LORNAY
ENVIRONMENTAL CONSULTING

MAINTENANCE MANAGEMENT PLAN

FOR THE

PROPOSED RESIDENTIAL DEVELOPMENT ON PORTION 4 OF THE FARM 643, STANFORD, CALEDON RD

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Consultant:
Michelle Naylor | Env. Consultant **|** M.Sc., Pr. Sci. Nat., EAPASA
cell: 083 245 6556**|** michelle@lornay.co.za **|** www.lornay.co.za
Unit 5/1F Hemel & Aarde Wine Village, Hermanus, 7200
Lornay Environmental Consulting Pty Ltd**|** Reg 2015/445417/07

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1. Purpose and Scope of the Maintenance Management Plan

This Maintenance Management Plan (MMP) has been prepared by Lornay Environmental Consulting on behalf of Cheddles (Pty) Ltd (the Applicant) as part of the Basic Assessment Report (BAR) for the proposed residential development on Portion 4 of the Farm Middelburg No. 643, Stanford (the "site"). The MMP is submitted to the Western Cape Government Department of Environmental Affairs and Development Planning (DEA&DP) as the competent authority for adoption in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and the EIA Regulations, 2014 (as amended).

The purpose of this MMP is to establish a structured, legally compliant framework for the long-term maintenance, repair, and management of infrastructure associated with the proposed development, specifically with regard to activities occurring within or in proximity to the Klein River Estuary and its associated Estuarine Functional Zone (EFZ). The MMP ensures that recurring maintenance activities are undertaken in accordance with applicable NEMA (Act 107 of 1998) legislation and do not result in cumulative environmental degradation of the estuarine system.

1.1 Objectives of the MMP

The objectives of this MMP are to:

- Ensure all maintenance activities are undertaken in accordance with NEMA, the Integrated Coastal Management Act (Act No. 24 of 2008) (ICMA), and associated regulations and management plans;
- Provide clarity on maintenance activities that may be undertaken within the Coastal Protection Zone without triggering separate environmental authorisation applications, subject to compliance with the conditions of this MMP;
- Define environmental management and mitigation measures to minimise impacts on the Klein River Estuary, its EFZ, and associated biodiversity;
- Facilitate a rapid, compliant response to emergency events such as flood damage;
- Prevent incremental and cumulative impacts associated with repeated maintenance activities over time; and
- Give effect to the mitigation measures and recommendations of the Aquatic Biodiversity Compliance Statement (Morton & van Zyl, 2026, Delta Ecology) prepared for this development.

1.2 Infrastructure Covered by this MMP

This MMP applies to maintenance activities associated with the following authorised infrastructure components, all of which are located within or partially within 100 m of the High-Water Mark (HWM) of the Klein River Estuary:

- Two primary residential dwellings (House 1: 1 662 m^2 and House 2: 1 220 m^2);
- Manager's cottage (1 000 m^2) and gatehouse (595 m^2);
- Pedestrian footpaths and associated recreational infrastructure (approximately 420 m^2 combined);
- Informal footpath to the jetty (320 m^2)
- Jetty structure (53 m^2) within the EFZ of the Klein River Estuary.

All activities governed by this MMP are restricted to maintenance, repair, and like-for-like replacement of authorised infrastructure. No new development, expansion of footprint, or construction of additional structures is permitted under this MMP.

2. Applicable Legislation and Policy Framework

This MMP has been prepared within the following legislative and policy framework:

Legislation / Policy	Relevance
National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA)	Primary environmental management legislation; duty of care obligations; EIA Regulations.
EIA Regulations, 2014 (GN R. 982, 983, 984 of 2014, as amended)	Listing Notices governing activities requiring authorisation; MMP provisions.
Integrated Coastal Management Act, 2008 (Act No. 24 of 2008) (ICMA)	Regulates activities within the coastal zone, coastal protection zone, and estuarine environments.
National Water Act, 1998 (Act No. 36 of 1998) (NWA)	Regulates water use; conservancy tank disposal obligations (Sections 22 and 40).
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA)	Alien and Invasive Species Regulations (GN 1003 of 2020); protection of biodiversity.
Klein River Estuarine Management Plan	Site-specific management objectives and provisions for the Klein River Estuary.
Overstrand Municipality Coastal Protection Zone EMOZ	Coastal Protection Zone Environmental Management Overlay Zone provisions applicable to jetty design, construction, and maintenance.
Western Cape Biodiversity Spatial Plan (WCBSP, 2023)	Identifies site within Aquatic Critical Biodiversity Areas (CBA 1) associated with the Klein River Estuary.

3. Site Description

3.1 Location

The subject property, Portion 4 of the Farm Middelburg No. 643, is situated to the west of the town of Stanford within the Overstrand Local Municipality, Western Cape Province (Figure 1). The property is accessed via Wortelgat Road and covers approximately 13.53 hectares. The site is bounded to the north by the Klein River Estuary.

