m from the shoreline, just inland of a steep 60 m high coastal dune. A second dune, around 70 m high, runs east-west through the property, with the site for the second house positioned about 80 m above mean sea level. The dunes are composed of Holocene sands, accumulated over the last 6,000 years, resting on aeolianites from the Waenhuiskrans Formation, which formed 80,000 to 130,000 years ago. No hard rock geological sediments or rock shelters are present on the property, and the nearest rocky intertidal zones are over 1.5 km east and 3 km west. There are modern structures on surrounding properties, but no built environment exists on 76/216.

The SAHRIS PalaeoSensitivity map shows that the study area is white/clear/unshaded, meaning that palaeontological sensitivity is UNKNOWN and that "these areas will require a minimum of a desktop study.

It is expected that the excavations for foundations and infrastructure will follow typical practices for conventional developments, generally reaching depths of 0.5 to 0.8 meters. However, deeper excavations, around 2 meters, will

be required for septic tanks and swimming pools. The earthworks for the farm buildings in the northwest corner of the property will primarily impact the coversands but may also intersect the underlying palaeosurface and the buried soil that caps the Waenhuiskrans Formation aeolianite.

Fossil bones in the Waenhuiskrans Formation are likely from the later Quaternary (160 to 80 ka) and mainly consist of extant species, with some potentially extinct. These finds hold moderate scientific importance, but significant discoveries are unlikely due to limited subsurface impact

In the Strandveld Formation dunes, rare bones of elephants, rhinos, and hippos are found, dating to less than 6,000 years old, reflecting modern fauna. Analyses of these subfossils provide ecological insights, with little impact expected from excavations.

The screening report indicates that the receiving environment has a **Low** Relative Archaeological & Cultural Heritage Sensitivity. The Heritage Statement concluded the following in terms of Archaeological and Cultural Heritage:

- No colonial or pre-colonial heritage resources of significance were identified in the study area. If present on or in aeolian dune sands, then Stone Age implements are expected to be of low significance and Not Conservation Worthy. No caves or rock shelters occur on 76/216 and there are no known or declared Heritage Sites nor other significant heritage resources in the surroundings that will be impacted by the proposed activity.

- Because there are no significant heritage resources associated with the property, it does not meaningfully contribute to the already altered cultural landscape of the area. For the same reason there will be negligible to no cumulative impact on the heritage value of the area.

The screening report indicates that the receiving environment has a **Medium** Palaeontology Sensitivity.

Recommendations

The proposed developments are not expected to impact fossil heritage resources in the subsurface disturbance areas. However, if fossil bones, archaeological material, or unmarked graves are unexpectedly uncovered, it is recommended to include a Fossil Finds Procedure (FFP) in the Environmental Management Program (EMPr) for construction.

No archaeological studies have been done on 76/216, but previous work was conducted on nearby sites (Nilssen 2017). There are no National or Provincial Heritage Sites or graded archaeological resources in the immediate vicinity that would be affected by the development.

A few fragments of white mussel shell were seen among numerous modern land snail shells atop the apex of the southernmost coastal dune. The shells appear modern and are not associated with any anthropogenic materials. They are likely recent bird or fisherman droppings and are not archaeological in origin. The observation is of no heritage value.

No archaeological or heritage resources of colonial or pre-colonial origin were identified on 76/216 or in its immediate vicinity.

Palaeontological and heritage studies indicate that the proposed development **will not impact significant archaeological resources** and will have **negligible visual effects**. The area, already transformed into a holiday and residential landscape, will remain unchanged in terms of heritage value.

The area has negligible visual impact and does not contribute to the cultural landscape. Overall, the socio-economic benefits, including job creation, outweigh any minor impacts.

An impact assessment determined that the impact of the proposed development has **Low significance** for cultural impact (Low should proposed mitigation be applied - see Management Measures section below), **Low significance** for visual impact, and **Low significance** for the impact of archaeological resources (although this would change if any human remains or significant archaeological materials are exposed during construction activities).

Management Measures –

It is recommended that the following be included in the Environmental Authorisation / Environmental Management Program:

- ✓ although not requiring further Palaeontological investigation, Prof Pether recommends that the Fossil Finds Procedure (FFP – see links above), should be included in the Environmental Authorisation / Environmental Management Program (EMPr) for the construction phase of the project,
- ✓ due to the findings of this, geotechnical test excavations, and previous archaeological studies, archaeological monitoring is NOT recommended, but,

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

8.2. Geotechnical Soil Test Report (Outeniqua Consulting, May 2019) –

The site is underlain by unconsolidated aeolian sand with Quaternary shell inclusions, forming stable coastal dunes. The soil consists of an 800 mm dark brown silty fine sand topsoil over light brown cohesionless fine sand. DCP tests indicate the upper layer is very loose (40-75 mm/blow), becoming medium dense below 1 meter. Test pits showed wall collapses due to sandy conditions, with no bedrock expected for several meters below.

Lab results indicate that the soils are non-plastic and mostly consist of fine sand, with 99% passing through a 0.425 mm sieve. They are classified as either SP (poorly graded sand with little to no fines) or SM (silty sand with non-plastic fines). No heaving is expected due to the lack of plastic fines.

None of the test pits found groundwater, and there were no signs of poorly drained areas. The highly permeable sands will generally drain well, though seasonal seepage may occur along natural drainage lines on the site.

An impact assessment determined that the impact of the proposed development has **Low significance** for contamination of stormwater run-off, soil, groundwater, and nuisance as a result of dust generation (Low should proposed mitigation be applied - see Management Measures section below).

Recommendations

Earthworks

Excavations up to 3 meters deep are classified as "Soft" per SABS1200D. Sidewalls become unstable at angles over 30 degrees, so they should be battered or supported with retaining walls. The soil beneath the topsoil is generally suitable for backfilling in various applications but must be approved by the engineer before use.

The proposed dwelling site has a moderate slope of about 1:5 and will require significant earthworks for level platforms. The access road also has steep terrain, necessitating earthworks and retaining walls for the box cut.

Foundations and floor

For single and double-storey masonry and timber structures, use lightly reinforced concrete strips or pads at 0.6 meters depth on well-compacted sand or controlled fill (max bearing pressure: 100 kPa). Excavate foundation trenches to 1.2 meters, compact with a trench rammer, and backfill with 0.6 meters of moist sand in 0.15-meter layers. Test compaction with a Dynamic Cone Penetrometer (DCP) to ensure a max penetration of 20 mm/blow to at least 1 meter below the foundation level.

Avoid foundations on slopes (1:8 to 1:4) due to risks and costs. Consider deep foundations for steep slopes. Ensure an engineer inspects the site, and compact fill under reinforced concrete to 100% Mod AASHTO density.

Roads

The road layout should consider the site's natural contours and drainage to minimize earthworks. Deep box cuts should be retained, as they typically do not encounter rock. Fill can use in-situ soil (excluding topsoil). The in-situ subgrade material varies from G7 to G9, so it's advised to import at least one G7 subgrade layer in addition to standard layer works for lightly trafficked internal roads and parking areas.

Drainage

The soil is highly permeable and site drainage is not envisaged to be a problem. No subsoil drains are deemed necessary along roads but are recommended behind retaining walls as standard.

Management Measures-

- ✓ The road layout must take into account the natural contours and drainage lines present on the site to minimise the extent of earthworks required.
- ✓ It is essential that deep box cuts are properly retained. Typically, box cuts will not encounter rock, and excavated soil can be utilized for filling, excluding the organic-rich topsoil. The in-situ subgrade material varies in quality, generally ranging from G7 to G9. Consequently, it is advisable to provide for the importation of at least one selected subgrade layer of G7 quality, in addition to the standard layer works, which include subbase, base materials, pavers, and cement slabs, for lightly trafficked internal roads and parking areas.

