ENVIRONMENTAL MANAGEMENT PROGRAMME

for

FLEUR DE VIE LIFESTYLE ESTATE

on

Portion 1 of Farm 591 Duinekroon, Still Bay West

In terms of the

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

Prepared for Applicant: Quickstep 596 (Pty) Ltd

Date: 10 August 2022

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Department Reference: 16/3/3/6/7/1/D5/18/0040/22
Case Officer: Ms Shireen Pullen

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PURPOSE OF THIS REPORT:

Environmental Management Programme

APPLICANT:

Quickstep 596 (Pty) Ltd

CAPE EAPRAC REFERENCE NO:

HES718/05

SUBMISSION DATE

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Submitted for:

Stakeholder Review & Comment

Report Issued by:

Cape Environmental Assessment Practitioners

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ORDER OF REPORT

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

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

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

Requirement	Description
An indication of the persons who will be responsible for the implementation of the impact management actions.	Section 5
The time periods within which the impact management actions must be implemented.	Not Applicable
The mechanism for monitoring compliance with the impact management actions.	Section 9
A program for reporting on compliance, taking into account the requirements as prescribed in the Regulations.	Section 9
An environmental awareness plan describing the manner in which – (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment.	Section 5 Section 6 Section 7 Section 8 Section 9
Any specific information that may be required by the competent authority.	Not Applicable.

ABBREVIATIONS AND ACRONYMS

BSP Biodiversity Sector Plan - to inform land use planning, environmental assessments, land and water use authorisations, as well as natural resource management, undertaken by a range of sectors whose policies and decisions impact on biodiversity.

CARA Conservation of Agricultural Resources Act (Act 43 of 1983) - provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

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

DFFE National Department of Forestry, Fisheries & the Environment – the national authority responsible for the sustainable environmental management and integrated planning.

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

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

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

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

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

EIA Environmental Impact Assessment - a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.

EMPr Environmental Management Programme – an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented and that positive benefits of the projects are enhanced.

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

GPS Global Positioning System - a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world.

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

NEM:BA National Environmental Management: Biodiversity Act (Act No.10 of 2004) – provides for the management and conservation of South African biodiversity within the framework of NEMA.

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

NSBA National Spatial Biodiversity Assessment – aims to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors.

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

Still Bay

Emergency and Important Numbers

Emergency Response / Disaster Management	**10177**
Eden Control Room	044 805 5055
Eden Fire Services	044 801 6376
Police National	**10111**
Still Bay SAPS (Main Road)	028 754 1430
National Disaster Management (Cell phone)	112
Disaster Management (Provincial)	021 937 0800
Life Bay View Private Hospital Mossel Bay	044 691 3718
Provincial Hospital Riversdale	028 713 2445
Ambulance	028 713 4554
ER 24 Private Ambulance Service	084 124
Still Bay Municipality	028 713 7831
Emergency (All hours)	**084 014 1828**
Field & Forest Fires	044 805 5071
	071 856 5719
Southern Cape Fire Protection Association (Riversdale office)	028 713 1987
Manager - Charl Wade	079 485 5320
Extension Officer - Philip Wilken	079 697 8706
Traffic Department	028 713 7817
Water & Electricity	028 713 7831
Electricity Disruption (after hours)	**084 014 1828**
Sea Rescue (Provincial)	021 449 3500
NSRI Station 31	082 990 5978
Mountain Rescue (Provincial)	021 948 9900
Andrew	082 339 1240
Rogan	082 323 4349
Western Cape Tygerberg Poison Centre	021 931 6129
Poisons Information Hotline	0861 555 777
African Snakebite Institute	082 494 2039
Child Emergency	0800 123 321
Citizens Advice Bureau	021 422 0300
SPCA	082 700 2491
CapeNature	044 802 5310
Marine & Coastal Management	044 691 2939
Heritage Western Cape	021 483 9685
Department of Water & Sanitation: Water Pollution	0800 200 200
ROSE Foundation	021 448 7492

1. INTRODUCTION

Cape Environmental Assessment Practitioners (Cape EAPrac) was appointed by the Applicant, Quickstep 596 (Pty) Ltd to develop an Environmental Management Programme (EMPr) which will be used to promote and ensure environmental monitoring and control during all phases (construction, operation and possible decommissioning) associated with the development of the Fleur de Vie Lifestyle Estate on Portion 1 of Farm 591 Duinekroon, Still Bay West in the Hessequa Municipal area.

This activity requires an Environmental Authorisation in terms of the National Environmental Management Act (NEMA, Act 107 of 1998) before commencing. This document provides part of a series of documents that is being circulated for public and stakeholder input as part of the Environmental Impact Assessment (EIA) process, before being provided to the provincial competent authority, the provincial Department of Environmental Affairs & Development Planning (DEA&DP) for decision making.

The property is located on the western boundary of the current urban area of Still Bay West, inside the currently accepted urban edge (defined by the approved Still Bay arterial road).

