## Detailed Freshwater Ecological Assessment:

# Unlawful clearance of indigenous vegetation and the proposed development of tourism facilities on Portion 48 of the Farm 708, Franskraal, Overstrand Municipality, Western Cape

Prepared for:

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**Date: 15.01.2025**


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# Executive Summary

*Background*

The owner of Portion 48 of the Farm 708, Franskraal has commenced with the clearance of indigenous vegetation which is deemed to have required prior environmental authorisation in terms of the NEMA EIA Regulations (2014, as amended) and the requisite approval was not obtained. Accordingly, Lornay Environmental Consulting (Lornay) has been appointed by the owner as the Environmental Assessment Practitioner (EAP) to undertake a Section 24G Rectification Process to obtain the authorisation retrospectively. Lornay has in turn appointed EnviroSwift Western Cape (EnviroSwift) to undertake the required freshwater ecological specialist study to inform the Rectification Application.

*Desktop Assessment*

A desktop assessment using available national and provincial databases including the Western Cape Biodiversity Spatial Plan (WCBSP, 2017), the National Wetlands Map Version 5 (CSIR, 2018) and maps and vector data form the National Geospatial Information (NGI) directorate was undertaken.

The site is situated within the Southern Coastal Belt Ecoregion, within the Breede-Olifants Water Management Area (WMA), the Overberg West Sub-WMA and the G40L quaternary catchment (NFEPA, 2011 and Kleynhans *et al.*, 2005). The applicable terrestrial vegetation type is Southwestern Strandveld (Vulnerable) and Southern Coastal Forest (Endangered) and the applicable wetland vegetation type is South Coast Limestone Fynbos (Least Threatened).

The only drainage line mapped on the NGI database (Cape Farm Mapper, 2024) to occur within the property boundary is the initial part an eastward draining non-perennial drainage line that originates at the downstream, eastern end of the eastern-most pond. The National Wetlands Map Version 5 (CSIR, 2018) indicates that a significant part of the site, primarily the eastern portion, comprises a hillslope seep wetland that expands off-site to the south west with most of the seep being located off-site. Aside from this there are no other watercourses within the site or within the NWA Regulated Zone (100 m for drainage lines and 500 m for wetlands).

According to the WCBSP (2017) most of the site, with the exception of the southern part of the site nearest the southern boundary, has been identified as being of biodiversity conservation importance (see Figure 8). Of most relevance to this study are patches of Aquatic ESAs and Restorable ESAs (identified on the basis of the existence of watercourse) mapped to occur within the site that are associated with the mapped hillslope seep wetland and non-perennial drainage line. While no Protected Areas are located in the general area, there are Aquatic CBAs within the NWA Regulated Zone for wetlands (i.e. within 500 m of the site boundary).

*Wetland Delineation*

A site assessment was conducted on 2 November 2024 which was at the beginning of the dry season. The preceding wet season was characterised by exceptionally high rainfall and as a result hydrology was clearly observable at the time of the site visit therefore the timing of the site did not present any limitations.

Four ponds that are aligned in a west to east alignment immediately within the northern boundary of the site are the site's most visible freshwater features. These ponds are all artificial insofar as they were created as borrow pits for the construction of the R43 many years ago. Flow through the system of ponds is from west to east and is mostly sheet flow during the wet season and most likely seepage through superficial sands, with the only exception being the flow between the Central-western and Central-eastern Ponds which is via an informal / damaged culvert beneath the access road, as mentioned previously.

Auger samples taken in the area between the ponds and on the banks of the ponds did not reveal redoximorphic features but did exhibit wetness, a rich organic layer at the surface and a low chroma characteristic of wetland soils in the region, noting that the soils rarely exhibit mottling due to a lack of iron (Job, 2009). Given the lack of vegetation in the central part of the site due to clearance undertaken by the owner and also grazing by livestock, historical aerial imagery was also consulted to determine

the pre-disturbance wetland extent. The wetland delineation for the pre-disturbance extent of wetland habitat within the boundary of the site is shown in Figure A below.


**Figure A: Watercourse delineation map.**

*Freshwater Ecological Assessment Results*

The table below presents a summary of the results of the detailed freshwater ecological assessment for the hillslope seep wetland using the various applicable indices.

**Table presenting the results of the freshwater ecological assessments.**

| **Hillslope Seep** | | |
|---|---|---|
| WET-Ecoservices | **Intermediate** | • Provides a moderately – high level of services for a number of indirect benefits including sediment trapping, nutrient assimilation (phosphate and nitrate removal), toxicant removal, erosion control and maintenance of biodiversity. For most of these indirect benefits this can be attributed to the presence of important aquatic systems downstream including Aquatic CBAs and the fact that the vegetation is largely intact, with exception of the central part of the site which has been cleared of vegetation.<br>• The services of flood attenuation and streamflow regulation and carbon storage were all assessed to be Intermediate and the wetland provides negligible direct socio-economic benefits such as water supply for human use, harvestable materials, production of foods and has no cultural significance. The wetland has some potential to deliver tourism and recreation benefits due to it being located on an existing tourist route, the habitat provides for birds and the extent of open water. It also has limited potential for delivering research and educational benefits due largely to its accessibility. |
| PES | Category E (Severely Modified) | • The key impacts affecting the hydrology of the hillslope relate to the water distribution and retention patterns within the wetland brought about by the 4 ponds and access road across the wetland. The removal of vegetation and |

| | | |
|---|---|---|
| | | the infilling within the wetland undertaken by the current owner has also contributed to the very poor score for hydrology.<br>• The geomorphological state of the hillslope seep has been impacted by the creation of ponds, two of which (the Central-western Pond and the Eastern Pond) have unnatural steep-sided banks. To reflect the impact caused by these features on geomorphology no impact scores were indicated for impacts of upstream dams or stream shortening and diversion (because there is no stream or channel as the wetland type is a hillslope seep) so only the impact of infilling was scored. The result is that the geomorphological state was determined to be a Category "C". which in addition to the impact of infilling discussed above, is also impacted by the increased run-off brought about by the R43 and the areas cleared of vegetation within the site and low levels of erosion and sedimentation.<br>• While approximately 40% of the HGM unit exhibits intact indigenous vegetation, the state of the vegetation within the HGM unit was assessed to be severely impacted (Category "E") as a result of the deep flooding by dams (extent was estimated at 30%); shallow flooding by dams (extent estimated at 10%); infilling and excavations (extent estimated at 20%); infrastructure (extent estimated at 5%); and dense infestations of alien invasive macrophytes (extent estimated at 5%). |
| EIS | **Low/marginal** | • The wetland is likely to support endangered or rare biota or populations of unique species and falls however neither the applicable terrestrial vegetation type nor the wetland vegetation type are Critically Endangered or Endangered.<br>• The wetland is not recognised in the Western Cape Biodiversity Spatial Plan (2017) as being of conservation importance as the wetlands contains patches of Aquatic ESAs with the remainder of the wetland comprising a Restorable ESA.<br>• The wetland can be regarded as being relatively insensitive to changes in hydrology due to it being a hillslope seep wetland which is largely driven by groundwater. Conversely it is considered to be sensitive to changes in water quality due to the water driving the wetland system being acidic and low in nutrients. |

*Impact Assessment*

The unlawful site clearing and infilling was undertaken as preparatory works for the development of tourism facilities on the site including the following:

- A four-bedroom (all with double-beds and ensuite bathrooms) guesthouse with managers accommodation, communal entertainment and kitchen area and associated facilities as well as a parking area with 8 parking bays (2 per bedroom);
- A paved parking area with 21 parking bays, 2 disabled parking bays and 4 motorcycle parking bays;
- A coffee shop with two ablution units;
- A wendy-house store;
- Covered curio stores; and
- Pens for farm animals.

The scope of the freshwater ecological assessment was therefore expanded from assessing the unlawful activities (*viz-a-viz* the clearance of vegetation and the infilling around the ponds) to include the development of the proposed tourism facilities. Only historic and potential impacts on the site's hillslope seep wetland were therefore assessed and mitigation opportunities identified in the present study.

**Table presenting a Summary of Impact Significance Ratings for identified Direct Impacts.**

| Impact* | Without mitigation | With mitigation |
|---|---|---|
| **Unlawful activities already undertaken** | | |
| Wetland habitat disturbance | **Medium** | **Low** |
| Alteration of Flow Regime | **Low** | **Very low** |
| Increased erosion and sedimentation | **Low** | **Very low** |
| Water quality impairment | **Low** | **Very low** |
| Biota loss | **Low** | **Very low** |
| **Proposed Tourism Development - Construction phase:** | | |
| Wetland habitat disturbance | **Low** | **Very low** |
| Water quality impairment | **Low** | **Very low** |
| **Proposed Tourism Development - Operational phase:** | | |
| Alteration of flow regime | **Low** | **Very low** |
| Water quality impairment | **Low** | **Very low** |
| Loss of Biota | **Low** | **Very low** |

*note: all impacts are negative unless indicated as a benefit.

*Conclusion*

It is the specialist's reasoned opinion that provided the mitigation measures recommended in this report are implemented, the historic, unlawful vegetation clearance and infilling of the on-site wetland as well as the proposed tourism development should be supported from a freshwater ecological perspective.

*Risk Assessment*

All of the activities (those undertaken unlawfully and those yet to be undertaken) have been determined to be associated with a LOW risk rating. The proposed development therefore qualifies for a General Authorisation (GA) as far as Section 21 (c) and (i) water uses are concerned.

# Contents

# List of Figures

# List of Tables

# Disclaimer

EnviroSwift Western Cape has exercised all due care in the reviewing of all available information and the delineation of the watercourse boundaries. The accuracy of the results and conclusions from the assessment are entirely reliant on the accuracy and completeness of available desktop information, site conditions at the time of the assessment and professional judgment. EnviroSwift Western Cape does not accept responsibility for any errors or omissions in the assessment and therefore does not accept any consequential liability arising from commercial decisions made, which are based on the information contained in this report. Opinions presented in this report apply to conditions/site conditions applicable at time of review and those conditions which are reasonably foreseeable.

# Glossary[1]

| | |
|---|---|
| **Alluvial soil**: | A deposit of sand, mud, etc. formed by flowing water, or the sedimentary matter deposited thus within recent times, especially in the valleys of large drainage lines. |
| **Biodiversity:** | The number and variety of living organisms on earth, the millions of plants, animals and micro-organisms, the genes they contain, the evolutionary history and potential they encompass and the ecosystems, ecological processes and landscape of which they are integral parts. |
| **Buffer:** | A strip of land surrounding a wetland or riparian area in which activities are controlled or restricted, in order to reduce the impact of adjacent land uses on the wetland or riparian area. |
| **Catchment:** | The area contributing to runoff at a particular point in a drainage line system. |
| **Chroma:** | The relative purity of the spectral colour which decreases with increasing greyness. |
| **Critical Biodiversity Areas:** | Areas of the landscape that need to be maintained in a natural or near-natural state in order to ensure the continued existence and functioning of species and ecosystems and the delivery of ecosystem services. |
| **Delineation (of a wetland):** | To determine the boundary of a wetland based on soil, vegetation and/or hydrological indicators. |
| **Ecoregion**: | A recurring pattern of ecosystems associated with characteristic combinations of soil and landform that characterise that region. |
| **Non-perennial stream:** | A stream that has transitory or short-lived flow. |
| **Groundwater:** | Subsurface water in the saturated zone below the water table. |
| **Habitat:** | The natural home of species of plants or animals. |
| **Hue (of colour):** | The dominant spectral colour. |
| **Hydromorphic soil:** | A soil that, in its undrained condition, is saturated or flooded long enough to develop anaerobic conditions favouring the growth and regeneration of hydrophytic vegetation (vegetation adapted to living in anaerobic soils). |
| **Hydrology:** | The study of the occurrence, distribution and movement of water over, on and under the land surface. |
| **Hydrophytes:** | Also called obligate wetland plants - plants that are physiologically bound to water where at least part of the generative cycle takes place in the water or on the surface. |
| **Halophytes:** | Salt tolerant plants. |
| **Helophytes:** | Also called facultative wetland plants - essentially terrestrial plants of which the photosynthetically active parts tolerate long periods of submergence or floating on water. |
| **Intermittent flow:** | Flows only for short periods. |
| **Macrophyte:** | A large plant - in wetland studies usually a large plant growing in shallow water or waterlogged soils. |
| **Perennial:** | Permanent - persisting from year to year. |
| **Riparian area delineation:** | The determination and marking of the boundary of the riparian area. |

[1] As provided by DWA (2005) and WRC Report No. TT 434/09.

**Riparian habitat:** Includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterized by alluvial soils (deposited by the current drainage line system) and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent areas.

**Shrub:** A shrub is a small to medium-sized woody plant.

**Temporary zone:** The zone that is alternately inundated and exposed.

**Terrain unit morphological classes:** Areas of the land surface with homogenous form and slope.

**Watercourse (NWA):**

(a) A drainage line or spring;
(b) A natural channel in which water flows regularly or intermediately;
(c) A wetland, lake or dam into which or from which water flows; and
(d) Any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse.

**Water table:** The upper surface of groundwater or that level below which the soil is saturated with water. The water table feeds base flow to the drainage line channel network when the drainage line channel is in contact with the water table.

**Wetland:** An area of marsh, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed ten metres.

# Acronyms

**CBA** Critical Biodiversity Area
**DWA** Department of Water Affairs
**DWAF** Department of Water Affairs and Forestry
**DWS** Department of Water and Sanitation
**EIS** Ecological Importance and Sensitivity
**FEPA** Freshwater Ecological Support Area
**GPS** Global Positioning System
**HGM** Hydrogeomorphic
**IHI** Index of Habitat Integrity
**IHIA** Intermediate Habitat Integrity Assessment
**MAP** Mean Annual Participation
**NEMA** National Environmental Management Act
**NFEPA** National Freshwater Ecosystem Priority Areas
**NWA** National Water Act
**OESA** Other Ecological Support Area
**PES** Present Ecological State
**REC** Recommended Ecological Category
**SANBI** South African National Biodiversity Institute
**Sub-WMA** Sub - Water Management Area
**TMNP** Table Mountain National Park
**WCBF** Western Cape Biodiversity Framework
**WMA** Water Management Area
**WUL** Water Use Licence
**WWTW** Wastewater Treatment Works

# Specialist Details and Experience

**Nick Steytler (Pr.Sci.Nat. 400029)**

Nick Steytler is a registered Professional Natural Scientist (Pr.Sci.Nat) with the South African Council for Natural Scientific Professions (SACNASP) and is also a certified Environmental Assessment Practitioner (EAP) with over 20 years' experience in the field of environmental management. He holds a Masters of Science (M.Sc.) degree in the field of Entomology (University of KwaZulu-Natal, Pietermaritzburg campus). His employment record includes several years with the Institute of Natural Resources in KwaZulu-Natal where he worked in their Natural Resource Management Programme and with SRK Consulting in Cape Town where he worked as an Environmental Scientist in the field of environmental management (i.e. undertaking Environmental Impact Assessment [EIA] and the like). After leaving SRK, Nick founded KHULA Environmental Consultants and holds the position of Director. In developing his expertise as a freshwater specialist he initially worked in the capacity of an associate to EnviroSwift Western Cape (WC) but has since taken over the company and now undertakes all wetland specialist work in the Western, Southern, Eastern and Northern Cape. Nick's CV is attached as Appendix 3.

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# 1 Introduction

## 1.1 Project Background

The owner of Portion 48 of the Farm 708, Franskraal (see Figure 1) has commenced with the clearance of indigenous vegetation which is deemed to have required prior environmental authorisation in terms of the NEMA EIA Regulations (2014, as amended) and the requisite approval was not obtained. Accordingly, Lornay Environmental Consulting (Lornay) has been appointed by the owner as the Environmental Assessment Practitioner (EAP) to undertake a Section 24G Rectification Process to obtain the authorisation retrospectively. Lornay has in turn appointed EnviroSwift Western Cape (EnviroSwift) to undertake the required freshwater ecological specialist study given that the National Wetlands Map Vers. 5 (CSIR, 2018) indicates that the eastern portion of the site comprises a hillslope seep wetland. As such the aim of this specialist study is to assess the impacts on freshwater ecosystems associated with the historic unlawful activities and also with the development of new tourism facilities, including recommending measures to mitigate the historic and potential impacts.


**Figure 1: Site Location Plan. The boundary of the site is indicated as a yellow polygon.**

## 1.2 Scope of Work

The scope of work which informed this assessment includes:

- Assessment of relevant background information including the National Wetlands Map Version 5 (CSIR, 2018), the Western Cape Biodiversity Spatial Plan (WCBSP, 2017), the National Geospatial Information (NGI) Service topographical maps and vector data, and pertinent academic resources;

- A site assessment including identification of wetlands and drainage lines and the delineation of the wetland temporary boundary and any riparian zones associated with any drainage lines in accordance with best practice methods (refer to methods section);

- Assessment of the Present Ecological State (PES), Ecological Importance and Sensitivity (EIS) and wetland ecosystem services for the on-site wetlands and the Intermediate Habitat Integrity Assessment (IHIA) method for the on-site drainage lines according to best practice methods (refer to methods section);

- Identification of the Section 21 (c) and (i) activities (historic and proposed);

- Assessment of historic and potential impacts and identification of practicable mitigation measures including determination of the appropriate buffer width in terms of the MacFarlane *et al*. (2017) buffer zone guidelines; and

- Completion of the Department of Water & Sanitation (DWS) Revised Risk Assessment Matrix to determine the level of risk posed to the directly affected watercourses and the relevant level of Water Use application

## 1.3 Limitations and Assumptions

The following limitations apply to this study:

- The current extent of the site's wetlands and alignment of drainage lines have been delineated using a Garmin Etrex 20 with an expected accuracy of 3 to 5 metres. It is however the opinion of the specialist that this limitation is of no material significance and that the legislative requirements and freshwater-related impacts have been adequately identified.
- In determining the current extent of the wetlands the methods used were limited to the upper 50cm of soil in accordance with the Updated Manual for Identification and Delineation of Wetland and Riparian Areas (Department of Water Affairs and Forestry - DWAF, 2008) and the Application of the DWAF (2008) Method to Wetland Soils of Western Cape (Job *et al.* 2009).
- A site assessment was conducted on 2 November 2024 which was at the beginning of the dry season. The preceding wet season was characterised by exceptionally high rainfall and as a result hydrology was clearly observable at the time of the site visit therefore the timing of the site did not present any limitations.
- The site contains a number of ponds. These were created many years ago by the contractor for construction of R43 which forms the northern boundary of the site. As such the creation of these ponds and construction of the access road leading between the two ponds nearest the entrance to the site, having been in existence for many years prior to the current owner taking transfer on the property are not deemed to be unlawful and are therefore not subject to this assessment.
- On the basis of the above assumptions this study has assessed the impacts and risks of following activities on the site's watercourses:
    - Historic removal of indigenous vegetation on the site;
    - Historic infilling of a part of the hillslope seep wetland; and
    - The proposed development of a tourism accommodation building and a coffee shop.