8.3. Vegetation:

8.3.1. Vegetation Sensitivity Analysis (Enviro-Prac Consultancy, April 2017) –

According to the Vegetation Sensitivity Analysis performed by Enviro-Prac Consultancy, which utilizes the classification system established in the "Vegetation of Southern Africa, Lesotho, and Swaziland (VEGMAP)" by Mucina and Rutherford, the following vegetation types are present on the property: FFd 10 Knysna Sand Fynbos (Critically Endangered), FFd 11 Southern Cape Dune Fynbos (Least Threatened), and Azd 3 Cape Sea Shore Vegetation (Least Threatened).

8.3.2. Agricultural Potential

According to Cape Farm Mapper, the Dryland Potential Index is very high and in terms of land capability, the majority of the property has a low to moderate (medium) potential. A small section in the middle of the property has a moderate to high (high) potential and a small portion in the southeastern corner of the property has a low to very low potential (low).

The Application area is zoned "Agriculture Zone I" and "Agriculture" is a primary land use right in this zoning category. The Section 8 Zoning Scheme Regulations, 1988 define "Agriculture" as:

"...the cultivation of land for raising crops and plants, including plantations, or the breeding of animals, including any form of farming activity, for example, stock, bee or bird farming, or any stud farm or farm for the keeping or breeding of animals, or a riding schools, or running a game farm on an extensive basis, or natural veld, and comprises only those activities and buildings that directly relate to the main farming activities on the farm, but does not include abattoirs, feed pen farming, aquaculture or other defined consent uses..."

The proposal is to exercise the primary land use rights of the property, (i.e., construction of the Main dwelling unit. The dwelling unit complies with the definition of "dwelling unit" as per the Section 8 Zoning Scheme Regulations, 1988.

As the primary land use and zoning of the property will not change from Agriculture, an Agriculture Assessment / Statement is not required.

The application area makes no contribution whatsoever to agricultural production at this stage for crop and grazing purposes.

However, the preservation of natural veld and bee farming will be practised on this property and both are seen as agriculture activities. It can, therefore, be concluded that the property has **Low** agricultural potential and no productive agricultural land will be lost by allowing the construction of the proposed buildings.

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

8.3.3. Site Sensitivity Verification

Confluent Environmental completed a Site Sensitivity Verification Report (SSVR) for Farm 76 / 216 (Uitzicht) near Brenton on Sea, as required by the DFFE due to Medium and High sensitivity areas, with overall Very High sensitivity for terrestrial biodiversity. The site contains critical natural vegetation, including Knysna Sand Fynbos, which is Critically Endangered and threatened by invasive pines.

It is designated as a Critical Biodiversity Area 1 (CBA1) and is an important ecological corridor, hosting various Species of Conservation Concern (SCC) with significant spatial variation in their distribution.

In July 2024, Confluent Environmental submitted a Site Sensitivity Verification Report for Farm 76/216 (Uitzicht), located west of Brenton on Sea. The farm is near the Knysna Lagoon, with access via a neighbouring road. The area is part of the Garden Route Biosphere Reserve and is close to protected sites, including the Brenton Blue Butterfly Reserve and Goukamma Provincial Nature Reserve.

The site is classified as having a Very High sensitivity concerning terrestrial biodiversity due to the presence of a significant area of natural vegetation, specifically a Critically Endangered (CR) vegetation type known as Knysna Sand Fynbos, located north of the barrier dune. This area is threatened by invasive plant species, particularly pines.

Management Measures-

Construction Phase

The construction phase will permanently eliminate habitat and vegetation on the site, including sensitive coastal communities (SCC). The impacts are ranked from most to least significant regarding Terrestrial Biodiversity and Plant Species.

- ✓ An Environmental Control Officer (ECO) should be appointed to ensure compliance with management plans and mitigation measures during construction.
- ✓ During construction: New roads need to be made using the same/similar materials and methods as the neighbouring road.

The proposed development on Portion 76/216 will affect sensitive fynbos and strandveld vegetation within a Critical Biodiversity Area 1 (CBA 1).

8.4. Aquatic Compliance Statement (Confluent Environmental (Pty) Ltd, February 2024) –

The development site (Farm 76/216) is in the quaternary catchment K50B in the catchment of the Knysna River/Estuary. However, given the site location, it cannot drain north to the Knysna Estuary due to steep slopes in that direction. Any wetlands or drainage lines would be either endorheic (inward draining) or drain to the sea. No rivers, streams, or wetlands are mapped on the property and there are no mapped streams or wetlands in the immediate vicinity of the property. As the rainfall intensity in the area is classified as Very High and the inherent erosion potential of soils is High, erosion of soils and stormwater management are factors which must be carefully considered when developing in this area. The mapped soils are very sandy and have high rates of drainage. This factor immediately limits the presence of surface water on the site.

The screening report indicates that the receiving environment has a Very High Aquatic Biodiversity Sensitivity. The sensitivity features identified about the classification are:

- Freshwater Ecosystem Priority Area (FEPA) Subcatchment
- Strategic Water Source Areas (SWSA) (SW) Outeniqua

The assessment was determined to be **Low** for Aquatic Biodiversity, in contrast to the Very High sensitivity reported by the DFFE screening tool. For either the FEPA or the SWSA to be affected by any proposed development at the site there would need to be a watercourse present, which there is not. The development will not impact on a watercourse and is not located proximal to any watercourse.

9. MONITORING

9.1. Signing of the EMPr

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

9.2. Legislation

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

LEGISLATION	ADMINISTERING AUTHORITY	TYPE Permit/ license/ authorization/comment
NATIONAL ENVIRONMENTAL MANAGEMENT ACT (ACT 107 OF 1998)	Department of Environmental Affairs	AUTHORIZATION
NATIONAL ENVIRONMENTAL MANAGEMENT AMENDMENT ACT (ACT 62 OF 2008)	Department of Environmental Affairs	AUTHORIZATION
NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (ACT NO 10 OF 2004)	SANParks, CapeNature and Department of Agriculture, Fisheries and Forestry	COMMENT
NATIONAL WATER ACT (ACT 36 OF 1998)	Department of Water Affairs	COMMENT
WESTERN CAPE NATURE CONSERVATION LAWS AMENDMENT ACT (ACT 3 OF 2000)	CapeNature	RELEVANT CONSIDERATION
CONSERVATION OF AGRICULTURAL RESOURCES ACT (ACT 43 OF 1983)	Department of Agriculture, Fisheries and Forestry	COMMENT
NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)	Heritage Western Cape	RELEVANT CONSIDERATION
OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)	Department of Health	RELEVANT CONSIDERATION

9.3. Policies

National Policy Development Framework 2020
The National Environmental Management Act, 1998 (107 Of 1998)
Knysna Municipal Land Use Planning Bylaw, 2015
Spatial Planning and Land Use Management Act (16 Of 2013)
Western Cape Land Use Planning Act, 2014 (3 Of 2014)
Subdivision Of Agricultural Land Act, 1970 (Act 70 Of 1970)
National Heritage Resources Act, 1999 (Act 25 Of 1999)
National Health Act, 2003 (Act 61 Of 2003)

9.4. Project Responsibilities

9.4.1. The Developer

While the specific role players and their responsibilities are listed below, the Developer is ultimately responsible for ensuring compliance with the environmental specification and upholding the environmental commitment to compliance with all National, Provincial and Local legislation, policies and guidelines that relate to the management of the environment. Briefly, the Developer:

- Appoint specialists, including the Environmental Control Officer and assemble the construction team.
- Must ensure that the Environmental Control Officer is integrated as part of the project team while remaining independent.
- May on the recommendation of the Engineer and/or Environmental Control Officer order the Contractor to suspend any or all works on site if the Contractor or Sub-Contractor/Supplier fails to comply with the conditions of authorisations and EMPr.
- Take full responsibility for all activities to be undertaken on the site by the contractor and sub-contractors regarding compliance with all authorisations and associated EMPr; and
- Maintain control of all activities pertaining to the project.

