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## **FRESHWATER COMPLIANCE STATEMENT**

**Tourist Accommodation on Portion 101/489 Jongensfontein, Hessequa,  
Western Cape.**



**Prepared for Cape EAPrac**

**by**

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- I consider myself bound to the rules and ethics of the South African Council for Natural Scientific Professions (SACNASP);
- At the time of conducting the study and compiling this report I did not have any interest, hidden or otherwise, in the proposed development that this study has reference to, except for financial compensation for work done in a professional capacity;
- Work performed for this study was done in an objective manner. Even if this study results in views and findings that are not favourable to the client/applicant, I will not be affected in any manner by the outcome of any environmental process of which this report may form a part, other than being members of the general public;
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- I do not have any influence over decisions made by the governing authorities;
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- I have the necessary qualifications and guidance from professional experts in conducting specialist reports relevant to this application, including knowledge of the relevant Act, regulations and any guidelines that have relevance to the proposed activity;
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- All the particulars furnished by me in this document are true and correct.



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Date: August 2024

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## 1. INTRODUCTION

Confluent Environmental was appointed by Cape EAPrac to undertake a freshwater survey for a proposed tourism development (six glamping pods) at the southern portion of Portion 101/489 Jongensfontein, Hessequa, Western Cape. The scope of work for this report is guided by the legislative requirements of the National Environmental Management Act (NEMA).

### 1.1 National Environmental Management Act

According to the protocols specified in GN 1540 (Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes in Terms of Sections 24(5)(A) and (H) and 44 of the National Environmental Management Act, 1998, when Applying for Environmental Authorisation), assessment and reporting requirements for aquatic biodiversity are associated with a level of environmental sensitivity identified by the national web-based environmental screening tool (screening tool). An applicant intending to undertake an activity identified in the scope of this protocol on a site identified by the screening tool as being of:

- **Very High** sensitivity for aquatic biodiversity, must submit an Aquatic Biodiversity Specialist Assessment; or
- **Low** sensitivity for aquatic biodiversity, must submit an Aquatic Biodiversity Compliance Statement.

The screening tool classified the site as being of **Very High** aquatic biodiversity owing to the presence of a seep wetland that is mapped along the southern most boundary of the property. According to the protocol, a site sensitivity verification must be undertaken to confirm the sensitivity of the site as indicated by the screening tool:

- Where the information gathered from the site sensitivity verification differs from the screening tool designation of **Very High** aquatic biodiversity sensitivity, and it is found to be of a **Low** sensitivity, an Aquatic Compliance Statement must be submitted.

### 1.2 National Water Act (NWA, 1998)

The Department of Water & Sanitation (DWS) is the custodian of South Africa's water resources and therefore assumes public trusteeship of water resources, which includes watercourses, surface water, estuaries, or aquifers.

A watercourse means:

- A river or spring;
- A natural channel in which water flows regularly or intermittently;
- A wetland, lake or dam into which, or from which, water flows; and
- Any collection of water which the Minister may, by notice in the Gazette, declare to be watercourse, and
- A reference to a watercourse includes, where relevant, its bed and banks.

For this assessment, a wetland area is defined according to the NWA (Act No. 36 of 1998):

*“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”.*

Wetlands must therefore have one or more of the following attributes to meet the NWA wetland definition (DWAF, 2005):

- A high water table that results in the saturation at or near the surface, leading to anaerobic conditions developing in the top 50 cm of the soil;
- Wetland or hydromorphic soils that display characteristics resulting from prolonged saturation, i.e. mottling or grey soils; and
- The presence of, at least occasionally, hydrophilic plants, i.e. hydrophytes (water loving plants).

No activity may take place within a watercourse unless it is authorised by the Department of Water and Sanitation (DWS). According to Section 21 (c) and (i) of the National Water Act, an authorization (Water Use License or General Authorisation) is required for any activities that impede or divert the flow of water in a watercourse or alter the bed, banks, course or characteristics of a watercourse. The regulated area of a watercourse for section 21(c) or (i) of the Act water uses means:

- a) The outer edge of the 1 in 100-year flood line and/or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, lake or dam;
- b) In the absence of a determined 1 in 100-year flood line or riparian area the area within 100m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench (subject to compliance to section 144 of the Act); or
- c) A 500 m radius from the delineated boundary (extent) of any wetland or pan.

According to Section 21 (c) and (i) of the NWA, any water use activities that do occur within the regulated area of a watercourse must be assessed using the DWS Risk Assessment Matrix (GN 509) to determine the impact of construction and operational activities on the flow, water quality, habitat and biotic characteristics of the watercourse. Low Risk activities require a General Authorisation (GA), while Medium or High Risk activities require a Water Use License (WUL).

### 1.3 Scope of Work

The objectives of this assessment included the following:

- To undertake a desktop analysis and site inspection to verify the sensitivity of aquatic biodiversity as **Very High** or **Low**; and
- Compile an Aquatic Biodiversity Compliance Statement or Aquatic Biodiversity Specialist Assessment based on the site verification of the sensitivity of the site.
- Determine whether any activities fall within the regulated area of a watercourse as defined by the NWA.

