Proposed Development of a Residential Dwelling on Portion 32 of Farm Misgunst aan de Gouritz Rivier No. 257, Mossel Bay, Western Cape.

Aquatic Compliance Statement

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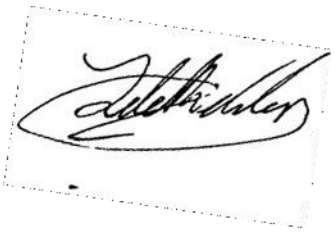
Date: February 2026
Version: Final

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.



Specialist: Mr. Franco de Ridder (MSc., Candidate Natural Scientist. (Aquatic Science – 166398)

Date: February 2026

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1. INTRODUCTION

Confluent Environmental was appointed by Mr C. Lundall to provide aquatic specialist inputs for the proposed development of a residential dwelling on Portion 32 of Farm Misgunst aan de Gouritz 257 (the property), Vleesbaai, Mossel Bay Local Municipality. The proposed development area is located approximately 1 km southeast of Vleesbaai and approximately 5.2 km southeast of a private road, referred to as P1532 (Figure 1). The proposed residential dwelling is planned not to exceed 1 150 m². 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).

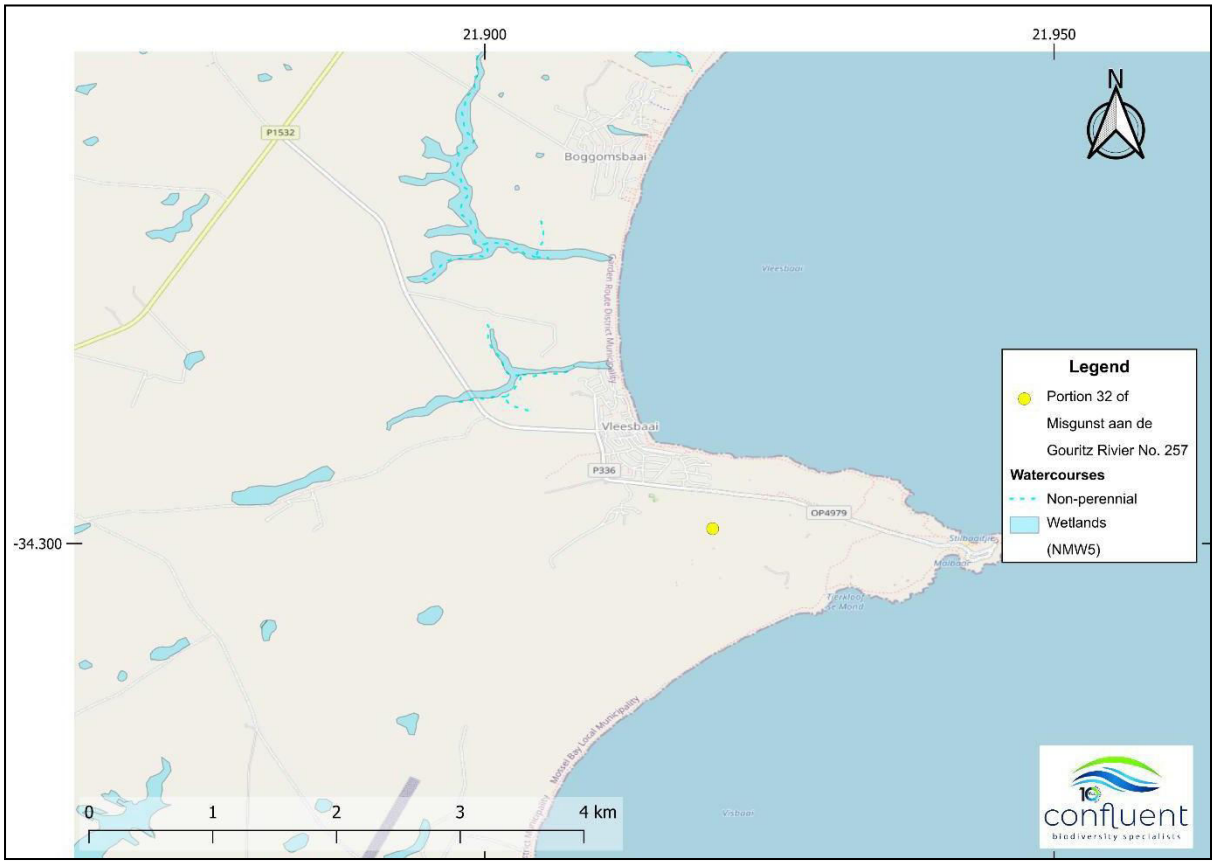

Figure 1: Location of Portion 32 of Farm 257, Vleesbaai, Mossel Bay, Western Cape.

