APPENDIX 38

CWA MAINTENANCE MANAGEMENT PLAN

Request for the relevant Competent Authority to define or adopt a Maintenance Management Plan for a watercourse in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), Environmental Impact Assessment Regulations, 2014 (as amended).

		(For official use only)
File Reference Number:	16/3/3/2/A5/20/2046/24	
Date Received by Department:		
Date Received by Component:		
Form Duly Signed and Dated:		Yes No

PROJECT TITLE

Proposed Expansion of Cape Winelands Airport on P10/Farm 724, RE/Farm 724, P23/Farm 724, P7/Farm 942, RE/Farm 474, P3/Farm 474 & P4/Farm 474, Fisantekraal, Western Cape

November 2024

PHS CONSULTING

cell:082 327 2100 | Tel:(028) 312 1734 | Fax:086 508 3249 | amanda@phsconsulting.co.za | | PO Box 1752 | Hermanus 7200

A. SCOPE AND IMPORTANT INFORMATION

1) This document is to be used to ensure that the request for adopting or defining a Maintenance Management Plan (MMP) in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) is undertaken to the sufficient standard and requirements as defined by the competent authority, the Department of Environmental Affairs and Development Planning of the Western Cape Government (henceforth the Department). It is advised that the determination of applicability regarding the scale of the proposed maintenance/management activity(ies) be undertaken through a pre-application consultation with the Department.

2) The geographical scope of the MMP is limited to watercourses as defined in the EIA Regulations, 2014(as amended). The document does not relate to coastal activities or activities to be undertaken in an estuary.

3) The use of this document for the development of a MMP for a watercourse **will only** be considered when the proposed maintenance activities constitute any one of the following listed activities identified in terms of the NEMA EIA Regulations, 2014 (as amended):

EIA Regulations Listing Notice 1 of 2014 (as amended)

- Activity 19, Listing Notice 1: The infilling or depositing of any material of more than 10 cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving-
  (a) will occur behind a development setback;
  (b) is for maintenance purposes undertaken in accordance with a maintenance management plan;
  (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;
  (N.B. Points (d) and (e) does not apply as these activities fall within the coastal zone)

- Activity 27, Listing Notice 1: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for-
  i. The undertaking of a linear activity; or
  ii. Maintenance purposes undertaken in accordance with a MMP.

EIA Regulations Listing Notice 2 of 2014 (as amended)

- Activity 15, Listing Notice 2: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for-
  I. The undertaking of a linear activity; or
  II. Maintenance purposes undertaken in accordance with a MMP.

- Activity 24, Listing Notice 2: The extraction or removal of peat or peat soils, including the disturbance of vegetation or soils in anticipation of the extraction or removal of peat or peat soils, but excluding where such extraction or removal is for the rehabilitation of wetlands in accordance with a MMP.

EIA Regulations Listing Notice 3 of 2014 (as amended)

- Activity 12, Listing Notice 3: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a MMP.

  i. Western Cape

  i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;
  ii. Within critical biodiversity areas identified in bioregional plans;
  iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or
  v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.

  (NB. Point iii does not apply as this activity falls within the coastal zone)

4) In deciding the request, the competent authority may define conditions related to auditing compliance with the MMP; monitoring requirements; reporting requirements, review; updating and amending the document and period for which the MMP is defined/adopted.

5) The purpose of the MMP is to maintain both man-made and ecological infrastructure in a manner that either improves the current state of, and/or reduces the negative impacts on a watercourse to ensure that ecosystems services are preserved/improved and to prevent further deterioration of the watercourse.

6) Notwithstanding the MMP possibly being defined or adopted by the Competent Authority, any other applicable statutory requirement must still be complied with (e.g. any obligations under the National Water Act, 1998 (Act 36 of 1998) or the Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)).

7) The proponent must note that a MMP for a watercourse **must** be undertaken through consultation with the Department of Water and Sanitation and/or the relevant Catchment Management Agency (responsible water authority). This is to ensure compliance in terms of a Permissible Water Use as set out in the National Water Act, 1998 (Act No. 36 of 1998). It is recommended that this process for authorisation in terms of the National Water Act be clarified prior to the drafting and submission of the MMP.

8) The development of this document has been done in such a way so as to meet the requirements of both this Department as the competent authority in terms of the NEMA EIA Regulations, 2014 (as amended), as well as the requirements of the delegated water authority, regarding general authorisation considerations for sections 21(c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998), to ensure alignment between the two authorities when defining or adopting the MMP.

9) In situations where a Water Use Licence Application (WULA) is required by the water authority regarding the proposed activities within a MMP, this will not prevent the proponent from submitting a request for a MMP to be defined or adopted by the Department.

10) Unless protected by law, all information contained in, and attached to this document, shall become public information on receipt by the competent authority.

11) A duly dated and originally signed copy of this document together with one hard copy and one electronic copy of the MMP must be posted to the Department at the postal address given below or delivered to the Registry Office of the Department.

12) A copy of the final defined/adopted MMP and cover letter **must** be submitted to the responsible water authority.

13) **NOTE: Adopting or defining the MMP does not absolve the** proponent **from complying with any applicable legislation or the general "duty of care" set out in Section 28(1) of the NEMA that states, *"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*." (Note: When interpreting this "duty of care" responsibility, cognisance must be taken of the national environmental management principles contained in Section 2 of the NEMA.**

14) **NOTE: This document can be used as a template to assist in the information required and is to be filled out in full. The Department reserves the right to request any additional information during the initial development and submission of the draft MMP.**

15) **NOTE: The Department reserves the right to not adopt the MMP and require that an application be submitted to obtain Environmental Authorisation for the respective activities. Furthermore, consideration for the review should also be aligned to the periodic reviews of the General Authorisation for sections 21 (c) and (i) of the National Water Act, 1998 (Act No. 36 of 1998) to ensure continued alignment and compliance.**

B. MAINTENANCE MANAGEMENT PRINCIPLES

1) The following are overarching principles to be used by landowners and managers when considering the development and implementation of a 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 to the condition of affected watercourses and, overall, be guided by a general commitment to improving and maintaining ecological infrastructure 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).

2) The following table provides a simple overview for the determination of the need for a MMP:

	Question	**If the answer to any of the questions is YES, then a MMP may be applicable.**
2.1	Is there a watercourse on or adjacent to the property?	Yes
2.2	Has there been a history of flood damage or vandalism to the existing infrastructure or watercourse – erosion and/or sedimentation?	Yes
2.3	Is there infrastructure or any community at risk of being damaged by flooding?	No
2.4	Is the design of infrastructure considered inadequate in terms of managing the risk of flooding, erosion and/or sedimentation?	No
2.5	Would you consider an improved design to existing infrastructure to reduce maintenance needs?	No
2.6	Are there specific incidences where the watercourse is obstructed or blockages occur that alter the flow of the river during floods?	No
2.7	Is there an existing obstruction in the watercourse that has changed the flow of the river under normal conditions?	No
2.8	Is there a marked increase in the rate of erosion/sedimentation being experienced which threatens operations and assets?	No
2.9	Is there a presence of alien or bush encroachment vegetation within the watercourse and/or the presence of woody debris after flooding?	Alien vegetation within wetland areas

3) It is important to consider that the type of maintenance required will impact on the level of assessment needed in terms of the impact the activity will have on the system and how best to mitigate the impact. Types of maintenance can broadly be classified in the following categories, with recognition that maintenance activities vary across the rural and urban context:

Maintenance Category	Types of maintenance activities (examples only)

Category A:
Sediment removal as a result of deposition or sediment deposition as a result of erosion
	• Clearing sediment or placing sediment at:
	  o Pump hole/trench
	  o Return flow (irrigation)
	  o Off-take weir
	  o Stormwater outfall
	  o Detention/retention ponds
	  o Canalized urban rivers
	  o Bridges, culverts and drifts
	• Prevent formation of islands in the channel of the river
	• Dredging of in-stream dams

Category B: Emergency repairs – urgent action required to manage risk and damage to assets	• Repair to erosion of river bank or servicing infrastructure (e.g. pipelines/roads) • Removal of material built up as a result of flooding/sedimentation and increasing risk to infrastructure • Address damage or replacement of infrastructure (e.g. bridge, pipeline, pump house) • Manage the condition of flood protection berms, and existing structures such as gabions, canalized and stormwater systems • Installing temporary gravel approaches at flood-damaged river crossings
Category C: Managing alien invasive and bush encroachment plant species	• Clearing of alien invasive vegetation out of a watercourse to reduce maintenance requirements as they relate to erosion and sedimentation • Management of indigenous species categorized as bush encroachment, to improve hydrological flow and reduce associated flooding impacts
Category D: Rehabilitation and restoration activities for maintaining ecological infrastructure	• Development and maintenance of ecological buffering systems to improve and/or restore functioning (e.g. wetlands and stormwater detention ponds) • Actively rehabilitating riparian zones through planting of locally indigenous species • Bank grading and movement/removal of berms and barriers to flow

4) The development of appropriate method statements to mitigate the impact of the maintenance needs, should be aligned within the framework of these considerations:

   a. Watercourses experience a natural process of sedimentation and erosion, with varying rates depending on the geomorphology and the integrity of the land-uses within the catchment;

b. Manipulation of the watercourse results in increased erosion and/or deposition being experienced further downstream, perpetuating greater need for manipulation and more drastic and costly maintenance interventions;

c. Locally indigenous riparian and wetland vegetation assists in the stabilization of river banks through effective root structures, while contributing to improve in-stream habitat and water quality conditions;

d. Invasive alien and bush encroachment vegetation significantly impacts on the functioning of a watercourse, often leading to increased flood associated damage, with further implications and a reduction in water quality and availability;

e. Persons undertaking maintenance activities have a responsibility to ensure a sense of duty of care is applied as prescribed within NEMA Section 28(1).

5) It is recognized that within urban areas, sedimentation and erosion rates are significantly amplified because of development in urban areas and thus systems associated with watercourses in such areas can no longer be considered as 'natural'. In such a context, the drivers of such a process are often located outside the control of the landowner or responsible authority (i.e. Municipality). Therefore, the response taken to address the needs of a maintenance management plan for a watercourse within the urban environment may be limited in mitigating the requirement for maintenance to be undertaken.

C. REQUEST FOR THE COMPETENT AUTHORITY TO DEFINE OR ADOPT A MAINTENANCE MANAGEMENT PLAN FOR A WATERCOURSE IN TERMS OF THE NEMA, EIA REGULATIONS 2014 (AS AMENDED).

The following information must be submitted as part of the request for the competent authority to define or adopt the MMP:

1. PERSONAL DETAILS

Highlight the Departmental Sub-Region(s) in which the maintenance is to be undertaken. (mark the appropriate box with an 'X'). For Departmental details see Annexure A.

REGION 1 (City of Cape Town Metropolitan and West Coast District) X	REGION 2 (Cape Winelands District, Overberg District) ☐	REGION 3 (Eden & Central Karoo Districts) ☐

Name of person/authority who will undertake responsibility for the activity:	Capewinelands Aero (Pty) Ltd		
Contact person (if other):	Deon Cloete		
Postal address:	P.O. Box 12449, Mill Street		
Telephone:	n/a	Postal code:	8001
Fax:	n/a	Cell:	+27(0) 82 339 2807
Email:	d.cloete@capewinelands.aero		
Name of person who has prepared the MMP:	Amanda Fritz-Whyte (EAP) & Olivia Brunings (Candidate EAP) Input from Zutari (Bulk Infrastructure Engineers), FEN (Freshwater Ecological specialist).		
Contact Person (if other):	n/a		
Postal address:	PO Box 1752, Hermanus		
Telephone:	028 312 1734	Postal code:	7200
Fax:	(086) 508 3249	Cell:	082 327 2100
E-mail:	amanda@phsconsulting.co.za; paul@phsconsulting.co.za		
Expertise of EAP	Twenty-three years' experience in Environmental Impact Assessments, Public Participation, auditing, water resource management, WULA applications and compilation of EMPrs.		
EAP Registrations/Associations	IAIAsa, Pri.Sci.Nat (118385), WISA fellow; Registered EAP - 2019/367 (EAPASA)		
Name of landowner(s) on whose behalf the plan has been developed:	Capewinelands Aero (Pty) Ltd		

<table>
<tr><td>Contact person(s):</td><td colspan="3">Deon Cloete</td></tr>
<tr><td>Postal address:</td><td colspan="3">P.O. Box 12449, Mill Street</td></tr>
<tr><td>Telephone:</td><td>n/a</td><td>Postal code:</td><td>8001</td></tr>
<tr><td>Fax:</td><td>n/a</td><td>Cell:</td><td>+27(0) 82 339 2807</td></tr>
<tr><td>E-mail:</td><td colspan="3">d.cloete@capewinelands.aero</td></tr>
<tr><td colspan="4"></td></tr>
<tr><td>Municipality for proposed project:</td><td colspan="3">City of Cape Town Metropole</td></tr>
<tr><td>Farm name(s), erf(s) and portion number(s) etc*:</td><td colspan="3"><table>
<tr><th>Land portion</th><th>Landowner</th></tr>
<tr><td>P23 of Farm 724</td><td>Corobrik (Pty) Ltd</td></tr>
<tr><td>P7 of Farm 942</td><td>Buurmanskraal Boerdery (Pty) Ltd</td></tr>
<tr><td>RE of Farm 474</td><td>Buurmanskraal Boerdery (Pty) Ltd</td></tr>
<tr><td>P3 of Farm 474</td><td>Buurmanskraal Boerdery (Pty) Ltd</td></tr>
<tr><td>RE of Farm 724</td><td>Capewinelands Aero (Pty) Ltd</td></tr>
<tr><td>P10 of Farm 724</td><td>Cape Winelands Airport (Pty) Ltd</td></tr>
<tr><td>P4 of Farm 474</td><td>Cape Winelands Airport (Pty) Ltd</td></tr>
</table></td></tr>
<tr><td>Magisterial District or Town:</td><td colspan="3">City of Cape Town Metropole</td></tr>
<tr><td>Name(s) of watercourse(s) in question:</td><td colspan="3">Mapped wetland systems within the CWA cadastral areas (refer Figure 1):
- Seep Wetland 1
- Seep Wetland 2
- Channelled Valley Bottom (CVB) Wetland 1
- Channelled Valley Bottom (CVB) Wetland 2
- Channelled Valley Bottom (CVB) Wetland 3</td></tr>
</table>

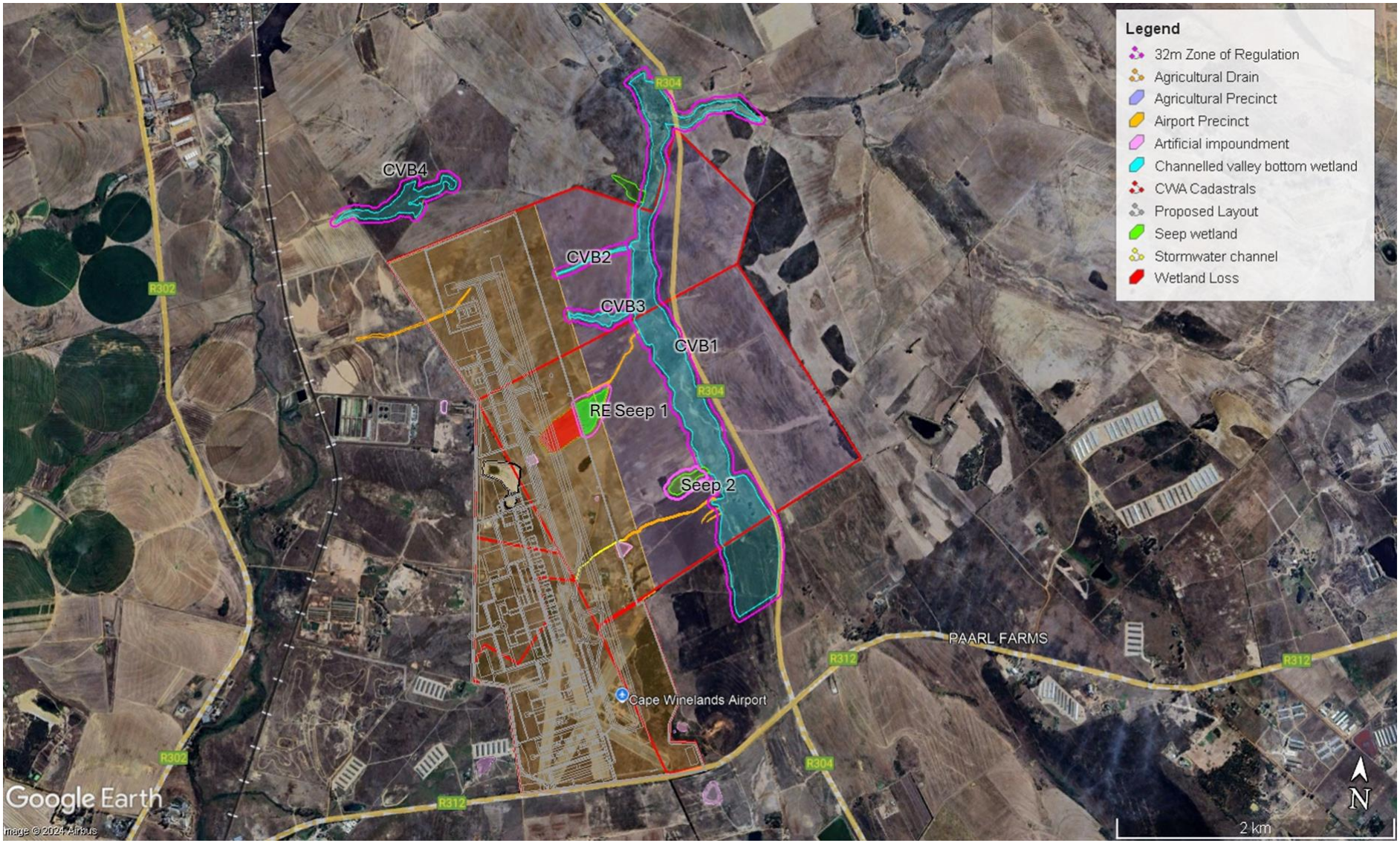


Figure 1: The delineated extent of the watercourses and artificial features associated with the proposed development area and applicable NEMA 32m Buffers. Wetland delineations were undertaken by FEN Consulting (PHS Consulting, November 2024).

DECLARATION

THE PERSON THAT WILL BE UNDERTAKING THE MAINTENANCE

I Deon Cloete, **duly authorised** by Capewinelands Aero (Pty) Ltd thereto hereby declare that I/we:

- Request the MMP to be adopted by the Competent Authority;
- Regard the information contained herein to be true and correct for this Maintenance Management Plan;
- Am fully aware of my responsibilities in terms of the National Environmental Management Act of 1998 ("NEMA") (Act No. 107 of 1998) and that, notwithstanding the adoption of this MMP, I/we shall comply with any other statutory requirement applicable, which may include, but not limited to the Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983), the National Water Act, 1998 (Act No. 36 of 1998) and the Environmental Impact Assessment Regulations, 2014 (as amended) ("EIA Regulations"), in terms of NEMA;
- Am fully aware that the proposed maintenance constitutes a listed activity in terms of the NEMA EIA Regulations, 2014 (as amended) and that an environmental assessment for environmental authorisation may be required for any other listed activities not included as part of this MMP;
- Acknowledge that any activity undertaken that does not form part of the defined and adopted MMP, will be subject to the Section 24(F) of NEMA and that appropriate enforcement and compliance requirements will follow;
- Shall undertake only those tasks described in the MMP, failing which environmental authorisation will be required, where applicable;
- Shall provide the competent authorities with access to all information at my disposal that is relevant to this request;
- Shall be responsible for any costs incurred in complying with environmental legislation;
- Hereby indemnify the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of, inter alia, any loss or damage to property or person as a consequence of undertaking this MMP; and
- Am aware that a false declaration is an offence in terms of Regulation 48(1)(a) GN No. R. 982 of 4 December 2014 (as amended).