## 2. APPROACH

The following rationale was adopted to determine the sensitivity of aquatic biodiversity within the footprint of the site:

- In the event that watercourses are confirmed to fall within the development footprint and that these watercourses will be impacted by the development, then the site sensitivity is confirmed as **Very High** and a full specialist freshwater assessment is required; and
- In the event that no watercourses are identified within the development footprint the site sensitivity is confirmed as **Low** and an Aquatic Compliance statement is required.

The determination of the site sensitivity relied upon the following approaches:

- Interrogation of available desktop resources including:
  - DWS spatial layers;
  - National Freshwater Ecosystem Priority Areas (NFEPA) spatial layers (Nel et al., 2011);
  - National Wetland Map 5 and Confidence Map (CSIR, 2018) – the latest national wetland inventory map for South Africa;
  - Western Cape Biodiversity and Spatial Plan (WCBSP) for Hessequa (CapeNature, 2017).
- A site visit was undertaken, during which time the following activities were undertaken:
  - Identification and classification of watercourses within the footprint of the site according to methods detailed in Ollis et al. (2013);
  - Soil augering to confirm the presence of soil indicators (DWAf, 2005) that may indicate the presence of a wetland (if applicable); and
  - Identification of hydrophilic plant species that may indicate the presence of wetland plant species (if applicable).

## 3. ASSUMPTIONS & LIMITATIONS

The assessment of the site visit represents a brief temporal snapshot of conditions on the site. Changes in season or short-term changes in climatic conditions may possibly result in the formation of aquatic habitats (e.g. temporary or seasonal wetlands) under significantly wetter conditions. Despite this limitation, the sensitivity of aquatic biodiversity on the site was determined with a very high level of confidence.

## 4. DESKTOP SURVEY

The site falls within the Primary Catchment H (Breede) area and in quaternary Catchment H80F (Figure 1). The site falls within the Southern Coastal Belt Level 1 ecoregion (22.01 Level 2 Ecoregion), which is characterised by moderately undulating plains (altitude ranging from 0 – 500 m a.m.s.l.). Mean annual rainfall is between 300 – 700 mm and falls all year round, but mainly in winter. The catchment is poorly developed from a hydrological perspective and there are no major perennial river systems draining the catchment. Mapped watercourses are primarily short, first order non-perennial coastal streams and drainage lines. The site does not fall within a sub-quaternary catchment (SQC) that has been categorised as a Freshwater

Ecosystem Priority Area (FEPA) or a Strategic Water Source Area (SWSA). According to geospatial data sources, one non-perennial stream flows on the property in a south-westerly direction and one seep wetland is located at the bottom of the southern slope of the property (Figure 2).