The GPS coordinates demarcating the extent of the maintenance activity area within 100 m of the High-Water Mark of the Klein River Estuary are provided in **Table 1** below.

Table 1: GPS coordinates demarcating the MMP maintenance area.

Point	Latitude (S)	Longitude (E)
MMP1	34°25'59.46"	19°26'04.22"
MMP2	34°25'57.94"	19°26'01.35"
MMP3	34°25'56.10"	19°25'59.03"
MMP4	34°25'54.72"	19°25'56.90"
MMP5	34°25'53.79"	19°25'54.61"
MMP6	34°25'51.05"	19°25'57.00"
MMP7	34°25'53.30"	19°26'01.40"
MMP8	34°25'56.01"	19°26'06.71"

3.2 Current Site Conditions

The site is situated to the north of Wortelgat Road and exhibits a gentle northward slope, descending from approximately 12 m above mean sea level (AMSL) to approximately 2 m AMSL towards the Klein River Estuary. Currently no permanent infrastructure is present on the site; however, there are existing dirt tracks providing access across the property.

The proposed development area for the two residential dwellings is located within a terrestrial environment that has been historically disturbed by agricultural activities. The vegetation is moderately transformed and comprises a mosaic of dense fynbos thickets interspersed with areas of open shrubland dominated by *Stenotaphrum secundatum* (buffalo grass) and *Cynodon dactylon* (couch grass), typical of an undescribed secondary shrubland, more consistent with Eastern Rûens Shale Renosterveld, which has developed following historical agricultural disturbance.

The northern portion of the site, where the jetty is proposed, is associated with the Klein River Estuary and is characterised by dense *Phragmites australis* (Common Reed) reedbeds fringed by *Stenotaphrum secundatum* and patches of dense shrubs.

3.3 The Klein River Estuary

The Klein River Estuary is a large temporary open/closed estuarine-lake system covering approximately 1 153 ha, classified as an Aquatic Critical Biodiversity Area 1 (CBA 1) under the Western Cape Biodiversity Spatial Plan (2023). The estuary has a Present Ecological State (PES) of C (Moderately Modified), a High Wetland Ecological Status (WES), and a High Estuary Importance Score (EIS) of 93, rendering it the 5th most important estuary in South Africa in terms of botanical, fish, and bird biodiversity value. The estuary is recognised as a national priority estuary.

The Estuarine Functional Zone (EFZ) boundary was delineated approximately 45 m downslope from the majority of the proposed residential infrastructure footprint and upstream of the 5 m contour line. The path and jetty are the only development components that encroach into the EFZ. Applicable buffer distances determined using the Buffer Zone Tool (Macfarlane & Bredin, 2017) are 25 m during construction and 15 m during operation.

4. Description of Proposed Maintenance Activities

The following maintenance activities are covered under this MMP. All activities are strictly limited to maintenance, repair, and like-for-like replacement of lawfully authorised infrastructure within the approved development footprint. No expansion, intensification, or construction of new structures is permitted under this MMP.

Table 2: Summary of maintenance activities covered under this MMP.

No.	Activity	Description	Relevant Infrastructure
1	Maintenance of residential structures and associated infrastructure	Routine upkeep, repair, and like-for-like replacement of building components affected by environmental exposure including moisture, wind, and potential flooding (repainting, roofing, foundations, structural elements). Maintenance of the conservancy tank system, rainwater harvesting systems, and external lighting.	Two residential dwellings, manager's cottage, gatehouse, swimming pool, conservancy tanks
2	Maintenance of the jetty	Inspection, repair, and like-for-like replacement of jetty components including decking, support structures, and access elements. Stabilisation measures where minor erosion or structural undermining occurs, in compliance with EMOZ provisions and CapeNature specifications.	Jetty (53 m^2) within the EFZ
3	Maintenance of pedestrian footpaths	Routine maintenance of footpaths to ensure safe access, clearing of vegetation overgrowth, and repair following erosion or flood events. Rehabilitation of pathways damaged by stormwater runoff or estuarine processes.	Pedestrian footpaths (~420 m^2) including the path through the EFZ
4	Alien invasive plant (AIP) control	Ongoing control and removal of alien invasive plant species within the development footprint, estuary buffer zone, and adjacent disturbed areas. Re-establishment of locally indigenous and fynbos vegetation within cleared and rehabilitated areas.	All areas within the development footprint and 25 m estuary buffer
5	Vegetation management	Ongoing control of *Phragmites australis* (Common Reed) reedbeds along the estuary edge.	Along the estuary edge.
6	Erosion control and sediment management	Installation and maintenance of erosion control structures (silt fences, sediment basins, sandbags, geotextile barriers) within and downslope of disturbed areas. Management of stormwater runoff to prevent sedimentation of the estuary.	Development footprint and buffer zone

No.	Activity	Description	Relevant Infrastructure
7	Rehabilitation of disturbed areas	Stabilisation and re-vegetation of disturbed surfaces following construction or maintenance activities using locally indigenous fynbos plant species. Removal of construction debris and restoration of natural surface profiles.	All areas disturbed during construction and maintenance activities

5. Method Statements

The following method statements describe the procedures, management actions, and mitigation measures applicable to each maintenance activity. All activities must be implemented in accordance with the mitigation measures identified in the Aquatic Biodiversity Compliance Statement (Morton & van Zyl, 2026) and the provisions of the Klein River Estuarine Management Plan.