## 1.4 Legislation

### 1.4.1 National Water Act (36 of 1998)

The purpose of the NWA is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors -
(g) protecting aquatic and associated ecosystems and their biological diversity; and
(h) reducing and preventing pollution and degradation of water resources.

In order to understand and interpret the Act correctly, the following definitions are applicable to this project:
``**pollution"** means the direct or indirect alteration of the physical, chemical or biological properties of a water resource;
``**protection",** in relation to a water resource, means -

(a) maintenance of the quality of the water resource to the extent that the water resource may be used in an ecologically sustainable way;
(b) prevention of the degradation of the water resource; and
(c) the rehabilitation of the water resource;
``**resource quality"** means the quality of all the aspects of a water resource including -
(a) the quantity, pattern, timing, water level and assurance of instream flow;
(b) the water quality, including the physical, chemical and biological characteristics of the water;
(c) the character and condition of the instream and riparian habitat; and
(d) the characteristics, condition and distribution of the aquatic biota;
**"watercourse"** means -
(a) a drainage line 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
(d) any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks; and
``**water resource"** includes a watercourse, surface water, estuary, or aquifer.

The NWA deals with pollution prevention, and in particular the situation where pollution of a water resource occurs or might occur as a result of activities on land. The person who owns, controls, occupies or uses the land in question is responsible for taking measures to prevent pollution of water resources. The measures may include measures to -
(a) cease, modify or control any act or process causing the pollution;
(b) comply with any prescribed waste standard or management practice;
(c) contain or prevent the movement of pollutants;
(d) eliminate any source of the pollution;
(e) remedy the effects of the pollution; and
(f) remedy the effects of any disturbance to the bed and banks of a watercourse.

In terms Section 21 of the NWA "water use" is defined broadly and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering a watercourse, removing water found underground for certain purposes, and recreation. In general, a water use must be licensed unless it is listed in Schedule I, is an existing lawful use, is permissible under a general authorisation, or if a responsible authority waives the need for a licence. Of particular relevance to this study are the following Section 21 water uses:

- Section 21 (c): Impeding or diverting the flow in a watercourse; and
- Section 21 (i): Altering the bed, banks, course or characteristics of a watercourse.

Government Notice No. 4167 (dated 8 December 2023) promulgated in terms of the NWA makes allowance for a regulated area around all watercourses within which the risk of Section 21 (c) and (i) activities must be assessed. The stipulated regulated areas include everything within 500m of the boundary of wetland, and everything within 100m or the 1:100 year flood-line (whichever is the greater distance) of a river, stream or drainage line. The following is applicable for any development within the regulated zone:

- Should a freshwater ecologist consider the proposed development to be of zero to negligible risk to freshwater resources then a letter may be provided to this effect and the requirement for a WUA would be waivered (W. Roets, pers. comm.).
- In all other cases, a risk assessment in terms of the revised General Authorisation (GA) for 21(c) and (i) water uses must be undertaken to determine the quantum of risk posed to the watercourse by the proposed development.
- Should the development pose a LOW risk, registration of the water use under the General Authorisation (GA) would be required.
- Should the development pose a MEDIUM risk, application for a Water Use License (WUL) would be required.
- HIGH risk developments also require a WUL but are not readily approved.

The Breede Overberg Catchment Management Agency (BOCMA) holds competency in terms of the NWA and as such either authorises or rejects Water Use Applications.

### 1.4.2 National Environmental Management Act (107 of 1998)

The NEMA states the following:

"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."

The Act also makes special mention of the importance of the protection of wetlands:
"Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure."

Environmental Impact Assessment (EIA) Regulations have been promulgated under NEMA since 2006[2] which list activities that may be detrimental to the environment and that require prior Environmental Authorisation. The Regulations specify the level of EIA (either a Basic Assessment or a full Scoping and EIA process) that needs to be undertaken in order to obtain the required Environmental Authorisation.

Section 24 of NEMA makes provision for the retrospective issuing of an environmental authorisation (termed "rectification") where developments have commenced without the required prior Environmental Authorisation. If an activity is deemed to have proceeded without the requisite Environmental Authorisation then the competent authority may issue a Directive to the responsible party(s) to cease continuing with the activity and either rehabilitate the site or submit an application for rectification. The rectification application entails the identification and assessment of impacts that have actually been caused by the development and the identification of mitigation measures to where practicable and reasonable reverse historical impacts and minimise the ongoing impacts. If successful the rectification process will result in the activities being authorised in terms of the NEMA EIA Regulations and may stipulate conditions of authorisation that need to be complied with.

# 2 Method of Assessment

## 2.1 Overview

The methods used in this freshwater specialist study entailed the following:

1. A desktop assessment to determine the conservation importance of the affected watercourses (wetlands);
2. Site assessment to identify the site's watercourses and delineate their extent (limited to wetlands on the site);
3. An assessment of the current ecological status and value of the wetland using recognised classification systems and indices based on the information collected during the desktop assessment and site assessment;
4. A buffer determination based on the National Buffer Guidelines (Macfarlane and Bredin, 2017);
5. An impact assessment where the impacts caused by the historic activities are identified based on historic aerial imagery and the site assessment, assessed and mitigation and/or management measures are recommended to minimise any ongoing impacts. In addition the potential impacts associated with the proposed development of tourism facilities (accommodation unit and coffee shop) are similarly identified, assessed and mitigation measures recommended; and
6. A Risk Assessment using the Revised Risk Assessment Matrix (RAM).

These methods are discussed in more detail in the following sections.

[2] Regulations were promulgated in 2006, 2010 and 2014.

## 2.2 Desktop Assessment

The scope of work includes a desktop assessment using available national and provincial databases including the Western Cape Biodiversity Spatial Plan (WCBSP, 2017), the National Wetlands Map Version 5 (CSIR, 2018) and maps and vector data form the National Geospatial Information (NGI) directorate.

The WCBSP (2017) categorises natural landscapes and features into Protected Areas (PAs), Critical Biodiversity Areas (CBAs), Ecological Support Areas (ESAs), and Other Natural Areas (ONAs), which are defined in the plan as indicated in Table 1.

**Table 1: WCBSP category definitions and management objectives.**

| MAP CATEGORY | DEFINITION | DESIRED MANAGEMENT OBJECTIVE | SUB-CATEGORY |
|---|---|---|---|
| Protected Area | Areas that are proclaimed as protected areas under national or provincial legislation. | Must be kept in a natural state, with a management plan focused on maintaining or improving the state of biodiversity. A benchmark for biodiversity. | n/a |
| Critical Biodiversity Area 1 | Areas in a natural condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. | Maintain in a natural or near-natural state, with no further loss of habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate. | CBA: River |
| | | | CBA: Estuary |
| | | | CBA: Wetland |
| | | | CBA: Forest |
| | | | CBA: Terrestrial |
| Critical Biodiversity Area 2 | Areas in a degraded or secondary condition that are required to meet biodiversity targets, for species, ecosystems or ecological processes and infrastructure. | Maintain in a functional, natural or near-natural state, with no further loss of natural habitat. These areas should be rehabilitated. | CBA: Degraded |
| Ecological Support Area 1 | Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services. | Maintain in a functional, near-natural state. Some habitat loss is acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised. | ESA: Foredune |
| | | | ESA: Forest |
| | | | ESA: Climate Adaptation Corridor |
| | | | ESA: Coastal Resource Protection |
| | | | ESA: Endangered Ecosystem |
| | | | ESA: River |
| | | | ESA: Estuary |
| | | | ESA: Wetland |
| | | | ESA: Watercourse Protection |
| | | | ESA: Water Source Protection |
| | | | ESA: Water Recharge Protection |
| Ecological Support Area 2 | Areas that are not essential for meeting biodiversity targets, but that play an important role in supporting the functioning of PAs or CBAs, and are often vital for delivering ecosystem services. | Restore and/or manage to minimise impact on ecological infrastructure functioning; especially soil and water-related services. | ESA: Restore from NN |
| ONA: Natural to Near-Natural | Areas that have not been identified as a priority in the current systematic biodiversity plan, but retain most of their natural character and perform a range of biodiversity and ecological infrastructure functions. Although they have not been prioritised for biodiversity, they are still an important part of the natural ecosystem. | Minimise habitat and species loss and ensure ecosystem functionality through strategic landscape planning. Offers flexibility in permissible land uses, but some authorisation may still be required for high-impact land uses. | ONA: Natural to Near-Natural |
| | | | ONA: Degraded |
| No Natural Remaining | Areas that have been modified by human activity to the extent that they are no longer natural, and do not contribute to biodiversity targets. These areas may still provide limited biodiversity and ecological infrastructure functions, even if they are never prioritised for conservation action. | Manage in a biodiversity-sensitive manner, aiming to maximise ecological functionality. Offers the most flexibility regarding potential land uses, but some authorisation may still be required for high-impact land uses. | No Natural Remaining |

## 2.3 Watercourse Identification and Delineation

For the purpose of the identification of water resources, the definition as provided by the NWA (Act No. 36 of 1998) was used to guide the site assessment. The NWA defines a water resource as a watercourse, surface water, estuary or aquifer. In the context of this study it is only the former two that

are the focus of the assessment. Aquifers are excluded because wetland and riparian assessments, in line with best practise guidelines, only include the assessment of the first 50 cm from the soil surface. In addition, reference to a watercourse as provided above includes, where relevant, its bed and banks.

In order to establish if the watercourses in question can be classified as 'wetland habitat' or 'drainage line habitat', the definitions as drafted by the NWA (Act No. 36 of 1998)[3] were taken into consideration:

- A 'wetland' is 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; and
- 'Riparian' habitat includes the physical structure and associated vegetation of the areas associated with a watercourse which are commonly characterized by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with a composition and physical structure distinct from those of adjacent areas'.

Freshwater habitat was identified with the use of the definitions provided above and the delineation took place according to the method supplied by DWAF (2005, updated 2008). Several indicators are prescribed in the watercourse delineation guideline to facilitate the delineation of either the temporary wetland zone or the drainage lines riparian zone.

Indicators used to determine the boundary of the wetland temporary zone include:

1) The position in the landscape;
2) The type of soil form;
3) The presence of wetland vegetation species; and
4) The presence of redoximorphic soil features, which are morphological signatures that appear in soils with prolonged periods of saturation.

Indicators used to determine the boundary of the riparian zone include:

1) Landscape position;
2) Alluvial soils and recently deposited material;
3) Topography associated with riparian areas; and
4) Vegetation associated with riparian areas.

A site visit was conducted on 2 November 2024. Wetlands were identified and delineated using the methods defined in the Updated Manual for Identification and Delineation of Wetlands (DWAF, 2008) and the Application of the DWAF 2008 method to wetland soils of Western Cape (Job, 2009). Delineation was undertaken by means of a GPS.

Wetland soils in this region are known not to exhibit typical wetland soil indicators. Mottling is frequently absent due to a lack of iron in the soil. Terrestrial soils in this region tend to be of a low chroma falling within the 'gley' colour group, so 'gleying' cannot be used as a wetland indicator. Job (2009) identifies a high organic soil content (permanent zone), and dark, high carbon surface layers over low chroma sand (temporary zone) as alternative indicators, used in conjunction with the presence of wetland vegetation, as an alternative method for identification of the presence of wetland habitat.

[3] The definitions as provided by the NWA (Act No. 36 of 1998) are the only legislated definitions of wetlands in South Africa.

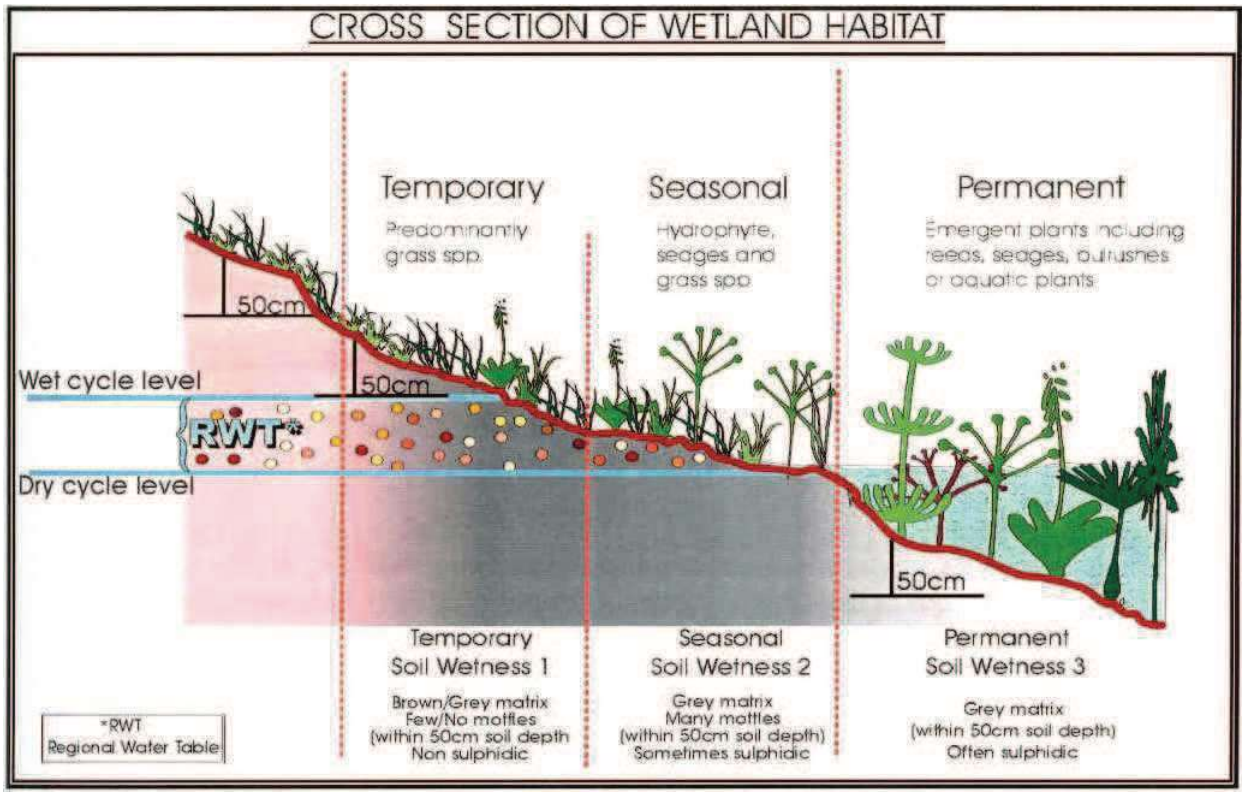


**Figure 2: Cross section through a wetland (after DWAF, 2005).**

**Table 2: Vegetation characteristics used in the delineation of wetlands (after DWAF, 2005).**

| Terrestrial / Non wetland | Temporary | Seasonal | Permanent / Semi-permanent |
|---|---|---|---|
| Dominated by plant species which occur extensively in non-wetland areas; hydrophytic[4] species may be present in very low abundance | Predominantly grass species; mixture of species which occur extensively in non-wetland areas and hydrophytic plant species which are restricted largely to wetland areas | Hydrophytic sedge and grass species which are restricted to wetland areas | Dominated by emergent plants, including reeds, sedges and bulrushes or floating or submerged aquatic plants |

## 2.4 Freshwater Feature Classification

Ecosystems included within the 'Classification System for Wetlands and other Aquatic Ecosystems in South Africa' (hereafter referred to as 'the Classification System') developed by Ollis *et al.*, (2013) encompass those that the Ramsar Convention defines, rather broadly, as 'wetlands', namely areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres (cited by Ramsar Convention Secretariat, 2011). The inland component of the Classification System has a six-tiered structure presented in the figure overpage.

[4] Plants that are physiologically bound to water where at least part of the generative cycle takes place in the water or on the surface.