D.A. Cloete 2024-11-05

Signature of the proponent: Date:

Capewinelands Aero (Pty) Ltd

Name of institution/company:

BACKGROUND AND INTRODUCTION

2.1. Contextual Information

This report aims to develop a Maintenance Management Plan for the proposed expansion of the existing Cape Winelands Airport. The site is located approximately 10.5km northeast of Durbanville and 25km northeast of Cape Town International Airport (CTIA) (Figure 2).

The proposed development will extend across a total of seven cadastrals namely, Portion 23 of Farm 724, RE of Farm 724, Portion 10 of Farm 724, Portion 4 of Farm 474, RE of Farm 474, Portion 7 of Farm 942, and Portion 3 of Farm 474, creating a combined area of 885ha (Figure 3). Of this area, 470ha will be allocated for airport development, including an airside precinct, terminal precinct, services precinct, general aviation precinct and associated landscaping (Figure 4 & Figure 5). The remaining land will remain as agricultural zones, designated as an agricultural precinct (Figure 4 & Figure 5). This agricultural precinct will feature a combination of dryland agriculture, conservation of botanically sensitive areas, and wetland offsets.

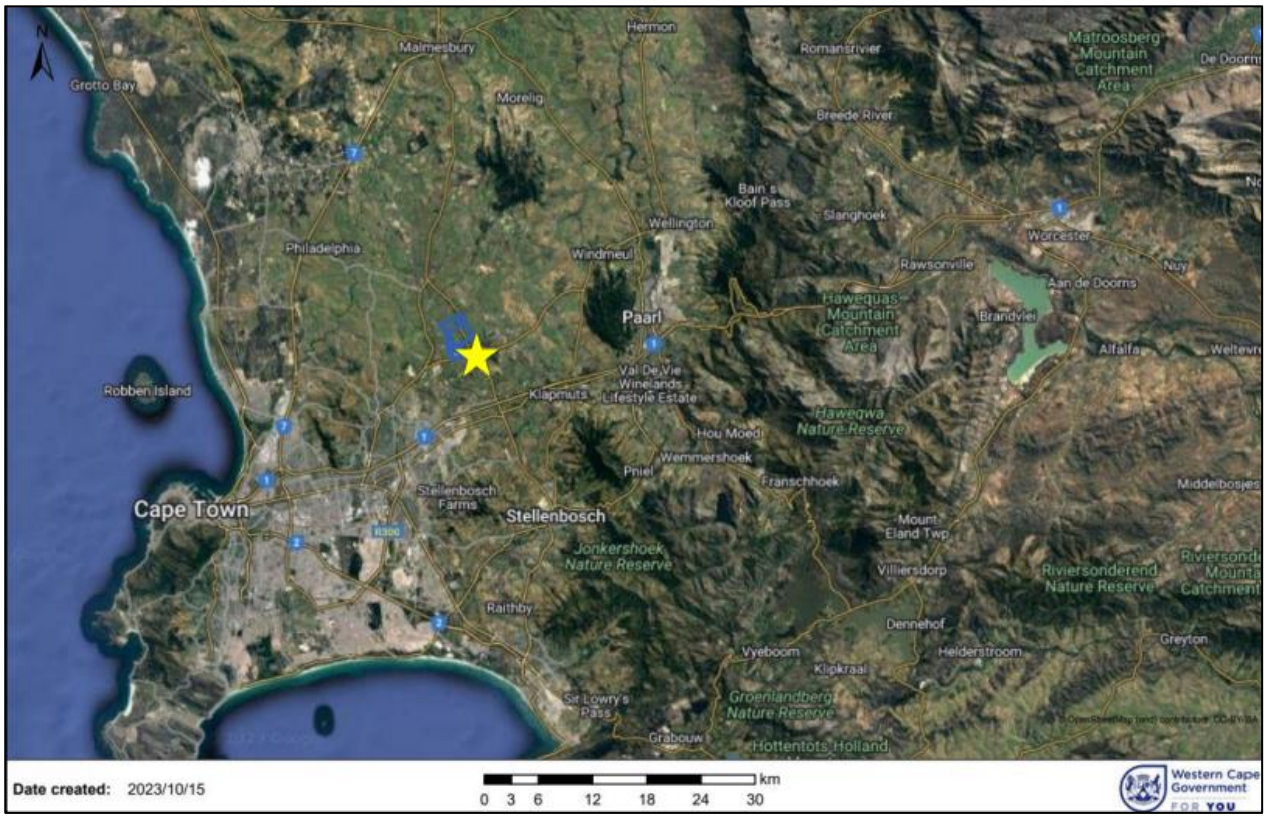


Figure 2: Regional location of current CWA indicated by yellow star. The blue lines indicate land parcels that form part of the application area (PHS Consulting, Oct 2023)

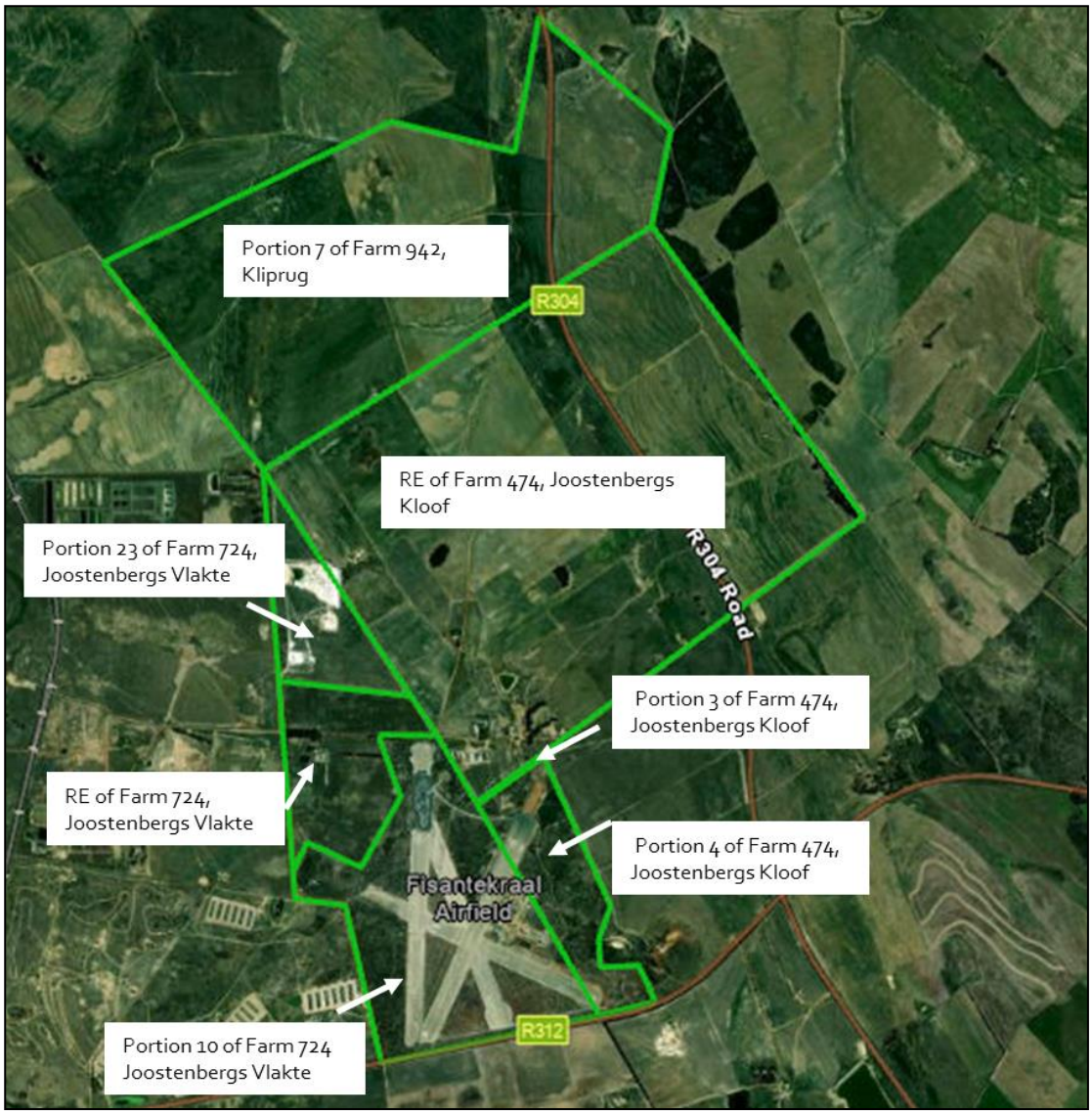


Figure 3: Cadastrals Forming Part of Application Area (PHS Consulting, February 2024)

Figure 4: Phase 1 Concept SDP (Capex Projects, August 2024).

Figure 5: Phase 2 Concept SDP (Capex Projects, August 2024).

The CWA site is located within Quaternary Catchment G21E in the Berg Water Management Area. The Mosselbank River is located West of the study area, and the Klapmutsrivier North of the site (refer Figure 2). Both rivers are considered largely modified.

A freshwater ecological site verification was undertaken in 2022 by FEN Consulting and the following watercourses were identified (refer Figure 1):

- A channelled valley bottom (CVB) wetland (hereafter referred to as CVB wetland 1) associated with the unnamed tributary of the Klapmuts River was identified bisecting the eastern portion of the study area, west of the R304;
- Two CVB wetlands (CVB wetlands 2 and 3) were identified within the northern portion of the study area and are linked to CVB wetland 1. The upper reach/western portions of the two CVB wetlands were also identified to encroach into the airport precinct;
- Another CVB wetland (CVB wetland 4) was identified North of the study area.
- Two seep wetlands were identified within the central western portion of the study area. One of these seep wetlands is directly linked to CVB wetland 1, while the other is indirectly linked via an agricultural drain;
- Several stormwater channels (some with concrete channels and others with excavated earth channels) and agricultural drains (usually with excavated earth channels) that convey surface water runoff (predominantly from the cultivated areas) into the identified freshwater systems, including into CVB wetland 1. It is possible that some of these agricultural drains may have functioned as natural watercourses in the past, but due to the high degree of land use transformation, agricultural activities and historical mining activities they now only function as drainage channels.
- Two artificial impoundments, one isolated and relic and the other connected to CVB wetland 1 via a stormwater channel and agricultural drain, and a quarry associated with historical open-pit clay mining activities were identified.

1.2. Scope of proposed project

An overview of the proposed SDP is provided in Figure 4 and Figure 5

Airside Precinct Development

In Phase 1, the airport will comprise of one runway, which will be at an orientation of 01-19 and a length of 3.5km and will be constructed to serve up to Code 4F instrument operations.

This runway will be shared by all operators, including scheduled commercial as well as general aviation, where intersection take-off points will be introduced on the runway to improve efficiency for general aviation operations.

The airside runway development in Phase 1 will also include, but not be limited to, airside systems such as CAT III Instrument Landing System (ILS), Precision Approach Path Indicator, Glidepath Antennas, Meteorological Systems, Airfield Ground Lighting (AGL) and Remote Digital Control Tower Systems. Aircraft parking stands range from ICAO Code B up to ICAO Code F stands. As part of the Development, 11 MARS stands (21 code C equivalent stands) is foreseen.

Airside service roads will be constructed to provide access to airport assets for vehicles such as buses, ground service equipment and maintenance vehicles. An airport security fence will be erected in line with aviation security standards.

In addition to the runway development, the following airside, terminal and landside developments are proposed as part of the proposed airport expansion:

- Passenger & Cargo Terminals
- Aircraft Hangers & Services
- Aircraft Parking Aprons
- Airside Service Roads
- Internal & External Road Infrastructure
- Runways, Taxiways & Taxi lanes
- Airport Security Fence
- VIP Processing Facility
- Hotel
- General Aviation & Fixed Base Operations Facilities
- Airport Support Facilities
- Bulk Fuel Storage Facility
- Petrol Filling Station
- Cargo Facility
- Airport Maintenance Facility
- Ground Support Equipment Maintenance Facility
- MRO (Maintenance, Repair & Overhaul) Facility
- Inflight Catering Facility
- Solar PV Plant & Biodigester
- Potable Water & Sewage Treatment Infrastructure
- Stormwater Management Infrastructure
- Airport Operations Centre
- Air Traffic Control Centre

Landside Developments

The landside development will include the following:

- Access, egress (departure) and an internal vehicular road system
- Drop & go facilities which will allow passengers to drop passengers off close to the passenger terminal building
- Public transport facilities
- Car rental facilities
- Vehicular parking (multi-storey parking, at-grade parking)
- Pedestrian walkways
- Billboards (indoor & outdoor, static & electronic)
- Droneport & vertiports

Commercial Developments

Included in the Development, and in addition to aeronautical development, are commercial developments. Approximately 350 000m² of lettable area will be provided for. The terminal precinct encompasses a terminal plaza with a landmark hotel building, aviation museum, amphitheatre, offices, and MICE (Meetings, Incentives, Conferences, & Exhibitions) developments along the landside access road to the terminal. Included in the aeronautical hub functions are hangars, aviation clubs, an aviation training centre, workshops, light manufacturing, logistics, warehousing, and food processing.

Access

There is existing access through the existing Cape Winelands Airport. Main access proposed is from the South off Lichtenburg Road (R312) and from the West off Klipheuwel Road (R302).

1.3. Purpose of the MMP

The purpose of the MMP is to ensure that the environmental impacts associated with the proposed activities during the maintenance phase are managed, mitigated and kept to a minimum. Possible maintenance is anticipated, associated risk identified, and these are mitigated/ managed to minimise the impact. It also provides clear guidance to the person responsible for the maintenance in future to avoid possible transgressions in terms of NEMA listed activities. In this way maintenance is also minimised and directional when it occurs.

1.4. Listed Activities

This MMP is applicable to the following listed activities in terms of NEMA:

Description of listed activity	Description of maintenance activities
EIA Regulations Listing Notice 1 of 2014 (as amended) Activity 19, Listing Notice 1: The infilling or depositing of any material of more than 10	Ongoing sediment removal from stormwater ponds, infrastructure, and areas upstream of existing roads within wetland areas may be

cubic meters into, or the dredging, excavation, removal or moving of soil, sand, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse; but excluding where such infilling, depositing, dredging, excavation, removal or moving- (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (N.B. Points (d) and (e) does not apply as these activities fall within the coastal zone)	necessary to maintain drainage, with additional removal potentially required following heavy rains.
EIA Regulations Listing Notice 3 of 2014 (as amended) Activity 12, Listing Notice 3: The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a MMP. **i. Western Cape** i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; ii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or iii. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister. (NB. Point iii does not apply as this activity falls within the coastal zone)	During the operation of the proposed development, maintenance of infrastructure such as fences, pipelines, and roads within 32 meters of designated wetland offset areas may be required. These maintenance activities could also involve the removal of rehabilitated indigenous vegetation to access and repair infrastructure.

The MMP must form part of all contractual documents for maintenance projects in the future. The adoption of the MMP by DEA&DP will require that the applicant/ landowner and all appointed contractors must comply with the requirements therein. Any amendments/ changes/ upgrades to the MMP required will require submission to and approval by DEA&DP.

1.5. Description of Proposed Maintenance Activities

a) Infrastructure associated with onsite wetlands

Limited infrastructure and associated maintenance activities are proposed within 32m from the onsite wetlands. This includes perimeter fence which traverse Seep Wetland 1 and runs adjacent (>32m) to CVB Wetland 2 and 3. Additionally, service infrastructure (bulk water pipeline & stormwater infrastructure) encroach into the 32m NEMA ZoR from onsite wetlands.

Maintenance activities for fences and water pipelines focus on ensuring structural integrity, preventing blockages, and managing surrounding vegetation. Routine inspections are essential to identify wear, damage, leaks, or obstructions. Repairs often involve replacing damaged or broken sections, tightening loose fasteners, or addressing corrosion. Vegetation removal and excavation/trenching may be needed to conduct the necessary repairs or replacements. For fences, removing overgrown vegetation prevents damage and maintains clear access. Water pipelines require routine cleaning to prevent blockages and maintain flow.

b) Wetland offset areas

Seep wetland 1 located within the airport precinct will be partially lost as a result of the proposed development. The proposed development activities will result in loss of approximately 6.74ha of wetland habitat. When accounting for indirect impacts, the total loss extends to 7.44ha (Figure 6). A freshwater offset has been developed to compensate for the loss of freshwater habitat (FEN, Wetland Offset Study and Implementation Plan, September 2024). The proposed offset involves rehabilitating the remaining seep wetland habitat (3.68ha) in the eastern part of the airport precinct along with a portion of CVB Wetland 1 (36.2ha) further East of the airport precinct into which the seep wetland drains (via an agricultural drain)(Figure 6). In addition, the agricultural drain connecting the seep wetland to the CVB wetland is also earmarked for rehabilitation (Figure 6). Offset consideration is being done in consultation with the CoCT, Cape Nature, the DEA&DP and the DWS.

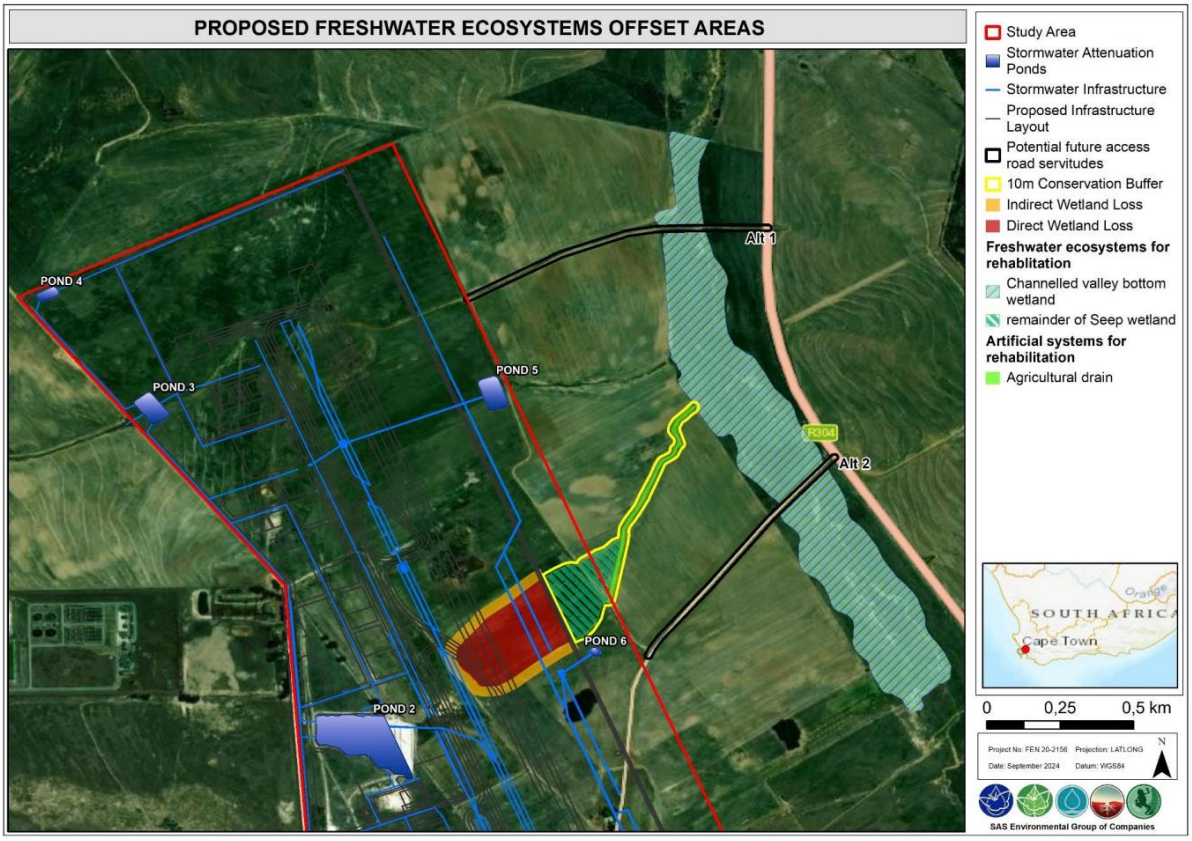


Figure 6: Extent of wetland to be lost (7.44ha) vs identified wetland areas to be rehabilitated (FEN, Wetland Offset Study and Implementation Plan, Sept 2024).