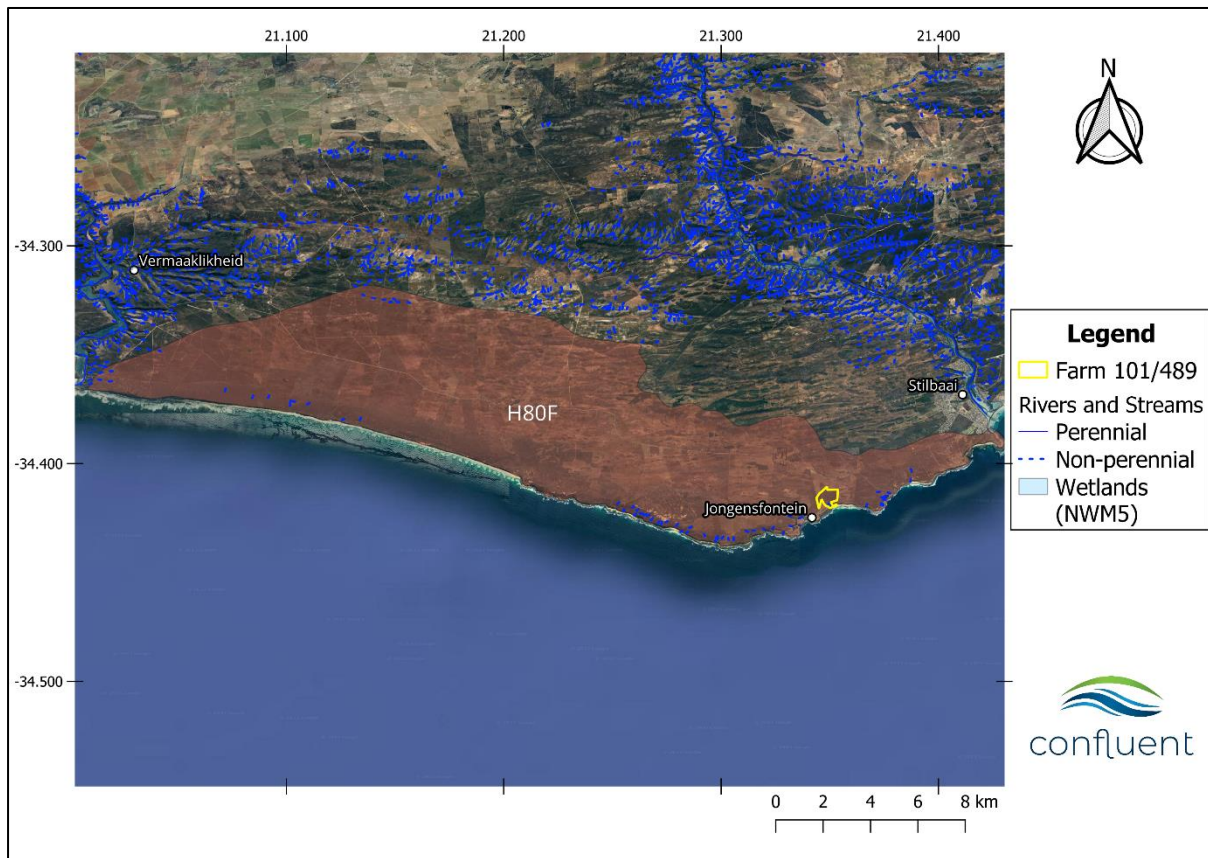


Figure 1: Map indicating the location of the property relative to the quaternary catchment area.



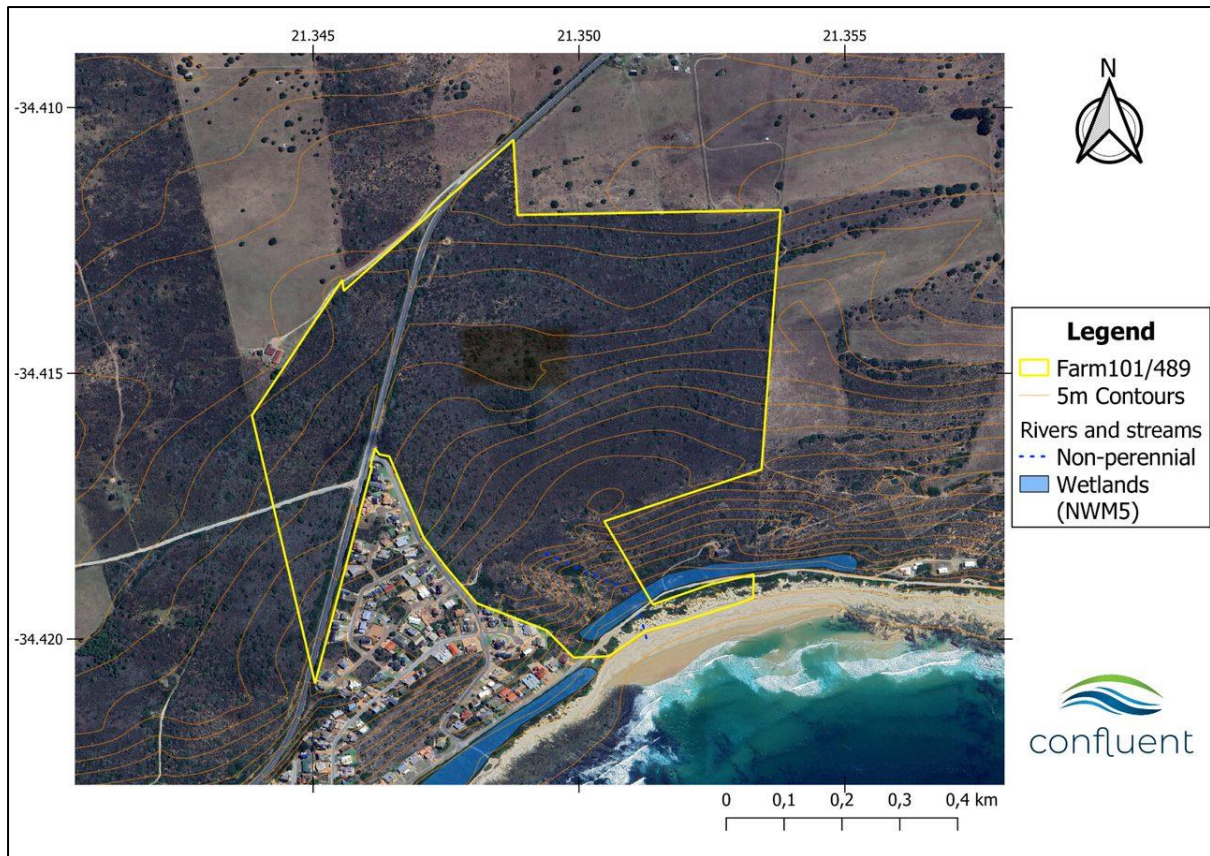


Figure 2: Location of the property in relation to mapped watercourses.

#### 4.1 CONSERVATION AND CATCHMENT MANAGEMENT

##### 4.1.1 Western Cape Biodiversity Spatial Plan

According to the Western Cape Biodiversity Spatial Plan (WCBSP), the wetland area is mapped as a natural wetland CBA (Figure 3). The definition for CBAs is provided in Table 1 and based on the associated management objectives, development in these areas should be avoided. The majority of the remainder of the property is mapped as a terrestrial CBA.