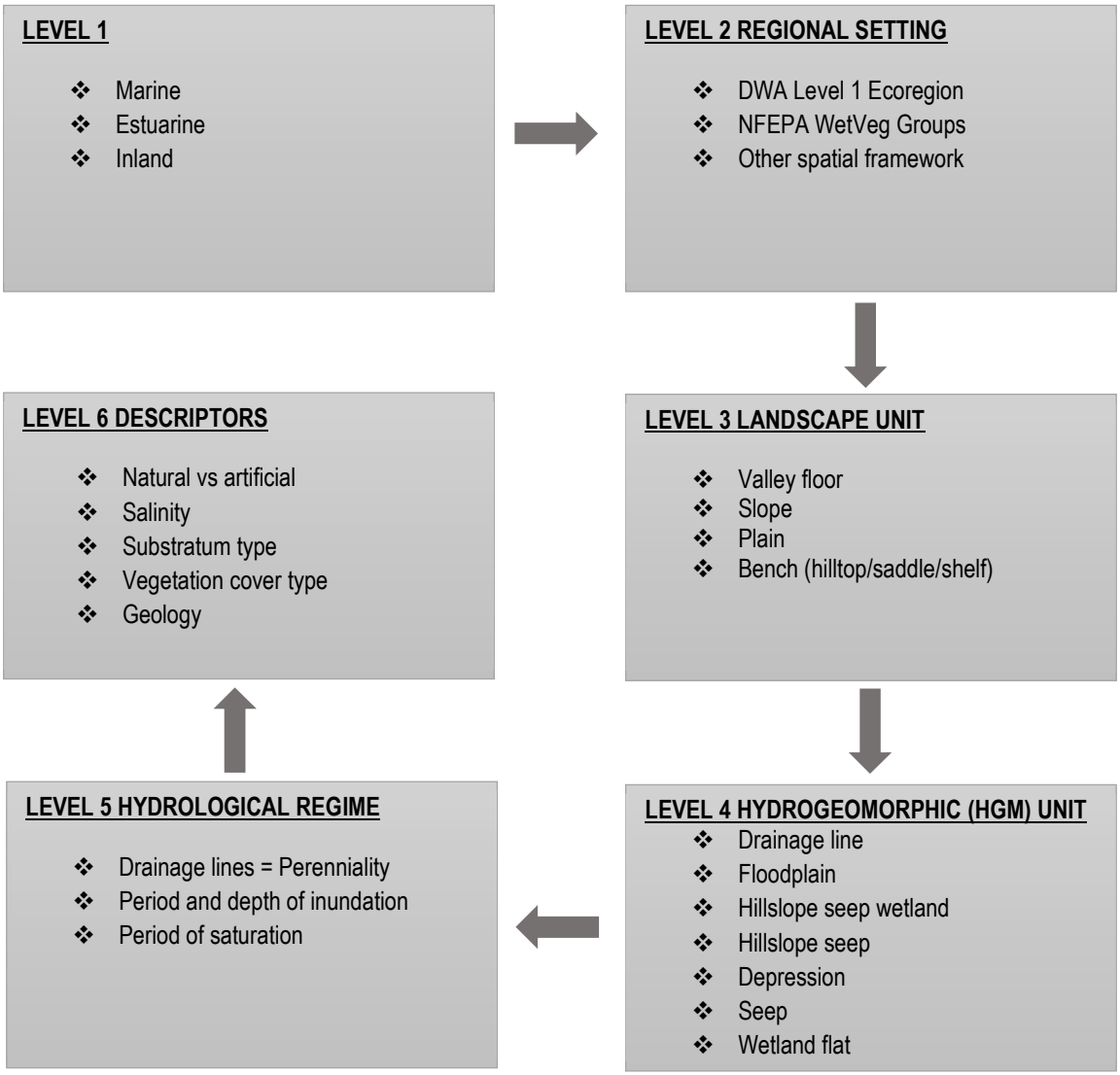


**Figure 3: Classification System for wetlands and other aquatic ecosystems in South Africa.**

# 2.5 Ecological Assessment Methodology for Wetlands

## 2.5.1 Ecosystem Services

WET-EcoServices (Kotze *et al.* 2007) was designed for inland palustrine wetlands and has been developed to help assess 15 key goods and services that individual wetlands provide in order to allow for more informed planning and decision making. Central to WET-EcoServices is the characterisation of Hydrogeomorphic (HGM) units by which the wetland can be divided into units of a similar character. The rationale behind characterising the HGM units of a wetland is that areas belonging to the same HGM type and falling within a similar geological and climatic setting are likely to have a similar structure and exhibit similar processes.

In addition, WET-EcoServices allows for the assessment of potential and actual ecosystem service outcomes of rehabilitation projects by applying the assessment to 'with rehabilitation' and 'without rehabilitation' situations and comparing the difference between the two.

### 2.5.2 Present Ecological State (PES)

WET-Health (Macfarlane, 2007) is a tool designed to assess the health or integrity of a wetland. Wetland health is defined as a measure of the deviation of wetland structure and function from the wetland's natural reference condition. This technique attempts to assess hydrological, geomorphological and vegetation health in three separate modules. The modules may then be combined to determine the overall Present Ecological State (PES) of the wetland. A Level 1 WET-Health assessment was undertaken as part of this assessment.

**Table 3: PES categories as defined in WET-Health (Macfarlane, 2007).**

| Description | Combined impact score | PES Category |
|---|---|---|
| Unmodified, natural. | 0-0.9 | A |
| Largely natural with few modifications. A slight change in ecosystem processes is discernable and a small loss of natural habitats and biota may have taken place. | 1-1.9 | B |
| Moderately modified. A moderate change in ecosystem processes and loss of natural habitats has taken place but the natural habitat remains predominantly intact | 2-3.9 | C |
| Largely modified. A large change in ecosystem processes and loss of natural habitat and biota and has occurred. | 4-5.9 | D |
| The change in ecosystem processes and loss of natural habitat and biota is great but some remaining natural habitat features are still recognizable. | 6-7.9 | E |
| Modifications have reached a critical level and the ecosystem processes have been modified completely with an almost complete loss of natural habitat and biota. | 8 - 10 | F |

### 2.5.3 Ecological Importance and Sensitivity (EIS)

The EIS method applied to wetlands is based on the assessment tool developed by Rountree *et al.* (2014) and was used to determine the ecological importance and sensitivity of wetlands, incorporating the traditionally examined criteria used in EIS assessments of other water resources by the Department of Water Affairs (DWA) and thus enabling consistent assessment approaches across water resource types.

Hydro-functional importance and basic human needs have been assessed as part of the WET-EcoServices and were therefore excluded. In the method a series of determinants are assessed on a scale of 0 to 4, where "0" indicates no importance and "4" indicates very high importance.

### 2.5.4 Recommended Ecological Category (REC)

The Recommended Ecological Category (REC) is determined by the PES score as well as importance and/or sensitivity. Water resources which have a PES falling within an E or F ecological category are deemed unsustainable. In such cases the REC must automatically be increased to a D. Where the PES is determined to be within an A, B, C or D ecological category, the EIS components must be evaluated to determine if any of the aspects of importance and sensitivity are high or very high. If this is the case, the feasibility of increasing the PES (particularly if the PES is in a low C or D category) should be evaluated and either set at the same ecological category or higher depending on feasibility. This is recommended to enable important and/or sensitive water resources to maintain their functionality and continue to provide the goods and services for the environment and society.

## 2.6 Ecological Assessment Methodology for Drainage Lines, Streams and Rivers

No drainage lines, streams or rivers were identified on or near the site so the detailed ecological assessment methods for these aquatic features is non-applicable.

## 2.7 Buffer Determination

While a buffer determination using the method described in the Buffer Zone Guidelines for Rivers, Wetlands and Estuaries (Macfarlane and Bredin, 2017) was not undertaken, the guidelines for minimum buffers for various land uses as presented in Annexure 16 of the Guidelines was used to recommend the buffers. The applicable land-uses are *low intensity residential* which applies to the owner's residential dwelling and *resort* which is the closest fit for the proposed tourist accommodation facility and coffee shop. For both land-uses a 15 m minimum buffer width is recommended. Such a buffer would require a commitment to rehabilitate and manage the buffer zone to ensure that these areas function optimally and also assume that appropriate measures to mitigate key threats that pose a risk to the water resource will be implemented.

## 2.8 Impact Assessment

A summary of the method of assessment is provided below; the detailed method is provided in Appendix 1.

The following criteria were taken into consideration when determining the impact of the unlawful activities and the proposed activities:

- The nature of the impact i.e. positive, negative, direct, indirect;
- The extent and location of the impact;
- The duration of the impact i.e. short term, long term, intermittent or continuous;
- The magnitude/intensity of the impact i.e. high, medium, low; and
- The likelihood or probability of the impact occurring.

Mitigation measures were subsequently identified and recommended for all impacts to reduce the overall impact significance to an acceptable level, where and if possible. Mitigation measures were aimed to ensure that:

- More environmentally sound designs / layouts / technologies, etc., are investigated and implemented, if feasible;
- Environmental benefits of a proposed activity are enhanced;
- Negative impacts are avoided, minimised or remedied; and
- Residual negative impacts are within acceptable levels.

## 2.9 Risk Assessment Methodology

The risk assessment utilised the methodology stipulated by Government Notice No. 4167 (dated 8 December 2023) promulgated in terms of the NWA (Act 36 of 1998). In undertaking the risk assessment the NWA Section 21 c and i activities are identified and their risk rated by assessing a number of criteria. The activities are assessed with the assumption that the recommended impact/risk mitigation measures are implemented (i.e. they reflect the "with mitigation" scenario).

# 3 Results

## 3.1 Desktop Assessment

### 3.1.1 Regional Setting

The site is situated within the Southern Coastal Belt Ecoregion, the main attributes of which are listed in Table 4 below. It is furthermore within the Breede-Olifants Water Management Area (WMA), the Overberg West Sub-WMA and the G40L quaternary catchment (NFEPA, 2011 and Kleynhans *et al.*, 2005).

**Table 4: Main attributes of the Southern Coastal Belt Ecoregion (Kleynhans *et al*., 2005).**

| Main Attributes | Southern Coastal Belt Ecoregion |
|---|---|
| Terrain Morphology: Broad division (dominant types in bold) (Primary) | Plains; Low Relief; Plains Moderate Relief; Open Hills; Lowlands; Mountains; Moderate to High Relief; Closed Hills; Mountains; Moderate and High Relief |
| Vegetation types (dominant types in bold) (Secondary) | South and South West Coast Renosterveld; Central Mountain Renosterveld; Limestone fynbos; Mountain Fynbos; Laterite Fynbos (limited); Dune Thicket; Patches Afromontane Forest |
| Altitude (m a.m.s.l) (Primary) | 0-700; 700-1500 (limited) |
| Mean annual precipitation (mm) | 300 to 1000 |
| Coefficient of Variation (% of annual precipitation) | <20 to 40 |
| Rainfall concentration index | <15 to 50 |
| Rainfall seasonality | Winter to all year |
| Mean annual temp. (°C) | 10 to 20 |
| Mean daily max. temp. (°C): February | 22 to 30 |
| Mean daily max. temp. (°C): July | 12 to 20 |
| Mean daily min. temp. (°C): February | 10 to 18 |
| Mean daily min temp. (°C): July | 4 to 10 |
| Median annual simulated runoff (mm) for quaternary catchment | 10 to >250 |

### 3.1.2 Local Setting

Portion 48 of the Farm 708, Franskraal (the site) is situated on the R43 approximately 0,5 km west of Franskraal in the Overstrand Municipality. The site is approximately 5.95 ha with the topography best described as comprising a flat to mildly sloping coastal plain (slopes of between 2 – 5 % - see Figure 4) at average altitude of 20 m a.s.l.

The area exhibits moderate temperatures and rainfall conditions that are typical of the Southern Coastal Belt Ecoregion. The main attributes of the proposed site are presented in Table 5 below and in the figures that follow.

**Table 5: Main attributes applicable to the proposed site according to Cape Farm Mapper (2023).**

| Main Attributes | Portion 48 of the Farm 708, Franskraal |
|---|---|
| Terrain: | Slope of between 0 and 10%, mainly falling towards the east. Refer to Figure 5. |
| Geology: | Calcareous aeolianite of the Waenhuiskrans Formation, partially covered by sand and coastal dunes of the Strandveld Formation, Bredasdorp Group |
| Soils: | Greyish, sandy excessively drained soils<br>Depth: >= 750mm<br>Clay: <15%<br>Erodibility: High (0.63). |
| Vegetation types: | Southwestern Strandveld (Vulnerable) and Southern Coastal Forest (Endangered). Refer to Figure 5. |
| Wetland vegetation type: | South Coast Limestone Fynbos (Least Threatened). Refer to Figure 6. |
| Altitude: | ±18 to 25m above mean sea level. |
| Mean annual precipitation: | 509 mm |
| Mean annual temp: | 16.1°C |
| Mean daily max. temp: February | 23.5°C |
| Mean daily max. temp: July | 16.5°C |
| Mean daily min. temp: February | 15.5°C |
| Mean daily min temp: July | 9.2°C |
| Mean annual runoff | 15.6 mm/year |

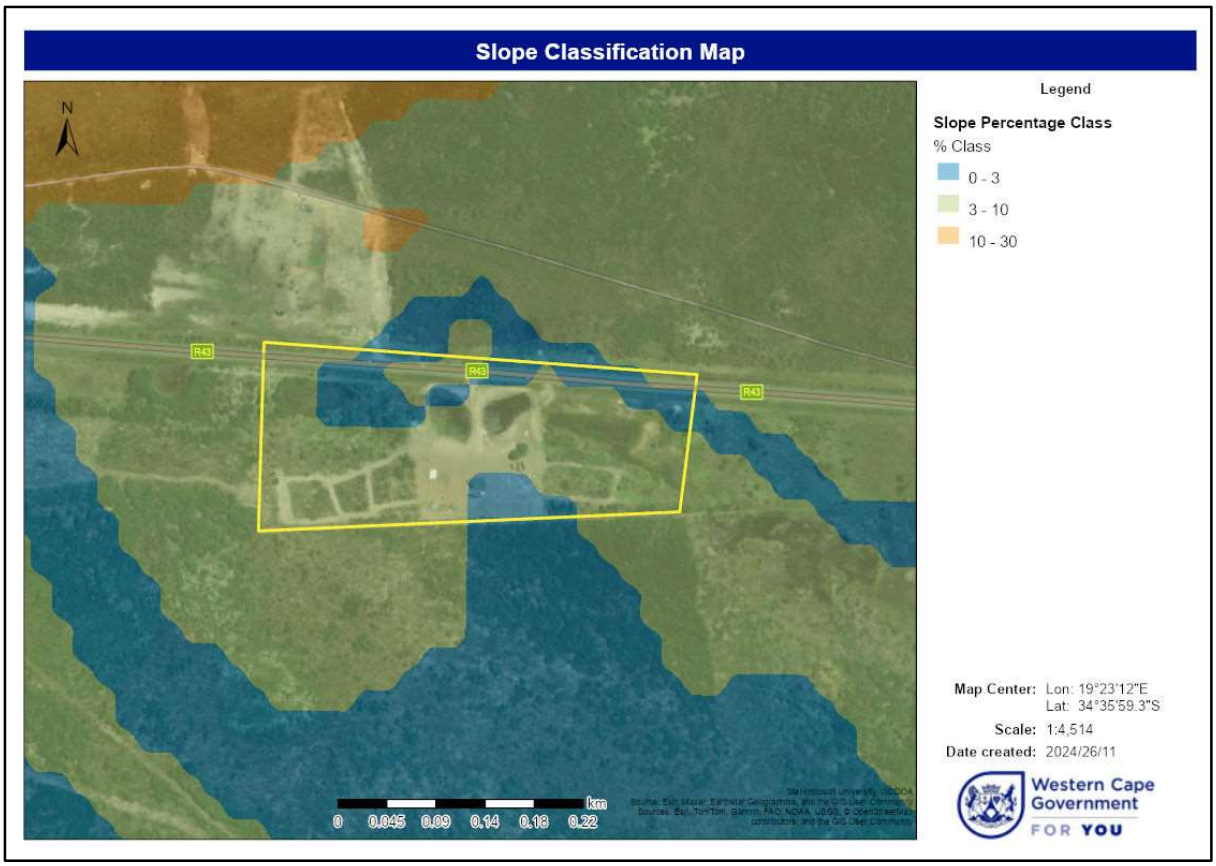


**Figure 4: Slope Classification Map of the site and surrounds (Cape Farm Mapper, 2024).**

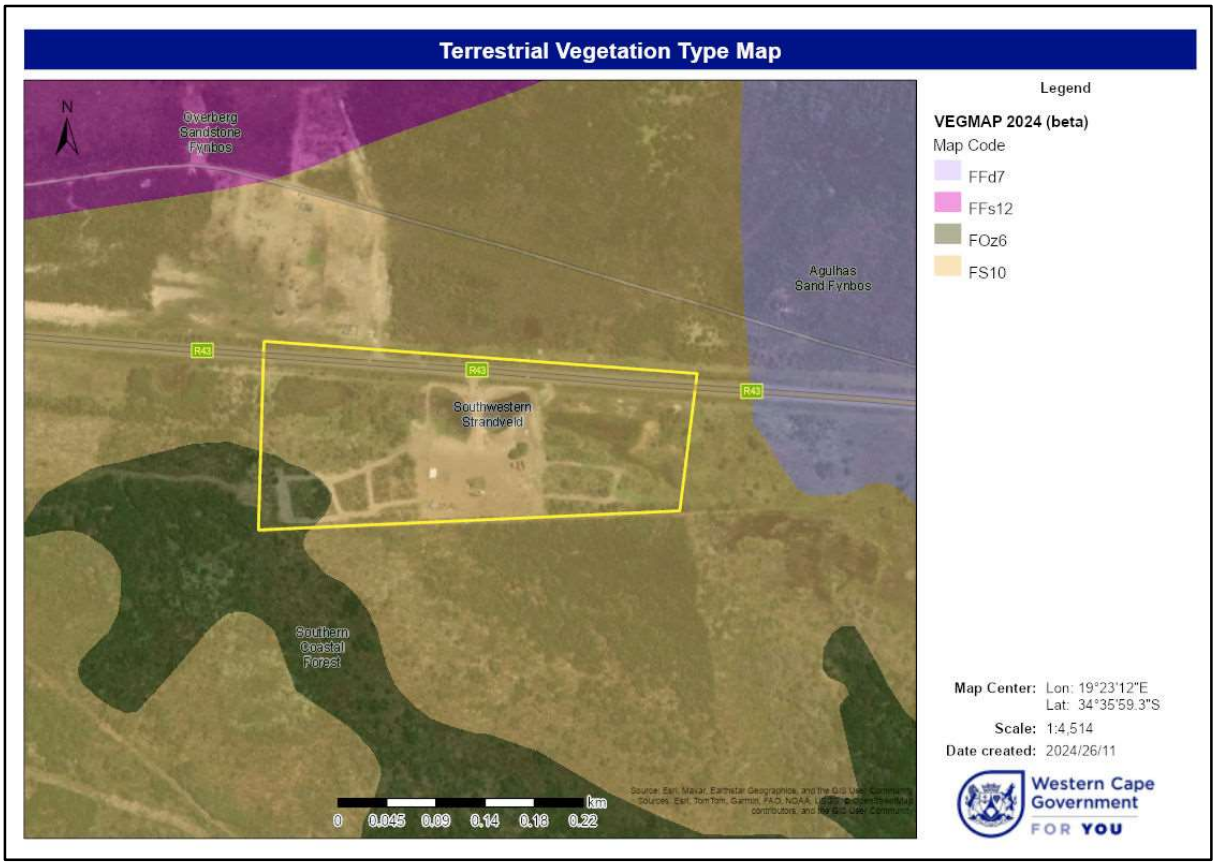


**Figure 5: Terrestrial Vegetation Type Map (2024).**

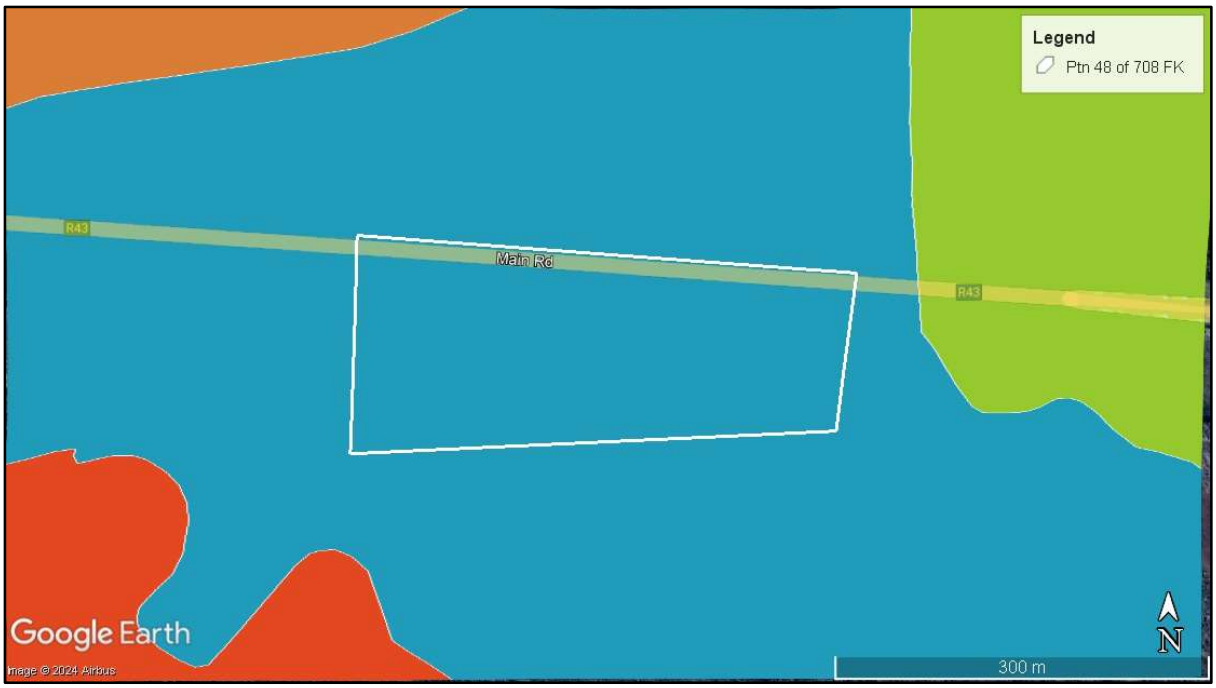


**Figure 6: Wetland Vegetation Type Map (NFEPA, 2011). The blue polygon indicates the extent of South Coast Limestone Fynbos.**

