Proposed Development of two residential dwellings on Farm 76/216 Uitzicht, Knysna, Western Cape.

Aquatic Compliance Statement

Prepared For: Eco Route Environmental Consultancy

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EXECUTIVE SUMMARY

Confluent Environmental Pty (Ltd) was appointed by EcoRoute to provide aquatic specialist inputs for the proposed development of a farmhouse and farm manager's house on Portion 76/216 Uitzicht, Knysna, Western Cape. The development involves constructing the main farmhouse in the southwest corner and the farm manager's house in the northwest areas of the property, connected by a new internal road (one option) or using an existing access road on the neighbouring property (preferred alternative).

The main farmhouse will comprise six bedrooms, an open-plan living area, a kitchen, lounge, dining area, bar, scullery, bathroom, wine cellar, open deck, and a swimming pool. The farm manager's house, with an area of 600 m^2 on the ground floor and 400 m^2 on the first floor, has only one proposed layout.

The Department of Environment, Forestry, and Fisheries (DFFE) screening tool indicates a Very High sensitivity for aquatic biodiversity at the site as it is located in a Strategic Water Source Area and in a Freshwater Ecosystem Priority Area. The study area falls within the Knysna River catchment but has no mapped rivers or streams on the property. The property hosts important vegetation types, including the critically endangered Knysna Sand Fynbos.

The Western Cape Biodiversity Spatial Plan categorizes most of the property as a terrestrial Critical Biodiversity Area1. Although the property has no mapped watercourses, the topography including interdunal depressions could support unmapped wetlands.

Site assessments were conducted twice during October and December 2023. The entire proposed access road route as well as the locale of the two proposed dwellings were surveyed by soil auguring and plant identification. No watercourses were identified during the site assessment. Soil samples confirm well drained, sandy soil with low cohesion, which is consistent with observations in the geotechnical study.

Based on the desktop and field assessment results it was concluded that no definable watercourses are present on the site, and therefore the Aquatic Biodiversity sensitivity is Low. This assessment concludes with a Compliance Statement in terms of the DFFE Screening Tool. While no Section 21 c) and i) water uses are applicable, an assessment of the water source and waste disposal should be undertaken to determine whether any water use authorisation would be necessary.

DECLARATION OF SPECIALIST INDEPENDENCE

• 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;

• I declare that there are no circumstances that may compromise my objectivity in performing this specialist investigation. I do not necessarily object to or endorse any proposed developments, but aim to present facts, findings and recommendations based on relevant professional experience and scientific data;

• I do not have any influence over decisions made by the governing authorities;

• I undertake to disclose 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 a competent authority to such a relevant authority and the applicant;

• 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;

• This document and all information contained herein is and will remain the intellectual property of Confluent Environmental. This document, in its entirety or any portion thereof, may not be altered in any manner or form, for any purpose without the specific and written consent of the specialist investigators.

• All the particulars furnished by me in this document are true and correct.

Jackie Dabrowski (Ph.D., Pr.Sci.Nat. *Aquatic Science*)
SACNASP Registration Number 115166
Co-director: Confluent Environmental (Pty) Ltd

Qualifications: BSc, BSc Honours (Entomology), MSc & PhD (Veterinary Science)

Expertise: > 13 years' experience working on aquatic ecosystems across South Africa, with a focus on the Southern Cape in the last 6 years. Includes research and consulting expertise, having published > 10 water-related research articles and compiled > 400 aquatic specialist reports. Research and consulting have been in a range of sectors including agriculture, urban developments, linear structures, renewable energy, conservation, and mining.

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GLOSSARY

Buffer	A strip of land surrounding a wetland or riparian area in which activities are controlled or restricted to reduce the impact of adjacent land uses on the wetland or riparian area. Buffers are land use specific and are calculated for the specific environmental context and proposed land use.
Characteristics of a watercourse	Means the resource quality of watercourse within the extent of a watercourse.
Construction	Means any works undertaken to initiate or establish activities, site preparation including vegetation removal and ground levelling that may result in impeding or diverting or modifying resource quality.
Delineation of a wetland or riparian habitat	Means delineation of wetlands and riparian habitat according to the methodology as contained in the Department of Water Affairs and Forestry, 2008 publication: A Practical Field Procedure for Delineation of Wetlands and Riparian Areas or amended version.
Diverting	Means to, in any manner, cause the instream flow of water to be rerouted temporarily or permanently.
Flow-altering	Means to, in any manner, alter the instream flow route, speed or quantity of water temporarily or permanently.
Impeding	Means to, in any manner, hinder or obstruct the instream flow of water temporarily or permanently.
Regulated area of a watercourse	a) The outer edge of the 1 in 100-year flood line or delineated riparian habitat, whichever is the greatest distance, measured from the middle of the watercourse of a river, spring, natural channel, dams and lakes. b) In the absence of a determined 1 in 100-year flood line or riparian area as contemplated in (a) above the area within 100m of distance from the edge of a watercourse where the edge of the watercourse (excluding floodplains) is the first identifiable annual bank fill flood bench. c) In respect of a wetland: a 500m radius around the delineated boundary (extent) of any wetland (including pans).
Rehabilitation	Means the process of reinstating natural ecological driving forces within part or whole of a degraded watercourse to recover former or desired ecosystem structure, function, biotic composition and associated ecosystem services.
Resource quality	Of a watercourse 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.
Site Assessment	Comprehensive evaluation of the proposed development site, including the identification of wetlands, watercourses, and soil characteristics.
Topography	The physical features of the land surface, considered for its potential influence on drainage and ecological features.
Vadose Zone	Extends from the top of the ground surface to the water table. Also known as the unsaturated zone.

ABBREVIATIONS

CBA:	Critical Biodiversity Area
CD:NGI:	Chief Directorate: National Geo-spatial Information
CR:	Critical Endangered
DFFE:	Department of Environment, Forestry and Fisheries
DWAF:	Department of Water Affairs and Forestry
DWS:	Department of Water & Sanitation
EIS:	Ecological Importance and Sensitivity
ESA:	Ecological Support Area
FEPA:	Freshwater Ecosystem Priority Area
GA:	General Authorisation
GPS:	Global Positioning System
NEMA:	National Environmental Management Act
NFEPA:	National Freshwater Ecosystem Priority Areas
NWA:	National Water Act
NWM5:	National Wetland Map 5
PES:	Present Ecological State
SACNASP:	South African Council for Natural Scientific Professions
SWSA:	Strategic Water Source Areas
WCBSP:	Western Cape Biodiversity Spatial Plan
WUL:	Water Use License

1. INTRODUCTION

Confluent Environmental Pty (Ltd) was appointed by EcoRoute to provide aquatic specialist inputs for the proposed development of two residential dwellings described as a main farmhouse and farm manager's house on Portion 76/216 Uitzicht, Knysna, Western Cape. (Figure 1). The property is approximately 2.2 km West of Brenton on Sea, and South of Knysna. Two alternative layouts have been proposed; the first with a new interconnecting access road between the two dwellings on the property, and the second option using an existing road on the neighbouring property for access with the addition of a short road section to access the southern dwelling.