Method Statement 1: Maintenance of Residential Structures and Associated Infrastructure

Description of the Maintenance Activity:

Routine maintenance of the two residential dwellings, manager's cottage, gatehouse, and associated infrastructure (swimming pool, conservancy tanks, rainwater harvesting systems, external lighting) to ensure continued functionality and structural integrity in an estuarine coastal environment. Maintenance activities are infrequent under normal conditions but may increase following extreme weather events or prolonged exposure to estuarine conditions.

Work Area:

All activities are confined to the approved development footprint of the respective structures.

Management Actions:

- Only like-for-like replacement of building materials and components is permitted; no expansion of building footprint beyond the authorised envelope is permitted under this MMP.
- All maintenance work must be conducted by qualified personnel using appropriate, fit-for-purpose equipment.
- All maintenance waste (materials, packaging, rubble) must be stored in sealed containers and removed from site promptly to prevent litter and debris from entering the estuary.
- Concrete mixing, cement handling, and chemical application must take place in designated areas located well away from the estuary; wash water from concrete works must not be discharged where it could enter drainage pathways towards the estuary.
- Fuels, oils, paints, and other hazardous substances must be stored in bunded areas; a spill response kit must be kept on site during all maintenance activities.
- Any accidental spills must be immediately contained and cleaned up to prevent contamination of stormwater runoff draining towards the estuary.
- The conservancy tank must be monitored regularly to ensure no leakage occurs and must be emptied in accordance with a signed contract with a licensed contractor or the municipality, to be furnished to BOCMA. The tank must comply with all specifications including a fresh air inlet, intercepting grease trap, and airtight manhole cover. No industrial waste may be discharged into the conservancy tank.
- The size of the conservancy tank must be appropriate for the frequency of removal and the volume of sewage anticipated; a grey water system should be considered.
- Rainwater harvesting systems should be maintained to ensure continued reduction of stormwater runoff volumes.

- External lighting must be maintained in a manner that minimises light directed towards the estuarine environment, to reduce disturbance to estuarine fauna and avifauna.

Environmental Impacts and Risks:

- Contamination of the estuary from construction materials, paints, or chemicals during maintenance activities.
- Increased stormwater runoff from impervious surfaces affecting water quality in the estuary.
- Light pollution disturbing estuarine and coastal fauna.

Party Responsible for Implementation:

Applicant / Property Owner / Appointed Contractor / Environmental Control Officer (ECO)

Timing of Implementation:

As required

Method Statement 2: Maintenance of the Jetty

Description of the Maintenance Activity:

The 53 m^2 jetty structure is located within the EFZ of the Klein River Estuary and encroaches directly into the estuarine environment. Maintenance activities include periodic inspection, repair, and like-for-like replacement of jetty components such as decking, support piles, and access structures, as well as stabilisation measures where minor erosion occurs.

Work Area:

All jetty maintenance activities are confined to the 53 m^2 approved jetty footprint and its immediate structural extent within the EFZ. No expansion of the jetty beyond the approved footprint is permitted under this MMP.

Management Actions:

- The jetty must at all times be maintained in accordance with the specifications and requirements of the Coastal Protection Zone EMOZ of the Overstrand Local Municipality and in line with CapeNature's applicable specifications for estuarine infrastructure.
- The provisions and management objectives of the Klein River Estuarine Management Plan must be adhered to at all times during jetty maintenance activities.
- Jetty maintenance activities must use low-impact construction methods and minimal machinery where feasible, to limit disturbance to the estuarine environment.
- Prior to the commencement of any jetty maintenance works, no go areas must be demarcated using temporary fencing and/or danger tape; no access, disturbance, or storage of materials may occur within these identified area except within the defined jetty footprint i.e. works must be confined directly to the jetty site and not extend beyond the already impacted zone.
- Construction vehicles to be used as a last resort, must remain within clearly defined access routes and may not enter the estuary or its buffer zone.
- Where feasible, jetty maintenance works should be undertaken during the dry season (approximately October to April) to reduce the potential for stormwater runoff and sediment mobilisation.
- Where maintenance is undertaken outside the dry season, silt fences, sandbags, or geotextile sediment barriers must be installed downslope of any disturbed areas to prevent sediment transport into the estuary.
- No concrete mixing, chemical application, or fuel handling may occur within the estuary or the 25 m buffer zone; all such activities must be carried out in designated areas outside this buffer.
- All waste generated during jetty maintenance must be stored in sealed containers and removed from site; no waste or debris may enter the estuary or surrounding natural vegetation.

- Maintenance activities must be temporarily suspended during heavy rainfall events where runoff may mobilise sediments.
- All disturbed areas must be rehabilitated and stabilised as soon as practicable following the completion of maintenance works.