### 3.1.3 Watercourses within the proposed site and within the regulated zone according to online sources

The only drainage line mapped on the NGI database (Cape Farm Mapper, 2024) to occur within the property boundary is the initial part an eastward draining non-perennial drainage line that originates at the downstream, eastern end of the eastern-most pond (see Figure 7). The National Wetlands Map Version 5 (CSIR, 2018), also represented in Figure 7, indicates that a significant part of the site, primarily the eastern portion, comprises a hillslope seep wetland that expands off-site to the south west with most of the seep being located off-site. Aside from this there are no other watercourses within the site or within the NWA Regulated Zone (100 m for drainage lines and 500 m for wetlands).

According to the WCBSP (2017) most of the site, with the exception of the southern part of the site nearest the southern boundary, has been identified as being of biodiversity conservation importance (see Figure 8). Of most relevance to this study are patches of Aquatic ESAs and Restorable ESAs (identified on the basis of the existence of watercourse) mapped to occur within the site that are associated with the mapped hillslope seep wetland and non-perennial drainage line. ESAs are areas that are not essential for meeting biodiversity targets, but play an important role in supporting the functioning of Protected Areas (PAs) or Critical Biodiversity Areas (CBAs), and are often vital for delivering ecosystem services. The land-use / management objective for ESAs is to maintain the area in a functional, near-natural state. Some habitat loss is considered acceptable, provided the underlying biodiversity objectives and ecological functioning are not compromised.

While no PAs are located in the general area there are Aquatic CBAs within the NWA Regulated Zone for wetlands (i.e. within 500 m of the site boundary). It can therefore be assumed that the ESA category assigned to the part of the site comprising the hillslope seep wetland is due to the supply of flow and ecosystem services of benefit to these downstream Aquatic CBAs (note that due to the surface flow direction which is towards the south east, only Aquatic CBAs located to the south east of the site and within 500m of the site are potentially at risk of being impacted).

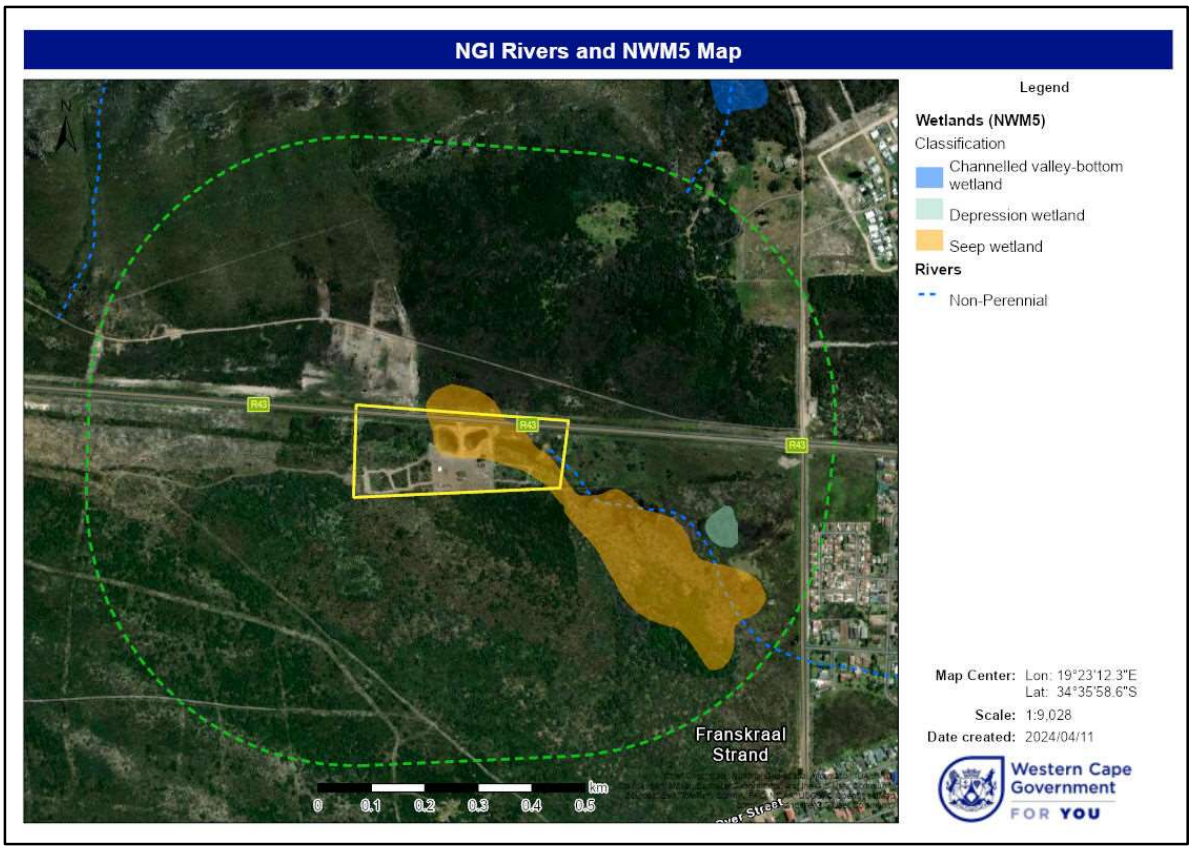


**Figure 7: Combined NGI Rivers and National Wetlands Map Ver. 5 Map. The green stippled line indicates the 500m regulated zone for wetlands.**

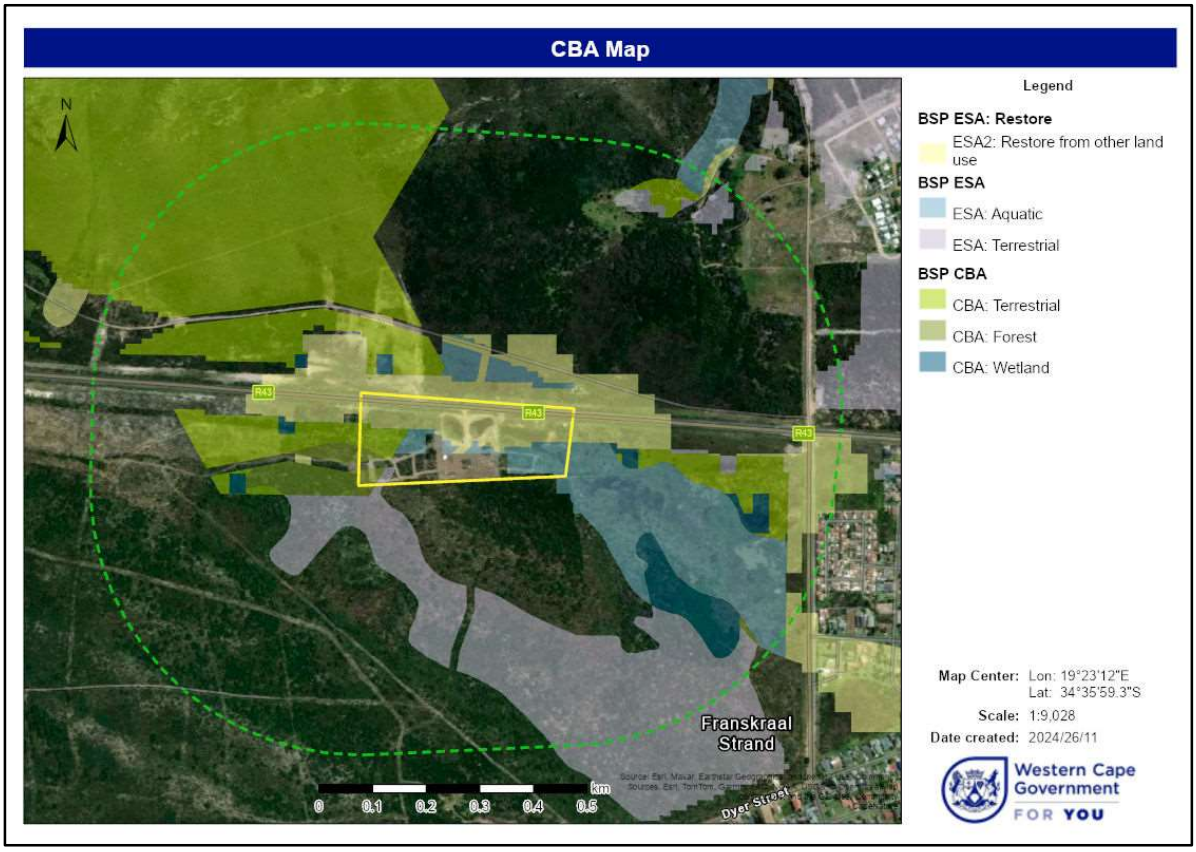


**Figure 8: Western Cape Biodiversity Spatial Plan (2017) showing that most of the site comprises restorable ESAs with Aquatic ESAs within the site are also noteworthy.**

## 3.2 Description of the site and Delineation of Watercourses based on Groundtruthing

### 3.2.1 Site Description

During the site visit which was conducted on 2 November 2024 the central part of the site was observed as comprising mostly bare ground. This central part of the site that has been cleared of vegetation covers an area of approximately 1.5 ha. When entering the property from the R43 one travels along an access road that is aligned between two ponds before arriving a centrally located area cleared of vegetation of approximately 1.5 ha. In this cleared area lies a double storey residential dwelling, a shaded car port and a container (see Figure 9). There is also a centrally located fenced in enclosure which contains a vegetable garden and an informal structure with various miscellaneous artefacts. A stand of *Sideroxylon inerme* (milkwood) has been left intact between the dwelling and the container but otherwise the vegetation has been totally cleared in the central part of the site (see Figure 10).

The western part of the site is largely intact with the exception of a number of livestock pens and paddocks which contain a variety of farm animals. The eastern part of the site is largely undeveloped and comprises naturally vegetated land around the largest of the site's four ponds (see Figure 11).

In terms of services the only notable on-site infrastructure was the newly constructed conservancy tank (see Figure 12). It is assumed that potable water supply is obtained from the Municipal supply which is located within the road reserve of the R43 at the site's boundary.

**Figure 9: Photograph of the double storey residential dwelling, container and livestock pens. Note the intact stand of *Sideroxylon inerme* (milkwood) behind the container and the area in the foreground and background cleared of vegetation.**

**Figure 10: Photo looking westwards across one of the ponds that flank the access road.**

**Figure 11: Photo of the eastern-most part of the site which contains the largest of the site's four ponds.**

**Figure 12: The conservancy tank located immediately north east of the residential dwelling and container.**

### 3.2.2 Description and Delineation of Wetlands

The four ponds that are aligned in a west to east alignment immediately within the northern boundary of the site are the site's most visible freshwater features. These ponds are all artificial insofar as they were created as borrow pits for the construction of the R43 many years ago. A brief description of each pond follows, starting with the pond to the extreme west and ending with the pond to the extreme east:

- Western pond: This pond is vegetated with *Typha capensis* (bullrush) being the dominant species (see Figure 13). Alien invasives, primarily *Acacia saligna* (Port Jackson) and *Acacia longifolia* (long-leafed wattle also occur at the pond's fringes.
- Central-western Pond: The Central-western Pond lies immediately west of the access road and comprises open standing water with minimal vegetation (see Figure 14). Small patches of the sedge (*Bulboschoenus maritimus*) occur in places but otherwise the farm's domestic animals have all but eliminated all the vegetation on the banks.
- Central-eastern Pond: This pond lies immediately east of the access road and is similar to the Central-western Pond insofar as it is largely devoid of vegetation on its banks (see Figure 15). The pond receives flow from the Central-wester Pond via an informal / damaged culvert beneath the access road. A unique characteristic of this pond is the presence of clusters of algae which indicate elevated levels of nutrients, possibly due to the presence of farm animals and in particular geese which defecate in the dam and increase phosphate and nitrate levels.
- Eastern pond: and Eastern Pond receives diffuse flow (i.e. not contained within a channel or pipe system) from the Central-eastern Pond and is the least impacted pond in terms of vegetation as the standing body of water is dominated by the sedge *B. maritimus.* The added presence of *Sarcacornia natalensis* confirms the saline nature of the wetland as both species are adapted to surviving in saline conditions (see Figure 16).

Flow through the system of ponds is from west to east and is mostly sheet flow during the wet season and most likely seepage through superficial sands, with the only exception being the flow between the

Central-western and Central-eastern Ponds which is via an informal / damaged culvert beneath the access road, as mentioned previously.

Auger samples taken in the area between the ponds and on the banks of the ponds did not reveal redoximorphic features but did exhibit wetness, a rich organic layer at the surface and a low chroma characteristic of wetland soils in the region (see Figure 17), noting that the soils rarely exhibit mottling due to a lack of iron (Job, 2009). Ordinarily using these soil characteristics in addition to the presence of hydrophytic vegetation the outer limit of the wetland temporary/seasonal zone can be determined. However, in this instance given the lack of vegetation in the central part of the site due to clearance undertaken by the owner and also grazing by livestock, historical aerial imagery was also consulted to determine the pre-disturbance wetland extent. The wetland delineation for the pre-disturbance extent of wetland habitat within the boundary of the site is shown in Figure 18.

**Figure 13: Photo of the western-most pond. Note the stand of *Typha capensis* (bullrush) in the background indicating permanently saturated soils.**

**Figure 14: Central-western Pond. The eastern bank of the pond which is where the photograph is taken from comprises the access road.**

**Figure 15: The Central-eastern Pond. Note the algae which is indicative of poor circulation and elevated nutrient inputs. Note the entrance to the property and access road in the background.**

**Figure 16: The Eastern Pond. Note the sedges in the background which indicate the extent of the standing water and the *Sarcocornia natalensis* in the foreground indicating saline conditions.**

**Figure 17: Auger sample taken from the area between the Western Pond and the Central-western Pond. Note the low chroma and lack of any redoximorphic features.**


**Figure 18: Watercourse delineation map. The green polygon indicates the extent of a Hillslope Seep Wetland.**

## 3.3 Watercourse Classification

The study area falls within the Southern Coastal Belt Ecoregion, the main attributes of which are listed in Table 4 below. It is furthermore within the Breede-Olifants Water Management Area (WMA), the Overberg West Sub-WMA and the G40L quaternary catchment as defined by NFEPA (2011). The table below summarises the results from **Level 3** through to **Level 6** of the wetland and aquatic ecosystem classification user manual (Ollis *et al.* 2013) applied to wetland which occurs on the site.

**Table 6: Level 3, 4, 5 and 6 of the wetland and aquatic ecosystem classification.**

| | |
|---|---|
| **Level 3 (Landscape Setting)** | **Slope:** an inclined stretch of ground (slope exceeding 1 %) typically located on the side of a mountain, hill or valley, not forming part of a valley floor. Includes scarp slopes, mid-slopes and foot-slopes. |
| **Level 4 (Hydrogeomorphic unit)** | **Hillslope seep:** a wetland area located on gently to steeply sloping land and dominated by colluvial (i.e. gravity-driven), unidirectional movement of water and material down-slope. |
| **Level 5 (Hydrological regime)** | **Perennial:** Flows continuously throughout the year, in most years**.**<br>**Non-perennial:** does not flow continuously throughout the year, although pools may persist. |
| **Level 6 (Descriptors)** | **Natural:** may be impacted, or even realigned, but of natural origins. |

## 3.4 Ecological Assessment of the Hillslope Seep Wetland

### 3.4.1 Ecosystem Services

The WET-Ecoservices tool was applied to the portion of the hillslope seep wetland located within the site (green polygon in Figure 18). Fifteen Ecosystem Services were assessed with overall rating of the

likelihood of the wetland providing ecosystem services being **Intermediate** (see results presented in Figure 19 and Table 7 below). The most noteworthy results are:

- The hillslope seep wetland was determined to provide a moderately – high level of services for a number of indirect benefits including sediment trapping, nutrient assimilation (phosphate and nitrate removal), toxicant removal, erosion control and maintenance of biodiversity. For most of these indirect benefits this can be attributed to the presence of important aquatic systems downstream including Aquatic CBAs and the fact that the vegetation is largely intact, with exception of the central part of the site which has been cleared of vegetation. The moderate to high score for maintenance of biodiversity is attributed to the possibility that the remaining natural habitat in the western and eastern parts of the site is still relatively intact and may provide habitat for rare and endangered species. Also contributing to this score was the fact that the wetland is well buffered and well connected to other natural features in the landscape without having significantly altered hydrological and sediment regimes.
- The services of flood attenuation and streamflow regulation and carbon storage were all assessed to be Intermediate. In all cases this can be attributed to the presence of important aquatic systems downstream and with the fact that the vegetation in the western and eastern parts of the site is largely intact.
- The wetland provides negligible direct socio-economic benefits such as water supply for human use, harvestable materials, production of foods and has no cultural significance. The wetland has some potential to deliver tourism and recreation benefits due to it being located on an existing tourist route, the habitat provides for birds and the extent of open water. It also has limited potential for delivering research and educational benefits due largely to its accessibility.