The freshwater specialist recommends extensive rehabilitation work within CVB wetland 1, the agricultural drain, and surrounding areas to meet the Wetland Offset requirements and achieve a Category D Present Ecological State (PES) over the long term. In contrast, the seep wetland requires less extensive restoration.

Key rehabilitation activities identified include:

- Removing alien invasive plants (AIPs) and harvesting native wetland plants for revegetation.
- Addressing gully and headcut erosion, and regrading sections of the CVB wetland and agricultural drain.
- Revegetating the restored wetland areas and agricultural drain.
- Implementing stormwater management measures for the site.

The rehabilitation is envisaged to take no more than one year with minor potential aftercare and maintenance where interventions took place. Maintenance activities for the wetland offset include establishing a monitoring program to regularly assess water quality, hydrological parameters, wetland health, and key ecological indicators to maintain and improve the wetland's condition. This includes plans for addressing issues like stormwater blockages and changes in vegetation health. An adaptive management plan will be implemented that allows for adjustments stormwater management, erosion control, and other practices based on monitoring results and evolving

environmental conditions. All rehabilitated wetlands and associated 15m/16m operational buffers must be maintained in the desired ecological state (PES Category D).

Maintenance activities for wetland offset areas will involve ongoing monitoring and targeted removal of alien invasive plants (AIPs) to mitigate erosion and sedimentation impacts. Continuous monitoring and maintenance should cover all areas where AIPs have been cleared, with an additional five-year annual control program to address re-sprouting and reduce the existing alien seed bank. Following this period, the need for AIP control will be reassessed through adaptive management practices based on actual conditions as managed by the Alien Invasive Vegetation Management Plan developed for the proposed development (PHS Consulting, October 2024). Control measures within the 32meter regulated buffer around wetlands must be undertaken in accordance with the measures outlined in the Wetland Offset Study and Rehabilitation Plan (FEN, Sept 2024) and must include necessary follow-up treatments after initial removal.

To ensure the long-term effectiveness of the remediation efforts for head-cut and gully erosion in CVB Wetland 1 and the associated agricultural drain, active maintenance is required. This involves regular monitoring for signs of erosion and sedimentation, with interventions as needed. While no major remediation work is expected, regular oversight will assist with ensuring that the integrity of the initial rehabilitation efforts is maintained. If erosion or sediment deposition is observed, the underlying causes must be identified, and appropriate control measures implemented. Additionally, the offset wetlands should remain free from dumped waste and debris; any discarded materials must be manually removed and promptly.

Areas that have been revegetated with indigenous plants will need ongoing monitoring throughout their establishment, with replanting carried out as needed. It is anticipated that there will be loss of some planted saplings during the rehabilitation phase. To maximize success of revegetation efforts, additional plants should be added one year after rehabilitation, prior to the rainy season. For the first three years following construction, saplings should be replanted annually during the winter months. Additionally, since the wetlands and surrounding areas are grazed by resident cattle, regular monitoring for signs of damaged grazing is essential, with prompt action taken to address any damage observed.

In addition to the planned rehabilitation and maintenance of wetland offsets, storm events may cause damage to onsite wetlands that will require targeted restoration. After heavy rains, wetland areas downstream of roads should be inspected for silt and debris accumulation. Prompt manual removal of debris and excess sediment will help preserve the natural flow, protecting water quality and vegetation from long-term impacts.

c) Maintenance associated with stormwater infrastructure

The proposed stormwater drainage network is based on a dual stormwater system, consisting of a major and a minor network, conveying stormwater generated on site via pipes and overland flow

routes into seven (7) dry attenuation ponds with engineered layerworks and one (1) wet detention pond, positioned at strategic locations along the proposed CWA development site boundary (Figure 7). The proposed stormwater infrastructure also includes a series of dry swales that will serve to convey stormwater.

The basic stormwater design principles used to inform the concept design of stormwater infrastructure for the CWA site can be best described as follows:

- The natural drainage direction of stormwater of the site will remain unchanged as the site generally falls in a south to north direction with outfalls positioned strategically along the eastern and western boundaries.
- The minor system will comprise of open drains, an underground piped network complete with channels, inlet catchpits, oil separators, manholes and outlet structures sized to accommodate stormwater runoff from the roads, buildings, and other hard surfaced area for at least minor storm events up to the 1:5-year RI storm.
- The major system will comprise of roads and on-site overland flow paths which will operate in conjunction with the minor system to accommodate stormwater runoff from roofs and other hard surfaced areas for major storm events up to and including the 1:50-year RI storm.
    - The design levels allow for on-site overland flow routes in the event of a blockage or failure of the minor system.
- Where no on-site overland flow paths exist to accommodate run-off from major storm events, the underground piped network will be sized to accommodate run-off for major storm events (up to the 1:50 year).
- The overland flow routes on the CWA site are designed to safely convey the 1:100-year storm event towards the ponds situated along the boundary of the site. From there formal overland escape routes, in the form of pond overflows, will be designed to convey peak runoff from the 1:100-year storm which cannot be handled by the above proposed stormwater system before discharging into the adjacent infrastructure.

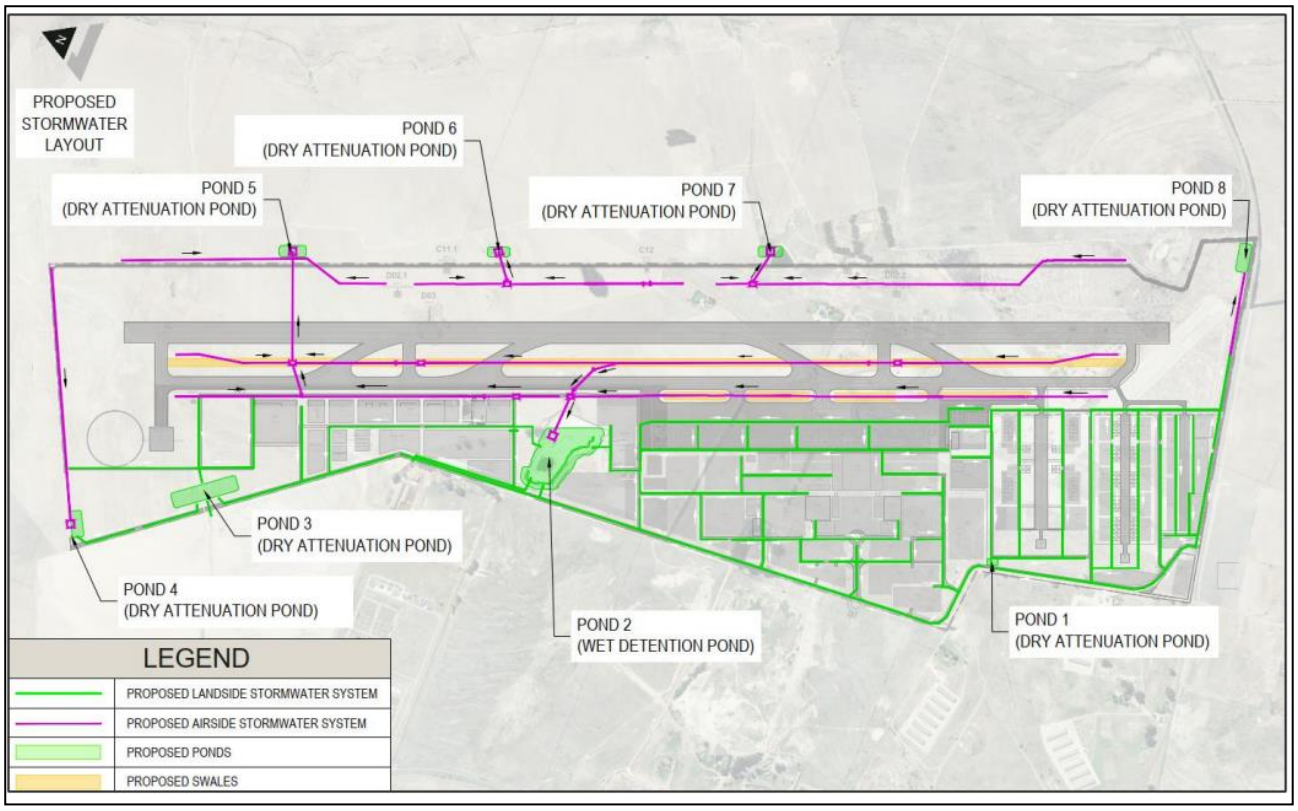


Figure 7: Proposed stormwater management layout (Zutari, Stormwater Management Plan, September 2024)

The proposed stormwater infrastructure, including dry attenuation ponds, stormwater pipes, and dry swales, will require ongoing maintenance activities within the 32m Zone of Regulation (ZoR) from wetlands. The maintenance activities will include:

- Monthly Litter and Debris Removal: Regular removal of sand, litter, and refuse from stormwater infrastructure, including kerbs and channels.
- Pipe Maintenance: Monthly removal of refuse from pipes, along with sand and silt using high-pressure jetting.
- Vegetation Management: Monthly management of vegetation to maintain design levels.
- Annual Cleanup: Removal of dead vegetation within and around the stormwater infrastructure before the growing season begins.
- Inspection of Covers and Frames: Monthly inspections of covers and frames, with replacement, repositioning, or repairs as needed.
- Embankment Inspections: Monthly or post-rain inspections of embankments, reshaping them if required to restore the original slope.
- Headwall Inspections: Monthly or post-rain inspections of headwalls, removing any blockages and trimming natural vegetation for unobstructed drainage.
- Inlet, Outlet, and Basin Inspections: Monthly checks for overflows, blockages, and sediment accumulation, with necessary corrective actions taken.
- Sediment Removal: Annual (or as required) removal of sediment from inlets, outlets, and forebays.

- Forebay and Outlet Inspection: Semi-annual inspections of the sedimentation forebay and outlet apron, especially before the first seasonal rains, to remove any accumulated silt and debris, ensuring proper disposal at suitable landfill sites without introducing silt into the stormwater system.
- Vegetation Replanting: Replanting or reseeding in degraded areas as needed and pruning plants for optimal stormwater management.
- Repair and Maintenance of Infrastructure: Prompt repairs of any erosion or damage to the stormwater infrastructure, ensuring design levels are maintained, which may involve vegetation removal, excavation, reshaping, and replanting.
- Headwall Maintenance in Dry Swales: Monthly removal of refuse from headwalls in dry swales, along with sand and silt removal using high-pressure jetting.

d) Maintenance associated with access and maintenance roads

A maintenance road will be constructed along the eastern boundary of the study area and two existing gravel access roads currently traverse CVB Wetland 1. Maintenance activities for gravel roads will involve several key tasks to ensure their safety, functionality, and longevity:

- Inspection and Reporting: Conducting regular inspections to assess the overall condition of the road, identifying issues that require attention, and documenting any necessary repairs.
- Grading: Grading of the road surface will likely be necessary to maintain a smooth and even driving surface, addressing ruts and washboarding caused by weather and vehicle traffic.
- Drainage Management: Regular inspection and maintenance of drainage ditches, culverts, and cross-drainage structures will be essential to prevent water accumulation and erosion. This includes clearing debris and sediment from these areas.
- Infrastructure Repairs: Timely identification and repair of potholes, erosion and other surface irregularities will help prevent further damage, erosion and potential for sedimentation of downstream wetlands.
- Vegetation Control: Removal of overgrown vegetation and weeds along the road edges.
- Flood Damage Repair: After a storm event, roads should be inspected for washouts, erosion, and structural damage. Where damage is found, eroded areas should be filled with compacted gravel or soil and the surface should be regraded to restore safe access and prevent further erosion.

1.6. MMP process project team

Team member	Expertise	Role
Amanda Fritz-Whyte	EAP – MMP compilation	Compilation of MMP
Olivia Brunings	Candidate EAP – MMP compilation	Compilation of MMP
Zutari	Project Engineer	Compilation of Stormwater Management plan
FEN	Freshwater Ecologist	Compiled Freshwater Ecological report, Wetland offset report
Deon Cloete	Landowner Representative responsible for implementation of MMP	Input into MMP

2. DEFINITIONS OF TERMS AND ACRONYMS

Definitions:

"**Activity**" means an activity identified in any notice published by the Minister or MEC in terms of section 24D(1)(a) of the Act as a listed activity or specified activity. Activity in this document refers to the activities as listed in Listing Notice 1, 2 and 3 of the Environmental Impact Assessment Regulations, 2014 (as amended).

"**Bush Encroachment**" means stands of plants of the kinds specified in column 1 of Table 4 of the Conservation of Agricultural Resources Act (Act No. 43 of 1983) where individual plants are closer to each other than three times the mean crown diameter.

"**Diverting**" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, cause the instream flow of water to be rerouted temporarily or permanently.

"**Ecological Infrastructure**" refers to naturally functioning ecosystems that deliver valuable services to people, such as water and climate regulation, soil formation and disaster risk reduction.

"**Estuary**" has the meaning assigned to it in the National Environmental Management: Integrated Coastal Management Act, 2008 (Act No. 24 of 2008)

"**Flood event**" is the event where land is inundated by the overflowing of water from a river channel and where this event causes significant damage to infrastructure or results in watercourse erosion and/or sediment deposition.

"**Flow-altering**" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, alter the instream flow route, speed or quantity of water temporarily or permanently.

"**General Authorisation**" in this document refers to the General Authorisation in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) or Section 21(i) (GN. 509 of 26 August 2016).

"**Impeding**" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), means to, in any manner, hinder or obstruct the instream flow of water temporarily or permanently, but excludes the damming of flow so as to cause storage of water.

"**Indigenous vegetation**" refers to vegetation consisting of indigenous plant species occurring naturally in an area, regardless of the level of alien infestation and where the topsoil has not been lawfully disturbed during the preceding ten years.

"**Maintenance**" means actions performed to keep a structure or system functioning or in service on the same location, capacity and footprint.

"**Maintenance Management Plan**" means a management plan for maintenance purposes defined or adopted by the competent authority.

"**River Management Plans**" as defined in the General Authorisation, in terms of section 39 of the National Water Act, 1998 (Act no 36 of 1998) for Water Uses as defined in Section 21(c) and 21(i) (GN. 509 of 26 August 2016), any river management plan developed for the purposes of river or storm water management in any municipal/metropolitan area or described river section, river reach, entire river or sub quaternary catchment that considers the river in a catchment context.

"**River reach**", a length of river characterised by a particular channel pattern and channel morphology, resulting from a uniform set of local constraints on channel form. A river reach is typically hundreds of meters in length.

"**Stretch**" a section of watercourse, delineated between two or more mapped coordinates, within which proposed maintenance activities are to take place as guided by a MMP.

"**Thalweg**" refers to the line of lowest elevation within a valley or watercourse.

"**Watercourse**" means:

(a) a river or spring;

(b) a natural channel in which water flows regularly or intermittently;

(c) a wetland, lake or dam into which, or from which, water flows; and

any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998 (Act No. 36 of 1998); and a reference to a watercourse includes, where relevant, its bed and banks.

"**Wetland**" means, land which is transitional between terrestrial and aquatic systems where the water table is usually at or near the surface, or the land is periodically covered with shallow water, and which land in normal circumstances supports or would support vegetation typically adapted to life in saturated soil.

Acronyms:

CBA	Critical Biodiversity Area
CVB	Channelled Valley Bottom
DEA&DP	Department of Environmental Affairs & Development Planning
DWS	Department of Water & Sanitation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
GA	General Authorisation, in terms of the National Water Act, 1998 (Act No. 36 of 1998)
GN	Government Notice
HGM unit	Hydrogeomorphic unit
MEC	Member of Executive Council
MMP	Maintenance Management Plan
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)
NFEPA	National Freshwater Ecosystem Priority Areas
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PES	Present Ecological State
PPP	Public Participation Process
REC	Recommended Ecological Category
RI	Rapid Intensification
RQO's	Resource Quality Objectives
SANParks	South African National Parks Authority
WCBSP	Western Cape Biodiversity Spatial Plan
WUA	Water Users Association
WULA	Water Use Licence Application

3. ENGAGEMENT PROCESS

4.1. AUTHORITY ENGAGEMENT

Please indicate (with an 'x') which of the following authorities have been consulted to provide input based on the proposed maintenance activities:

- X Department of Water and Sanitation (as an I&AP and as CMA)
- X Catchment Management Agency
- X CapeNature
- ☐ SANParks
- X Western Cape Department of Agriculture, Directorate: Land Use Management
- X Local Municipality (City of Cape Town)
- X Heritage Western Cape
- ☐ Department of Agriculture, Forestry and Fisheries
- X Department of Environmental Affairs & Development Planning
- ☐ Other (please list):
  - X West Coast District Municipality
  - X Swartland District Municipality
  - X Cape Winelands District Municipality
  - X Western Cape Transport and Public Works
  - X DEA&DP: Waste Management Directorate
  - X DEA&DP: Pollution and Chemical Management

The above authorities will be consulted for their input during the EIA process PPP and comments received will be captured in a Comments and Responses report to be submitted with the final EIA to DEA&DP. Amendments to the MMP will be included in the final MMP submitted for approval to DEA&DP.

4.2. PUBLIC PARTICIPATION

The following public participation recommendations, regarding the different scale or geographical extent of the request, are as follows. If no, then motivation must be given as to why a particular process was not undertaken.

Single or Multiple properties / WUA / IB / local authority applying for a single MMP to cover a stretch of a watercourse <u>longer than 1 kilometer (>1000 meters) OR</u> a catchment or sub-catchment area

(i) Given written notice to the owner(s) or person(s) in control of the land if the person(s) undertaking the maintenance activity(ies) is not the owner or person in control of the land.	***Yes***	***POA for P7/942, RE/474; P3/474 in place***
(ii) Given written notice to non-participating adjacent landowners (up to 1km upstream and downstream from furthest upstream and downstream maintenance site and opposite side of the riverbanks) of the development of the	***Yes***	***Electronic communications to adjacent landowners as***

MMP. *This must also include general notice to adjacent WUA or IB of the proposed MMP development if application is made by a WUA or IB.*		***part of Scoping & EIA PPP.***
(iii) Stakeholder meeting held for all participating and non-participating landowners, in which details and methodology of MMP is presented. A minimum of two meetings are required, to present on the development of the plan and a final draft version of the plan.	***Yes***	***A 1st Open public meeting was held on 8 May 2024, explaining the extent of watercourses and wetlands to be affected, and assessed as part of the development.*** ***Adjacent landowners to provide comment on the MMP as part of EIA PPP which will consist of a minimum of two commenting periods.*** ***A 2nd Open day to be held on 20 November during IA Phase to enable stakeholders to engage re MMP and with specialists and to make comment to EAP.***
(iv) Given written notice to any organ of state having jurisdiction in respect of any aspect of the activity(ies) proposed within the development of the MMP.	***Yes***	***Electronic communications sent to organs of state as per Scoping & EIA PPP. Meeting and engagement also held with DWS.***
(v) Provide written notice and confirmation to the relevant Water Users Association (WUA) or Irrigation Board (IB), of the development of the MMP (*if a MMP is not requested and managed through a WUA/IB)*.	***Yes***	***DWS included as I&APs for Scoping & EIA PPP. No irrigation board in this area.***
(vi) Describe any other measures taken to inform the public about this MMP. A complete list of measures that are in place to deal with interactions with the public, if it becomes necessary and required by the competent authority during implementation of the project, must be provided for.	***Yes***	***- Site notices placed as part of Scoping & IA Phase.*** ***- Advert placed in Tygerburger to inform potential IAPs of Scoping & IA Phase and MMP and opportunity to comment for 30 days.***

		- Email and sms communication to all registered IAPs for the project. ***- Hard Copy of documents placed in Fisantekraal library.*** ***- Copy of EIA and MMP and all other documentation placed on PHS Consulting website for two separate 30 day commenting periods.***

5. DATA COLLECTION AND ASSESSMENT

5.1. Activities during Maintenance Phase

The following activities will be undertaken during the maintenance phase of the proposed development:

- General maintenance and repairs to perimeter fences. This includes replacing damaged sections, securing loose fasteners or treating areas affected by corrosion.
- Maintenance and repairs to water pipelines including replacing damaged sections, securing loose fittings, or treating corrosion.
- Excavation or trenching may be required to facilitate necessary maintenance works such as replacement of fence posts or pipeline repairs.
- Vegetation and debris removal from areas where maintenance work is required.
- Vegetation management to maintain stormwater infrastructure capacity and road visibility and prevent potential damage from overgrown vegetation.
- Erosion control measures associated with the dam, its infrastructure and areas exposed during vegetation removal
- Periodic flushing or scouring of pipelines to maintain capacity and address the build-up of organic materials.
- Disturbance of instream habitat and potentially increased risk of erosion because of periodic vegetation removal to maintain ecological integrity of the natural areas onsite
- Upkeep of rehabilitated offset wetlands including replanting indigenous vegetation if required, addressing erosion and sedimentation that may arise.
- Silt removal from stormwater ponds and associated stormwater infrastructure. This work will likely require using an excavator or similar equipment both within and around the ponds.
- Removal of
- Gravel road maintenance will involve regular inspections to identify issues and grading and pothole repair to keep the surface even.
- Drainage features, such as ditches and culverts, will be cleared regularly to prevent erosion.