9.4.2. The Contractor (including sub-contractors)

The Contractor is required to:

- Be fully conversant with the conditions of all authorisations and associated EMPr.
- Comply with all applicable legislation.
- Supply method statements timeously for all activities requiring special attention as specified and/or requested by the Developer, Environmental Control Officer and/or project manager throughout the period of the Contract.
- Must appoint Occupational Health and Safety Officer and Safety, Health and Environmental Officer.
- Brief all staff about the requirements and the importance of the environmental specifications.
- Ensure that all staff attend the environmental awareness workshop/training sessions as when scheduled by the relevant officer.
- Ensure that all work is done in compliance with occupational health and safety requirements.
- Comply with requirements of the Environmental Control Officer in terms of specifications of the authorisations and associated EMPr, the project specification, as applicable within the period specified.
- Ensure any Subcontractors/Suppliers undertaking work on the site comply with the specifications of the authorisations. The Contractor will be held responsible for non-compliance on their behalf.
- Take full responsibility for the costs of any damages or compensation resulting from non-adherence to the conditions of the authorisations and associated EMPr or written site instructions.
- Ensure that the Engineer or site manager communicates timeously any foreseeable activities which will require input from the Environmental Control Officer; and
- Conduct all activities in a manner that minimises disturbance to the natural environment as well as directly affected residents and the public in general.
- Communicate timeously and inform the project manager of planned blasting on the site.

9.4.3. Environment Control Officer

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

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

- Be fully conversant with the conditions of the authorisation and associated EMPr.
- Be familiar with the recommendations and mitigation measures in the EMPr for the project as well as the contents of the EA.
- Be fully conversant with the findings and conclusions of the EIA for the subject development.
- Undertake comprehensive pre-construction site inspection of the development site, regular site inspections during the construction phase and conduct audits.
- Conduct and facilitate environmental awareness workshop/training for all staff on the project.

- Compile and administer an environmental monitoring plan for purposes of ensuring that management measures are implemented and are effective.
- Compile and administer an environmental audit report reporting system able to flag non-compliance as well as compliance actions on the site.
- Report environmental incidents to the project manager and the competent authority as and when required in terms of the specifications contained herein.
- Monitor the implementation of the EMPr during the construction and rehabilitation phases.
- Report any non-compliance or remedial actions that need to be applied to the appropriate environmental authorities.
- Monitor the Principal Contractor, sub-contractors, construction teams and Developer compliance with the EMPr during the construction and rehabilitation phases.
- Monitor all site activities weekly and/or monthly for compliance.
- Conduct monthly site audits according to the EMPr and report findings to the Developer/Contractor.
- Attend monthly site meetings or when it is necessary.
- Recommend corrective action for any environmental non-compliance at the site and recommend and/or amend EMPr and communicate such to authorities where the EMPr comes short of being effective in the mitigation measures on the environmental specifications.
- Compile a monthly report highlighting the effectiveness of the EMPr and shortcomings if there are any, as well as progress and compliance with the EMPr specifications. These monthly reports are to be submitted to the Developer and the authority is requested; and
- Conduct one training on the EMPr and general environmental awareness prior to the commencement of activities.

It must be noted that the responsibility of the ECO is to monitor compliance, give advice on the implementation of the EMPr and report non-compliance and not to enforce compliance. Ensuring compliance is the responsibility of the Developer.

9.4.4. EXTERNAL INDEPENDENT AUDITOR

Appointment of an External Independent Auditor as per the Regulation 34 of the EIA Regulations, 2014 (as amended). The roles and responsibilities of the external independent Auditor include:

- Responsible for the implementation of an Environmental Monitoring and Audit program aimed at monitoring environmental impacts during construction and ensuring compliance with environmental protection conditions, recommendations from Environmental Impact Assessments (EIA), and pertinent environmental legislation.
- Monitor the contractor's activities and ensure compliance with environmental requirements
- Establish monitoring protocols, track environmental impacts, and assess the performance and effectiveness of mitigation measures.
- Undertake document monitoring, audit data and report on compliance with the Environmental Management Programme (EMPr).
- Be involved in resolving environmental complaints related to construction activities.
- Feedback audit results
- Conduct random site inspections;
- Audit the EIA/EA recommendations and requirements against the status of implementation of environmental protection measures on site;
- Check complaint cases and the effectiveness of corrective measures

9.4.5. OCCUPATIONAL HEALTH AND SAFETY OFFICER

The OHS Officer will be responsible for undertaking the following:

- Planning, implementation and overseeing of safety of all staff on the site;
- Ensure that the contractor complies with Occupational Health and Safety legislation and guidelines;
- Compilation of a comprehensive project Health and Safety Risk Assessment (HSRA);
- Compilation of health and safety specifications based on risks identified;
- Reviewing and approval of health and safety plan(s) submitted by appointed Principal Contractor(s);
- Conducting monthly health and safety inspections and compiling monthly OHS reports;
- Conducting monthly health and safety audits and compiling audit reports;
- Conducting investigation on all injuries and accidents/incidents and writing reports thereafter;
- Selecting suitable locations or places for fire extinguishers;
- Conducting or providing first aid to staff and visitors in the event of injury or illness;
- Conducting fire drills, participate in fire and accident prevention programmes;
- Monitoring compliance with the Occupational Health and Safety Act (OHSA) and Regulations;
- Establishment and monitoring of project health and safety file;

- Monitoring the Principal Contractor(s') health and safety performance; and
- Preparation of project close-out reports and submission of project files to the client;
- Keep records of incidents and accidents and identify potential safety and fire hazards;

10. REPORTING PROCEDURES

10.1. Documentation

Typically, an audit analyses the results obtained from monitoring and assesses whether objectives and targets have been met and whether there are variances from the stipulated EMPr and legal requirements. In addition, the audit assesses whether EMPr implementation has been undertaken according to planned arrangements and whether the EMPr itself is being appropriately updated. The audit should confirm that identified corrective actions have been undertaken and then assess the effectiveness of such actions.

The timing of audits should be included in the implementation schedule in the EMPr.

The key steps in a successful audit are:

- Establish audit procedures.
- Determine the frequency of audits.

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

An Environmental File which includes:

- An Environmental File which must include:
  - Copy of the Environmental Authorisation;
  - Copy of the EMPr; o Copy of all other licenses/permits;
  - Copy of rehabilitation plans (if applicable);
  - Copy of the Storm Water Management Plan;
  - Copy of relevant legislation(s); o Environmental Policy of the Main Contractor;
  - Environmental Method Statements compiled by the Contractor;
  - Non-conformance Reports;
  - Copy of all instructions and or directives issued.

Environmental register, which will include:

- Communications Register – including records of complaints, minutes and attendance registers of all environmental meetings;
- Monitoring Results – including environmental monitoring reports, register of audits, non-conformance reports; and
- Incident book – including copies of notification of Emergencies and Incidents, this must be accompanied by a photographic record.

- ❖ Waste Documentation such as, but not necessarily limited to: Waste Manifest Documents, Safe Disposal Certificates (SDCs) and Sewerage Disposal Receipts;
- ❖ Material Safety Data Sheets (MSDSs) for all hazardous substances; and
- ❖ Written Corrective Action Instructions.

10.2. Environmental Awareness Plan

OBJECTIVE: Ensure all operation personnel have the appropriate level of environmental awareness and competence to ensure continued environmental due diligence and ongoing minimisation of environmental harm (Environmental Awareness Plan).