Environmental Impacts and Risks:

- Direct disturbance to the estuarine substrate and reed beds during jetty maintenance works.
- Pollution of the estuary from construction materials, chemicals, fuels, or waste during maintenance activities.
- Sedimentation of the estuary during wet-season maintenance in the absence of adequate sediment controls.
- Disturbance to estuarine fauna (fish, birds, invertebrates) during maintenance activities.

Party Responsible for Implementation:

Applicant / Property Owner / Appointed Contractor / ECO

Timing of Implementation:

As required; preference for dry season maintenance (November to April) to minimise environmental risk.

Method Statement 3: Maintenance of Pedestrian Footpaths

Description of the Maintenance Activity:

Routine maintenance of pedestrian footpaths to ensure safe access throughout the development, including the pathway that passes through the EFZ of the Klein River Estuary en route to the jetty. Maintenance activities include resurfacing, vegetation clearing, and repair following erosion or flood events.

Work Area:

Maintenance is confined to the approved footpath footprint (~420 m^2 combined). No widening or extension of pathways beyond the authorised footprint is permitted under this MMP.

Management Actions:

- Pathway maintenance within the EFZ must be undertaken in accordance with the applicable provisions of the Klein River Estuarine Management Plan and the Overstrand Municipality Coastal Protection Zone EMOZ.
- Low-impact methods must be used; manual labour is preferred over mechanical equipment within the EFZ.
- Vegetation clearing must be limited to the minimum necessary to maintain path functionality and must not extend beyond the approved footpath footprint into the surrounding natural fynbos or estuarine vegetation.
- Indigenous vegetation should be retained as far as practically possible; areas cleared for pathway maintenance must be rehabilitated using locally indigenous plant species.
- No invasive alien plant species may be used for rehabilitation or landscaping adjacent to the pathways.
- Stormwater runoff from the pathways must be directed through vegetated areas or temporary sediment traps to prevent sediment transport into the estuary.
- All construction materials and waste associated with pathway maintenance must be removed from the site promptly.
- Disturbed areas following pathway maintenance must be rehabilitated and stabilised as soon as practicable.

Environmental Impacts and Risks:

- Damage to estuarine and riparian vegetation through over-clearing or trampling adjacent to the footpath.
- Erosion along the footpath route resulting in sedimentation of the estuary.
- Spread of alien invasive plant species into the EFZ through soil disturbance during pathway maintenance.

Party Responsible for Implementation:

Applicant / Property Owner / Appointed Contractor / ECO

Timing of Implementation:

As required; rehabilitation of disturbed areas immediately following completion of maintenance works.

Method Statement 4: Alien Invasive Plant (AIP) Control

Description of the Maintenance Activity:

Ongoing control and removal of alien invasive plant species within the development footprint, the 25 m estuary buffer, and adjacent disturbed areas, in compliance with NEM:BA and the Alien and Invasive Species Regulations (GN 1003 of 2020). Re-establishment of locally indigenous vegetation (predominantly natural fynbos) within cleared and rehabilitated areas to prevent re-invasion and to contribute to the conservation of the region's biodiversity.

Work Area:

AIP control activities shall be undertaken within the development footprint of Portion 4 of Farm 643, the 25 m construction buffer and 15 m operational buffer of the Klein River Estuary, and all adjacent disturbed areas on the property.

Management Actions:

- All alien invasive plant species listed under the Alien and Invasive Species Regulations (GN 1003 of 2020) must be removed or controlled within the development footprint and estuary buffer zone.
- AIP removal must be undertaken using the most appropriate method for each species, which may include mechanical removal (cutting, hand-pulling, uprooting) or chemical treatment using registered herbicides applied by a qualified and registered applicator.
- Herbicide application within the EFZ itself or within 5 m of the EFZ edge shall not be permitted without prior written approval from the relevant competent authority.
- Cut stumps of woody AIP species must be treated with a registered herbicide immediately following cutting to prevent resprouting.
- All AIP material removed from the site must be disposed of in a manner that prevents re-establishment (chipping, burning where permitted, or disposal at a registered facility).
- AIP control must be conducted at a minimum frequency of twice per year, with additional interventions following significant disturbance events, flooding, or storm damage.
- Natural fynbos vegetation must be used predominantly for garden establishment throughout the development, including appropriate locally indigenous lawn grasses.
- No invasive alien plant species may be used for landscaping or rehabilitation purposes anywhere on the site.
- The effectiveness of the AIP control programme must be assessed at each treatment visit and documented in the Environmental Management Register.
- Areas disturbed by AIP removal must be re-vegetated with locally indigenous fynbos or wetland-margin species appropriate to the site conditions.

Environmental Impacts and Risks:

- Spread of alien invasive species into the EFZ and estuarine environment following ground disturbance during construction and maintenance.
- Displacement of indigenous fynbos and estuarine vegetation by invasive species in the absence of ongoing management.
- Water quality impairment of the estuary from herbicide application in proximity to the EFZ.