Table 1: Definitions and management objectives of the Western Cape Biodiversity Spatial Plan.

Category	Definition	Management Objective
CBA1	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 natural habitat. Degraded areas should be rehabilitated. Only low-impact, biodiversity-sensitive land uses are appropriate.

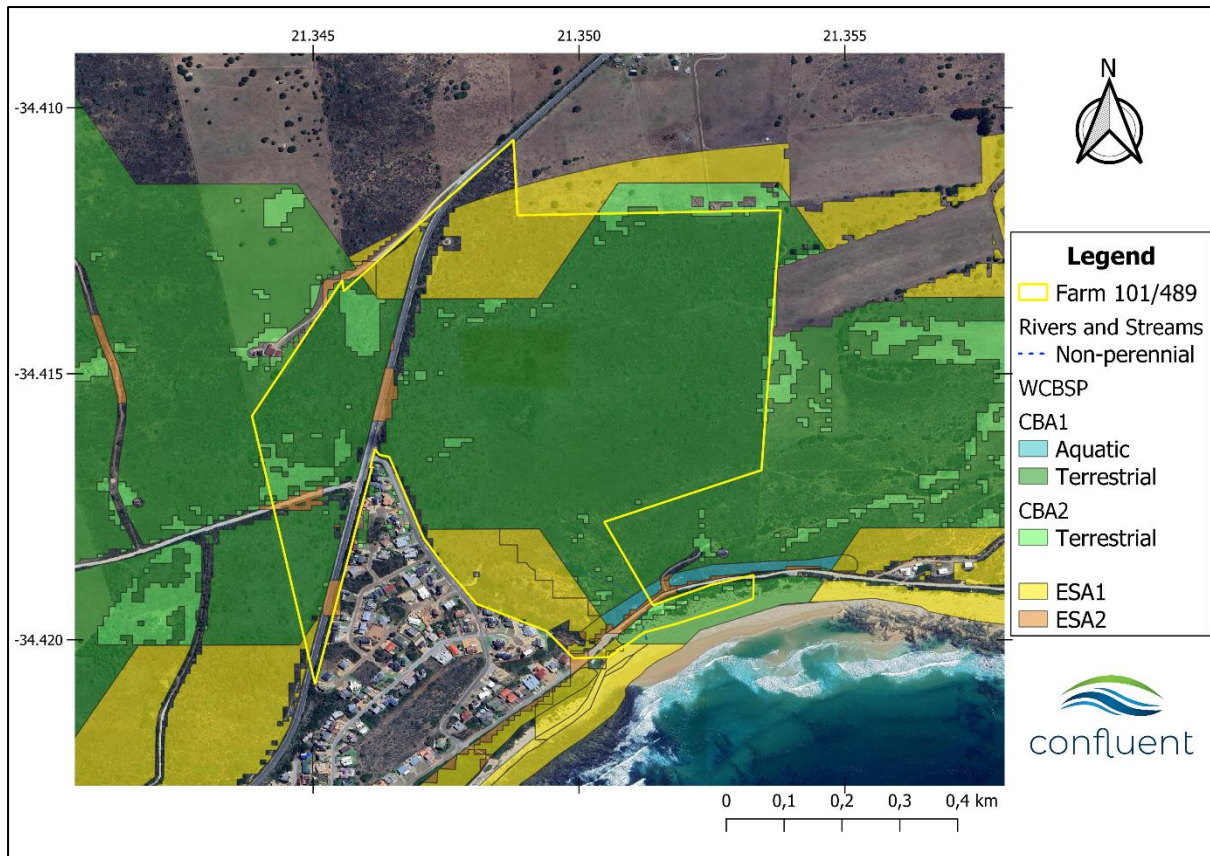


Figure 3: Map of the property relative to the Western Cape Biodiversity Spatial Plan (WCBSP).

## 5. PROPOSED DEVELOPMENT PLAN

The owner proposes to develop six glamping pods on the property (Figure 4). Access will be from Boegspriet Road that runs along the western perimeter of the property. The total road surface area is 1547 m<sup>2</sup> and the total built and parking area is 360 and 108 m<sup>2</sup>, respectively.