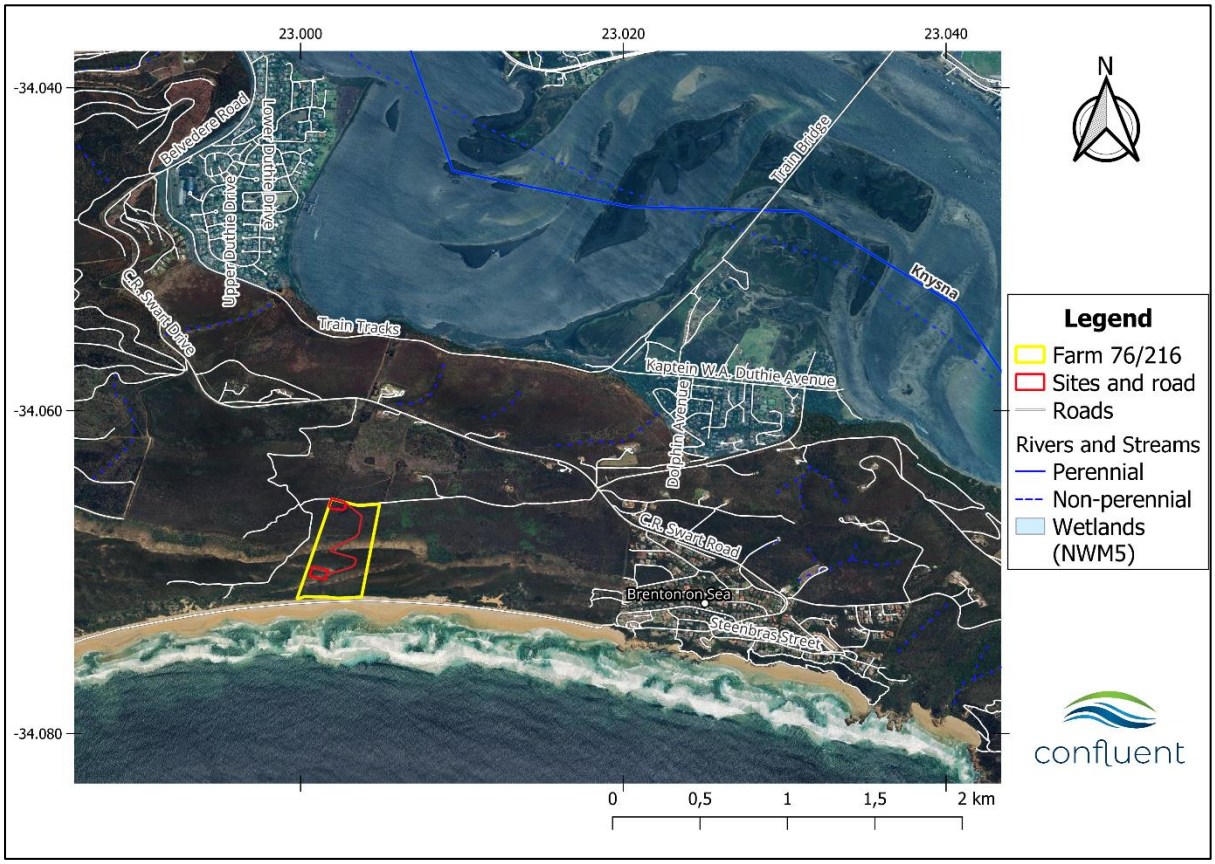

Figure 1. Farm portion 76/216 Uitzicht, Knysna, Western Cape.

1.1 The Proposed Development

The owners propose the development of two residential dwellings on Portion 76/216 Uitzicht Farm. The location of the main farmhouse is near the Southwest corner of the property and two layouts are proposed (Figure 2 and Figure 3). The location of the farm manager house is in the northwest corner of the property and has only one layout (Figure 4). The two houses are either to be connected by a new internal road between both dwellings or access could be via an existing road on the neighbouring property to the west (Portion 39/216). The latter is the preferred alternative as it utilises existing infrastructure as opposed to creating a new additional road.

The main farmhouse will consist of the following interleading rooms:

- Six Bedrooms

- Open plan living area consisting of the kitchen, lounge area, dining area, bar, scullery, bathroom, and wine cellar.
- Open deck and swimming pool.

Only the area of the farm manager's house was available at the time when this report was written and is as follows:

- Ground floor: 600 m^2
- First Floor: 400 m^2

Figure 2: Preferred layout for the main farmhouse.

Figure 3: Alternative layout for the main farmhouse.

Figure 4: Farm manager's house layout

1.2 Key Legislative Requirements

1.2.1 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 **High** aquatic biodiversity. According to the protocol, a site sensitivity verification must be undertaken to confirm the sensitivity of the site as indicated by the screening tool:

1.2.2 DFFE Screening Tool Results

According to the Department of Environment, Forestry and Fisheries (DFFE) screening tool, aquatic biodiversity at the site has a **Very High** sensitivity (Figure 5). The sensitivity features identified about the classification are:

- Freshwater Ecosystem Priority Area (FEPA) Subcatchment
- Strategic Water Source Areas (SWSA) (SW) Outeniqua

The scope of work for this report is guided by the legislative requirements of the National Environmental Management Act (NEMA) and the National Water Act (NWA; Act No 36 of 1998).

Figure 5. Results of the DFFE Screening Tool which indicate Very High Sensitivity of the Aquatic Biodiversity theme for Farm 76/216.

1.2.3 National Water Act

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 the purposes of 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 uses that 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 Scope of Work is informed by requirements for Section 21 (c) and (i) water use authorisation and GN1540 of the NEMA. The objectives of this assessment are to complete a desktop and site assessment to verify the sensitivity of aquatic biodiversity features on the site.

The desktop assessment includes the interrogation of available resources including:

- DWS spatial layers (1:50 000 rivers)
- National Freshwater Ecosystem Priority Areas (NFEPA) spatial layers (Nel *et al.,* 2011)
- National Wetland Map 5 and Confidence Map (CSIR, 2018)
- Western Cape Biodiversity Spatial Plan (WCBSP, 2017).