To achieve effective environmental management, it is important that Contractors and site employees are aware of the responsibilities in terms of the relevant environmental legislation and the contents of this EMPr. The Developer/ Applicant is responsible for informing its employees and contractors (transportation contractors) of their

environmental obligations in terms of the environmental specifications, and for ensuring that employees are adequately experienced and properly trained in order to execute the works in a manner that will minimise environmental impacts. The Developer / Applicant's obligations in this regard include the following:

- Employees must have a basic understanding of the key environmental features of the site and its surrounding environment.
- Ensuring that a copy of the EMPr is readily available on-site and that all site staff are aware of the location and have access to the document.
- Employees must be familiar with the requirements of the EMPr and the environmental specifications as they apply to the operation of the facility.
- Ensuring that, prior to commencing any new site works, all employees have attended an Environmental Awareness Training course. The course must provide the site staff with an appreciation of the project's environmental requirements, and how they are to be implemented.
- Awareness of any other environmental matters, which are deemed to be necessary by the site manager.
- Ensure that construction workers have received basic training in environmental management, including the storage and handling of hazardous substances, minimise of disturbance to sensitive areas, management of waste and prevention of water pollution
- Records must be kept of those who have completed the relevant training.
- Training should be done either in a written or verbal format but must be in an appropriate format and language for the receiving audience
- Refresher sessions must be held to ensure the operating staff are aware of their environmental obligations.

Therefore, prior to the commencement of construction activities on site and before any person commences with work on-site thereafter, adequate environmental awareness and responsibility are to be appropriately presented to all staff present onsite, clearly describing their obligations towards environmental controls and methodologies in terms of this EMPr.

10.3. Environmental Register

All environmental-related incidents should be reported to the environmental section. The Developer/project manager should compile and keep an Incidents and Accidents Register on the file/book in which all environmental-related incidents and accidents are recorded, e.g., chemical spills, fires, accidents involving workers and vehicles, etc. The contractor will ensure that the following information is recorded for all complaints/incidents:

- The name and contact details of the persons involved;
- The person recording the incident;
- The date and time of the incident;
- The nature, extent, and cause of the accident;
- The name and contact details of any persons notified of the incident;
- The actions taken to deal with the incident and whether the accident has been sufficiently;
- Dealt with additional steps required to prevent the recurrence of the 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 prevent recurrence of the complaint/incident;
- Time frames 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; and
- Copies of all correspondences received regarding complaints/incidents.

The above records will form an integral part of the Contractors' Records. These records will be kept with the EMPr and will be made available for scrutiny as and when necessary.

10.4. Method Statements

The objective is to ensure all construction activities are undertaken with the appropriate level of environmental awareness to minimise environmental risk. The environmental specifications are required to be underpinned by a series of Method statements, within which the Contractors and Service Providers are required to outline how any identified environmental risks will practically be mitigated and managed for the duration of the contract, and how specifications within this EMPr will be met. That is, the Contractor will be required to describe how specified requirements will be achieved through the submission of written Method Statements to the ECO.

Method Statement is defined as "*a written submission by the Contractor in response to the environmental specification or a request by the Site Manager, setting out the plan, materials, labour and method the Contractor*

proposes using to conduct an activity, in such detail that the Site Manager and Environmental Officers are able to assess whether the Contractor's proposal is in accordance with the Specifications and/or will produce results in accordance with the Specifications". The Method Statement must cover applicable details with regard to:

- Construction procedures
- Materials and equipment to be used
- Getting the equipment to and from the site
- How the equipment/material will be moved while on-site
- How and where the material will be stored
- The containment (or action to be taken if containment is not possible) of leaks or spills of any liquid or material that may occur
- Timing and location of activities
- Compliance/non-compliance with the Specifications, and
- Any other information deemed necessary by the ECO.

The Contractor may not commence the activity covered by the Method Statement until it has been approved by the Site Manager, except in the case of emergency activities and then only with the consent of the Site Manager. Approval of the Method Statement will not absolve the Contractor from their obligations or responsibilities in terms of their contract. Failure to submit a method statement may result in suspension of the activity concerned until such time as a method statement has been submitted and approved. The ECO should monitor the construction activities to ensure that these are undertaken in accordance with the approved Method Statement.

It is a statutory requirement to ensure the well-being of employees and the environment. To allow the mitigation measures in this document to be implemented, task-specific method statements should be developed for each set of tasks. A Method Statement details how and when actions/activities will be carried out, detailing possible dangers/risks, and the methods of control required; this should ideally entail the following:

- Type of construction activity;
- Timing and location of the activity;
- Construction procedures;
- Materials and equipment to be used;
- Transportation of the equipment to and from the site;
- How equipment/material will be moved while on site;
- Location and extent of construction site office and storage areas;
- Identification of the resultant impacts;
- Methodology and/or specifications for impact prevention/containment;
- Methodology for environmental monitoring;
- Emergency/disaster incident and reaction procedures (required to be demonstrated); and
- Rehabilitation procedures and continued maintenance of the impacted environment.

The Contractor will be accountable for all actions taken regarding compliance with the approved Method Statements. The Contractor shall keep all the Method Statements and subsequent revisions on file, copies of which must be distributed to all relevant personnel for implementation.

The following is a list of Method Statements that may be required:

- Construction site and office/yard establishment;
- Cement mixing/concrete batching etc;
- Dust management;
- Environmental awareness course(s);
- Environmental monitoring;
- Erosion control;
- Fire, hazardous and/or poisonous substances;
- Fuels and fuel spills (may form part of the item above);
- Storage, handling and decanting of diesel (may form part of the item above);
- Personnel, public and animal safety;
- Rehabilitation of modified/damaged environment(s);
- Solid and liquid waste management;
- Top-soil management;
- Stormwater Management; and
- Wash areas.

NB: No work may commence or take place before the Method Statement has been approved by all relevant parties.

10.5. Non-Conformance Report

A Non-Conformance Report (NCR) will be issued to the Developer 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 Developer in writing. Preceding the issuing of a NCR, the Developer 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:

- Time and date of the incident;
- Details/description of incident;
- Listing the incident as significant or minor;
- The contractor's name responsible for the non-conformance;
- Nature of the risk and the associated environment;
- Any plant or equipment involved;
- Work procedures not followed;
- Any other physical aspects; and
- Remedial actions undertaken to correct the incident;
- Agreed timeframe by which the actions documented in the NCR must be carried out.
- Details of non-conformance;
- Any plant or equipment involved;
- Any chemicals or hazardous substances involved;
- Work procedures not followed;
- Any other physical aspects;
- Nature of the risk;
- Actions agreed to by all parties following consultation to adequately address the non-conformance in terms of specific control measures and should take the hierarchy of controls into account;
- Agreed timeframe by which the actions documented in the NCR must be carried out; and

The ECO should verify that the agreed actions have taken place by the agreed completion date. When completed satisfactorily, the ECO and Developer should sign the Close-Out portion of the Non-Conformance Form and file it with the contract documentation.

10.6. Environmental Emergency Response

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

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

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

11. COMPLIANCE WITH THE EMPr

11.1. Monitoring and Compliance

Environmental Monthly reports will be compiled by the EO monthly and must be submitted to the Environmental Specialist/authority. The report should include details of the activities undertaken in the reporting period, any non-

conformances or incidences recorded, corrective action required and details of these non-conformances or incidents which have been closed out.

A document handling system must be established to ensure accurate updating of EMPr documents and availability of all documents required for the effective functioning of the EMPr. Supplementary EMPr documentation could include:

- Method Statements.
- Environmental Action Plan
- Environmental File Site instructions.
- Emergency preparedness and response procedures.
- Record of environmental incidents.
- Non-conformance register.
- Training records.
- Site inspection reports.
- Waste Register.
- Water Usage Register.
- Fauna and Flora Register.
- Hazardous chemical Inventory list.
- Monitoring reports.
- Auditing reports.
- Public complaints register (single register maintained for the overall site).

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

- The ECO has the authority to instruct the Developer to cease a particular operation causing or liable to cause significant environmental damage, and issue fines or penalties for non-compliance of the Environmental Management Programme/ EMPr.
- An ECO must during construction activities monitor the site monthly and prepare an audit report monthly. Audit reports must be submitted to Compliance Monitoring of the Department monthly.
- The ECO/holder of the Environmental Authorisation must, in addition, submit an environmental audit report to the Department within 30 days of completion of the construction phase (i.e., within 30 days of site handover) and a final environmental audit report within 30 days of completion of rehabilitation activities.
- All documentation e.g. audit/monitoring/compliance reports and notifications, required to be submitted to the Department in terms of the Environmental Authorisation, must be submitted to the Compliance Monitoring of the Department.
- Environmental audit reports must be compiled in accordance with Appendix 7 of the EIA Regulations 2014, as amended and must indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the Environmental Authorisation conditions as well as the requirements of the approved EMPr.
- Operation of the activity – a written notification of operation must be given to the Department no later than fourteen (14) days prior to the commencement of the activity's operational phase.