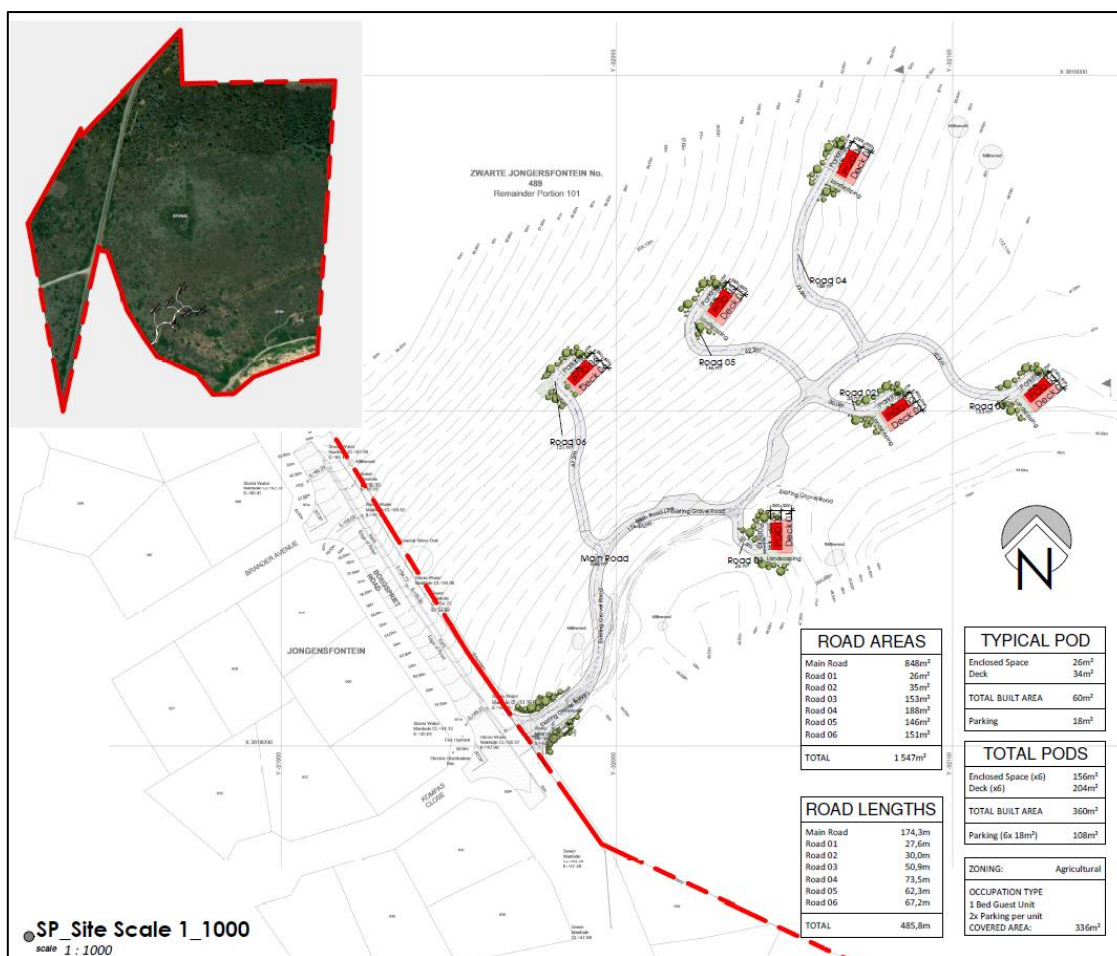


Figure 4: Proposed site development plan for six glamping pods on Portion 101 of Farm 189 Jongensfontein.

## 6. SITE VISIT

The site visit was conducted on 20 October 2023 during which time the entire proposed development site was traversed by foot. The site comprises of a well vegetated dune system that rises steeply from the coastline, northwards towards the interior.

According to Ollis et al. (2013), seep wetlands are often located on slopes and are characterised by their association with geological formations (lithologies) and topographic positions that either cause groundwater to discharge to the land surface or rain-derived water to ‘seep’ down-slope as subsurface interflow. Examples of places where these conditions occur are:

1. On slopes where the water table intersects the land surface, resulting in groundwater discharge directly to the land surface;
2. Land that is down-slope of a break in slope of the groundwater table;
3. Where subsurface discontinuities in geological units (e.g. faults) cause upward movement of groundwater; or
4. On slopes where a relatively impervious subsoil layer impedes the infiltration of rain derived water into the ground.

The entire area indicated as a seep wetland was traversed by foot. This area was covered with dune thicket vegetation (Figure 4) and there was no evidence of any seeping water or any obvious geological/lithological formations that would cause groundwater or rain-derived water to seep down-slope as subsurface interflow. In addition, soils are generally very sandy and well drained, with limited pedological development. All of these factors are not consistent with typical conditions under which one would expect seep wetlands to occur. Finally, there were no characteristic hydrophilic wetland plant species indicating saturated soil conditions throughout the extent of the mapped wetland area (Figure 5). As described above, soil is very sandy and well drained and there were no indications of seasonal, temporary or permanent soil saturation in soil profiles that were augered up to a depth of 50 cm. In conclusion, no sign of a wetland seep was observed on the property. Similarly, the wetland seep indicated to occur to the east of the property (see Figure 2) is also not a wetland. Both areas mapped as wetlands are characterised by dense terrestrial dune thicket vegetation, dominated by milkwood trees (*Sideroxylon inerme inerme*).