The site assessment includes the following actions:

- Identification and classification of watercourses within and adjacent to the site according to methods detailed by Ollis *et al*. (2013);
- Determine the watercourse Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) using an appropriate method (if watercourses are present).
- Delineate wetland / riparian areas following methods prescribed by DWAF (2015).
- Determine an appropriate buffer for wetland areas using the site-specific buffer tool developed by Macfarlane and Bredin (2016).

1.4 Assumptions and Limitations

A site visit was conducted in October 2023 which is considered Spring. It is possible that sensitive features such as rare or unique biota (e.g. amphibians), plants or habitat were not observed during the site visit, but are influenced by season, time of day, flow level or vegetation cover. However, recent good rainfall would have meant that any wetland features would have been quite evident and easily identified on the site.

This assessment is limited to the conceptual layout provided in Section 1. If the proposed layout changes in any way, this should be revised to determine the applicability of this assessment as it may change.

2. CATCHMENT CONTEXT

2.1 Catchment features

The development site (Farm 76/216) is in the quaternary catchment K50B in the catchment of the Knysna River/Estuary. However, given the site location it cannot drain north to the Knysna Estuary due to steep slopes in that direction. Any wetlands or drainage lines would be either

endorheic (inward draining) or drain to the sea. No rivers, streams, or wetlands are mapped on the property and there are no mapped streams or wetland in the immediate vicinity of the property. As the rainfall intensity in the area is classified as Very High and the inherent erosion potential of soils as High, erosion of soils and stormwater management are factors which must be carefully considered when developing in this area (Table 1). The mapped soils are very sandy and high rates of drainage. This factor immediately limits the presence of surface water on the site.

Table 1. Summary of relevant catchment features for the proposed development area.

Feature	Description
Quaternary catchment	K50B
Mean Annual Runoff	211.43 mm
Mean Annual Precipitation	769.00 mm
Inherent erosion potential of soils (K-factor)	0.62, High
Soil type	Soils with limited pedological development. Greyish, sandy excessively drained soils
Rainfall intensity	Very High
Ecoregion Level II	20.02, Southeastern coastal belt
Geomorphological Zone	Not applicable
NFEPA area	Sub-quaternary reach 9117, FEPA.
Mapped Vegetation Type	FFd10: Knysna Sand Fynbos, AT36: Goukamma Dune Thicket and AZd3: Cape Seashore Vegetation
Conservation	Ecological Support Area 2, Critical Biodiversity Area 1 (Terrestrial) WCBSP (2017)

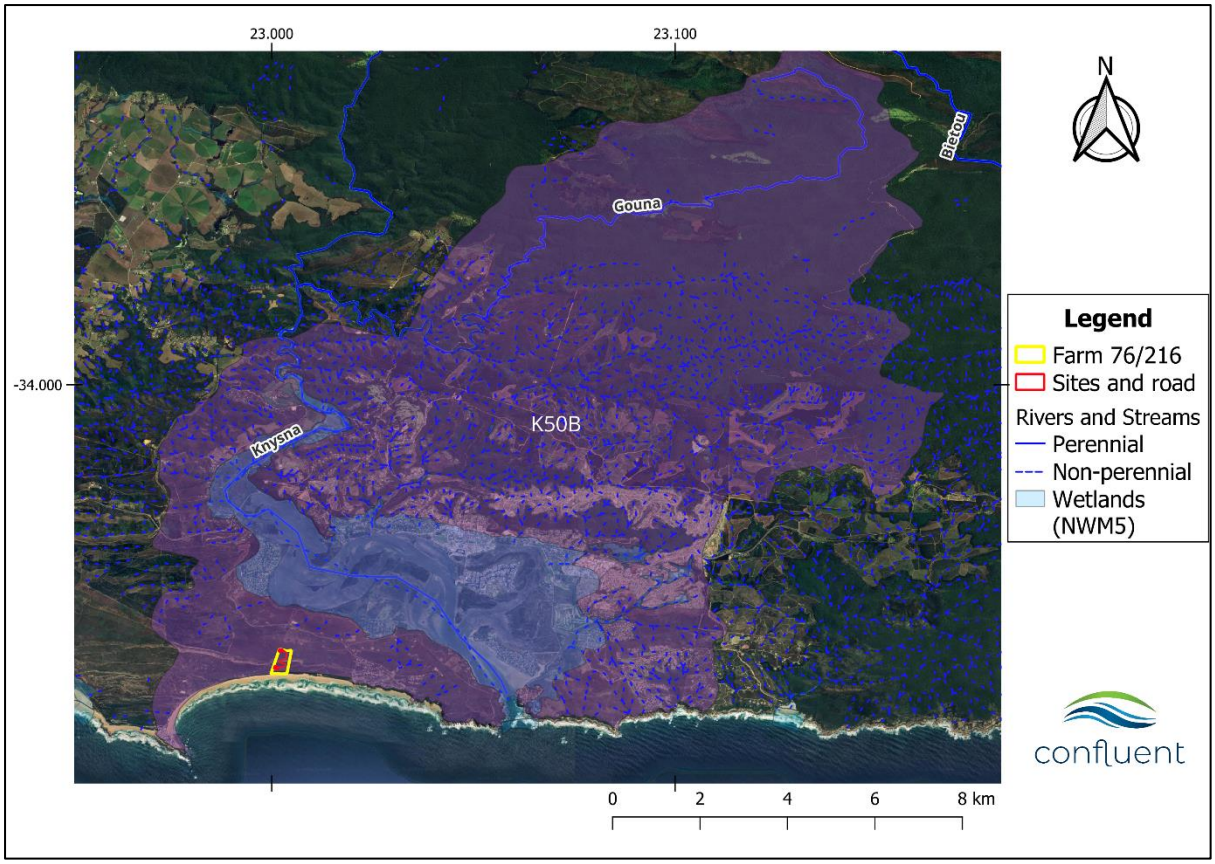

Figure 6. Location of Farm 76/216 in the quaternary catchments K50B.

