

Environmental Management Programme

Proposed Residential Development on Erf 438,
Stanford

11 November 2025



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CLIENT: OMNI KING INVESTMENTS (PTY) LTD

TITLE: Proposed Residential development on Erf 438, Stanford

REFERENCE: EMP/Erf-438/Rev2

REPORT DATE: November 2025

STATEMENT OF INDEPENDENCE

Lornay Environmental Consultants nor any of the authors of this report have any material present or contingent interest in the outcome of this report, nor do they have any financial or other interest which may affect the independence of the author(s) or Lornay Environmental Consulting. The consultant fees paid to Lornay Environmental Consulting for the completion of this report is in line with standard professional fees and daily rates. The settling of the professional fee is not dependent on the outcome of the report.

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KEY TERMS AND ABBREVIATIONS

BAR	Basic Assessment Report
CARA	Conservation of Agricultural Resources Act (Act No. 43 of 1983)
DEA&DP	Department of Environmental Affairs and Development Planning (Western Cape)
EA	Environmental Authorisation
ECA	Environment Conservation Act (Act No. 73 of 1989)
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EMP	Environmental Management Plan
EMPr	Environmental Management Programme
NEMA	National Environmental Management Act (Act No. 107 of 1998)
NEM:BA	National Environmental Management Biodiversity Act (Act No. 10 of 2004)
NEM:WA	National Environmental Management Waste Act (Act No. 59 of 2008)
PPE	Personal Protective Equipment
SDS	Safety Data Sheets
SHE	Safety Health and Environmental

Basic Assessment - Process followed to receive Environmental Authorisation from the Competent Authority, necessitated by NEMA. The Basic Assessment Report (BAR) is drafted in line with the legislation.

Competent authority - The Department of Environmental Affairs and Development Planning (DEA&DP)

Contractor - the main or specialised contractors as appointed by the developer / applicant for the execution of the works, including all sub-contractors

Developer / Applicant – Omni King Investments (Pty) Ltd

Environmental Control Officer (ECO) - a suitably qualified person to be appointed by the Developer / Applicant, to oversee the implementation of the EMP and environmental agreement until the completion of works on the site.

Environmental Management Plan / Programme (EMP/r) - this document, approved by the competent authority, to control the implementation of the works on the site in such a way as to ensure that they do not result in undue or reasonably adverse impacts on the environment.

General waste - Waste that does not pose an immediate hazard or threat to health or to the environment, and includes domestic waste, building and demolition waste, business waste and inert waste

Hazardous waste - Any waste that contains organic or inorganic elements or compounds that may, owing to the inherent physical, chemical or toxicological characteristics of that waste, have a detrimental impact on health and the environment.

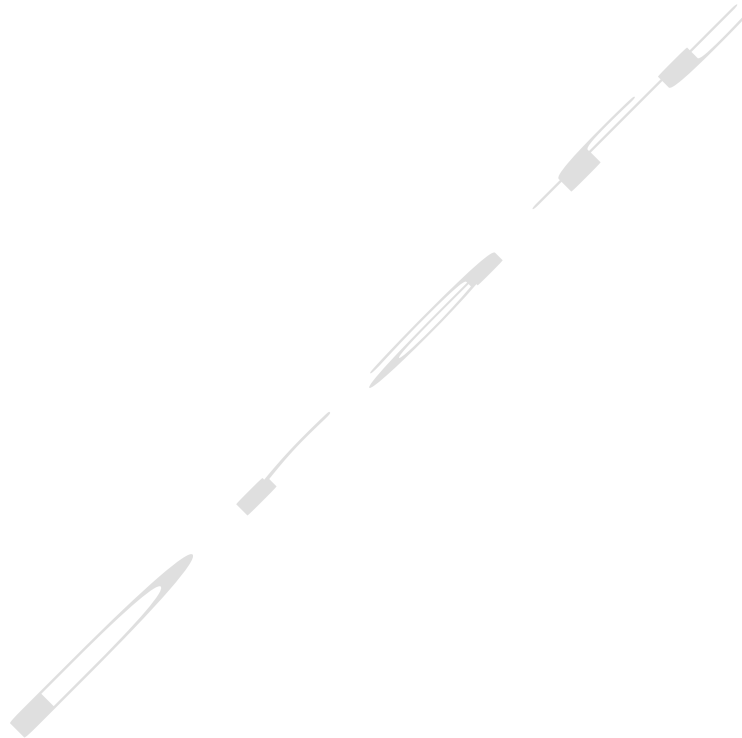
Project manager - Overall responsible and accountable person for the site during the construction, operation and decommissioning of the facility.

Project Management team - The responsibility of the EMP implementation resides with this team. This team includes a Project Manager and appointed contractors and consultants.

Safety, Health and Environmental Officer (SHE Representative) – Applicant / developer will appoint one Safety Health and Environmental Officer, assisting the construction manager on Safety, Health and Environmental aspects of the project on the construction site.

Site Manager – the employee of the main contractor responsible for the day-to-day control of all activities and operation on site.

Sub-contractor and Contractor - Any provider of services, goods or people to the Applicant / Developer, for the construction, operation or decommissioning.



LEGISLATIVE REQUIREMENTS

A Basic Environmental Assessment process is applicable in terms of the National Environmental Management Act (Act No. 107 of 1998) (NEMA) and the Environmental Impact Assessment (EIA) regulations (2014) (as amended). Appendix 4 of the NEMA EIA Regulations (GN. R982) sets out the minimum requirements for the drafting of an Environmental Management Plan (EMP). This EMP has been created in fulfilment of these prescribed requirements for the construction and post-construction phase of the activity applied for. The implementation of this EMP will be a condition of approval of the Environmental Authorisation (EA). Failure by the applicant, to comply with this EMP, will therefore constitute an offence, and the applicant and / or the appointed contractors can be held liable for penalties and / or legal action. It is therefore important that a copy of this EMP be issued to each contractor, preferably at the appointment stage, in order to allow for the costs of implementing the EMP, to be included in cost proposals. This will also ensure that the contractor is aware of his responsibilities prior to appointment and commencement. Each appointed contractor involved in the project, as well as the project manager (as applicable), will be required to sign for and thereby acknowledge contents of, the approved EMP and therefore abide by the specifications of the document and any amendments thereto.

Other applicable legislation

The Constitution of The Republic of South Africa (Act 108 of 1996)

The Constitution of the Republic of South Africa states that everyone has a right to a non-threatening environment and that reasonable measures are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development.

National Environmental Management Act (Act 107 of 1998)

The National Environmental Management Act (NEMA), as amended, makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the relevant competent authorities. NEMA is a National Act, which is enforced by the Department of Environmental Affairs (DEA). These powers are delegated in the Western Cape to the Department of Environmental Affairs and Development Planning (DEA&DP).

National Environmental Management: Biodiversity Act (Act 10 of 2004)

Chapter 4 of the National Environmental Management: Biodiversity Act, 2004 (NEMBA) deals with threatened and protected ecosystems and species. The need to protect listed ecosystems is addressed (Section 54). Section 73 deals with Duty of Care relating to invasive species, while Section 76(2) calls for development of invasive species monitoring, control and eradication plans by all organs of state in all spheres of government, as part of environmental management plans required in terms of Section 11 of NEMA.

National Environmental Management: Waste Act (Act No. 59 of 2008)

The National Environmental Management: Waste Act (NEM:WA) provides for specific waste management measures (disposal and storage) and the remediation of contaminated land.

National Environmental Management: Air Quality Act (Act No. 39 of 2004)

Section 32 provides provision for the control of dust, section 34 provides provision for the control of noise and section 35 provides provision for the control of offensive odours, all which may be experienced during the construction or operation of an applicable development.

Environment Conservation Act (Act No. 73 of 1989)

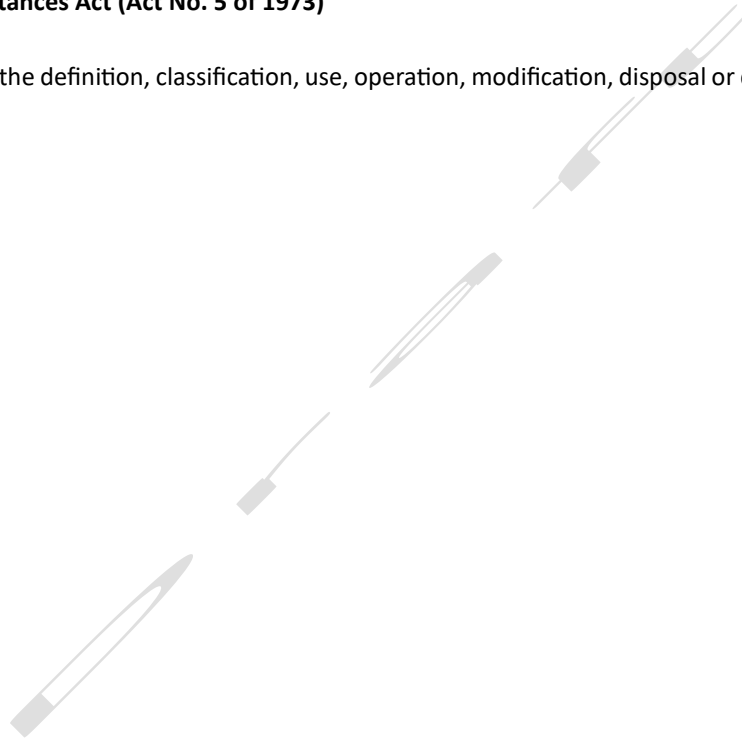
The Environment Conservation Act (ECA) provides provision for the prevention of littering by employees and subcontractors during construction and the maintenance phases of development.

Occupational Health and Safety Act (Act No. 85 of 1993)

Section 8 outlines the general duties of employers to their employees and section 9 outlines the general duties of employers and self-employed persons, to persons other than their employees.

Hazardous Substances Act (Act No. 5 of 1973)

This Act provides for the definition, classification, use, operation, modification, disposal or dumping of hazardous substances.



SECTION TWO

POST CONSTRUCTION

1. INTRODUCTION

Lornay Environmental Consulting (Pty) Ltd has been appointed by Omni King Investments (Pty) Ltd (hereafter referred to as "the applicant") to facilitate compliance with the National Environmental Management Act (NEMA, Act 107 of 1998), as amended, and the Environmental Impact Assessment (EIA) Regulations of 2014, as amended. This appointment relates to the application for environmental authorisation of listed activities associated with the construction phase of the subdivision and residential development on Erf 438 Stanford, to be known as Stanford Eco-Estate.

The Environmental Management Programme (EMPr) presented in this document is a legally binding instrument applicable to the applicant, all successors in title, and any future developers or property owners, whether they assume ownership of the whole or any portion of the development. This EMPr governs the proposed residential development on Erf 438 as outlined in this application, including any future amendments to the approved layout or development plan. It further extends to all property owners within the development, ensuring a consistent and enforceable framework for environmental management.

This EMPr has been prepared and submitted as part of the Basic Assessment process, in accordance with the requirements of NEMA and its associated regulations. It serves as a comprehensive guideline for managing environmental impacts during both the construction and post-construction phases of the project. The scope of the development includes the establishment of roads, bulk services, residential units, and associated infrastructure on Erf 438. The document is prescriptive in nature, detailing mitigation measures and assigning specific responsibilities to individuals or organizations tasked with implementing actions during the construction and post-construction phases.

The primary objective of this EMPr is to minimise or, where possible, entirely avoid potential environmental impacts arising from the proposed development. It addresses key activities such as vegetation clearing, civil works, residential construction, rehabilitation plans and the installation of services, while promoting sustainable development practices. As a dynamic document, the EMPr is designed to be adaptable, allowing for periodic updates to reflect changing site conditions or project requirements. While it is compiled as an integral component of the Basic Assessment process, this EMPr becomes legally enforceable upon approval by the Competent Authority, Department of Environmental Affairs and Development Planning (DEADP). It should be read in conjunction with the attached Wetland Offset, Rehabilitation and Management Plan, Architectural Guideline and Landscape Guidelines which provides additional context of the site and specifications for the development.

This EMPr has been drafted in strict accordance with Section 24N of the National Environmental Management Act (NEMA, Act 107 of 1998), ensuring alignment with statutory requirements and best practices in environmental management. It reflects a commitment to balancing the developmental needs of the proposed residential project with the imperative to protect and preserve the natural environment of Erf 1486 and its surroundings.

2. DEVELOPMENT PROPOSAL

Erf 438 Stanford is located adjacent to the village of Stanford in the Overstrand Municipality, east of the R43. The extent was recently reduced due to the upgrades to the R43 where 0,0166ha was expropriated for road widening purposes. Erf 438, Stanford is currently zoned as Residential Zone 1: Single Residential and has always been included in the Urban Edge.

The rezoning and subdivision of the subject property will introduce new residential opportunities into the housing market in Stanford. The proposed zoning and morphology, however, are aligned with development trends in other areas of the Overstrand Municipality.

This development proposal combines a modern feel with the historic charm of Stanford, aiming to attract and satisfy a market that has not been available in Stanford since the last development was approved along the Kleinrivier 15–20 years ago. Erven 1 to 8, Erf 10, and Erf 28 all contain portions that fall within the 32 m wetland buffer area associated with the Mill Stream system. In accordance with the requirements of the National Environmental Management Act (NEMA) Listing Notices and relevant Environmental Authorisation provisions, these areas are to be managed as a “Regulated Area.”

During the construction phase of the estate including all civil infrastructure installations and the development of individual residential dwellings, the 32 m wetland buffer, as delineated by the appointed Freshwater Specialist, will be treated as a strict “No-Go” area. This restriction will be clearly demarcated on site and enforced through the Environmental Management Programme (EMPr) to prevent any disturbance to the wetland or its buffer.

Each individual erf has been professionally surveyed to delineate accurate property boundaries and topographical details. This ensures that, upon purchase, each owner receives a high-resolution, detailed plan that clearly indicates the extent and characteristics of their property, including any environmental constraints. Particular attention has been given to erven 1–8, 10, and 28, which include portions falling within 32 m of the delineated Mill Stream wetland, as illustrated in Figure 4. The detailed survey and layout plan accurately depict erven that fall within or adjacent to this sensitive ecological zone. This approach promotes transparency for future owners, ensures environmental compliance, and supports responsible land use planning consistent with the conservation objectives of the Mill Stream wetland system.

Preferred Alternative 2 will consist of the following:

- 27 x Residential Zone 1: Single Residential and one guesthouse
- 1 x Business Zone 3: Local Business operating as a Tourism overnight facility
- Private open space and private roads.

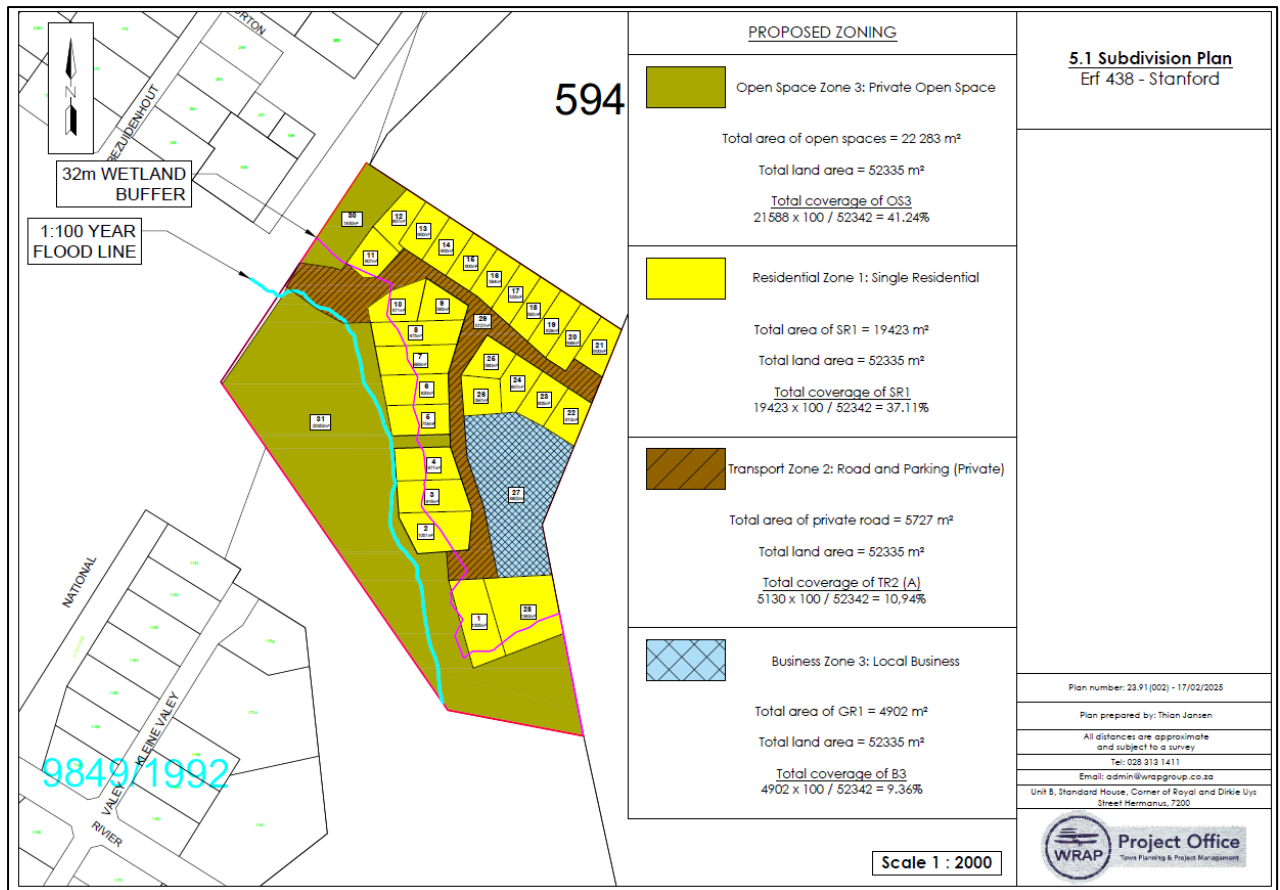


Figure 1a: Zoning Plan – Preferred Alternative



Figure 1b: Site development plan – Preferred.

3. TERMS OF REFERENCE

The primary objective of this Environmental Management Programme (EMPr) is to identify, manage, and mitigate any potential negative environmental impacts that may arise during the construction and post-construction phases of the proposed residential development and associated infrastructure. The EMPr serves as a guiding document to ensure that the construction and post-construction phases of the development are carried out in an environmentally responsible manner, in compliance with relevant legislation and best practices. Given the nature of the development, this EMP also includes a Maintenance Management Plan (MMP) section for areas which fall within the Regulated Zone of a watercourse and wetland.

3.1. Scope of Application:

- This EMPr applies to all construction and post-construction / operational activities associated with the proposed development, including site preparation, building construction, driveways, and any associated infrastructure.
- It must be made available to all contractors, subcontractors, and relevant stakeholders involved in the project, ensuring that it forms an integral part of all tender documentation and contracts.
- The EMPr also covers aspects relating to Maintenance Management for operational activities which fall within the Regulated Area of a Watercourse.

3.2. Binding Requirements:

- The provisions of this EMPr are binding on the applicant/owner, all contractors, subcontractors, and any third parties acting on their behalf.
- The applicant/owner is responsible for ensuring that all contractors and subcontractors are fully informed of the environmental requirements contained within this document.
- Failure to comply with the EMPr's requirements by any party involved in the construction will result in appropriate penalties, and the contractor will be obligated to remedy any environmental damage caused by their actions or the actions of their subcontractors.

3.3. Responsibilities and Accountability

- The contractor is accountable for the environmental performance of the site and must ensure that all activities are conducted in accordance with the environmental standards and guidelines set out in the EMPr.
- The contractor must also take proactive steps to prevent environmental damage and address any environmental issues that may arise during construction.
- In the event of environmental harm or non-compliance, the contractor will be required to restore the affected areas and bear any costs associated with remediation or penalties imposed.

3.4. Implementation and Compliance Monitoring

- Regular site inspections and audits will be conducted to monitor compliance with the EMPr. Any non-compliance will be recorded, and corrective actions will be mandated to mitigate environmental risks.
- Contractors and subcontractors are required to cooperate fully during audits and inspections, and all personnel must receive appropriate environmental training to ensure adherence to the EMPr's guidelines.

4. ENVIRONMENTAL CONTROL ON SITE

4.1. Approach

The Table below illustrates the various approaches to be undertaken to manage potential scenarios as a result of the activity on site:

Table 1: Impact management

Avoidance	Avoiding activities that could result in adverse impacts and/or resources or areas considered sensitive.
Prevention	Preventing the occurrence of negative environmental impacts and/or preventing such an occurrence having negative impacts.
Preservation	Preventing any future actions that might adversely affect an environmental resource.
Minimisation	Limiting or reducing the degree, extent, magnitude or duration of adverse impacts through scaling down, relocating, redesigning and/or realigning elements of the project.
Mitigation	Measures taken to minimise adverse impacts on the environment.
Enhancement	Magnifying and/or improving the positive effects or benefits of a project.
Rehabilitation	Repairing affected resources, such as natural habitats or water resources.
Restoration	Restoring affected resources to an earlier (possibly more stable and productive) state, typically, 'background' or 'pristine' condition. These resources may include soils and biodiversity
Compensation	Compensating for lost resources, and where possible, the creation, enhancement or protection of the same type of resource at another suitable and acceptable location.