Natural areas of drainage characterised by a poorly defined channel that partly coincided with the mapped non-perennial drainage line were observed along the relatively steep slope of the coastal foredune (see Figure 2), however, they were well vegetated by terrestrial vegetation and there are no obvious bed or banks or any sign of aquatic habitat associated with these drainage lines. As the drainage line reaches lower elevation, the channel disappears completely. The drainage lines are natural areas of drainage but do not transmit high volumes of water and cannot be considered as watercourses on which aquatic biodiversity is dependent. A depression area was located on the plateau above the foredune, however no signs of hydrophilic wetland vegetation were observed. Given the very sandy soil it unlikely that water would accumulate for a long enough period to encourage the establishment of wetland vegetation and biota.

Historically, portions of the site have been disturbed and cleared for agricultural purposes from 1954 until 2011, as seen in Figure 6 below. After 2011 the site remains undisturbed with the disturbed portions revegetated with natural vegetation.



Figure 5: Photographs of the site including a view from the top of the foredune down to the coast line (A), well vegetated, topographical areas of drainage (B and C) and the depression at the top of the foredune (D).

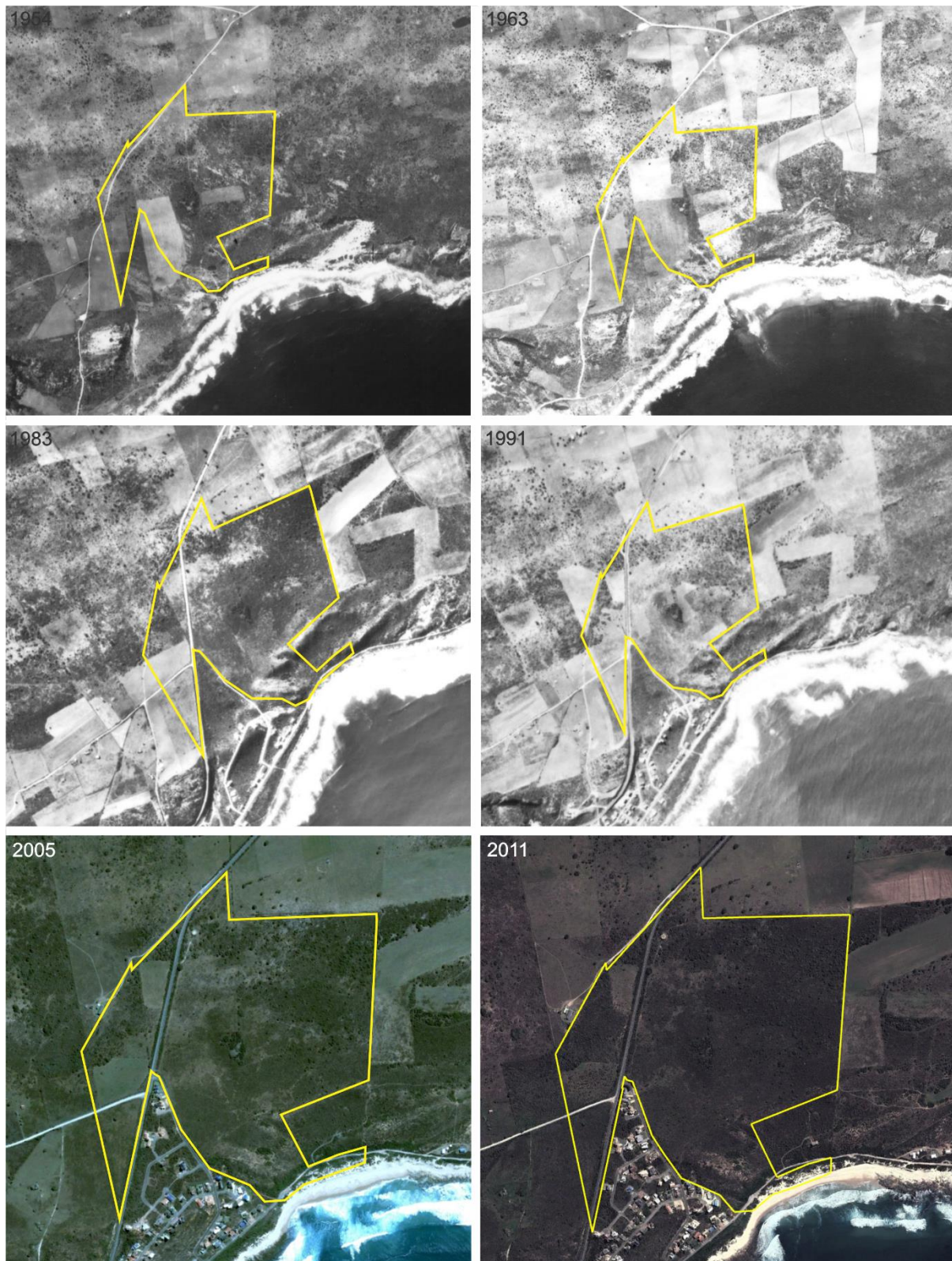


Figure 6: Historical photos showing the proposed site through notable changes between 1954 and 2022 (Google Earth imagery).