PLEASE NOTE: The information provided in this section is largely obtained from the Freshwater Ecological Assessment by FEN Consulting (Sept 2024) as provided in Appendix A of this report. The Risk Matrix for the S21(c) and (i) activities are provided in the Freshwater Ecological report and used for the water use applications and registrations associated with the maintenance activities. The Terms of Reference for the specialist appointment is also provided for in Appendix A.

Additionally, please consult the Wetland Offset Monitoring Plan included in Appendix B of this document (FEN, Wetland Offset Study and Implementation Plan, Sept 2024). Appendix C provides the coordinates for all sites where maintenance activities will be conducted.

5.2. Catchment context:

The proposed development site is located within the Breede-Olifants Water Management Area, quaternary catchment G21E. According to the FEPA database, the sub-quaternary catchment is not currently considered important in terms of fish or freshwater ecological conservation. However, the NGI river line vector dataset for the Western Cape does indicate several perennial and non-perennial drainage lines within the vicinity of the study area (Figure 8). The Mosselbank River is located West of the study area, and the Klapmuts River North of the site. Both rivers are considered largely modified (FEN, Freshwater Ecological Scoping Report, February 2024).

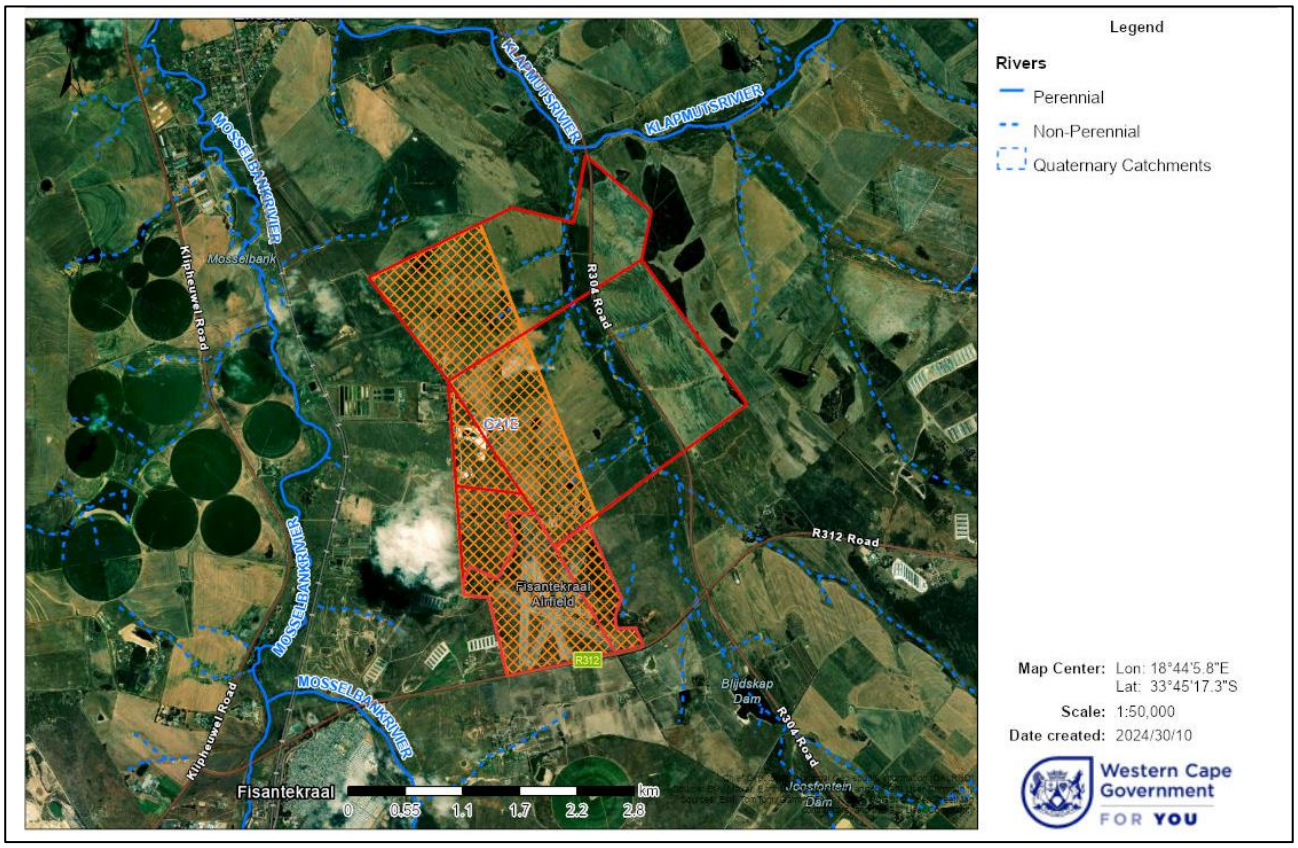


Figure 8: Development area (hatched orange) and cadastrals (red outline) in relation to identified rivers and drainage lines in the area (PHS Consulting, CapeFarmMapper, Oct 2024).

5.3. Context in terms of the Berg Resource Quality Objectives

The proposed CWA is located within Quaternary Catchment G21E which falls within what used to be the Berg WMA. While draft resource quality objectives (RQO) are available for the Berg Catchment, Quaternary Catchment G21E is not listed. Quaternary Catchment G21E is located within the Diep River Catchment IUA. Where RQO have been listed for quaternary catchments within the Diep River Catchment, the target ecological category ranges between C and D.

5.4. Regional and National Conservation context

To establish a comprehensive regional and national conservation context, various national and provincial wetland databases were consulted during the desktop assessment of the site. Key resources included the NFEPA 2011 wetlands database (Figure 9 & Figure 10), the National Wetlands Map 5 (included in Figure 11), and the CoCT 2017 wetland dataset (Figure 12 - Figure 14). An overview of the desktop information gathered from these datasets is presented in Table 1.

Table 1: Desktop data (from desktop databases only) relating to the characteristics of the freshwater ecosystems associated with the study and investigation areas (FEN, Freshwater Ecological Assessment, Sept 2024).

Aquatic ecoregion and sub-regions in which the study area is located		Detail of the study area in terms of the National Freshwater Ecosystem Priority Area (NFEPA) (2011) database	
Ecoregion	South Western Coastal Belt		
Catchment	Berg/Bort/Potberg	River FEPA	The study area is located within a sub-quaternary catchment currently not considered important in terms of fish or freshwater ecological conservation.
Quaternary Catchment	G21E		
WMA	Berg		
subWMA	Lower Berg	NFEPA Wetlands (Figure 9)	According to the NFEPA database (2011), no natural wetlands are located within the study area. One artificial seep wetland is indicated within the central eastern portion of the study area. This artificial seep wetland is considered to be in a critically modified ecological condition (Class Z3). Three artificial wetland flats are located within the investigation area. These artificial wetlands are also considered to be in a critically modified ecological condition (Class Z3). During the site assessment, all artificial wetlands were identified as artificial impoundments not associated with any natural freshwater ecosystems.
Dominant characteristics of the South Western Coastal Belt Ecoregion Level II (24.05) (Kleynhans *et al*., 2007)			
Dominant primary terrain morphology	Moderately Undulating Plains, Hills		
Dominant primary vegetation types	West Coast Renosterveld, Mountain Fynbos, Sand Plain Fynbos, Central Mountain Renosterveld		
Altitude (m a.m.s.l)	100 – 500	Wetland Vegetation Type (Figure 10)	The majority of the study area is situated within the West Coast Shale Renosterveld wetland vegetation type, while the south eastern and central northern portions of the study area are located within the West Coast Silcrete Renosterveld. The central western portion of the study area is located in the Southwest Sand Fynbos wetland vegetation types. All three wetland vegetation types are considered Critically Endangered as per Mbona *et al.* (2015).
MAP (mm)	400 – 500		
The coefficient of Variation (% of MAP)	25 – 35		
Rainfall concentration index	30 – 55		
Rainfall seasonality	Winter	NFEPA Rivers (Figure 9)	As per the NFEPA database (2011), there are no rivers located in the study area. The Mosselbank River is located approximately 1 km west of the study area (based on the centre line of the river). According to the NFEPA database (2011), the Mosselbank River is considered to be in a largely modified ecological condition (Class D). The Klapmuts River is located approximately 1.1 km north east of the study area. According to the NFEPA database (2011), the Klapmuts River is considered to be in a largely modified ecological condition (Class D).
Mean annual temp. (°C)	16 – 18		
Winter temperature (July)	6 – 20		
Summer temperature (Feb)	14 – 30		
Median annual simulated runoff (mm)	60 – 250		
National Biodiversity Assessment (2018): South African Inventory of Inland Aquatic Ecosystems (SAIIAE) (Figure 11) (National Wetland Map 5 is included in the NBA)			
According to the NBA 2018: SAIIAE, three natural seep wetlands are located within the study area. The seep wetlands indicated within the study area are considered to be in a largely and critically modified ecological condition (Class D/E/F), are indicated as being affected by mining, are considered to be critically endangered according to the Ecosystem Threat Status (ETS), and poorly protected according to the ecosystem protection level (EPL). Eight more natural seep wetlands are located within the investigation area, five of which are located directly adjacent to the western boundary of the study area. According to the available database, these seep wetlands range from being considered to be in a moderately modified (Class C) to a largely and critically modified (Class D/E/F) ecological condition, and one is impacted by roads. Five of the seep wetlands are considered vulnerable according to the ETS, and well protected according to the EPL, while the remaining three are considered to be critically endangered according to the ETS and poorly protected according to the EPL. The Mosselbank River is located approximately 1 km west of the study area and is considered to be in a largely modified ecological condition (Class D), critically endangered according to the ETS and not protected according to the EPL as per the NBA dataset.			

Importance of the study area according to the City of Cape Town wetlands Dataset (2017) (Figure 12 and Figure 13)	
The CoCT Wetlands Dataset (2017) indicates three natural seep wetlands and a natural depression wetland within the north eastern and central portion of the study area. Additionally, eight natural seep and four depression wetlands are indicated within the investigation area, including five seep wetlands located directly adjacent to the central western boundary of the study area (corresponding with the findings from the NBA (2018)). The seep wetlands within the study area and three of the eight seep wetlands within the investigation area, are considered to be Critical Ecological Support Areas (CESA) according to the CoCT Wetlands Dataset (2017). CESA are unselected areas which host natural vegetation and considered essential for ecological support for Critical Biodiversity Areas and protected sites. The depression wetlands in the study and investigation areas, and the remaining two seep wetlands in the investigation area are categorised as Other Ecological Support Areas (OESA). OESAs are lower ranking artificial wetlands and lowest ranking natural and semi-natural wetlands. OESA wetlands should be managed for maintenance of ecological functioning within and around the wetland.	
City of Cape Town Biodiversity Network (2017) (Figure 14)	
The south eastern portion of the study area is located in an area classified as a CBA 1b of terrestrial importance. CBA 1b are irreplaceable good and fair condition sites that host critically endangered vegetation of good and fair quality. These sites are required to achieve biodiversity targets, and any loss of these areas is a permanent and irrevocable loss. Portions within the southern extent of the study area are classified as CBA 2 of terrestrial importance. CBA 2 are restorable irreplaceable sites that host critically endangered vegetation and sometimes associated with rivers and wetlands of restoration condition. CBA 2 are required to meet national biodiversity targets. A small portion within the south eastern extent of the investigation area is classified as an Other Ecological Support Area).	
National web based environmental screening tool (2020) (Figure 15)	
The screening tool is intended for pre-screening of sensitivities in the landscape to be assessed within the Environmental Impact Assessment (EIA) process. This assists with implementing the mitigation hierarchy by allowing developers to adjust their proposed development footprint to avoid sensitive areas.	The majority of the study area is located in an area considered to be of **low aquatic biodiversity** importance. Scattered portions within the study area are considered to be areas of **very high aquatic biodiversity** sensitivity due to the presence of wetlands and CESA as identified by the CoCT wetlands Dataset (2017). The sensitivity of some of the freshwater ecosystems was disputed. Refer to **Appendix E** for more information.

CBA = Critical Biodiversity Area; CESA = Critical Ecological Support Area; CR = Critically Endangered; EI = Ecological Importance; ES = Ecological Sensitivity; ESA = Ecological Support Area; EN = Endangered; m.a.m.s.l = Metres above mean sea level; MAP = Mean Annual Precipitation; NFEPA = National Freshwater Ecosystem Priority Area; OESA = Other Ecological Support Area; PES = Present Ecological State; WMA = Water Management Area.

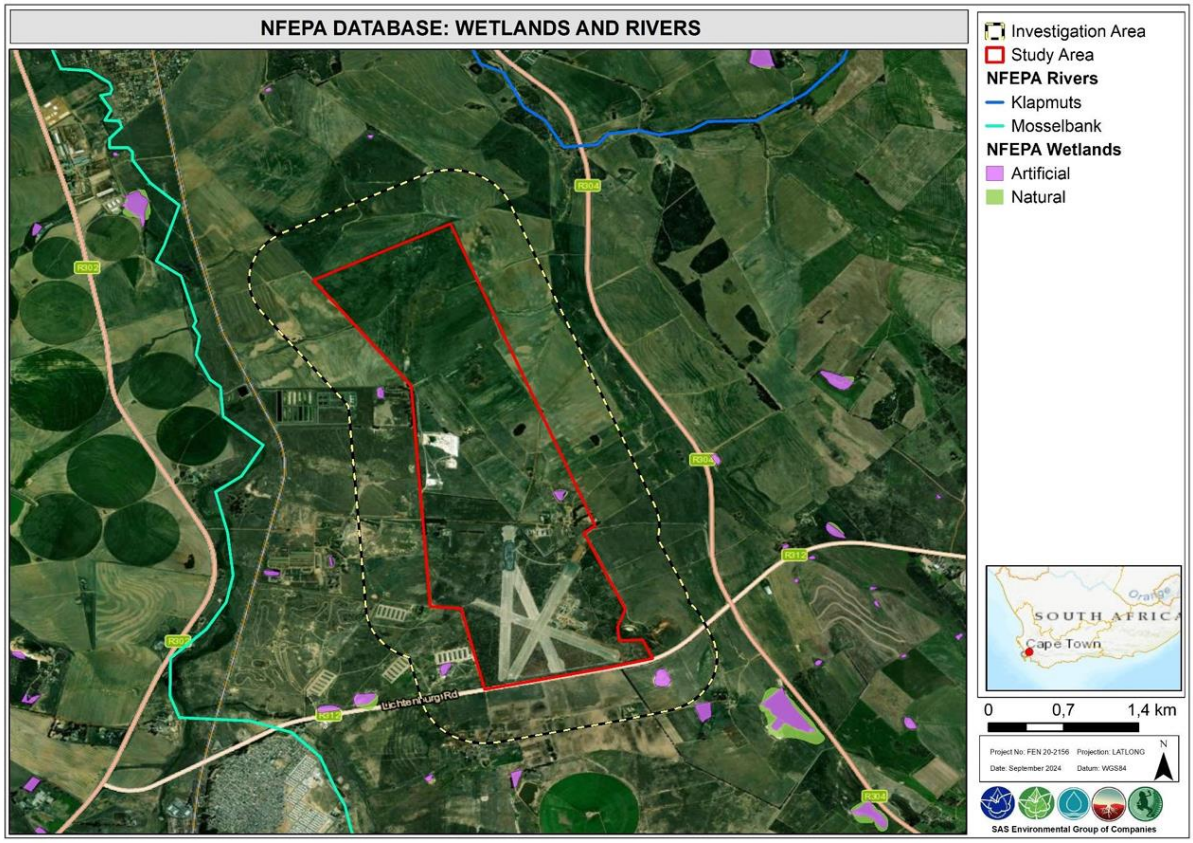


Figure 9: Rivers and natural and artificial wetlands associated with the study and investigation areas, according to the NFEPA database (2011) (FEN, Freshwater Ecological Assessment, Sept 2024)

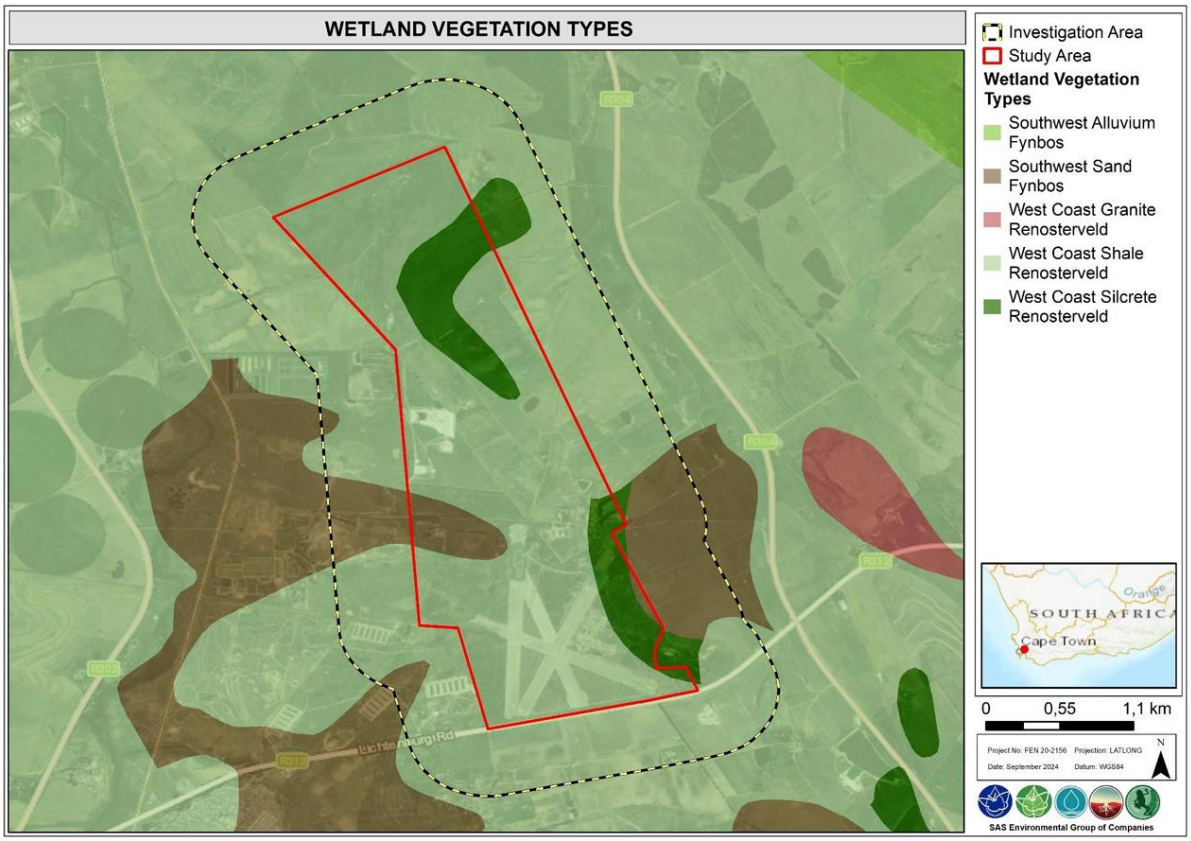


Figure 10: Wetland vegetation types associated with the study and investigation areas according to the NFEPA database (2011) (FEN, Freshwater Ecological Assessment, Sept 2024)