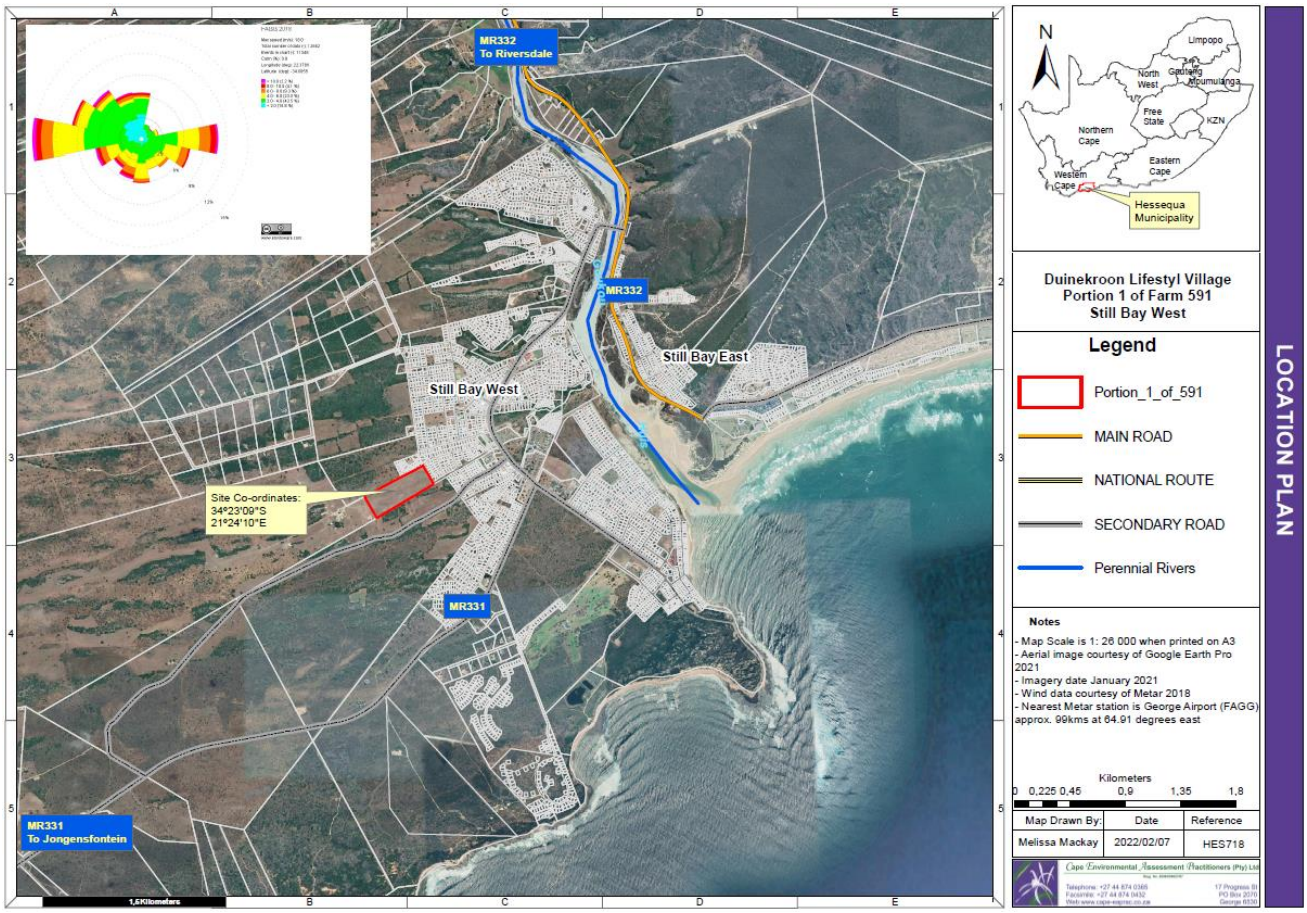

Figure 1: Location Plan

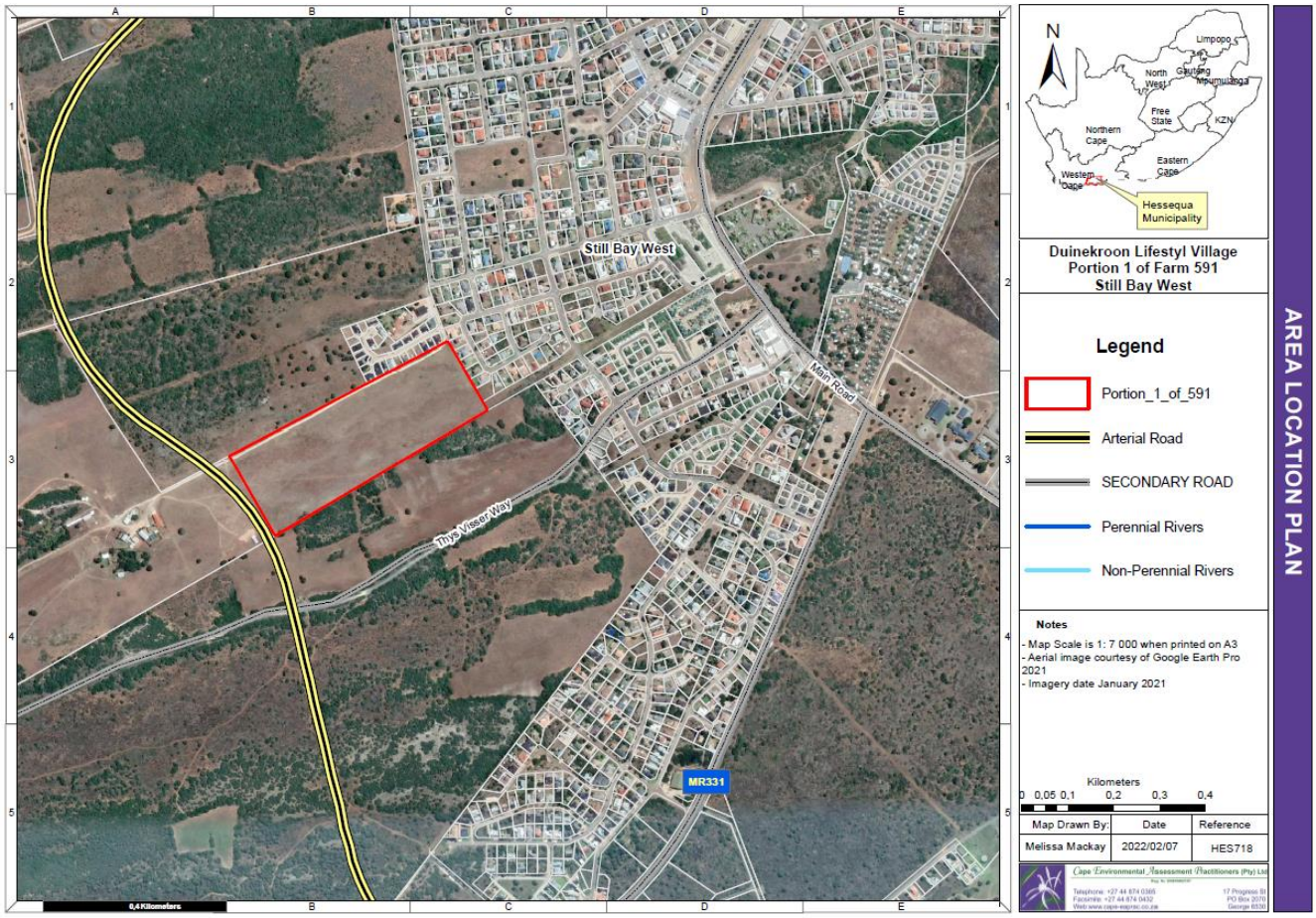

Figure 2: Area Location Plan

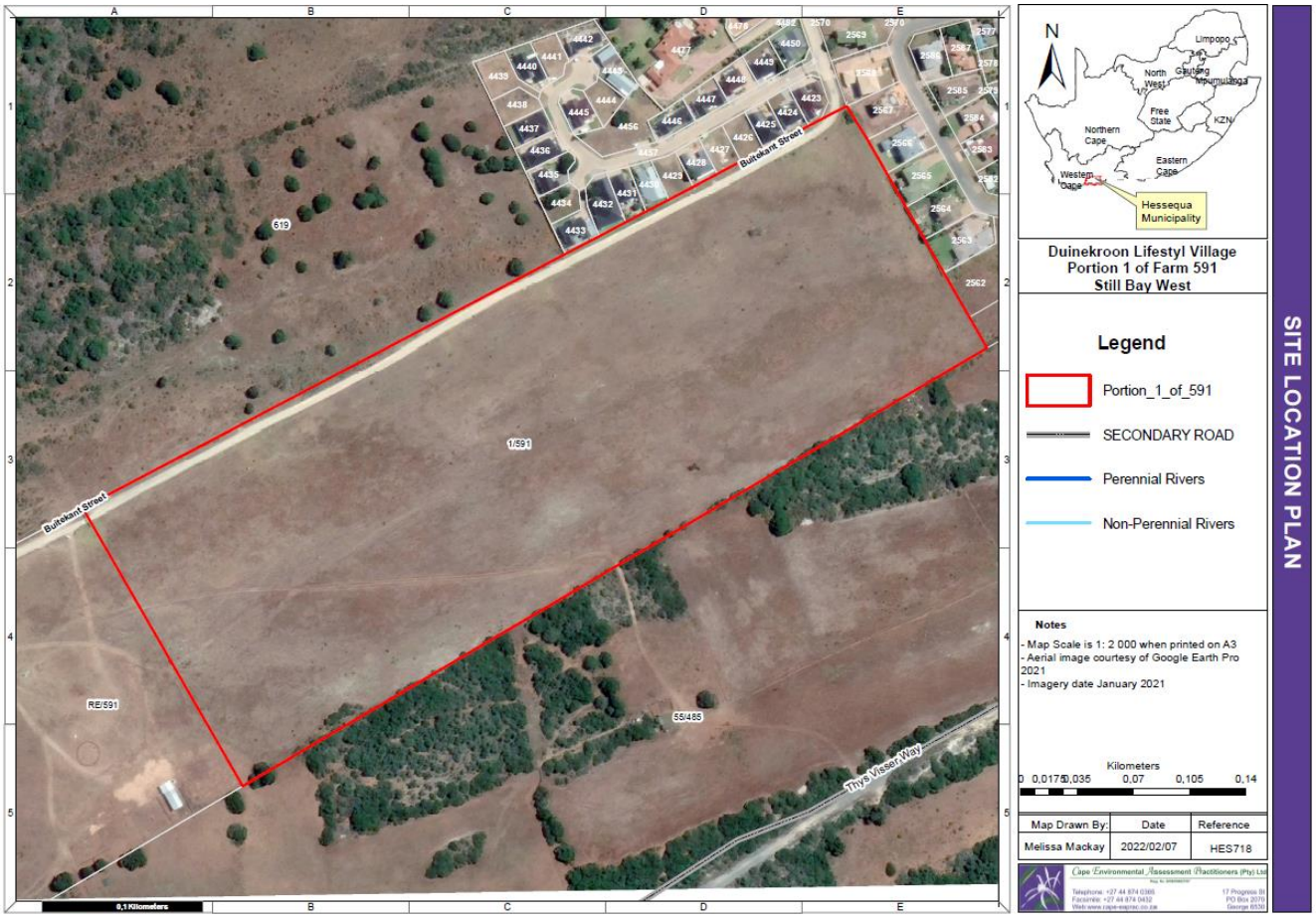

Figure 3: Site Location Plan

The proposed development is for a lifestyle estate with approximately 165 erven consisting of +/-**146 full title free standing Group Housing erven (General Residential II)** indicated in Yellow on the site plan and +/- **38x two-bedroom apartments villas** (double storey) as General Residential IV (indicated in light Orange on site plan) with a estate style **Business Centre/Club House (allowing for offices/sport-recreation and small retail component)** indicated in Blue in the site plan. The site covers an area of approximately 10,0ha and is currently zoned Agriculture I.

Access is proposed off the existing **Buitekant Street** as a direct private access. Upgrade to this road within the road reserve, up to the site entrance, is required in accordance with the Traffic Report and Municipal Arterial Management Plan for ongoing road upgrades in Stilbaai. Main Road / Buitekant Street 4-way stop to be upgraded to roundabout.

Services will be linked to the already existing municipal services of the area namely water pipelines, sewage pipelines and electricity that runs along Buitekant Street. The Hessequa Municipality has confirmed service capacity and availability.

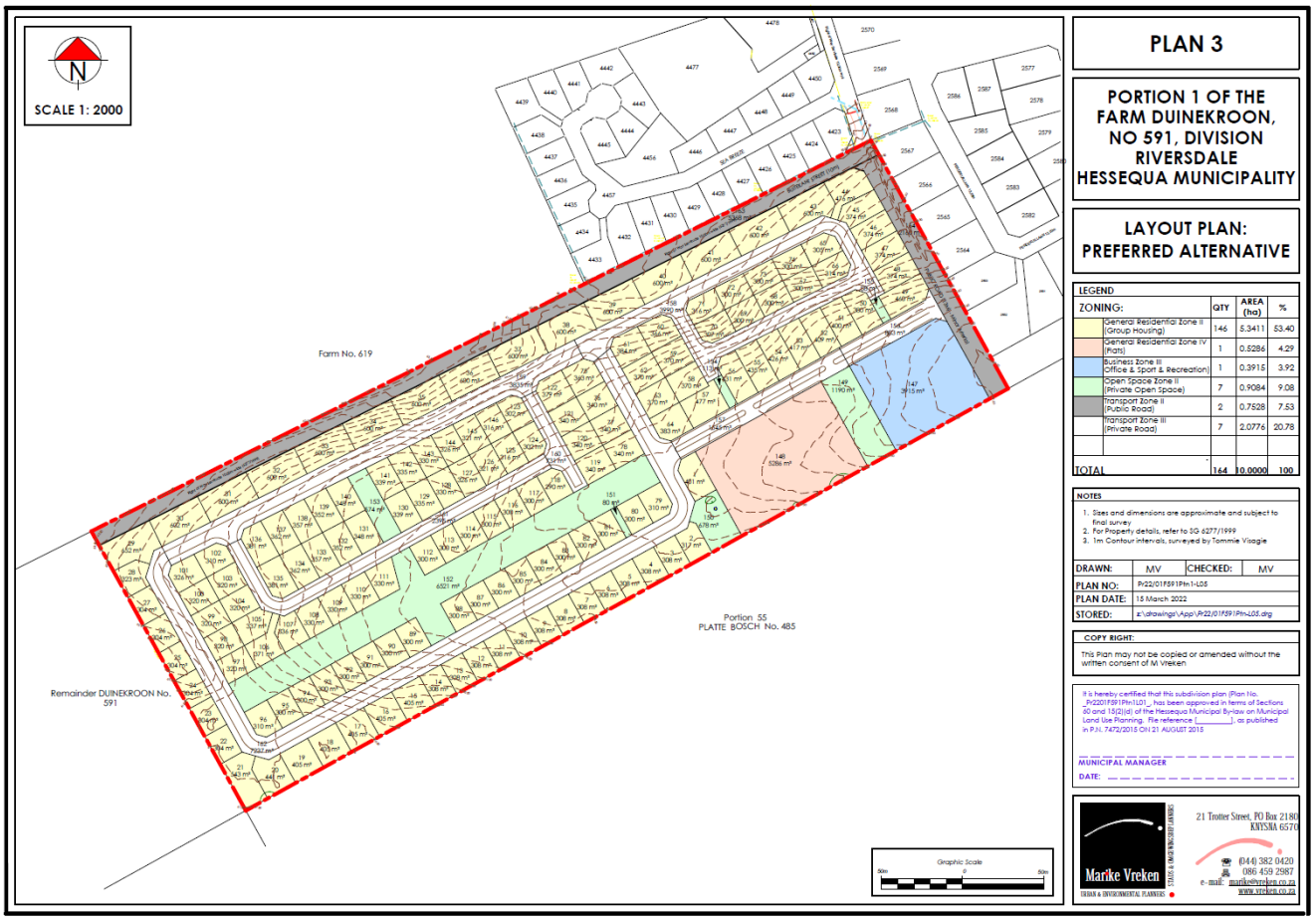

Figure 4: Site Development Plan (Marike Vreken, July 2022)

It must be noted that an Environmental Authorisation was issued for some development on this property on 25 November 2014. This EA has since lapsed, and a new Basic Assessment has been undertaken for the proposal.

This EMPr contains **management requirements** and **recommendations** made by *Cape EAPrac*, the appointed specialist as well as in terms of the regulations contained in the **National Environmental Management Act** (NEMA, Act 107 of 1998), and best practice principles. The EMPr should be updated to include any conditions of the **Environmental Authorisation** (EA) as issued.

1.1 PURPOSE OF THE EMPR

The purpose of this EMPr is to ensure that the environmental impacts and management of the various phases of the residential development on the receiving environment are managed, mitigated and kept

to a minimum (ie. the **outcome** of implementing the EMPr). The EMPr must provide easily understood and provide clearly defined **actions** that must be implemented during each phase of the development of the proposal. The EMPr is a dynamic document that is flexible and responsive to new and changing circumstances.

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

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

1.2 STATUS OF THE EMPR

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

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

2 EMPR PHASING

2.1 PRE CONSTRUCTION PHASE

The pre-construction phase refers to the design phase of the project. This will ensure that any requirements and best practise mechanisms are built into the planning / design phase to be developed in the construction and operational phase. In term of this application, the pre-construction can be considered as the site selection and engineering designs and mitigations.

2.2 CONSTRUCTION PHASE

The construction phase refers to the actual construction of the development on the property, and includes all earthworks and installation of bulk services (water, sewerage, roads, stormwater, electricity etc.). In terms of this application, this phase relates to the construction of the civil engineering services and infrastructure.

2.3 OPERATIONAL PHASE

The Operation Phase of this project relates to the ongoing management required to ensure sustainable development within designated urban areas. In terms of this application, this refers to all activities that are undertaken once the site is handed over for residential use. Construction of houses undertaken during the operational phases must still apply the principles provided in terms of the Construction Phase of this EMPr.

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

2.4 CLOSURE AND DECOMMISSIONING PHASE

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

The development is for a residential estate which by its nature has a long lifespan, as such it is not possible to provide a specific decommissioning timeframe. However, in the event that this does take place, the legislation applicable at that time must be applied. As a minimum the following should be considered:

- Correct demolition and removal of building structures.

3 LEGISLATIVE REQUIREMENTS

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

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

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

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

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

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

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

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

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

3.2 ENVIRONMENT CONSERVATION ACT, 1989 (ECA)

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

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

This Act controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 &

53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing, significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

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

In addition to the management of ecosystems, this Act makes provision for the management and control of alien invasive vegetation. This includes the listing of invasive species that are a threat to natural ecosystems. These species must be strictly controlled and / or eradicated. The property has been significantly transformed due to grazing practises but does not contain many alien vegetation species. Only indigenous vegetation should be permitted for landscaping by the proposed HOA and future landowners.

The vegetation type on the site has been identified as Hartenbos Dune Thicket (2018) which is classified as Least Concern.

3.4 NATIONAL WASTE MANAGEMENT STRATEGY

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

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

It is advisable that an integrated waste management system be adopted, which includes waste minimisation, waste recycling and the proper storage and disposal of waste, which does not impact of the health of the environment and human health.

3.5 NATIONAL WATER ACT (NWA, ACT 36 OF 1998)

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

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

Since no water resources are being affected by this development, this Act is not applicable.

3.6 NATIONAL FOREST ACT (ACT 84 OF 1998)

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

cutting, disturbing, damaging destroying or removing **protected trees** without a licence (Section 15 of the NFA).

In the case of the development, some protected trees (Milkwood (*Sideroxylon inerme*)) are located on the property. The preferred Alternative being proposed aims to keep these trees as part of the open space areas. Should they require pruning or removal, a Forestry License must be obtained from the relevant authority.

3.7 NATIONAL VELD AND FOREST FIRE ACT (ACT 101 OF 1998)

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

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

Since the property is inside the urban edge of Still Bay, and the proposal will lead to the development of erven, the need to belong to an FPA and provide for firebreaks will not be applicable. However, it is advised that adequate fire protection is implemented during the construction period and that the future Home Owners Association (HOA) provides mechanisms for fire protection during operation.

3.8 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

The purpose of the National Heritage Resources Act is to:

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

The Basic Assessment process that was undertaken in 2014 included the submission of a Notice of Intent to Develop (NID) to Heritage Western Cape (HWC). The HWC decision dated 21 May 2014 confirmed that no heritage resources would be affected and no further heritage studies were necessary. This decision is still binding. If any evidence of archaeological remains are unearthed, this must be communicated to the Heritage Western Cape immediately. See the Heritage Requirements below for detailed instructions as to communicating any finds.