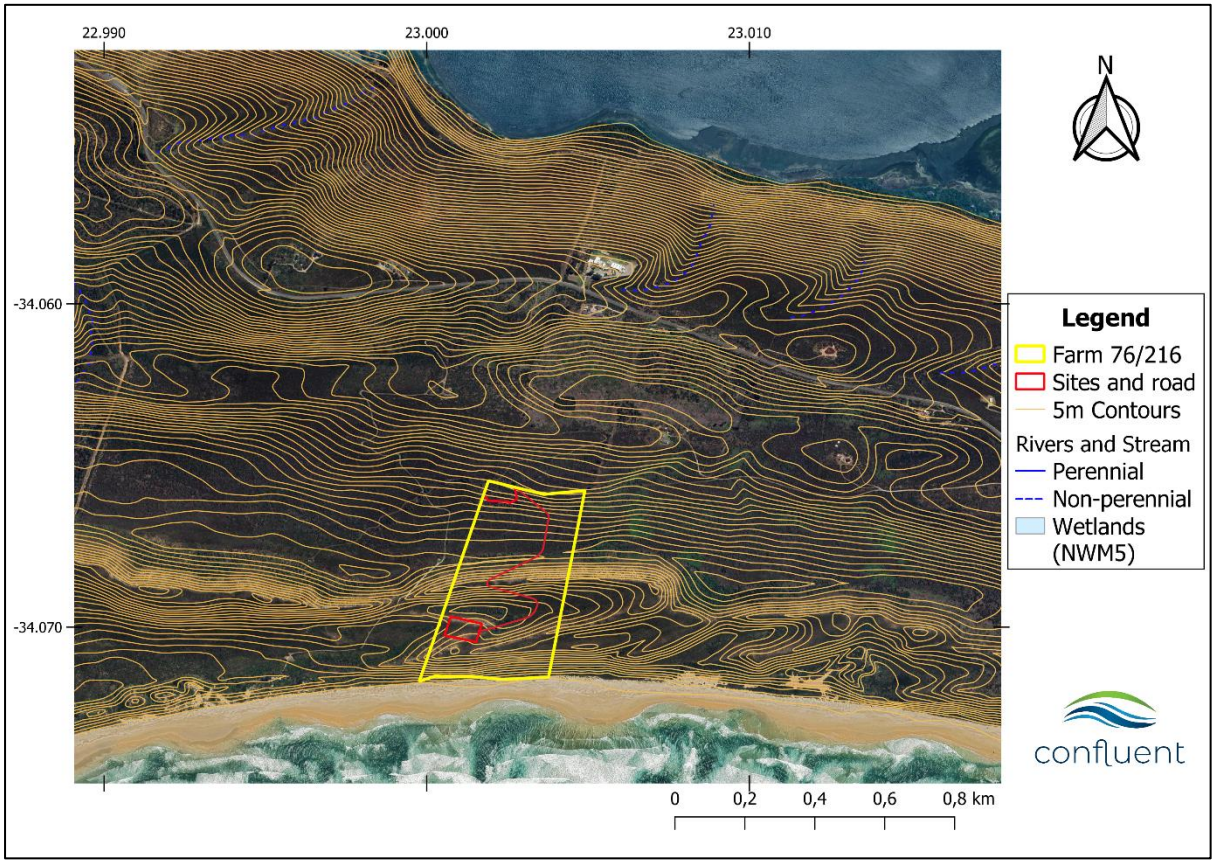

Figure 7: Location of the Farm 76/216 in relation to mapped watercourses.

Rainfall occurs year-round with seasonal peaks in spring and autumn (Figure 8).

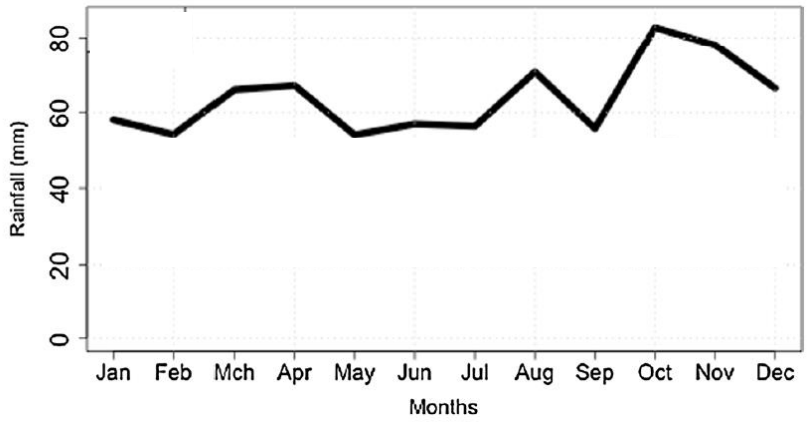

Figure 8. Area-averaged monthly rainfall for the coastal Southern Cape indicating peaks in Mar-Apr, Aug, and Oct. Data averaged between 1979 and 2011 (Engelbrecht et al., 2015).

The project area is located within the southeastern coastal belt (Ecoregion Level 2:20.02). The terrain is described as closed hills of moderate and high relief and moderately undulating plains. Altitude ranges between 0 – 1 300 m.a.m.s.l.

2.2 Vegetation

The mapped vegetation types at the site are Knysna Sand Fynbos (FFd10; Critical Endangered; NVM, 2018), Goukamma Dune Thicket (AT36; Least concern; NVM, 2018) and Cape Seashore Vegetation (AZd3; Least concern; NVM, 2018; Figure 9), where the Knysna Sand Fynbos has been categorised to have very high sensitivity in the screening tool report.

The Knysna Sand Fynbos vegetation type was described and mapped as Endangered in 2006 by Mucina & Rutherford however, in the Revised National List of Threatened Ecosystems (GN 2747 of the NEM:BA, Act No. 10 of 2004) the vegetation type has been classified as Critically Endangered. The main reason for this classification is that a large area of this vegetation type has already been transformed (70%), together with the small distribution range of this vegetation type, covering only part of the Garden Route coastal flats from Wilderness, generally to the north of the system of lakes, several patches around the Knysna Lagoon, with more isolated patches eastwards to the Robberg peninsula near Plettenberg Bay (Figure 9). The Knysna Sand Fynbos vegetation type continues to be under threat as only 5% of this vegetation type is protected in statutory or private nature reserves, and the remaining is still threatened by pine and gum plantations, cultivation, Knysna urban sprawl, (building of roads) and alien vegetation (Rebelo *et al*., 2006).