11.2. Auditing Process

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

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

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

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

11.3. Non-Compliance

Definition

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

- Any deviation by the Developer from the environmental conditions and requirements as set out in the EA and EMPr - or;
- Any contravention by the Developer 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-compliance issued

Two types of non-compliance 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 formal written permission from the ECO.

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

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

B. General Non-Compliance

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

11.4. Issuing a Non-Compliance

Non-compliance may be issued to:

- The Developer
- Any representative of the Developer

11.5. Process of Issuing Non-Compliance

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

11.6. Failure to complete corrective actions

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

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

The DFFE office is responsible for resolving the impasse with the Developer.

The Developer 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 Developer or any of his staff.

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

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

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

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

11.7. Unlawful Activity/ies

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

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

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

11.8. ENVIRONMENTAL CODE OF CONDUCT

One of the objectives of the EMPr is to ensure that the workforce, contractors, sub-contractors and construction staff have an understanding of environmental issues and potential impacts that may arise from development activities. This environmental code of conduct provides the basic rules that should strictly be adhered to. It is the responsibility of the Contractor to ensure that site personnel understand and adhere to the Code of Conduct.

ALL PERSONS ARE OBLIGED TO KEEP TO THE RULES OF THIS CODE OF CONDUCT

Ignorance, negligence, recklessness or a general lack of commitment which will result in environmental degradation or pollution will not be tolerated!

ENVIRONMENTAL RULES

- Only use authorised accesses;
- Do not litter;
- Dispose of solid waste to the correct waste containers provided;
- Prevent pollution;
- Use the toilet facilities provided;
- Do not dispose of contaminated wastewater into the stormwater drainage system or the environment;
- Immediately report any spillage from containers, plants or vehicles;
- Do not burn or bury waste on the site;
- Do not trespass onto private properties;
- Do not waste electricity, water or consumables;
- No catching, teasing, or setting of devices to trap or kill any animal;
- No damage or removal of any trees unnecessarily, shrubs or branches, unless it forms part of working instructions and authorisation, has been received where necessary;
- Do not deface, draw or cut lettering or any other markings on trees, rocks or buildings;
- Know the firefighting procedure, fire drill and locations of firefighting equipment; and

- Know the environmental incident procedures;

12. AMENDMENTS TO THE EMPr

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

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

13. ENFORCING THE EMPr

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

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

14. OPERATIONAL EMPr (OEMPr)

The most important part of the operational phase will be to ensure that the site is meticulously maintained and that the operations are carefully monitored. The applicant will remain overall responsible for the environmental performance of the site and must be aware of the legal requirements and obligations. The applicant must also be aware of the legal action that can be taken against **him/ her** as a person with regard to negligence leading to environmental pollution. The owner or delegated responsible person must implement an operational and maintenance management plan which must include:

- ✓ Access management and control;
- ✓ Energy management and monitoring;
- ✓ Water management and monitoring;
- ✓ Waste and pollution management; Sewerage management;
- ✓ Wastewater Management Fire Management;
- ✓ Minimise dust and air emissions;
- ✓ Protection of Indigenous natural vegetation and fauna;
- ✓ Specific monitoring and operational instructions;
- ✓ Emergency plans which will cover all reasonable aspects of the operations which might lead to environmental pollution or degradation.

14.1. Traffic Access Routes & Haul Roads

The Operator of the site must control the movement of all vehicles including that of his suppliers so that they remain on designated routes. In addition, such vehicles must be routed and operated as to minimise disruption to regular users of the routes not on the Site.

- ✓ On public roads adjacent to the Site vehicles/ delivery trucks/ tankers will adhere to municipal and provincial traffic regulations.
- ✓ Only approved access roads may be used.
- ✓ All measures must be implemented to minimise impacts on local commuters e.g. limiting tanker vehicles travelling on public roadways during the morning and late afternoon commute time and avoid using roads through densely populated built-up areas so as not to disturb existing retail and commercial operations.

14.2. Energy Management

All reasonable steps must be taken to ensure the efficient management of energy. Energy management and conservation measures must be propagated and encouraged. The objective of energy management will be to encourage the conservation of energy, for example:

- ✓ Install energy-efficient appliances (e.g. a grade one refrigerator is at least 35% more energy efficient than a grade three one).
- ✓ Install energy-efficient lightning (which uses less energy to give the same amount of illumination and lasts longer than conventional incandescent bulbs).
- ✓ Insulate water heaters and hot water pipes (insulating hot water pipes from the water heater to the source is another way to conserve).
- ✓ Disconnect or switch- off units/appliances which are not in use.
- ✓ Monitor different energy uses (e.g. electricity, fuels and gas).

14.3. Water Management

- ✓ Ensure that all additional water uses are correctly registered with the Department of Water and Sanitation (e.g. Agri-industrial use).
- ✓ Water conservation measures such as low-flow taps, high-pressure hoses, dual flush toilets, water-wise gardens, rainwater tanks etc. must be encouraged and implemented.
- ✓ Every reasonable effort must be made to reduce the long-term water demand.
- ✓ Environmental training of personnel must include water conservation awareness.

14.4. Waste & Pollution Management

An integrated waste management approach based on waste minimisation (e.g. reduction, recycling, reuse and disposal) must be encouraged. Poor waste management can lead to adverse environmental impacts (e.g. odours, pollution and visual impact) as well as health risks. Sound waste management is thus non-negotiable.

- ✓ No on-site burying or dumping of any waste materials, vegetation, litter or refuse may be allowed.
- ✓ Domestic waste must be stored in approved containers (e.g. bins with removable lids).
- ✓ All solid waste will be disposed of at a landfill licensed in terms of section 20 of the Environment Conservation Act (Act No. 73 of 1989).
- ✓ If required, any future industries on-site requiring additional waste and/or emissions permits or licences in terms of the applicable legislation, the owner/tenants must obtain these permits/licences before the specific operations can commence.

14.5. Recycling

Whenever possible, a suitable recycling arrangement must be negotiated with a local recycling agent to ensure the reuse of recyclable material. Recycling should aim at sorting as much of the following materials as practical:

- ✓ Paper and cardboard
- ✓ Aluminium
- ✓ Copper
- ✓ Metals (other than aluminium and copper)
- ✓ Glass
- ✓ Organic waste
- ✓ Batteries
- ✓ Electronic equipment

Recycling industries in the development may require specific waste management licences in terms of the National Environmental Management: Waste Act, 2008 (Act 59 of 2008).

14.6. Pollution Management

All possible pollution sources must be identified, and all reasonable steps taken to prevent pollution or accidental spillages.

- ✓ Ensure that all concentrated potential sources of pollution are protected (bunded) in order to minimise the risk of accidental spillage or pollution. Storage tanks should be bunded in such a way as to contain at least 120% of the storage tank's capacity.
- ✓ Vehicles and other machinery must be serviced well above the 1:100-year flood line or within a horizontal distance of 100m from any watercourse or 500m of a wetland/pan. Oils and other potential pollutants must be disposed of at an appropriate licensed site, with the necessary agreement from the owner of such a site.

14.7. Fire Management

Refer to the emergency preparedness and response paragraph.

14.7.1. Accidental fires

Fire safety is a very real risk and must be stringently controlled. No fires will be permitted on site for any reason. If required, a designated smoking area will be provided and clearly demarcated and signposted, with a facility for safe containment and disposal of cigarette butts. The following measures must be implemented:

- ✓ Adequate firefighting equipment must be available on-site and in good working order (including at least one type of ABC (all-purpose) 2.5 kg fire extinguisher and 3 fire beaters per working area). The persons on site must be trained in the use of such equipment.
- ✓ The operator must provide a list of all authorities involved in firefighting in the region. This list must include emergency contact numbers and must be visible at the site office.