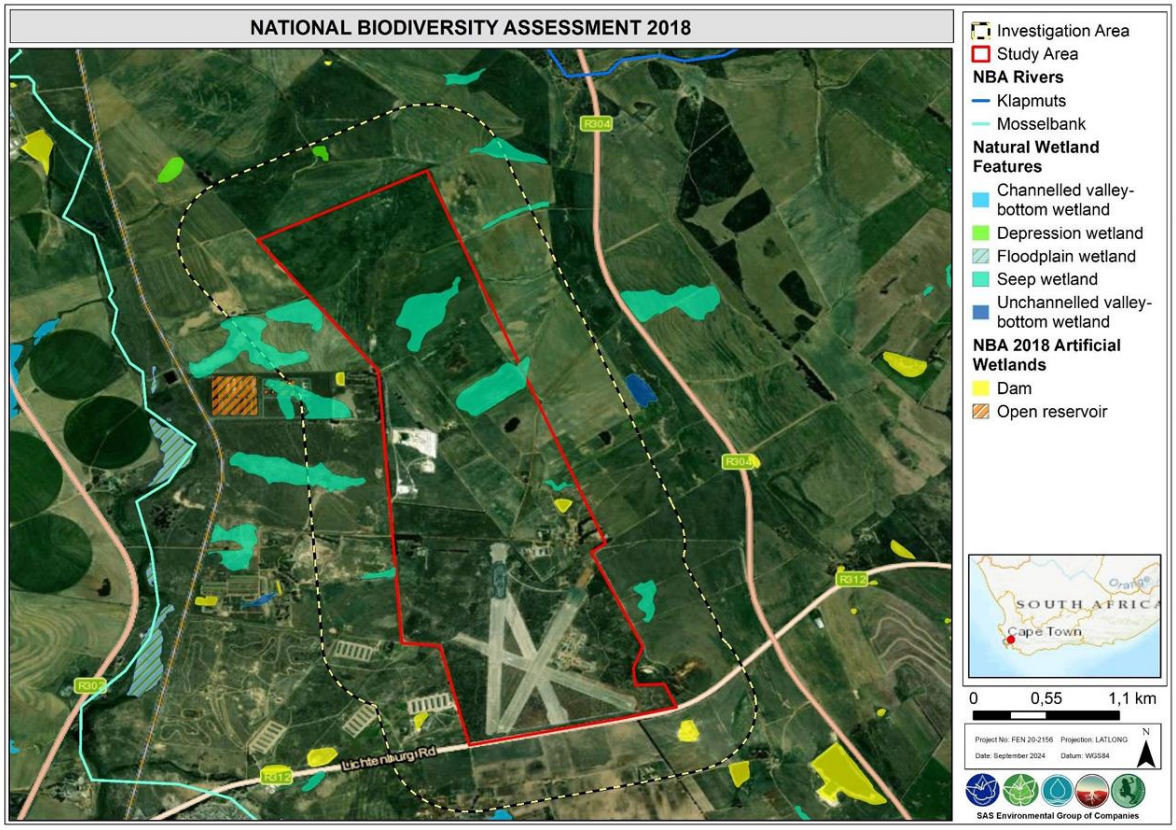


Figure 11: Wetlands and rivers associated with the study and investigation areas according to the National Biodiversity Assessment database (2018) (FEN, Freshwater Ecological Assessment, Sept 2024).

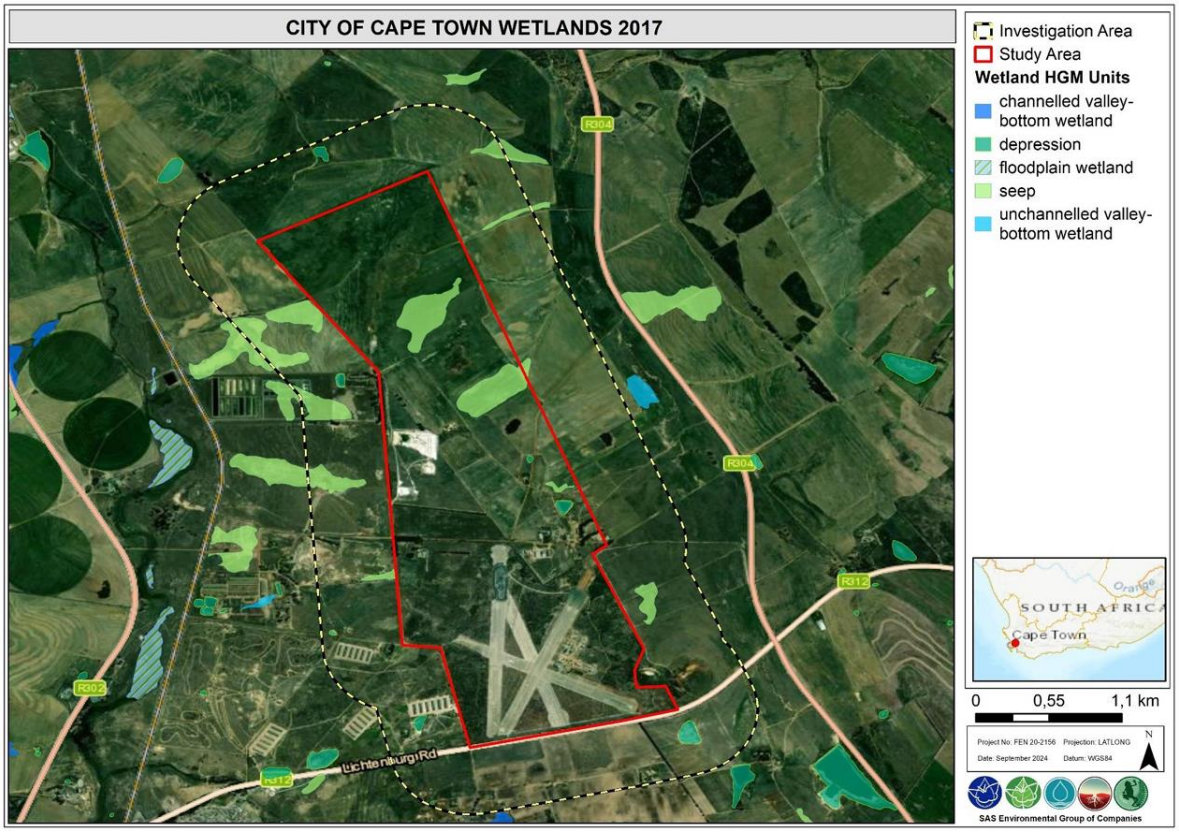


Figure 12: Wetlands identified by the City of Cape Town Wetlands Dataset (2017) to be associated with the study and investigation areas (FEN, Freshwater Ecological Assessment, Sept 2024)

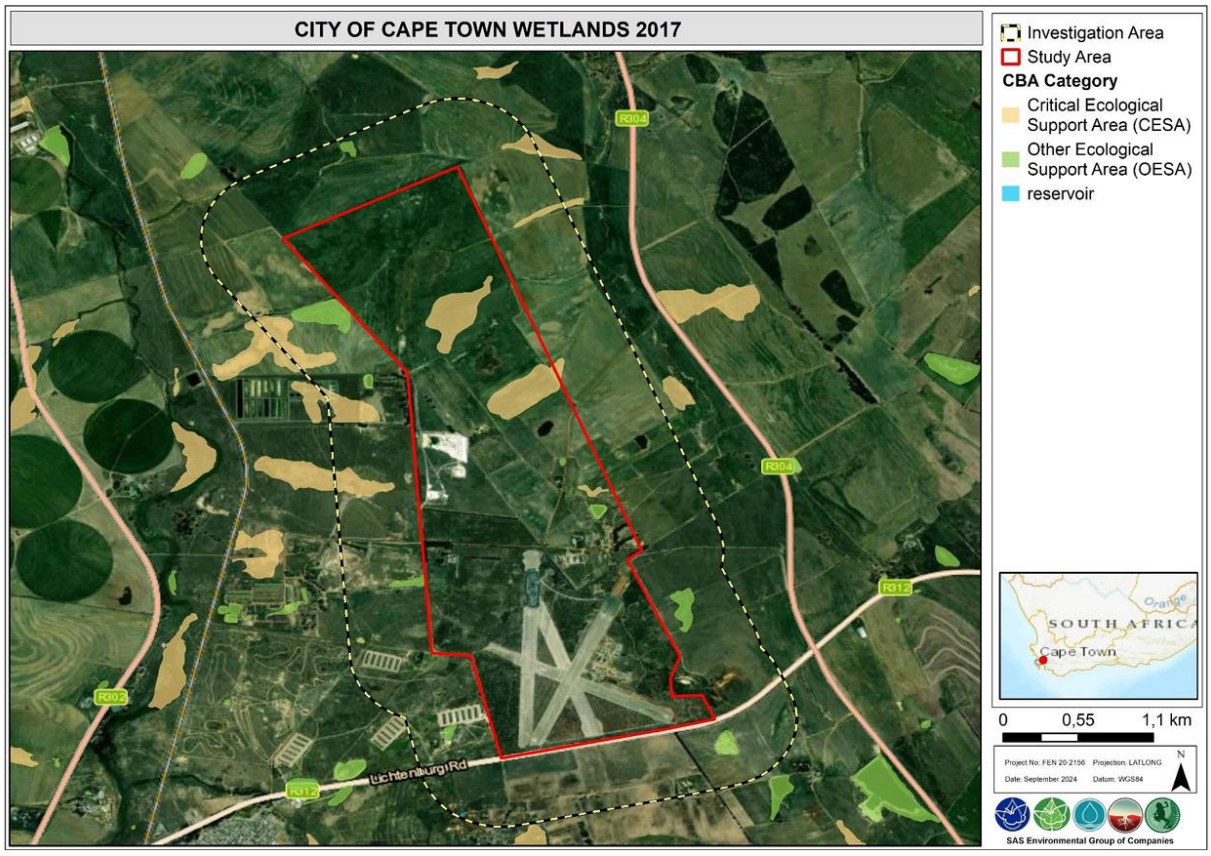


Figure 13: The ecological importance categories of the wetlands in the study and investigation areas according to the City of Cape Town Wetlands (FEN, Freshwater Ecological Assessment, Sept 2024)

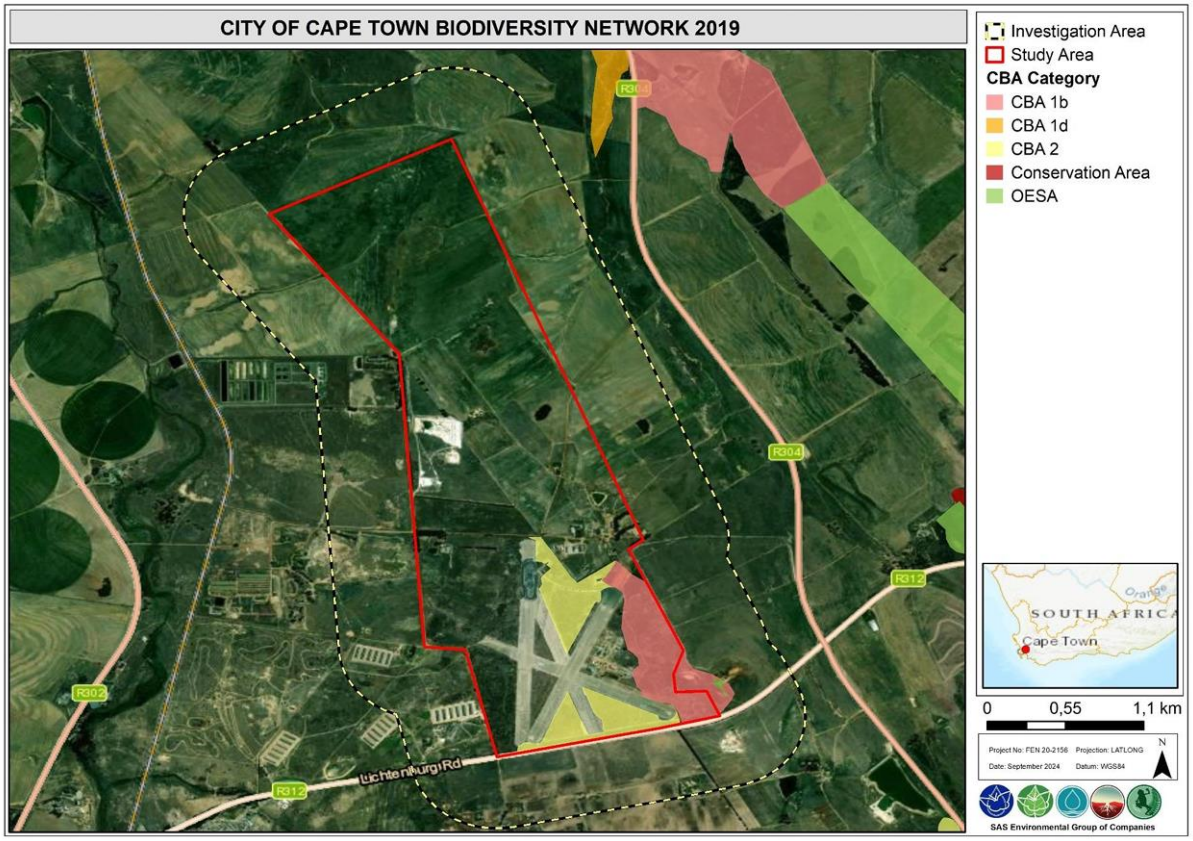


Figure 14: Areas of ecological importance associated with the study and investigation areas according to the City of Cape Town Biodiversity Network (FEN, Freshwater Ecological Assessment, Sept 2024)

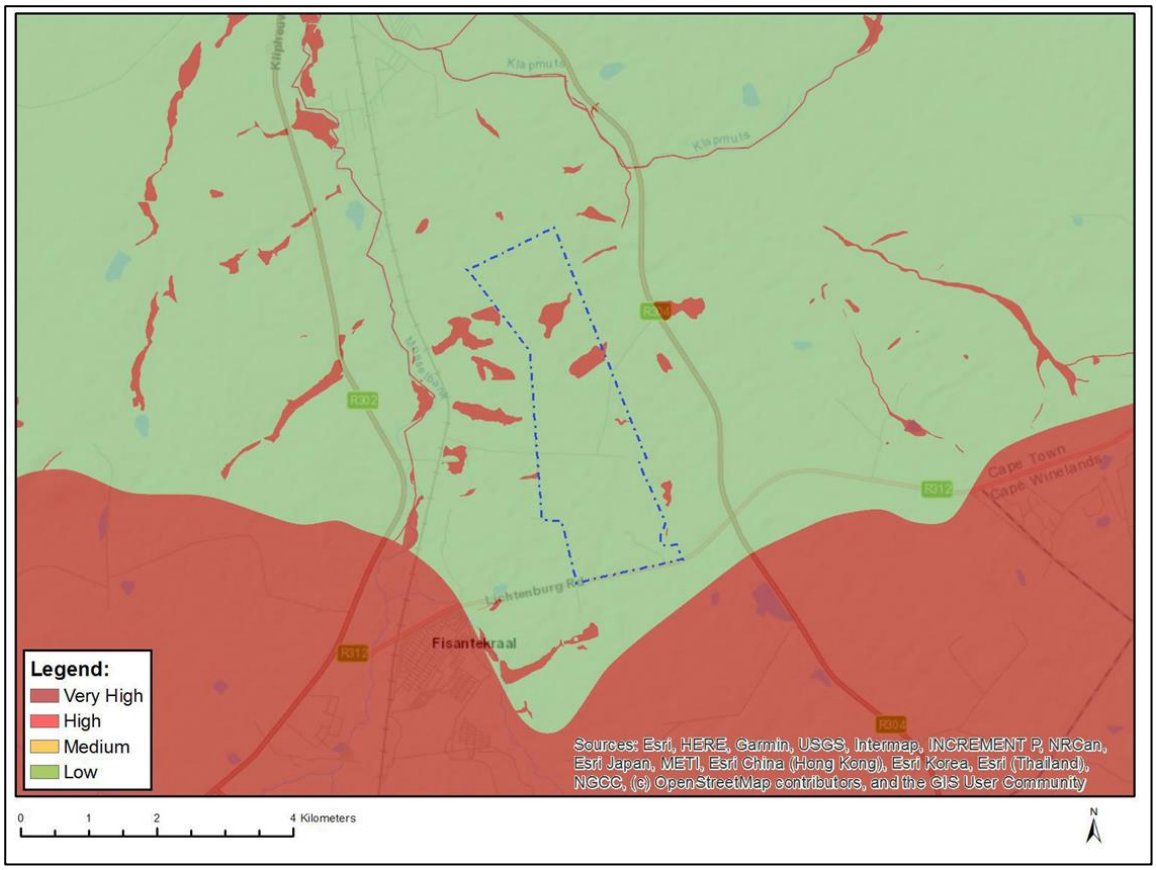


Figure 15: Map of relative aquatic biodiversity theme sensitivity for the proposed CWA development's affected properties according to the National (FEN, Freshwater Ecological Assessment, Sept 2024)

5.5. Watercourses associated with the proposed expansion of the Cape Winelands Airport

Overview

Field verification confirmed the presence of a single seep wetland (Seep 1) within the central portion of the proposed airport precinct (Figure 16) (FEN, Freshwater Ecological Assessment, Sept 2024). This seep wetland is indirectly linked, via an agricultural drain, to a channelled valley bottom (CVB) wetland located to the east and outside of the freshwater study and investigation areas (Figure 16). In addition to the onsite wetland, the following natural freshwater features were identified within 500m from the proposed airport precinct (investigation area) (Figure 16):

- A large CVB wetland system, CVB wetland 1, was identified running parallel with the eastern boundary of the investigation area, with only a small portion located within 500m from the proposed development area. This wetland is associated with the unnamed tributary of the Klapmuts River.
- Two smaller CVB wetlands (CVB wetland 2 and CVB wetland 3) linked to CVB wetland 1 were identified immediately East of the proposed development area. Neither of these two wetlands encroach into the development area.
- A fourth CVB wetland, CVB wetland 4) was identified North of the study area.

- Lastly, an additional seep wetland (Seep 2) was identified approximately 310m East of the study area and is directly linked to the CVB wetland 1.

Although numerous wetlands were identified within the investigation area, only a representative subset of those directly impacted by the proposed CWA development underwent quantitative assessment. This includes seep wetland 1 and CVB wetlands 2 and 3, where seep wetland 1 and CVB wetland 2 served as proxies for their nearby counterparts due to similar ecological conditions. CVB wetlands 1 and 4 were assessed qualitatively, given their distance from the study area and low risk of impact; however, CVB wetland 1 was also evaluated in greater detail within the Wetland Offset Study, as it was identified as a suitable site for offsetting.