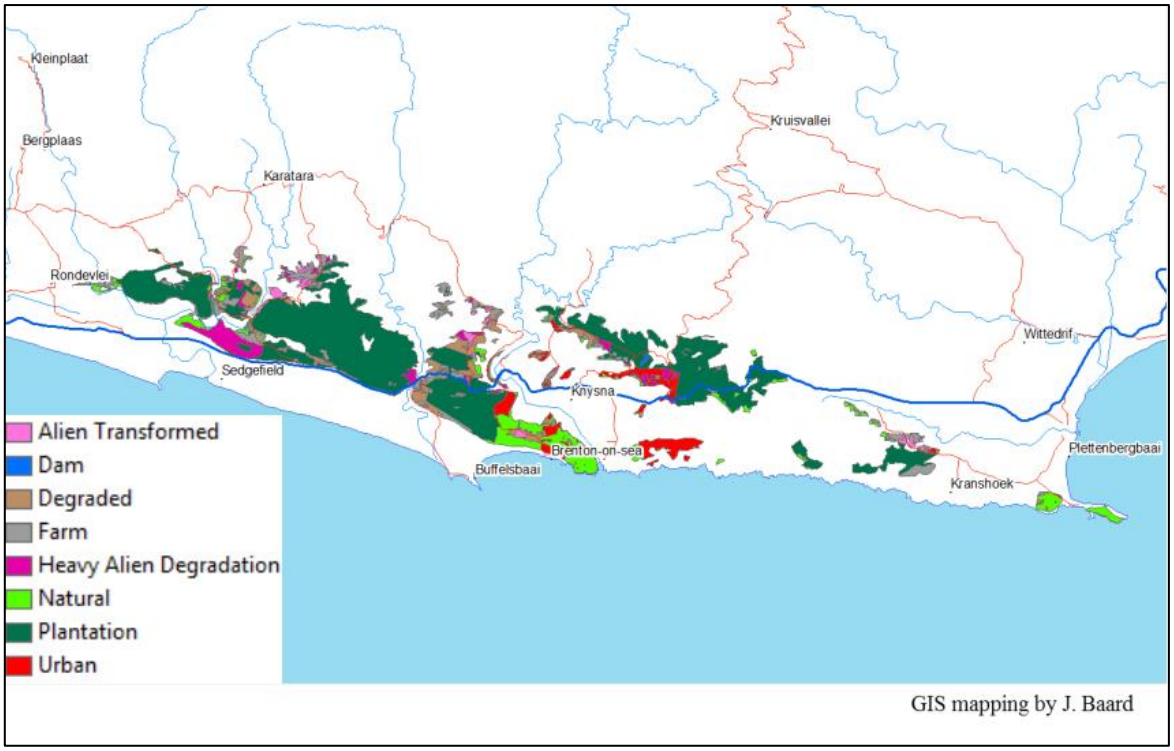

Figure 9: Distribution and transformed classification of the Knysna sand fynbos vegetation type (J. Baard, SANParks).

A detailed botanical specialist assessment is available for the site (Confluent Environmental, Botanical Specialist Assessment 2023).

2.3 Conservation and catchment management

2.3.1 Western Cape Biodiversity Spatial Plan

The Western Cape Biodiversity Spatial Plan (WCBSP; 2017) indicated the following categorised areas on the property and surrounding area; A terrestrial Critical Biodiversity Area 1 (CBA1) along with an Ecological Support Area 2 (ESA2). The main reasons for the categorisation of the area are that; The area is situated within the Knysna Sand Fynbos (CR), the Rondevlei Sandplain Fynbos (Vlok variant- CR), within the Coastal resource protection zone Eden and within two water protection zones that includes, a Water source protection (Knysna) and a Watercourse protection (South Eastern Coastal Belt; Figure 10).

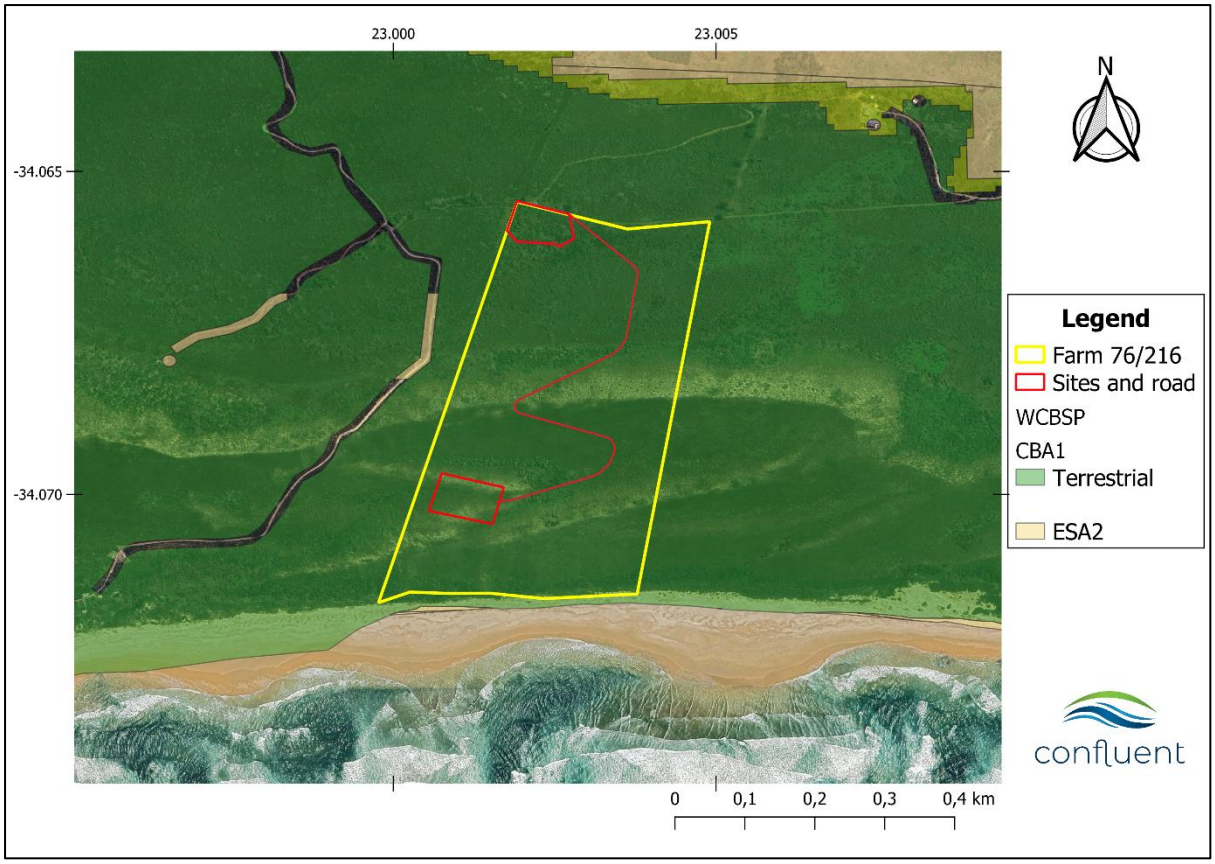

Figure 10. Farm 76/216 in relation to mapped conservation features of the Western Cape Biodiversity Spatial Plan (2017).