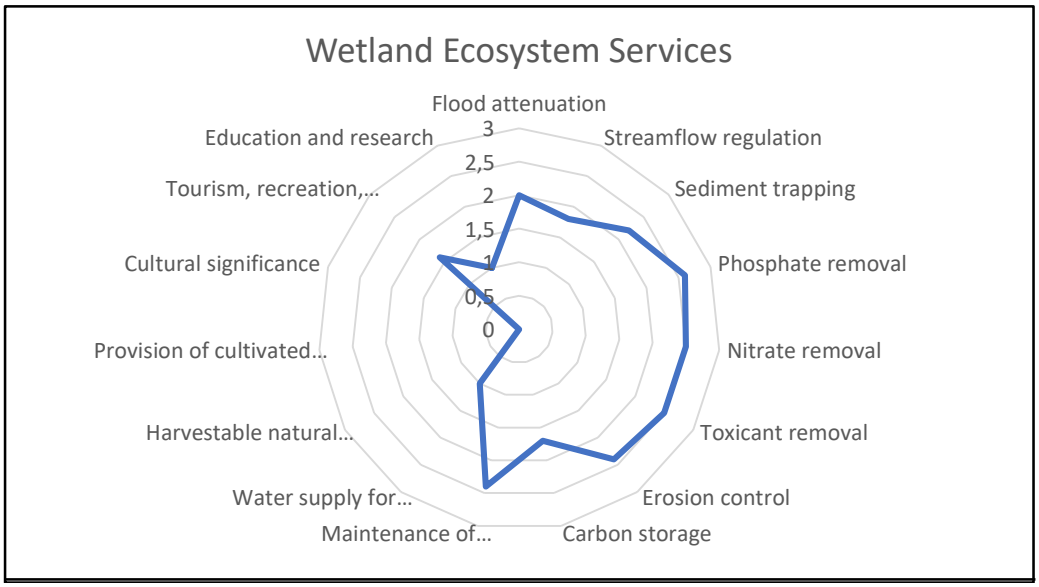


**Figure 19: WET-EcoServices results**

**Table 7: WET-EcoServices results.**

| Wetland Ecosystem Services | | |
|---|---|---|
| | | **Post-infilling and vegetation clearance** |
| **Indirect Benefits** | Flood attenuation | 2 |
| | Streamflow regulation | 1,8 |
| | Sediment trapping | 2,2 |
| | Phosphate removal | 2,6 |
| | Nitrate removal | 2,5 |
| | Toxicant removal | 2,5 |
| | Erosion control | 2,4 |
| | Carbon storage | 1,7 |
| **Direct Benefits** | Maintenance of biodiversity | 2,4 |
| | Water supply for direct human use | 1 |
| | Harvestable natural resources | 0 |
| | Provision of cultivated foods | 0 |
| | Cultural significance | 0 |
| | Tourism, recreation, scenic value | 1,6 |
| | Education and research | 1 |
| | | |
| | Total | 19,2 |
| | Average | 1,28 |

## 3.4.2 Present Ecological State

Table 8 presents the impact scores for hydrology, geomorphology and vegetation condition and the trajectory of change for the hillslope seep wetland (blue in Figure 13).

**Table 8: WET-health assessment results.**

| HGM Unit | Ha | Extent (%) | Hydrology | | Geomorphology | | Vegetation | |
|---|---|---|---|---|---|---|---|---|
| | | | **Impact Score** | **Change Score** | **Impact Score** | **Change Score** | **Impact Score** | **Change Score** |
| Hillslope Seep | 1,7 | 100 | 9 | - | 2,8 | -1 | 6,8 | -1 |
| **PES Category** | | | **F** | **-** | **C** | **-1** | **E** | **-1** |

The overall PES for the hillslope seep wetland was calculated to be 6,6 which equates to a **Category E** (Severely Modified) which means that the change in ecosystem processes and loss of natural habitat and biota is great but some remaining natural habitat features are still recognisable.

The key impacts affecting the hydrology of the hillslope relate to the water distribution and retention patterns within the wetland brought about by the 4 ponds and access road across the wetland all of which were undertaken many years before the current landowner took transfer on the property. The removal of vegetation and the infilling within the wetland undertaken by the current owner has also contributed to the very poor score for hydrology. The wetland is considered to have reached a stable state in terms of hydrology as decline in the wetland's hydrology has reached such a critical state that it is unlikely to deteriorate further (hence no change score).

Given the fact that the Hydrogeomorphic (HGM) Unit comprises a type of wetland (hillslope seep) which has no stream channel and therefore the impacts of upstream dams, stream shortening or diversion and infilling which are only applicable to floodplain and channelled valley bottom wetlands, these impacts should not apply. However, the hillslope seep has been impacted by the creation of ponds, two of which (the Central-western Pond and the Eastern Pond) have steep sided banks which impact on the geomorphic state of the wetland. To reflect the impact caused by these features on geomorphology no impact scores were indicated for impacts of upstream dams or stream shortening and diversion but infilling was scored. The result is that the geomorphological state was determined to be a Category "C" which, in addition to the impact of infilling discussed above, is also impacted by the following:

- Increased run-off brough about by the R43 and the areas cleared of vegetation within the site; and
- Erosional and depositional features which were not significant yet evident.

The geomorphological state of the wetland is likely to continue to decline without intervention, rehabilitation and active management hence a change score of -1 was assigned to geomorphology.

While approximately 40% of the HGM unit exhibits intact indigenous vegetation, the state of the vegetation within the HGM unit was assessed to be severely impacted (Category "E") as a result of the following key impacts:

- Deep flooding by dams (extent was estimated at 30%);
- Shallow flooding by dams (extent estimated at 10%);
- Area affected by infilling and excavations (extent estimated at 20%);
- Infrastructure (extent estimated at 5%); and
- Dense infestations of alien invasive macrophytes (extent estimated at 5%).

The state of the vegetation within the HGM unit is considered to continue on a slow decline and hence is assessed to have a change score of -1. It is important to note that the state of the HGM units vegetation is partly attributed to historical impacts, part due to the lack of control of alien invasives (both historically and currently) and part due to the unlawful clearing undertaken by the current owner.

### 3.4.3 Ecological Importance and Sensitivity

The EIS method applied to the hillslope seep wetland is based on the assessment tool developed by Rountree *et al.* (2013). The key aspects considered during the EIS assessment are presented in Table 9 and summarised below:

- The wetland is likely to support endangered or rare biota or populations of unique species and falls however it falls within a Vulnerable (VU) terrestrial vegetation type (Southwestern Strandveld) and a Least Threatened (LT) wetland vegetation type (South Coast Limestone Fynbos).
- The wetland is not known to be an important site for species migration but it may be used for breeding and/or feeding given its size and relatively intact vegetation (in places);
- The wetland is not recognised in the Western Cape Biodiversity Spatial Plan (2017) as being of conservation importance as the wetlands contains patches of Aquatic ESAs with the remainder of the wetland comprising a Restorable ESA;
- The wetland is relatively large but is not considered as rare given the Least Threatened status of the wetland type (hillslope seep) in the applicable wetland vegetation type, South Coast Limestone Fynbos;
- The wetland can be regarded as being relatively insensitive to changes in hydrology due to it being a hillslope seep wetland which is largely driven by groundwater. Conversely it is considered to be sensitive to changes in water quality due to the water driving the wetland system being acidic and low in nutrients.

**Table 9: EIS Results.**

| | **Hillslope Seep Wetland** | |
|---|---|---|
| **ECOLOGICAL IMPORTANCE AND SENSITIVITY** | Score (0-4) | Confidence (1-5) |
| **Biodiversity support** | **Moderate** | |
| Presence of Red Data species:<br>Endangered or rare Red Data species present | 2 | 4 |
| Populations of unique species:<br>Uncommonly large populations of wetland species | 2 | 3 |
| Migration/breeding/feeding sites:<br>Importance of the unit for migration, breeding site and/or feeding | 2 | 3 |
| **Landscape scale** | **Low/marginal** | |
| Protection status of the wetland:<br>National (4), Provincial, private (3), municipal (1 or 2), public area (0-1) | 3 | 5 |
| Protection status of the vegetation type:<br>SANBI guidance on the protection status of the surrounding vegetation | 1 | 5 |
| Regional context of the ecological integrity:<br>Assessment of the PES (habitat integrity), especially in light of regional utilisation | 1 | 4 |
| Size and rarity of the wetland type/s present:<br>Identification and rarity assessment of the wetland types | 1 | 4 |
| Diversity of habitat types:<br>Assessment of the variety of wetland types present within a site | 3 | 4 |
| **Sensitivity of the wetland** | **Low/marginal** | |
| Sensitivity to changes in floods:<br>Floodplains at 4; valley bottoms 2 or3; pans and seeps 0 or 1 | 1 | 4 |
| Sensitivity to changes in low flows/dry season:<br>Unchannelled VB's probably most sensitive | 1 | 4 |
| Sensitivity to changes in water quality:<br>Esp natural low nutrient waters – lower nutrients likely to be more sensitive | 3 | 4 |
| **ECOLOGICAL IMPORTANCE AND SENSITIVITY** | Median value = | **1** |

The overall EIS category was determined to be **Low/marginal** which means that the wetland is not ecologically important and sensitive at any scale. The biodiversity of systems with a Low/marginal EIS is typically ubiquitous and not sensitive to flow and habitat modifications. They play an insignificant role in moderating the quantity and quality of water of major drainage lines (see Table 10).

**Table 10: EIS Category definitions.**

| EIS Category definitions | Range of EIS score |
|---|---|
| **Very high:** Wetlands that are considered ecologically important and sensitive on a national or even international level. The biodiversity of these systems is usually very sensitive to flow and habitat modifications. They play a major role in moderating the quantity and quality of water of major drainage lines | >3 and <=4 |
| **High:** Wetlands that are considered to be ecologically important and sensitive. The biodiversity of these systems may be sensitive to flow and habitat modifications. They play a role in moderating the quantity and quality of water of major drainage lines. | >2 and <=3 |
| **Moderate**: Wetlands that are considered to be ecologically important and sensitive on a provincial or local scale. The biodiversity of these systems is not usually sensitive to flow and habitat modifications. They play a small role in moderating the quantity and quality of water of major drainage lines. | >1 and <=2 |
| **Low/marginal:** Wetlands that are not ecologically important and sensitive at any scale. The biodiversity of these systems is ubiquitous and not sensitive to flow and habitat modifications. They play an insignificant role in moderating the quantity and quality of water of major drainage lines. | >0 and <=1 |

### 3.4.4 Recommended Ecological Category

The PES has been calculated as falling within a Category or E. It is not considered acceptable for wetlands to be severely impacted and the target REC should be set at a Category C. This means that efforts should be made to rehabilitate the wetland to achieve a Category C PES, if feasible.

### 3.4.5 Buffer Determination

While no detailed buffer determination was undertaken, the guidelines for minimum buffers as provided in Appendix 7 of the National Buffer Guidelines (Macfarlane and Bredin, 2017) indicate that the minimum buffer for the hillslope seep given the low intensity residential and tourism use of the site would be 15 m. This buffer width is considered adequate for the wetland albeit that the historic access which crosses the wetland means that with regards to this aspect of the development, the buffer cannot be achieved in its entirety. Buildings and other infrastructure should therefore ideally be set-back from the wetland edge by approximately 15 m. In this case the removal of existing infrastructure from within this setback from the wetland edge may cause greater impacts than leaving the infrastructure in place therefore the 15 m buffer cannot be accommodated for all existing structures.

# 4 Assessment of Impacts

## 4.1 Description of the already undertaken unlawful activities and proposed development & Impact Identification

### 4.1.1 Unlawful undertaken activities constituting Section 21 (c) and (i) activities

The key unlawful activities undertaken by the current owner that constitute Section 21 c and i water uses (and hence require a Water Use Licence (WUL) by the competent Catchment Management Agency (CMA), the Breede-Gouritz CMA (BGCMA) are related primarily to the preparation of the site for the proposed tourism development on the site and include the following:

- The infilling of a portion of the hillslope seep wetland immediately north of the residential building and container (see Figure 17);
- Clearance of wetland vegetation in the central part of the hillslope seep wetland; and'
- Construction of buildings (*viz-a-viz* the double storey residential dwelling) and infrastructure (the conservancy tank) within the NWA Regulated Zone for wetlands.


**Figure 20: Map showing approximate extent of infilling indicated as a white hatched polygon. The areas cleared of vegetation can be clearly seen in the aerial photograph.**

On the basis of the above and also based on the site investigation, the Section 21 c and i activities undertaken by the current landowner to date have caused the following freshwater ecological impacts:

- **Wetland habitat disturbance:** While infilling has taken place the nature of the fill material, locally sourced sand, and its relatively shallow depth not exceeding 200 mm means that the part of the wetland infilled is not lost and with removal of the fill and replanting would be satisfactorily rehabilitated);
- **Alteration of flow regime:** The clearance of vegetation has significantly reduced the roughness of part of the immediate catchment of the on-site wetland and has accordingly increased run-off thereby causing increased flood peaks;
- **Increased erosion and sedimentation:** The lack of vegetation on part of the southern edge of the hillslope seep as a result of vegetation clearing has exposed soils to erosion. Also, the infilling of the wetland has resulted in uncompacted fill material being exposed to erosion with the result that erosion and the deposition of sediment into the wetland has increased;
- **Water quality impairment:** Construction activities in close proximity to the wetland in particular the construction of the conservancy tank would have caused water quality impairment as cementitious materials were used; and
- **Biota loss:** As a result of vegetation clearing, infilling and construction activities near and within the original extent of the hillslope, some biota loss would have occurred.

The significance of these impacts are assessed and mitigation measures recommended (where practicable) in Section 4.2.

### 4.1.2 Proposed activities constituting Section 21 (c) and (i) activities

The proposed tourism-related development includes the development of the following:

- A four-bedroom (all with double-beds and ensuite bathrooms) guesthouse with managers

accommodation, communal entertainment and kitchen area and associated facilities as well as a parking area with 8 parking bays (2 per bedroom);
- A paved parking area with 21 parking bays, 2 disabled parking bays and 4 motorcycle parking bays;
- A coffee shop with two ablution units;
- A wendy-house store;
- Covered curio stores; and
- Pens for farm animals.

No new access roads are required as the existing access road leading from the R43 to the centre of the site and existing shaded parking area will be used to access the site. A new internal circular driveway will provide access to the new guesthouse and associated parking area. Other services that will be required include potable water supply, sewerage and power supply. These will be provided in the following ways:

- Potable water supply: Potable water supply to be provided via borehole supply from an existing borehole on the farm;
- Sewerage: All sewage will be discharged into the existing conservancy tank which will be serviced by municipal tanker;
- Power supply: Power to be supplied via an existing on-site Photo Voltaic (PV) solar system; and
- Solid waste: Temporarily stored in the waste storage area and removed weekly for disposal at the Municipal landfill.

Figure 21 shows the layout of the proposed tourism development. Note that some structures shown on the plan are existing including the main dwelling and associated shaded parking and the centrally located play area.