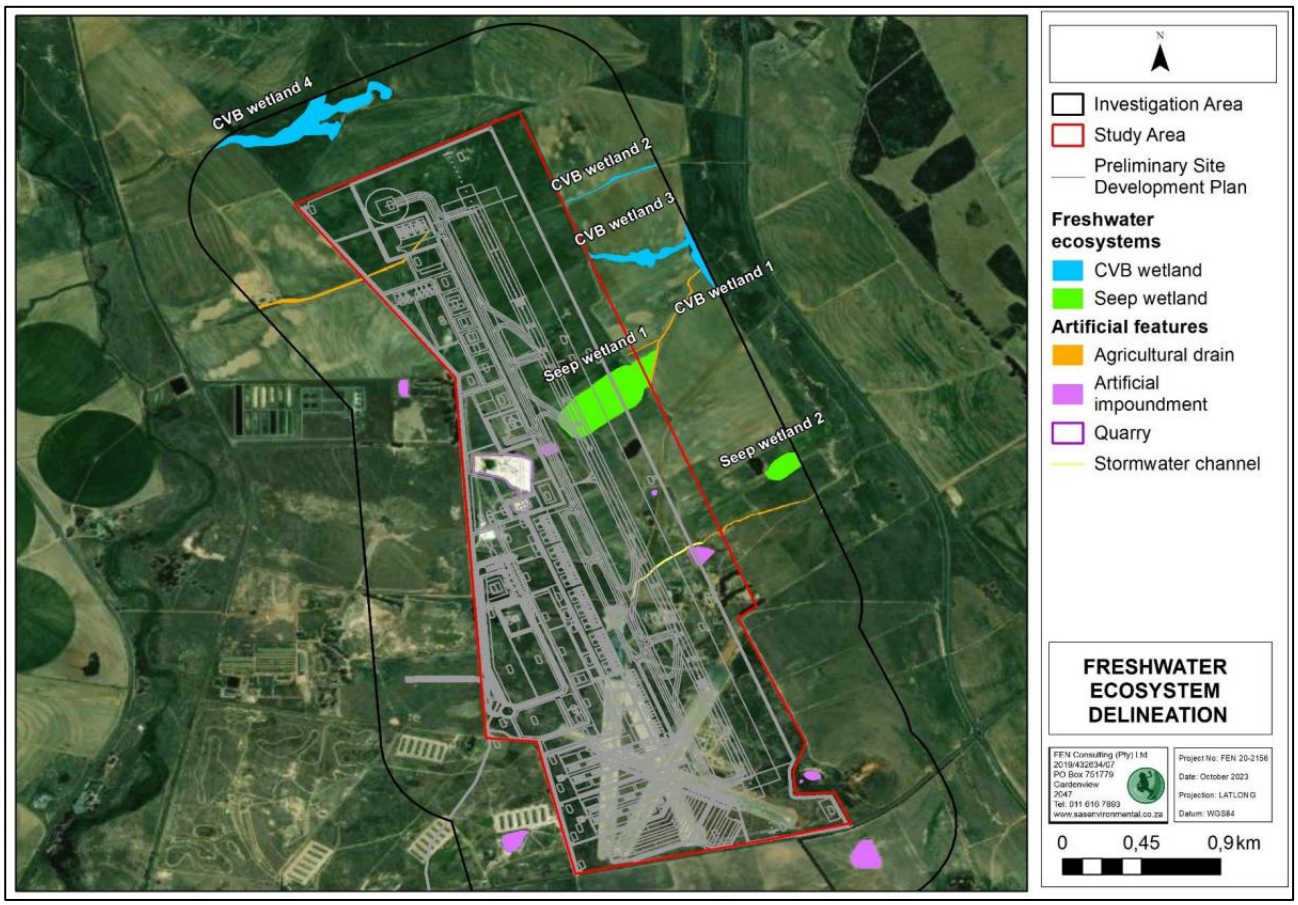


Figure 16: Map depicting the delineated extent of the freshwater ecosystems and artificial features associated with the study and investigation areas (FEN, Freshwater Ecological Scoping Report, February 2024).

CVB Wetland 1

CVB wetland 1 originates approximately 4km South of the proposed development area and flows in a generally northerly direction across adjoining farmland, eventually joining the Klapmuts River to the North and outside of the investigation area.

CVB wetland 1 has been impacted by land use changes in the upstream catchment and direct habitat impacts. The disturbance created by agricultural activities has had a significant impact on

the vegetation associated with CVB wetland 1. Wetland vegetation has been removed from the temporary and seasonal zones of the wetland to make way for cultivated fields. Although the vegetation composition is considered significantly disturbed, CVB wetland 1 still provides habitat to support obligate wetland species such as *Juncus sp*. and *Phragmites australis* but also AIPs including *P. clandestinum* and *Acacia saligna* (Port Jackson).

CVB wetland 1 acts as an important migratory corridor within the largely transformed landscape and plays an important role in maintaining hydrological functioning and connectivity in the landscape. CVB wetland 1 can thus be considered to have an ecological importance on a local scale. However, CVB wetland 1 is not considered to be sensitive to changes in the landscape due to historical and ongoing impacts.

The CVB wetland (termed CVB wetland 1 in FEN, 2024) was indicated to be in a seriously modified state (PES Category E) and indicated to have a moderate Ecological Importance and Sensitivity (EIS), based on the following assumptions:

- The wetland is within Critically Endangered terrestrial and wetland vegetation types, and very rare, although limited natural vegetation in the wetland remains;
- The wetland is a tributary of the Klapmuts River, which drains surface runoff from the adjacent agricultural areas toward the Klapmuts River in the north-eastern portion of the focus area;
- According to Scientific Terrestrial Services (STS; 2023a), *Grus paradisea* (Blue Crane - Vulnerable) is considered likely to pass through or utilise this CVB wetland for foraging while breeding likely takes place in adjacent cultivated fields; and
- The PES of the wetland is estimated to be seriously modified.

The WET-EcoServices model determined a moderately low to moderate supply importance for sediment trapping, nutrient and toxicant assimilation, food for livestock and cultivated foods, whereas the demand importance for regulating services, particularly sediment trapping and nutrient assimilation is considered high. This is attributed to the current land use of the greater area in which the CVB wetland is located, which is predominantly agricultural. The demand for biodiversity maintenance is moderate as a result of the critically endangered vegetation type in which the CVB wetland is located. The moderately high carbon storage demand importance of the CVB wetland stems from the potential of the wetland to store carbon.

After integrating the supply and demand importance scores for the central wetland, the model determined an overall moderate importance for sediment trapping and a moderately low to low importance for nutrient and toxicant assimilation, and food for livestock, yet a very low ecoservice provision for cultural and other provisioning services.

Figure 17: Representative photographs of CVB wetland 1. (Top) The topographical setting of the CVB wetland 1 (blue dashed line) in a valley bottom position between two distinct and highly cultivated valley side slopes; (Bottom left) Vegetation composition of the CVB wetland hosting facultative wetland species such as Juncus sp. but also AIPs including P. clandestinum; (Bottom right) Active grazing by cattle noted within the CVB wetland (FEN, Freshwater Ecological Scoping Report, February 2024).

Seep Wetland 1 and Seep Wetland 2

Seep 1 and Seep 2 are both located on the side-slope of a valley, on gently sloping land dominated by extensive cultivation, with unidirectional movement of material (soil and water) down-slope. Agricultural activities in the catchment of the seep wetlands have resulted in a decrease in vegetation cover, and an increase in soil disturbance and erosion. This has in turn resulted in a moderate increase of sediment supply to the receiving wetlands.

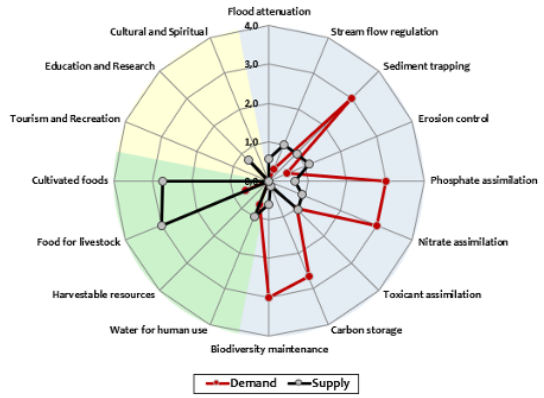
The vegetation composition of the seep wetlands has been replaced by ruderal and opportunistic AIPs such as Kikuyu Grass, which is heavily grazed, and no longer representing the natural vegetation (Figure 18). These seep wetlands are considered of low/marginal ecological importance and sensitivity due to their seriously modified ecological state. These seep wetlands may be regarded of importance due to hydrological connectivity in the landscape through their connection with the larger CVB wetland 1. In addition, the identified seep wetlands are classified as a CESA. Therefore, although significantly disturbed, these seep wetlands still act as a natural corridor within a highly

transformed landscape, which makes these wetlands important in terms of overall wetland conservation in the area.

Table 2 below provides a summary of the field verification findings for Seep Wetland 1 and Seep Wetland 2, covering key aspects of freshwater ecology, including hydrology, geomorphology, and vegetation. The table details the Present Ecological State (PES), Ecological Importance and Sensitivity (EIS), Recommended Ecological Category (REC), Resource Management Objectives (RMO), and Ecosystem Service provision for each wetland.

Figure 18: Overview of the vegetation component of the seep wetland 1. Patches of the alien grass species *P. clandestinum* were identified in the seep wetland, of which in some cases, can be distinguished from the surrounding cultivated terrestrial areas (as indicated by the yellow dashed line) (FEN, Freshwater Ecological Scoping Report, February 2024).

Table 2: Summary of the results of the seep wetlands 1 and 2 associated with the proposed CWA development (The ecological condition of seep wetland 2 is based on the representative assessment of seep wetland 1.) (FEN, Freshwater Ecological Assessment, Sept 2024)

<table>
<tr><td colspan="2">Ecological & socio-cultural service provision graph for seep wetland 1:
 
</td><td colspan="2">Freshwater ecosystem characteristics (hydraulic regime, geomorphology and sediment balance, water quality and habitat and biota):

Agricultural activities in the catchment of the seep wetlands have resulted in a decrease in vegetation cover (thus an increase in bare surface areas) and in the disturbance and erosion of soil. This in turn results in a moderate increase of sediment supply to the receiving wetlands. The vegetation composition of the seep wetlands has been replaced by ruderal and opportunistic AIPs such as C. clandestinus, which is heavily grazed, and no longer representing the reference vegetation species of the local biome (Figure 32). The hydrology of the seep wetlands is driven by lateral flows in the landscape with some groundwater inputs, evidenced by the presence of ferricrete and perched aquifers as indicated by GEOSS (2023). Excess sediment was also noted in the wetland, likely as a result of the land use of the surrounding landscape, which is predominantly cultivation.</td></tr>
<tr><td>PES discussion</td><td>PES Category: D (Largely Modified)
The wetlands have been modified as a result of direct and indirect impacts associated with extensive cultivation in the wetlands' catchment. This includes alteration to the hydrological regime (altered distribution and retention patterns) of the wetlands and altered geomorphology and sediment balance resulting in increased sediment transfer to the wetlands. Vegetation composition of the wetlands have also been seriously modified as a result.</td><td>EIS discussion</td><td>EIS Category: Low/ marginal
The EIS of the seep wetlands can be considered to be low/marginal due to their largely modified ecological state. Their EIS is attributed to their importance in the landscape, particularly due to the protection status of the wetland vegetation type (critically endangered West Coast Silcrete Renosterveld and West Coast Shale Renosterveld). The wetlands are also important for streamflow regulation, particularly during the winter rainfall period, considering their connectivity to the downgradient CVB wetland 1, but the wetlands do not provide direct human benefits, other than limited harvestable resources and cultivated foods services.</td></tr>
<tr><td>Ecoservice provision</td><td>Ecoservice Provisioning: 0,4 (Very Low)
The overall ecoservice provision of the wetlands are considered very low, with the exception of sediment trapping, nitrate assimilation and cultivated food services for which a low importance was determined. This is based on the agricultural landscape in which the wetlands are located as well as the critically endangered state of the wetland vegetation type. The wetlands are however considered of moderate importance for food for livestock considering its agricultural catchment.</td><td>REC Category and RMO</td><td>REC: Category D (Largely modified)
BAS: Category D
RMO: Maintain
Existing agricultural activities surrounding in the wetlands have likely contributed to the impact of decades' worth of impacts on the wetlands. The proposed CWA development will result in a 6.74 ha loss of the seep wetland 1. A wetland offset investigation is being undertaken to mitigate the loss of wetland habitat.</td></tr>
<tr><td>Extent of modification</td><td colspan="3">High (seep wetland 1)
The proposed CWA will result in the loss of 6.74 ha of wetland habitat due to the construction of the runway over the seep wetland 1. Furthermore, stormwater release into seep wetland 1 will also pose a risk to the ecological functioning of the wetland. As a result, wetland offsetting should be investigated to account for the 6.74 ha of wetland that will be lost. With the implementation of control measures (as described in Section 8 below) and that construction activities associated with the proposed development is conducted during the dry, summer season, the impacts arising from the proposed activities can be localised, effectively reduced and managed. Due to the approximate location of the seep wetland 2 relative to the study area (~320 m east of the study area), the impact to seep wetland 2 is considered negligible considering that stormwater from the proposed development will be contained in stormwater attenuation ponds prior to release into the surrounding environment.</td></tr>
<tr><td rowspan="2">Impact Significance and Business Case:</td><td colspan="3">Moderate (with the implementation of control measures) (particularly seep wetland 1 – 6.74 ha loss)</td></tr>
<tr><td colspan="3">The activities associated with the proposed development pose a 'Moderate' risk to the overall integrity of seep wetland 1 as a result of the anticipated construction and operation of the CWA that will result in the loss of 6.74 ha of wetland habitat. As a result, wetland offsetting is being investigated to account for the 6.74 ha of wetland that will be lost. Careful planning of the stormwater management and surface runoff of the proposed CWA development is also imperative to ensure the impact to the hydraulic regime of the remaining extent of the wetland is not further impaired by significant stormwater influxes, and water quality impacts are minimised. It is imperative that adherence to the site-specific control measures provided in this report as well as general good construction practice are adhered to.</td></tr>
</table>

CVB Wetland 2 and CVB Wetland 3:

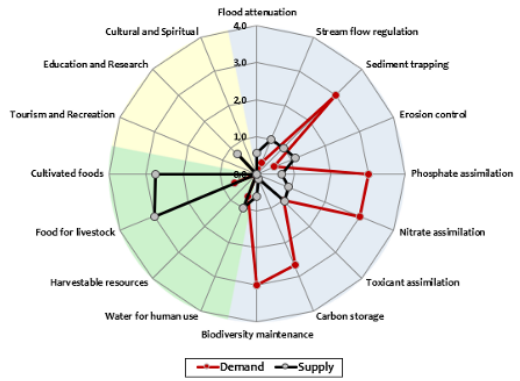
CVB wetlands 2 and 3 originate from the cultivated slopes to the East of the proposed development area. These CVB wetlands generally flow in an easterly direction towards the larger CVB wetland 1. CVB wetlands 2 and 3 have been heavily modified as a result of the surrounding cultivation and grazing practices. The seasonal and temporary zones of these wetlands have been replaced by cultivated fields and infilling from farm roads. At present, these CVB wetlands exist as narrow and straightened channels surrounded by cultivated fields.

While CVB wetlands 2 and 3 are relatively small and disturbed, they still offer habitat and may be important for attenuating high velocity flows from the upstream catchment and filtering the water (albeit limited) before it enters the larger downstream CVB wetland 1.

Table 3 below provides a summary of the field verification findings for Seep Wetland 1 and Seep Wetland 2, covering key aspects of freshwater ecology, including hydrology, geomorphology, and vegetation. The table details the Present Ecological State (PES), Ecological Importance and Sensitivity (EIS), Recommended Ecological Category (REC), Resource Management Objectives (RMO), and Ecosystem Service provision for each wetland.

Figure 19: Representative photographs of CVB wetlands 2 and 3. (Top left) An overview of CVB wetland 2 and (Bottom left) CVB wetland 3, both surrounded by cultivated fields and farm roads; (Top right and bottom right) Vegetation composition of CVB wetland 2 (top) and CVB wetland 3 (bottom) hosting a facultative wetland species Juncus sp. AIPs including P. clandestinum are also present in CVB wetland 3 (FEN, Freshwater Ecological Scoping Report, February 2024).

Table 3: Summary of the results of the channelled valley bottom (CVB) wetlands 2 and 33 associated with the proposed CWA development (The ecological condition of CVB wetland 3 is based on the representative assessment of CVB wetland 2) (FEN, Freshwater Ecological Assessment, Sept 2024).

<table>
<tr><td colspan="2">Ecological & socio-cultural service provision graph of the CVB wetland 2:
 
</td><td colspan="2">Freshwater ecosystem characteristics (hydraulic regime, geomorphology and sediment balance, water quality, habitat and biota):

CVB wetlands 2 and 3 have been heavily modified as a result of the surrounding cultivation and grazing practices. The wetlands are driven by lateral flows from the immediate catchment and interflow. These CVB wetlands have experienced excessive erosion due to the surrounding agricultural setting and lack of substantive vegetation in and around the wetlands. The soil of the wetland is characterised by soft plinthic B horizons. The above have resulted in altered geomorphic integrity and sediment balance as a result of increased bare areas surrounding the wetlands, thus increased sediment input into these receiving wetlands. Reaches of the CVB wetlands historically extended more westwards within the study area (Figure 17 and Figure 18). The CVB wetlands have been fragmented by an existing farm road and only extend downgradient of the road, owing to land use transformation in the study area and surrounds, with the headwaters of the wetlands now formalised as drainage channels, with no wetland indicators (in terms of soil and vegetation) observed within the study area[4]. Vegetation of the wetlands have been significantly altered with little indigenous vegetation remaining. Nevertheless, the wetlands are still considered important as breeding habitat for bird (including Grus paradisea (Blue Crane)), invertebrate and amphibian species as it acts as an important migratory corridor due to high levels of connectivity in a largely transformed landscape (refer to STS, 2023).</td></tr>
<tr><td>PES discussion</td><td>PES Category: E (Seriously Modified)
The CVB wetlands are in a seriously modified state due to surrounding cultivation and grazing practices. The seasonal and temporary zones of these wetlands have been replaced by cultivated fields and infilling from farm roads thereby resulting in reduced vegetation cover and surface roughness (Figure 29). Both CVB wetland 2 and CVB wetland 3's extent have been significantly reduced and currently exist as narrow and straightened channels surrounded by cultivated fields (Figure 30). As such the extent of the wetlands have been significantly reduced and modifications to the existing channel have resulted in altered water and sediment distribution and retention patterns within the wetlands. In addition to the above, on-site impacts associated with the ongoing agricultural activities have resulted in a loss of habitat diversity and the proliferation of AIPs.</td><td>EIS discussion</td><td>EIS Category: Low/marginal
The EIS of the CVB wetlands can be considered to be low/marginal due to their largely modified ecological state. Their EIS is attributed to their importance in the landscape, particularly due to the protection status of the wetland vegetation type (critically endangered West Coast Silcrete Renosterveld and West Coast Shale Renosterveld) as well as providing numerous regulating and supporting benefits – e.g. streamflow regulation, considering their connectivity to the downgradient CVB wetland 1. The wetlands provide limited direct human benefits, particularly harvestable resources and cultivated foods services. The wetlands however are likely to provide important breeding and foraging habitat for numerous fauna (STS, 2023).</td></tr>
<tr><td>Ecoservice provision</td><td>Ecoservice Provisioning: 0,4 (Very Low)
The overall ecoservice provision of the wetlands are considered very low, with the exception of sediment trapping and cultivated foods services for which a low importance was determined. This is based on the agricultural landscape in which the wetlands are located as well as the critically</td><td>REC Category and RMO</td><td>REC: Category D (Largely Modified) (Improve) BAS: Category D (Improve) RMO: Improve
The method to determine RMO states that the ecological condition of the CVB wetlands must be maintained. However, according to Malan and Day (2012), a PES Category E is considered unacceptable and therefore, it is recommended that no further degradation to these wetlands be permitted as a result of the proposed activities. The rehabilitation of the wetlands to improve the PES falls beyond the scope of</td></tr>
</table>

	endangered state of the wetland vegetation type. The wetlands are however considered of moderate importance for food for livestock considering its agricultural catchment. The wetlands also play an important role in maintaining hydrological functioning and connectivity in the landscape and attenuating high velocity flows and can thus be considered to have an ecological importance on a local scale.		works and property rights of the proponent. Therefore, effort should be directed to ensuring that the proposed CWA development remains outside the delineated extent of the wetlands and their conservation buffer, if at all possible. Careful planning of stormwater management must be undertaken to ensure the hydraulic regime of the receiving environment is retained and not further impaired by stormwater peaks.
Extent of modification	**Low** With the exception of the fences, maintenance road and stormwater release into CVB wetland 3, no significant or long-term modifications are anticipated to the CVB wetlands as a result of the proposed CWA development since the proposed development will remain outside of the recommended 15 m conservation buffer of the wetlands. Stormwater release into the surrounding area also pose a risk to the ecological functioning of the wetlands, albeit to a limited extent. With the implementation of control measures, ensuring that stormwater is managed effectively (as described in Section 8 below) and that construction activities associated with the proposed development is conducted during the dry, summer season, the impacts arising from the proposed activities can be localised, effectively reduced and managed.		
Impact Significance and Business Case:	**Low** (with the implementation of control measures) The activities associated with the proposed development pose a 'Low' risk to the overall integrity of the CVB wetlands as a result of the anticipated construction and operation of the CWA within at least ~ 255 m of the wetlands (with the exception of one of the dry attenuation ponds directly upgradient of the CVB wetland 3). Careful planning of the stormwater management and surface runoff of the proposed CWA development particularly at CVB wetland 3 is imperative to ensure the impact to the hydraulic regime is not impaired by significant stormwater influxes, and water quality impacts are minimised. It is imperative that adherence to the site-specific control measures provided in this report as well as general good construction practice are adhered to.		