Necessary actions in relation to the WCBSP definitions and objectives are to ensure that development on the site does not result in negative impacts on the ecological structure and function of watercourses on or adjacent to the site (Table 2).

Table 2. Definitions and objectives for conservation categories identified in the Western Cape Biodiversity Spatial Plan (WCBSP, 2017).

WCBSP Category	Definition	Management Objective
Critical Biodiversity Area 1 (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.
Ecological Support Area 2 (ESA2)	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 minimize impact on ecological processes and ecological infrastructure functioning, especially soil and water-related services, and to allow for faunal movement.

2.3.2 Strategic Water Source Area

Farm 76/216 is in the Outeniqua Strategic Water Source Area for surface water (SWSA-sw). SWSAs are defined as areas of land that supply a disproportionate (ie. Relatively large)

quantity of mean annual runoff in relation to their size and are therefore considered nationally relevant (Le Maitre *et al*., 2018). A key objective in the management of SWSAs is to ensure the quantity and quality of water within and flowing from SWSAs is protected from developments that cause unacceptable and irreparable impacts.

Development of roads, parking areas and other impervious surfaces, along with wetland draining or infilling has the potential to change quantities of water in watercourses by intercepting, increasing, reducing or diverting flows from their normal path. Water quality can be impacted by flow-related alterations, particularly increased flows as this usually results in altered sediment transport causing scouring, sedimentation, and increased turbidity due to suspended sediments. Especially during the construction phase. The operational phase of urban development increases the risk of toxic hydrocarbons and other road-based pollutants as well as sewage from leaking or blocked drains impacting water quality.

2.3.3 National Freshwater Ecosystem Priority Areas

According to the National Freshwater Ecosystem Priority Atlas (NFEPA; Nel *et al*., 2011) the sub-quaternary reach (SQR 9117) is classified as a Freshwater Ecosystem Priority Areas (FEPA). This entails that any development conducted on Farm 76/216 must strive to do so with the least amount of impact on the environment to maintain the good condition (A or B ecological category) of the river reach.

2.4 Mapped Watercourses

As mentioned above there are no mapped watercourses on the property itself (Figure 7), or within the regulated areas defined by GN 4167 of the National Water Act (Figure 11).

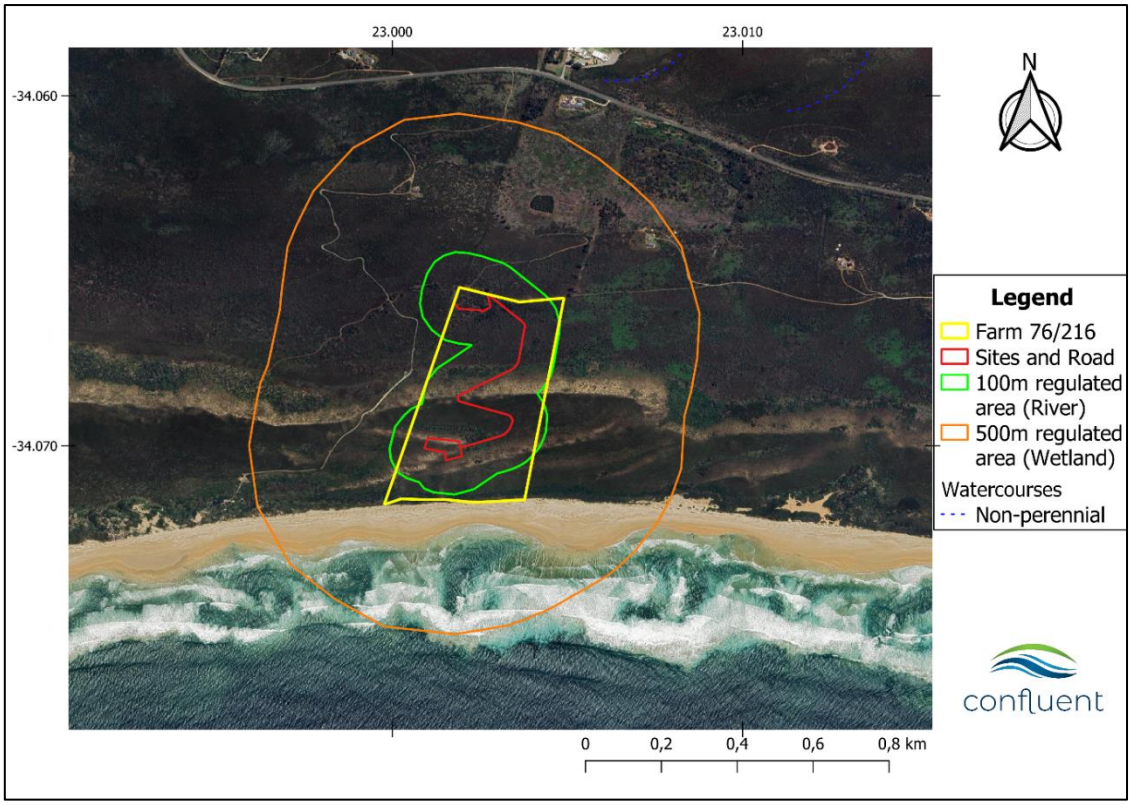

Figure 11: Map indicating no mapped watercourses within 100 m or 500 m from the proposed development site.

Topography at the south end of the property indicates that moist areas or dune slacks may be present on the property. Interdunal wetlands (dune slacks) are depressions between coastal dunes where water naturally accumulates and is periodically or permanently waterlogged (Grootjans *et al*., 2004). Grootjans *et al*., (2004) also state that high biodiversity is present within these dune slacks. Furthermore, distinct zonation of vegetation accompanies dune ecosystems, categorised by the type of dune system present (Mucina *et al*., 2006). The typical zonation of vegetation that was expected on the dunes was a shrub zone on the crests (that was observed during the site visit), transitioning into a shrub-thicket zone on the landward slope (that was observed during the site visit) and transitioning into typical wetland vegetation in the interdunal slacks (that was not observed during the site visit).

2.5 Historical assessment

From 1936 till 2023 no development took place at the proposed development site (Portion 76/216). In between the years 1973 and 1998, a patch of pine trees established in the North-west corner of the farm and was cleared in 2019, but has regrown. In 2018 more than half of the farm Southwards was cleared due to the 2017 Knysna fires (Figure 12). Much of this area has since revegetated with predominantly indigenous vegetation but there are present areas of dense pockets of alien invasive Rooikrans (*Acacia cyclops*).