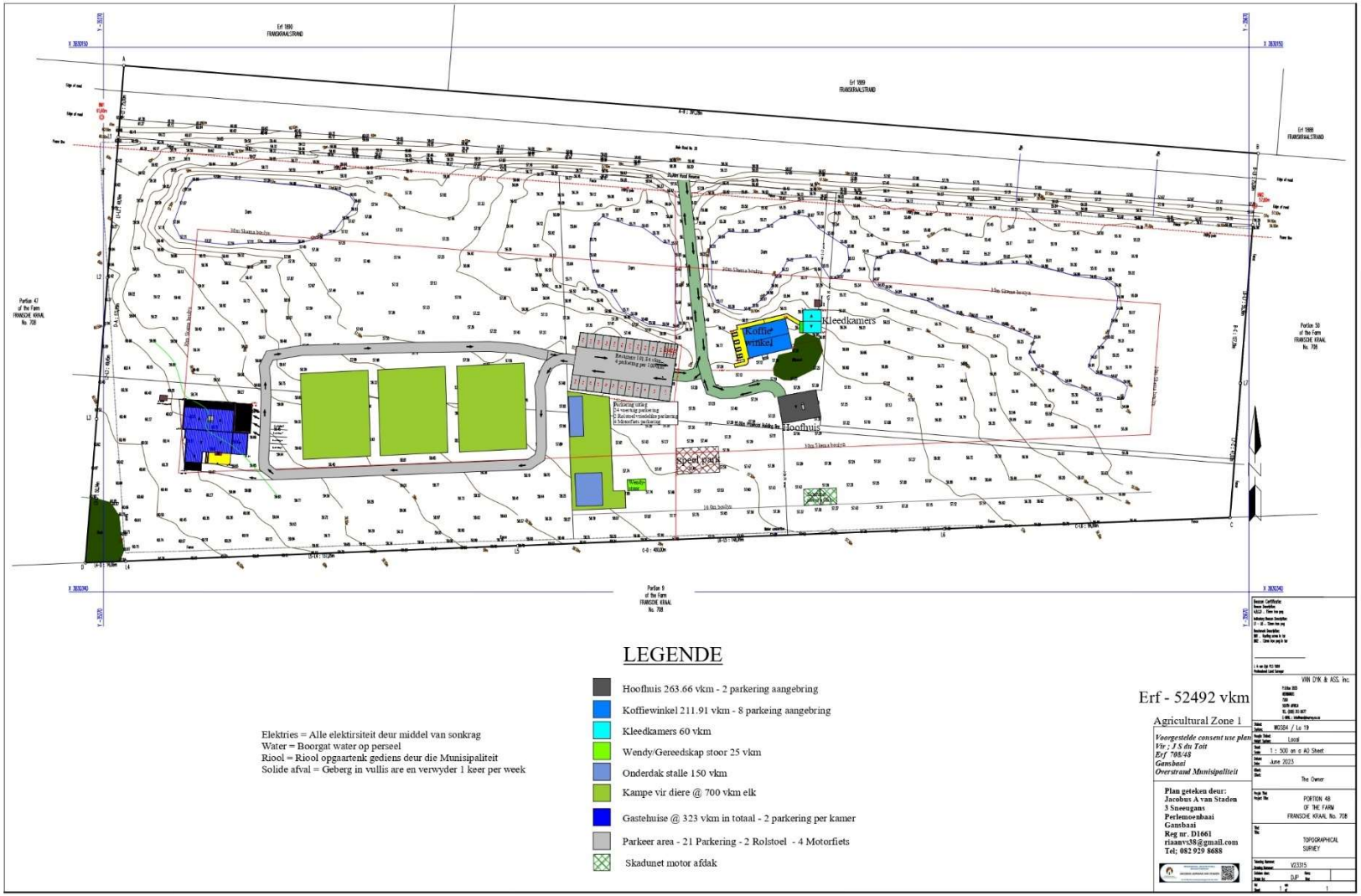


**Figure 21: Site Plan showing the layout of the proposed tourism facilities.**

On the basis of the Site Plan (see Figure 21) it can be concluded that the wetland is unlikely to be at risk of any direct impacts due to the setting back of the guesthouse, internal circular road and ancillary tourism-related facilities from the wetland. The exception to this is the central parking area and coffee shop which are setback from the wetland edge by between 5 and 10m. As such the key of potential impacts will be associated with the construction and operation of the central parking area and the coffee shop and include the following:

- **Wetland habitat disturbance:** Construction activities (driving and parking of vehicles and machinery and storage of construction materials in close proximity to the hillslope seep is likely to cause habitat disturbance.
- **Water quality impairment:** Any stormwater run-off from the site contaminated as a result of construction activities (e.g. when pouring cement or due to accidental spills of chemicals and fuel) entering the wetlands is likely to cause water quality impairment.

The operational phase of the tourism development is likely to generate following impacts on the site's wetland:

- **Alteration of Flow:** Increased stormwater run-off from hard surfaces causing an alteration of the flow regime in the wetland;
- **Water quality impairment:** As a result of possible failure of the sewerage treatment system and accidental spillage of domestic effluent when emptying the conservancy tank; and
- **Loss of biota**: Biota loss would occur as a result of the impairment of water quality from accidental domestic effluent spills and failure of the conservancy tank.

## 4.2 Impacts associated with the historic activities

***Impact 1 – Disturbance of Wetland Habitat***

Approximately 860 m² of the hillslope seep was infilled with locally sourced fill (sand without any signs of rubble or foreign materials) which constitutes approximately 6 % of the total on-site wetland extent of 1,471 m². This relatively minor infilling would not have impacted on the seedbank and given the relatively ease with which the fill material can be removed has, in the opinion of the specialist, not caused wetland habitat loss but rather habitat disturbance with biota loss, primarily plant species as the more mobile fauna would have escaped the infilling (see Impact 4 below).

This infilling took place to the south and east of the Central-eastern Pond as shown in Figure 20. While the ponds would have always had steep embankments as they were originally borrow pits for road construction the infilling on the southern bank of the Central-eastern Pond has increased the height of the embankment.

While the removal of the fill from the area within the original wetland extent as shown in Figure 20 would allow the seedbank to re-establish the naturally-occurring vegetation within the wetland the fill excavation would result in uneven terrain and therefore it is further recommended that post fill-removal the area is reshaped to approximate the natural terrain and the southern edge of the Central-eastern Pond is reduced to a 1:4 slope or less. This would provide an opportunity for the pond edge to become vegetated with suitable indigenous wetland plants which would result in an improvement as the steep-sided edges would have been devoid of vegetation for many years. With the implementation of the recommended mitigation measures the residual impact would be of Low (-ve) significance.

*Results*

**Table 11: Impact significance rating for disturbance of wetland habitat (clearance of vegetation and wetland infilling).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Medium | Site specific | Long term | Definite | Medium (-ve) |
| With mitigation | Low | Site specific | Short term | Definite | Low (-ve) |

*Essential mitigation measures:*

- Remove all the fill material from the area indicated in Figure 20 as comprising the extent of infilling undertaken by the current owner.
- Post-fill removal re-shape the area to approximate the natural terrain and reshape the southern edge of the Central-eastern Pond to a slope of 1:4 or less to allow natural vegetation to establish.
- Once the vegetation has begun to re-establish naturally or as result of planting search and remove all alien invasive plants as these are likely to be present in the seedbank.

### *Impact 2 - Alteration of Flow Regime*

The clearance of vegetation and the infilling without re-vegetation from the immediate southern catchment of the on-site hillslope seep wetland would have decreased the catchment roughness significantly in this area and this would have exacerbated run-oof and minimised infiltration with the result of increased flood peaks with possible secondary impacts such as increased erosion and sedimentation. Minimising the intensity of the impact is the presence of the ponds which has the effect of retarding flow through the wetland.

Overall, the alteration of flow regime associated with the clearance of vegetation is rated to be of **Low (-ve)** significance (see Table 12 below) without mitigation. While the impact has already happened the impact in future can be mitigated if the naturally occurring vegetation in the areas cleared of vegetation is allowed to become re-established with the result that the impact would be of Very Low (-ve) significance.

*Results*

**Table 12: Impact significance rating for alteration of flow regime (clearance of vegetation and wetland infilling).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Low | Site specific | Long Term | Highly probable | Low (-ve) |
| With mitigation | Low | Site specific | Short Term | Probable | Very Low (-ve) |

*Essential mitigation measures:*

- Allow the naturally occurring vegetation to become re-established in the cleared areas and areas containing fill that is to be removed or alternatively introduce indigenous wetland vegetation within the historical extent of the wetland through planting and/or seeding.
- It is acceptable if the landowner plants lawns outside the historical wetland area provided the lawn comprises *Stenotaphrum secondatum* (buffalo grass).

### *Impact 3 – Increased erosion and sedimentation*

Wherever soils in a wetland's immediate catchment are exposed as a result of vegetation clearing, excavations and/or infilling and therefore exposed to erosion and rainfall occurs then erosion and sedimentation of the wetland is highly probable. The vegetation has been completely removed from parts of the southern catchment of the on-site hillslope seep and combined with the increase in flood peaks due to the very low catchment roughness in this area would have caused a degree of erosion and sedimentation over the few years that the site has remained denuded of vegetation. Sediment sources were however not clearly visible during the site investigation and this is likely due to the presence of the ponds which would serve as sediment traps with the sediment not being visible due to the ponds being full of water.

Minimising the intensity of the impact is the relatively flat slope of the site which means that run-off from the site The impact of increased erosion and sedimentation is rated to be of a **Low** (-ve) significance, without mitigation. Through implementing the recommended mitigation measures for wetland habitat disturbance and alteration of flow, the duration and probability of increased erosion and sedimentation would be reduced thereby reducing the impact significance rating to **Very low (-ve)**.

*Results*

**Table 13: Impact significance rating for increased erosion and sedimentation (clearance of vegetation and wetland infilling).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Low | Local | Long Term | Highly probable | Low (-ve) |
| With mitigation | Low | Local | Short Term | Probable | Very low (-ve) |

*Essential mitigation measures:*

- Post-fill removal re-shape the area to approximate the natural terrain and reshape the southern edge of the Central-eastern Pond to a slope of 1:4 or less to allow natural vegetation to establish.
- Allow the naturally occurring vegetation to become re-established in the cleared areas and areas containing fill that is to be removed or alternatively introduce vegetation through planting and/or seeding. It is acceptable if the landowner plants lawns outside the historical wetland area provided the lawn comprises *Stenotaphrum secondatum* (buffalo grass).

***Impact 4 – Biota Loss***

Infilling within and near the hillslope seep wetland would have caused biota loss (vegetation and less mobile fauna species). In addition, the driving of vehicles and excavator within and near the wetland would have also caused mortality and displacement of wetland biota.

Given that the depth of the fill (approximately 200 mm deep) and the clean nature of the fill comprising locally sourced sand without contaminants such as builders rubble and solid waste the seedbank would have remained largely unaffected and therefore the wetland vegetation has a high probability of rehabilitation success after removal of the fill from the historic extent of the wetland, as recommended previously. This would provide habitat for the displaced biota to return and with germinations from the seedbank the impact would be satisfactorily mitigated, albeit that fauna mortality cannot be mitigated.

The impact of biota loss is rated to be of a **Very Low** (-ve) significance, without mitigation (see Table 14).

*Results*

**Table 14: Impact significance rating for biota loss (clearance of vegetation and infilling).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Low | Local | Long Term | Highly probable | Low (-ve) |
| With mitigation | Low | Local | Short Term | Probable | Very low (-ve) |

*Essential mitigation measures:*

- Remove all the fill material from the area indicated in Figure 20 as comprising the extent of infilling undertaken by the current owner.
- Allow the naturally occurring vegetation to become re-established in the cleared areas and areas containing fill that is to be removed or alternatively introduce indigenous wetland vegetation within the historical extent of the wetland through planting and/or seeding.

## 4.3 Potential impacts associated with the proposed activities

### 4.3.1 Construction Phase

***Impact 1 –Disturbance of wetland habitat***

Construction activity and particularly the operation of construction machinery and vehicles within and near wetland habitat can cause significant disturbance to wetland habitat. Most of the impacts arise when wetland vegetation is damaged as a result of the driving of construction vehicles in wetland areas and as a result of the placement of heavy machinery. Also inappropriately located construction materials

such as soil and sand stockpiles, bricks and timber would similarly crush wetland vegetation and cause disturbance of the habitat.

Given that the proposed central parking area and coffee shop would be located less than 10 m from the wetland edge and the rest of the proposed development is setback at a significantly greater extent it is only the construction of these two aspects of the tourism facility that would cause any wetland habitat disturbance in this manner. Given that the part of the on-site hillslope seep wetland has already been disturbed by vegetation clearance and infilling is the part at greatest risk of disturbance by the proposed development of the central parking area and coffee shop it stands to reason that the intensity of the impact would be Low which, combined with the limited probability of the impact occurring due to the historic activities, results in an impact significance rating of **Low** (-ve) without mitigation on the assumption that the proposed development of the parking area and coffee shop would take place before the southern part of the wetland cleared and infilled is not rehabilitated prior to construction taking place. If the wetland was to be rehabilitated before the construction of these structures and infrastructure then the impact intensity would be greater and hence the impact significance would be greater. By clearly marking off the wetland edge as a No-Go area for construction workers, vehicles, machinery and construction materials the impact would be mitigated further (see Table 15 below).

*Results*

**Table 15: Impact significance rating for the disturbance of wetland habitat (construction phase).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Low | Site specific | Short term | Probable | Low (-ve) |
| With mitigation | Low | Site specific | Short term | Improbable | Very low (-ve) |

*Essential mitigation measures:*

- Clearly demarcate the historical edge of the wetland using a weather-proof markers and declare this area as a No-Go area for the full duration of the construction phase.

***Impact 2 – Water quality impairment***

During the construction phase there is a reasonable likelihood that as a result of the operation of machinery and vehicles, and if oil leaks remain unchecked and fuel spillages occur during refuelling, then contamination of the stormwater would occur. Cement, which will be utilised for the construction of the buildings and some of the infrastructure is alkaline and can significantly impair water quality. This is a particular concern given the sensitivity of the wetlands to changes in water quality and also the fact that surface water in the region is characteristically acidic. Any contaminated stormwater from the construction areas would flow towards the hillslope wetland given that the site slopes towards the wetland area. Due to the presence of the ponds, it is considered unlikely that any contaminants that may have caused water quality impairment would be transported off-site because the ponds have the effect of containing and retarding flow.

The impact is rated to be of low intensity due to the limited scale of the construction project, local in extent, of a short-term duration and Probable likelihood. With the implementation of the recommended mitigation measures the potential impact would have a Improbable likelihood of occurring. The impact significance rating is accordingly determined to be **Low** (-ve) if unmitigated and **Very Low** (-ve) if mitigated (see Table 23).

*Results*

**Table 16: Impact significance rating for potential water quality impairment (construction phase).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Low | Local | Short term | Probable | Low (-ve) |
| With mitigation | Low | Site-specific | Short term | Improbable | Very Low (-ve) |

*Essential mitigation measures:*

- Undertake the construction project during the dry summer months and ensure that all construction vehicles and machinery cease from operating during the rainy winter period.

- Ensure that all construction machinery and vehicles are checked for oil leaks and are in good working order before being permitted onto the development site (i.e. before leaving the R43);
- Use drip-drays at all times when operating petrochemical driven construction machinery (e.g. generators and cement mixers);
- Use drip trays and other appropriate containment methods while refuelling of vehicles and machinery;
- Demarcate an area for the refuelling of machinery and vehicles (this is recommended to be near the main farmstead and cellar);
- Ensure that hazardous substances and chemicals are stored in a contained, impermeable area which has the capacity to contain at least 110% of the total volume of stored substances.
- Store cement is a secure weather-proof area (e.g. shipping container) and ensure that used cement bags are placed in plastic bin-bags prior to placement in the on-site solid waste storage area;
- All cement batching on the site must be undertaken on impermeable and bunded batching boards to ensure cement slurry is contained; and
- Any cement residues and concrete waste within the construction site must be removed at the end of every working day and disposed of as rubble.

### 4.3.2 Operational Phase

***Impact 1 – Alteration of Flow Regime***

The presence of hard surfaces as a result of the development (in this case comprising buildings with roofs which are impermeable and compacted gravel parking areas and internal roads which retards stormwater infiltration) increases run-off from the site. This then causes increased flow and increases flood peaks in the downstream, receiving watercourse, provided the structures and infrastructure are located near the edge of the watercourse.

While most of the proposed new buildings and infrastructure are significantly setback from the wetland edge, the proposed central parking area and coffee shop are within close proximity of the wetland and accordingly there is a likelihood that the accelerated run-off would impact on the natural flow regime of the on-site wetland. The overall intensity of the impact is rated to be Low which, coupled with the long-term duration of the impact and Highly probable likelihood of occurrence, results in an impact significance rating of **Low (-ve)**. The impact can be mitigated through collecting the rainwater off the roofs of the buildings and storing it in tanks for domestic use and for garden irrigation. In addition, the re-establishment of appropriate vegetation within the areas cleared of vegetation would further help to mitigate the potential impact. This will result in the potential impact having a significance rating of **Very Low** (-ve).

*Results*

**Table 17: Impact significance rating for the alteration of flow regime (operational phase).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Low | Local | Long Term | Highly probable | Low (-ve) |
| With mitigation | Very low | Local | Long Term | Probable | Very low (-ve) |

*Essential mitigation measures:*

- Collect rainwater off the roofs of the buildings and store the water in rainwater tanks for domestic use or garden irrigation use.
- Re-establish appropriate vegetation within the areas cleared of vegetation.

***Impact 2 – Water quality impairment***

Domestic effluent (including sewage) generated by the tourism facility and main residence will be temporarily stored on-site in a single large conservancy tank before being routinely emptied by the municipal sewage disposal tanker. The proposed system, if operating efficiently, has a low likelihood of causing nutrient and toxicant loading of the on-site hillslope wetland, despite being located near the wetland edge. However, if the system fails and results in discharges of raw effluent into the surrounding

area, the potential impact could be significant, particularly given the proximity of the wetland and its high sensitivity to changes in water quality. The ways in which the system could fail include:

- Allowing the tank to overflow because the municipal tanker has not reached the site on time to empty the tank;
- Spillages during the emptying of the conservancy tank by the municipal workers; and
- Leakages in the system due to damaged pipework and/or conservancy tank.

In order to minimise the risk of the conservancy tank overflowing it is essential that the tank is appropriately sized and that an operational agreement, specifying the timing of tank emptying, is formalised between the owner/s and the municipality. Because most of the proposed sewerage system's pipework and the conservancy tank has been installed below-ground, it is difficult to detect any leakages in the system. Operational phase monitoring of the system by being alert to odorous liquids emanating from the ground is recommended as the only practicable measure to mitigate the impact associated with leakages from the system.

The potential impact is rated to have a medium intensity and a long-term duration but is considered improbable thereby resulting in an impact significance rating of **Low** (-ve). Should the proposed measures to minimise the risk of the conservancy tank overflowing and timeously detect possible leaks be implemented then the significance of the potential impact would be reduced to **Very low** (-ve).

*Results*

**Table 18: Impact significance rating for water quality impairment (operational phase).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Medium | Local | Long Term | Improbable | Low (-ve) |
| With mitigation | Low | Local | Short Term | Improbable | Very low (-ve) |

*Essential Mitigation Measures*

- Ensure that the conservancy tank is appropriately sized (input should be obtained from a professional civil engineer and the calculation endorsed by the municipality).
- Formalise an operational agreement between the owner/s and the municipality that specifies the timing of tank emptying; and
- During the operational phase, monitor the site for any odorous liquids possibly being associated with the sewerage system.

### *Impact 3 – Loss of Biota*

Any discharge of untreated effluent, whether from an overflowing conservancy tank or leakages from the sewerage system, would cause some loss of wetland biota as the contaminants would reach the wetland given the proximity of the conservancy tank to the wetland. Given that the wetland type is highly sensitive to changes in water quality, it is reasonable to assume that the biota associated with the wetland are equally sensitive. As such, should any discharges occur then the impact could be significant. However, the proposed sewerage system has been professionally designed and constructed with the best available materials and technology and should not fail. As such the likelihood of the impact occurring is rated to be Improbable but of Medium intensity if it occurs, due in part to the sensitivity of the system.

The potential impact of loss of biota as a result of failure of the sewerage system is rated to have a significance of **Low** (-ve). The impact can be effectively mitigated appropriate design, effective operational management and monitoring for early leak detection. The implementation of these measures would reduce the impact significance to **Very low** (-ve).