6. RISKS ASSOCIATED WITH NOT IMPLEMENTING THE MMP

The following risks were identified should the MMP not be implemented:

1) Uncoordinated maintenance of stormwater infrastructure and roads could lead to degradation of infrastructure, possible erosion over time and even failure through neglect.
2) Ad hoc clearing to provide access for maintenance work could lead to siltation downstream and water quality impairment downstream.
3) Alien vegetation encroachment into sensitive buffer areas due to non-removal or ineffective methods.
4) Possible siltation of stormwater structures over time.
5) Water quality impacts caused by spillage from heavy vehicles accessing sensitive areas for cleaning purposes.
6) Loss of riparian vegetation from heavy vehicles through movement within sensitive buffer areas, outside of demarcated access routes.
7) Water quality impairment and siltation downstream if maintenance work conducted during wet season, or if silt removed is placed too close to drainage lines.

7. METHOD STATEMENT

6.1 The method statement must provide a step-by-step plan (which may include a schematic diagram etc.) to inform the responsible person(s) on the process and actions to take in a sequential and logical manner, which aims to reduce the impact of undertaking the activity within a reasonable timeframe and cost.

6.2 A method statement should be compiled for each individual activity given the likely specific circumstances and conditions of a site requiring maintenance. However, in situations whereby uniform conditions and circumstances are evident for multiple sites requiring the same type of activity, a method statement can be given for a specific type of activity to be undertaken at multiple sites given the aforementioned requirements.

6.3 The detail of the method statement will be assessed by the Department and other relevant regulatory authorities to ensure actions that are taken are such that they do not perpetuate increased incidences of erosion/deposition of material.

6.4 Time periods must be given within which the maintenance actions contemplated need to be implemented. An indication must be made whether maintenance actions will be repeated, e.g. clearing of silt/debris from under a bridge annually or after flood events.

6.5 The following serves as a general guide required to minimise the spatial impact of the maintenance activity:

- Repairs and maintenance should be undertaken within the dry season, except for emergency maintenance works.
- Where at all possible, existing access routes should be used. In cases where none exist, a route should be created through the most degraded area avoiding sensitive/indigenous vegetation areas.
- Responsible management of pollutants through ensuring handling and storage of any pollutants is away from the watercourse. When machinery is involved, ensure effective operation with no leaking parts and refuel outside of the riparian area, at a safe distance from the watercourse to manage any accidental spillages and pose no threat of pollution.
- At no time should the flow of the watercourse be blocked (temporary diversions may be allowed) nor should the movement of aquatic and riparian biota (noting breeding periods) be prevented during maintenance actions.
- No new berms can be created.
- In circumstances which require the removal of any top soil, this must be sufficiently restored through sustainable measures and practices.

- Concerted effort must be made to actively rehabilitate repaired or reshaped banks with indigenous local vegetation.
- No deepening of the watercourse beyond the original, pre-damage determined thalweg, unless such deepening is directly related to the natural improved functioning and condition of such a watercourse.
- Where at all possible, limit the disturbance to the zone of the thalweg. This is due to the ecological importance of the low flow channel and respective habitat being allowed to re-establish improving the ecological condition.
- The build-up of debris/sediment removed from a maintenance site may:
    - be utilised for the purpose of in-filling or other related maintenance actions related to managing erosion, which form part of an adopted MMP;
    - not be used to enlarge the height, width or any extent of existing berms;
    - not be deposited anywhere within the watercourse or anywhere along the banks of a river where such action is not part of the proposed maintenance activity (ies). Material that cannot be used for maintenance purposes must be removed out of the riparian area to a suitable stockpile location or disposal site. Further action and consideration may be required where the possibility of contaminated material may occur, such as in urban watercourses.
- The use of foreign material, such as concrete, rubble, woody debris and/or dry land based soil, is strictly prohibited from being used in maintenance actions, unless for the specific purpose of repairs to existing infrastructure, coupled with appropriate mitigation measures.
- On completion of the maintenance action, the condition of the site in terms of relative topography should be similar to the pre-damaged state (i.e. the shape of the river bank should be similar or in a state which is improved to manage future damage). This ultimately dictates that the channel, banks and bed cannot be made narrower, higher or deepened respectively. Exceptions are considered for systems involved with the management of stormwater and improvements for water quality within the urban context.

The following method statements have been developed for maintenance activities required within the 32m regulated area of a wetland:

1) Monitoring, maintenance, and repair of fences
2) Inspection and servicing water pipelines
3) Disturbance of instream habitat and potentially increased risk of erosion as a result of periodic alien vegetation removal.
4) Maintenance of rehabilitated wetland offsets.
5) Monitoring, maintenance and repairs of stormwater infrastructure including sediment removal, litter management, erosion control etc.
6) Upkeep and repairs of maintenance and access roads.

MS1: Monitoring, maintenance, and repair of fences

Description of activity	A perimeter fence is proposed around the airport precinct. This fence will cross Seep Wetland 1. Maintenance activities will prioritize preserving the fence's structural integrity, which may require replacing damaged sections, securing loose fasteners, or treating areas affected by corrosion. To replace fence posts, maintain clear access, and prevent potential damage from overgrown vegetation, selective vegetation removal or limited excavation may be carried out where necessary.
Actions	The following general sequence of actions are required: 1. Identify and demarcate the area of fence line to be repaired/ replaced. 2. Clear area of debris or vegetation in order to access the fence (if required). 3. Replace/ repair fence portion and remove old debris or materials. 4. Rehabilitate disturbed areas, remediate any erosion and suitably loosen any compacted soil. 5. Reshape areas and/or replant as required.
Impacts of actions	The following potential impacts may result from the proposed maintenance activities: • Potential fragmentation of the freshwater ecosystems caused by the property fences. • Proliferation of AIP species within the disturbed freshwater ecosystems. • Potential loss of indigenous vegetation as a result of maintenance works. • Disturbance to and compaction of soil resulting in erosion. • Potential conveyance of sediment laden stormwater into the freshwater ecosystems
Severity of impacts	If all mitigation measures are implemented the severity of the impact will be Low.
Measures to mitigate the severity of the impact	• Conduct routine maintenance to minimize the risk of infrastructure failures that could necessitate more extensive work within regulated wetland areas. • Only existing roadways should be utilized during maintenance and repairs to avoid indiscriminate movement of vehicles within the wetlands.

	• No vehicles are permitted to enter the freshwater ecosystems. Any maintenance works within wetlands must be undertaken by foot, or the relevant authorizations obtained beforehand. • Any AIPs within the maintenance area must ideally be removed prior to the initiation of soil disturbing maintenance activities. This will assist in reducing the long-term AIP management requirements. • The soil within 15m of the freshwater ecosystems must be suitably loosened on completion of maintenance activities and revegetated to prevent erosion. • Stockpiling of excavated materials may only be temporary (i.e. may only be stockpiled during the period of maintenance at a particular site). Soil must be stockpiled on the upgradient side of the excavated area to avoid sedimentation of the downgradient areas. • Excavated areas must be backfilled as soon as infrastructure has been installed/repaired in any given section to reduce potential erosion of exposed soil. • Limit routine maintenance activities to the dry summer months as far as possible. • As far as possible, physical movement in the freshwater ecosystems by personnel must be limited.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Method of Access	Existing access roads should be utilised as far as possible.
Period of activity	The period of the maintenance management activity will vary depending on the level of maintenance required. The activity will be ongoing.

MS2: Inspection and servicing of water pipelines

Description of activity	Service infrastructure, including a bulk irrigation and fire water pipeline, is planned near the onsite wetlands. Maintenance efforts will focus on maintaining the structural integrity of these pipelines and preventing blockages. Typical repairs may involve replacing damaged sections, securing loose fittings, or treating corrosion. Vegetation removal and excavation or trenching will be required to facilitate these repairs or replacements. Routine cleaning of water pipelines is also essential to avoid blockages and ensure consistent flow.
Actions	The following general sequence of actions are required: 1. Identify and demarcate area of pipeline to be repaired/ replaced; 2. Clear area of debris or vegetation in order to access pipeline if required; 3. Replace/ repair pipeline and remove old pipeline debris or materials; 4. All water/material discharged from the pipeline should be collected directly into a tank or other waterproof collection device and disposed of appropriately where it will not contaminate any watercourse or soils; 5. Rehabilitate disturbed areas, remediate any erosion areas identified, suitably loosen any compacted and remove siltation if required; 6. Reshape areas and/or plant as required.
Impacts of actions	The following potential impacts may result from the proposed maintenance activities: • Maintenance or repairs of the service infrastructure could result in similar impacts as those experienced during service installation: o Disturbances of soil potentially leading to increased AIP proliferation, and in turn to altered freshwater ecosystem habitat. o Earthworks could be potential sources of sediment, which may be transported as runoff into the freshwater ecosystems.

	○ Potential fragmentation of freshwater habitats. ○ Potential loss of indigenous vegetation as a result of maintenance works. ○ Potential disturbance to hydrological functioning and activity of the freshwater ecosystems. ○ Disturbance to and compaction of soil resulting in erosion. • Periodic flushing of pipelines to maintain capacity and address the build-up of sediment and other materials could result in the passage of water, sediment or sewage into any of the watercourses identified within the site/investigation area resulting in water quality impacts. • If a portion of the pipeline(s) ruptures under pressure or while carrying flows, then passage of sediment and/or sewage might enter nearby watercourses resulting in water quality impacts. • Potential eutrophication of water as a result of enriched water draining into the freshwater ecosystems
Severity of impacts	If all mitigation measures are implemented the severity of the impact will be Low.
Measures to mitigate the severity of the impact	• Implement a monitoring programme to detect and prevent the pollution of soils, surface water and groundwater. • Conduct routine maintenance to minimize the risk of infrastructure failures that that could lead to substantial environmental impacts, avoiding the need for extensive interventions within regulated wetland areas. • Implement the wetland monitoring programme outlined within the FEN Wetland Offset Study and Implementation Plan (Sept 2024). • A Service Infrastructure Management Plan should be compiled which details the frequency in which service infrastructure must be serviced. • An emergency plan must be compiled to ensure a quick response and attendance to the matter in case of a leakage or bursting of a pipeline. • Only existing roadways should be utilized during maintenance and repairs to avoid indiscriminate movement of vehicles within the wetlands.

	• No vehicles are permitted to enter the freshwater ecosystems. Any maintenance works within wetlands must be undertaken by foot, or the relevant authorizations obtained beforehand. • Any AIPs within the maintenance area must ideally be removed prior to the initiation of soil disturbing maintenance activities. This will assist in reducing the long-term AIP management requirements. • The soil within 15m of the freshwater ecosystems must be suitably loosened on completion of maintenance activities and revegetated to prevent erosion. • Stockpiling of excavated materials may only be temporary (i.e. may only be stockpiled during the period of maintenance at a particular site). Soil must be stockpiled on the upgradient side of the trench to avoid sedimentation of the downgradient areas. • Trenches must be backfilled as soon as infrastructure has been installed/repaired in any given section to reduce potential erosion of exposed soil. • Limit routine maintenance activities to the dry summer months as far as possible. • As far as possible, physical movement in the freshwater ecosystems by personnel must be limited. • No stormwater generated during construction may be directly released into the freshwater environment. • Under no circumstances must linear infrastructure be trenched within the CVB wetlands 2 and 3 or their conservation buffer. • Any erosion, sedimentation or other damage to watercourses caused because of the above incidents / activities should be rectified immediately, with rehabilitation activities potentially including removal of sediment, reshaping of banks and replanting where it is deemed necessary
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Method of Access	Existing access roads should be utilised as far as possible.
Period of activity	The period of the maintenance management activity will vary depending on the level of maintenance required. The activity will be ongoing.

MS3: Disturbance of instream habitat and potentially increased risk of erosion as a result of periodic alien vegetation removal

Description of activity	Disturbance of instream habitat and potentially increased risk of erosion because of periodic vegetation removal to maintain ecological integrity of the natural areas onsite.
Actions	The following general sequence of actions are required to remove and control the alien vegetation: 1) Identify alien invasive species; 2) Cutting or pulling of target plants, or application of appropriate herbicide; 3) Treatment of plant remainders with appropriate herbicide or treatment of herbaceous plants that cannot be manually removed; 4) Removal of plant material from the wetland and surrounding conservation area; 5) Follow-up work to prevent regrowth and the production of seed remaining in the soil; and 6) Revegetation of areas with indigenous vegetation where necessary.
Impacts of actions	The following potential impacts may result from the proposed maintenance activities: - Disturbance to aquatic habitat and vegetation and potential risk of erosion. - Disturbance to and compaction of soil resulting in erosion. - Potential increase in sedimentation of watercourses located downslope.
Severity of impacts	If all mitigation measures are implemented the severity of the impact will be Low - if revegetation with indigenous species and follow-up control takes place, a low to moderate positive impact could be expected.
Measures to mitigate the severity of the impact	• Identify alien plants to be removed. • Avoid trampling or clearing indigenous vegetation by using established paths where possible. • Clear alien vegetation according to the described alien vegetation removal methods for each invasive species as provided in the Alien Vegetation Management Plan developed for the site (PHS Consulting, Oct 2024). Detailed herbicides/biological control recommendations are also provided on the Working for Water website:

	http://www.dwaf.gov.za/wfw/. Kikuyu should be poisoned with a foliar herbicide (e.g. Agil) during the summer growing season (before end March). • When using herbicides, it is essential to apply the correct herbicide, in the right dose, at the right time, using the correct application method. Use only registered herbicides, follow manufacturer's instructions on the label, and wear the appropriate protective clothing during handling. • Remove cleared alien vegetation from the aquatic features and dispose of at a suitable point. • Where necessary revegetate cleared areas with suitable indigenous vegetation. Planted areas may require irrigation and care for a period following planting. The irrigation requirements will be determined by the season in which planting takes place and the plant species planted. Planting of the new vegetation at the start of the wet season can assist in ensuring that the new vegetation is kept wet whilst establishing itself. • Ongoing monitoring and clearing of regrowth of alien plants within these areas will be required.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Method of Access	Existing access roads should be utilised as far as possible.
Period of activity	The period of the maintenance management activity will vary depending on the level of infestation. The activity will be ongoing.

MS4: Maintenance of wetland offsets.

Description of activity	Routine monitoring and selective replanting of indigenous vegetation will help ensure healthy growth and prevent invasive alien plants (AIPs) from competing with native species. Regular observation of grazing impacts from resident cattle will also be useful for identifying any necessary maintenance, enabling timely adjustments to support vegetation health. Periodic checks for erosion and sedimentation within offset wetlands will allow for early intervention if needed.
Actions	The following general sequence of actions are required: 1. Conduct regular monitoring in offset wetland as outlined within the Wetland Offset and Implementation Plan (FEN, Sept 2024). 2. Identify areas of concern. These are areas that are affected by disturbances such as: erosion, waste dumping, alien vegetation encroachment, soil compaction, senescence of indigenous vegetation. 3. Should areas of concern be noted, identify and address the cause. 4. Clear the affected area of debris and remove excess sediment (if required) and AIPs. 5. Reshape and revegetate the disturbed/eroded area as required in line with the Wetland Offset and Implementation Plan (FEN, Sept 2024).
Impacts of actions	The following potential impacts may result from the proposed maintenance activities: • Proliferation of AIP species within the disturbed freshwater ecosystems. • Disturbance to and compaction of soil resulting in erosion. • Potential conveyance of sediment laden stormwater into the freshwater ecosystems
Severity of impacts	If maintenance activities are implemented in full along with all mitigation measures, a low to moderate positive impact can be expected.

Measures to mitigate the severity of the impact	• Monitor wetlands that will potentially be impacted by the proposed CWA development to ensure that the PES drivers and receptors are maintained, and where possible improved accordance with the REC and RMO. • Only existing roadways should be utilized during monitoring, maintenance and repairs to avoid indiscriminate movement of vehicles within the wetlands. • No vehicles are permitted to enter the freshwater ecosystems. Any maintenance works within wetlands must be undertaken by foot. • Any AIPs within the maintenance area must ideally be removed prior to the initiation of soil disturbing maintenance activities. This will assist in reducing the long-term AIP management requirements. • The soil within 15m of the freshwater ecosystems must be suitably loosened on completion of maintenance activities and revegetated to prevent erosion. • After sediment removal, promptly revegetate with indigenous species to reduce the spread of invasive species and prevent erosion. • Wherever possible, schedule sediment removal and erosion control activities during the dry summer months to minimize impact on aquatic life and water quality.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Method of Access	Existing access roads should be utilised as far as possible.
Period of activity	The period of the maintenance management activity will vary depending on the level of maintenance required. The activity will be ongoing.

MS5: Monitoring, maintenance and repairs of stormwater infrastructure including sediment removal, litter management, erosion control etc.

Description of activity	To maintain stormwater infrastructure effectively, sediment removal will be essential to prevent accumulation that could reduce the functionality of stormwater ponds. This work will likely require using an excavator or similar equipment both within and around the ponds. Additionally, managing litter and vegetation is also necessary for optimal performance. Regular vegetation trimming will occur in channels, which may cause temporary localized habitat disturbance and potential sedimentation or increased turbidity in downstream water systems.
Actions	The following general sequence of actions are required: 1) Access stormwater ponds/channels with heavy vehicle (if required). 2) Remove silt and place on area adjacent to pond/channel. 3) Cut back vegetation from the channel/channel and place temporarily adjacent to channels on the bank area 4) Remove and dispose of vegetation and silt in suitable area 5) Rehabilitate area adjacent to pond/channel from where heavy vehicles gained accessed or where silt/vegetation was placed.
Impacts of actions	The following impacts are anticipated because of undertaking the removal activity: • Sedimentation / increased turbidity into downstream systems. • Maintenance activities within or in close proximity to stormwater ponds and channels can cause water quality impairment through operation of heavy vehicles (e.g. as result of fuel spills or leakage). • Localised habitat disturbance in the channels and potential biota loss;
Severity of impacts	If all mitigation measures are implemented the severity of the impact will be Low
Measures to mitigate the severity of the impacts	<u>Essential mitigation measures:</u> • Undertake maintenance activities during the dry summer months only. • All vehicles are to remain within existing roads or previously determined routes, no new roads should be developed without prior authorisation. No indiscriminate movement of machinery within wetlands is allowed.