4.2. Organisational Structure and Responsibilities

The Applicant and their appointed contractors will be responsible for the construction phase of each house, internal and access roads and associated infrastructure. All construction related staff are to be briefed on the requirements of the EA and EMP and copies of these documents are to be kept on site during all phases of construction. Long term management will be required in the post construction / operational phase, and this will be done in conjunction with the Homeowners Association.

4.3. Environmental Control Officer

Due to the sensitivity of the site, it is recommended that an ECO be appointed for the construction phase of the development. ECO site visits should take place for the duration of the construction phase as per the conditions of the Environmental Authorisation. This will ensure that the additional conditions contained in the EA, EMP and BAR are implemented.

It will be the ECO's responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to in the EA (still to be issued) are implemented and complied with by the owner.

The applicant (owner/holder) will be responsible for the remuneration of the ECO and any other expenses encountered in the process of environmental monitoring of the construction.

Roles and Responsibilities of an ECO

The responsibilities of the ECO during the construction and operational phase of the project, will include, but not be limited to, the following:

- Ensure compliance with the EMPr at all times during the pre-construction and construction phase;
- Ensure compliance with relevant management conditions of the EA during the preconstruction and construction phase;
- Meet with the contractors to set out the environmental parameters within which they must work (pre-construction and construction phase);
- To environmentally educate and raise the awareness of the Contractors and their staff and to target responsible individuals as key players for environmental education and to facilitate the spread of the correct environmental attitude during the contract work.
- Approve the previously disturbed areas set out;
- Indicate where all no-go areas are to be demarcated and to ensure adherence to these delimitations at the induction session BEFORE any construction or site clearance commences on-site (pre-construction phase).
- Must inspect the construction footprint on a weekly basis during construction of these elements of the development; and must take immediate measures to address unforeseen disturbances to the estuary and its associated buffer area.
- Must check the non-perennial stream as well as the recommended buffer area for erosion damage and sedimentation weekly and after every heavy rainfall event.
- To review method statements and to determine the most environmentally sensitive options
- To oversee the implementation of environmental procedures set out in this document
- Indicate where plant rescue may be necessary, and what species should be rescued on this site (pre-construction phase)
- Advise on rehabilitation/landscaping measures to be implemented
- Ensure that the correct earthworks practices are adhered to; e.g. no encroachment into the surrounding vegetation, separation of topsoil and subsoil, correct stockpiling and stripping of topsoil);
- To attend site contractor's meetings, as required and report on environmental issues
- To receive notices and minutes of all site meetings.
- To maintain an open and direct channel of communication with the construction team and site manager
- To take immediate action on site where clearly defined no-go areas are violated, or in danger of being violated, and to inform the site manager immediately, of the documents and the action taken.
- To keep an up-to-date record of works on site, as they relate to environmental issues in the site diary.
- To be contactable by the public regarding matters of environmental concern during the construction phase.
- The ECO is to submit a completion report to the competent authority (DEADP) and applicant upon completion of the construction phase and before the EA lapses.

4.4. Project Manager

In addition to the ECO, the Project Manager will be responsible for the following:

- All activities relating to the construction phase
- Delegate activities in accordance with the EMP
- Communicate design changes and technical issues to the team timeously
- Ensure that all contractors are managing their team adequately and abiding by the conditions of the EMP and EA
- Ensuring that the Contractors are aware of the conditions of the EMP and EA

4.5. Contractor

The Contractor (including sub-contractors) will be responsible for:

- Familiarising themselves with the EIA and EMP
- Complying with the EMP and EA commitments and any other legislative requirements as applicable
- Adhering to any instructions issued by the Project Manager or the Safety, Health and Environmental (SHE) Officer, if applicable
- Submitting an environmental report at designated site meetings on the environmental incidents that have occurred, if applicable
- Arranging that all employees and those of the subcontractors receive appropriate training prior to the commencement of construction, taking cognisance of this EMP and EA

4.6. Site Documentation and Reporting

Site logbook

A logbook should be kept on a construction site for the purposes of recording on-site instructions and as a general record of environmental issues. The logbook should be kept for a minimum of two years after the activity is completed for the relevant authority to review if deemed necessary. A photographic record of before and after construction should also be kept for visual reference purposes. The logbook should also contain the following sections:

Environmental Site Instruction

The Environmental Site Instruction section will be used for the recording of general site instructions relating to the protection of environmentally sensitive or potentially impacted areas or features on the site as applicable, by the ECO / site manager / construction team.

Site Diary

The purpose of this section will be to record the comments of the ECO / site manager / contractor etc., as they relate to activities on the site. The diary should also hold the complaints register, received from onsite personnel and the general public, Environmental Incident Register, disposal certificates for waste and sewage, non-conformance information, and written corrective active instructions.

Monitoring Section

The purpose of this section will be to record the comments of the ECO / site manager / contractor, during construction, relating to the implementation of the mitigation measures as well as waste, recycling, landscaping

and renewable energy measures used during the construction. The findings of all inspections and internal audits should be structured into instructive reporting, providing information to all responsible personnel. Corrective actions must be clearly defined where required. Within the reporting function a structured review component will be enforced. This review function will assist in prescribing necessary corrective actions. During construction, the ECO / Project management team, will be responsible for onsite monitoring to ensure that the contractor abides by the conditions of the EA and EMP.

The Environmental Authorisation (EA) as well as a copy of the approved Environmental Management Plan (EMP) for Construction, should also be accessible on site at all times.

5. CONDITIONS OF AUTHORISATION

The Environmental Authorisation (EA), once issued, will be included here and will be mandatory for all contractors, sub-contractors, agents, consultants, and construction personnel working on the property.

6. ENVIRONMENTAL AWARENESS

It is important to ensure that the contractors and employees associated with the proposed activity receive the appropriate level of training and awareness to ensure that continual environmental due diligence and conservation is applied at all levels of work carried out on site. Employees, contractors and sub-contractors must be made aware of their responsibilities in terms of relevant legislation, guidelines, as well as this EMP and EA.

The environmental conditions should be included in the contracts issued to the contractors, making them aware of the potential environmental impacts and risks associated with the proposed development as well as what measures are expected of them whilst conducting work on site. The importance of implementing the conditions in the EMP and the necessity of good housekeeping practices, will be made known to the contractors and employees.

6.1. Aim of the Environmental Awareness Plan

- Promote environmental education and conservation on site
- Inform employees and contractors on the applicable environmental procedures and plans

6.2. Environmental Awareness Training and content

- All personnel should undergo induction, which as a minimum should include Safety, Health and Environmental awareness
- All attendees should sign an acknowledgement register upon receiving and understanding the induction
- Construction and operational staff should be trained on the implementation of emergency procedures where applicable
- Definitions as used in this EMP should be provided
- How and why environmental protection is necessary, should be explained
- Management measures required to prevent environmental impacts should be outlined
- Emergency and spills response procedures should be outlined

Environmental conditions in the induction should focus on the following:

- Good house-keeping practices
- Air quality (Dust)
- Waste Management
- Odour/vermin Control
- Proper use of sanitation facilities; and
- Chemicals and materials storage, use and handling.

Environmental training should be implemented at the onset of the construction and can be done verbally or in written format. Proof of training should be kept on record.

7. CONSTRUCTION PHASE IMPACTS AND MITIGATIONS

The impacts and mitigation measures below refer to activities during the construction phase of the project.

7.1 Aquatic Biodiversity Impacts

The Aquatic Biodiversity Assessment identified the following key potential impacts as well as mitigations measures for the management of impacts on aquatic ecosystems during the construction phase:

Potential impacts:

- Areas of the onsite seep (approximately 0.87 Ha) will be lost as a result of the private road construction, and residential housing.
- Alteration of the flow regime of the UVBW during construction of the Eco-Lifestyle estate.
- Water quality impairment due to increased sediment input, potential spillage, or release of potentially contaminated runoff into the UVBW during construction of the Eco-Lifestyle estate.

Management of impacts and Mitigation measures:

- It is recommended that a suitably qualified Environmental Control Officer (ECO) is appointed during the construction phase to ensure that recommendations as per this report, and other specialist reports, are implemented.
- Toad-friendly curbs stones should be installed i.e. small curbs stones that are less than 50 mm tall, or half road gutters which provide passageways for toads. These can be implemented throughout the estate or at intervals of 50 m.
- An appropriate road reserve should be implemented for internal access roads within the estate to facilitate the movement of toads.
- Boundary walls and fences should be permeable to toads. Integrate toad holes of at least 100 mm diameter, spaced every 20 meters, and not exceeding 300 mm in length at ground level. Alternatively open gutters can be a suitable option.
- Stormwater systems should be designed with suitably spaced escape areas, allowing toads to escape. These escape areas should be positioned at intervals of at least 50 m.
- The estate should install non-chlorinated eco pools, ideally with a “beach pool” design with gently sloping sides emulating the natural bank of a wetland allowing toads to enter and exit the pool freely. Alternatively, if a pool design with high sides is installed, incorporate escape pathways such as toad ladders, toad friendly steps, or floating vegetated platforms anchored to the side of the pool.
- To prevent road mortalities, Western Leopard Toad signage should be erected and a speed limit within the eco estate should be implemented and strictly adhered to.

- Toad friendly gardens should be created, when it is not the toads breeding season (late July to September with the main breeding month being August), they inhabit suburban gardens. Natural vegetation should be planted to create ideal toad habitat.
- It is however recommended that the onsite UVBW are maintained / protected in perpetuity as a wetland offset area for the loss of the onsite seep wetland.
- The alien invasive vegetation (specifically *Eucalyptus* spp.) present within the UVBW wetland areas must be removed and replanted with indigenous wetland vegetation.
- Avoid encroachment into the delineated UVBWs during construction and operational phases
- Avoid encroachment into the 32 m buffer area around each UVB wetland, apart from limited activities – specifically indigenous gardens and pools (recommended to be non-chlorinated eco pools, please refer to Section 8.4.2. of the Aquatic Biodiversity Impact Assessment).
- Tie into mainline sewage if possible or use fully contained conservancy tanks serviced by truck. No sewage treatment, irrigation or soak-aways should be contemplated.
- Allowance must be made for stormwater to be treated in a vegetated detention pond and/or a substantial vegetated swale before release into the UVBWs.
- Municipal water supply should be used if possible. If not, groundwater abstraction would be preferable to wetland abstraction.
- The significance of this impact can be largely mitigated by demarcating the UVBWs as No-Go areas during construction. Bunded, impervious areas that are more than 32 m away from the UVBW must be designated by an Environmental Control Officer for temporary toilets, vehicle parking/servicing areas, and for pouring and mixing of concrete/cement, paint, and chemicals. It is essential that no pollutants are allowed to filtrate/run into the UVBWs due to the presence of the EN *Sclerophrys pantherinus* within the site. Construction workers / employees should be notified of the importance of this species to ensure that no toads are killed and that the UVBWs remain as No-go areas.
- The significance of this impact can be largely mitigated by establishing a 32 m buffer area around the UVBW wetland areas; and by ensuring that runoff / SW generated onsite flows into the wetland areas through an appropriately designed broad, vegetated earth swale. The alien invasive vegetation present within the UVBW wetland areas must be removed and replanted with indigenous wetland vegetation. Additionally, a suitable Rehabilitation and Management Plan should be drafted for the onsite UVB wetlands.
- The significance of this impact can be largely mitigated by establishing a 32 m buffer area around the UVBW wetland areas; and by ensuring that runoff / SW generated onsite flows into the wetland areas through an appropriately designed broad, vegetated earth swale. Tie into mainline sewage if at all possible or use fully contained conservancy tanks serviced by truck. No sewage treatment, irrigation or soak-aways should be contemplated.
- Repair all sewage leaks as soon as reasonably possible after detection. Inspection of all sewage pipes should be conducted by a plumber once every 10 years.
- Residents should be made aware of the presence of EN *Sclerophrys pantherinus* within the site. Should any pollution events occur, such as spills of petrol, etc. the spread to the UVBWs should be prevented, by applying / covering with absorbent materials. In no circumstance should pollutants enter the SW system or the UVBWs.

7.2 Terrestrial Biodiversity and Plant Species

The primary construction phase botanical impact of the proposed development would be loss of any natural and partly natural vegetation in the development footprint.

Mitigation measures recommended by the specialist

- All woody invasive alien vegetation (mainly *Acacia saligna*, *Acacia cyclops* and *Eucalyptus*) on the property must be felled using a hand or chainsaw, following appropriate methodology as per Martens et al (2021). No heavy machinery may be used (except perhaps in the case of the large gum trees in the western sector along the Mill stream), and Port Jackson (*Acacia saligna*) stems should be cut at close to ground level and immediately (within ten minutes) painted (not sprayed) with a suitable herbicide such as Garlon. Small seedlings (<15cm) of Port Jackson can usually be hand pulled, provided the root is removed. This alien vegetation control must be undertaken within six months of any authorisation and must be repeated annually to ensure no regrowth.
- All non-woody invasive alien vegetation should also be removed, with a particular focus on kikuyu grass (*Cenchrus clandestinus*), other annual grasses such as Avena (oats), Briza (brome) and Lolium (ryegrass), and the blue flowered *Commelina benghalensis* under the milkwood's.
- No disturbance of the Very High sensitivity area (as per Figure 5 of the Terrestrial Biodiversity Assessment) may take place at any stage in the future, and to safeguard and ensure this the area should be clearly demarcated as Very High sensitivity with suitable signage on its perimeters.
- No milkwood's (*Sideroxylon inerme*) with stem diameter greater than 5cm should be felled or removed. No milkwood roots greater than 3cm diameter should be cut.
- No livestock may be allowed into the Very High sensitivity section.
- Rehabilitation of the disturbed (Low and Medium sensitivity) areas should be undertaken on an ongoing basis and should include alien invasive plant management and replanting with suitable locally indigenous plant species.
- The planting list of suitable locally indigenous species for the Estate and the various zones must be compiled with input from the botanist, and approved in writing by the botanist

7.3 Terrestrial Animal Site Sensitivity Verification Report and Species Specialist Assessment Report

Potential impacts:

Habitat loss (wetland, milkwood, fynbos) Western Leopard Toad breeding and foraging disruption.

Mitigation measures as recommended by the specialist:

- All construction personnel must receive environmental awareness training regarding amphibian species present on site, including the Western Leopard Toad.
- Training should emphasize the risks of amphibian entrapment in trenches, pipes, and foundation works. Trench inspections must be conducted daily, and amphibians removed safely by a trained ECO (Environmental Control Officer).
- Appoint an ECO with amphibian expertise to monitor implementation of all mitigation measures.
- The ECO must be present during key earthworks within 50 m of any delineated wetland or amphibian corridor.
- Strictly avoid encroachment into the 32 m buffer zone around delineated wetlands, especially the Mill Stream and tributary Unchanneled Valley-Bottom wetlands (UVBW) (see van Zyl (2024))
- Temporary fencing should demarcate and protect all no-go zones.

- Implementing stormwater management and “toad-friendly” design interventions to maintain hydrological connectivity and reduce road mortality.
- A comprehensive Alien Plant Eradication and Rehabilitation Plan must be developed and implemented for the property. This plan should address the removal of invasive species and the ecological rehabilitation of disturbed areas. It must be formally incorporated into the long-term management and maintenance of communal open spaces.
- Only plant species that are indigenous to the local area should be permitted in residential gardens. This will support local biodiversity and prevent the introduction of potentially invasive alien species.
- During the construction phase, all construction zones must be clearly demarcated and physically separated from adjacent wetland and sensitive habitats to prevent accidental disturbance, habitat destruction, and pollution.
- Prior to and following construction, all designated ‘Private Open Space’ areas must be rehabilitated. This includes the removal of construction rubble, litter, and any other debris to restore ecological functionality.
- All boundary and internal fences must remain semi-permeable to allow free movement of small terrestrial fauna such as genet and mongooses, particularly along the Mill Stream wetland corridor.
- A pre-construction search and rescue operation must be conducted for slow-moving or sedentary fauna within designated development footprints. Rescued animals must be relocated within suitable nearby open space areas on site and not removed from the property.
- Rodent control should be achieved through environmentally sensitive methods, including the installation of owl nesting boxes and raptor perches to promote natural predation rather than chemical baiting, which poses a secondary poisoning risk to wildlife.
- The clearing of indigenous fynbos and Milkwood (*Sideroxylon inerme*) vegetation must be minimised. All-natural vegetation, particularly fynbos and Milkwood forest clumps surrounding the development footprint, must be protected from unnecessary disturbance and trampling during and after construction.
- Removal, thinning and control of dense stands of *Phragmites australis*.
- Establishment of indigenous vegetation in the wetland offset areas which will provide habitat for faunal species of concern.
- Establishing long-term management and monitoring commitments to ensure persistence of amphibian and wetland-dependent fauna

7.4 Heritage Impacts (Archaeological, Palaeontological, Visual and Cultural Landscape)

Potential impacts:

Loss or disturbance of palaeontological resources; minor disturbance of archaeological artefacts; alteration of visual aspects of the cultural landscape.

Mitigation measures as recommended by the specialist:

- Detailed designs of the Treehouse Lodge being submitted to HWC for further comment and endorsement.
- Amendment to the double storey height of the proposed residential buildings by allowing for a roof attic/loft expression of upper storey elements and/or the Stanford Heritage Guidelines
- Detailed design development proceeding largely in accordance with the Site Plan and Landscape Plan attached as Figures 1.5 of the HIA report.
- Detailed design development proceeding largely in accordance with the Landscape Development Plan and Stanford Eco-Estate Architectural Guidelines respectively.

- There is no objection to the proposed demolition of the existing residential structure located on the site as this structure has been determined to be Not Conservation-Worthy.
- The attached HWC Chance Finds Protocol is implemented for the duration of excavation activities
- Should any buried archaeological resources, palaeontological resources or human remains or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds.
- Heritage Western Cape (HWC) must be contacted immediately in order to determine an appropriate way forward.

SECTION TWO

POST CONSTRUCTION

8 POST-CONSTRUCTION PHASE IMPACTS AND MITIGATIONS

The post construction phase of a development refers to the Operational phase of the development after construction has been completed.

8.1 Aquatic Biodiversity Assessment

Potential impacts:

Alteration of the flow regime of the UVBW's once the Eco-Lifestyle estate is complete, due to potential flow diversion / increase in storm flows.

Water quality impairment due to the release of potentially contaminated stormwater (hydrocarbons) into the UVBW's.

Mitigation measures recommended by the specialist

- It is recommended that a suitably qualified Environmental Control Officer (ECO) is appointed during the construction phase to ensure that recommendations as per this report, and other specialist reports, are implemented.
- Toad-friendly curbs stones should be installed i.e. small curbs stones that are less than 50 mm tall, or half road gutters which provide passageways for toads. These can be implemented throughout the estate or at intervals of 50 m.
- An appropriate road reserve should be implemented for internal access roads within the estate to facilitate the movement of toads.
- Boundary walls and fences should be permeable to toads. Integrate toad holes of at least 100 mm diameter, spaced every 20 meters, and not exceeding 300 mm in length at ground level. Alternatively open gutters can be a suitable option.
- Stormwater systems should be designed with suitably spaced escape areas, allowing toads to escape. These escape areas should be positioned at intervals of at least 50 m.
- The estate should install non-chlorinated eco pools, ideally with a "beach pool" design with gently sloping sides emulating the natural bank of a wetland allowing toads to enter and exit the pool freely. Alternatively, if a pool design with high sides is installed, incorporate escape pathways such as toad ladders, toad friendly steps, or floating vegetated platforms anchored to the side of the pool.

- To prevent road mortalities, Western Leopard Toad signage should be erected and a speed limit within the eco estate should be implemented and strictly adhered to.
- Toad friendly gardens should be created, when it is not the toads breeding season (late July to September with the main breeding month being August), they inhabit suburban gardens. Natural vegetation should be planted to create ideal toad habitat.
- It is however recommended that the onsite UVBW's are maintained / protected in perpetuity as a wetland offset area for the loss of the onsite seep wetland.
- The alien invasive vegetation (specifically *Eucalyptus* spp.) present within the UVBW wetland areas must be removed and replanted with indigenous wetland vegetation.
- Avoid encroachment into the delineated UVBW's during construction and operational phases
- Avoid encroachment into the 32 m buffer area around each UVB wetland, apart from limited activities – specifically indigenous gardens and pools (recommended to be non-chlorinated eco pools, please refer to Section 8.4.2. of the Aquatic Biodiversity Impact Assessment).
- Tie into mainline sewage if possible or use fully contained conservancy tanks serviced by truck. No sewage treatment, irrigation or soak-aways should be contemplated.
- Allowance must be made for stormwater to be treated in a vegetated detention pond and/or a substantial vegetated swale before release into the UVBW's.
- Municipal water supply should be used if possible. If not, groundwater abstraction would be preferable to wetland abstraction.
- The significance of this impact can be largely mitigated by demarcating the UVBW's as No-Go areas during construction. Bunded, impervious areas that are more than 32 m away from the UVBW must be designated by an Environmental Control Officer for temporary toilets, vehicle parking/servicing areas, and for pouring and mixing of concrete/cement, paint, and chemicals. It is essential that no pollutants are allowed to filtrate/run into the UVBW's due to the presence of the EN *Sclerophrys pantherinus* within the site. Construction workers / employees should be notified of the importance of this species to ensure that no toads are killed and that the UVBW's remain as No-go areas.
- The significance of this impact can be largely mitigated by establishing a 32 m buffer area around the UVBW wetland areas; and by ensuring that runoff / SW generated onsite flows into the wetland areas through an appropriately designed broad, vegetated earth swale. The alien invasive vegetation present within the UVBW wetland areas must be removed and replanted with indigenous wetland vegetation. Additionally, a suitable Rehabilitation and Management Plan should be drafted for the onsite UVB wetlands.
- The significance of this impact can be largely mitigated by establishing a 32 m buffer area around the UVBW wetland areas; and by ensuring that runoff / SW generated onsite flows into the wetland areas through an appropriately designed broad, vegetated earth swale. Tie into mainline sewage if at all possible or use fully contained conservancy tanks serviced by truck. No sewage treatment, irrigation or soak-aways should be contemplated.
- Repair all sewage leaks as soon as reasonably possible after detection. Inspection of all sewage pipes should be conducted by a plumber once every 10 years.
- Residents should be made aware of the presence of EN *Sclerophrys pantherinus* within the site. Should any pollution events occur, such as spills of petrol, etc. the spread to the UVBW's should be prevented, by applying / covering with absorbent materials. In no circumstance should pollutants enter the SW system or the UVBW's.