1.1 National Environmental Management Act

According to the protocols specified in GN 320 (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 (Figure 2), as it occurs in a Freshwater Ecosystem Priority Area (FEPA). According to the protocol, a site sensitivity verification must be undertaken to confirm the sensitivity of the site as indicated by the screening tool.

Figure 2: *Results of the DFFE Screening Tool, which indicate Very High Sensitivity for the Aquatic Biodiversity theme for Portion 32 of Farm 257.*

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 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 authorisation (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 4167 of 2023) 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 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 Mossel Bay (CapeNature, 2023).
- 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 Primary Catchment K area and in quaternary catchment **K10A** (Figure 3). According to geospatial data sources, no watercourses are present adjacent to or within the boundary of the property (Figure 4). The 0.5 m contours indicate a valley in the centre of the property. The latter is an area where a natural watercourse would be expected to occur on the basis of the desktop assessment only (Figure 4). A terrestrial CBA 1 (Critical Biodiversity Area 1) has been included in the Western Cape Biodiversity Spatial Plan (WCBSP) covering the whole property, with a few small areas mapped as a terrestrial CBA 2 (Figure 5). The property also falls within a Freshwater Ecosystem Priority Area (FEPA) associated with the sub-quaternary reach number 9292.

Note that terrestrial sensitivity of the site is assessed by terrestrial, botanical, and faunal specialists (B. Fouche and K. Daniels of Confluent Environmental) who will address the location and sensitivity of the terrestrial CBA1 on this property.