Party Responsible for Implementation:

Applicant / Property Owner / Homeowners Association (HOA) / Appointed Contractor

Timing of Implementation:

Minimum twice per year; first treatment immediately following post-construction rehabilitation; thereafter at six-monthly intervals.

Method Statement 5: Vegetation Management

Description of the Maintenance Activity:

The northern portion of Portion 4 of Farm Middelburg 643, in the vicinity of the proposed jetty, is characterised by dense *Phragmites australis* (Common Reed) reedbeds within the Estuarine Functional Zone (EFZ) of the Klein River Estuary, fringed by Stenotaphrum secundatum (buffalo grass) and patches of dense shrubs. Ongoing vegetation management is required to maintain safe pedestrian access along the approved footpath and safe use of the jetty, and to prevent encroachment of *Phragmites australis* and other vegetation onto the authorised infrastructure footprint. All vegetation management activities must be strictly confined to the approved footpath and jetty footprints and must be undertaken in a manner that minimises disturbance to the estuarine environment, its ecology, and associated fauna and avifauna.

Work Area:

Vegetation management activities are confined to the approved pedestrian footpath footprint (approximately 420 m^2 combined) and the 53 m^2 jetty footprint within the EFZ of the Klein River Estuary. A maintenance clearance corridor of no more than 1 m either side of the footpath centreline is permitted. No vegetation clearance may occur beyond these limits into the surrounding Phragmites australis reedbeds, natural estuarine fringe vegetation, or natural fynbos.

Management Actions:

- All vegetation management within the EFZ must comply at all times with the provisions of the Klein River Estuarine Management Plan and the requirements of the Coastal Protection Zone EMOZ of the Overstrand Local Municipality.
- Vegetation clearance must be restricted to the minimum necessary to maintain functional pedestrian access along the footpath and the safe use of the jetty; no clearance beyond these functional requirements is permitted.
- Manual clearance methods (hand-cutting, slashing) must be used within the EFZ; the use of heavy machinery or motorised cutting equipment within the EFZ requires prior written approval from the ECO and must be demonstrated to be necessary where manual methods are impractical.
- *Phragmites australis* (Common Reed) must be managed by cutting rather than chemical treatment within the EFZ. Where herbicide application is considered necessary, prior written approval must be obtained from the relevant competent authority and application must be carried out by a registered herbicide applicator using a product registered for aquatic environments.
- All cut reed material must be removed from the EFZ promptly following each clearance event and disposed of appropriately off-site. Cut material must not be left on the estuarine substrate or in the water body where it may decompose, reduce water quality, or smother other estuarine vegetation.
- Vegetation clearance must not disturb the estuarine substrate, alter natural drainage patterns, or cause compaction of soils within the EFZ.
- No vegetation clearance may occur beyond the approved footpath and jetty footprints. The surrounding natural Phragmites australis reedbeds and estuarine fringe vegetation must be maintained intact in perpetuity.

- External lighting associated with the development must be maintained and directed away from the estuarine environment at all times to minimise disturbance to estuarine fauna and avifauna, consistent with the recommendations of the Aquatic Biodiversity Compliance Statement (Morton & van Zyl, 2026).
- Vegetation management activities must be temporarily suspended during the bird breeding season (approximately August to December) unless urgently required for safety purposes; any such urgent works must be approved by the ECO in advance.
- The ECO must record all vegetation management activities, including the extent of clearance, methods used, and condition of the EFZ following each management event, in the Environmental Management Register.

Environmental Impacts and Risks:

- Excessive clearance of Phragmites australis reedbeds beyond the approved footprint, reducing habitat availability for estuarine fauna including fish, waterbirds, and invertebrates within this nationally important estuary.
- Disturbance to the estuarine substrate and alteration of natural drainage patterns during vegetation management, contributing to sedimentation of the Klein River Estuary.
- Herbicide contamination of the estuarine water body if chemical treatments are applied incorrectly or without appropriate authorisation in proximity to the EFZ.
- Disturbance to nesting avifauna and other estuarine fauna (fish, invertebrates) if vegetation management is conducted during sensitive breeding and spawning seasons.
- Establishment of alien invasive plant species in cleared areas within the EFZ following vegetation management, compounding existing pressures on the Klein River Estuary identified in the National Biodiversity Assessment (Van Niekerk et al., 2019).

Party Responsible:

Applicant / Property Owner / Appointed Contractor / ECO

Timing of Implementation:

As required, minimum twice per year. Preferred timing is late summer to early autumn (February to April) to avoid the bird breeding season (approximately August to December) and to minimise disturbance to estuarine fauna. All completed vegetation management events must be recorded in Form B and submitted to DEA&DP within 10 working days of completion.

Method Statement 6: Erosion Control and Sediment Management

Description of the Maintenance Activity:

Implementation and maintenance of erosion control and sediment management measures to prevent the mobilisation and delivery of sediment into the Klein River Estuary during and following all maintenance activities. These measures are particularly critical given the gentle northward slope of the site towards the estuary.