3.9 OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)

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

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

3.10 SANS 10400 APPLICATION OF THE NATIONAL BUILDING REGULATIONS

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

3.11 NATIONAL BUILDING REGULATIONS

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

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

4 ENVIRONMENTAL IMPACTS & MITIGATIONS

The following specialist impact assessments / studies were undertaken for the proposal:

- Terrestrial Plant Species Compliance Statement
- Terrestrial Biodiversity Compliance Statement
- Terrestrial Animal Compliance Statement
- Butterfly Compliance Statement

The property was previously issued with an Environmental Authorisation in 2014 as the site was deemed to have low environmental sensitivity. This has not changed, and the specialist investigations have concurred that the impacts of the new proposal will remain as Low. Since only Compliance Statements have been provided, given the low sensitivity, the impacts on the site are negligible.

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

POSITIVE	NEGATIVE
Income generation for the Municipality from sale of the land, future rates, and taxes	Loss of secondary vegetation
Change in land use from vacant to developed	Loss of habitat within intact vegetation
Utilisation of vacant land in an urban context.	Temporary noise and dust pollution during construction period.
Temporary employment opportunities during construction (to semi-skilled and unskilled workers mostly).	Temporary risk of increase in crime during construction.
Permanent employment opportunities during operational phase (to skilled and semi-skilled workers mostly).	Temporary increase in heavy vehicular traffic along Main Road during construction.
Provision of safety (through development) of an otherwise vacant piece of land with no access control.	Additional pressure on non-renewable services.
No / Negligible Impact: • No impact on heritage resources. • No impact on terrestrial plant species. • No impact on terrestrial biodiversity. • Negligible impact on terrestrial animal species. • No impact on butterfly species.	

According to the specialist assessments the impact of the development is expected to be Low to Negligible / No significance. See Annexure G of the BAR for the full reports.

4.1 MITIGATIONS

Table 2: List of Mitigation Measures & Associated Management Requirements

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decomissioning Phase
Mitigations / Recommendations					
Ensure long-term protection of the protected tree species by ensuring that potential buyers are informed of their presence and legal status.		✓	✓	✓	
Prevent internal fencing by informing potential buyers of the restriction to avoid potential future conflict on this matter.		✓	✓	✓	
Applicant must appoint an ECO to oversee construction.	✓	✓	✓		
Applicant must apply for Forestry Permits should any root/branch trimming be required during construction.		✓	✓	✓	
Future homeowners must apply for Forestry Permits should any root/branch trimming be required during operational phase.		✓		✓	

Mitigation	Condition of Approval	Included in EMPr	Construction Phase	Operational Phase	Decomissioning Phase
Home Owners Association must apply for Forestry Permits for remaining private open space during operational phase.		✓		✓	
Home Owners Association must continue to eradicate invasive alien plant species within the private open space areas.		✓		✓	
Indigenous landscaping only.		✓	✓	✓	
Implement resource conservation measures.		✓	✓	✓	
Best Practise					
Rainwater harvesting should be implemented		✓	✓	✓	
Construction work must take place during normal work hours		✓	✓		
Traffic management must be in place during construction		✓	✓		

5 RESPONSIBILITIES

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

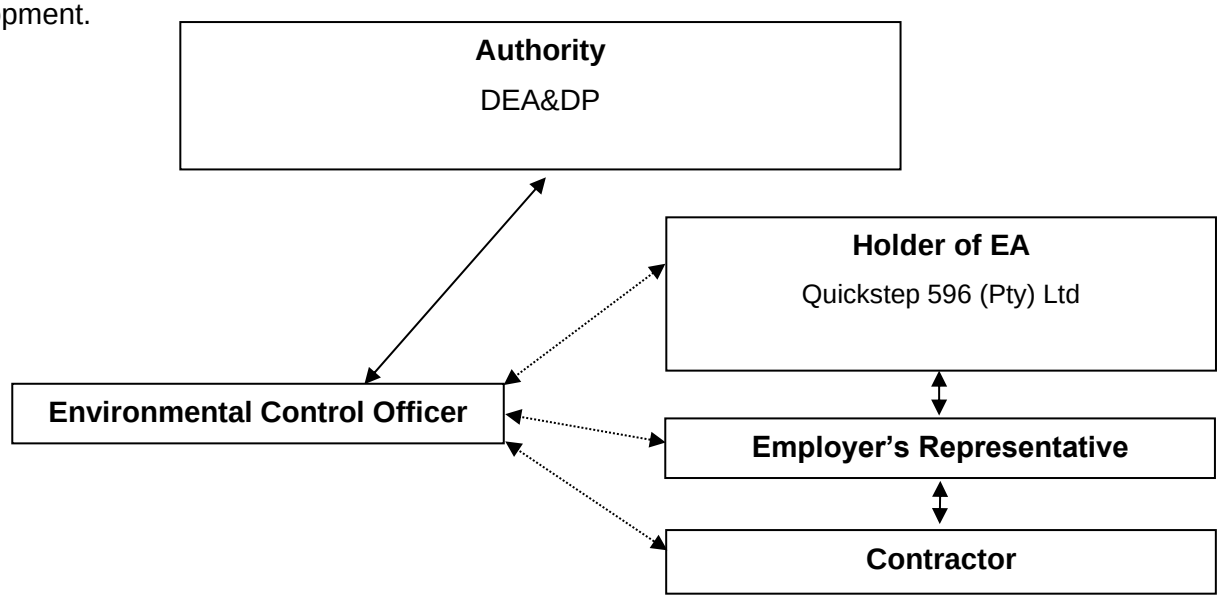

Figure 5: Responsibilities

5.1 HOLDER OF THE EA

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

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

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

5.2 ENGINEERS, CONTRACTORS & SERVICE PROVIDERS

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

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

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

5.3 ECOLOGICAL CONTROL OFFICER (ECO)

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

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

- Provide environmental induction training to Contractors on site prior to construction activities commencing
- Provide maintenance, update and review of the EMPr if necessary;
- Liaison between the Project Holder of the EA, Contractors, Authorities and other lead stakeholders on all environmental concerns, including the implementation of the EMPr;
- Compilation of Environmental Control Reports (ECR) to ensure compliance with the EA, EMPr and duty of care requirements, where necessary;

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

5.4 ECO SITE VISIT FREQUENCY

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

- Every week during initial site clearing and demarcation activities;
- Monthly after site clearing and final excavations take place (top structure phase). It is advisable that this should coincide with site meetings.
- 6 months post construction and site handover in order to inform the Completion Statement.

Ad hoc site visits may be undertaken in the event of any incidents or specific requests from the project holder of the EA or project team.

5.5 ENVIRONMENTAL INDUCTION & TRAINING

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

As a minimum, training must include:

- Explanation of the importance of complying with the EA and EMPr and the employees accountability;
- Discussion of the potential environmental impacts of construction activities;
- The benefits of improved personal performance;
- Employees' roles and responsibilities, including emergency preparedness ;
- Explanation of the mitigation measures that must be implemented when carrying out their activities;
- Explanation of the specifics of this EMPr and its specification (no-go areas, etc.);

- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

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

6 PRE CONSTRUCTION DESIGN CONSIDERATIONS

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

6.1 STORMWATER MANAGEMENT PREPARATION

Management Statement	Impacts & Risks Avoided
To prepare the site to minimise the negative impacts of stormwater	Damage to the environment caused by stormwater runoff

Management Actions

a. Apply the principles of Low Impact Development (LID) in the design of the drainage systems. Final design of the stormwater system must take place prior to construction to ensure timeous implementation.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site Plans	Once off	Architect / Engineer	Prior to construction	Audit	Once off

6.2 WATER RESOURCE PROTECTION

Management Statement	Impacts & Risks Avoided
To minimise the use of scarce water resources by improving consumption methods	Unsustainable or wasteful use of water for construction and operation purposes

Management Actions

a. Rainwater harvesting must be incorporated into the designs. All rainwater tanks must be shown on building plans

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance

		management action			
Site Plans	Once off	Architect	Prior to construction	Audit	Once off
a. Water efficiency must be incorporated into the design of the units.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site Plans	Once off	Architect	Prior to construction	Audit	Once off

Dual Flush Toilets

Conservative estimates have shown that a saving of more than 22 000 liters per household can be achieved annually with the installation of dual flush toilets (Aquanotion, 2008). All households and ablution facilities should be fitted with dual flush systems.

Low flow shower heads

The installation of low flow shower heads can not only reduce water consumption by up to 50%, but also the energy required for water heating by up to 50% (Eartheasy, 2008).

It has been estimated that a saving of up to 57 000 liters of water per annum per household can be achieved through the installation of low flow shower heads. Low flow shower heads make use of either aerators or pulse systems to reduce the flow without compromising the quality of the shower. The choice of shower head is up to the individual owner, but must have a flow of less than seven liters per minute.

Low flow Taps

Low flow tap use aerators to reduce the flow of the water. These are either built into the faucet or added as an aftermarket product. The faucets in bathrooms should have a peak flow of less than 10 liters per minute.

It is not necessary to install aerators in kitchen sinks as they are seldom run without a plug. All bathroom basins must be fitted with low flow faucets.

Washing machines

It is recommended that all washing machines that are to be installed in houses and shared facilities should be front loading washing machines as opposed to top loading washing machines. Apart from much lower energy and water requirements, front loader washing machines have a number of advantages that make them a better environmental choice:

- **Less wear and tear on washed materials** – Washed materials therefore last longer and result in a net resource saving;
- **Faster drying times** - Because of the horizontal axis and faster spin speeds, more water is removed and the materials dry faster which results in energy saving if a clothes dryer is used.;
- **Quieter operation** – Therefore less noise pollution; and
- **Less detergent** - Far less is required compared to top loaders. Fewer chemicals therefore reach treatment plants and ultimately waterways.

Geyser and pipe insulation

Apart from the savings in terms of energy as detailed below, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required.

All structures should have insulation on geysers and all hot water pipes.

Swimming Pools

Incorrectly designed and maintained swimming pools are a significant part of the senseless waste of water resources. A typical uncovered pool can lose between 1,2 and 1,8m of water a year to evaporation. Chemicals can also evaporate into the air, requiring the ongoing use of more than is necessary. The following considerations must be implemented on any properties that intend building swimming pools (PracticalEnvironmentalist, 2008):

- Pool covers must be used to prevent water evaporation, loss of chemicals, loss of water heat and as security against drowning of people or animals. The covers reduce the amount of make-up water by between 30 and 50 percent and reduce chemical consumption by between 35 and 60 percent. The covers further retain as much as 70 percent of the water heat.
- Pools painted with dark colours absorb heat and increase the water temperature naturally without the use of a pool heater.
- Pool water heaters should not be run all year and should be kept at lower temperatures in order to be more energy efficient. Ideally no pool heaters should be used.
- Well maintained pool equipment is more efficient and lasts longer.
- Operate pool filters and automated pool cleaners outside of peak energy use times. In winter, this equipment can be used less frequently without affecting the clarity of the pool.
- Create a windbreak around the pool using indigenous plants. This prevents the wind from increasing evaporation on the surface of the water. It also creates habitat for birds and can act as a natural barrier to decrease the visual impact of a fence;
- Chemical pools are discouraged and consideration should rather be given to salt water or natural pools;
- Backwash water (applicable to both chemical and salt water pools) may not be discharged onto the ground, but must be collected in a tank and removed from site. It is possible to discharge the backwash water into a grey water system if one is in place.
- In addition, it must be noted that a swimming pool forms part of a building footprint.

Waterwise Landscaping

Waterwise landscaping principles must be incorporated into the detailed landscaping plans. The following principles apply to waterwise gardening:

- Grow water-wise plants – generally the best suited plants are those indigenous to the area, as they seldom need additional watering;
- Group plants according to their water needs – this avoids wasting water on plants that don't need it;
- Consider the quality and type of the lawn. Lawns use unacceptable amounts of water, so consider reducing lawn areas to a minimum. Use tougher, low-water lawn types such as Buffalo (coastal areas) or Kweek (inland) rather than Kikuyu.
- Maintain the garden – remove unwanted plants, plant more perennials than summer annuals, as they have deeper root systems and so need less watering.
- Improve the soil and mulch. Soil water-holding capacity is improved by higher organic matter content. Mulching (covering the soil with a thick layer of bark, compost, straw etc.) keeps the soil much more moist.
- Plant in the right season – For winter rainfall areas this is in autumn and early winter so the plants have a chance to develop their root systems before the dry season. In summer rainfall areas it is spring and early summer for the same reason.
- Water correctly – avoid watering during the heat of the day or in windy conditions.
- The best irrigation system is drip irrigation – it uses 25% of water used by normal irrigation systems with the same effect, and can even be placed under lawns.

Grey Water

Grey water is the water that comes from the bath, shower, basins, laundry and the kitchen sink. It is not to be confused with Black water, which is sewage that comes from the toilet. Black water is toxic and requires

very specific methods of treatment in order to be safe for re-use. Grey water, however, can easily be recycled and re-used for a variety of uses. These include:

- Irrigation of gardens;
- Water for flushing toilets;
- Any outdoor use;
- Dampening dusty areas or roads.