15. CONCLUSION

This EMPr is a living document intended for use by the Applicant during pre-construction, construction, post-construction and during the **operation of the activity**. Further, this EMPr should be a day-to-day management guiding document which sets out the environmental standards that must be complied with to minimise the negative impacts and maximise the positive benefits of the proposed development. **The proposed development is an operation activity and therefore the EMPr remains valid for the lifespan of the activity.**

The EMPr provides mitigation measures that must be implemented to ensure that the environmental impact which comes as a result of the development is avoided, minimised and managed appropriately. The environmental authorisation specifications must also be considered in the implementation of the development as they are part of the EMPr. In terms of the legislation, the EMPr has been compiled in line with Appendix H of the Environmental Impact Assessment Regulations, 2014 (GN No. R 982 of 4 December 2014), as amended. All attempts must be made to have this EMPr available, as part of any contractual documentation, so that the contractors are made aware of the potential cost and timing implications needed to fulfil the EMPr implementation.

It is significant to note that EMPr can successfully lead the development towards becoming sustainable and non-compliance with the specifications of the EMPr can equally make the activity destructive and unsustainable in the long term. Therefore, it is important that all role players in the development take some time to familiarise themselves with the EMPr document to understand its specifications. The EMPr is open to be amended from time to time as long as the authorisation is still valid to ensure that gaps identified during the environmental auditing process are addressed.

16. ENVIRONMENTAL MANAGEMENT PROGRAMME

16.1. 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 Developer prior to the commencement of construction.	Developer	Once-off
Appointment of Construction Team	**Appointment of Contractor**		
	The Developer must ensure that this EMPr forms part of any contractual agreements with a Contractor(s) and sub-contractors for the execution of the proposed project. The Contractor must make adequate provision in their budgets for the implementation of the EMPr.	Developer & Contractor	Once-off
	The Principal Contractor (including sub-contractors and suppliers) must comply with the relevant provisions of the EMPr, applicable environmental legislations, by-laws and associated regulations promulgated in terms of these laws.		
	Local labourers should be used for such methods.		
	Appointment of Environmental Control Officer		
	An Independent ECO must be appointed at the Developer's cost to monitor the implementation of the EMPr.	Developer, Site Manager & ECO	Once-off
	The nomination of the ECO must be given to DFFE in writing 14 days prior to commencement. Commencement in this case includes site clearing. The notification must include contact details for the ECO, details pertaining to the ECO's relevant experience, the date on which it is anticipated that the activity will commence, as well as a reference number.		
	Should the ECO for the development change at any time, this must be communicated, in writing, to DFFE, 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 Developer to the ECO and must be adhered to by the Developer. These relate to water and stormwater management requirements, solid waste management requirements, the storage of hazardous materials (if applicable), standard emergency procedures, and fire management.	Developer	Once-off
	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.	Developer	Once-off – pre-construction
Education of Site Staff on General and Environmental Conduct	**Environmental Awareness and Training**		
	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 & Site Manager	Once-off and as required

Activity	Management / Mitigation	Responsibility	Frequency / Timing
A general regard for the social and ecological wellbeing of the site and adjacent areas is expected of the site staff.	The ECO & Site Manager 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; ➢ 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 & Site Manager	Once-off
	Staff operating equipment shall be adequately trained and sensitised to any potential hazards associated with their tasks.	Developer & Site Manager	During staff induction, followed by on-going monitoring
	Translators are to be used where necessary during staff training.	Site Manager	
	Use of environmental awareness posters on site is advocated.	Site Manager	On-going monitoring
	Staff must be made aware that they are not to make excessive noise e.g. shouting, hooting.		
	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).		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	No fires are 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 Site Manager is to ensure that conditions of the EMPr are included in the Toolbox Talks.		
Site Management	**Access**		
	No vehicles may drive onto the adjacent properties and any other no-go areas.	Site Manager	On-going
	All no-go areas will be indicated during Toolbox Talks and/or indicated with warning signs in all relevant languages.		
	Site Management		
	Adequate drainage and erosion protection must be provided around the site and where necessary.	Site Manager	On-going
	Access points and other cleared surfaces must be dampened whenever necessary and especially in dry and windy conditions to avoid excessive dust. Alternatively, a binding product such as Dustex (supplied by Patch Industrial Supplies) could be used.		
Sewage and Sanitation	**Ablutions**		
	Toilets must be no closer than 32m from any watercourse. Such facilities, which shall comply with local authority regulations, shall be maintained in a clean and hygienic condition. Their use shall be strictly enforced. They must be positioned in an appropriate place, also taking into consideration, gradient of the land.	Site Manager	Immediately & on-going
	The Site Manager must ensure that toilets are cleaned regularly.		On-going
	Unauthorised spilling of waste into the environment and burying of waste is strictly prohibited.		
	Ablution facilities must not cause any pollution to any water resource and it must not be a health hazard to the general public.		
Social Impacts	**Communication between Site Manager, Site Staff and I&APs**		
	A complaints register must be kept on site. Details of complaints must be incorporated into the audits as part of the monitoring process. This must be in 3-copy carbon format, with numbered pages.	Site Manager	Immediately and on-going
	Should the staff be approached by members of the public or other stakeholders, they must assist them in locating the Site Manager or provide a number on which they may contact the Developer/ Site Manager.		On-going
	The conduct of the staff when dealing with the public or stakeholders shall be in a manner that is polite and courteous at all times.		
	Drivers of heavy-duty vehicles must exercise care when travelling to and from the site – and adhere to all legally enforceable requirements.		
	Due to the concentration of a workforce in the area, the Site Manager must implement an HIV/AIDS Awareness Programme on site. The Site Manager must appoint an HIV/AIDS Awareness Officer for the duration of the construction period. Activities for HIV/AIDS awareness and prevention will be broad based, targeting both individuals and groups. They may consist of: ➢ Peer educators (reference people) drawn from the local labour force and trained in HIV/AIDS issues for discussions with colleagues (estimate 1 per 30 employees);		Immediately and as required

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	➢ Small focus group discussions and information covering key issues should be held; ➢ Inclusion of HIV/AIDS activities at site meetings and other discussions; and ➢ Voluntary Counselling and Testing. Education will cover: ➢ Stigma and discrimination issues; ➢ Preventative behaviours including on-site safety and awareness; and ➢ Referral to local health centres and services available.		
Equipment lay-down and storage	**Storage Areas**		
	Choice of location for equipment lay-down and storage areas must take into account prevailing winds, distances to water bodies, general on-site topography and water erosion potential of the soil. Impervious surfaces, bunded areas or drip trays must be provided where necessary.	Site Manager	On-going
	Equipment lay-down and storage areas must be designated, demarcated and signed.		
Conservation of the Natural Environment	**Erosion and Stormwater Control**		
	Soil disturbance must be restricted to the current extent of the project, unless for the removal of alien invasive plants.	Site Manager & ECO	Throughout the duration of the project
	Stormwater control must be undertaken to prevent soil loss from the site.		Immediately
	Erosion prevention and control measures must be implemented. These control measures must be advised by the ECO as control measures are unique to the site, the activity, and dependent on severity and extent.		On-going
	Provision shall be made for stormwater management measures that will ensure effective run-off control and prevent erosion at run-off points and ponding.		
	Continuous monitoring for evidence of erosion must be undertaken around the site.		
	Earth, stone or rubble is to be properly disposed of so as not to obstruct natural water pathways over the site.		
	Stormwater management must ensure that flow from the development does not result in negative impacts.		On-going
	Fauna and Flora		
	Areas which are identified by the Environmental Control Officer (ECO) as being ecologically sensitive and which are adjacent to the site are to be suitably demarcated to prevent damage during construction practices. These areas are to be recognised as "no-go" areas.	ECO & Site Manager	Immediately
	No natural vegetation may be cleared without prior permission from the ECO and if applicable from any relevant authority. Indigenous vegetation that is removed is to be replanted either back to the point from which it was taken or must be replaced by new relevant indigenous vegetation.		On-going
	The ECO must identify and make known to the team all Red Data listed vegetation species. All permits for the removal/ translocation of the identified protected vegetation species must be obtained prior to any ground clearance from the Department of Forestry (DFFE).		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	ECO & Site Manager	Immediate and On-going