8.2 Terrestrial Biodiversity and Plant Species

Loss of current levels of fair ecological connectivity across the area, and associated habitat fragmentation, plus potential positive impacts such as revegetation with locally indigenous species and alien invasive vegetation management.

Mitigation measures recommended by specialist

- All woody invasive alien vegetation (mainly *Acacia saligna*, *Acacia cyclops* and *Eucalyptus*) on the property must be felled using a hand or chainsaw, following appropriate methodology as per Martens et al (2021). No heavy machinery may be used (except perhaps in the case of the large gum trees in the western sector along the Mill stream), and Port Jackson (*Acacia saligna*) stems should be cut at close to ground level and immediately (within ten minutes) painted (not sprayed) with a suitable herbicide such as Garlon. Small seedlings (<15cm) of Port Jackson can usually be hand pulled, provided the root is removed. This alien vegetation control must be undertaken within six months of any authorisation and must be repeated annually to ensure no regrowth.
- All non-woody invasive alien vegetation should also be removed, with a particular focus on kikuyu grass (*Cenchrus clandestinus*), other annual grasses such as Avena (oats), Briza (brome) and Lolium (ryegrass), and the blue flowered *Commelina benghalensis* under the milkwood's.
- No disturbance of the Very High sensitivity area (as per Figure 5 Terrestrial Biodiversity Assessment) may take place at any stage in the future, and to safeguard and ensure this the area should be clearly demarcated as Very High sensitivity with suitable signage on its perimeters.
- No milkwoods (*Sideroxylon inerme*) with stem diameter greater than 5cm should be felled or removed. No milkwood roots greater than 3cm diameter should be cut.
- No livestock may be allowed into the Very High sensitivity section.
- Rehabilitation of the disturbed (Low and Medium sensitivity) areas should be undertaken on an ongoing basis and should include alien invasive plant management and replanting with suitable locally indigenous plant species.

8.3. Terrestrial Animal Site Sensitivity Verification Report and Species Specialist Assessment Report

Habitat fragmentation; Road mortality of amphibians (incl. Western Leopard Toad); Artificial light impact on nocturnal insects & toads.

Mitigation measures:

Habitat Connectivity and Permeability

- All perimeter and internal fences must be permeable to amphibians. Avoid solid barriers like brick or precast walls.
- Install toad-friendly passages such as:
 - "Toad holes" (min. 100 mm diameter, ≤300 mm in length) every 20 m in walls and fences.
 - Open-bottomed boundary fences or gaps at ground level.
- Include amphibian underpasses (e.g. drainage culverts or pipes) beneath internal roads at key crossing points to minimize road mortalities.

Road Verge and Kerb Design

- All new kerbs must not exceed 50 mm in height and should incorporate shallow V-shaped gutters to allow safe passage for toadlets (see Whale Coast Conservation (2024)).
- Adequate road reserve should be implemented for internal access roads within the estate to facilitate the movement of toads.

Stormwater Management

- Cover stormwater drains with grates or mesh to prevent toad entrapment.
- Treat all stormwater in vegetated detention ponds or swales before discharge into wetlands, see van Zyl (2024)

- Monitor stormwater for pollutants and nutrients; implement community-based campaigns to prevent dumping of chemicals or waste into drains.
- Tie into mainline sewage or use fully contained conservancy tanks serviced by truck.
- No sewage treatment, irrigation or soak-aways should be contemplated, see (van Zyl, 2024).

Garden and Landscape Guidelines

- Gardens should prioritize indigenous vegetation and “wild” landscaping (e.g. woodpiles, compost heaps, leaf litter) to provide habitat for adult toads.
- Encourage the planting of Arum Lilies (*Zantedeschia aethiopica*) in wetland buffers to support the amphibian diversity and filter stormwater runoff.

Swimming Pool Safety for Amphibians

- Enforce a compulsory “frog escape” net or ladder requirement for all swimming pools.
- Promote use of non-chlorinated eco-pools or “beach-entry” designs to allow safe amphibian exit (van Zyl 2024).

Control of Invasive Vegetation

- Systematic removal of invasive grasses and maintenance of fynbos-dominated groundcover on road verges and open areas is critical.
- Reed cutting in the Mill Stream and tributaries should occur only during the dry season (December–May) and follow best practices:
 - Do not exceed 300 m² per cut (as per regulation).
 - Remove all cut biomass immediately to prevent nutrient leaching.
- Removal of Eucalyptus forest and rehabilitation to indigenous vegetation will improve habitat suitability for toads along Mill stream corridor

Signage and Speed Control

- Install educational signage throughout the estate highlighting Western Leopard Toad presence, breeding season (July–September), and road mortality risks.
- Impose and enforce a maximum speed limit of 30 km/h within the estate, especially during breeding and emergence seasons.

Resident Awareness Program

- Distribute educational materials to new residents on amphibian-friendly living, including:
 - Stormwater pollution prevention
 - Gardening for toads
 - Responsible pet and chemical use

Citizen Science and Ecotourism

- Explore opportunities for annual toad migration events and night walks during the breeding season (August), which coincide with the low tourism season and offer potential for ecotourism-based engagement.

Legislative Compliance and Long-Term Management

Wetland Protection and Offsets

- Secure and implement a Wetland Offset, Rehabilitation and Management Plan, especially for the impacted hillslope seep wetland (PES: E).
- No water abstraction from wetlands unless authorized via a valid Water Use Licence.

Monitoring and Review

- Establish a post-development biodiversity monitoring program to assess amphibian diversity and abundance.
- Review mitigation effectiveness annually and adjust management practices accordingly.

Domestic Pet Management

- Free-roaming dogs must be strictly prohibited from accessing open space areas to prevent disturbance or predation of wildlife. Cats should not be permitted on the property due to their significant adverse impact on small mammals, reptiles, amphibians, and birds.

Lighting and Insect Attraction Management

- Lights should be turned off when not in use.
- Lighting should be fitted with motion sensors or timers to limit unnecessary operation.
- Fixtures must include shielding to prevent light spill and direct illumination only where necessary.
- All outdoor lighting should shine downward and avoid illuminating natural habitats.
- Use long-wavelength lighting (e.g., red or amber filtered LEDs) to reduce ecological disruption; avoid blue and green light spectrums where possible.
- A site-specific lighting plan must be developed to minimise ecological light pollution.

Table 2. Activity specific impacts and mitigations

PRE-CONSTRUCTION/ CONSTRUCTION PHASE AND POST-CONSTRUCTION PHASE			
IMPACT	DESCRIPTION	MITIGATION MEASURES	RESPONSIBLE PERSONS
Botanical Impacts	Construction The primary construction phase botanical impact of the proposed development would be loss of any natural and partly natural vegetation in the development footprint.	- All woody invasive alien vegetation (mainly <i>Acacia saligna</i>, <i>Acacia cyclops</i> and <i>Eucalyptus</i>) on the property must be felled using a hand or chainsaw, following appropriate methodology as per Martens et al (2021). No heavy machinery may be used (except perhaps in the case of the large gum trees in the western sector along the Mill stream), and Port Jackson (<i>Acacia saligna</i>) stems should be cut at close to ground level and immediately (within ten minutes) painted (not sprayed) with a suitable herbicide such as Garlon. Small seedlings (<15cm) of Port Jackson can usually be hand pulled, provided the root is removed. This alien vegetation control must be undertaken within six months of any authorisation and must be repeated annually to ensure no regrowth. - All non-woody invasive alien vegetation should also be removed, with a particular focus on kikuyu grass (<i>Cenchrus clandestinus</i>), other annual grasses such as Avena (oats), Briza (brome) and Lolium (ryegrass), and the blue flowered <i>Commelina benghalensis</i> under the milkwoods. - No disturbance of the Very High sensitivity area (as per Figure 5 Terrestrial Biodiversity Assessment) may take place at any stage in the future, and to safeguard and ensure this the area should be clearly demarcated as Very High sensitivity with suitable signage on its perimeters. - No milkwoods (<i>Sideroxylon inerme</i>) with stem diameter greater than 5cm should be felled or removed. No milkwood roots greater than 3cm diameter should be cut. - No livestock may be allowed into the Very High sensitivity section. - Rehabilitation of the disturbed (Low and Medium sensitivity) areas should be undertaken on an ongoing basis and should include alien invasive plant management and replanting with suitable locally indigenous plant species. - The planting list of suitable locally indigenous species for the Estate and the various zones must be compiled with input from the botanist, and approved in writing by the botanist	Applicant Contractor ECO
	Post construction phase Loss of current levels of fair ecological connectivity across the area, and associated habitat fragmentation, plus potential positive impacts such as revegetation with locally indigenous species and alien invasive vegetation management.		

Heritage Impacts (Archaeological, Palaeontological, Visual and Cultural Landscape)	Construction phase Loss or disturbance of palaeontological resources; minor disturbance of archaeological artefacts; alteration of visual aspects of the cultural landscape.	- Detailed designs of the Treehouse Lodge being submitted to HWC for further comment and endorsement. - Amendment to the double storey height of the proposed residential buildings by allowing for a roof attic/loft expression of upper storey elements and/or the Stanford Heritage Guidelines - Detailed design development proceeding largely in accordance with the Site Plan and Landscape Plan attached as Figures 1.5 of the HIA report. - Detailed design development proceeding largely in accordance with the Landscape Development Plan and Stanford Eco-Estate Architectural Guidelines respectively. - There is no objection to the proposed demolition of the existing residential structure located on the site as this structure has been determined to be Not Conservation-Worthy. - The attached HWC Chance Finds Protocol is implemented for the duration of excavation activities - Should any buried archaeological resources, palaeontological resources or human remains or burials be uncovered during the course of development activities, work must cease in the vicinity of these finds. - Heritage Western Cape (HWC) must be contacted immediately in order to determine an appropriate way forward.	Applicant Contractor ECO
Wetland Loss in the delineated hillslope seep	Construction At present the proposed development area (as a whole) coincides with approximately 0.87 Ha of the seep. The seep has a PES score in the E category (Seriously Modified) and exhibits Moderate EIS. The wetland vegetation type is CR, although the fynbos onsite is considered highly degraded. There is also limited hydrological connection to the downstream Mill stream UVBW due to the seriously impacted hydrological, and geomorphology.	- There is no mitigation for wetland loss. It is however recommended that the onsite UVBWs are maintained / protected in perpetuity as a wetland offset area for the loss of the onsite seep wetland. The alien invasive vegetation (specifically Eucalyptus spp.) present within the UVBW wetland areas must be removed and replanted with indigenous wetland vegetation. A suitable Rehabilitation and Management Plan should be drafted for the UVB wetlands onsite.	Applicant Contractor ECO
Altered flow regime within the	Construction Site clearance, infilling and compaction in the catchment area of the UVBWs may	- The significance of this impact can be largely mitigated by establishing a 32 m buffer area around the UVBW wetland areas; and by ensuring that runoff / SW generated onsite	Applicant Contractor ECO

delineated UVBW	result in alteration of the flow regime of the UVBW.	flows into the wetland areas through an appropriately designed broad, vegetated earth swale. - The alien invasive vegetation (specifically Eucalyptus spp.) present within the UVBW wetland areas must be removed and replanted with indigenous wetland vegetation. - A suitable Rehabilitation and Management Plan should be drafted for the UVB wetlands onsite.	
Water Quality Impairment within the UVBW	Construction Accidentally spilled cement, construction chemicals, sewage from temporary toilets or petrochemicals from construction vehicles may find their way into the UVBW.	- The significance of this impact can be largely mitigated by demarcating the UVBW as No-Go areas during construction. Bunded, impervious areas that are more than 32 m away from the UVBW must be designated by an Environmental Control Officer for temporary toilets, vehicle parking/servicing areas, and for pouring and mixing of concrete/cement, paint, and chemicals. - It is essential that no pollutants are allowed to filtrate/run into the UVBW due to the presence of the EN Sclerophrys pantherinus within the site. - Construction workers / employees should be notified of the importance of this species to ensure that no toads are killed and that the UVBW remain as No-go areas.	Applicant Contractor ECO
Fauna impacts	Construction Habitat loss (wetland, milkwood, fynbos) Western Leopard Toad breeding and foraging disruption.	- All construction personnel must receive environmental awareness training regarding amphibian species present on site, including the Western Leopard Toad. - Training should emphasize the risks of amphibian entrapment in trenches, pipes, and foundation works. Trench inspections must be conducted daily, and amphibians removed safely by a trained ECO (Environmental Control Officer). - Appoint an ECO with amphibian expertise to monitor implementation of all mitigation measures. - The ECO must be present during key earthworks within 50 m of any delineated wetland or amphibian corridor. - Strictly avoid encroachment into the 32 m buffer zone around delineated wetlands, especially the Mill Stream and tributary Unchanneled Valley-Bottom wetlands (UVBW) (see van Zyl (2024)) - Temporary fencing should demarcate and protect all no-go zones. - Implementing stormwater management and “toad-friendly” design interventions to maintain hydrological connectivity and reduce road mortality. - A comprehensive Alien Plant Eradication and Rehabilitation Plan must be developed and implemented for the property. This plan should address the removal of invasive species and the ecological rehabilitation of disturbed areas. It must be formally incorporated into the long-term management and maintenance of communal open spaces.	Applicant Contractor ECO

	- Only plant species that are indigenous to the local area should be permitted in residential gardens. This will support local biodiversity and prevent the introduction of potentially invasive alien species. - During the construction phase, all construction zones must be clearly demarcated and physically separated from adjacent wetland and sensitive habitats to prevent accidental disturbance, habitat destruction, and pollution. - Prior to and following construction, all designated 'Private Open Space' areas must be rehabilitated. This includes the removal of construction rubble, litter, and any other debris to restore ecological functionality. - All boundary and internal fences must remain semi-permeable to allow free movement of small terrestrial fauna such as genets and mongooses, particularly along the Mill Stream wetland corridor. - A pre-construction search and rescue operation must be conducted for slow-moving or sedentary fauna within designated development footprints. Rescued animals must be relocated within suitable nearby open space areas on site and not removed from the property. - Rodent control should be achieved through environmentally sensitive methods, including the installation of owl nesting boxes and raptor perches to promote natural predation rather than chemical baiting, which poses a secondary poisoning risk to wildlife. - The clearing of indigenous fynbos and Milkwood (<i>Sideroxylon inerme</i>) vegetation must be minimised. All-natural vegetation, particularly fynbos and Milkwood forest clumps surrounding the development footprint, must be protected from unnecessary disturbance and trampling during and after construction. - Removal, thinning and control of dense stands of <i>Phragmites australis</i>. - Establishment of indigenous vegetated in the wetland offset areas which will provide habitat for faunal species of concern. - Establishing long-term management and monitoring commitments to ensure persistence of amphibian and wetland-dependent fauna.	
Altered flow regime within the UVB wetlands Post- Construction Site clearance, infilling and compaction may result in alteration of the flow regime for the onsite UVBW.	- The significance of this impact can be largely mitigated by establishing a 32 m buffer area around the UVBW wetland areas; and by ensuring that runoff / SW generated onsite flows into the wetland areas through an appropriately designed broad, vegetated earth swale. - The alien invasive vegetation present within the UVBW wetland areas must be removed and replanted with indigenous wetland vegetation.	Applicant Contractor ECO

Water quality impairment of the UVBWs	Post- Construction	Pollutants may enter the onsite wetlands via stormwater or sewage leaks (although highly unlikely).	– Additionally, a suitable Rehabilitation and Management Plan should be drafted for the onsite UVB wetlands – The significance of this impact can be largely mitigated by establishing a 32 m buffer area around the UVBW wetland areas; and by ensuring that runoff / SW generated onsite flows into the wetland areas through an appropriately designed broad, vegetated earth swale. – Tie into mainline sewage if at all possible or use fully contained conservancy tanks serviced by truck. No sewage treatment, irrigation or soak-aways should be contemplated. – Repair all sewage leaks as soon as reasonably possible after detection. Inspection of all sewage pipes should be conducted by a plumber once every 10 years. – Residents should be made aware of the presence of EN <i>Sclerophrys pantherinus</i> within the site. Should any pollution events occur, such as spills of petrol, etc. the spread to the UVBWs should be prevented, by applying / covering with absorbent materials. In no circumstance should pollutants enter the SW system or the UVBWs.	Applicant Contractor ECO
Faunal impacts (amphibians)	Post- Construction	Habitat fragmentation; Road mortality of amphibians (incl. Western Leopard Toad); Artificial light impact on nocturnal insects & toads.	Habitat Connectivity and Permeability → All perimeter and internal fences must be permeable to amphibians. Avoid solid barriers like brick or precast walls. → Install toad-friendly passages such as: ○ “Toad holes” (min. 100 mm diameter, ≤300 mm in length) every 20 m in walls and fences. ○ Open-bottomed boundary fences or gaps at ground level. → Include amphibian underpasses (e.g. drainage culverts or pipes) beneath internal roads at key crossing points to minimize road mortalities. Road Verge and Kerb Design → All new kerbs must not exceed 50 mm in height and should incorporate shallow V-shaped gutters to allow safe passage for toadlets (see Whale Coast Conservation (2024)). → Adequate road reserve should be implemented for internal access roads within the estate to facilitate the movement of toads. Stormwater Management → Cover stormwater drains with grates or mesh to prevent toad entrapment.	Applicant Contractor ECO

- Treat all stormwater in vegetated detention ponds or swales before discharge into wetlands, see van Zyl (2024)
- Monitor stormwater for pollutants and nutrients; implement community-based campaigns to prevent dumping of chemicals or waste into drains.
- Tie into mainline sewage or use fully contained conservancy tanks serviced by truck.
- No sewage treatment, irrigation or soak-aways should be contemplated, see (van Zyl, 2024).

Garden and Landscape Guidelines

- Gardens should prioritize indigenous vegetation and “wild” landscaping (e.g. woodpiles, compost heaps, leaf litter) to provide habitat for adult toads.
- Encourage the planting of Arum Lilies (*Zantedeschia aethiopica*) in wetland buffers to support the amphibian diversity and filter stormwater runoff.

Swimming Pool Safety for Amphibians

- Enforce a compulsory “frog escape” net or ladder requirement for all swimming pools.
- Promote use of non-chlorinated eco-pools or “beach-entry” designs to allow safe amphibian exit (van Zyl 2024).

Control of Invasive Vegetation

- Systematic removal of invasive grasses and maintenance of fynbos-dominated groundcover on road verges and open areas is critical.
- Reed cutting in the Mill Stream and tributaries should occur only during the dry season (December–May) and follow best practices:
 - Do not exceed 300 m² per cut (as per regulation).
 - Remove all cut biomass immediately to prevent nutrient leaching.
- Removal of Eucalyptus forest and rehabilitation to indigenous vegetation will improve habitat suitability for toads along Mill stream corridor

Signage and Speed Control

- Install educational signage throughout the estate highlighting Western Leopard Toad presence, breeding season (July–September), and road mortality risks.
- Impose and enforce a maximum speed limit of 30 km/h within the estate, especially during breeding and emergence seasons.

Resident Awareness Program

- Distribute educational materials to new residents on amphibian-friendly living, including:
- Stormwater pollution prevention
- Gardening for toads
- Responsible pet and chemical use

Citizen Science and Ecotourism

- Explore opportunities for annual toad migration events and night walks during the breeding season (August), which coincide with the low tourism season and offer potential for ecotourism-based engagement.

Legislative Compliance and Long-Term Management

Wetland Protection and Offsets

- Secure and implement a Wetland Offset, Rehabilitation and Management Plan, especially for the impacted hillslope seep wetland (PES: E).
- No water abstraction from wetlands unless authorized via a valid Water Use Licence.

Monitoring and Review

- Establish a post-development biodiversity monitoring program to assess amphibian diversity and abundance.
- Review mitigation effectiveness annually and adjust management practices accordingly.