Grey water systems require precise methods to clean the water. There are various companies and organisations that can assist with implementing a grey water system.

6.3 ENERGY RESOURCE PROTECTION

Management Statement	Impacts & Risks Avoided
To minimise the use of energy resources by improving consumption methods	Excessive and unnecessary energy consumption

Management Actions

a. Incorporate energy efficiency into the design of the facility

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Energy saving checklist	Once off	Owner	Ad hoc	Audit	Once off

Solar heating water systems

Solar heated water systems are an innovative way of producing hot water without putting additional pressure on gas or municipal power supply. There are many different types available on the market, and home owners should consider all their requirements (number of people using facility, location of house, angles of roof) before making a choice.

Energy Efficient Lighting

In terms of Best Practice, it is required that energy saving lighting fixtures be used throughout the entire development. It is therefore specified that Light Emitting Diode (LED) or Compact Fluorescent (CF) lighting be used as opposed to incandescent lighting. This is required for all internal and external lighting, including street lighting. Proximity switches should be used in areas where lighting for pedestrians is required.

NO external High Pressure Sodium (HPS) or Metal Halide (MH) spot or floodlights should be installed.

CF lighting uses quantities of mercury in the bulbs and tubes which pose serious environmental hazards. The mercury from one CF bulb can pollute many thousand litres of water if not treated correctly (Eden District Municipality, 2011). CF lighting (energy saving bulbs and tubes) must be correctly disposed of at registered Hazardous waste sites. Companies like Pick n Pay and Woolworths offer facilities to collect CF bulbs for recycling and disposal. The following should be considered when handling CF bulbs (eHow Home, 2011):

Disposing of Burnt Out Bulbs

- Seal the bulb inside two plastic bags, or one thick freezer bag, before disposal.
- Find the nearest recycling station that handles hazardous materials. Check with your city's municipal office to see if there is a recycling program in your town.
- Take the bulbs to the recycling station. Ask the people there about the process of giving them your bulbs and follow all their instructions.
- Tell everyone you know who is using energy efficient bulbs how to properly dispose of them as the use of these bulbs is growing.

If a Bulb Breaks

- Open a window and leave the room. Let no one inside for at least 15 minutes.
- Collect the fragments and powder with stiff paper or cardboard. Wear disposable rubber gloves. Do not use a vacuum cleaner.
- Clean the entire area with a wet wipe or wet paper towel. Use adhesive tape to collect excess powder.
- Seal all pieces and cleanup materials in a plastic bag. Follow the above procedures on disposal or recycling. Wash your hands completely afterward.
- Dispose of the vacuum bag in the same manner the next time you vacuum the area. If it's a canister vacuum, wipe it completely clean.

Energy Efficient Appliances

Energy efficient appliances are becoming widely available. Follow the Energy Guide labels on appliances to help selection of correct models. Any appliance that has to heat up water or air will use more energy, as will an appliance that boasts additional extras such as ice making, dispensing and auto defrosting on fridges or heat drying on dishwashers.

Solar Cooling Systems

Where required by homeowners, the home owner should consider the use of solar cooling systems such as absorption or adsorption chillers as opposed to conventional air conditioning units.

Evaporative Cooling Systems

Consideration should be given to evaporative cooling systems as these cut down considerably on energy usage for appliances such as air conditioners. Furthermore, the system ensures that fresh air circulates within housing units, which improves on environmental health risks.

Fresh air is drawn from outside the house (the hotter the better) and passes through moistened pads which cools it down and filters it before flowing through outlets in the house.

There are certain parameters required for evaporative cooling systems, which should be thoroughly investigated prior to installation.

Geyser and pipe insulation

Apart from the savings in terms of energy as detailed below, insulating geysers and pipes save water, as shorter periods of running the tap to get hot water are required.

All structures should have insulation on geysers and all hot water pipes.

6.4 DEMARCATION OF WORK AND NO-GO AREAS

Management Statement	Impacts & Risks Avoided
To clearly define the work area and avoid impacting on non-works areas.	Negative construction impacts on natural and rehabilitated areas

Management Actions

a. Clearly identify and demarcate the development area, area of works and spoiling areas.

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

b. Fuel and chemicals may only be stored in a designated work area.

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

c. Provide on-site sanitation and rest areas for personnel.

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

7 CONSTRUCTION CONSIDERATIONS

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

7.1 SITE CLEARANCE PLAN

Site clearance should be undertaken in a systematic manner within the demarcated areas to minimise the impacts of construction on the site. The following table provides a methodology to implementing site clearance according to this EMPr and the EA.

Table 3: Site Clearance Methodology

No	Action	Scheduling
1	**Survey** approved layout on site.	Prior to construction
2	**Establish site camp** and **material stockpile sites** (incl. waste disposal area, portable toilets etc. The construction camp and necessary ablution facilities meant for construction workers must not be in any of the delineated watercourses or wetland areas (including 20m buffer).	Prior to construction.
3	**Demarcate work areas** using correct demarcation methods.	Prior to construction.
4	Demarcate **protected areas as no-go areas**.	Prior to construction.
5	**Erosion control measures** must be put in place prior to any construction activities that would result in soil being exposed.	Prior to construction.
6	Weather forecasts from the South African Weather Bureau of up to three days in advance must be monitored on a daily basis to avoid exposing soil, works or materials during a storm event. This must be considered in conjunction with tide tables for beach construction work.	Construction
7	Commence with mechanical vegetation clearing within the demarcated work areas only.	Construction
8	Vegetation clearing should occur **in parallel with the construction progress** to minimise erosion and/or run-off. Large tracts of bare soil will either cause dust pollution or quickly erode and then cause sedimentation in the lower portions of the catchment.	Construction
9	Any biomass from the clearing activities must be stockpiled within the development footprint at an area / areas approved by the ECO. It is recommended that the biomass must be **chipped in situ** and stockpiled within designated areas within the footprint. Alternatively it must be removed and taken to an approved disposal site for biomass. NO DUMPING IS ALLOWED.	Construction
10	Any cleared areas that will not be immediately constructed or planted, must be covered with the wood chips or other mulch to prevent wind erosion.	Construction

7.2 STORMWATER MANAGEMENT (CONSTRUCTION)

Management Statement	Impacts & Risks Avoided
To minimise the generation of contaminated stormwater.	Minimise sedimentation, erosion and / or undercutting of the coastal interface

Management Actions

a. Minimise the quantity of stormwater entering cleared areas.

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

Any areas that are identified by the ECO as being prone to erosion must be suitably protected. During construction, the Contractor shall protect all areas susceptible to erosion by installing necessary temporary and permanent drainage works as soon as possible and by taking any other measures necessary to prevent stormwater from concentrating in streams and scouring slopes, banks, etc.

Any erosion channels developed during construction on steep slopes must be backfilled, compacted and restored to an acceptable condition.

Stabilisation of cleared areas to prevent and control erosion and/or sedimentation shall be actively managed. Consideration and provision shall be made for the following methods (or combination thereof): brushcut packing, mulch or chip cover, straw stabilising, watering, planting/sodding, soil binders and anti-erosion compounds, mechanical cover or packing structures (including the use of geofabric, log/pole fencing, etc.). Traffic and movement over stabilised areas shall be restricted and controlled, and damage to stabilised areas shall be repaired and maintained.

In areas where construction activities have been completed and where no further disturbance would take place, rehabilitation and re-vegetation should commence as soon as possible. A suitable rehabilitation method statement must be submitted to the ECO for approval.

7.3 DUST CONTROL

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

Management Actions

a. Implement a dust prevention strategy, developed at the project planning stage					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Once off	Developer / contractor	Pre implementation	Audit	Once off

The strategy should include the following amongst others:

- Speed control to minimise dust on site.
- During dry, dusty periods haul roads should be kept dampened to prevent excess dust. No potable water or seawater may be used for damping haul roads.
- Exposed stockpile materials must be adequately **protected** against wind (covered), and should be sited taking into consideration the prevailing wind conditions.
- Trucks bringing in materials must be covered to prevent dust and small particles escaping and potentially causing damage to people and property.

7.4 NOISE & VIBRATION

Management Statement	Impacts & Risks Avoided
To ensure nuisance from noise and vibration does not occur.	Nuisance impacts to neighbours and visitors.

Management Actions

a. Fit and maintain appropriate mufflers on earth-moving and other vehicles on the site.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction and operation	Audit	As required

b. Enclose noisy equipment such as generators and pumps.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required
c. Provide noise attenuation screens, where appropriate.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required
d. Where an activity is likely to cause a noise nuisance to nearby residents, restrict operating hours to between 7 am and 6 pm weekdays and 7 am to 1 pm Saturday, except where, for practical reasons, the activity is unavoidable.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	As required if complaints registered.	Contractor	During construction	Audit	As required

7.5 TRAFFIC CONTROL

Management Statement	Impacts & Risks Avoided
To manage and minimise the nuisance effect created by construction traffic.	The development entrance access will be via an existing residential road network and construction traffic is likely to affect users..

Management Actions

a. Implement a traffic management strategy during construction.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method Statement	Daily	Contractor	During construction	Audit	As required

- Construction related activities should be timed where possible to avoid peak holiday periods.
- No construction workers, with the exception of security personnel, should be allowed to stay on site overnight.
- Building contractors appointed by the developer must ensure that workers are transported to and from the site on a daily basis.
- Construction related activities should comply with all relevant building regulations. In this regard activities on site should be restricted to between 07h00 and 18h00 during weekdays and 08h00 and 13h00 on Saturdays. No work should be permitted after 13h00 on Saturdays and on Sundays.

7.6 WASTE MANAGEMENT

Management Statement	Impacts & Risks Avoided
To minimise the waste load discharged to the environment.	Improve waste disposal methods during construction Reduce waste volumes to landfill sites

Management Actions

a. Reduce wastes by selecting, in order of preference, avoidance, reduction, reuse and recycling.

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Record of volumes of material removed	As required	Contractor	As required	Audit	Records

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

7.7 STOCK PILE MANAGEMENT

Management Statement	Impacts & Risks Avoided
To manage soil stockpiles so that dust and sediment in run-off are minimised.	Pollution due to dust and sediment run off
Management Actions	

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

e. Stabilise stockpiles and batters that will remain bare for more than 28 days by covering with mulch or anchored fabrics or seeding with sterile grass.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly
f. Establish sediment controls around unstabilised stockpiles and batters.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly
g. Suppress dust on stockpiles and batters, as circumstances demand.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly

7.8 STORING FUELS & CHEMICALS

Management Statement	Impacts & Risks Avoided
To ensure that fuel and chemical storage is safe, and that any materials that escape do not cause environmental damage.	Avoid hydrocarbon pollution to soil and watercourses / coastal environments
Management Actions	

a. Minimise fuels and chemicals stored onsite.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
b. Install bunds and take other precautions to reduce the risk of spills.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
c. Implement a contingency plan to handle spills, so that environmental damage is avoided.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

7.9 CEMENT BATCHING

Management Statement	Impacts & Risks Avoided
Cement powder has a high alkaline pH that may contaminate and adversely affect both soil pH and water pH negatively. A rapid change in pH can have consequences on the functioning of soil and water organisms as well as on the botanical component.	Minimises negative impacts to vegetation and soils on areas that will not be hard surfaced.
Management Actions	

a. All concrete batching must take place on an area that is to be hard surfaced as part of the development.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
b. Concrete mixing areas must have bund walls or a settling pond in order to prevent cement run off. Once the settling ponds dry out, the concrete must be removed and dispatched to a suitable disposal site.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
c. When using Readymix concrete, care must be taken to prevent spills from the trucks while offloading. This form of batching is preferable for large constructions as no on site batching is required and there is a lesser likelihood of accidental spills and run off. Trucks may not be washed out on site.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

7.10 MINIMISING EROSION

Management Statement	Impacts & Risks Avoided
To minimise the quantity of soil lost during construction due to land-clearing.	• Avoid overland flow by capture and store water from roof • Avoid siltation by installing silt traps
Management Actions	

a. Schedule measures to avoid and reduce erosion by phasing the work program to minimise land disturbance in the planning and design stage.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
b. Keep the areas of land cleared to a minimum, and the period of time areas remain cleared to a minimum					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
c. Base control measures to manage erosion on the vulnerability of cleared land to soil loss, paying particular attention to protecting slopes.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
d. Mulch, roughen and seed cleared slopes and stockpiles where no works are planned for more than 28 days, with sterile grasses.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

e. Keep vehicles to well-defined haul roads.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site plan	As required	Contractor	As required	Audit	Final site plan
f. Rehabilitate cleared areas promptly.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor	Continuously during construction	Audit	Final Rehabilitation statement

7.11 REHABILITATION & BOTANICAL MANAGEMENT

Management Statement	Impacts & Risks Avoided
To ensure that degradation to existing botanical components are minimised and that any rehabilitation is undertaken with conservation orientated approach.	To minimise the disturbance to existing flora To minimise the introduction and/or spread of weed species

Management Actions					
a. Retain the existing sensitive tree groupings. These must be demarcated to avoid damage during construction.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor / Owner	Continuously	Audit	Visual / photographic

b. Rehabilitation and landscaping may only make use of indigenous vegetation.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor / Owner	Continuously	Audit	Visual / photographic

7.12 FAUNA MANAGEMENT

Management Statement	Impacts & Risks Avoided
To ensure that impacts to native faunal species is minimised and / or avoided.	To minimise the impact to fauna

Management Actions

a. Prevent unnecessary mortalities of indigenous fauna					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Ad hoc	As required	Contractor	Continuously	Audit	Visual / photographic

7.13 SOCIAL REQUIREMENTS

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

Management Actions

a. It is strongly recommended that the Contractor make use of local labour as far as possible for the construction phase of the project.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Employment records	Ad hoc	Contractor	Ad hoc	Audit	Once off
b. Theft and other crime associated with construction sites is not only a concern for surrounding residents, but also the Developer and the Contractor.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off

Targets

- The target should be to have the majority of semi-skilled labour local to the Hessequa Municipal area, particularly from Melkhoutfontein / Still Bay.
- An average total of 80% or higher should be maintained for the Southern Cape region.
- The contractor should endeavour to source local suppliers that are BEE compliant.
- The contractor must ensure that suitable procurement policies are in place that supports local economic growth.
- Locally manufactured products must be used as far as possible.