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	sun to dry out and die before disposal. Please refer to the appended Alien Plant Control Programme for specific methods of removal.		
	When removing alien invasive plants from the riparian area, caution must be taken to ensure that indigenous species are not being removed and all embankments are stable. Indigenous plants must be planted immediately to rehabilitate these areas.		
	Disturbance to birds, animals and reptiles and their habitats must be minimized wherever possible.	Site Manager	
Conservation of Water Resources	**Water Sources**		
	Under no circumstances may any materials or waste generated from the project be disposed of into the adjacent riparian areas, including the buffer zone.	Site Manager	On-going
	All parked vehicles/ trucks must have drip trays placed underneath the vehicle where potential leaks may occur.	Site Manager	On-going
Waste Management	**On-Site Waste Management**		
	The excavation and use of rubbish pits is forbidden.		
	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; however, permission to burn AIPs must first be obtained from the competent authority and other conservation boards. The transportation of Alien Invasive Plants is strictly forbidden in terms of the Conservation of Agricultural Resources Act (CARA), especially if in seed; unless stored in a completely sealed container.*		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.		
	An adequate number of general waste bins must be arranged around the site to collect all domestic refuse, and to minimise littering.		On-going monitoring
	Solid waste must be managed and separated into recyclable and non-recyclable materials and disposed of accordingly.		
	All waste generated during operation is to be disposed of at a facility registered in terms of section 20(b) of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).		
Handling of Hazardous Materials (if necessary)	**Hazardous Materials**		
	Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs must additionally include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.		
	Cement and other potential environmental pollutants must be stored within an impermeable bunded, roofed and sign posted area.		
	Cement and other potential environmental pollutants must be mixed on an impermeable surface that is bunded to prevent the leakage of pollutants onto the ground (if necessary).	Site Manager	On-going
	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**		

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from Heritage Western Cape.	Site Manager	On-going
	The Fossil Finds Procedure (FFP) must be followed: If fossil bones are uncovered during excavations, stop work and report to Heritage Western Cape (HWC) immediately.		
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	On-going
	Firefighting equipment must be present on site at all times. All equipment on site must be used in accordance with the Occupational Health and Safety Act regulations of South Africa (OHSA), Act No. 85 of 1993); staff must be trained in firefighting procedures.		
	No unauthorised person may be permitted to enter the site without prior permission of the site manager.		
	Vehicle speeds shall not exceed 20km/h when traversing unconsolidated and non-vegetated areas.		

16.2. REHABILITATION AND 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 sandbags must be used to contain all sediment and prevent erosion during rehabilitation.	Contractor	Rehabilitation
	All rehabilitated areas must be maintained through weekly inspections until a 100% success rate has been achieved.	Contractor & ECO	Post Construction/ Maintenance Phase
	Encroachment of invasive alien plants in this regard will need to be monitored on a regular basis to prevent re-infestation. This would need to be undertaken by the ECO or a designated specialist.	Developer, Contractor & ECO	Project completion and Maintenance
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 the 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 at all times.	Developer & Contractor	Project completion and Maintenance

Activity	Management / Mitigation	Responsibility	Frequency / Timing
	The surface of all disturbed areas must be left rough to facilitate the binding of topsoil and vegetation.	Contractor	Progressive rehabilitation and on Project completion
Removal and Repair of Materials and Infrastructure	**Materials and Infrastructure**		
	All materials used for construction must be removed from the site after construction.	Contractor	Project completion
	The Contractor must repair any damage that the construction works may have caused to adjacent areas.	Contractor	Project completion
	Fences, barriers and demarcations associated with the construction phase are to be removed from the site unless stipulated otherwise by the ECO.	Contractor	Project completion
	All areas where temporary services were installed are to be rehabilitated to the satisfaction of the ECO.	Contractor	Project completion
Stormwater Management	**Stormwater**		
	Any negative stormwater effects, related to the construction phase, must be remediated.	Contractor	Project completion
	On-going monitoring and assessing of stormwater drainage must occur on the site during the operational phase of the proposed project.	Developer	During Operational phase
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.	Developer	During Operational phase
Fire Management	**Fire**		
	A Fire Management Plan must be implemented on the property. The landowner must register with the Southern Cape Fire Protection Agency/SCFPA to ensure that the property has addressed all necessary fire management protocols.	Landowner	During Operational phase

16.3. ALIEN PLANT CONTROL

Benefits of control

- Elimination of the 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 a suitably qualified Botanical Specialist, as well as in the presence of the specialist.

<u>Alien Vegetation Clearing can be broken down into the following PHASES:</u>

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

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

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

- Rehabilitation of the infested area to its natural or near natural state or

- To exercise the land rights as per the agricultural rights (horticultural or agricultural purposes).

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

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

Types of Recommended Treatments for AIS

1. Felling and Herbicide Treatment:

- This method applies to AIS which can regenerate by coppicing (regrow from the cut stump). When felling. Always cut the AIS as horizontally and close to the ground as possible so as not to leave sharp points that could be a danger to others.
- A registered herbicide with the Department of Agriculture is then applied to the cut stump.
- A sticker agent may also be needed depending on the type of herbicide used plus the use of vegetable dye should be added to your herbicide mix to allow for tracking of what has and what has not been sprayed.
- Herbicide, when used in this method, is applied via a solid cone nozzle the herbicide must be applied to the cut stump as soon as possible to allow the herbicide to be absorbed by the plant via the *xylum phloem* canals (a plant version of veins and arteries).
- These veins are found cambium layer which is the area between the bark and the wood, and this is where the herbicide must be applied. i.e. the outer rim of the cut stump.
- Cut material (biomass) needs to be removed / stacked depending on further use or burnt/chipped. When felling AIS don't block riparian zones with cut material.

2. Felling:

- This applies to species of invasive plants that cannot regenerate by coppicing e.g. most pine species. As with treatment 1 cut as horizontally and close to the ground as possible.
- Cut material (biomass) needs to be removed / stacked depending on further use or burnt/chipped. When felling AIS don't block riparian zones with cut material.

3. Ringbarking:

- Used on AIS in areas where it is impossible to remove the biomass or where felling would damage the surrounding indigenous habitat.
- This involves simply cutting a ring half a meter up the tree's trunk exposing the cambium layer then painting the exposed cambium layer with approved herbicide from the Department of Agriculture.

4. Folio Spraying with Herbicide:

- This method is mainly restricted to follow-up phases over areas where the seed bank has germinated on mass.
- When doing this wait till the newly germinated AIS has reached a height of 1 meter as at this point of growth this will result in killing the early and late germinating seedlings.
- This process will have to be repeated depending on the depth of the seedbank which correlates to the frequency of AIS germination.

5. Hoeing or pulling seedlings by hand:

- This method should be a way of life i.e. if AIS species is observed, hand pulling is recommended where possible. It is best to pull by hand after rainfall.
- This method also applies to areas that are sensitive, e.g. riparian zones where herbicide is not allowed or areas where the use of an herbicide could harm surrounding natural ecosystems or commercial crops.

Monitoring

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

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

Objectives

Objective 1: Prevention
To put measures into place to prevent the introduction of new NEMBA-listed plants and animals onto the property and invasive species from spreading from neighbouring properties.
Preventative action:

- No listed invasive and alien plants will be planted.
- Areas bordering onto neighbouring land will be prioritized for control to prevent existing invasive plants from spreading beyond the boundaries of the property
- No listed invaded animal species will be introduced to the property.
- These prevention measures will be communicated to all users of the property (where applicable).