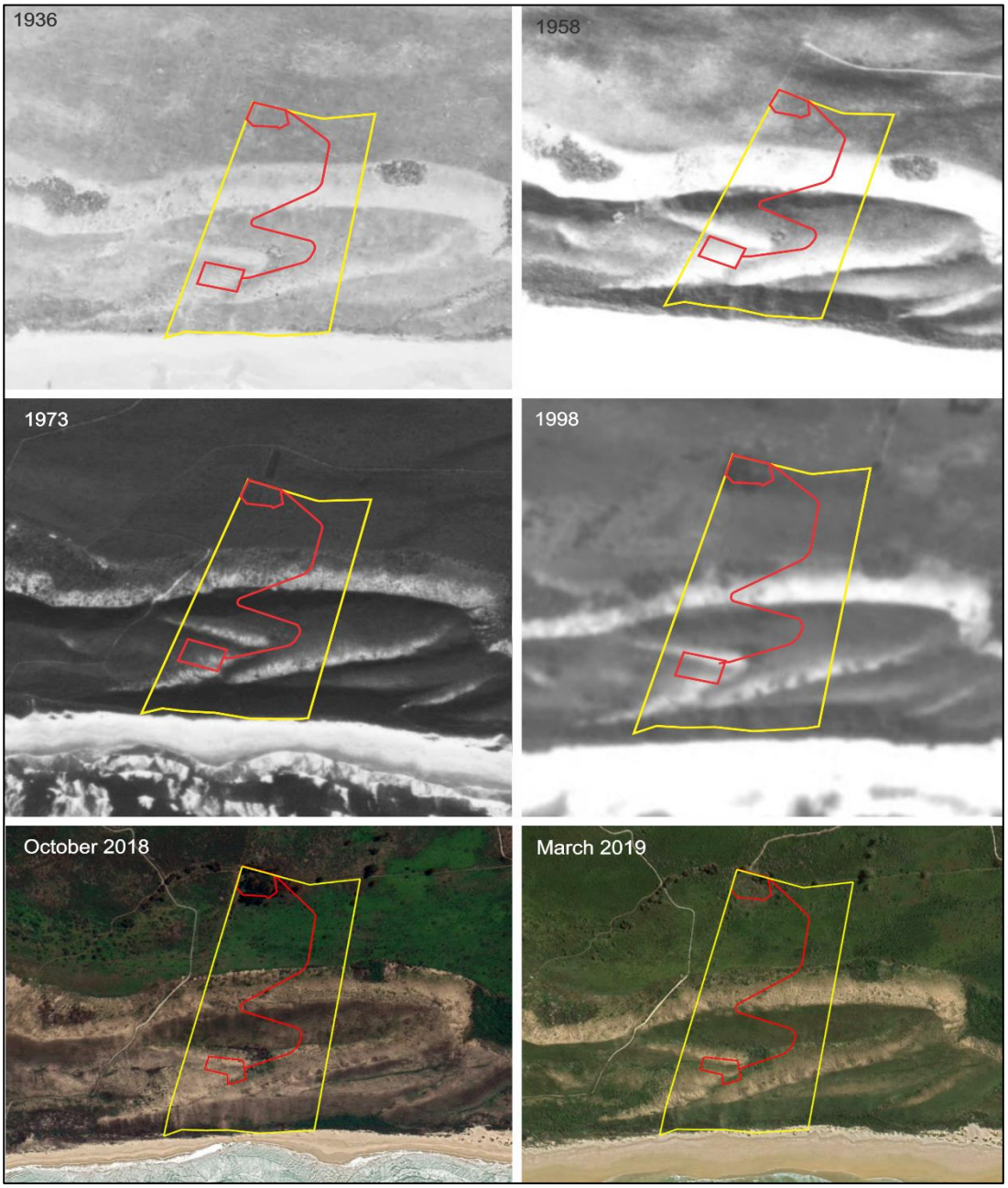

Figure 12. Historical photos showing Farm 76/216 through notable changes between 1939 and 2019 (CD:NGI & Google Earth imagery).

3. SITE ASSESSMENT

3.1 Site visit

The site was visited on 11 October 2023 and again on 5 & 6 December 2023. At the time of both site visits the weather was clear and warm. An extensive area of the site was walked in search of aquatic features with a focus on dune slacks where wetlands could potentially occur (Figure 13). The site visits cover spring and summer from a seasonal aspect. Site access was gained from the existing road on the neighbouring property as well as the existing road along the northern boundary near the first proposed dwelling. The entire area of the proposed

development including locations of the two residential dwellings and the interconnecting road was included in the assessment.