Site Security

Theft and other crime associated with construction sites is not only a concern for surrounding residents, but also the developer and the contractor.

Considering this, contractors need to be proactive in order to curtail theft and crime on and resulting from the construction site. It is recommended that the contractor develop a jobsite security plan prior to commencement of construction. This jobsite security plan should take into account protection of the construction site from both internal and external crime elements as well as the protection of surrounding communities from internal crime elements. All incidents of theft or other crime should be reported to the South African Police Service, no matter how seemingly insignificant.

7.14 HERITAGE REQUIREMENTS

Management Statement	Impacts & Risks Avoided
To minimise the impacts of development, operation and maintenance of the Project on the heritage values in the Project area.	Ensure heritage impacts are minimised, and impacts outside of the approved disturbance area are avoided.
Management Actions	

a. No disturbance of heritage values outside of the approved disturbance area.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off

- Should any heritage remains of potential cultural value be exposed during excavations, these must be immediately reported to the ECO and the Provincial Heritage Resource Authority of the Western Cape, namely Heritage Western Cape in terms of the national Heritage Resources Act (Act No. 25 of 1999). Heritage remains uncovered or disturbed during earthworks may not be disturbed further until the necessary approval has been obtained from Heritage Western Cape.
- Should any archaeological remains including (but not limited to) fossil bones, fossil shells, coins, indigenous ceramics, colonial ceramics, marine shell heaps, stone artefacts, bone remains, rock art, rock engravings and any antiquity be discovered during construction, they must be immediately reported to the ECO and Heritage Western Cape and not disturbed further until the necessary approval has been obtained.
- Should any human remains be uncovered, they must immediately be reported to the ECO and the HWC archaeologist, who can be contacted on **(021) 483 9685**. Construction in the area must cease immediately and the site may not be disturbed further until the necessary approval has been obtained.

7.15 METHOD STATEMENTS

Management Statement	Impacts & Risks Avoided
To ensure efficient communication mechanisms in the implementation of environmental performance requirements	Prevention of potential impacts are avoided during construction by means of correct communication

Management Actions					
a. Method statements are written submissions by the Contractor to the ECO in response to the requirements of this EMPr or to a request by the ECO. The Contractor shall be required to prepare method statements for several specific construction activities and/or environmental management aspects.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	Ad hoc	Contractor	As required	Audit	Once off

Based on the specifications in this EMPr, the following method statements are required as a minimum (more method statements may be requested as required at any time under the direction of the ECO):

- Demarcation of No-Go areas

- Site clearing
- Hazardous substances and their storage.
- Materials requirements & Sourcing.
- Solid waste control system.
- Fire control and emergency procedures
- Petroleum, chemical, harmful and hazardous materials storage, if any.
- Beach work schedule and duration.
- Stormwater Management and Erosion Control.

7.16 HEALTH AND SAFETY

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

8. General duties of employers to their employees:

(1) Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.
(2) Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular-
(a) the provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health;
(b) taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees, before resorting to personal protective equipment;
(c) making arrangements for ensuring, as far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances;
(d) establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and he shall, as far as is reasonably practicable, further establish what precautionary measures must be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures;
(e) providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees;
(f) as far as is reasonably practicable, not permitting any employee to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken;
(g) taking all necessary measures to ensure that requirements of this Act are complied with by every person in his employment or on premises under his control where plant or machinery is used;
(h) enforcing such measures as may be necessary in the interest of health and safety;
(i) ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who have the authority to ensure that precautionary measures taken by the employer are implemented; and
(j) causing all employees to be informed regarding the scope of their authority as contemplated in section 37 (1) (b).

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

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

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

8 OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

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

8.1 STORMWATER MANAGEMENT

Management Statement	Impacts & Risks Avoided
To ensure management of stormwater during operation phase	• To prevent erosion due to stormwater impact

Management Actions

a. No stormwater runoff should be allowed to concentrate onto open spaces and roadways downstream of the property .

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Ensure soft landscaping	Ongoing	Developer / HOA	As required	Audit	Audit

b. Runoff from the roof of the new buildings should be fed into an existing formal stormwater drainage system (if present) or directly infiltrate into soft landscaped areas surrounding the building .

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Ensure soft landscaping	Ongoing	Owners / HOA	As required	Audit	Audit

- Concentration of stormwater runoff will be minimised through the application of landscaping techniques, i.e. by creating grass lined swales, undulations and depressions.
- Ensure rainwater harvesting takes place.

8.2 BOTANICAL / LANDSCAPING

<table>
<tr><th colspan="3">Management Statement</th><th colspan="3">Impacts & Risks Avoided</th></tr>
<tr><td colspan="3">To ensure that indigenous vegetation is encouraged within urban areas.</td><td colspan="3">• Ongoing spread of alien invasive species.
• Ensure protected species are taken into consideration.</td></tr>
<tr><th colspan="6">Management Actions</th></tr>
<tr><td colspan="6">a. Home owners must practice ongoing alien invasive management.</td></tr>
<tr><td>Method of monitoring implementation</td><td>Frequency of Monitoring</td><td>Responsible Party for implementing management action</td><td>Time period</td><td>Mechanism for monitoring Compliance</td><td>Programme for reporting on Compliance</td></tr>
<tr><td>Visual / photographic</td><td>Ongoing</td><td>Owner</td><td>As required</td><td>Audit</td><td>Audit</td></tr>
<tr><td colspan="6">b. Retain and manage protected and indigenous vegetation.</td></tr>
<tr><td>Method of monitoring implementation</td><td>Frequency of Monitoring</td><td>Responsible Party for implementing management action</td><td>Time period</td><td>Mechanism for monitoring Compliance</td><td>Programme for reporting on Compliance</td></tr>
<tr><td>Visual / photographic</td><td>Ongoing</td><td>Owner</td><td>As required</td><td>Audit</td><td>Audit</td></tr>
<tr><td colspan="6">• Rehabilitate with appropriate indigenous vegetation to promote soft landscaping.
• Replace vegetation if it dies off.
• Obtain permits for any pruning or removal of protected species, notably Sideroxylon inerme (Milkwoods).</td></tr>
</table>

9 MONITORING

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

Any required monitoring reports must be made available to the competent authority as required.

The type and frequency of monitoring must include:

- During construction photographs must be taken from pre identified fixed points and a comprehensive record maintained;
- Incident Reports;
- Site meeting minutes.

9.1 MONITORING TIMEFRAMES SUMMARY

Table 4: Monitoring Timeframe Summary

MONITORING TIMEFRAMES		
Type	Frequency	Criteria
ECO visits	As per section 5.4	Site photographs / site diary
Record keeping	Monthly	Site photographs, method statements, site meeting minutes (if applicable)
	6 month post construction	Completion Statement
Auditing	One year post construction	Compliance with the EA, EMPr, municipal permits and any other approvals

9.2 ENVIRONMENTAL AUDITS

A final construction phase Completion Statement must be submitted within 6 months of completion of construction / site handover.

This Completion Statement must include the monitoring results as above, where applicable to construction.

An Environmental Audit should be undertaken two (2) years post construction.

9.3 AUDIT REPORTS FREQUENCIES AND FORMAT

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

Table 5: Audit Reports Timeframe Summary

ENVIRONMENTAL AUDIT TIMEFRAMES		
Type	Frequency	Criteria
Final Construction Audit	Two years post construction	Audit on operational aspects of the EA and EMPr

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

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

Table 6: Environmental Audit Requirements

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

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.	
Objective	**Description**
(ii) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and (iii) Ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan.	
(f) A description of any assumptions made, and any uncertainties or gaps in knowledge.	
(g) A description of an consultation process that was undertaken during the course of carrying out the environmental audit report.	
(h) A summary and copies of any comments that were received during any consultation process.	
(i) Any other information requested by the competent authority.	

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

10 DECOMMISSIONING PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

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

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

- Demolition of buildings and removal of rubble must be undertaken without impacting on areas outside of the development area.
- Rubble must be disposed of correctly and to a registered site if not reused on site.
- Decommissioning must comply with any relevant legislation valid at that time.

11 NON-COMPLIANCE

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

It is the responsibility of the ECO to report matters of non-compliance to the Employer's Representative or the Holder of the EA if no representative is in place. It is the responsibility of the Holder of the EA, and not the ECO, to report such matters of non-compliance to the competent Authority.

11.1 PROCEDURES

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

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

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

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

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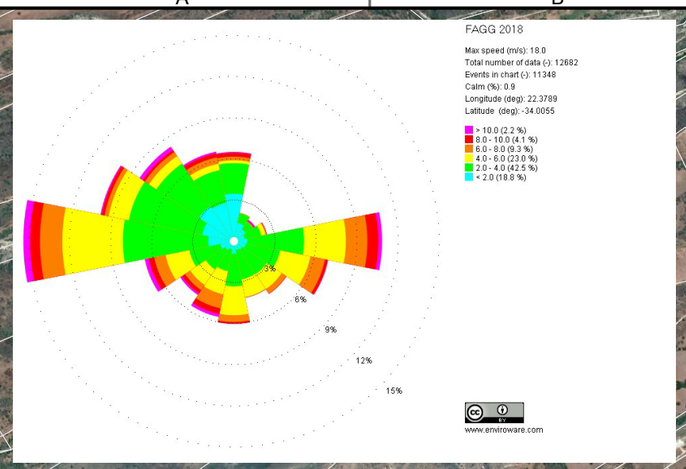


MR332
To Riversdale

MR332

Gouritz

Still Bay East

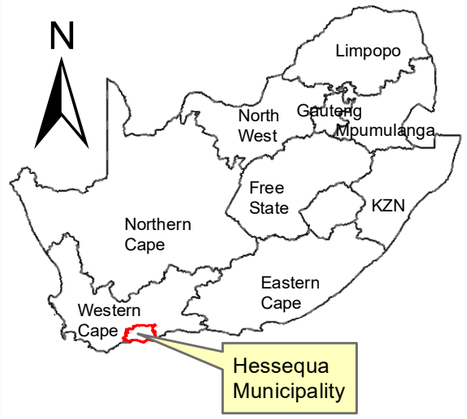
Still Bay West

Site Co-ordinates:
34°23'09"S
21°24'10"E

MR331

MR331
To Jongensfontein

1,5 Kilometers



Duinekroon Lifestyl Village
Portion 1 of Farm 591
Still Bay West

Legend

- Portion_1_of_591
- MAIN ROAD
- NATIONAL ROUTE
- SECONDARY ROAD
- Perennial Rivers

Notes

- Map Scale is 1: 26 000 when printed on A3
- Aerial image courtesy of Google Earth Pro 2021
- Imagery date January 2021
- Wind data courtesy of Metar 2018
- Nearest Metar station is George Airport (FAGG) approx. 99kms at 64.91 degrees east