Work Area:

Erosion control and sediment management measures shall be implemented within and downslope of all areas disturbed during maintenance activities, and at all points where stormwater runoff could potentially discharge towards the EFZ of the Klein River Estuary.

Management Actions:

- Silt fences, sediment basins, or geotextile barriers must be installed at all relevant locations prior to the commencement of any maintenance activities that involve ground disturbance, specifically at all points where stormwater runoff could discharge towards the EFZ.
- The condition and placement of all erosion control measures must be confirmed by the ECO prior to commencement of any works.

- The spatial extent of soil exposure and surface disturbance during maintenance activities must be minimised at all times; exposed surfaces must be protected or stabilised as promptly as possible following disturbance.
- Exposed and unstable surfaces must be covered with appropriate erosion control materials including geotextiles, brush packing, straw bales, or mulch.
- Silt fences, sediment basins, and sediment traps must be inspected following every significant rainfall event; accumulated sediment must be removed by hand and disposed of appropriately.
- Damaged erosion control structures must be repaired or replaced immediately.
- Stockpiled materials must be located outside the 25 m construction buffer of the estuary and protected from erosion.
- Rainwater harvesting systems should be maintained to reduce stormwater runoff volumes contributing to erosion.
- No temporary crossings, drainage diversions, or discharge of stormwater may occur directly into the estuary.
- Access tracks and construction-related works must ensure that stormwater runoff from disturbed surfaces is directed through vegetated areas or temporary sediment traps prior to discharge.
- Maintenance activities must be temporarily suspended during periods of heavy rainfall where runoff may mobilise sediments.
- All disturbed areas must be rehabilitated and stabilised as soon as practicable following completion of any maintenance works.

Environmental Impacts and Risks:

- Erosion of exposed areas during rainfall events following maintenance activities.
- Sedimentation of the Klein River Estuary during and following maintenance works.
- Water quality impairment of the estuary from sediment-laden stormwater runoff.
- Formation of erosion gullies on the northward-sloping site directing sediment to the EFZ.

Party Responsible for Implementation:

Applicant / Property Owner / Appointed Contractor / ECO

Timing of Implementation:

Implemented prior to and during all maintenance activities; inspections after every significant rainfall event.

Method Statement 7: Rehabilitation of Disturbed Areas

Description of the Maintenance Activity:

Stabilisation and re-vegetation of all areas disturbed during construction and maintenance activities using locally indigenous fynbos plant species. This ensures the restoration of natural surface conditions, prevents alien invasive plant establishment, and reduces the ongoing risk of erosion and sedimentation of the Klein River Estuary.

Work Area:

Rehabilitation activities shall be undertaken within all areas disturbed during maintenance activities on Portion 4 of Farm 643, excluding the permanent footprints of authorised infrastructure. Priority rehabilitation shall be given to areas within and adjacent to the 25 m construction buffer of the Klein River Estuary.

Management Actions:

- All construction waste, rubble, packaging, and temporary structures must be removed from the site immediately following completion of maintenance activities.
- Disturbed areas must be re-contoured to approximate natural gradients to ensure the restoration of natural surface drainage patterns.
- All disturbed surfaces must be re-vegetated with locally indigenous plant species as promptly as possible following the completion of earthworks. Species selection must be appropriate to the specific

microhabitat: natural fynbos species for upland and mid-slope areas; locally appropriate wetland-margin species for areas adjacent to the EFZ.

- Natural fynbos vegetation must be used predominantly for garden and landscape establishment, including appropriate local indigenous lawn grasses.
- Indigenous vegetation removed during maintenance works should be retained for re-use in post-works rehabilitation where practicable.
- Plant material for re-vegetation should be sourced from locally propagated indigenous nursery stock, preferably from seed sources collected on or near the site.
- The progress of re-vegetation within all rehabilitated areas must be monitored by the ECO or the appointed environmental service provider on a monthly basis for a minimum of 12 months following completion of planting.
- Any alien invasive plant species establishing within rehabilitated areas during the monitoring period must be removed promptly as part of the AIP control programme (Method Statement 4).
- Supplementary planting must be undertaken in areas where initial re-vegetation has failed to achieve adequate establishment within six months of planting.
- Rehabilitation shall be formally declared complete by the ECO once all disturbed surfaces have been satisfactorily re-vegetated, no significant erosion attributable to the works has been observed, and no invasive alien plants have established at risk densities.

Environmental Impacts and Risks:

- Failure of re-vegetation in disturbed areas leading to prolonged soil exposure and erosion.
- Establishment of alien invasive species in disturbed and rehabilitated areas.
- Inadequate restoration of natural surface drainage increasing runoff and sedimentation into the estuary.

Party Responsible for Implementation:

Applicant / Property Owner / Appointed Contractor / ECO

Timing of Implementation:

Immediately following completion of maintenance works; monitoring for a minimum of 12 months post-planting.