Objective 2: Early detection and rapid response (EDRR)
To put measures into place whereby new and secondary invasive species are detected early and removed before establishing sustainable populations and start spreading.

Early detections and rapid response actions:

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

Objective 3: Restrictive activity and duty of care
To adhere to the restrictive activity and duty of care as determined by NEMBA & Regulations concerning invasive and lien species

- Action NEMBA Regulations (6a-g) restricted Activities:
- Prevent spreading or allowing the spread of any specimen of a listed invasive species.

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

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

ACKNOWLEDGEMENT FORM

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

PROJECT NAME:

PROPOSED DEVELOPMENT OF A RESIDENTIAL DWELLING ON PORTION 76 OF THE FARM 216 UITZICHT, KNYSNA, WESTERN CAPE.

DEVELOPER:

Signed: …….. Date: …….....

SITE MANAGER:

Signed: …….. Date: …….....

ENVIRONMENTAL CONTROL OFFICER

Signed: …….. Date: …….....

APPENDIX A: CV OF EAP

Curriculum Vitae

Ms. Bianca Gilfillan

Education: **University of Technology - 2000 – 2003**
ND: Environmental Management BTECH: Environmental Management
University of Western Cape 2009
Environmental Science
University of Stellenbosch 2014 – Present
MPhil. Environmental Management

Qualifications: BSC Honours: Environmental Science
BTECH: Environmental Management
ND: Environmental Management

Registration: Registered Environmental Practitioner - 2023/7929

Languages: English and Afrikaans

Career:

ENVIRONMENTAL CONTROL OFFICER
Department of Environmental Affairs and Development Planning (DEA&DP)
September 2005 – December 2005

ENVIRONMENTAL OFFICER
National Ports Authority (CT)
June 2002 – November 2022

ENVIRONMENTAL MANAGER
Western Cape Environmental Consultants
February 2003- December 2021

ENVIRONMENTAL MANAGER
Infinite Universal Solutions
January 2022- Present

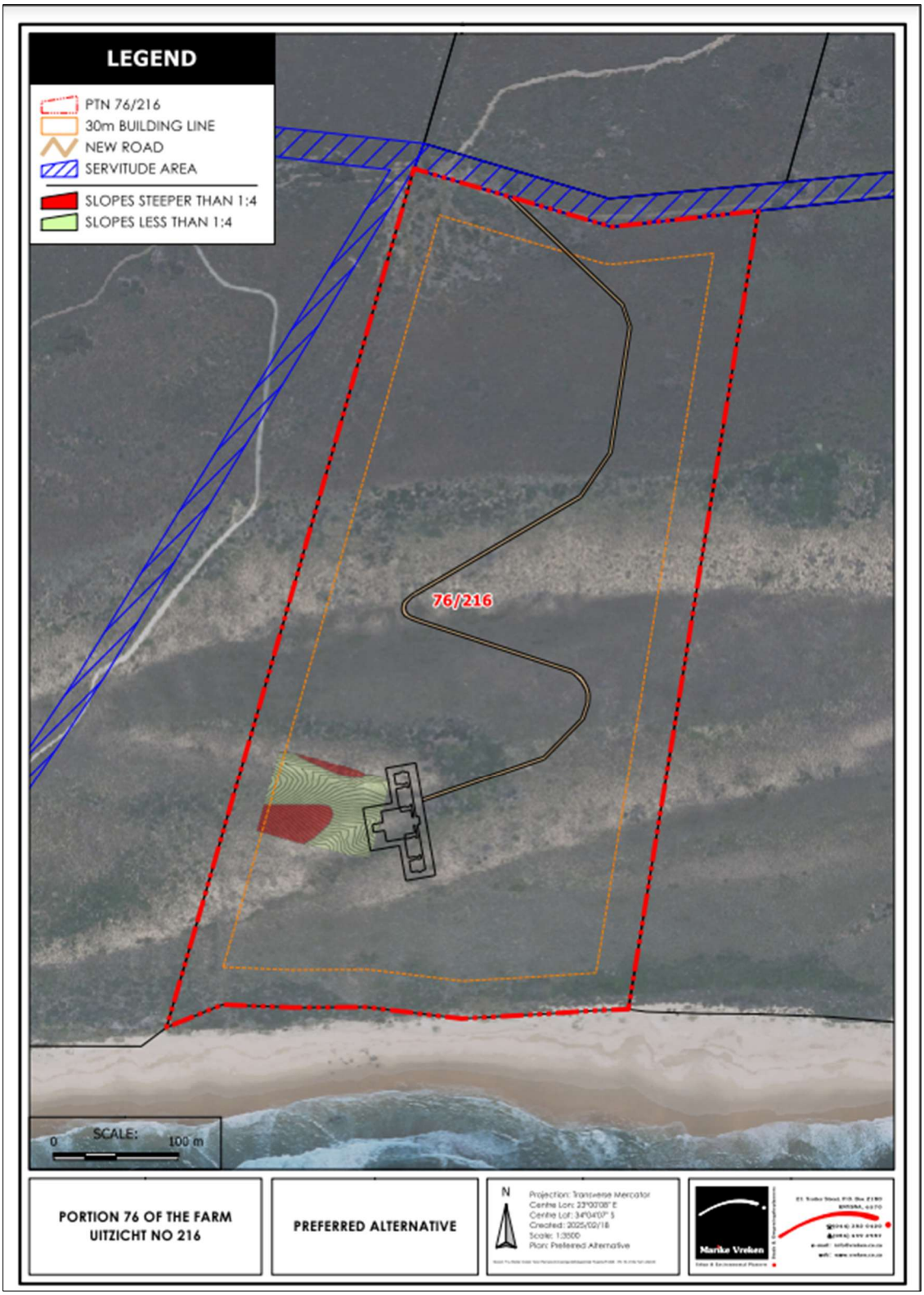
Experience:

Environmental Applications: Scoping and EIA / Basic Assessment / EMPr

- Development of subsidy housing for various Municipalities in the Western Cape Region and ASLA Devco (Pty)Ltd, including Hessequa Municipality, Cape Agulhas Municipality, Matzikama Municipality, Breede Valley Municipality etc.
- Low-cost housing developments.
- Various residential developments along the West Coast incl. Langebaan, Jacobsbaai, St Helena Bay, Dwarskersbos and Elands Bay.
- Upgrading of the Dwarskersbos Wastewater Treatment Works.
- Renewable Energy applications – Windfarms and Solar PV
- Resort development, tourist facilities, waste disposal site in Murraysburg, Beaufort West and golf courses Applications for equestrian Estate in the West Coast and Boland areas.
- Filling stations, chicken houses, and the upgrading of roads.

- Environmental Control Officer for various sites within the Western Cape.

APPENDIX B: SITE DEVELOPMENT PLAN


LEGEND
PTN 76/216
30m BUILDING LINE
NEW ROAD
SERVITUDE AREA
SLOPES STEEPER THAN 1:4
SLOPES LESS THAN 1:4
76/216
SCALE:
0
100 m
PORTION 76 OF THE FARM UITZICHT NO 216
PREFERRED ALTERNATIVE
N
Marike Vreken

Appendix C: Declaration of Understanding

DECLARATION OF UNDERSTANDING

I,_____

Representing: _____

I hereby acknowledge that the conditions of the Environmental Management Plan (EMPr) have been presented to me. I confirm that I have thoroughly read and comprehended the contents of this plan, and I affirm that a copy of the EMPr has been made available to me.

Site: _____

Date: _____

I hereby acknowledge my responsibility to enforce and implement the Environmental Specifications delineated in this Environmental Management Program. Furthermore, I commit to ensuring that all individuals under my supervision are informed of these specifications and the contents of the Environmental Management Program.

Signed: _____

Place: _____

Date: _____

Witness 1: _____