Kilometers
0 0,225 0,45 0,9 1,35 1,8

Map Drawn By:	Date	Reference
Melissa Mackay	2022/02/07	HES718

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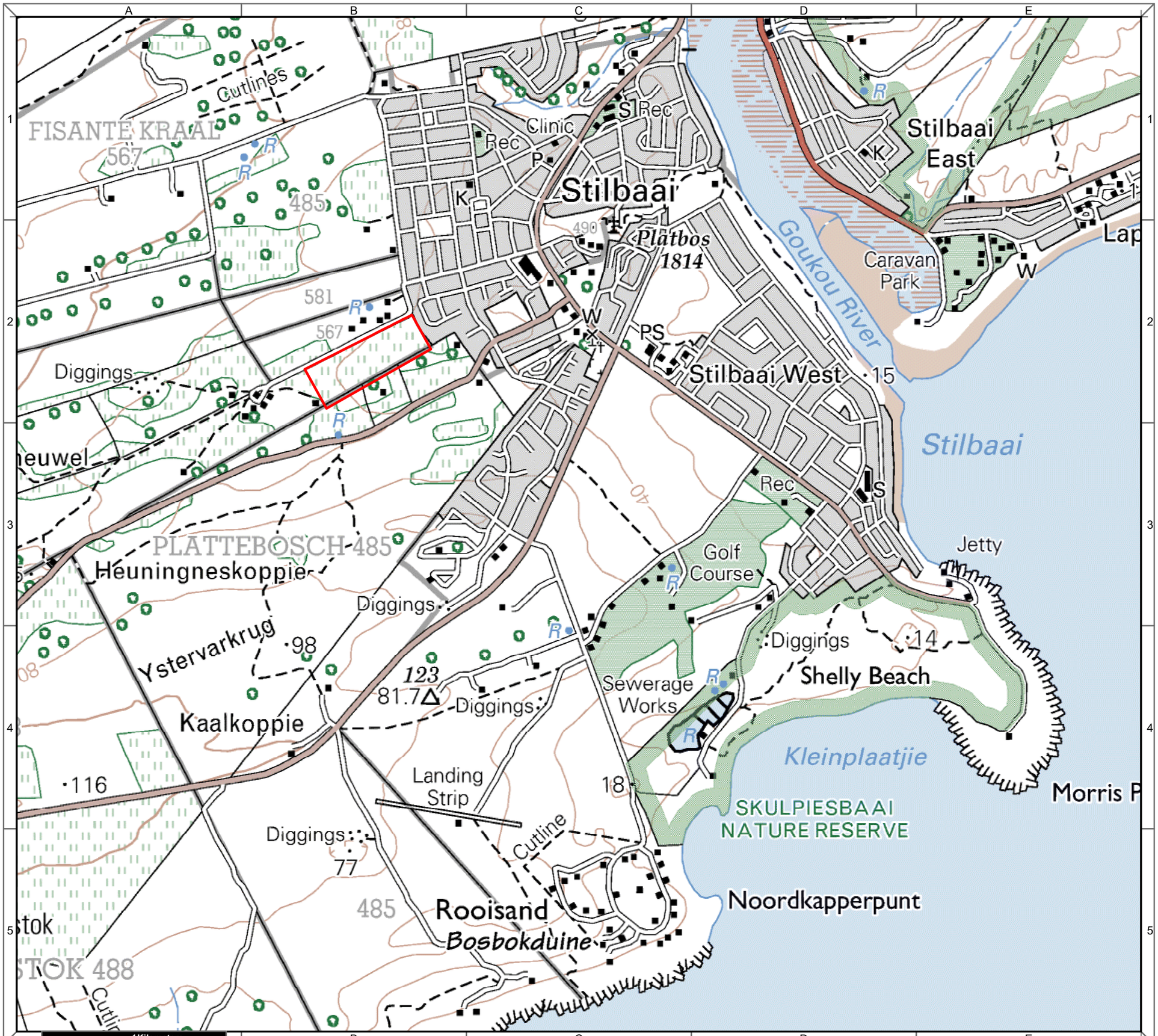
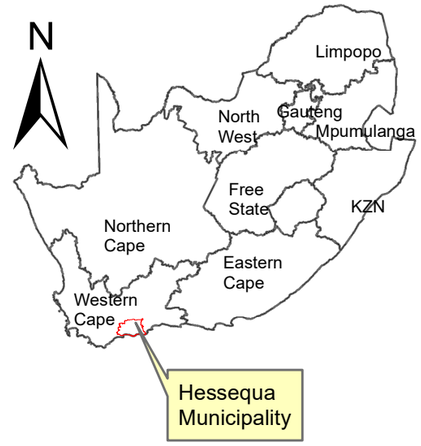
LOCATION PLAN





Duinekroon Lifestyl Village
Portion 1 of Farm 591
Still Bay West

Legend

Portion_1_of_591

Notes

- Map Scale is 1: 20 000 when printed on A3
- Topographical data courtesy of Surveyor General
- Imagery date 2006

Kilometers

0 0,175 0,35 0,7 1,05 1,4

Map Drawn By:	Date	Reference
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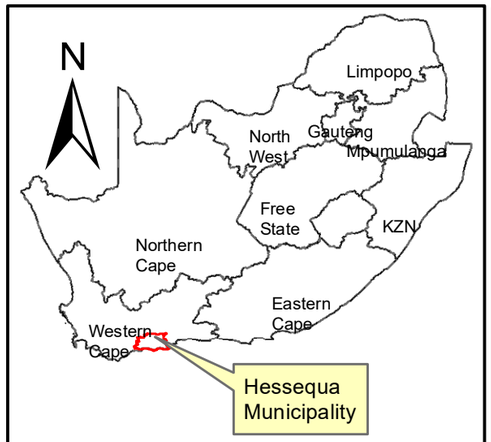
1:50 000 TOPOGRAPHICAL PLANS



Duinekroon Lifestyl Village
Portion 1 of Farm 591
Still Bay West

Legend

- Portion_1_of_591
- Arterial Road
- SECONDARY ROAD
- Perennial Rivers
- Non-Perennial Rivers

Notes

- Map Scale is 1: 7 000 when printed on A3
- Aerial image courtesy of Google Earth Pro 2021
- Imagery date January 2021

Kilometers
0 0,05 0,1 0,2 0,3 0,4

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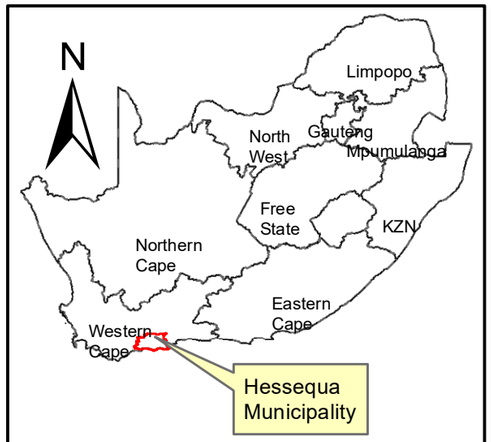
AREA LOCATION PLAN



Duinekroon Lifestyl Village
Portion 1 of Farm 591
Still Bay West

Legend

- Portion_1_of_591
- SECONDARY ROAD
- Perennial Rivers
- Non-Perennial Rivers

Notes

- Map Scale is 1: 2 000 when printed on A3
- Aerial image courtesy of Google Earth Pro 2021
- Imagery date January 2021

Kilometers

0 0,0175 0,035 0,07 0,105 0,14

Map Drawn By:	Date	Reference
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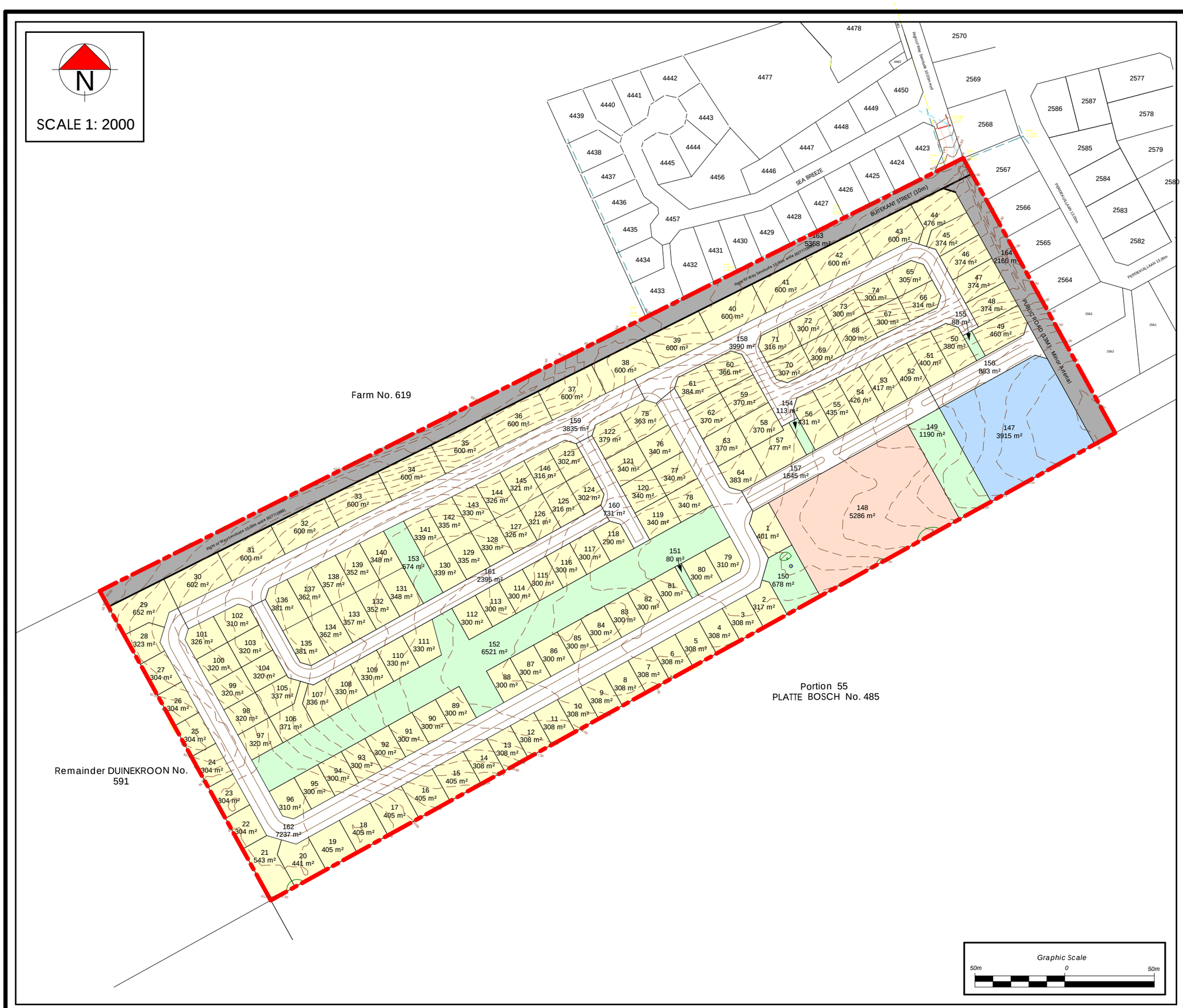
17 Progress St
PO Box 2070
George 6530

SITE LOCATION PLAN

N

SCALE 1: 2000



PLAN 3

PORTION 1 OF THE FARM DUINEKROON, NO 591, DIVISION RIVERSDALE HESSEQUA MUNICIPALITY

LAYOUT PLAN: PREFERRED ALTERNATIVE

LEGEND

ZONING:		QTY	AREA (ha)	%
	General Residential Zone II (Group Housing)	146	5.3411	53.40
	General Residential Zone IV (Flats)	1	0.5286	4.29
	Business Zone III Office & Sport & Recreation)	1	0.3915	3.92
	Open Space Zone II (Private Open Space)	7	0.9084	9.08
	Transport Zone II (Public Road)	2	0.7528	7.53
	Transport Zone III (Private Road)	7	2.0776	20.78
TOTAL		164	10.0000	100

NOTES

1. Sizes and dimensions are approximate and subject to final survey
2. For Property details, refer to SG 6277/1999
3. 1m Contour intervals, surveyed by Tommie Visagie

DRAWN:	MV	CHECKED:	MV
PLAN NO:	Pr22/01F591Ptn1-L05		
PLAN DATE:	15 March 2022		
STORED:	z:\drawings\App\Pr22/01F591Ptn-L05.drg		

It is hereby certified that this subdivision plan (Plan No. _Pr2201F591Ptn1L01_, has been approved in terms of Sections 60 and 15(2)(d) of the Hessequa Municipal By-law on Municipal Land Use Planning. File reference [_____], as published in P.N. 7472/2015 ON 21 AUGUST 2015