In terms of legislation pertaining to the NWA, the property falls outside of the regulated area of any nearby watercourses (i.e. greater than 100 m and 500 m away from a river/stream and natural wetland, respectively) (Figure 7). No Section 21 (c) and (i) water use authorisation is therefore required for development on the property.

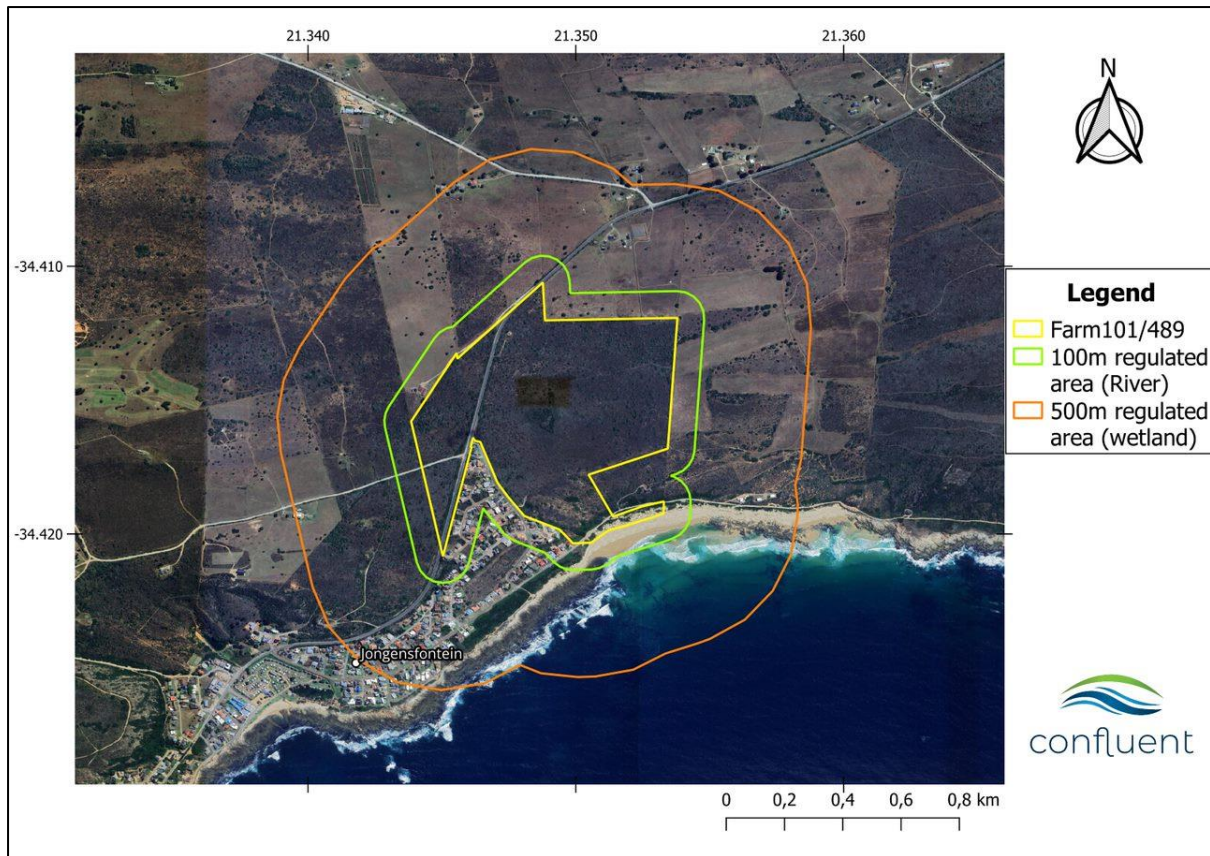


Figure 7: Map indicating one non-perennial river within 100 m of the site and two wetlands within 500 m of the site.

## 7. SENSITIVITY MAPPING

While no formal watercourses are present on the property, the drainage lines do serve a hydrological function and degradation or disturbance of the area in combination with the steep slopes could lead to erosion. For this reason, the drainage lines should be considered as hydrologically sensitive areas. The proposed camping pods are located outside of these drainage areas and no impacts are anticipated (Figure 8).