*Essential Mitigation Measures*

- Ensure that the conservancy tank is appropriately sized (input should be obtained from a professional civil engineer and the calculation endorsed by the municipality).
- Formalise an operational agreement between the owner/s and the municipality that specifies the timing of tank emptying; and

- During the operational phase, monitor the site for any odorous liquids possibly being associated with the sewerage system.

*Results*

**Table 19: Impact significance rating for loss of biota (operational phase).**

| Alternatives | Intensity | Extent | Duration | Probability of impact occurring | Significance |
|---|---|---|---|---|---|
| Without mitigation | Medium | Local | Long Term | Improbable | Low (-ve) |
| With mitigation | Low | Local | Short Term | Improbable | Very low (-ve) |

## 4.4 "No-Go" Scenario

The "No-Go" or "no development" scenario implies that the status quo, in terms of the completed structures and infrastructure, would prevail. Specifically, relating to the activities being assessed as part of this study, this means the following:

- The existing residential dwelling and associated infrastructure (including the conservancy tank) and access road crossing the hillslope seep wetland would continue to exist;
- The fill material and the steep-sides of the Central-western and Central-eastern Pond would remain as-is;
- Flow between the Central-western and Central-eastern Ponds would continue to be largely via an informal and largely ineffective pathway beneath the access road;
- The areas devoid of vegetation would eventually become vegetated, initially with pioneer species and eventually with the locally occurring vegetation, including alien invasives such as *Acacia saligna* (Port Jackson) and *Acacia cyclops* (rooikrans) which are locally common.

The combined effects of these partially completed aspects of the tourism development on the site on freshwater ecosystems would be such that the on-site hillslope seep wetland would continue on a downward trajectory in terms of wetland health (as reflected in the PES assessment – see Section 3.4.2). As such the "No-Go" alternative is rated to have a **Low (-ve)** impact significance.

## 4.5 Indirect Impacts

No indirect impacts are deemed to have occurred.

## 4.6 Cumulative Impacts

Cumulative impacts are impacts that result from the incremental impact of the activity on freshwater systems within a greater catchment, ecoregion and vegetation group when added to the impacts of other past, present or reasonably foreseeable future activities.

Considering the historic, wide-scale and highly significant cumulative impact that agriculture in the Overberg has caused, the significance of the cumulative impact on the region's freshwater is rated to be **High** (-ve). The unlawful historic activities, while being found to have generated only minor freshwater ecological impacts, would have contributed to this highly significant cumulative impact. Similarly, the potential impacts associated with the proposed tourism venture would contribute to this significant cumulative impact in the future, albeit only in a minor way. Should the recommended mitigation measures presented in this report be implemented then the contribution to the highly significant, historical cumulative impact associated with the historic and proposed activities would be negligible.

# 5 Conclusion and Recommendations

The current owner purchased Portion 48 of the Farm 708, Franskraal with the intention of development tourism facilities on the property. At the time of purchase the property was naturally vegetated and had four ponds located in a west to east alignment parallel to the R43. The ponds were created many years ago when the R43 was constructed. An access road was in existence which was aligned between the two central ponds and this access road remains in use today. Upon purchasing the property, the owner cleared the central part of the property for future tourism development and used locally sourced sand (an inert material) and placed the sand on the access road to raise the road level and infilled the southern bank of the Central-eastern Pond. Given the extent of indigenous vegetation clearance and the infilling of a possible wetland, DEA&DP issued a Pre-compliance Notice instructing the owner to either rehabilitate the site or appoint an EAP to undertake a Section 24G Rectification Process.

The owner then appointed Lornay to undertake a Section 24G Rectification Process to authorise the unlawful historical activities and the proposed tourism development. As part of the process Lornay appointed EnviroSwift to undertake the detailed Freshwater Ecological Assessment, given that wetlands were allegedly infilled.

Based on a site investigation conducted on 24 January 2024 and available online databases EnviroSwift confirmed the presence of a hillslope seep running parallel and immediately south of the R43 and that infilling within the original extent of the wetland had taken place, in addition to the complete removal of the naturally occurring vegetation in the central part of the site, with the exception of a small stand of *Sideroxylon inerme* (milkwood) near the owner's residential dwelling.

The site clearing and infilling was undertaken as preparatory works for the development of tourism facilities on the site including the following:

- A four-bedroom (all with double-beds and ensuite bathrooms) guesthouse with managers accommodation, communal entertainment and kitchen area and associated facilities as well as a parking area with 8 parking bays (2 per bedroom);
- A paved parking area with 21 parking bays, 2 disabled parking bays and 4 motorcycle parking bays;
- A coffee shop with two ablution units;
- A wendy-house store;
- Covered curio stores; and
- Pens for farm animals.

The scope of the freshwater ecological assessment was therefore expanded from assessing the unlawful activities (*viz-a-viz* the clearance of vegetation and the infilling around the ponds) to include the development of the proposed tourism facilities. Only historic and potential impacts on the site's hillslope seep wetland were therefore assessed and mitigation opportunities identified in the present study.

Table 20 lists the freshwater ecological impacts caused the historic unlawful activities and the potential freshwater ecological impacts likely to be generated by the proposed tourism development during the construction and operational phases, respectively. All of the identified impacts (associated with both the historic activities and the proposed development) were rated to be of **Low (-ve)** significance before mitigation with the exception of wetland habitat disturbance, due to the infilling of approximately 6% of the on-site extent of the hillslope seep wetland, which was assessed to be of **Medium (-ve)** significance. Implementation of the recommended mitigation measures, some of which are rehabilitation orientated and others are construction site management and good house-keeping orientated, will reduce all the impacts to a **Very Low** (-ve) significance and, in the case of wetland habitat disturbance, to a **Low (-ve)** significance.

**Table 20: Summary of the impact significance ratings.**

| Impact* | Without mitigation | With mitigation |
|---|---|---|
| **Unlawful activities already undertaken** | | |
| Wetland habitat disturbance | **Medium** | **Low** |
| Alteration of Flow Regime | **Low** | **Very low** |
| Increased erosion and sedimentation | **Low** | **Very low** |
| Water quality impairment | **Low** | **Very low** |
| Biota loss | **Low** | **Very low** |
| **Proposed Tourism Development - Construction phase:** | | |
| Wetland habitat disturbance | **Low** | **Very low** |
| Water quality impairment | **Low** | **Very low** |
| **Proposed Tourism Development - Operational phase:** | | |
| Alteration of flow regime | **Low** | **Very low** |
| Water quality impairment | **Low** | **Very low** |
| Loss of Biota | **Low** | **Very low** |

*note: all impacts are negative unless indicated as a benefit.

It is accordingly the specialist's reasoned opinion that provided the recommended mitigation measures are implemented, the historic, unlawful vegetation clearance and infilling of the on-site wetland as well as the proposed tourism development should be supported from a freshwater ecological perspective.

The recommended essential mitigation measures are as follows:

*Essential measures to minimise the impacts associated with the unlawful activities:*

- Remove all the fill material from the area indicated in Figure 20 as comprising the extent of infilling undertaken by the current owner.
- Post-fill removal re-shape the area to approximate the natural terrain and reshape the southern edge of the Central-eastern Pond to a slope of 1:4 or less to allow natural vegetation to establish.
- Allow the naturally occurring vegetation to become re-established in the cleared areas and areas containing fill that is to be removed or alternatively introduce indigenous wetland vegetation within the historical extent of the wetland through planting and/or seeding.
- It is acceptable if the landowner plants lawns outside the historical wetland area provided the lawn comprises *Stenotaphrum secondatum* (buffalo grass).
- Once the vegetation has begun to re-establish naturally or as result of planting search and remove all alien invasive plants as these are likely to be present in the seedbank.

*Essential measures to minimise construction disturbance to wetland habitat:*

- Clearly demarcate the historical edge of the wetland using a weather-proof markers and declare this area as a No-Go area for the full duration of the construction phase.

*Essential measures to minimise impairment of water quality during the construction phase:*

- Undertake the construction project during the dry summer months and ensure that all construction vehicles and machinery cease from operating during the rainy winter period.
- Ensure that all construction machinery and vehicles are checked for oil leaks and are in good working order before being permitted onto the development site (i.e. before leaving the R43);
- Use drip-drays at all times when operating petrochemical driven construction machinery (e.g. generators and cement mixers);
- Use drip trays and other appropriate containment methods while refuelling of vehicles and machinery;
- Demarcate an area for the refuelling of machinery and vehicles (this is recommended to be near the main farmstead and cellar);
- Ensure that hazardous substances and chemicals are stored in a contained, impermeable area which has the capacity to contain at least 110% of the total volume of stored substances.
- Store cement is a secure weather-proof area (e.g. shipping container) and ensure that used cement bags are placed in plastic bin-bags prior to placement in the on-site solid waste storage area;

- All cement batching on the site must be undertaken on impermeable and bunded batching boards to ensure cement slurry is contained; and
- Any cement residues and concrete waste within the construction site must be removed at the end of every working day and disposed of as rubble.

*Essential measures to minimise operational phase alteration and flow regime:*

- Collect rainwater off the roofs of the buildings and store the water in rainwater tanks for domestic use or garden irrigation use; and
- Re-establish appropriate vegetation in the areas cleared of vegetation.

*Essential measures to minimise toxicant loading and associated biota loss during the operational phase:*

- Ensure that the conservancy tank is appropriately sized (input should be obtained from a professional civil engineer and the calculation endorsed by the municipality).
- Formalise an operational agreement between the owner/s and the municipality that specifies the timing of tank emptying; and
- During the operational phase, monitor the site for any odorous liquids possibly being associated with the sewerage system.

In addition to the mitigation measures listed above which mitigate the identified impacts caused by the unlawful activities and the proposed development of tourism infrastructure, EnviroSwift recommends that the following is undertaken:

- The flow from the Central-western Pond to the Central-eastern Pond via the informal conduit that runs beneath the access road is upgraded to a piped culvert of diameter of no less than 200 mm. This will help maintain flow and hydrological connectivity from the upstream part of the hillslope seep tom the downstream part of the seep.
- All invasive alien vegetation is removed from within the property using accepted best-practise methods. Note that while the central part of the site is denuded of vegetation the western and eastern parts of the site remain naturally vegetated with relatively high levels of alien infestations, primarily *Acacia saligna* (Port Jackson) and *Acacia cyclops* (rooikrans).

# 6 Risk Assessment

The approach taken in completing the Risk Assessment Matrix is summarised below:

- The assessment is based on the assumption that the recommended mitigation measures will be effectively implemented and as such the risk assessment reflects the with mitigation scenario.
- All of the historic activities that have generated negative impacts and the proposed activities that would potentially generate negative impacts were found to be associated with a LOW risk class.
- All of the identified negative impacts are limited to the impact site or are site-specific. This is largely because of the presence of the four ponds which serve to contain impacts to within the site.
- Impacts have varying durations and probabilities of occurrence with some of the historic activities having a 100% probability of occurrence due to the fact that there is on-site evidence that these impacts have already occurred.
- Each identified risk has been determined with a Medium level of significance.

Given that all of the activities have been determined to be associated with a LOW risk rating, the proposed development qualifies for a General Authorisation (GA) as far as the Section 21 (c) and (i) water uses are concerned.

Please refer to the Risk Assessment Matrix provided in Appendix 4 for further detail.

# 7 References

Department of Water Affairs and Forestry. 2005. A practical field procedure of identification and delineation of wetlands and riparian areas. DWA, Pretoria, RSA.

Department of Water Affairs and Forestry. 2008. Updated Manual for the Identification and Delineation of Wetlands and Riparian Areas, prepared by M. Rountree, A. L. Batchelor, J. MacKenzie and D. Hoare. Stream Flow Reduction Activities, Department of Water Affairs and Forestry, Pretoria, South Africa.

Job, N. 2009. Application of the Department of Water Affairs and Forestry (DWAF) wetland delineation method to wetland soils of the Western Cape.

Kleynhans, C.J., 1999. Resource Directed Measures for the Protection of Water Resources: River Ecosystems. Department of Water Affairs

Kleynhans, C.J., Thirion, C. and Moolman, J. 2005. A Level I Drainage line Ecoregion Classification System for South Africa, Lesotho and Swaziland. Report No. N/0000/00/REQ0104. Resource Quality Services, Department of Water Affairs and Forestry, Pretoria, South Africa.

Kotze, D.C., Marneweck, G.C., Batchelor, A.L., Lindley, D.S., and Collins, N.B., 2007. Wet-EcoServices: A technique for rapidly assessing ecosystem services supplied by wetlands. WRC Report No TT 339/09, Water Research Commission, Pretoria.

Macfarlane, D.M. and Bredin, I.P. 2017. Buffer zone guidelines for drainage lines, wetlands and estuaries. Part 1: Technical Manual. WRC Report No TT 715/1/17, Water Research Commission, Pretoria.

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Macfarlane, D.M., Kotze, D.C., Ellery, W.N., Walters, D., Koopman, V., Goodman, P. and Goge, C. 2007. WET-Health: A technique for rapidly assessing wetland health. WRC Report No TT 340/09, Water Research Commision, Pretoria.

Mucina, L. and Rutherford, M.C. (EDS.). 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelitizia 19. South African National Biodiversity Institute, Pretoria, South Africa.

Nel, JL, Driver, A., Strydom W.F., Maherry, A., Petersen, C., Hill, L., Roux, D.J, Nienaber, S., Van Deventer, H., Swartz, E. & Smith-Adao, L.B. 2011a. Atlas of Freshwater Ecosystem Priority Areas in South Africa: Maps to support sustainable development of water resources. Water Research Commission Report No. TT 500/11, Water Research Commission, Pretoria, RSA.

Ollis, D.J., Snaddon, C.D., Job, N.M. and Mbona, N. 2013 Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland Systems. SANBI Biodiversity Series 22. South African National Biodiversity Institute, Pretoria.

Kemper, N. 1999. Intermediate Habitat Integrity assessment for use in rapid and intermediate assessments. RDM Manual version 1.0.

Van Ginkel, et al., 2011. Easy Identification of Some South African Wetland Plants. Water Research Commission report no. TT479/10.

WCBSP. 2017. Western Cape Biodiversity Spatial Plan. Department of Environmental Affairs and Development Planning. Cape Town.

# Appendix 1 – Impact Assessment Methodology

The criteria used to determine impact consequence are presented in the tables below.

**Table 1: Description of criteria considered when assessing potential impacts.**

| *CRITERIA* | DESCRIPTION OF ELEMENTS THAT ARE CENTRAL TO EACH ISSUE | |
|---|---|---|
| **Extent of the impact** | SITE SPECIFIC | Site specific/Local:<br>Extends only as far as the activity |
| | LOCAL | Limited to the site and its immediate surroundings |
| | REGIONAL | Regional/Provincial:<br>Will have an impact on the region/province |
| | NATIONAL | National:<br>Will have an impact on a national scale – particularly if an ecosystem or species of national significance is affected |
| **Duration of impact** | SHORT TERM | Construction phase |
| | MEDIUM TERM | Operational phase |
| | LONG TERM | Where the impact will cease after the operational or working life of the activity, either due to natural processes or by human intervention |
| | PERMANENT | Where mitigation or moderation by natural process or by human intervention will not occur in such a way or in such a time span that the impact can be considered transient or temporary |
| **Intensity of impact** | VERY LOW INTENSITY | Natural, cultural and social functions and processes are not affected |
| | LOW INTENSITY | Affects the environment in such a way that natural, cultural and social functions and processes continue, although in a slightly modified way |
| | MEDIUM INTENSITY | Affects the environment in such a way that natural, cultural and social functions and processes continue, although in a modified way |
| | HIGH INTENSITY | Natural, cultural or social functions or processes are altered to the extent that they will temporarily or permanently cease |
| **Probability of impact occurring** | LOW | Improbable |
| | MEDIUM | Probable |
| | HIGH | Highly probable |
| | DEFINITE | Impact will occur regardless of any prevention methods |
| **Determination of significance** | | |
| | LOW | The impacts will have a minor or insignificant influence on the watercourse. |
| | MEDIUM | The impacts will have a moderate influence on the watercourse. The impact can be ameliorated (lessened or improved) by a modification in the project design or implementation of effective mitigation measures. |
| | HIGH | The impacts will have a high influence on the watercourse. The impact can be ameliorated (lessened or improved) by a modification in the project design or implementation of effective mitigation measures. Should have an influence on decision, unless it is mitigated |
| | VERY HIGH | The impacts will have a major influence on the watercourse. The impacts could have the no-go implications on portions of the development regardless of any mitigation measures that could be implemented. Influence decision, regardless of any possible mitigation. |

| SIGNIFICANCE RATING | LIST OF CRITERIA USED IN ASSIGNING A SPECIFIC SIGNIFICANCE RATING | | |
|---|---|---|---|
| | **INTENSITY** | **EXTENT** | **DURATION** |
| Very High | High | National | Permanent / Long Term |
| | High | Regional | Permanent / Long Term |
| | Medium | National / Regional | Permanent |
| High Significance | High | Regional | Medium Term |
| | High | National | Short Term |
| | High | Local | Long Term / Permanent |
| | Medium | National | Medium Term |
| | Medium | Regional | Long Term |
| Medium Significance | High | Local | Medium Term |
| | Medium | Local | Permanent |
| | High | Regional | Short Term |
| | Medium | National | Short Term |
| | Medium | Regional | Medium Term |
| | Medium | Local | Long Term / Permanent |
| | Low | National | Medium Term |
| | Low | Regional | Long Term |
| Low Significance | High | Local | Short term |
| | Medium | Local | Short Term / Medium Term |
| | Medium | Regional | Short Term |
| | Low | National | Short Term |
| | Low | Regional | Medium Term |
| | Low | Local / Site specific | Long Term |
| | Low | Local | Permanent |
| Very Low Significance | Very Low | Local | Long Term / Permanent |
| | Low | Local | Short term |
| | Low | Site specific | Medium / Short Term |
| | Very low | Site specific / Local | Short Term |

# Appendix 2 – Declaration of Independence

I, Nick Steytler, as the appointed independent specialist, in terms of the 2014 EIA Regulations (as amended), hereby declare that:

I act as the independent specialist in this application;

I perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;

I regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 (as amended) and any specific environmental management Act;

I declare that there are no circumstances that may compromise my objectivity in performing such work;