MUNICIPAL MANAGER

DATE: _____

Marike Vreken
STADS & OMGEWINGSBEPLANNERS
URBAN & ENVIRONMENTAL PLANNERS

21 Trotter Street, PO Box 2180
KNYSNA 6570

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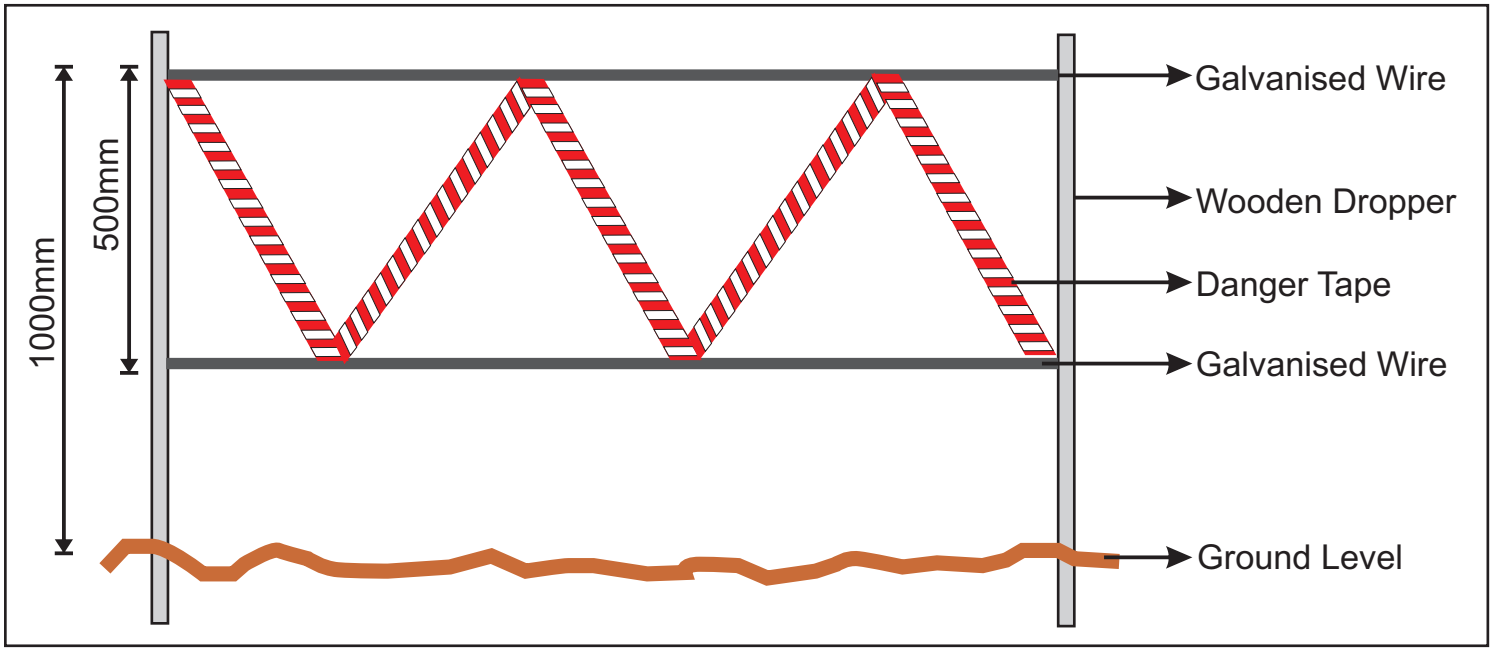


Plate A: Showing a cross section of a typical method of demarcation of no-go areas.

Where demarcation is required on a down slope, it can be more cost effective to include the required silt protection mechanisms on the same support structure as the demarcation. This is detailed in **Plate B** below and must be read in conjunction with the details on erosion control included in the previous diagram.

GENERAL CONSIDERATIONS FOR DEMARCATION OF NO GO AREAS

- The demarcation must include all areas that are going to be disturbed in the total construction (including all service lines)
- The no -go areas may not be accessed by any person (including lunch, tea breaks etc.). Without the explicit written permission from te ECO.
- Maximum fines will be issued for any non compliance with regards to the no go policy.

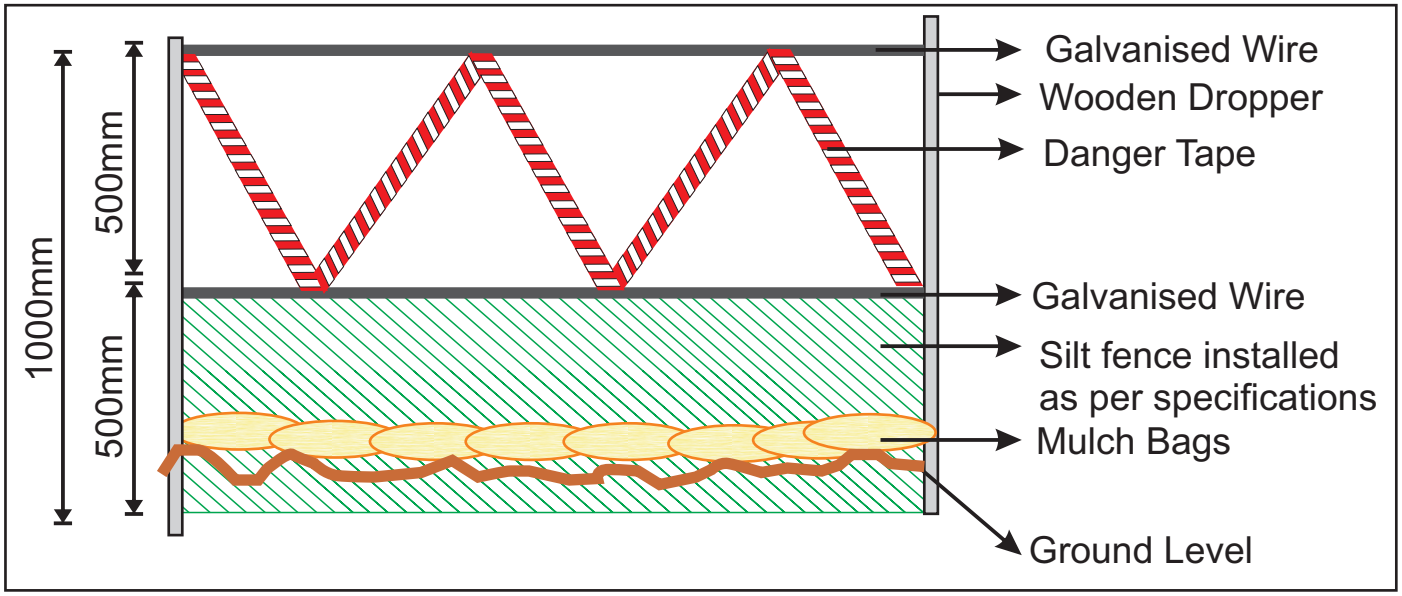
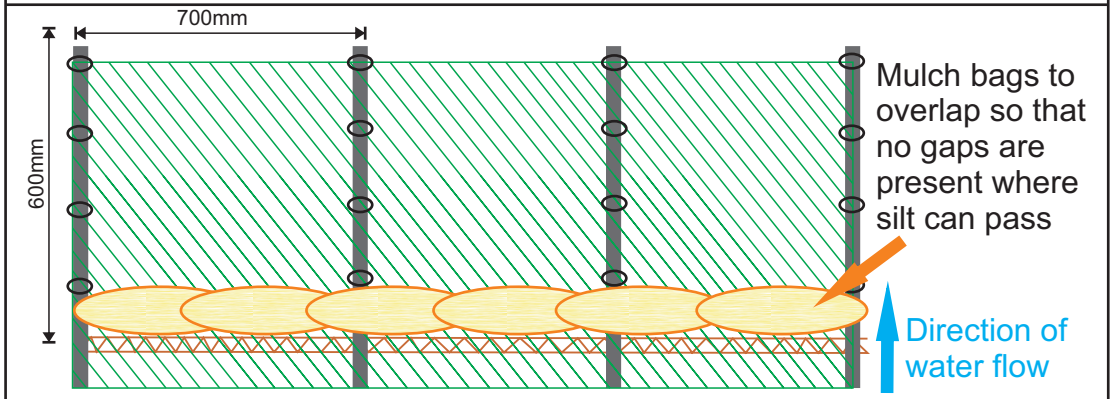


Figure 1: Demarcation of No - Go Areas During Construction

Cape Environmental Assessment Practitioners (Pty) Ltd

Frontal View



The purpose of a silt fence is to create a temporary barrier to maintain sediment on a construction site in order to prevent soil erosion and pollution through sediment and nutrient loading. Silt fences are designed to detain sediment from the disturbed construction area and also prevent sheet erosion by decreasing the velocity of the run off.

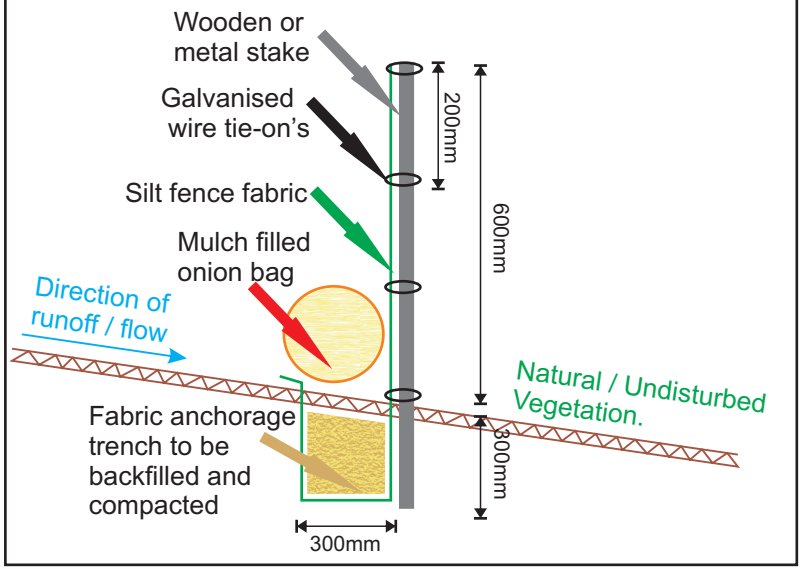
Technical Specifications

- Silt fence fabric to consist out of 50% shade cloth or a geotextile such as biddim (if biddum is used, it is not necessary to place mulch bags).
- Wooden droppers are suitable for the stakes. If the construction program takes place over an extended time frame it may be necessary to use treated droppers or metal stakes.
- The support stakes should not be placed further than 700mm apart on the down slope side of the fabric.
- The fabric should be secured to the stakes using galvanised wire ties not further than 200mm apart.
- The fabric anchorage trench should be at least 300mm deep.

Planning, Placing and Maintenance

- The silt fence is to be installed on all disturbed slopes where sheet erosion may take place.
- This type of silt fence is not suitable for areas where water is concentrated. i.e. gulleys and storm-water outlets.
- The silt fences should be along the contour lines
- The rows of silt fences should be bowed to prevent erosion and loss of silt on the ends of the fence line.
- Silt fences should be inspected weekly and before every forecast rainfall event. Any damage must be repaired immediately.
- Silt deposits should be cleared after each rainfall event. CLEARED SILT MUST NOT BE PLACED DOWN SLOPE OF THE FENCE.

Cross-section View



Top View

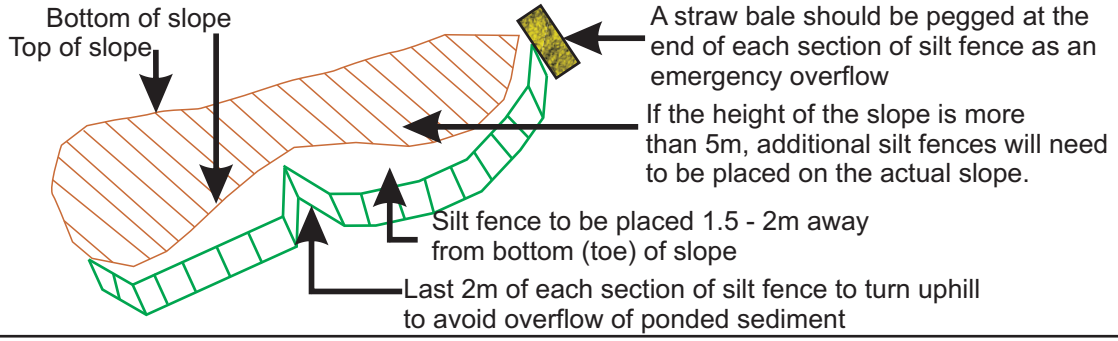


Figure 2: Specifications for Silt Fences

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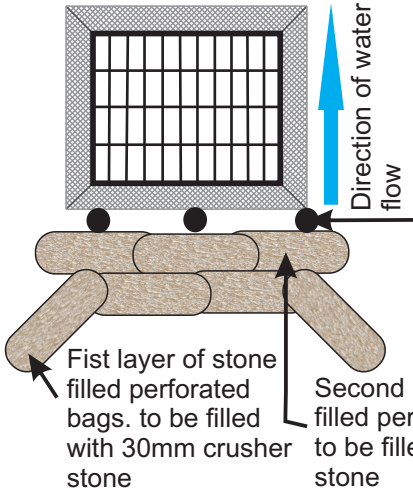
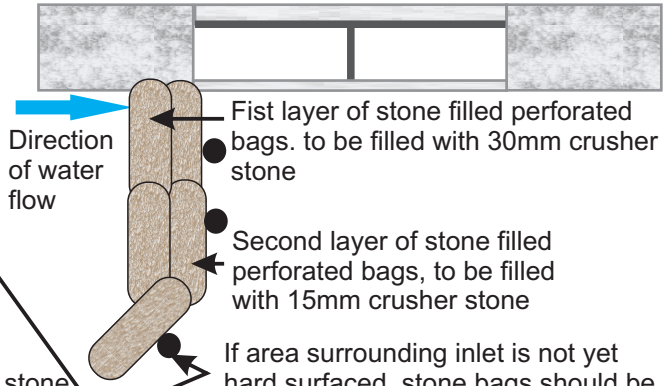
Inlet Protection