Domestic Pet Management

- Free-roaming dogs must be strictly prohibited from accessing open space areas to prevent disturbance or predation of wildlife. Cats should not be permitted on the

		property due to their significant adverse impact on small mammals, reptiles, amphibians, and birds.	
		Lighting and Insect Attraction Management	
		→ Lights should be turned off when not in use. → Lighting should be fitted with motion sensors or timers to limit unnecessary operation. → Fixtures must include shielding to prevent light spill and direct illumination only where necessary. → All outdoor lighting should shine downward and avoid illuminating natural habitats. → Use long-wavelength lighting (e.g., red or amber filtered LEDs) to reduce ecological disruption; avoid blue and green light spectrums where possible. → A site-specific lighting plan must be developed to minimise ecological light pollution.	
Dust	Construction Dust generated from site clearing and site preparation.	- Maintain ground cover for as long as possible to reduce the total surface area exposed to wind. Do not clear entire plots and rather clear building sites only - Ensure vehicle speed limits on site are kept to a minimum. - Delivery vehicles to keep loads covered. - Cover fine material stockpiles. - Wet dry and dusty surfaces using non-potable water. - Staff to wear correct PPE if dust is generated for long periods. - Road surfaces to be swept and kept clean of sand and fine materials	ECO, Contractor Applicant
Noise	Construction Noise generated from vehicles and machinery during the construction phase.	- Ensure noisy activities take place in line with municipal by-laws. - Ensure noisy machinery is only operated when silencers are fitted. - Maintain machinery / mowers in good working order - Provide protective wear for workers i.e. ear plugs. - Ensure that construction vehicles and machinery are maintained regularly to reduce noise generation. - Restrict construction to normal working hours	ECO, Contractor Applicant
Visual impacts	Construction Visual impacts of construction site and construction activities.	- Ensure that the vegetated berms are maintained and their functionality to reduce the visibility of the development from the R43, and reduce noise and wind is optimised. - Ensure that sight lines from the access road to the R43 are not restricted by vegetation	ECO, Contractor Applicant

Post-construction Typical Visual impacts associated with the operational phase of a residential dwelling or group of residential dwellings that may lead to changes in sense of place of the individual from what was there and to what has now changed.	- Ensure on site refuse area is kept tidy and secured to prevents refuse being spread by wind or animals. - Lawns mowed regularly; gardens maintained. - Homes / lodge regularly painted in colours as approved by Architects Guideline or HOA - Good housekeeping of construction site and working areas. - Screen the visual elements of the site camp with netting. - Locate the site camp in a transformed area. - Site officer to walk the site on a daily basis to check for visual impacts and general site aesthetics, particularly prior to weekends and holidays - Officer to ensure that waste and batching areas are correctly screened and secured to prevent spread by wind, rain or animals. - Implement landscaping strategies to minimize the visual impact of construction and operational activities. - Incorporate green design principles into the development to enhance aesthetics and mitigate negative visual effects. - Communicate with the community to ensure understanding and acceptance of the changes in the visual character. - Consider the use of native vegetation in landscaping to maintain a natural feel and reduce visual disruptions.
Socioeconomic impacts <i>Construction</i> Job creation during the development /construction phase of the Erven <i>Post-construction</i> Access to employment for the community during the operational phase, Job creation, Provision of residential erven in response to provincial demand, investment in the area.	- Ensure labour force is sourced locally as far as possible. - A gender balance to be considered during employment. - Encourage skills upgrading opportunities for employees, especially within the hospitality industry / tourism.

9 GENERAL CONSTRUCTION PHASE IMPACTS AND REQUIREMENTS

9.1 Contractors camp

Responsibility – Contractor / ECO / owner

The contractor shall comply with all relevant laws and regulations concerning water provision, sanitation, wastewater discharge and liquid and solid waste handling and disposal during the construction phase. The contractor is referred to the requirements of the NEMA and the NEM:WA and related regulations. The contractor shall not locate the camp, or sanitation facilities, in any areas that can cause nuisance or safety hazards to surrounding land users, inhabitants or the general public. Suitable temporary toilet facilities should be provided to the construction team. These facilities should be emptied and cleaned on a regular basis by a registered contractor and the waste is to be removed by contractor to a registered facility. The contractor shall at all times carefully consider the machinery required for the desired task while minimizing the extent of environmental damage. The contractor shall keep construction campsites clean and tidy at all times. The contractor shall not leave domestic waste uncontained, and temporary storage shall be enclosed to keep out people and animals. No permanent domestic waste disposal shall be permitted. All domestic refuse is to be removed to an existing licensed landfill site. The contractor shall take specific measures to prevent the spread of veld fires, which may be caused by activities at the camp. These measures may include appropriate instruction of employees about the fire risks and the construction of firebreaks around the site perimeter, as required. The contractor shall prevent accelerated erosion from the construction campsite and shall not discharge polluted runoff into the environment. Adequate firefighting equipment shall be made available and maintained on site. the contractors camp should be located in area proposed for development, in order to reduce impacting undisturbed areas. No overnighting will be permitted at the contractors camp, unless specifically arranged or required. Decommissioning of the campsite will involve removal of all compacted platforms, equipment machinery, tools, waste, etc.

9.2 Health and Safety

Responsibility - Project Manager / Contractor / ECO / owner

Correct Personal Protective Equipment (PPE) must be worn at all times by the personnel on site. Personnel must be trained on the use of PPE. The applicant will appoint one safety officer for the activities. Suitable warning and information signage should be erected at the commencement of construction. The handling of hazardous materials should only be done by trained personnel. Safety Data Sheets (SDSs) must be readily available for all hazardous substances on site and employees should be aware of the risks associated with any hazardous materials used. All provisions of the Occupational Health and Safety Act (Act No. 85 of 1993) must be complied with. In the event of an emergency relating to a hazardous substance, procedures detailed in the SDSs should be immediately implemented.

9.3 Fire risk management

Responsibility - Project Manager / Contractor / ECO / owner

The Applicant / Project manager / contractor should identify a Fire Officer who shall be responsible for ensuring immediate and appropriate actions in the event of a fire and shall ensure that employees are aware of the procedure to be followed. The Fire Officer shall ensure that there is basic fire-fighting equipment available on site at all times. Any fires should be reported to the fire officer immediately.

9.4 Fuels and hazardous materials

Responsibility - Project Manager / Contractor / owner

Fuels and flammable materials are to be suitably stored, inside the contractor's camp or as appropriate. Impervious materials are to be used in these storage areas to prevent contamination of the ground in the event of spillages or leaks. Quantities of fuels and hazardous materials stored on site should be appropriate to the requirement for these substances on site.

Bulk fuel depots, if required, should be placed within bunded areas to prevent soil contamination in the event of leaks of spills. Bunded areas are to have a holding capacity equal to 110% of the largest fuel container. The relevant Health and Safety requirements for the hazardous materials and fuels should be kept on site in the event of an emergency.

9.5 Emergencies protocol

Responsibility - Project Manager / Contractor / owner

Fire: The fire officer / suitable other person should be notified of any fires. Employees should be aware of the procedure to be followed in the event of a fire.

Hydrocarbon (fuel & oil) leaks and spillages: Employees should be aware of the procedure to be followed for dealing with spills and leaks, which shall include notifying the project manager / contractor. All vehicles leaking fuel or other liquids should immediately be removed to the maintenance area and repaired. In the event of a hydrocarbon spillage, the soil must be excavated and treated and adequately disposed. The necessary materials and equipment for dealing with spills and leaks are present on site at all times. The clean-up of sewerage spills and any damage caused by the spill or leak shall be for the applicant's account. The applicant shall ensure that the Health and Safety officer is available for the duration of the construction period.

Raw Sewerage spills (from portable toilets): Employees are to be aware of the procedure to be followed for dealing with spills and leaks. All the necessary materials and equipment for dealing with spills and leaks are present on site at all times. The clean-up of sewerage spills and any damage caused by the spill or leak shall be for the Applicant's account or applicable contractor.

Sudden illness in member of team: emergency numbers should be readily available on site in case of a sudden illness or injury to a construction team member.

Snake bite: Emergency contact numbers must be kept on site in case of a snake sitting or snakebite.

9.6 Site Demarcation

Responsibility - Project Manager / Contractor / ECO / owner

Prior to any construction commencing, the boundaries of the site and / or the footprints of each dwelling should be appropriately indicated or fenced off by the contractor. Natural areas that should be retained should also be indicated at this stage. Following this, all construction works, as well as the storage or preparation of any materials must be within the demarcated boundaries of the construction zone. No Go areas are to also be demarcated at this stage. The permanent delineated wetland must be clearly demarcated and made a no-go area, this should apply to the temporary wetland zones too, as far as possible.

9.7 Stockpiles

Responsibility - Project Manager / Contractor / ECO / owner

The contractor and / or project manager should identify sites for the stockpiling of building materials and excavated material. Stockpile sites should preferably be in areas with a gentle gradient. Stockpiles should be stabilised as required and monitored for dust blow and runoff / erosion.

9.8 General Wastes

Responsibility - Project Manager / Contractor / ECO / owner

Refuse refers to all construction debris (cement bags, rubble, timber, cans, nails, wire, spilt bitumen, glass, packaging, plastic, organic matter, etc.). Refuse generated during the construction phase should be stored in an appropriate area on site, should be water tight and wind proof, and removed on a regular basis for disposal at a permitted disposal site. Waste bins should be labelled for their designated use. No burning or burying of general refuse on site should be permitted. Recycling and sorting of waste, at the source, is encouraged. Disposal certificates should be kept.

9.9 Recreational / Eating areas

Responsibility - Project Manager / Contractor / ECO / owner

If construction workers are permitted to eat on the development site, other than within the contractor's camp, the Contractor shall provide adequate refuse bins at all such places and ensure that they are used. Bins are to be cleared on a daily basis. No rest areas are to be permitted in No Go areas.

9.10 Construction water

Responsibility - Project Manager / Contractor / ECO / owner

All cement effluent from mixer washings and run-off from batching areas, as well as other work areas, should be contained in suitable manner, these areas should be lined and allowed to dry from time to time in order to remove the solid materials. Care should be taken to prevent the runoff of construction water, to other areas on site or onto adjacent sites.

9.11 Equipment maintenance

Responsibility - Project Manager / Contractor / ECO / owner

All mechanical equipment and work vehicles which are present on site during construction, are to be stored, serviced and refuelled only at designated areas or within the contractor's camp. Within these areas drip trays and other impervious materials, for example plastic or metal sheeting, must be used to prevent contamination of the ground. The project manager may order the removal of equipment that is causing continual environmental damage, until such equipment has been repaired.

9.12 Stormwater Management

Responsibility - Project Manager / Contractor / ECO / owner

Due to the small-scale nature of the construction, a Stormwater Management Plan is not required. however, Stormwater should be monitored regularly to ensure no environmental risk or unmanageable load to the existing infrastructure. The

contractor must take suitable measures to prevent erosion resulting from a diversion, restriction or increase in flow of stormwater caused by construction. The open space erf will be used for stormwater retention.

9.13 Topsoil Removal and Stockpiling

Responsibility - Project Manager / Contractor / ECO / owner

Where services are to be extended or houses erected, topsoil is to be removed from the work areas, stockpiled separately from subsoil, and must be stabilised within a day of stockpiling. In general, stockpiles should be convex at the top to promote run-off, so that water is not able to accumulate and result in leaching of nutrients from the soil. Stockpiling areas should be determined in consultation with the ECO and only for short term.

9.14 Erosion Control

Responsibility - Project Manager / Contractor / ECO / owner

Action should be taken to prevent erosion of soils on the construction site. Should any erosion be detected on site, the cause of such erosion should be identified, and appropriate remedial action must be immediately implemented.

9.15 Dust Control

Responsibility - Project Manager / Contractor / ECO / owner

Appropriate action should be taken to minimise the generation of dust on the site. This can be done by applying appropriate stabilisation materials, such as straw or mulch or watering of exposed areas. Suppression methods not involving water, are preferred as far as possible.

9.16 Construction Traffic Management

Responsibility - Project Manager / Contractor / ECO / owner

All construction vehicles which carry construction materials, must use sheeting or a suitable cover, to prevent loss of load during travelling or due to wind or rain. Any spills should be cleaned immediately.

9.17 Architecture / Design

Responsibility - Project Manager / Contractor / ECO / owner

The architecture and design of the dwellings will be done in line with the general trend of the area. The houses should be designed to be in line with the surrounding architecture and cape vernacular style common to the area. Neutral colour palettes should be used which blend into the surrounds.

9.18 Sustainable Building Guidelines and materials

Responsibility - Project Manager / Contractor / ECO / owner

The houses should be designed in such a way as to create a sustainable living area. Ensure materials and orientation allow for an environmentally friendly design with lower operating costs, i.e natural ventilation, correct orientation, correct colours and roofing etc. Use recycled materials as far as possible.

Energy efficiency is also an important consideration and the following actions should be considered:

- North orientation to ensure that as many well-used spaces face north as possible. Sun control is more difficult on East and West facing windows
- Use of good insulation in the roof and walls to keep the inside temperature warm in winter or cool in summer
- Solar water heaters to be included in the design phase
- Suitable roof overhangs to let in the lower winter sun but provide shade from the summer sun
- Sensible fenestration – let in the light and catch the winter sun, but not too much window area so that warmth or cool cannot be retained inside when needed. They can be combined with shading and reflecting devices - such as overhangs, screens, shutters, awnings, trees, planting and different glass types which will aid to control the amount, quality and time of daylight entering the building
- Suitable ventilation for fresh air and cool breezes
- Natural lighting through windows and light wells

Water conservation should be a priority in design of the dwelling. Rainwater tanks are recommended as far as possible. Optimally designed systems for grey water reuse should also be explored during the design phase in order to prevent the expense of retrofitting a system. Water wise and indigenous landscaping is recommended and will reduce the water costs associated with maintaining gardens. Permeable paving is to be used in areas where paving is required. Low flow shower and heads and dual flushing systems should be fitted. Aerators on taps should also be fitted to reduce overall water demand.

Construction activities such as watering, mixing and cleaning should avoid water wastage. Dry brushing and trigger spray nozzles should be used. Reuse of construction water should also be implemented.

9.19 Site Clean Up and Rehabilitation

Responsibility - Project Manager / Contractor / ECO/ owner

The following actions should be implemented once construction has concluded:

- The construction footprint should be restored to the natural contours of the ground and shall allow normal surface drainage, as far as possible
- No foreign matter such as rubble, waste or hazardous material will be mixed with the topsoil or used to backfill excavation.
- All temporary works within the construction footprint, including fences, access, roads etc. disturbed by construction, should be restored to their original condition, as far as practical.
- Compacted soils within the construction footprint should be loosened by means of a plough or scarified to aid revegetation
- Runoff and erosion, as a result of the construction phase, should be suitably managed to prevent long term impacts
- All structures, equipment, materials and facilities used or created on site for or during construction activities are removed once the project has been completed
- Vegetation cover (using species appropriate to the local area) in all areas disturbed by the works should be reintroduced, as required.

9.2. Summary of Faunal mitigations

Vegetation & Landscaping

- All open spaces to be kept free of alien invasive plants.
- Gardens and landscaping must use *locally indigenous species only* (no exotics).
- No kikuyu lawns; only Buffalo grass, and in limited areas.
- Areas beneath Milkwoods must not be lawned to prevent die-off.
- Specially protected trees should only be planted where future removal/pruning won't be needed.
- All mapped White Milkwood and other protected trees must be monitored bi-annually.
- Remove Eucalyptus forest and rehabilitate with indigenous vegetation along the Mill Stream corridor.
- Maintain fynbos-dominated groundcover on road verges and open areas.

Amphibian & Wildlife Conservation

- Encourage Arum Lilies (*Zantedeschia aethiopica*) in attenuation structures and wetland buffers to support amphibian diversity.
- Discourage private water features/ponds that attract noisy breeding frogs.
- Install amphibian-friendly infrastructure:
 - "Toad holes" (min. 100 mm diameter) every 20 m in walls/fences.
 - Open-bottom fences or ground-level gaps for movement.
 - Underpasses (culverts/pipes) beneath roads at crossing points.
 - Kerbs ≤ 50 mm high with V-shaped gutters.
 - Stormwater drains covered with grates or mesh.
- All perimeter and internal fences must be permeable to amphibians (no solid barriers).
- No chlorinated pools; enforce "frog escape" nets or ladders.
- Promote non-chlorinated eco-pools or "beach-entry" designs.
- Gardens should include natural features (woodpiles, compost, leaf litter) for amphibian habitat.
- Follow toad- and frog-friendly infrastructure recommendations (Van Zyl & Morton 2024; WCC Amphibian Report 2024).
- Implement amphibian diversity monitoring post-development and review mitigation annually.

Wetlands, Water & Stormwater Management

- No water abstraction from wetlands without a valid Water Use Licence.
- No sewage treatment, soakaways or irrigation systems; connect to mainline sewage or sealed conservancy tanks.
- Treat all stormwater in vegetated ponds or swales before discharge.
- Monitor stormwater for pollutants and prevent chemical dumping.
- Encourage community awareness on stormwater pollution.
- Reeds to be cut periodically (dry season only, ≤ 300 m² per cut); remove all cut biomass; retain roots/rhizomes.
- Remove cut reeds from site and coordinate with downstream management.
- Secure and implement a **Wetland Offset, Rehabilitation & Management Plan** (for impacted seep wetland, PES E).

Chemicals & Fertilisers

- No pesticides, herbicides (except as per MMP), or chemical fertilizers.

- Only compost or mulch may be used, especially in areas accessible to amphibians.

Fauna Protection

- Trees hosting Spotted Eagle Owls or other raptors to be cordoned off during nesting.
- Free-roaming dogs prohibited from open spaces; cats not permitted due to predation risk.

Roads & Traffic

- Internal road design must allow toad movement (adequate reserves, amphibian underpasses).
- Estate speed limit: maximum **30 km/h**, especially during breeding/migration season.

Lighting

- Use downward-facing, shielded fixtures; avoid light spill into natural habitats.
- Fit lights with motion sensors or timers; turn off when not in use.
- Use long-wavelength (red/amber) LEDs; avoid blue/green light.
- Develop a site-specific lighting plan to minimize ecological light pollution.

Education & Awareness

- Install educational signage on Western Leopard Toad presence and breeding (July–Sept).
- Distribute materials to residents on amphibian-friendly living, pollution prevention, and pet management.
- Organize annual toad migration walks or ecotourism events during breeding season (August).

10. MAINTENANCE AND MANAGEMENT

10.1. Homeowners' association

A Homeowners Association will be appointed to manage the operation of the development. The Homeowners Association, will amongst others, be responsible for:

10.1.1. Management of open space and high sensitivity areas

Management of open space and wetland, Mill Stream and 32 m buffer as well as the White Milkwood Forest (*Sideroxylon inerme*) and any other Protected or Endangered species on the property, is mandatory.

Open space must be managed by removing emerging alien vegetation and maintain a natural state as far as possible. No permanent infrastructure is permitted in the wetland / stream area and 32 m buffer. This includes the non-developable portion of properties.

The recommendations of the Wetland and Botanical Specialist must be implemented by the HOA:

The following mitigation is considered essential, feasible and reasonable:

- The development will be a gated estate with a HOA, who must be tasked with managing the Wetland, and Open Space areas. They are also required to monitor the non-developable portion of private properties identified below. It is essential that this is clearly indicated and confirmed up front and that no disturbance is allowed within

the wetland setback area of Erven 1 to 10 and 28 and that any alien invasive vegetation is removed annually from these areas using the appropriate methodology (see references in Botanical Report and Maintenance Management Plan).

- The High sensitivity areas identified by the various specialists may not be developed or disturbed in perpetuity, without appropriate approvals.
- No new infrastructure which may cause soil disturbance (roads, pipelines, etc) may be routed through the wetland, stream or non-developable areas without approval.
- No solid walls or fences may be built on the wetland / Mill stream side of Portions 1 to 8, 10 and 28, or into the undevelopable area that is for the exclusive use of these property owners. Post and rail or hedges or similar that do not compromise the functionality of the buffer area or connectivity with the stream and wetland are appropriate.
- Recommended boundary fencing is Bonnox style fencing, or alternatively ClearVue fence but must be modified to include toad holes of at least 100 mm diameter, spaced every 20 meters, and not exceeding 300 mm in length at ground level and open gutters. No electric strands at or below 30 cm above ground level, to allow movement of small animals.
- All firebreaks need to be outside property boundaries. Adjacent properties are owned by the municipality. This will need to be arranged and / or co-ordinated with them.
- Non-chlorinated eco pools, ideally with a “beach pool” design with gently sloping sides emulating the natural bank of a wetland allowing toads to enter and exit the pool freely. Alternatively, if a pool design with high sides is installed, incorporate escape pathways such as toad ladders, toad friendly steps, or floating vegetated platforms anchored to the side of the pool or ensure the pool is not accessible to toads and other animals. Alternatively the pool must not be accessible to frogs or toads.
- Rainwater down pipes may not discharge rainwater onto driveways or paved areas. Rainwater may be collected in tanks with overflow directed onto lawned areas or garden beds. Due consideration must be taken to attenuate runoff before it enters the wetland or stream to limit downstream impacts.

10.1.2. Private Properties

These erven (Erf 1 – 8, 10 and 28) that are adjacent to the Mill Stream and wetland, include an area that is considered “undevelopable” as it extends into the delineated 32 m buffer. This is a specific limitation on these portions of these properties. The HOA must work with the home owners to ensure that these restrictions are complied with in perpetuity and that homeowners who purchase these erven are aware of the limitations to their erven.

Private gardens must be indigenous, and locally endemic, with limited to no, hardened surfaces. Gardens are to be kept alien and invasive vegetation free. Lawn areas must be limited in size. Groundcover is preferable.

10.1.3. The Lodge

The accommodation ‘Eco Pods’ are located in such a way as to ensure that the structures have a minimal impact on the mature White Milkwood trees on this site. These trees also provide privacy for the buildings and contribute to the sense of place which advised the development. Pathways between buildings may be raised boardwalks or paths which permit water and nutrients to reach the roots of the trees.

Parking and driveways must be ‘grass blocks’ or similar which allow for percolation while limiting compaction.

SECTION THREE

MAINTENANCE MANAGEMENT PLAN

11. INTRODUCTION TO MMP

The main purpose of this Maintenance Management Plan (MMP) is to prevent, mitigate or minimise damage associated with long term management and maintenance on the subject property in specific zones, whilst enhancing the benefits.