6. Monitoring and Reporting

6.1 Compliance Monitoring

Compliance monitoring constitutes an essential component of this MMP and serves as the primary mechanism through which adherence to the prescribed environmental management requirements and method statements is verified. Monitoring applies to all maintenance activities undertaken within and in proximity to the Klein River Estuary and its EFZ.

The monitoring requirements apply throughout the lifespan of the development and cover:

- All maintenance activities on authorised infrastructure within the development footprint;
- The condition and integrity of the Klein River Estuary EFZ and buffer zone;
- The effectiveness of AIP control measures and the status of indigenous vegetation recovery;
- The performance of erosion control and stormwater management measures; and
- The condition and compliance of the conservancy tank system.

6.2 Recording Maintenance Activities

The accurate and consistent recording of all maintenance activities is a fundamental requirement of this MMP. Maintenance records provide an auditable trail of compliance and enable the competent authority to assess whether prescribed mitigation measures are being implemented effectively.

Form A (Pre-Maintenance Activity Recording Form) and Form B (Post-Maintenance Activity Recording Form), provided in **Annexure A** of this MMP, must be completed for all activities undertaken under this MMP. A copy of each completed form must be retained by the Applicant/Property Owner for record-keeping purposes and must be made available to DEA&DP upon request. Form A must be submitted to DEA&DP at least 7 working days before commencing any activity; Form B must be submitted within 10 working days of completion.

6.3 Timing of Works

Where feasible, all maintenance activities involving ground disturbance or works in proximity to the Klein River Estuary must be scheduled for the dry season (approximately October to April) to reduce the potential for stormwater runoff and sediment mobilisation towards the estuary. Vegetation clearing and sediment control works should be undertaken during late summer or early autumn, or immediately after flood events.

Where maintenance activities are required during the wet season, additional mitigation measures set out in the relevant method statements must be implemented prior to commencement of works.

7. Roles and Responsibilities

Table 3: Roles and responsibilities of role players under this MMP.

Role Player	Responsibilities
Competent Authority (DEA&DP)	Oversees compliance with the adopted MMP; may prescribe conditions, undertake compliance auditing, and review or amend the MMP. The competent authority may request to inspect maintenance sites with 7 working days' notice.
Applicant / Property Owner (Cheddles (Pty) Ltd)	Bears primary responsibility for ensuring full compliance with all conditions of this MMP throughout the operational lifespan of the development. Responsible for appointing the ECO, ensuring contractor compliance, maintaining the conservancy tank contract with BOCMA, and submitting Form A and Form B records to DEA&DP.
Environmental Control Officer (ECO)	A suitably experienced ECO must be appointed prior to any maintenance activities to monitor, guide, and report on compliance with this MMP. Responsible for: conducting site inspections; monitoring and verifying compliance; providing environmental awareness training to contractors; keeping photographic records; preparing compliance reports for DEA&DP; and recommending corrective actions.
Appointed Contractor	Responsible for implementing all method statements and mitigation measures during execution of works. Must be familiar with the MMP requirements. Must immediately report any pollution incidents or deviations from the approved footprint to the ECO. Responsible for completing Form A pre-works and Form B post-works. Must attend site induction covering MMP requirements prior to commencing works.

8. Listed Activities

The maintenance activities covered under this MMP may trigger the following listed activities in terms of the EIA Regulations, 2014:

Table 4: Listed activities triggered by maintenance activities under this MMP.

Listing Notice	Activity	Relevance to this Development
GN R. 983 (LN1) – Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	Maintenance of the jetty and pathways within the EFZ of the Klein River Estuary may involve limited substrate disturbance. All such activities must remain within the approved footprints.
GN R. 985 (LN3) – Activity 12	The clearance of an area of 300 square metres or more of indigenous vegetation within the Western Cape within any critically endangered or endangered ecosystem listed in terms of section 52 of NEM:BA.	Selective thinning of *Phragmites australis* (Common reed) will be undertaken to reduce dense reed that restrict amphibian movement and access to breeding and foraging habitats. Thinning will create a mosaic of open water and vegetated areas, improving ecological connectivity and habitat heterogeneity within the Kleinriver estuary.

9. Specialist Input

The environmental management measures and method statements set out in this MMP have been informed by the following specialist study prepared for this development:

An Aquatic Biodiversity Compliance Statement (ABCS) was prepared by Delta Ecology (Morton, R. & van Zyl, K., 2026) for the proposed development on Portion 4 of Farm Middelburg 643. The ABCS was prepared in accordance with the Protocol for the Specialist Assessment and Minimum Report Requirements for Environmental Impacts on Aquatic Biodiversity (GN No. 320 of 20 March 2020), following a site assessment conducted on 28 April 2026, and draws on a comprehensive suite of national datasets including the National Wetlands Map Version 5 (NWM5, 2018), the National Freshwater Ecological Priority Areas dataset (NFEPA, 2011), and the Western Cape Biodiversity Spatial Plan (WCBSP, 2023).