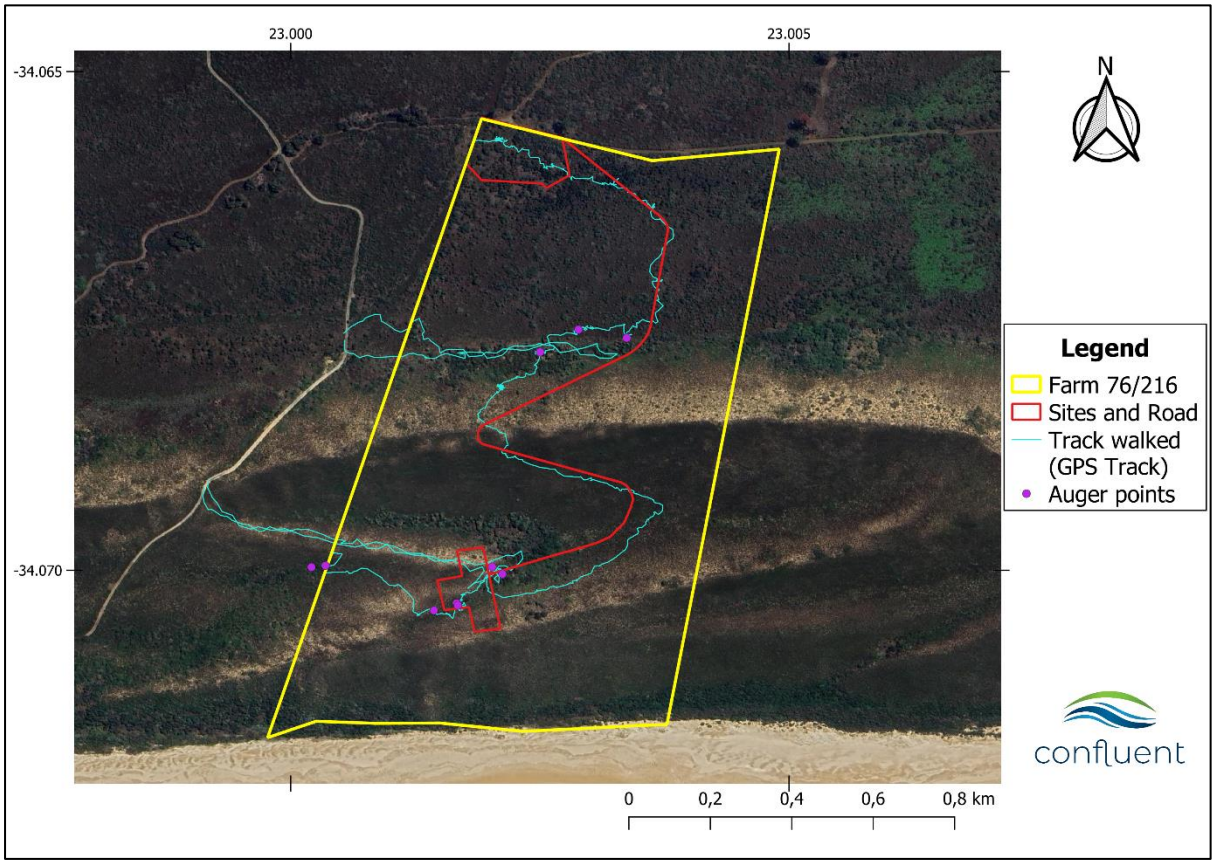

Figure 13: Portion 76/216 with GPS track and auger points.

3.2 Assessment Findings

No watercourses as per definitions provided by the National Water Act were observed on the site. However, this finding is limited to the areas directly assessed as indicated during the site visits (Figure 13). Should the layout change substantially then this report would need to be reviewed for applicability and possibly be updated. The northern section of the property is positioned on a more level area which slopes steeply away to the south. The proposed location of the dwelling at this point has no watercourse features and consists of fynbos invaded by several alien plants dominated by pine and *Eucalyptus*. A typical picture of vegetation at this point is provided in Figure 14.

Figure 14: Typical vegetation in the vicinity of the proposed northern dwelling. Fynbos vegetation

3.2.1 Soil Augering

Soil auger samples were taken on both site visits at several locations in valley bottoms where dune slacks could occur. The locations of soil auger samples is indicated in Figure 13. Soils in all cases were found to be very sandy. No significant mottling or gleying was observed in any of the samples. Higher soil moisture was observable in samples from the more northern of the two valley bottoms near the road footprint than at other points. However, there had been high rainfall for the preceding months prior to the first site visit in October, which is also one of the peak months for rainfall in the area. During site visits in December, the soil could not even be effectively augered as it simply fell out of the bucket and was too dry and well drained to collect samples.

3.2.2 Geotechnical Report Review

A geotechnical report was compiled for the site (Outeniqua Labs, May 2019). Test pits were dug at the proposed location of the two houses and at points along the proposed road. Test pits (TPs) 4 and 7 were located in valley bottoms (See Appendix 1 for map) which coincided with areas where dune slack wetlands could occur. Both test pits were dug to a depth of 2 m at which point no water was found. The soil in the upper 80 cm at TP4 was described as moist, dark red brown, very loose to loose, intact silty fine sand and roots. Soil in the upper 70 cm of TP7 was described as moist, dark red brown, very loose, intact, silty fine sand and roots, transported. Below 80 cm both soil profiles were underlain by light brown cohesionless fine sand. The sidewalls of the test pit collapsed due to the cohesionless nature of the soil, which is what also made soil augering difficult. The geotechnical report concluded that there were no signs of any poorly drained areas or marshy surface conditions. The sands have a high permeability and are well drained, although seasonal seepage or wet surface conditions could occur in natural areas of drainage (ie. Valley bottoms).

Figure 15: Examples of soil auger results from various locations augured on the site.

3.2.3 Vegetation

While no vegetation strictly associated with wetlands was observed anywhere on the site, the two valley bottom areas had patches of plant species associated with moist, sandy soil conditions. These included Cogon grass (*Imperata cylindrica),* Fume everlasting (*Helichrysum cymosum*) and isolated plants of Stream chiron (*Chironia melampyrifolia;* Figure 16 *&* Figure 17). Both *I. cylindrica* and *C. melamphyrifolia* are known from damp, moist, sandy habitats and could be present in a wetland in sandy conditions. Imperata cylindrica is known as an indicator of the transitional zone between wetlands and terrestrial zones, indicating the outer most limits of a wetland (van Ginkel & Cilliers, 2020). *Helichrysum cymosum* was generally widespread in the valley bottom and can occur on a range of soils with a general preference for damp areas. However, the isolated nature of their occurrence between more dominant non-wetland plants in this instance is more indicative of periodic moist conditions as opposed to a definable wetland feature.

Figure 16. Plants often associated with moist to wet areas in sandy areas, although H. cymosum occurs on a range of soil types.

Figure 17. Typical vegetation in the valley bottom between dunes at the site. This location was close to the proposed access road route.

Dominant terrestrial plants in the valley bottoms included Sprawling snake thistle (*Cullumia decurrens*), Silver everlasting (*Helichrysum petiolare*), Sunshine conebush (*Leucadendron salignum*), and Thatching reed (*Thamnochortus insignis*). Large shrubs / small trees included the coastal camphorbush (*Tarchonanthus littoralis*), and Current rhus (*Searsia tormentosa*).

These plants were interspersed throughout the valley-bottom, co-occurring with plants identified in Figure 16.

4. COMPLIANCE STATEMENT

In terms of the NWA, the proposed development area does not fall inside of the regulated area of any watercourses (i.e. within 100 m from a river/stream or 500 m from a wetland). Therefore, no Section 21 c) or i) water uses are identified. There could however be the requirement for a water use authorisation if any boreholes form part of the water supply services, and/or for the manner in which waste is discharged.

The Site Sensitivity Verification for Portion 76/216 is determined to be **Low** for Aquatic Biodiversity, in contrast to the Very High sensitivity reported by the DFFE screening tool. The screening tool identifies two features which lead to the sensitivity rating, namely:

- Freshwater Ecosystem Priority Area (FEPA) Subcatchment
- Strategic Water Source Areas (SWSA) (SW) Outeniqua

For either the FEPA or the SWSA to be affected by any proposed development at the site there would need to be a watercourse present, which there is not. The development will not impact on a watercourse and is not located proximal to any watercourse.

5. RECOMMENDATIONS

The existing access road on the neighbouring property to the west (39/216 Uitzicht) would be the preferred means of access to any dwelling located to the south of 76/216. This is to avoid duplication of impacts such as reduced habitat connectivity, fragmentation and edge effects.

6. APPENDICES

6.1 Location of Test Pits in Geotechnical Report

7. REFERENCES

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