Extract from Western Cape Information Document for the Development of a Maintenance Management Plan for a Watercourse in terms of NEMA, 1998 (Act 107 of 1998) Environmental Impact Assessment Regulations, 2014 (as amended)

The following are overarching principles to be used by landowners and managers when considering the development and implementation of the MMP.

- (a) The anticipation and prevention of negative impacts and risks, then minimisation, rehabilitation or 'repair', where a sequence of possible mitigation measures to avoid, minimize, rehabilitate and/or remedy negative impacts is explicitly considered.
- (b) Avoid and reduce unnecessary maintenance.
- (c) Maintenance and management of a watercourse must be informed by the condition of the physical and ecological processes that drive and maintain aquatic ecosystems within a catchment, relative to the desired state of the affected system.
- (d) Management actions must aim to prevent further deterioration of the condition of affected watercourses, and, overall, be guided by a general commitment to improving and maintaining ecological infrastructures for the delivery of ecosystem services;
- (e) Managers and organs of state must identify, address, and where feasible, eliminate the factors that necessitate intrusive, environmentally -damaging maintenance; and
- (f) A process of continuous management improvement be applied, namely Planning, Implementing, Checking (monitoring, auditing, determine corrective action) and Acting (management review).

Approval of this Maintenance Management Plan (MMP) does not absolve the owner, contractor or any other party of the general "duty of care" principle as set out in Section 28(1) of the NEMA, which states that "Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment."

11.1. Need for MMP on Erf 438, Stanford

Is there a watercourse on or adjacent to the property?	Three watercourses have been delineated on the property.
Has there been a history of flood damage or vandalism to the existing infrastructure or watercourse – erosion and/or sedimentation?	No history of flooding evident, however flooding is possible along with associated erosion, which will require rectification. Sedimentation, silting is also possible and will require maintenance actions from time to time.
Is there infrastructure or any community at risk of being damaged by flooding?	A 32m buffer zone is implemented as well as the 1:100-year flood line, and limited risk indicated.
Is the design of infrastructure considered adequate in terms of managing the risk of flooding, erosion and/or sedimentation?	A 32m buffer zone is implemented as well as the 1:100-year flood line, and limited risk indicated.
Would you consider an improved design to existing infrastructure to reduce maintenance needs?	N/A
Are there specific incidences where the watercourse is obstructed or blockages occur that alter the flow of the river during floods?	The Mill Stream flows under the newly upgraded R43 road and continues into Stanford. During flood event, blockages from vegetation and trees could block. This will need to be managed and checked on a regular basis
Is there an existing obstruction in the watercourse that has changed the flow of the river under normal conditions?	N/A
Is there a marked increase in the rate of erosion/sedimentation being experienced which threatens operations and assets?	N/A
Is there a presence of alien or bush encroachment vegetation within the watercourse and/or the presence of woody debris after flooding?	As part of the NEMA process, the large Blue gum trees which are currently located alongside the Mill Stream will be removed.

11.2. Applicable legislation

The following specific environmental legislation is applicable to this Maintenance Management Plan:

- This MMP will be approved in terms of the NEMA EIA Regulations 2014 (as amended) and relates to the following listed activities:
 - Listing Notice 1, Activity 19
 - Listing Notice 3, Activity 12
- The requirements of the National Water Act 36 of 1998 (as amended);

- The requirements of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA) in terms of:
- National list of ecosystems that are threatened and in need of protection (GN 1002 of 9 December 2011).
 - Alien and invasive species list 2016 (GN R. 864 of 29 July 2016).

11.3. Applicable area

The subject property is located within and adjacent to 3 wetland systems and along the Millstream. The Hillslope seep, which has been transformed by the current roll-on lawn business, will be lost, but the UVB wetlands will be avoided. As such, the development and / or associated service infrastructure will fall within the regulated zone of a watercourse and as such will require a Maintenance Management Plan for the long-term maintenance actions which may be required.

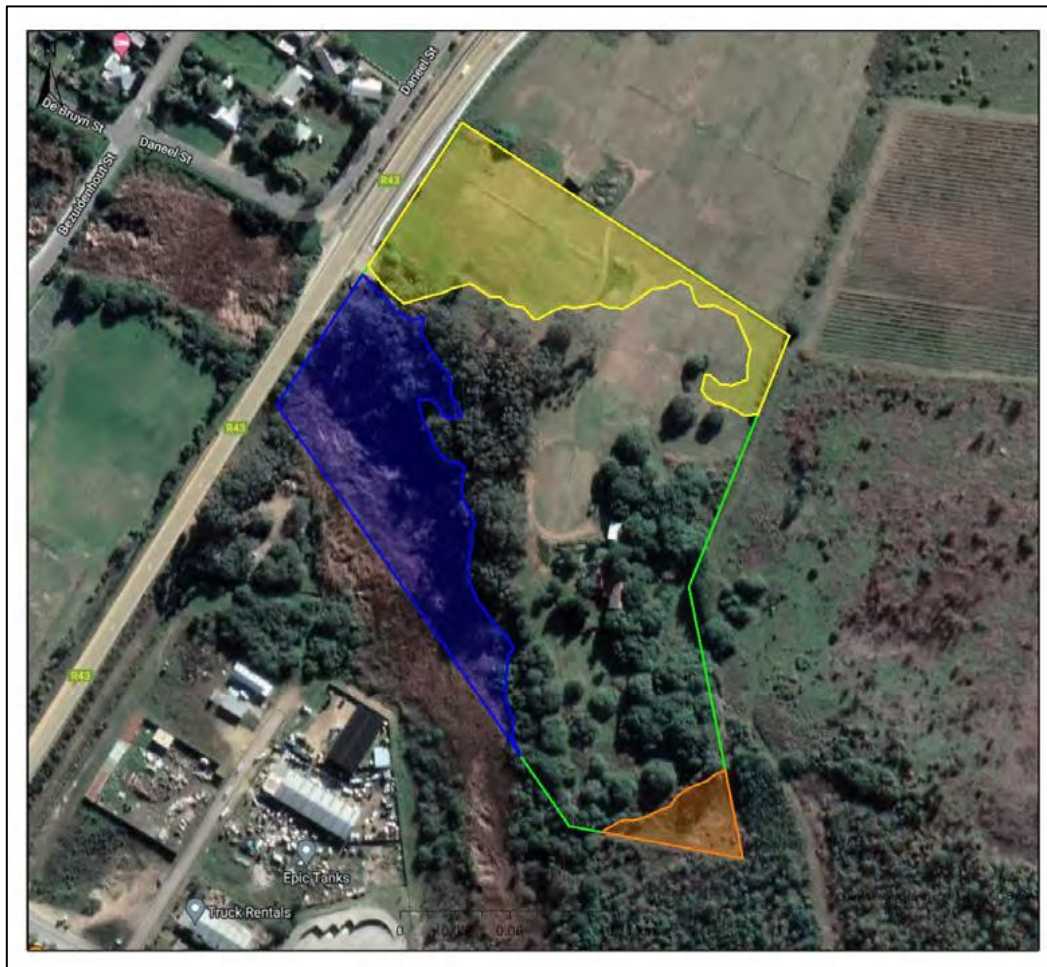


Figure 2: Delineated watercourse and wetlands on site. The Mill Stream is in blue, the tributary in orange and the hillslope seep is in yellow.

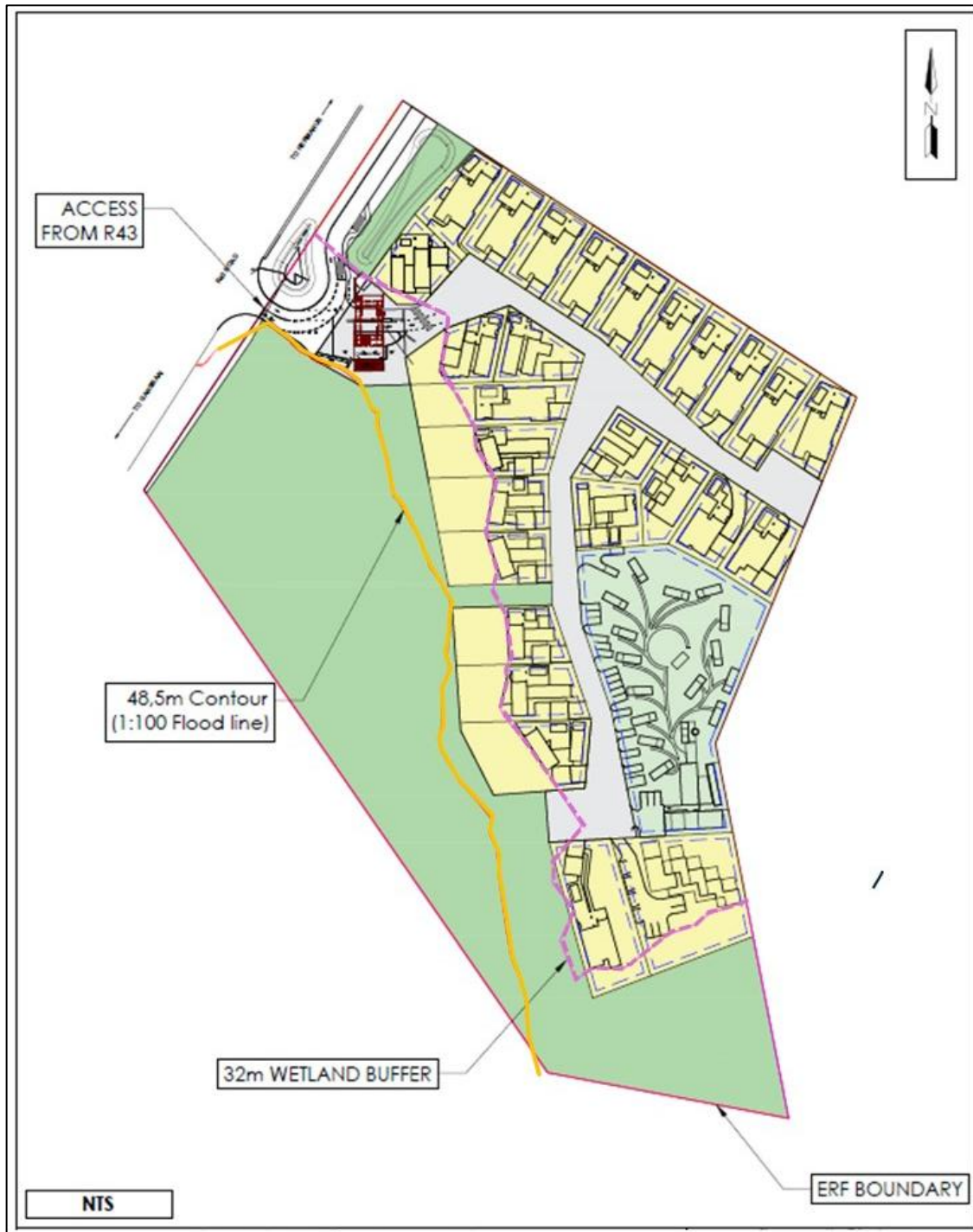


Figure 3a: Area applicable to the Maintenance Management Plan (MMP). The 32m buffer zone, UVB Wetland and Millstream.

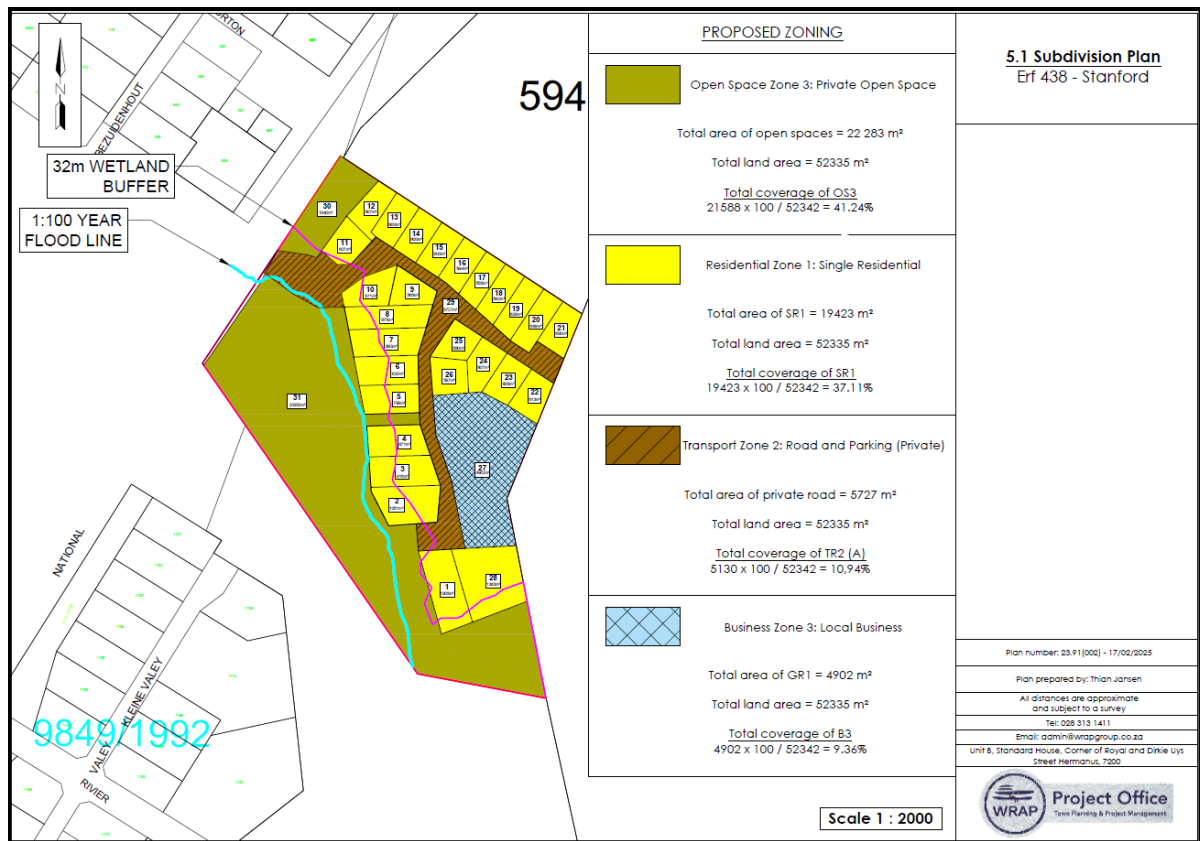


Figure 3a: Zoning Plan

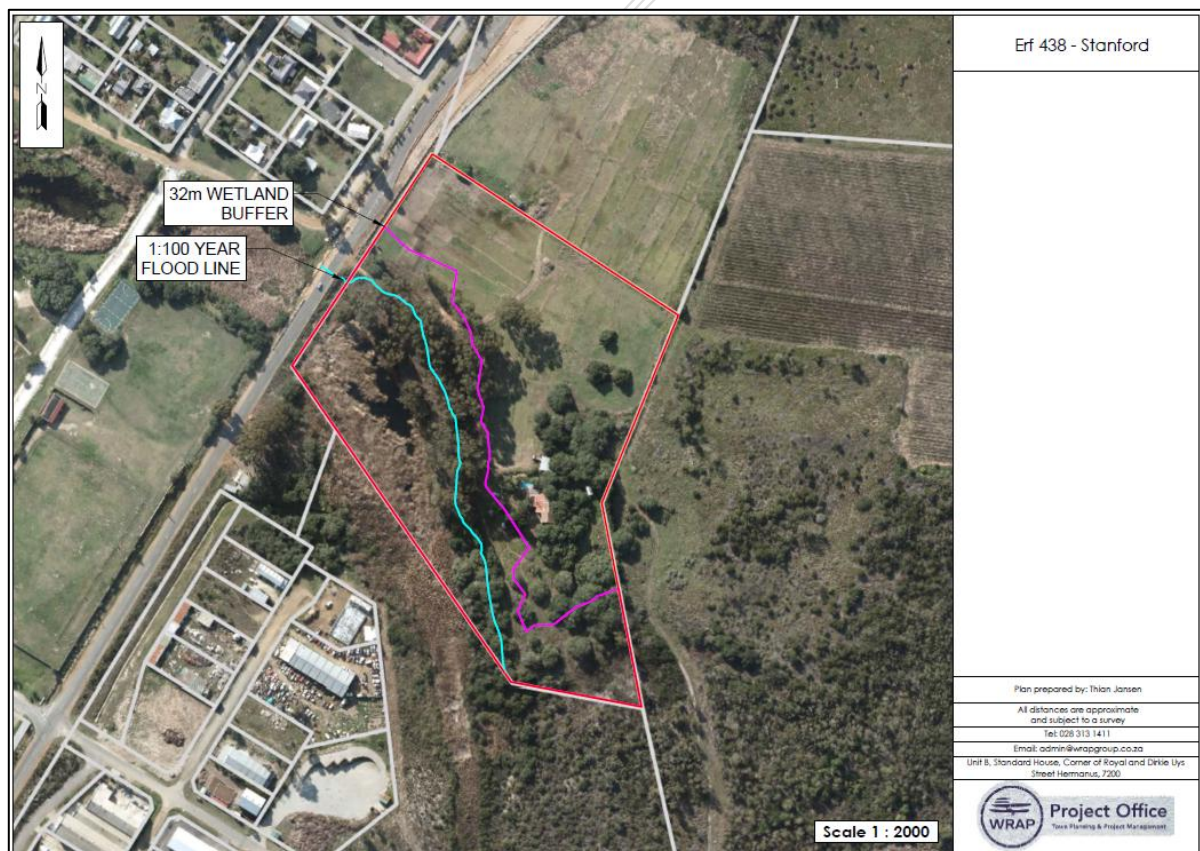


Figure 4. Aerial map with 32 m wetland buffer and 1:100 flood line

11.4. Maintenance categories

The type of maintenance and management interventions required are outlined the table below.:

Table 3. Maintenance categories appropriate to the property

CATEGORY	TYPES OF MAINTENANCE ACTIVITIES
Category A: Sediment removal as a result of deposition or sediment deposition as a result of erosion	Clearing of accumulated sediment may be required from time to time particular within the Mill Stream itself and may also form part of the rehabilitation of the Stream. The aim of the this is to prevent the formation of islands in the stream and facilitate natural flows. The removal of the gum trees are expected to change the flow and these areas may required movement or clearing of accumulated sediment.
Category B: Emergency repairs – urgent action required to manage risk and damage to assets	With the recent and future expected rainfall patterns on the Western Cape, Emergency Repair to erosion of riverbank or servicing infrastructure in the vicinity may be required from time to time or after flood or other such events. This may include removal of materials which have built up in response to flooding and sedimentation as well as possible damage to any permanent infrastructure in the 32 m buffer. Management of the condition of flood protection berms, swales and existing structures such as gabions, canalized and stormwater systems is also included.
Category C: Managing alien invasive and bush encroachment plant species	The activity will include the removal of invasive alien plant species, as well as potentially obstructive indigenous species/ encroachment (specifically and only, in instances where vegetation is blocking channels, headwall and culverts), to reduce maintenance requirements as they relate to erosion and sedimentation and improve hydrological flow and reduce associated flooding impacts. Clearing of vegetation from affected watercourses and associated buffers should be actioned as required and includes the management of the reeds (<i>Phragmites australis</i> , <i>Typha capensis</i>) and removal of the large blue gum trees (<i>Eucalyptus sp.</i>)
Category D: Rehabilitation and restoration activities for maintaining ecological infrastructure	Developments and maintenance of ecological buffers will be required to improve and/or restore the functioning (e.g. wetlands and stormwater detention pond) Actively rehabilitating riparian zones through planting of locally indigenous species is also required on a ongoing basis Bank grading and movement / removal of berms and barriers to flow.

12. METHOD STATEMENTS

The Method Statement for the maintenance activities described above are outlined as follows:

- **What** – needs to be done. A description of the work to be undertaken.
- **How** – a description of the methods and materials.
- **Where** – the locality of the work
- **When** – the commencement and completion program for the work
- **Who** – the person responsible
- **Why** – The reason for the activity

The following Method statements are included in this MMP and where applied for in the Request for Adoption of a MMP form:

Method Statement 1: Clearance of alien vegetation and encroaching vegetation within and alongside watercourses

What?

The activity involves the removal and control of invasive alien plant species (such as *Acacia saligna*, *Acacia cyclops*, *Eucalyptus*) that have established within and alongside identified watercourses and associated wetland buffer zones. The purpose is to restore the ecological integrity of the watercourse, promote indigenous vegetation recovery, and maintain hydraulic and ecological functioning.

How?

The activity will be executed through manual and mechanical methods, following environmentally sensitive procedures:

Site Access and Preparation:

- Access to the site will be along designated routes outside the watercourse to prevent unnecessary disturbance.
- Sensitive zones and no-go areas will be clearly demarcated with visible fencing or barrier tape before any work begins.
- All personnel will be briefed on environmental sensitivities and safety protocols by the ECO/HOA.

Clearing Methods:

Hand Pulling

Use: Seedlings with a stem diameter of <5cm

Hand pulling should be implemented as the preferred clearing technique as far as possible. When implemented correctly, this method is extremely effective, yet its application is limited to seedlings. Thus, regular monitoring and follow-up treatments are important to ensure successful and economical eradication using this technique. The procedure to be implemented is as follows:

- Wearing gloves, grip the plant firmly at the base of the stem and pull hard to remove the entire plant, including the rootstocks.
- If the roots of the plant break off during removal, use a spade to dig them out.
- Shake the plant to remove excess soils and dispose of the plant material at an appropriate waste disposal site.