Site Sensitivity and Classification

The national web-based environmental screening tool (DFFE, 2026) classified the Combined Aquatic Biodiversity Theme Sensitivity of the site as “Very High”, triggered by the site’s location within the mapped extent of the Klein River Estuary and within Aquatic Critical Biodiversity Areas (CBA 1) as designated by the WCBSP (2023). Following a site verification assessment (SSV) and ground-truthing by Delta Ecology, the aquatic biodiversity sensitivity of the actual development footprint was verified as “Low”. This is because the residential infrastructure is located more than 32 m from the nearest freshwater feature, outside any sensitive freshwater environment, and outside freshwater wetland and riverine systems regulated as inland watercourses under NEMA. The delineated Estuarine Functional Zone (EFZ) boundary is associated with the Klein River Estuary and is regulated under the Integrated Coastal Management Act rather than under NEMA inland watercourse provisions.

Klein River Estuary: Status and Ecological Importance

The Klein River Estuary is a large temporary open/closed estuarine-lake system covering approximately 1 153 ha, classified as an Aquatic Critical Biodiversity Area 1 (CBA 1) under the WCBSP (2023) and recognised as a national priority estuary. The estuary is fed by the Klein River, a perennial river flowing from the Klein River Mountain Range (part of the Cape Fold Belt). It has been identified as a potential water source for the water-stressed Onrus River Catchment. The National Biodiversity Assessment (Van Niekerk et al., 2019) classified the Klein River Estuary with a Present Ecological State (PES) of C, indicating a Moderately Modified system, and noted that the estuary is impacted by reductions in freshwater inflow, pollution, eutrophication, overfishing, human settlements, and agriculture. Based on its Estuary Importance Score (EIS) of 93 which accounts for size, rarity of the estuary type, habitat, biodiversity, and functional importance the Klein River Estuary is rated as "Highly Important" and ranked 5th most important in South Africa in terms of botanical value, fish biodiversity, and bird biodiversity (Clark et al., 2015). This ecological significance underpins the stringent management requirements applicable to this development and all maintenance activities described in this MMP.

Site Conditions and Delineation Findings

The site is situated to the north of Wortelgat Road and exhibits a gentle northward slope, descending from approximately 12 m above mean sea level (AMSL) to approximately 2 m AMSL towards the Klein River Estuary. The proposed development areas for the two residential dwellings are located within a terrestrial environment that has been historically disturbed by agricultural activities. The vegetation is moderately transformed and comprises a mosaic of dense fynbos thickets interspersed with areas of open shrubland, characteristic of Agulhas Limestone Fynbos vegetation, and is not associated with aquatic, riparian, or estuarine habitats.

The northern portion of the site, where the proposed jetty is located, is directly associated with the Klein River Estuary and is characterised by dense *Phragmites australis* (Common Reed) reedbeds, fringed by *Stenotaphrum secundatum* (buffalo grass) and patches of dense shrubs. The EFZ boundary was delineated approximately 45 m downslope from the majority of the residential dwellings' footprint area, upstream of the 5 m contour line. The path and the jetty are confirmed as the only development components that encroach into the EFZ.

Using the Buffer Zone Tool (Macfarlane & Bredin, 2017), the ABCS determined the following protective buffer distances applicable to the Klein River Estuary: a buffer of 25 m during all construction and maintenance works, reducing to 15 m during the operational phase of the proposed dwellings. These buffer distances must be adhered to at all times for all activities within the scope of this MMP, consistent with the method statements set out in **Sections 5** above.

Annexure A: Maintenance Activity Recording Forms

FORM A | REPORTING FOR INTENT TO UNDERTAKE MAINTENANCE ACTIVITIES				
Section A Landowner Details				
Name	**Surname**	**Farm No.**	**Erf No.**	**Today's date**
Section B Details of the proposed maintenance activity				
WUA/GA reference number and DEA&DP reference number for MMP	**Activity Type:**		**Footprint area (m^2)**	**Volume of material (m^3)**
Equipment to be used	**Description of method for planned activity**			**Commencement date**
Date of last flood event for site	**Note any further damage and comments regarding the state of the site**			
Section C Photographs of activity location before maintenance				
Before A Coordinates: S E				

Before B **Coordinates:** **S** **E** **Date of photos taken:**	

FORM B | REPORTING FOR COMPLETION OF MAINTENANCE ACTIVITIES				
Section A **Landowner Details**				
Name	**Surname**	**Farm No.**	**Erf No.**	**Today's date**
Section B **Details of the proposed maintenance activity**				
WUA/GA reference number and DEA&DP reference number for MMP.	**Activity Type**	**Footprint area (m^2)**		**Volume of material (m^3)**
Equipment to be used	**Description of method for planned activity**			**End date**
Date of last flood event for site:	**Note any challenges or difficulties experienced in following the MMP method statement**			
Section C **Photographs of activity location after maintenance completion**				
Before A **Coordinates:** **S** **E**				
Before B **Coordinates:**				

S **E** **Date of photos taken:**	