I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;

I will comply with the Act, Regulations and all other applicable legislation;

I have no, and will not engage in, conflicting interests in the undertaking of the activity; I have no vested interest in the proposed activity proceeding;

I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;

I have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;

I have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;

All the particulars furnished by me in this specialist input/study are true and correct; and
I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the specialist:

Name of Specialist: Nick Steytler

Date: 15/01/2025

# Appendix 3 – CV of the Specialist

## Curriculum Vitae
**of**
## NICHOLAS STEYTLER
## Director – EnviroSwift Western Cape

| **CONTACT DETAILS** | |
|---|---|
| Address | 32 Rameron Road, Imhoffs Gift, Kommetjie 7975 |
| Email | Nick@enviroswift.co.za |
| Cell | 082-322 4074 |
| | |
| **PERSONAL INFO** | |
| Full Names | Nicholas Sean Steytler |
| Date of Birth | 28 March 1970 |
| Nationality | South African |
| Languages | English, Afrikaans, isiZulu (fair) |
| Identity Number | 7003285202088 |

| **ACADEMIC QUALIFICATIONS** | | |
|---|---|---|
| BSc | University of Natal (Pmb) | 1990 |
| BSc Honours (Zoology & Entomology) ***Cum Laude*** | University of Natal (Pmb) | 1991 |
| MSc (Entomology) | University of Natal (Pmb) | 1994 |

| **PUBLICATIONS** |
|---|
| Steytler, NS and Samways, 1995. MJ. Biotope selection by adult male dragonflies (Odonata) at an artificial lake created for insect conservation in South Africa. Biological Conservation Volume 72 Issue 3, December 1995, Pages 381 – 386. |
| Samways, MJ and Steytler, NS. 1996. Dragonfly (Odonata) distribution patterns in urban and forest landscapes, and recommendations for riparian management. Biological Conservation Volume 78 Issue 3, December 1996, Pages 279 – 288. |

| **MEMBERSHIP OF PROFESSIONAL ASSOCIATIONS** |
|---|
| Registered Environmental Scientist (Pr Sci Nat 400029/02) |
| Member of IAIA SA |

| **FIELDS OF EXPERTISE** | **Years experience** |
|---|---|
| Integrated Environmental Management | 25 years + |
| Natural Resource Management Planning | 25 years + |

| | |
|---|---|
| Freshwater Ecological Specialist Studies | 5 years + |
| | |
| **EMPLOYMENT HISTORY** | |
| 2019 – present: EnviroSwift Western Cape. Director / owner | |
| 2007 – present: KHULA Environmental Consultants. Director / owner | |
| 2005 – 2009: DJ Environmental Consultants. Associate Consultant. | |
| 2000 – 2005: SRK Consulting, Cape Town, Environmental Department. Senior Environmental Scientist. | |
| 1996 – 2000: Institute of Natural Resources, Pietermaritzburg. Associate Researcher: Natural Resources Management Programme. | |
| | |
| **WORK EXPERIENCE (note IEM and Public Participation experience not listed below)** | |
| ***Freshwater ecological specialist studies:*** | |
| Freshwater screening study for the proposed development of Erf 1472 Hout Bay, City of Cape Town (2024) | |
| Freshwater screening study for the proposed expansion of the Montana Seed Processing Facility, Joostenbergvlakte, City of Cape Town (2024) | |
| Freshwater screening study for the German School, Kloof Neck, City of Cape Town (2024) | |
| Freshwater screening study for the proposed telecommunications mast on Portion 6 of the Farm Harkerville No 423, Knysna Road, Plettenberg Bay (2024) | |
| Freshwater screening study for the proposed residential development of Erven 3233 and 3234 Hout Bay, City of Cape Town (2024) | |
| Freshwater screening study for the proposed residential development of Portion 3 of Farm 1643, Franschhoek, Drakenstein Municipality (2024) | |
| Freshwater screening study for the proposed new in-stream dam on the Remaining extent of Farm Sevilla No. 135, Clanwilliam (2024) | |
| Freshwater screening study for the proposed Morning Star affordable housing scheme, Durbanville, City of Cape Town (2024) | |
| Freshwater screening study for the proposed temporary staging facility for the proposed Wynberg IRT bus depot, City of Cape Town (2024) | |
| Freshwater screening study for the proposed subdivision of Erf 4795 Noordhoek, City of Cape Town (2024) | |
| Freshwater screening study for the proposed single residential development of Erf 88844 Clovelly, City of Cape Town (2023) | |
| Wetland delineation at the propsoed Eagles Rest Private Nature Reserve, Cape Point (2024) | |
| Freshwater ecological impact assessment for external services for Welmoed Urban Node, Stellenbosch (2024) | |
| Freshwater screening study for proposed solar PV facilities on the Remainder of Portion 5 of the Farm Rietvallei No. 167, Montagu (2023) | |
| Amendments to freshwater specialist reports submitted in support of the applications for environmental approval for the Calcutta Cemetery, Farm 29 Stellenbosch (2023) | |
| Freshwater screening study for the proposed development of Erf 325 Atlantis, City of Cape Town (2023) | |
| Freshwater screening study for the proposed development of solar PV facilities on Farms 788-6 and 792-RE, Philippi, City of Cape Town (2023) | |
| Freshwater screening study for the Proposed development of solar PV facilities on Erven 551 and 553, Schaapkraal, City of Cape Town (2023) | |
| Freshwater ecological impact assessment for the proposed expansion of the Rusty Gate Mountain Retreat, Greyton (2023) | |
| Freshwater screening study of the proposed redevelopment of portions of Stikland Hospital, Erf 6300 Stikland, Bellville (2023) | |
| Freshwater ecological specialist review & assessment for the proposed amendment to the scope of the authorised extension of Erica Drive, Belhar, City of Cape Town (2023) | |
| Freshwater Screening study for the proposed telecommunications base station on Portion 20 of the Farm Matroosberge No. 57, De Doorns (2023) | |
| Freshwater ecological impact assessment for the proposed subdivision of Erf 10546 Hout Bay (2023) | |
| Freshwater screening study for the proposed expansion of Louwville township, Vredenburg (2023) | |
| Freshwater ecological impact assessment for the residential development of Erf 178092 Newlands, City of Cape Town (2023) | |
| Freshwater screening study for Erf 2068 Somerset West, City of Cape Town (2023) | |
| Freshwater screening study for Portion 3 of Farm 1025 Wemmershoek, Stellenbosch Municipality (2023) | |
| Freshwater ecological impact assessment for a new Wastewater Treatment Works for Matjiesfontein, Laingsburg Municipality (2023) | |
| Freshwater ecological impact assessment for the development of tourism accommodation facilities at the Farm Hemelrand, Hemel en Aarde Valley, Overstrand Municipality (2023) | |
| Freshwater screening study for residential development at Oude Bosch, Hermanus Lagoon, Overstrand Municipality (2022) | |

| |
|---|
| Freshwater ecological impact assessment for a proposed shopping centre at Erf 666 Hout Bay, City of Cape Town (2022) |
| Freshwater screening study for the proposed formalisation of the Valhalla Park informal settlement, Cape Flats, City of Cape Town (2022) |
| Freshwater screening study for a proposed telecommunications mast, Overhex, Breede Valley Winelands Municipality (2022) |
| Freshwater ecological impact assessment for the proposed expansion of the Leopard Rock residential estate, Onrusrivier, Overstrand Municipality (2022) |
| Freshwater screening study for the proposed low-cost housing development at Wolwerivier, City of Cape Town (2022) |
| Freshwater ecological impact assessment for the proposed low-cost housing development of Erf 148 Philadelphia, City of Cape Town (2022) |
| Freshwater screening study of Erf 10932 Constantia, City of Cape Town (2022) |
| Freshwater screening study of Erf 49 Faure, City of Cape Town (2021) |
| Freshwater screening study for a proposed concrete factory on the Remainder of the Farm Bultfontyn 128, near Middelburg in the Eastern Cape (2021) |
| Freshwater ecological impact assessment for the proposed expansion of vineyards at Mountain Rose Farm, Hemel en Aarde Valley, Overstrand Municipality (2022) |
| Freshwater ecological impact assessment for unlawful agricultural expansion at Plennegy Farm, Oudtshoorn, Western Cape (2021) |
| Freshwater screening study for the development of erven 41 and 59, Knole Park, City of Cape Town (2021) |
| Freshwater ecological impact assessment for proposed truck stop on Portion of Erf 10229, Beaufort West, Western Cape (2021) |
| Freshwater screening study for the proposed redevelopment of the Mowbray Golf Course, Pinelands, City of Cape Town (2021) |
| Provision of rehabilitation specifications for the unlawful excavation of a trench in a non-perennial drainage line at the Farm Vergelegen, Robertson, Western Cape (2021) |
| Freshwater ecological impact assessment for unlawful agricultural expansion at Samber Farms, Riversdale, Western Cape (2021) |
| Freshwater ecological impact assessment for proposed expansion of an in-stream irrigation dam at Farm Hartebeest Kuil, George, Western Cape (2021) |
| Freshwater screening study for the proposed residential development of Erf 208 Bishopscourt, City of Cape Town (2021) |
| Freshwater screening study for the proposed agricultural processing facility, Maqinqi communal area, Port St. Johns Municipality, Eastern Cape (2021) |
| Freshwater ecological impact assessment for the proposed agricultural expansion at the Farm Vergelegen, Robertson, Western Cape (2021) |
| Freshwater ecological impact assessment for a proposed residential development in Plattekloof, City of Cape Town (2021) |
| Freshwater ecological screening study for the proposed sewerage pipeline for Schulz Vlei development, Philippi, City of Cape Town (2021) |
| Freshwater ecological impact assessment for the proposed development of an agro-industrial facility, Wemmershoek, Western Cape (2021) |
| Freshwater ecological screening study for a proposed filling station in Eerste River, City of Cape Town (2020) |
| Freshwater ecological impact assessment for an unlawfully constructed tourist accommodation facility, Tulbagh, Western Cape (2020) |
| Freshwater ecological screening study and risk assessment for additions and alterations to an existing residential dwelling, Breede River, Western Cape (2020) |
| Freshwater ecological screening study for a proposed truck depot and filling station, Paarl, Western Cape (2020) |
| Freshwater ecological screening study for a proposed phosphate mine, Saldanha, Western Cape (2020) |
| Freshwater ecological screening study for a single residential development at Oppi Berg, Ceres, Western Cape (2020) |
| Freshwater ecological screening study for a proposed industrial area expansion, Bredasdorp, Overberg, Western Cape (2020) |
| Freshwater ecological impact assessment for proposed Canola plant at Erf 15711 Wellington, Drakenstein Municipality (2020) |
| Freshwater ecological impact assessment for single residential development of Ptn 13 of Farm 563 Kleinmond (2020) |
| Freshwater ecological impact assessment for new IRT bus depot, Wynberg, City of Cape Town (2019) |
| Freshwater ecological screening study for Blackheath Printers, Blackheath, City of Cape Town (2019) |
| Freshwater ecological screening study for La Motte residential extension, Franschoek (2019) |
| Freshwater ecological impact assessment for Vloedbos Resort, Overberg (2019) |
| Freshwater ecological screening study for Erf 3660 Hout Bay, City of Cape Town (2019) |
| Freshwater ecological screening study for Erf 2145 Constantia, City of Cape Town (2019) |
| Freshwater ecological impact assessment for low-cost housing development in Khayelitsha (2019) |
| Freshwater ecological impact assessment for Kommetjie Vineyards Estate, City of Cape Town (2018) |

| ***Environmental Planning and Natural Resources Management:*** |
|---|
| Preparation of an Invasive Alien Plant Clearing Plan for Erf 6289 Hout Bay, City of Cape Town (2021) |
| Preparation of an Invasive Alien Plant Clearing Plan for Shamballah Tea House, Cape Point, City of Cape Town (2019) |
| Preparation of an Invasive Alien Plant Clearing Plan for Imhoff Farm, Southern Peninsula, City of Cape Town (2018) |
| Preparation of a River Maintenance Management Plan for the Jakkals River, Elgin, Theewaterskloof Municipality (2018) |
| Preparation of a River Maintenance Management Plan for wetlands associated with the Bottelary River, Hazendal Wine Farm, Stellenbosch (2017) |
| Preparation of an Alien Plant Clearing Plan for the Farm Wildschutsbrand, Cape Point (2017). |
| Preparation of an Alien Plant Clearing Plan for Lalapanzi Farm, Cape Point (2017). |
| Preparation of a River Maintenance Management Plan for the Dawidskraal River, Bettys Bay, Overstrand (2016) |
| Preparation of a Site Rehabilitation and Management Plan for wetlands at Kraaifontein Shooting club, Northern Cape Metro (2015) |
| Preparation of a Wetland Maintenance and Management Plan for De Goede Hoop Estate, Noordhoek, South Peninsula (2014) |
| Application for Off-Road Vehicle Regulations licence for boat launching facility, Oceana Power Boat Club slipway, V&A Waterfront (2014) |
| Preparation of a Maintenance Management Plan for the Silvermine River, Clovelly Country Club, South Peninsula (2014) |
| Preparation of a Maintenance Management Plan for the rehabilitation and maintenance of an unnamed stream and associated infrastructure, Klein Constantia Winefarm, Cape Metropole (2014) |
| Environmental Screening for the proposed redevelopment of the Tygerberg Hospital, Northern Cape Metropole (2014) |
| Establishment of a Permanent Coastal Development Setback Line for the V&A Waterfront, City of Cape Town (2014) |
| Preparation of a Maintenance Management Plan for the ongoing maintenance of the access road to the West Coast Rock Lobster holding facility, Witsand Island, Scarborough, City of Cape Town (2013) |
| Preparation of a Maintenance Management Plan for the Kromboom River, Erf 117459 Lansdowne, Cape Metropole (2013) |
| Preparation of a Rehabilitation Plan for the remediation of unlawful infilling of a wetland at Lalapanzi Farm, Cape Point (2012) |
| Preparation of a Rehabilitation Plan for the remediation of unlawful construction of a parking area at Erf 935 Noordhoek Farm Village, City of Cape Town (2012) |
| Preparation of a rehabilitation plan for the closure of the Retreat Filling Station, City of Cape Town (2012) |
| Khayeltisha Wetlands Park – Park Delineation and Management Review, City of Cape Town (2010) |
| Preparation of the Coast & Estuaries Theme for the 1st review of Eastern Cape State of the Environment Report (2009) |
| Preparation of 2010 FIFA World Cup Greening Business Plan for Polokwane, Limpopo Province (2008) |
| Preparation of 2010 FIFA World Cup Greening Business Plan for Rustenburg, North West Province (2008) |
| Revision of the Table Mountain National Park Conservation Development Framework, City of Cape Town (2006) |
| Comparative Evaluation of alternative venues for the 2010 FIFA World Cup Stadium, City of Cape Town (2006) |
| Preparation of a Strategic Management Framework for the Kogelberg Biosphere Reserve, Overberg (2005 – 2006) |
| Preparation of concept document and proposal to undertake a SADC regional market survey of the indigenous fibre trade, SADC Region (2006) |
| Strategic Planning of Cemeteries in the Drakenstein Municipality (2006) |
| Environmental assessment of overnight sites for the Hoerikwaggo Trails, Table Mountain National Park, Western Cape (2005) |
| Preparation of the Year 1 State of the Environment Report for the Western Cape (2005) |
| Preparation of a Water Resources Management Strategy for Mozambique (2004) |
| Due Diligence Study for the proposed Mozaq Limitada Prawn Farm, Mozambique (2003) |
| Preparation of the Culemborg Development Framework, City of Cape Town (2001) |
| Restoration Planning of the Bokramspruit River, Kommetjie, City of Cape Town (2001) |
| Management and Maintenance Planning of the Dwars River, Ceres (2001) |
| Preparation of the Garden Route Spatial Development Framework, Southern Cape (2001) |
| Strategic Planning of the information needs of a Medicinal Plants Network in the SADC region (1999) |
| Research to determine potential commercial products from the Wild - Medicinal Plants component, South Africa (1999) |
| Economic Evaluation of the Cultivation of Nine Species of Medicinal Plants Indigenous to South Africa (1998) |
| Faunal specialist assessment for the proposed N2 by-pass, Natal Drakensberg, KwaZulu-Natal (1997). |
| Freshwater specialist assessment for the proposed construction of a bridge over the Msunduzi River, Voortrekker Highschool, Pietermaritzburg (1997) |
| Strategic Planning of a proposed community based indigenous forest management project, Eastern Cape (1998) |
| Preparation of a decision support manual for community-based urban riparian systems management (RIPARI-MAN) (1998) |
| Preparation of an Integrated Catchment Management Plan for the Msunduzi River Catchment, Pietermaritzburg (1997) |
| Development of Flood Response Strategies for the Msunduzi River Catchment, Pietermaritzburg (1997) |
| Evaluating community-based wildlife management projects in the SADC region as part of the international project by IIED / IUCN called “Evaluating Eden” (1996) |

# Appendix 4 – Risk Assessment Matrix

**PROJECT:**

**RISK ASSESSMENT MATRIX for Section 21 (c) and (i) Water Use activities - Version 2.1.1**

**Name of Assessor:** Nick Steytler
**SACNASP Registration Number:** 400029/02
**Date of assessment:** 15-Jan-25

| Phase | Activity | Impact | Significance (max = 100) | Risk Rating | Confidence level |
|---|---|---|---|---|---|
| CONSTRUCTION | Site preparation including vegetation removal and infilling | Disturbance of wetland habitat | 28 | L | Medium |
| | | Alteration of Flow Regime | 26 | L | Medium |
| | | Erosion and sedimentation | 16 | L | Medium |
| | | Water quality impairment | 16 | L | Medium |
| | | Biota loss | 14,4 | L | Medium |
| | Operation of construction machinery and storage of construction materials | Disturbance of wetland habitat | 12,8 | L | Medium |
| | | Erosion and sedimentation | 9,6 | L | Medium |
| | | Water quality impairment | 6,4 | L | Medium |
| | | Biota loss | 6,4 | L | Medium |
| OPERATIONAL | Presence of hard surfaces | Alteration of flow regime | 16 | L | Medium |
| | Residential/tourism land use | Alteration of flow regime | 4 | L | Medium |
| | | Water quality impairment | 4,8 | L | Medium |
| | | Loss of biota | 4,8 | L | Medium |