Tree Popping

Use: Seedlings/Saplings with a stem diameter of approximately 5 cm

This technique is used for medium tree specimens and involves the use of an implement referred to as a “Tree-Popper”. This tool consists of a base plate and a lever that are joined to form a small pair of jaws (Figure A1 of the Wetland Offset Rehabilitation Management Plan). The tree is placed in the jaws of the tool, and the lever is used to pull the entire tree, including the roots, out. This tool is extremely useful for trees that are too large to be effectively removed by hand pulling yet are not yet large enough to require felling. The method to be used is similar as outlined for hand pulling, however the Tree-Popper is used instead of pulling.

This technique is used for medium tree specimens and involves the use of an implement referred to as a “Tree-Popper”. This tool consists of a base plate and a lever that are joined to form a small pair of jaws (**Figure A1** of the Wetland Offset Rehabilitation Management Plan). The tree is placed in the jaws of the tool, and the lever is used to pull the entire tree, including the roots, out. This tool is extremely useful for trees that are too large to be effectively removed by hand pulling yet are not yet large enough to require felling. The method to be used is similar as outlined for hand pulling, however the Tree-Popper is used instead of pulling.

Felling

Use: Trees with a stem diameter of >5 cm

Once the stems of trees reach a diameter of greater than 5 cm felling will need to be implemented to remove the individual. Felling can be undertaken using chain saws and bow saws. It is important that trees are cut with a neat straight cut to reduce the chance of resprouting and improve the effectiveness of stump herbicide treatment. Trees must be cut down as close to the ground as possible (between 5cm and 30cm above the ground). Felling must be undertaken by appropriately trained individuals that possess and make use of the required Personal Protective Equipment (PPE) for the task at hand. Vegetation should be removed before seed is set and released.

Herbicide Stump Treatment

Use: Resprouting species that have undergone felling treatment

Some alien tree species are known to resprout from the stump after felling. To prevent this an herbicide treatment needs to be applied post felling. Once the tree has been cut down to create a smooth surface that exposes the outer rings of the stem where the trunk grows (the cambium) the appropriate herbicide solution must be applied to the freshly cut surface. All side branches should also be removed and treated with herbicide. The herbicide treatment should be applied as soon as possible after felling (preferably within 3 minutes) to ensure effective treatment. Where trees with a diameter of greater than 10cm are felled, only the outer rings need to be treated with herbicide. Due to the potentially hazardous nature of herbicides, the precautions outlined in the section below should also be applied during herbicide stump treatment.

Where?

The activity will take place within and alongside the identified Mill Stream Wetland, within the Regulated Area and associated buffer zones on the project site. All works will remain within the demarcated maintenance footprint and avoid any direct entry into the active channel or wetland core areas.

When?

- The activity will be undertaken during the dry season, to minimise soil compaction and erosion risks.
- Work will commence once the ECO has approved the site demarcation and method plan.
- The initial clearing phase is expected to take approximately 2–3 weeks, depending on site conditions and infestation density.
- Follow-up control and monitoring will occur every 3–6 months to prevent regrowth.

Who?

The Contractor under the direction of the Homeowners Association will be responsible for implementation and monitoring.

All personnel involved will receive induction on alien plant identification, safe removal techniques, and environmental best practices.

The HOA will oversee compliance with the Environmental Management Programme (EMPr) and relevant legislation (NEMBA, CARA).

Why?

- The clearance of alien and encroaching vegetation is required to:
- Restore the ecological and hydrological functioning of the wetland and associated watercourse.
- Prevent the spread of invasive species that threaten indigenous biodiversity.
- Enhance erosion control and water quality by allowing indigenous vegetation to re-establish

The Mill stream area is ~ 0.6 Ha in extent and the wetland ~ 0,1 Ha in extent on the is property. They have a Combined Ecological Category of C with Sediment Trapping and Toxicant Assimilation rated as Moderate to High. This is the on-site extent of a much larger system that is ecologically closely linked to the system both upstream and downstream outside the property and Stanford.

This wetland and Mill Stream are not in a natural condition. The R 43 bridge over the Millstream has constrained the width of the stream and the flow of water. Water was also abstracted for agriculture irrigation in the past. The dense growth of these plants is probably limiting the growth of other indigenous aquatic and wetland species. The property's Private Open Space is an important feature and must be properly maintained to the benefit to landowners, visitors and the local fauna and flora.

Method Statement 2: Rehabilitation and restoration activities to maintain ecological infrastructure

Impact, Mitigation and Recommendations

- Stormwater polishing will be required before the water enters the natural watercourses and wetlands on site. This can be done by using appropriate attenuation structures, swales, polishing ponds, Sustainable Urban Drainage Systems (SUDS)
- Removal of built-up sediment and landscaping will be required from time to time in perpetuity

What?

Attenuation structures including the detention ponds and swales are designed to slow the velocity of water entering the stream and wetland area. They must be located close to the stream and may be located within the wetland and will be located within the 32 m buffer zone. Polishing ponds are intended to trap pollutants in water runoff that is contaminated in any way and thereby prevent the contaminants from entering the riverine system. They must be designed by a professional with experience in water management. Structures can be designed that reduce the velocity of large volumes of water entering the stream system, instead of exacerbating stormwater runoff and improve the water quality, or they may be two different structures. As recommended by the Aquatic specialist during the NEMA process, allowance must be made for stormwater to be treated in a vegetated detention pond and/or a substantial vegetated swale before release into any wetland. Grassed swales and detention / retention ponds to attenuate the runoff from the proposed development rather than conventional stormwater drains that exacerbate stormwater runoff.

These structures will require general maintenance, cleaning, repair or reinstallation from time to time in perpetuity as well as after flood events.

How?

Rehabilitation and restoration will be undertaken through the following phased and environmentally sensitive approach:

Site access and preparation

Access to stormwater structures will be via existing service roads or designated access routes outside of sensitive wetland or riparian areas wherever possible. All no-go areas and buffer zones (32 m from the watercourse) will be clearly demarcated prior to works.

Construction sequence

- Excavate to design depths following the approved stormwater layout plan.
- Install geotextile linings where required to stabilise soil and prevent erosion.
- Construct inlet and outlet structures, flow control weirs, and vegetated channels.
- Install silt and debris traps, oil and grease interceptors, and energy dissipation structures (such as reno mattresses or riprap) at discharge points.
- Establish vegetation using indigenous, water-tolerant species within swales and ponds to enhance filtration.
- Backfill and shape side slopes to achieve stable gradients and prevent erosion.

Construction and maintenance should preferably occur during dry periods to minimise sediment mobilisation.

Wetland Reshaping and Reprofiling

- Conduct reshaping during the dry season to avoid sedimentation and erosion.
- Re-profile the wetland to reflect natural UVB wetland morphology:
 - Central basin slope: 0–1% (flat zone for water ponding).
 - Transitional zone: 1–3% (wetland fringe).
 - Outer buffer zone: >3% (upland transition).
- Reinstated slopes must promote gentle hydrological gradients and avoid steep banks.
- Apply topsoil from cleared or stockpiled natural areas to stabilise wetland banks.

Revegetation and Planting

- Planting to occur immediately after reshaping and alien vegetation removal.
- Focus on transplanting whole indigenous wetland plants with well-established root systems to prevent erosion.
- Use a planting density of approximately 4 plants/m², following these steps:
 - Dig a hole 1.5× deeper and 2× wider than the plant bag.
 - Place plant and soil in the hole, form a 1–3 cm depression around it, and compact gently by hand.
 - Water every three days for the first six months, unless sufficient rainfall occurs
- Best planting season: Autumn (March–May) for root establishment before winter rains.
- Seed and propagule planting: Use local indigenous species (e.g. *Typha capensis*, *Ficinia elatior*, *Carex clavata*, *Orphium frutescens*, *Stenotaphrum secundatum*).
- Procurement: Plant material to be sourced from local nurseries (e.g., Grootbos, Fernkloof, Harold Porter) to ensure local genetic integrity.

Erosion, Sediment, and Pollution Control

- Install silt fences, fibre mats, geotextiles, brush mattresses, and sandbags on disturbed slopes.
- Fill erosion gullies with rocks (5–20 cm diameter) and replant vegetation through geotextile fabric.
- Implement soft engineering over hard structures wherever possible.
- Maintain drip trays and spill kits for machinery; refuelling at least 50 m away from the wetland.

Ongoing Maintenance and Monitoring

- Conduct monthly inspections during rehabilitation, then quarterly for 5–10 years post-rehabilitation.
- Continue alien and reed management (*Phragmites australis*) every 6–12 months until vegetation stabilises.
- Undertake fixed-point photography and vegetation cover assessments annually to measure PES improvements.
- Remove any accumulated sediment by hand after heavy rainfall events.

Removal of accumulated matter and debris from these areas to allow for optimal functioning of these systems. Periodic repairs to stormwater systems may be required from time-to-time particularly after periods of high rainfall. The clearing of accumulated matter can be done by hand as far as possible using handheld tool. In scenarios where there has been significant rainfall, machinery might be required and should be used as a last resort.

Parking areas must be porous. Either gravel or grass blocks as appropriate for traffic loads to improve infiltration. Cobbles on sidewalks to slow water run off. Rainwater tanks must be included in the design to reduce runoff water. Waste traps to capture waste, debris and sediment in debris baskets at stream end of leiwat channel, before the water enters the swale or pond. Sand filter traps trap hydrocarbons (oil) before it enters the vegetated polishing pond. Must be designed by suitably qualified person. Contaminated sand must be removed and disposed of at approved dump. Vegetation in ponds can include arum lilies and other indigenous plants that provide habitat and remove toxicants. Ensure that sediment is removed as required.

Where?

Rehabilitation will occur within and adjacent to the Mill Stream UVB and Tributary UVB wetland offset areas, as delineated in the approved layout and sensitivity maps.

- Activities will focus on degraded sections impacted by historic infilling, alien invasion, or erosion.
- Work will avoid intact wetland cores and be confined to designated offset boundaries.

When?

- Reshaping and planting: Dry season (January–May).
- Initial revegetation: Immediately following alien vegetation clearance and reprofiling.
- Watering regime: Every 3 days for the first 6 months post-planting, reduced in winter.
- Follow-up monitoring:
 - Monthly during active rehabilitation.
 - Quarterly for 5–10 years post-rehabilitation.
 - Five-year audits by an independent freshwater specialist thereafter.

Who?

- Responsible Authority: Water Use Licence (WUL) Holder (Developer / Landowner).
- Implementing Agents:

- Construction Team – for removal of fill and reshaping (under Wetland Ecologist supervision).
- Rehabilitation Team (Qualified Landscaper) – for seeding, planting, and maintenance.
- ECO/HOA – for compliance monitoring, reporting, and documentation.
- Freshwater Specialist / Ecologist – for PES assessments, adaptive management, and technical guidance.
- Supporting Roles: Estate Manager for long-term monitoring and maintenance.

Why?

The rehabilitation and restoration activities are essential to:

- Restore natural hydrology, vegetation cover, and wetland ecosystem services.
- Reduce erosion, sedimentation, and water quality degradation.
- Enhance biodiversity and resilience of the wetland ecosystem.
- Offset the loss of degraded wetland areas from the development footprint.
- Ensure the long-term maintenance of ecological infrastructure that supports water purification, flood attenuation, and habitat for sensitive fauna and flora.

Method Statement 3: Sediment removal

What?

The activity entails the removal of accumulated sediment and silt from within the wetland offset areas (Mill Stream UVB and Tributary UVB wetlands) and adjacent stormwater infrastructure (e.g., vegetated swales and inlets).

This maintenance activity aims to restore and maintain hydraulic function, water quality, and ecological balance within the rehabilitated wetlands, ensuring that sediment build-up does not alter natural flow patterns or smother wetland vegetation.

How?

Site Access and Preparation

- Access to the sediment removal areas will be via designated maintenance routes, avoiding unnecessary disturbance to the wetland bed and buffer areas.
- No-go areas and sensitive vegetation zones will be clearly demarcated prior to commencement using barrier tape or orange mesh fencing.
- All machinery and personnel will remain outside the wetland core area where possible.
- Refuelling and maintenance of machinery will occur at least 50 m away from the wetland, on impermeable ground with drip trays and spill kits on standby.

Sediment Removal Methodology

- Sediment removal will be undertaken manually or using light mechanical methods (e.g., small excavator or vacuum pump) where feasible, under supervision of the ECO.
- The preferred method is hand removal using spades and shovels, particularly in vegetated or sensitive areas.

Steps to follow:

- Identify sediment accumulation zones (e.g., stormwater entry points, low-velocity depositional areas).
- Carefully remove sediment and debris without damaging surrounding vegetation or disturbing the natural substrate.
- Place removed sediment on impermeable sheeting in a designated stockpile area outside the 32 m buffer zone.
- Allow sediment to dewater naturally, after which it will be transported to a licensed disposal or reuse site (e.g., for landscaping in upland areas).
- No sediment or debris shall be dumped, spread, or reintroduced into the wetland system.

Machinery and Materials

Equipment: Spades, shovels, wheelbarrows, and small-scale excavators (if required).

→ *Pollution Prevention:*

- Drip trays under all stationary machinery.
- Use of biodegradable hydraulic oils where mechanical work is necessary.
- Spill kits on-site at all times.

→ *Waste Handling:*

- Sediment and organic debris will be considered general waste and must not be mixed with hazardous materials.
- Temporary sediment stockpiles must be protected with silt fencing or straw bales to prevent runoff during rainfall.

Erosion and Pollution Control

- Areas disturbed during sediment removal will be immediately stabilised using geotextiles, mulch, or wetland vegetation replanting.
- Install silt fences or coir logs along downgradient slopes to prevent fine sediment from washing into adjacent wetland areas.
- Maintain natural microtopography and hydrological gradients.
- No work shall occur during or immediately after heavy rainfall events.

Where?

Sediment removal will be conducted within the rehabilitated Mill Stream UVB and Tributary UVB wetland offset areas, focusing on:

- Inflow and outflow zones where sediment tends to accumulate.
- Stormwater swales and channels leading into the wetland; and
- Low-lying depositional areas where fine sediment buildup impedes water flow or vegetation growth.

All removal activities will be confined to approved maintenance footprints indicated in the Wetland Offset Management Plan and verified by the ECO.

When?

Timing:

- Work will be undertaken during the dry season (January–May) to minimise erosion and disturbance.
- Sediment removal should be scheduled after major rainfall events or as part of routine biannual maintenance inspections.

Duration:

- Each sediment removal operation is expected to last 2–5 days, depending on sediment volume.

Follow-up:

- Replanting or reseeding of disturbed areas must occur immediately after sediment removal to prevent bare patches.

Who?

Responsible Party:

- Developer / Landowner (WUL Holder) for authorisation and funding of the activity.

Implementing Personnel:

- Rehabilitation Contractor / Site Maintenance Team – for sediment removal under the supervision of the ECO.
- Environmental Control Officer (ECO) – for environmental compliance monitoring, photographic documentation, and reporting.
- Freshwater Specialist / Ecologist – for oversight of sediment removal methods and long-term monitoring of ecological response.

Why?

The sediment removal activity is required to:

- Maintain hydrological flow and wetland storage capacity.
- Prevent smothering of wetland vegetation and deterioration of water quality.
- Reduce the risk of blockages in stormwater and drainage channels.
- Support the sustainability of wetland offset gains achieved through rehabilitation.
- Contribute to the long-term maintenance of ecological infrastructure, ensuring that the rehabilitated wetland continues to provide flood attenuation, sediment trapping, nutrient cycling, and biodiversity support.

Method Statement 4: Flood damage

What?

This method statement outlines the procedures for inspection, repair, and rehabilitation of flood-damaged areas within and adjacent to the wetland offset zones (Mill Stream UVB and Tributary UVB wetlands) following high rainfall or flood events.

The activity aims to restore natural hydrology, prevent further erosion, stabilise wetland banks, and protect ecological infrastructure that supports the rehabilitated wetland ecosystem.

Flooding events are expected to occur periodically due to climate change and the associated increase in intensity and frequency of extreme rainfall events. Such events can cause damage to infrastructure and natural systems within the regulated area and Mill Stream corridor, requiring emergency interventions and subsequent repairs. Climate change and the increase in both frequency and intensity of extreme weather, means that flood events are likely. This can result in a number of impacts which will require intervention in the regulate zone:

- Debris piled up against the bridge
- Damage to attenuation structures, vegetated swales, polishing ponds stormwater infrastructure
- Damage to entrance areas and service rooms
- Debris and sediment build up after a storm
- Damage to sewer pipelines, pumps, scour valves, air valves, emergency containments structures.
- Damage to landscaping, boardwalks / access routes, depths, change in course of stream etc.

If flooding results in damage to municipal infrastructure, the Overstrand Municipality must be notified immediately. Any necessary repairs to attenuation structures and stormwater control systems must be undertaken as soon as possible, particularly if further rainfall is expected.

How?

Site Access and Preparation

- Access to the site will be along designated maintenance routes, avoiding entry through sensitive wetland zones or no-go areas.
- Damage assessment will be conducted first by the Environmental Control Officer (ECO) and Freshwater Specialist to identify the extent and type of flood impacts (e.g., erosion, bank failure, vegetation loss, sediment deposition).
- All damaged areas will be mapped and marked prior to repair activities.
- Temporary fencing or signage will demarcate hazardous or unstable areas to prevent further disturbance.

Repair and Rehabilitation Measures

Flood damage repair will focus on soft engineering solutions that restore stability and ecological function rather than hard infrastructure.

(a) Erosion Control and Bank Stabilisation

- Minor erosion:
 - Regrade and compact slumped areas by hand.
 - Apply mulch, brush packing, or biodegradable geotextile to protect exposed soils.
 - Replant with indigenous sedges and grasses (e.g., *Ficinia nodosa*, *Carex clavata*, *Phragmites australis*).
- Severe erosion or bank collapse:
 - Use coir logs, rock packing (gabion baskets or riprap), and live staking with indigenous plants for reinforcement.
 - Recreate gentle, stable slopes (1:3 ratio preferred).
 - Fill eroded gullies with clean topsoil or sediment from stable donor areas and compact lightly.

(b) Removal of Flood Debris

- Manually remove flood-deposited debris (rubble, plastics, branches) from wetland channels and buffers.
- Debris will be collected and stockpiled on impermeable sheeting outside the 32 m buffer before being disposed of at a licensed waste site.
- Large woody debris may be repositioned strategically to act as natural flow deflectors or habitat features.

(c) Sediment Redistribution

- Remove or redistribute excessive sediment that obstructs flow or smothers vegetation.
- Where appropriate, redistribute clean sediment to fill eroded areas or reprofile banks.

(d) Vegetation Recovery

- Replace damaged or uprooted indigenous plants immediately.
- Apply a planting density of 3–4 plants/m² to stabilise exposed soils.
- Use mulch, brush packing, or jute mesh to reduce raindrop impact and retain soil moisture.
- Conduct follow-up watering for 2–3 months post-planting until vegetation re-establishes.

(e) Infrastructure Protection

- Inspect and clear stormwater inlets, swales, and outlets to ensure unimpeded flow.
- Reinforce vulnerable inlets and outlets with rock aprons, coir logs, or vegetation.
- If access roads or paths were damaged, repair using permeable materials and install side drains or berms to redirect stormwater safely.

Erosion, Sediment, and Pollution Control

- Install silt fences, coir logs, or sandbags downstream of repair sites to prevent sediment loss.
- Refuelling and machinery maintenance to take place at least 50 m from watercourses, with drip trays and spill kits available.
- All disturbed areas to be stabilised immediately following completion of works to prevent secondary erosion.

Monitor areas which may exacerbate erosion, especially during a storm events. Monitor how sedimentation affects the functioning of the ecosystem i.e reduced water flow, pooling, standing and stagnant water etc. Ensure that good cover of indigenous vegetation is maintained in wetland and Open Space.

Use appropriately sized machinery to remove sediment from the stream system after the storm. Do not drive heavy machinery through the wetland, or if this is the only option do not use multiple access routes and make good afterwards.

Where?

- Flood damage repair will occur within and adjacent to the rehabilitated Mill Stream UVB and Tributary UVB wetland offset areas and associated stormwater management features (e.g., vegetated swales and outlet structures).
- Activities will focus on:
 - Eroded banks and scoured channels;
 - Flood-damaged stormwater inlets or outlets;
 - Sediment deposition zones and areas of vegetation loss;
 - Areas where floodwater diverted from its natural path.

When?

Timing:

- Immediately after flood or high-rainfall events, once the area is safe and accessible.
- Preferably during the dry months (January–May) for major reshaping or stabilisation.

Inspection frequency:

- Routine inspections after every major rainfall (>25 mm/day) and biannually during the rainy season.

Duration:

- Minor flood damage repairs typically require 2–3 days.
- Major bank stabilisation may take up to 2 weeks.

Follow-up:

- Vegetation establishment to be monitored quarterly for the first year.

Who?

Responsible Party: Developer / Landowner (WUL holder).

Supervision:

- Environmental Control Officer (ECO) – overall oversight and compliance.
- Freshwater Specialist – assess damage extent and approve repair methodology.

Implementation:

- Rehabilitation Contractor or Site Maintenance Team – to conduct repair and planting work.

- Landscape Contractor – to source and install indigenous plants.

Monitoring:

- ECO to maintain photographic and written records of flood damage and repair actions.

Why?

Sediment gradually transforms a stream and reduces the amount of open water. This then reduces the biodiversity of both fauna and flora. The construction of the road bridge over the R43 has likely altered how water flows down the river. If water velocity is abruptly slowed this causes the sand to settle out. Attenuation structures are designed to do this. However, it also happens if the stream is suddenly confined with concrete bridge piers and base.