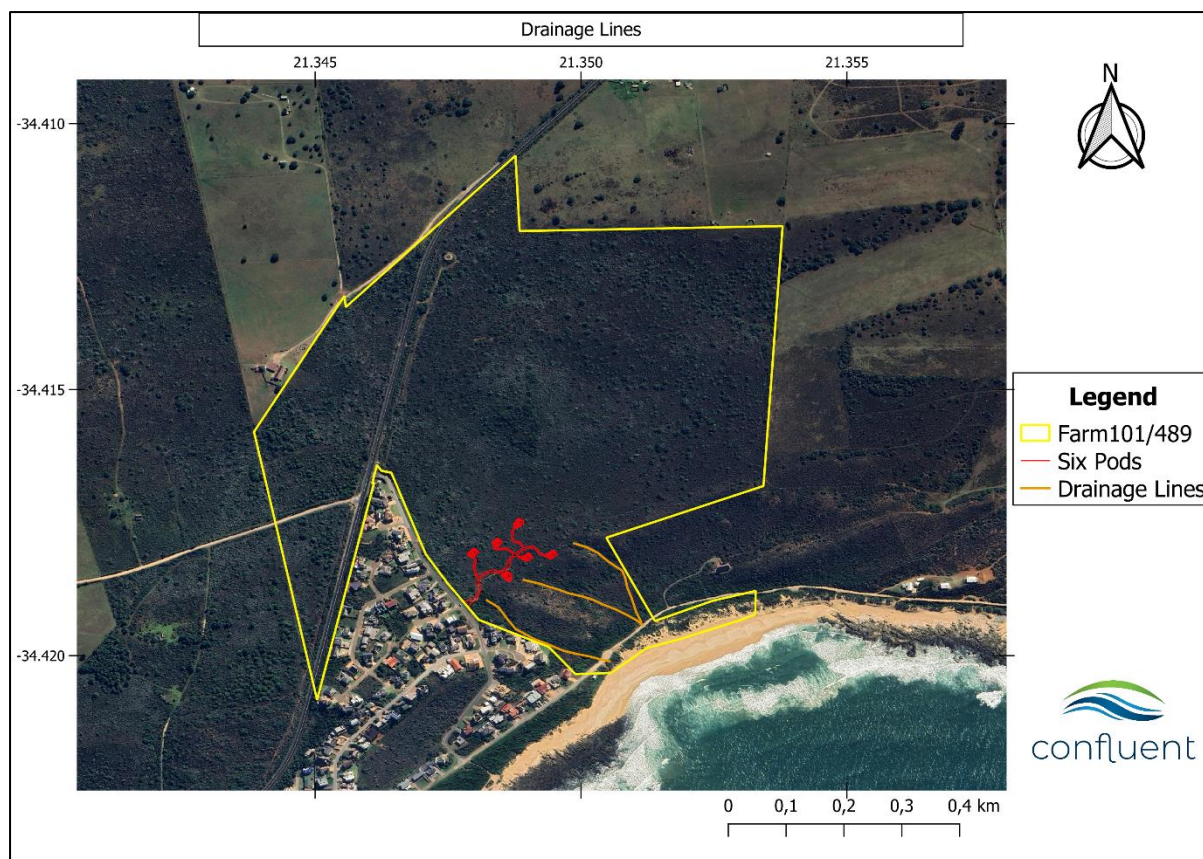


Figure 8: Map indicating drainage areas that should be avoided under any development plans.

## 8. MANAGEMENT RECOMMENDATIONS

### 8.1 Stormwater Management

A key impact related to residential developments is the generation of large volumes of stormwater associated with an increased area of impermeable surfaces (i.e. roads, roofs and other infrastructure). Stormwater is typically conveyed into watercourses, where high volumes (and associated high energy) cause degradation of watercourses, mainly due to the erosion of the bed and banks. In this respect given the steep slopes within the property, even though the drainage line is located outside of the development footprint, it is potentially vulnerable to stormwater impacts.

It is therefore important that stormwater generated on site should be managed according to Sustainable Drainage System (SuDS) principles. This requires that as much stormwater as possible should be attenuated within the development footprint. For example, the City of Cape Town guideline is that developments must provide for 24-hour extended detention of the 1-year return interval 24-hour storm event. In this respect the following measures, *inter alia*, should be considered:

- Rainwater harvesting tanks must be installed;
- Use of swales and detention ponds to attenuate stormwater runoff, encourage infiltration and reduce the speed, energy and volumes at which stormwater is discharged from the site;
- Use of permeable paving to encourage infiltration into the soil; and



- Use of retention ponds and artificial wetlands to capture stormwater runoff and prevent its discharge from the site.

## 8.2 Erosion Management

The steep slopes of the property will be vulnerable to erosion during clearance of the site and the construction phase. It is therefore important that appropriate erosion control measures are implemented, which include *inter alia*, the following:

- Ensure that construction activities do not impede any existing natural areas of drainage (see Figure 8).
- Ensure that construction activities do not cause any preferential flow paths and concentrated surface runoff during rainfall events.
- Clearly demarcate the construction area and ensure that heavy machinery does not compact soil or disturb vegetation outside of these demarcated areas.
- Reduce transport of sediment through use of structures such as silt fences and biodegradable coir logs placed along a contour below the development footprint.
- Ensure that vegetation clearing is conducted in parallel with the construction progress to minimise erosion and runoff.
- Revegetate exposed areas once construction has been completed.
- Ensure that stormwater and runoff generated by hardened surfaces is discharged in retention areas (i.e. swales or retention ponds), to avoid concentrated runoff and associated erosion.

## 9. AQUATIC BIODIVERSITY COMPLIANCE STATEMENT

Based on the results of the desktop review and the site verification, it can be concluded that the development will not impact any freshwater biodiversity and that the sensitivity of aquatic biodiversity on the property can be regarded as **Low**.

## 10. REFERENCES

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