Drop Inlets



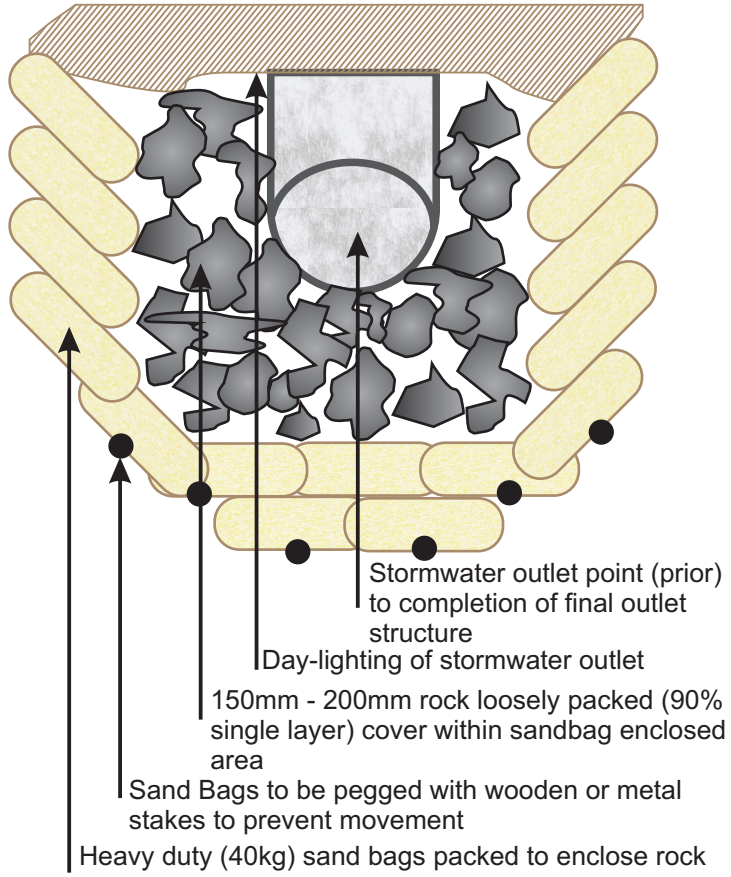
Kerb Inlets



- Should the inlet be positioned at a low point with water entering from a number of sides, a double row of stone bags (as detailed above) should be placed at each side where water enters.

- In low flow, high sediment areas, consideration should be given to cover the inlet structures with biddum (this will only work in low flow areas.)

Outlet Protection



- The methodology referred to above is effective as a temporary measure to be used during construction and is in no way intended to replace the permanent measures that must be installed. These permanent measures must be constructed as per the engineers specifications.
- Stormwater systems should ideally be constructed during low rainfall periods in order to allow for permanent protection measures to be put in place before the rainy season.
- Consideration should be given to encase the outlet structure with a geo-fabric such as biddum. This should first be clarified with the site engineer to ensure compatibility with the stormwater system.

Figure 3: Specifications for Temporary Stormwater Management During Construction

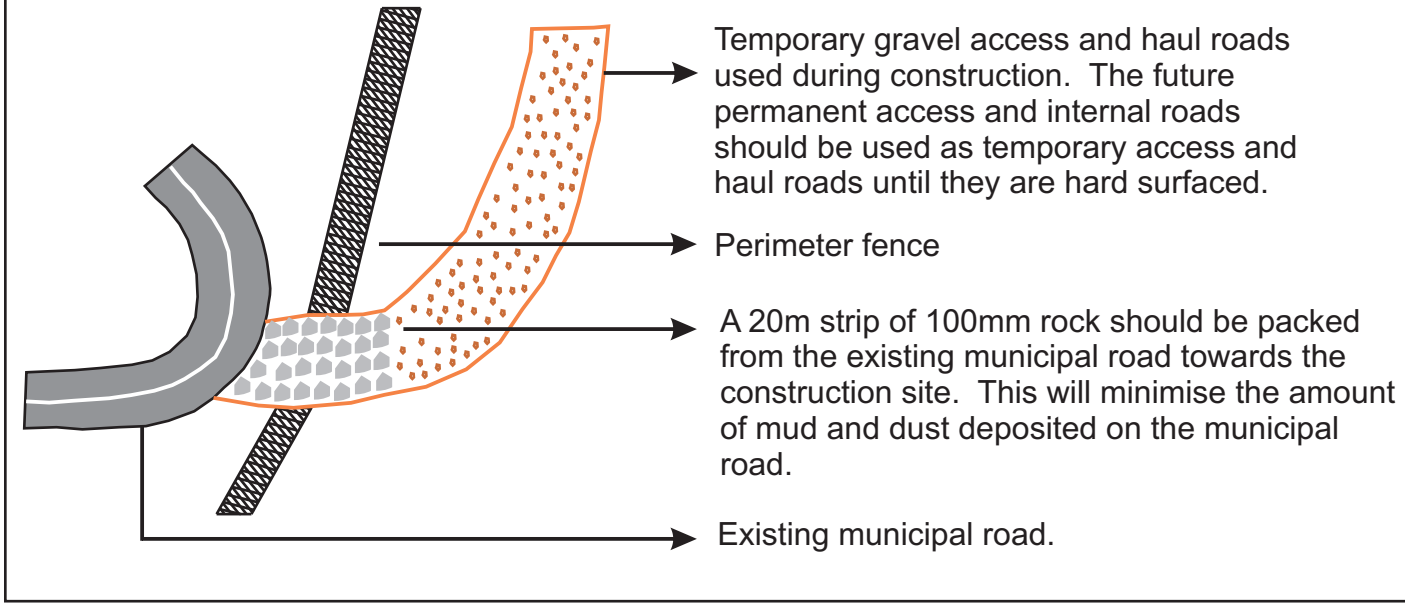
Cape Environmental Assessment Practitioners (Pty) Ltd

Key Environmental Considerations for Haul Roads

The most important environmental factor to be considered regarding access and haul roads, is the location thereof. Haul roads should be designed to make use of future permanent internal roads and access points.

The haul roads should never be construction in areas that will not be permanently transformed with the development. Nor should they be constructed in any sensitive area.

Another safety and environmental hazard caused by haul road surface is dust problems. Roads should be designed with enough fines to act as binders for the larger particles. However, an excess of fines will result in these particles being released to the atmosphere when repeated stress is applied by the equipment tires. All haul roads that do not have a "sealed" surface, will create dust. The dust problem is mainly dealt with by application of water.



Minimisation of Dust on Haul Roads

- Every effort to minimize dust pollution on the site must be undertaken.

- Construction vehicles must adhere to speed limits and minimization of haul roads must be implemented. During dry, dusty periods haul roads should be kept dampened to prevent excess dust.

- No potable water may be used for damping haul roads.

- As an alternative, products such as road environment dust suppressants (Reds) would be recommended in order to minimize the use of water for controlling dust pollution. This is to be determined by the ECO during construction as required.

Figure 4: Management of Haul and Access Control During Construction

Cape Environmental Assessment Practitioners (Pty) Ltd

Cape EAPrac

Company Profile

Cape Environmental Assessment Practitioners (Pty) Ltd

Registered Environmental Assessment Practitioner:
Number 2019/1444

Cape Environmental Assessment Practitioners (Pty) Ltd was established in March 2008 by Directors **Doug Jeffery** and **Louise-Mari van Zyl**. The full time professional team includes: **Melissa Mackay** (Practitioner / GIS / ECO), **Dale Holder** (Practitioner / GIS / ECO), **Siân Holder** (Practitioner / Environmental Education), **Onke Nandipha** (Junior Practitioner / ECO) and **Carin Naudé** (Business Administrator).

The firm implements legislation under the National Environmental Management Act (NEMA), National Environmental Management: Waste Act (NEM:WA) and the National Environmental Management: Air Quality Act (NEM:AQA).

Our main services include:

- Environmental Impact Assessments (EIA's & Basic Assessments)
- Environmental Management Policies & Plans (EMMP's)
- Environmental Control & Monitoring(ECO)
- Environmental Audits
- Environmental Education & Interpretation
- Environmental Constraints Analysis
- Public Participation & Stakeholder Engagement
- Outeniqua Sensitive Coastal Area Permits (OSCA)
- Forestry Applications (for removal/pruning of protected species)
- GIS & Mapping
- Retrospective Damage Assessment (Section 24G)
- Rehabilitation Plans
- Coastal Water Discharge Permits
- Air Quality Licence Applications (AEL's)
- Waste Management Licence Applications (Waste Licence)

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The Team

Doug Jeffery - Director

Doug Jeffery obtained a Bsc with majors in Botany and Zoology at the University of Cape Town (UCT) and went on to obtain his MSc in Botany also at UCT. He has worked extensively in the Western-, Southern- and Eastern Cape both as a professional Botanist and co-ordinating EIA processes for over 20 years. He has been registered with the South African Council for Natural Scientific Professions as a Natural Scientist since 1990. He is also registered with the Environmental Assessment Practitioners Association of South Africa.

email: doug@dougjeff.co.za

Melissa Mackay

Senior Practitioner / GIS / ECO

Melissa obtained her National Diploma in Nature Conservation from PE Technicon in 1996 and a BTech from NMMU in 2013. She gaining experience in various fields, including animal handler & farm manager in the United Arab Emirates (1997-1999),Tourism Manager for the Western Cape Nature Conservation Board (now Cape Nature) and onboard observer on commercial fishing vessels. She started working as an Environmental Practitioner in 2006. Her main duties include Process Management for Environmental Impact Assessment, GIS & Mapping, Damage Assessments, Environmental Management Plans, ECO and Public Participation. She is registered as an EAP with the Environmental Assessment Practitioners Association of South Africa.

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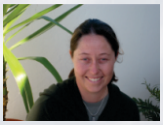
Siân Holder - Practitioner / ECO



Siân has a National Diploma in Nature Conservation, a BTech Nature Con (NMMU) and a Masters Degree in Environmental Education (Rhodes University). She worked at Tsitsikamma National Park as an Environmental Education Officer on environmental education programmes for Wilderness Foundation SA. She then served as the Experiential Education Manager and wilderness guide for Wilderness Foundation. She joined the environmental consulting vocation in 2008.

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Louise-Mari van Zyl

Director / Principal Practitioner

Louise-Mari van Zyl holds a Masters degree in Geography & Environmental Sciences from the University of Stellenbosch. She worked as an Environmental Assessment Practitioner (EAP) since 2002 on projects in the Eastern, Southern, Western & Northern Cape provinces. She is registered as and EAP with the Environmental Assessment Practitioners Association of South Africa.

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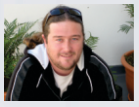
Dale Holder

Senior Practitioner / GIS / ECO



Dale graduated from the Technicon Pretoria in 1999 with a National Diploma in Nature Con-servation. He worked as a Socio-Ecologist for SANParks and as Project Manager for the Department of Marine and Coastal Management. He started working as an environmental practitioner in 2002. He has experience in Environmental Planning, Environmental Management Plans and Frameworks, Process Management of Environmental Impact Assessments, GIS & Mapping, Environmental Control and Rehabilitation Management & Design.

email: dale@cape-eaprac.co.za

Carin Naudé

Business Administrator

Carin obtained a BBA degree through UNISA. She gained extensive experience in business management and administration since 1988. She joined *Cape EAP*rac in June 2008 and is responsible for the day to day administrative functions of the business. Her acquired knowledge and leadership skills enables the rest of the team to function efficiently in their respective fields.

email: carin@cape-eaprac.co.za

Onke Nandipha

Junior Practitioner / ECO

Onke obtained a BSc in Environmental Sciences (2017) and a BSc Honours in Geography in 2018. He is appointed to gain practical knowledge and experience in the environmental management field. His excellent communication skills in both English and Xhosa, combined with his knowledge and understanding of environmental management makes him a valuable asset on projects where language barriers are a constraint.

email: onke@cape-eaprac.co.za

PROJECT EXPERIENCE INCLUDES

Reverse Osmosis Desalination; Sensitive Environmental Management including National Parks/Conservation Areas & World Heritage Sites; Renewable Energy Projects (Solar & Wind); Waste Management License Applications for Waste Disposal Sites, Sewerage Plants & Abattoirs; Waste-to -Energy Projects including Biogas Facilities; Marine Aquaculture; Filling Stations; Air Emission Processes for Sawmills, Brick Works & Processing Plants; ECO responsibilities on Private & State Housing Developments, Provincial & Municipal Roads and Infrastructure, Private, Provincial & Municipal applications for development of infrastructure, housing & commercial components

LIST OF ONGOING ***CAPE EAPRAC*** PROJECTS IS AVAILABLE ON REQUEST.
PLEASE VISIT OUR WEBSITE FOR MORE DETAILS
www.cape-eaprac.co.za