Method Statement 5: Shaping of bed and banks

What?

This method statement describes the procedures for reshaping and stabilising the wetland bed and banks within the rehabilitated Mill Stream UVB and Tributary UVB wetland offset areas.

The objective is to restore natural wetland topography, flow pathways, and bank stability that support ecological functioning, flood attenuation, and sediment retention, while preventing erosion and promoting re-establishment of indigenous vegetation.

How?

Site Access and Preparation:

- Access to shaping areas will be limited to designated tracks outside the wetland and buffer zones.
- Sensitive and no-go areas (including intact wetland zones and established indigenous vegetation) will be demarcated with high-visibility barrier tape or temporary fencing prior to any earthworks.
- The ECO and Freshwater Specialist will mark out reshaping boundaries and slopes on-site before commencement.
- All machinery will be restricted to upland or previously disturbed areas.
- Refuelling and maintenance will take place at least 50 m from the wetland, with drip trays, spill kits, and impermeable ground protection.

Shaping Methodology

(a) Excavation and Re-Profiling

- Shaping will be undertaken using hand tools or small-scale excavators to minimise soil disturbance.
- The wetland bed and banks will be re-profiled to emulate natural gradients and flow characteristics, avoiding sharp or artificial contours.
- Recommended slope gradients:
 - Wetland bed (channel): 0–1%
 - Transition zone (bank toe to floodplain): 1–3%

- Outer banks (buffer edge): ≤5%
- Gently undulating microtopography will be created to enhance habitat diversity and surface water retention.
- Excavated material will be stockpiled temporarily on impermeable sheeting outside the 32 m buffer and later reused for backfilling or shaping.

Compaction and Stabilisation

- After shaping, surfaces will be lightly compacted by foot or hand tamper to ensure stability while maintaining natural permeability.
- Over-compaction (which inhibits root penetration and infiltration) will be strictly avoided.
- Where required, brush packing, geotextiles, coir mats, or mulch will be installed immediately to protect exposed soils.

Backfilling

- Areas where erosion or scour have removed soil will be filled using clean, suitable topsoil or wetland substrate recovered from on-site stockpiles.
- Backfill must be applied in thin layers (≤150 mm) and compacted lightly after each layer to match adjacent surface levels.
- The natural flow alignment of the wetland will be maintained throughout.

Vegetation Reinstatement

- Once shaping is complete, the banks and bed will be planted or seeded with locally indigenous wetland and riparian vegetation (e.g., *Ficinia nodosa*, *Carex clavata*, *Typha capensis*, *Juncus kraussii*).
- Planting density: 3–4 plants/m² for bank areas, 4–6 plants/m² for wetter zones.
- Mulching or brush packing will be applied around new plantings to suppress weeds and retain moisture.
- Watering schedule: every 2–3 days for the first two months, reducing as vegetation establishes.

Erosion and Sediment Control

- Install temporary silt fences, sandbags, or coir logs downstream of the reshaped areas to prevent sediment transport into adjacent wetland sections.
- All stormwater inflows into reshaped zones will be temporarily diverted until vegetation is established.
- The use of hard armouring (e.g., concrete or gabions) will only be permitted where absolutely necessary and approved by the ECO and Freshwater Specialist.

Where?

Shaping of bed and banks will occur within the Mill Stream UVB and Tributary UVB wetland offset areas on Erf 438, Stanford, specifically in:

- Areas identified as historically disturbed or eroded;
- Zones affected by previous infilling or channel incision; and
- Marginal areas where flow re-direction and profile correction are required to restore wetland hydrology.

All works will remain within approved rehabilitation footprints and avoid intact wetland zones and established vegetation stands.

When?

Timing:

- Shaping activities will be conducted during the dry season (January–May) when water levels are lowest to minimise turbidity and erosion.

Duration:

- Small-scale reshaping (localised erosion) – 2–3 days per site.
- Large-scale contour correction – up to 2 weeks.

Sequence:

- Site demarcation and ECO approval.
- Shaping and profiling.
- Backfilling and compaction.
- Vegetation reinstatement and erosion control installation.

Follow-up

- Monitoring of shaped areas will occur monthly for 6 months, then quarterly for 2 years post-completion.

Who?

Responsible Party:

- Developer / Landowner (WUL Holder) – ultimate responsibility for implementation.

Supervision and Oversight:

- Environmental Control Officer (ECO) – on-site environmental supervision and compliance.
- Freshwater Specialist / Ecologist – approve final shaping design, monitor hydrological and ecological outcomes.

Implementation:

- Rehabilitation Contractor – conduct physical shaping and planting.
- Landscape Contractor – responsible for vegetation reinstatement and watering.

Why?

Shaping of the wetland bed and banks is required to:

- Re-establish natural wetland morphology and hydrological function disrupted by historical disturbances.
- Prevent erosion, bank collapse, and sediment loss during storm events.
- Restore habitat diversity and support the growth of indigenous vegetation.
- Ensure that flow paths, infiltration zones, and storage capacity are reinstated to achieve the target Present Ecological State (Category C).
- Maintain long-term stability and functioning of the wetland offset areas as part of the ecological infrastructure network.

- Ensure compliance with:
 - The National Water Act (No. 36 of 1998);
 - The Wetland Offset Rehabilitation and Management Plan (Delta Ecology, 2024).

Method Statement 6: Maintenance and repair of infrastructure within the regulated zone

What?

Maintenance and repair of the floating deck, boardwalk, and other associated infrastructure located within the regulated area of the wetland and Mill Stream on site.

How?

Site Access and Preparation

- Access to the site will be via the existing boardwalk and designated footpaths as indicated on the Site Development Plan (SDP). No new access routes will be created within the regulated area.
- Materials and personnel will reach the site using existing tracks and walkways. Any transport of materials must avoid direct access through the wetland or watercourse.
- No-go areas and sensitive zones (such as undisturbed wetland vegetation and the stream edge) will be clearly demarcated using temporary fencing, hazard tape, or similar barriers.
- Where necessary, temporary working platforms (e.g., timber mats) will be placed to prevent trampling and disturbance of the soil surface.

Construction / Maintenance Sequence

- Conduct a site inspection with a suitably qualified freshwater specialist or environmental control officer (ECO) to identify the extent of the damage and confirm required works.
- Mark the working area and set up access controls.
- Remove damaged material (e.g., planks, supports) by hand where possible.
- Install or repair structures (deck, boardwalk, handrails) using pre-assembled or prefabricated components to minimise in situ work.
- Secure and stabilise repaired sections to prevent erosion or collapse.
- Clean up and remove all waste material from the regulated area.
- Rehabilitate any disturbed surfaces immediately after works.

Works should preferably be conducted during low-flow or dry periods to limit sedimentation and disturbance to the wetland.

Erosion, Sediment, and Pollution Control

- Silt fences, sandbags, or geotextile barriers will be installed downstream of the working area to trap sediments and prevent runoff into the wetland or stream.
- Drip trays will be placed beneath all stationary equipment to prevent hydrocarbon leaks.
- Spill kits will be available on-site, and all staff will be trained in spill response procedures.

- Stormwater runoff will be managed to prevent erosion or direct discharge into the watercourse during and after the works.
- No cement, oil, or waste materials will be allowed to enter the watercourse.

Reinstatement / Rehabilitation

- Once repairs are completed, the working area will be backfilled and compacted (where applicable) to original levels using material of similar composition.
- Temporary access structures and protective barriers will be removed after the works.
- Disturbed areas will be re-vegetated using locally indigenous wetland and riparian species to restore habitat integrity and reduce erosion risk.
- All construction waste, and foreign materials will be removed from the regulated zone and disposed of at a licensed waste facility.
- The ECO or freshwater specialist must inspect and sign off on the reinstated area to confirm compliance with environmental requirements.

Where?

Regulated area of the wetland and Mill Stream on site

When?

As required, preferably in low flow periods or drier months if works can be timed in such a manner

Who?

Developer/ Project Manager / HOA

Only as directed by a suitably qualified professional with experience in freshwater systems and engineering thereof. Must be undertaken by suitably experienced contractor.

Why?

On going maintenance required in the regulated area.

SECTION THREE

COMPLIANCE

13. COMPLIANCE AND MONITORING

13.1. Non-compliance

The Environmental Authorisation (EA) stipulates that, “*Non-compliance with a condition of this Environmental Authorisation and the EMP may render the holder liable to criminal prosecution.*” It is therefore important that the conditions are adhered to as outlined in the EA and EMP. A Penalties scheme can be used during construction for transgressions.

Transgressions relate to actions by the contractor whereby damage or harm is inflicted upon the environment or any feature thereof and where any of the conditions or specifications of the EMP and EA have been infringed upon. In the instance of environmental damage, the damage is to be repaired and rehabilitated using appropriate measures, as far as possible and as directed by appropriate specialists, if required. These remedial actions are for the account of the contractor or other guilty party as identified by the Project Manager, applicant or ECO. Where non-repairable damage is inflicted upon the environment or non-compliance with any of the EMP / EA obligations is registered, then the Contractor may face a monetary penalty to an amount specified by the Project manager / ECO. The Project manager / ECO reserves the right to implement a first offence warning.

If excessive infringement with regard to any of the specifications is registered, the applicant / project manager / owner reserves the right to terminate the contractor’s contract.

Table 4. Penalties Scheme – to be reviewed by ECO if required

Infringement	Description	Penalty
Hydrocarbon / fuel spill	Penalty to be issued when remediations not implemented timeously	R 5000
Disturbance beyond approved footprint	Disturbance to vegetation beyond approved areas	R 5000
Waste management	Inappropriate waste management	R 3000 dependent of extent
Not adhering to conditions of EA	Not attending to specific EA conditions	R 3000 + per condition

13.2. Environmental Control Sheets

Environmental Control Sheets should be used by the ECO on a weekly basis to monitor construction activities to ensure compliance with recommendations. The ECO should familiarise themselves with the full set of recommendations proposed by the specialists for the site and reasons for these recommendations, as well as understand the site and constraints analysis and be able to identify the constraints / No Go areas.

Table 5. Environmental Control Sheets							
					RECORD OF PERFORMANCE		
TASK	ACTION REQUIRED / MITIGATION & METHOD FOR IMPLEMENTATION	FREQUENCY	TARGET / OUTCOME	RESPONSIBILITY	COMPLETED YES/ NO	DATE	COMMENT
PRE-CONSTRUCTION							
Procurement	→ EA and EMP to be distributed to contractor at tender stage to include costing incurred due to compliance with EA and EMP METHOD: Distribute with tender documents	As required	Contractors are aware of requirements in terms of NEMA and can budget accordingly	Developer Project Manager			
Environmental File	→ To include EA, EMP, site diary, public complaints section → To be updated on a regular basis → Public complaints register → Kept on site at all times METHOD: Issue all applicable documents to site manager	As required	Construction team(s) and general public can access relevant information f and when required	ECO Project Manager			
Environmental Awareness training and induction	- All contractors to attend briefing prior to commencement of site works - Register to be signed as proof of attendance METHOD: Briefing to be undertaken by project manager and / ECO	As required	Construction team(s) informed of all requirements in terms of EMP and EA	ECO Project Manager			
Method Statements	- Contractors to submit MS seven working days prior to commencement on site - MS to contain clear methods for pollution control measures during construction including hazardous waste, run off, general waste etc.	As required	ECO and project manager to be well informed in terms of methods for construction	Contractor			

	METHOD: Request for method statements to be contained in tender documents						
Site definition and demarcation	- Site survey and pegging - Site demarcation and fencing (mark construction areas – all other areas are No Go) - Access roads for construction vehicles to be clearly indicated, consideration to be given to turning circles - Review of specialist input to familiarise with mitigation measures - Buffer areas to be indicated and demarcated as No Go METHOD: Demarcation methods to be undertaken as outlined in EMP, suitable to the environment and semi-permanent to last as long as possible during construction phase, to be checked on a regular basis	As required and to be repeated on a regular basis in the event that demarcations shift or disturbed by operators, weather etc.	A well demarcated site Well-defined No-Go areas Well defined construction zones	ECO Project Manager Contractor			
Construction traffic	- All construction vehicles carrying materials must use cover sheeting to prevent loss of loads due to wind or rain - Maximum speed to be enforced - Movement of construction vehicles must be limited to approved haul and access routes and existing tracks METHOD: To be monitored by ECO and project manager as well as construction team leaders	Duration of Construction	A safe working environment with minimal impact on No Go areas, minimal dust impact, minimal loss of load and minimal general public impact	Project Manager Contractor			
Emergencies protocol	- Staff to be aware of actions to be taken in the event of a natural or medical emergency - Applicable Health and Safety required in terms of OH&S Act METHOD: OH&S officer to be appointed, appropriate signage to be implemented	Duration of Construction	A safe working environment with minimal incidences	Project Manager Contractor			
Fire	- Fire Management recommendations to be implemented - Required firefighting equipment is available on site, and in working order	Duration of Construction	A safe working environment with minimal incidences Action plan in the event of a fire	Project Manager Contractor			

	No open fires are lit on site without approval of the ECO and Site Manager METHOD: To be checked by the ECO and project manager and implemented by the contractor						
Contractors camp	- Contractor's Camp is located at the most suitable site as identified by the ECO and Site Manager, preferably in areas to be developed or used (i.e roads or house footprints) or already transformed areas - Contractor team to be briefed regarding Do's and Don'ts of camp and site in general - Suitable toilet facilities are provided for all staff - Ablutions are to be restricted to the facilities provided - Toilets are to be kept in a hygienic condition and emptied regularly - Recommendations by Freshwater specialist will be implemented METHOD: Site to be determined in conjunction with project manager and ECO, to be well demarcated with appropriate signage, serviced and cleaned on a regular basis, checked by ECO	Duration of Construction	A well placed and functional contractors camp to minimise impacts on other areas on site	Project Manager Contractor			
CONSTRUCTION							
TASK	ACTION REQUIRED / MITIGATION & METHOD FOR IMPLEMENTATION	FREQUENCY	TARGET / OUTCOME	RESPONSIBILITY	COMPLETED YES/ NO	DATE	COMMENT
Topsoil removal and stockpiling	- Replaced immediately after works where required - Topsoil which is required to be removed from direct work areas, should be stockpiled separately from subsoil and reused as far as possible - Stockpiles should be suitably shaped to prevent leaching of nutrients, and stabilized, or dispersal by wind or rain	Duration of Construction	Reusable sand and soil stockpiles to facilitate rehabilitation of the site	Project Manager Contractor			

	- Stockpiles to be monitored for dispersal by rain and wind METHOD: Implement conditions outlined in EMP for stockpiling and topsoil removal						
Earthworks	- Works to be restricted construction area only - Bulldozer/ heavy machinery operators to be under constant supervision particularly at onset of works - Use and excessive movement of heavy machinery to be avoided in areas of environmental sensitivity or high erosion potential - Trenching to be undertaken in a phased manner - Fill material to be replaced in same work area from which it originated - Fill material to be compacted to its approximate original density METHOD: Construction zone to be clearly demarcated, instruction for stockpiling to be implemented, operators to be briefed prior to works	Duration of Construction	Minimal disturbance to sensitive zones, minimal disturbance to vegetation	Project manager Contractor ECO			
Material handling, dispatching and storage	- Fuels and hazardous materials to be stored in suitably equipped storage areas in the Contractor's camp and approved by the ECO - Strict measures to be put in place for the use and storage of hazardous materials on site - Disposal to licenced facility only - These areas shall comply with fire safety requirements - Impervious materials are to be used to prevent contamination of the ground in the event of spillages or leaks - Construction materials spilled on public or private roads to be immediately cleaned - No storage other than contractor camp METHODS: Undertake regular inspections of areas and procedures	Duration of Construction	Minimal disturbance to sensitive zones including non-perennial drainage line Minimal incidences	Project Manager Contractor			

Stockpiles	- Sites for stockpiling as identified by the Contractor are to be marked on a plan, and approved by the ECO and Site Manager - Stockpiles must be suitably stabilized where necessary METHODS: Undertake regular checks of stockpiles to ensure methods outlined in the EMP and Dune EMP are implemented	Duration of Construction	Reusable sand and soil stockpiles to facilitate rehabilitation of the site	Project Manager Contractor ECO			
Waste management	- All waste to be stored in an appropriate contained area on site, and protected against wind, rain and animal dispersal - Waste to be removed on a weekly basis for disposal at a permitted disposal site - No burning or burying of refuse on site is allowed - Eating areas must be demarcated and provided with suitable refuse collection areas METHOD: Waste areas to be designed correctly and be wind and weatherproof and emptied on a regular basis	Duration of Construction	A clean waste collection point which is serviced on a regular basis	Project Manager Contractor ECO			
Construction wastewater	- Careful runoff management will be required particularly during construction. No contaminated water should be allowed to seep into the ground or runoff the construction site - All runoff from batching plants, work areas and mixer washings to be contained in sedimentation ponds, which are suitably lined - Ponds must be allowed to dry out regularly, and solid waste removed and disposed of at a site approved by the local authority. METHOD: Wastewater areas to be suitably designed and inspected on a regular basis	Duration of Construction	A clean site post construction	Project Manager Contractor ECO			
Maintenance of equipment	- All mechanical equipment and work vehicles to be stored, serviced and refuelled at designated areas in the contractor's camp - Major services to take place off site - Drip trays or impervious materials to be used to prevent contamination of ground METHOD: Regular inspections undertaken	Duration of Construction	A clean site post construction	Project Manager Contractor ECO			

Stormwater	- Suitable measures must be in place to prevent erosion resulting from diversion, restriction or increase in stormwater runoff - Measures must be taken to prevent stormwater from flowing from excavated areas or stockpiles - Stormwater containing harmful substances to be contained, and removed from site METHOD: Regular inspections undertaken	Duration of Construction	A clean site post construction, avoiding additional impact on surrounds	Project Manager Contractor ECO			
Erosion	- Stormwater channels are to be kept clear from soil and debris - Erosion or stormwater damage resulting from Contractor's operations to be suitably repaired - Suitable stabilization measures are to be implemented wherever works are taking place as outlined in this document - Where erosion is detected, suitable mitigation methods are to be employed as soon as possible METHOD: Regular visual inspections undertaken	Duration of Construction	A clean site post construction, avoiding additional impact on surrounds	Project Manager Contractor ECO			
Dust	- Sand stockpiles are to be covered with Hessian, shade cloth or DPC plastic - Stockpiles are to be located in sheltered areas and the useable face to be orientated away from the prevailing wind - Excavation and transporting erodible material during high wind conditions - water dampening measures or cessation of activities should be required - If necessary, certain components of the work should be stopped until conditions are more favourable - Vehicles must not exceed 40 km/h along gravel roads - If roads generate unacceptable levels of dust, suppression measures should be introduced - If water is used only the critical areas should be watered by cart or hand to avoid unnecessary run-off, erosion or misuse	Duration of Construction	A clean site post construction, avoiding additional impact on surrounds, avoidance of impacts on general public	Project Manager Contractor ECO			

	METHOD: Areas and activities of possible dust generation to be inspected on a regular basis, as well as strategies to address dust						
Site clean-up and rehabilitation	- All structures, equipment materials and facilities are to be removed from site on completion of the project - Construction site shall be cleared and cleaned to the ECO's satisfaction - Site / Area Rehabilitation to be conducted in line with recommendations herein - Specialist advice to be sort where required - No waste or remaining materials to be buried on site - In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent. An AIPS control plan must therefore be compiled which includes measures to control and prevent the proliferation of AIPS during the construction phase. METHOD: Inspected upon site closure / suspension of works, rehabilitation methods contained in EMP and Dune EMP to be implemented	Duration of Construction	A functional ecosystem post construction, suitably rehabilitated as required	Project Manager Contractor Applicant ECO			
Alien Clearing	- An AIPS control plan must be compiled which includes measures to control and prevent the proliferation of AIPS during the operational phase. - The plants should be removed by digging out all rhizomes / stolons. - Care should be taken to remove all rhizomes / stolons to prevent the kikuyu from re-sprouting. - Do not apply herbicide while it is raining and take care to prevent it from spilling, spraying, or spreading onto the ground or onto non-target species.	Construction and Post-construction phase	Long term ecological integrity and restoration of vegetation onsite.	Project Manager Applicant Contractor ECO			