	• Ensure that all excavators and other vehicles remain outside wetland systems and cross the drainage lines only on the existing road. • Dispose of sediment outside of any watercourses or other areas of ecological sensitivity, and such that it will not wash into such watercourses. • Ensure appropriate maintenance and refuelling of machinery and the appropriate containment of hazardous substances and chemicals (if required) at least 50m from the nearest watercourse, on a bunded surface. • Restrict maintenance activities to outside of bird breeding season (November to end of March). • Restrict vehicle and machinery operation to previously disturbed areas and ensure that material stockpiles are set-back from the watercourse by a minimum distance of 32m. • Cobbles must be placed on all outlet structures and indigenous vegetation established to bind the soil of the bed, to prevent erosion and assist with energy dissipation. • Prior to the onset of the winter rainy season, all stormwater infrastructure must be desilted, and any debris must be removed. • Regular inspection of the stormwater outlet structures must be undertaken (specifically prior to the winter rains and after large storm events) to ensure unobstructed flow and monitor the occurrence of erosion. If erosion has occurred, it must immediately be rehabilitated through stabilisation of the embankments and revegetation, where applicable. • All pipelines and attenuation ponds must be regularly cleaned, and all outlet structures (if any) checked to ensure there is no debris/blockages. • The likelihood of erosion at the discharge points can be reduced provided that a higher surface roughness is implemented in the area from the discharge points down to the delineated freshwater ecosystems, allowing for water to enter the seep wetland 1, CVB wetland 3 and the surrounding environment at a lower velocity. This can be achieved through the placement of cobbles and ensuring that the area surrounding each discharge point is suitably vegetated.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.

Method of Access	Existing access roads should be utilised as far as possible.
Period of activity	The period of the maintenance management activity will vary depending on amount and frequency of siltation. The activity will be ongoing.

MS6: Upkeep and repairs of maintenance and access roads.

Description of activity	Gravel road maintenance will involve regular inspections to identify issues and grading to keep the surface even. Drainage features, such as ditches and culverts, will be cleared regularly to prevent erosion, while potholes and erosion will be promptly repaired. Vegetation along road edges will be controlled, and any flood-related damage will be repaired after storms to maintain road access and prevent further erosion.
Actions	The following general sequence of actions are required: 1. Identify maintenance activities required. 2. Clear area of debris, sediment or vegetation from the area if required. 3. Carry out necessary maintenance work. 4. Rehabilitate disturbed areas, remediate any erosion and suitably loosen any compacted soil. 5. Reshape areas and/or replant as required.
Impacts of actions	The following potential impacts may result from the proposed maintenance activities: • Proliferation of AIP species within the disturbed areas. • Potential loss of indigenous vegetation as a result of maintenance works. • Disturbance to and compaction of soil resulting in erosion. • Potential conveyance of sediment laden stormwater into the freshwater ecosystems
Severity of impacts	If all mitigation measures are implemented the severity of the impact will be Low.
Measures to mitigate the severity of the impact	• Conduct routine maintenance to minimize the risk of infrastructure failures that could necessitate more extensive work within regulated wetland areas. • Only existing roadways should be utilized during maintenance and repairs to avoid indiscriminate movement of vehicles within the wetlands.

	• No vehicles are permitted to enter the freshwater ecosystems. Any maintenance works within wetlands must be undertaken by foot, or the relevant authorizations obtained beforehand. • Any AIPs within the maintenance area must ideally be removed prior to the initiation of soil disturbing maintenance activities. This will assist in reducing the long-term AIP management requirements. • The soil within 15m of the freshwater ecosystems must be suitably loosened on completion of maintenance activities and revegetated to prevent erosion. • Stockpiling of excavated materials may only be temporary (i.e. may only be stockpiled during the period of maintenance at a particular site). Soil must be stockpiled on the upgradient side of the excavated area to avoid sedimentation of the downgradient areas. • Excavated areas must be backfilled as soon as infrastructure has been installed/repaired in any given section to reduce potential erosion of exposed soil. • Limit routine maintenance activities to the dry summer months as far as possible. • As far as possible, physical movement in the freshwater ecosystems by personnel must be limited. • Dispose of excess sediment outside of any watercourses or other areas of ecological sensitivity, and such that it will not wash into such watercourses • Regular inspection culverts and drainage structures must be undertaken (specifically prior to the onset of the winter rains and after large storm events) to ensure unobstructed flow and monitor the occurrence of erosion. If erosion has occurred, it must immediately be rehabilitated through stabilisation of the road verses and revegetation, where applicable.
Remedial measures	There are no additional remedial mitigation measures other than those listed above if implemented in full.
Method of Access	Existing access roads should be utilised as far as possible.
Period of activity	The period of the maintenance management activity will vary depending on the level of maintenance required. The activity will be ongoing.

8. MONITORING AND REPORTING

8.1. Monitoring

Capewinelands Aero (Pty) Ltd is responsible for overseeing the monitoring of maintenance and management activities under this MMP. It is critical that all management actions outlined in the plan are strictly adhered to. Regular and thorough monitoring is essential to ensure compliance with MMP specifications, identify any issues of non-conformance, and implement corrective actions to minimize risks and prevent environmental damage.

Proactive, ongoing monitoring will address potential impacts to the ecological integrity of the associated aquatic ecosystems. Key monitoring activities include:

- **Structural Integrity Checks**: Routine inspection and maintenance of service, stormwater, and linear infrastructure associated with the CWA development to ensure structural stability and prevent potential disruptions.
- **Pollution Prevention Program**: An active monitoring system should be implemented to promptly identify and mitigate potential pollution sources that could impact soil, surface water, or groundwater quality.
- **Wetland Health Monitoring**: Regular assessments of potentially impacted wetlands to ensure ecological processes and functions are preserved or improved in line with Present Ecological State (PES) and Recommended Ecological Category (REC) goals. The Wetland Offset Study and Implementation Plan (FEN, Sept 2024) provides specific guidelines to maintain offset wetlands within desired ecological conditions (refer Appendix B to this report).
- **Alien Invasive Plant (AIP) Management**: Implement the Alien Vegetation Management Plan (PHS Consulting, Oct 2024), monitoring and removing invasive species to protect native vegetation and ecosystem balance.
- **Erosion and Sedimentation Control**: Frequent visual inspections across stormwater systems, roads, and natural areas to identify erosion or sediment buildup, with prompt corrective actions to prevent habitat degradation and downstream sedimentation impacts.

Monthly inspections should be carried out by a suitably qualified individual within the CWA Environmental Management Division (EMD) to verify the condition and functionality of critical infrastructure, including stormwater systems, service infrastructure, and fences. These checks serve as quality assurance and ensure alignment with the MMP. To facilitate effective monthly monitoring, monthly walk-through inspections should be carried out. These inspections should focus on identifying areas of concern related to:

- Erosion
- Sedimentation
- Infrastructure damage
- Waste / litter dumping
- Alien vegetation encroachment
- Soil compaction

Seasonal maintenance is essential for all stormwater infrastructure and access roads. Prior to the rainy season, thorough cleaning and inspection should be conducted, including clearing all culverts and drainage channels. Annual condition assessments should be undertaken for all infrastructure within the 32-meter Zone of Regulation (ZoR) and associated wetlands to identify longer-term repair needs. It should however be noted that these monitoring requirements are the minimum required to facilitate the implementation of this MMP. All service infrastructure must be maintained in accordance with manufactures' instructions and no less frequently than the manufactures statutory timeframes.

All activities undertaken **outside the scope** of the MMP, will be subject to Section 24(F) of NEMA and appropriate enforcement and compliance requirements will follow.

8.2. Reporting

Form A below must be completed by the relevant person(s) **before** maintenance activities are undertaken and Form B below **after** a maintenance activity has been completed. Form A should be completed **at least 7 working days before** the commencement of any maintenance activity and **Form B at least 3 working days after** the completion of the maintenance activity(ies). At least two photographs are required from two different points of perspective (A and B) looking at the site (coordinates of these points are required). The type and reference code relates to the relevant detail within the adopted MMP.

Capewinelands Aero (Pty) Ltd is responsible to ensure a record of all maintenance activities is recorded as per Form A & B. Copies of Form A and B must also be sent to the Provincial Department of Agriculture, Directorate: Sustainable Resource Management.

DEA&DP may, within a reasonable notice period, request to evaluate the maintenance activities and assess the maintenance sites as per the adopted MMP.

FORM A REPORTING FOR INTENT TO UNDERTAKE MAINTENANCE ACTIVITIES	
Section A: Landowner Details	
Landowner Name & Surname	
Farm/Erf No	
Today's Date	
Section B: Details of proposed maintenance activity	
WUA/GA reference number:	
DEA&DP MMP reference number:	
Activity Type:	
Reference code (*make reference to MMP*):	
Footprint area (m^2):	
Volume of material (m^3):	
Equipment to be used:	
Description of method for planned activity:	
Date when work will commence:	
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	
Photo A – Before Maintenance Activities	
Coordinates:	
Photo B – After Maintenance Activities	
Coordinates:	

FORM B **REPORTING FOR COMPLETION OF MAINTENANCE ACTIVITIES**				
Section A: Landowner Details				
Landowner Name & Surname				
Farm/Erf No				
Today's Date				
Section B: Details of proposed maintenance activity				
WUA/GA reference number and DEA&DP reference number for MMP.	**Activity Type:**	**Reference code (*make reference to MMP*)**	**Footprint area (m^2)**	**Volume of material (m^3)**
WUA/GA reference number:				
DEA&DP MMP reference number:				
Activity Type:				
Reference code (*make reference to MMP*):				
Footprint area (m^2):				
Volume of material (m^3):				
Equipment to be used:				
Description of method for completed activity and if commence date changed:				
Date activity completed:				
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				
Photo A – Before Maintenance Activities				
Coordinates:				

Photo B – After Maintenance Activities
Coordinates:

Appendix A: Freshwater Ecological Assessment

(Please refer to Appendix 7 of the Environmental Impact Assessment Report)

Appendix B: Wetland Offset Plan

(Please refer to Appendix 8 of the Environmental Impact Assessment Report)

Appendix C: MMP maintenance coordinates

Description	Coordinates		Comments
Perimeter Fence (Figure A)	Latitude	33°45'2.26"S	Start
	Longitude	18°44'13.63"E	
	Latitude	33°45'11.01"S	End
	Longitude	18°44'17.92"E	
Maintenance Road (Figure A)	Latitude	33°45'2.26"S	Start
	Longitude	18°44'13.63"E	
	Latitude	33°45'11.01"S	End
	Longitude	18°44'17.92"E	
Access Road 1 (Existing northern access road) (Figure B)	Latitude	33°44'24.37"S	Start
	Longitude	18°44'39.33"E	
	Latitude	33°44'32.66"S	End
	Longitude	18°44'6.09"E	
Access Road 2 (Existing southern access road)(Figure A)	Latitude	33°44'50.01"S	Start
	Longitude	18°44'46.38"E	
	Latitude	33°44'56.87"S	End
	Longitude	18°44'39.61"E	
Dry Attenuation Pond 5 (Figure B)	Latitude	33°44'42.23"S	Adjacent to CVB 3 (Includes associated stormwater infrastructure)
	Longitude	18°44'9.46"E	
Proposed Sprinkler Main Fire Water (Figure A)	Latitude	33°45'2.63"S	Start
	Longitude	18°44'13.44"E	
	Latitude	33°45'10.78"S	End
	Longitude	18°44'17.01"E	
Stormwater Infrastructure	Latitude	TBC	Potentially within 32m of RE Seep 1
	Longitude	TBC	
Wetland Offset – RE Seep Wetland 1 (Figure A)	Latitude	33°45'3.32"S	Incl. ongoing AIP removal
	Longitude	18°44'19.67"E	
Wetland Offset – CVB Wetland 1 (Figure A)	Latitude	33°44'55.78"S	Incl. ongoing AIP removal
	Longitude	18°44'43.97"E	
Wetland Offset – Agricultural Drain Point 1 (Figure A)	Latitude	33°44'58.42"S	Rehab adjacent to Seep Wetland 1
	Longitude	18°44'23.33"E	
Wetland Offset – Agricultural Drain Point 2 (Figure A)	Latitude	33°44'44.62"S	Rehab adjacent to CVB 1
	Longitude	18°44'30.68"E	
CVB Wetland 2	Latitude	33°44'27.34"S	AIP Removal
	Longitude	18°44'15.33"E	
CVB Wetland 3	Latitude	33°44'42.19"S	AIP Removal
	Longitude	18°44'20.97"E	
Seep Wetland 2	Latitude	33°45'20.47"S	AIP Removal
	Longitude	18°44'46.87"E	

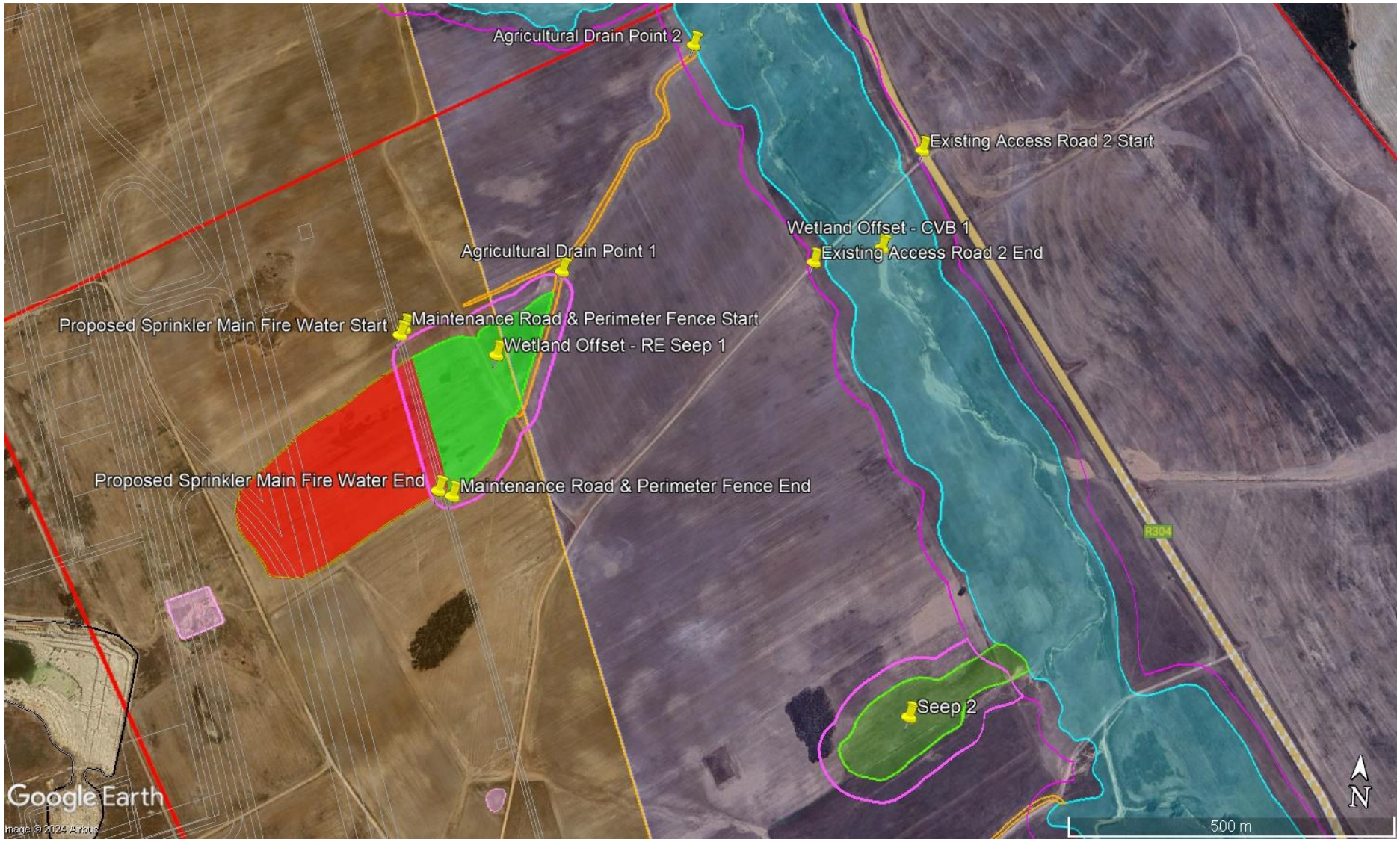


Figure A: MMP Southern Coordinates

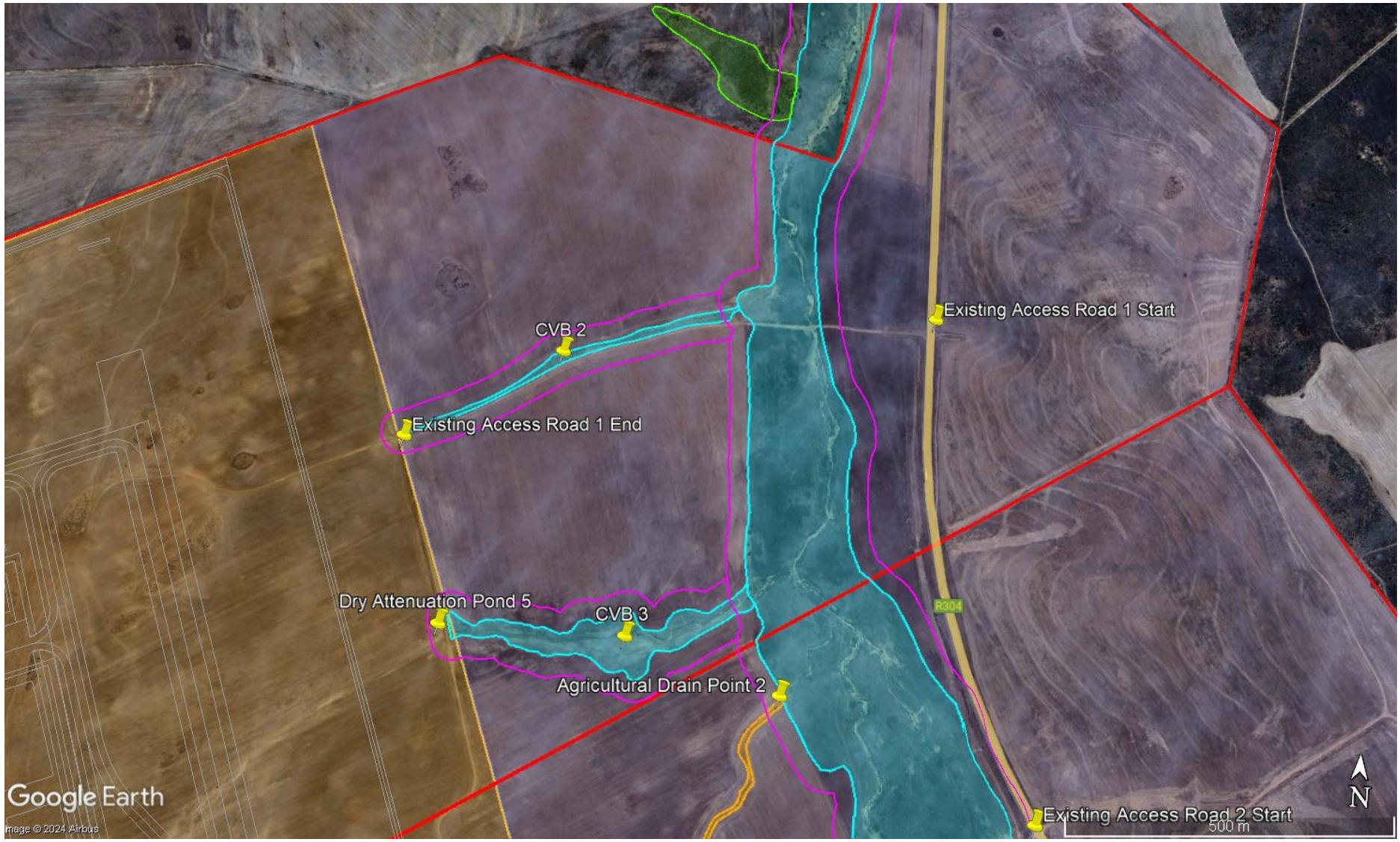


Figure B: MMP Northern Coordinates