	- Rain may wash herbicide into watercourses and spread it downstream, or across banks that need to be revegetated. - Never wash herbicide equipment or dispose of waste spray mixture in or near watercourses where contamination can occur. - In line with the NEMBA, all AIPS listed under the amended AIPS Lists (DEFF: GN1003, 2020) must either be removed or controlled on land under the management of the proponent. An AIPS control plan must therefore be compiled which includes measures to control and prevent the proliferation of AIPS during the construction phase. METHOD: Regular monitoring of rehabilitation progress, alien plant regrowth, and any faunal presence should be conducted during and after the construction phase. Adaptive management practices should be applied to address emerging issues and ensure that the long-term ecological integrity of the site is maintained.						
Rehabilitation and revegetation of the Mill Stream UVBW area	Removal of fill material - Wetland infilling poses a direct threat to wetland habitat and function. Wetland infilling and the dumping of rubble and fill material buries hydric soils and causes aquatic habitat loss. Within and along the edge of the Mill Stream UVB wetland, there were instances of areas that have been historically impacted by infilling and currently contain foreign fill material. - To adequately restore/re-create wetland habitat and function, and to achieve PES targets, all foreign fill material (building rubble, fill material from dirt road etc.) must be removed from the wetland offset areas prior to the rehabilitation and restoration of existing wetland habitat. - The removal of infill must occur at the start of Summer, and not during the Winter rain season to prevent	Construction and Post-construction	To improve and reinstate the range of wetland habitat and function to resemble semi-natural conditions and achieve the required increase in PES. The aim in terms of onsite offset wetland revegetation is to reach 80% total natural wetland vegetation cover within 8-12 months after revegetation interventions have been completed.	Applicant Construction Implementing Agent Rehabilitation: A suitably qualified restoration ecologist with a proven track record in wetland restoration (including but not limited to the revegetation component) should be appointed to			

	downstream sedimentation or erosion in this area. The substrate in the offset wetland areas should consist only of natural soils. - It is recommended that care must be taken to avoid disturbance of intact natural wetland habitat during the removal of rubble and infill; and that removal should be overseen by a suitably qualified contractor, along with the appointed ECO or landscaper. After the removal, it is recommended that the appointed ECO, landscaper, or an aquatic biodiversity specialist should inspect the site to ensure all fill material has been removed. - All foreign fill material must be appropriately disposed of at a designated waste facility offsite. No building rubble/cleared plant material may be dumped within any natural area or within 32 m of any onsite watercourse. - Once the fill material is removed from the wetland, reshaping and reprofiling should be done and topsoil must be replaced in the disturbed areas to ensure the wetland profile is stable and well-integrated (Figure 8-1 - Figure 8-3) of the Wetland Offset, Rehabilitation Management Plan. Revegetation with indigenous vegetation - Revegetation must be undertaken under the guidance of a suitably qualified landscaper / professional The aim in terms of onsite offset wetland revegetation is to reach 80% total natural wetland vegetation cover within 8-12 months after revegetation interventions have been completed. The species and general techniques to be used for revegetation are outlined in the subsections below. <u>Species for revegetation within the wetland offset</u>			lead implementation			
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	The wetland portions located within the study site had the following indigenous wetland plant species present <i>Typha capensis</i> (Bulrush), <i>Phragmites australis</i> (Common Reed), <i>Carex clavata</i> (Swamp Grass), <i>Ficinia elatior</i> (Side Clubrush), <i>Orphium frutescens</i> (Sea Rose), and <i>Stenotaphrum secundatum</i> (St. Augustine Grass). A list of indigenous wetland plant species which should be considered for revegetation of the offset wetlands has subsequently been compiled (Table 8-1). This species list was developed based on the wetland plant species identified within the onsite wetlands, along with specialist knowledge of the wetland vegetation types (Table 8-1) in the general area. A minimum of six species from this species list must be introduced to the wetland. Species selection can be guided by availability if species from all hydrological zones are represented. It should further be noted that although <i>Typha Capensis</i> occurs naturally in the region, this species can become problematic and should not be used for revegetation purposes. Wetland species should be planted in the correct hydrological zones (terrestrial, temporary, seasonal, permanent). Inspection and Follow-up: Prior to revegetation, the onsite offset wetland must be inspected and photographed to serve as a record for the pre-planting condition of the area (refer to Section 10.2.3 of Wetland Offset Management Plan for methodology). Following the implementation of revegetation interventions, monitoring must be undertaken to determine the relative success of revegetation:						
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	- The wetland area must be inspected by a freshwater specialist after planting has been conducted and thereafter every 6 months until the required cover (80%) has been achieved. Photographs must be taken of the planted areas to document the revegetation process. - The site must be inspected by a SACNASP registered freshwater specialist 12 months after the revegetation plan has been completed to determine whether the required degree of cover (80%) has been achieved. - If the required 80% total cover has not been achieved, recommendations from the SACNASP registered freshwater specialist to improve cover must be provided Landscaping - Indigenous plant species must be used for landscaping within the development; this promotes local biodiversity and protects the wetlands ecosystem. Landscapers are prohibited from utilising alien grasses, such as Kikuyu. Instead, indigenous grasses like Buffalo grass (<i>Bouteloua dactyloides</i>) should be used. Native species are better adapted to local climate conditions, require less water and maintenance, and support local wildlife. Endangered Leopard Toad: - The following mitigation measures have been adopted from the Rebelo et al. 2004 Biodiversity management plan for the Western Leopard Toad. It is essential that these measures are implemented with the aim to minimize the impact of urban development (specifically habitat fragmentation,						
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	obstacles to toads' movements, and road mortalities) on the species: - It is recommended that a suitably qualified Environmental Control Officer (ECO) is appointed during the construction phase to ensure that recommendations as per this report, and other specialist reports, are implemented. - Search and rescue for toads should be conducted within the construction footprint prior to commencement of construction. - During construction, holes and trenches should only be excavated when required. Trenches / open holes / excavations should be closed again as soon as is practically possible given their construction purpose. The appointed ECO / Ecologist should routinely monitor each open trench / hole / excavation. The appointed ECO / Ecologist should thoroughly examine each open trench / hole / excavation by checking beneath any leaf litter for trapped toads. Should any trapped biota be found, the appointed ECO / Ecologist should carefully remove trapped biota from the excavation (taking care not to damage the animal), place them into a plastic bucket with adequate aeration (holes in the lid), and immediately move them into surrounding natural areas. - Toad-friendly curbs stones should be installed i.e. small curbs stones that are less than 50 mm tall, or half road gutters which provide passageways for toads. These can be implemented throughout the estate or at intervals of 50 m. - An appropriate road reserve should be implemented for internal access roads within the estate to facilitate the movement of toads.						
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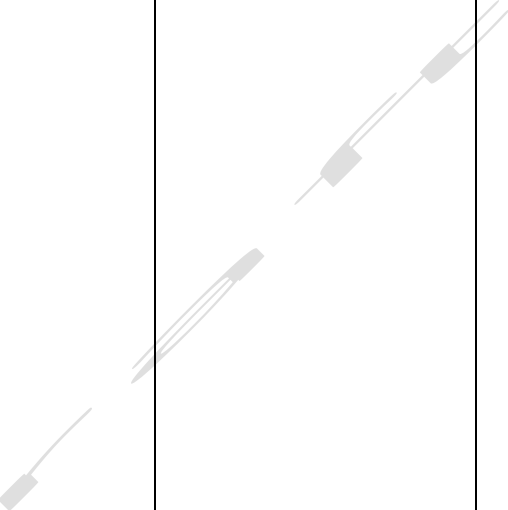
	- Boundary walls and fences should be permeable to toads. Integrate toad holes of at least 100 mm diameter, spaced every 20 meters, and not exceeding 300 mm in length at ground level. Alternatively open gutters can be a suitable option. - Stormwater systems should be designed with suitably spaced escape areas, allowing toads to escape. These escape areas should be positioned at intervals of at least 50 m. - The estate should install non-chlorinated eco pools, ideally with a “beach pool” design with gently sloping sides emulating the natural bank of a wetland allowing toads to enter and exit the pool freely. Alternatively, if a pool design with high sides is installed, incorporate escape pathways such as toad ladders, toad friendly steps, or floating vegetated platforms anchored to the side of the pool. - To prevent road mortalities, Western Leopard Toad signage should be erected and a speed limit within the eco estate should be implemented and strictly adhered to. - Toad friendly gardens should be created, when it is not the toads breeding season (late July to September with the main breeding month being August), they inhabit suburban gardens. Natural vegetation should be planted to create ideal toad habitat. By implementing these mitigation measures, the adverse impacts of urban development on the Western Leopard Toad population can be effectively mitigated, contributing to the essential conservation of these toads.						
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Stormwater Management	- A suitable sediment forebay should be installed in the stormwater inlet zone to trap litter, debris, coarse sediment, and other gross pollutants before they enter the wetland offset area. - Vegetated swales must be utilised rather than concrete drains or underground stormwater pipes to encourage infiltration, particularly next to roadways. Only indigenous vegetation is to be utilised within these swales. - Even flow should be established throughout the constructed SW swale to prevent heavily concentrated flows or stagnation in certain areas. - Energy dissipaters / erosion protection measures (such as lining with stones, grass, reno-mattresses, or gabions) should be considered where stormwater is released into downstream wetland to reduce the runoff velocity and therefore erosion. - Incorporate measures into the stormwater design to trap solid waste, debris and sediment carried by stormwater. Measures may include the use of curb inlet drain grates and debris baskets/bags. - Homeowners must be encouraged to landscape their gardens with the use of indigenous species to decrease the area of hardened surface and increase infiltration. - Homeowners, if adjacent to the wetland offset area should store any potential pollutants in such a way that pollution will not occur to the wetland offset areas (such as any fuel, etc.). Potential pollutants should be stored in an adequately bunded area. - The use of herbicides, pesticides and any other poisons within private gardens must be strictly prohibited. The home owner's association must be responsible for ensuring that residents are compliant with this.	Post-construction	Stormwater from the development will drain directly into the wetland (Figure 8-5), therefore appropriate stormwater management must be incorporated into development planning to ensure that the hydrology and water quality of the offset wetland area is not negatively impacted by the proposed development.	Applicant Contractor ECO			
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	- Backwashing of swimming pools directly into the wetland offset area must be strictly prohibited. Backwash water can be collected in settling tanks where dirt and debris settle to the bottom. The cleaner water can then be reused for non-potable purposes or even filtered back into the pool system. Backwash water can be diverted to greywater tanks. - Monitor the wetland offset and the SW system for erosion and sedimentation after heavy rainfall events. Any erosion noted must be immediately addressed. Rehabilitation measures may include the removal of accumulated sediment by hand, filling of erosion gullies and rills, the stabilisation of gullies with silt fences, riprap, and the revegetation of stabilised areas. - Stormwater systems will require ongoing maintenance. Any build-up of silt or debris within stormwater drains or swales will need to be cleared to ensure the continued functioning of the systems. - Any damage to stormwater infrastructure, and any flaws identified in the functionality of stormwater infrastructure, must be rectified immediately. - Stormwater systems must be monitored and maintained into perpetuity and collections of debris and solid waste removed from grates and baskets. The developer must confirm who will be responsible for this monitoring and maintenance as well as their roles. - Given the presence of the Endangered Western Leopard Toad within the site, all stormwater infrastructure must be designed to prevent entrapment and facilitate safe movement of amphibians. Stormwater systems should incorporate suitably spaced escape areas, such as gently sloped ramps or vegetated ledges, at intervals of no more than 50 metres. These features must allow toads to exit easily should they become trapped. Deep						
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	stormwater channels, pits, or attenuation ponds with vertical or sheer walls are particularly hazardous and should be avoided where possible. If such structures cannot be avoided, escape features must be incorporated into the design to allow toads and other small fauna to exit safely. Additionally, all stormwater outlets and culverts should be designed to prevent trapping and support safe passage during both wet and dry conditions. - The stormwater system must be designed by a suitably qualified engineer.						
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Terrestrial Animal Species Assessment	<u>Construction</u> - All construction personnel must receive environmental awareness training regarding amphibian species present on site, including the Western Leopard Toad. - Training should emphasize the risks of amphibian entrapment in trenches, pipes, and foundation works. Trench inspections must be conducted daily, and amphibians removed safely by a trained ECO (Environmental Control Officer). - Appoint an ECO with amphibian expertise to monitor implementation of all mitigation measures. - The ECO must be present during key earthworks within 50 m of any delineated wetland or amphibian corridor. - Strictly avoid encroachment into the 32 m buffer zone around delineated wetlands, especially the Mill Stream and tributary Unchanneled Valley-Bottom wetlands (UVBW) (see van Zyl (2024)) - Temporary fencing should demarcate and protect all no-go zones. - Implementing stormwater management and “toad-friendly” design interventions to maintain hydrological connectivity and reduce road mortality. - A comprehensive Alien Plant Eradication and Rehabilitation Plan must be developed and implemented for the property. This plan should address the removal of invasive species and the ecological rehabilitation of disturbed areas. It must be formally incorporated into the long-term management and maintenance of communal open spaces. - Only plant species that are indigenous to the local area should be permitted in residential gardens. This will support local biodiversity and prevent the introduction of potentially invasive alien species. - During the construction phase, all construction zones must be clearly demarcated and physically separated from adjacent wetland and sensitive habitats to prevent accidental disturbance, habitat destruction, and pollution.	Construction and Post-construction	Protection of leopard toad species and associated habitat	Applicant Contractor ECO			
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	- Prior to and following construction, all designated 'Private Open Space' areas must be rehabilitated. This includes the removal of construction rubble, litter, and any other debris to restore ecological functionality. - All boundary and internal fences must remain semi-permeable to allow free movement of small terrestrial fauna such as genets and mongooses, particularly along the Mill Stream wetland corridor. - A pre-construction search and rescue operation must be conducted for slow-moving or sedentary fauna within designated development footprints. Rescued animals must be relocated within suitable nearby open space areas on site and not removed from the property. - Rodent control should be achieved through environmentally sensitive methods, including the installation of owl nesting boxes and raptor perches to promote natural predation rather than chemical baiting, which poses a secondary poisoning risk to wildlife. - The clearing of indigenous fynbos and Milkwood (<i>Sideroxylon inerme</i>) vegetation must be minimised. All-natural vegetation, particularly fynbos and Milkwood forest clumps surrounding the development footprint, must be protected from unnecessary disturbance and trampling during and after construction. - Removal, thinning and control of dense stands of <i>Phragmites australis</i>. - Establishment of indigenous vegetated in the wetland offset areas which will provide habitat for faunal species of concern. - Establishing long-term management and monitoring commitments to ensure persistence of amphibian and wetland-dependent fauna. <u>Post- construction</u> Habitat Connectivity and Permeability						
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	→ All perimeter and internal fences must be permeable to amphibians. Avoid solid barriers like brick or precast walls. → Install toad-friendly passages such as: ○ “Toad holes” (min. 100 mm diameter, ≤300 mm in length) every 20 m in walls and fences. ○ Open-bottomed boundary fences or gaps at ground level. → Include amphibian underpasses (e.g. drainage culverts or pipes) beneath internal roads at key crossing points to minimize road mortalities. Road Verge and Kerb Design → All new kerbs must not exceed 50 mm in height and should incorporate shallow V-shaped gutters to allow safe passage for toadlets (see Whale Coast Conservation (2024)). → Adequate road reserve should be implemented for internal access roads within the estate to facilitate the movement of toads. Stormwater Management → Cover stormwater drains with grates or mesh to prevent toad entrapment. → Treat all stormwater in vegetated detention ponds or swales before discharge into wetlands, see van Zyl (2024) → Monitor stormwater for pollutants and nutrients; implement community-based campaigns to prevent dumping of chemicals or waste into drains. → Tie into mainline sewage or use fully contained conservancy tanks serviced by truck. → No sewage treatment, irrigation or soak-aways should be contemplated, see (van Zyl, 2024).						
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	Garden and Landscape Guidelines → Gardens should prioritize indigenous vegetation and “wild” landscaping (e.g. woodpiles, compost heaps, leaf litter) to provide habitat for adult toads. → Encourage the planting of Arum Lilies (<i>Zantedeschia aethiopica</i>) in wetland buffers to support the amphibian diversity and filter stormwater runoff. Swimming Pool Safety for Amphibians → Enforce a compulsory “frog escape” net or ladder requirement for all swimming pools. → Promote use of non-chlorinated eco-pools or “beach-entry” designs to allow safe amphibian exit (van Zyl 2024). Control of Invasive Vegetation → Systematic removal of invasive grasses and maintenance of fynbos-dominated groundcover on road verges and open areas is critical. → Reed cutting in the Mill Stream and tributaries should occur only during the dry season (December–May) and follow best practices: ○ Do not exceed 300 m² per cut (as per regulation). ○ Remove all cut biomass immediately to prevent nutrient leaching. → Removal of Eucalyptus forest and rehabilitation to indigenous vegetation will improve habitat suitability for toads along Mill stream corridor Signage and Speed Control						
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	→ Install educational signage throughout the estate highlighting Western Leopard Toad presence, breeding season (July–September), and road mortality risks. → Impose and enforce a maximum speed limit of 30 km/h within the estate, especially during breeding and emergence seasons. Resident Awareness Program → Distribute educational materials to new residents on amphibian-friendly living, including: → Stormwater pollution prevention → Gardening for toads → Responsible pet and chemical use Citizen Science and Ecotourism → Explore opportunities for annual toad migration events and night walks during the breeding season (August), which coincide with the low tourism season and offer potential for ecotourism-based engagement. Legislative Compliance and Long-Term Management <i>Wetland Protection and Offsets</i> → Secure and implement a Wetland Offset, Rehabilitation and Management Plan, especially for the impacted hillslope seep wetland (PES: E). → No water abstraction from wetlands unless authorized via a valid Water Use Licence. Monitoring and Review → Establish a post-development biodiversity monitoring program to assess amphibian diversity and abundance.						
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	→ Review mitigation effectiveness annually and adjust management practices accordingly. Domestic Pet Management → Free-roaming dogs must be strictly prohibited from accessing open space areas to prevent disturbance or predation of wildlife. Cats should not be permitted on the property due to their significant adverse impact on small mammals, reptiles, amphibians, and birds. Lighting and Insect Attraction Management → Lights should be turned off when not in use. → Lighting should be fitted with motion sensors or timers to limit unnecessary operation. → Fixtures must include shielding to prevent light spill and direct illumination only where necessary. → All outdoor lighting should shine downward and avoid illuminating natural habitats. → Use long-wavelength lighting (e.g., red or amber filtered LEDs) to reduce ecological disruption; avoid blue and green light spectrums where possible. - A site-specific lighting plan must be developed to minimise ecological light pollution.						
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Terrestrial Biodiversity Impact Assessment	- All woody invasive alien vegetation (mainly <i>Acacia saligna</i>, <i>Acacia cyclops</i> and <i>Eucalyptus</i>) on the property must be felled using a hand or chainsaw, following appropriate methodology as per Martens et al (2021). No heavy machinery may be used (except perhaps in the case of the large gum trees in the western sector along the Mill stream), and Port Jackson (<i>Acacia saligna</i>) stems should be cut at close to ground level and immediately (within ten minutes) painted (not sprayed) with a suitable herbicide such as Garlon. Small seedlings (<15cm) of Port Jackson can usually be hand pulled, provided the root is removed. This alien vegetation control must be undertaken within six months of any authorisation and must be repeated annually to ensure no regrowth. - All non-woody invasive alien vegetation should also be removed, with a particular focus on kikuyu grass (<i>Cenchrus clandestinus</i>), other annual grasses such as Avena (oats), Briza (brome) and Lolium (ryegrass), and the blue flowered <i>Commelina benghalensis</i> under the milkwoods. - No disturbance of the Very High sensitivity area (as per Figure 5 Terrestrial Biodiversity Assessment) may take place at any stage in the future, and to safeguard and ensure this the area should be clearly demarcated as Very High sensitivity with suitable signage on its perimeters. - No milkwoods (<i>Sideroxylon inerme</i>) with stem diameter greater than 5cm should be felled or removed. No milkwood roots greater than 3cm diameter should be cut. - No livestock may be allowed into the Very High sensitivity section. - Rehabilitation of the disturbed (Low and Medium sensitivity) areas should be undertaken on an ongoing basis and should include alien invasive plant management and replanting with suitable locally indigenous plant species.	Construction and Post-construction	Prevention and maintenance of ecological connectivity across the area, and associated habitat fragmentation.	Applicant Contractor ECO			
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	The planting list of suitable locally indigenous species for the Estate and the various zones must be compiled with input from the botanist, and approved in writing by the botanist						
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14. DECOMMISSIONING PHASE

Not Applicable to this development.

15. ENVIRONMENTAL AUDITS

The purpose of auditing is to determine and monitor compliance with the EMP and EA and measure its effectiveness in mitigating environmental impacts. In terms of Regulation 34 of the NEMA EIA Regulations, 2014, the holder of the EA must conduct environmental audits in order to determine compliance with the conditions of the EA and EMP. Environmental Audit Reports should be submitted to the Competent Authority or as stipulated in the EA. The audit reports should be prepared by an independent person. The audit report should also provide recommendations regarding the need to amend the EMP.

The objective of the environmental audit report is to:

- Report on the level of compliance with the conditions of the EA and the EMP
- Report on the extent to which the avoidance, management and mitigation measures outlined in the EMP, achieve the objectives and outcomes of the EMP
- Identify and assess any new impacts and risks as a result of the activity
- Evaluate the effectiveness of the EMP
- Identify shortcomings in the EMP
- Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMP

An environmental audit report should contain the following:

- Details and expertise of the independent person who prepared the environmental audit report
- A declaration that the auditor is independent
- An indication of the scope of, and the purpose for which, the environmental audit report was prepared
- A description of the methodology adopted in preparing the environmental audit report
- An indication of the ability of the EMP to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity as well as to ensure compliance with the provisions of environmental authorisation and EMP.
- A description of any assumptions made, and any uncertainties or gaps in knowledge
- A description of any consultation process that was undertaken during the course of carrying out the environmental audit report if required
- A summary and copies of any comments that were received during any consultation process
- Any other information requested by the competent authority.

16. CONCLUSION

An EMP has been developed as part of the Basic Assessment process to ensure that mitigation and management measures are enforced during the construction phase of the development, and that the conditions of the EA are upheld. The EMP should guide all phases of the project to minimize possible negative impacts and assign responsibility for environmental controls. The EMP provides a tool to recognise the needs of the environment and is intended to be utilised in conjunction with the Environmental Authorisation.

17. DECLARATION OF CONTRACTOR'S ACCEPTANCE

I, _____ (name), representing
_____ (company name), have read and
understood the above Environmental Management Plan and hereby acknowledge its contents and requirements
as a framework for my company's environmental performance during the applicable development.

Signed: _____ Date: _____