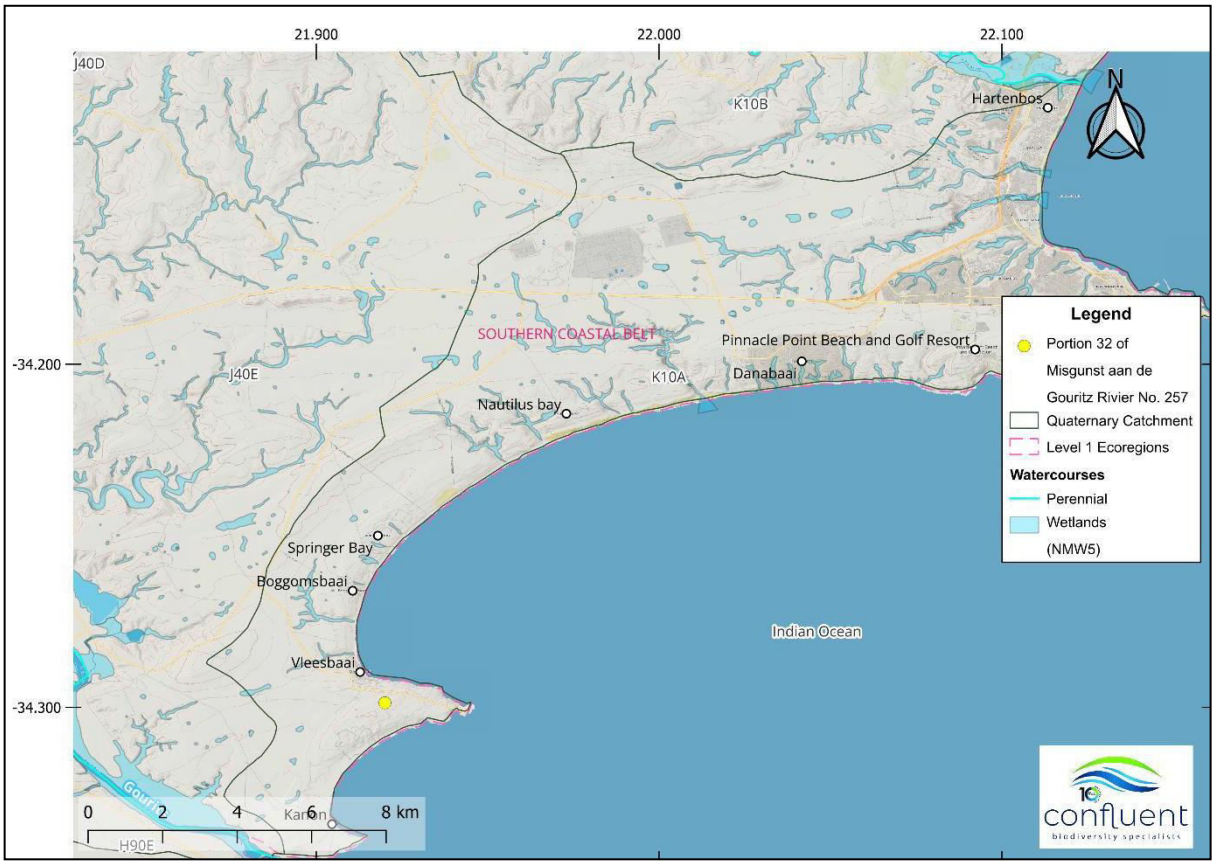

Figure 3: Map of the development area relative to the quaternary catchment area.

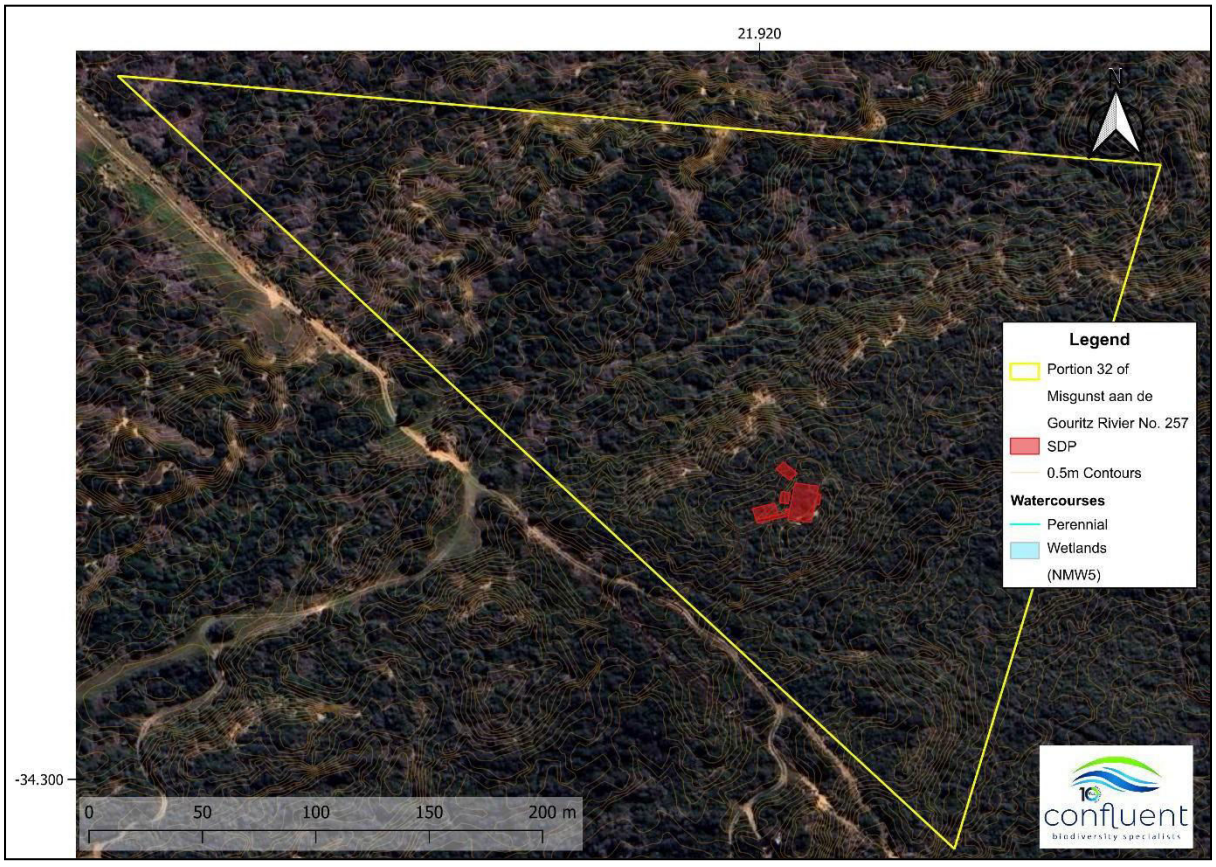

Figure 4: Location of the indicative Site Development Plan (SDP) in relation to mapped watercourses.

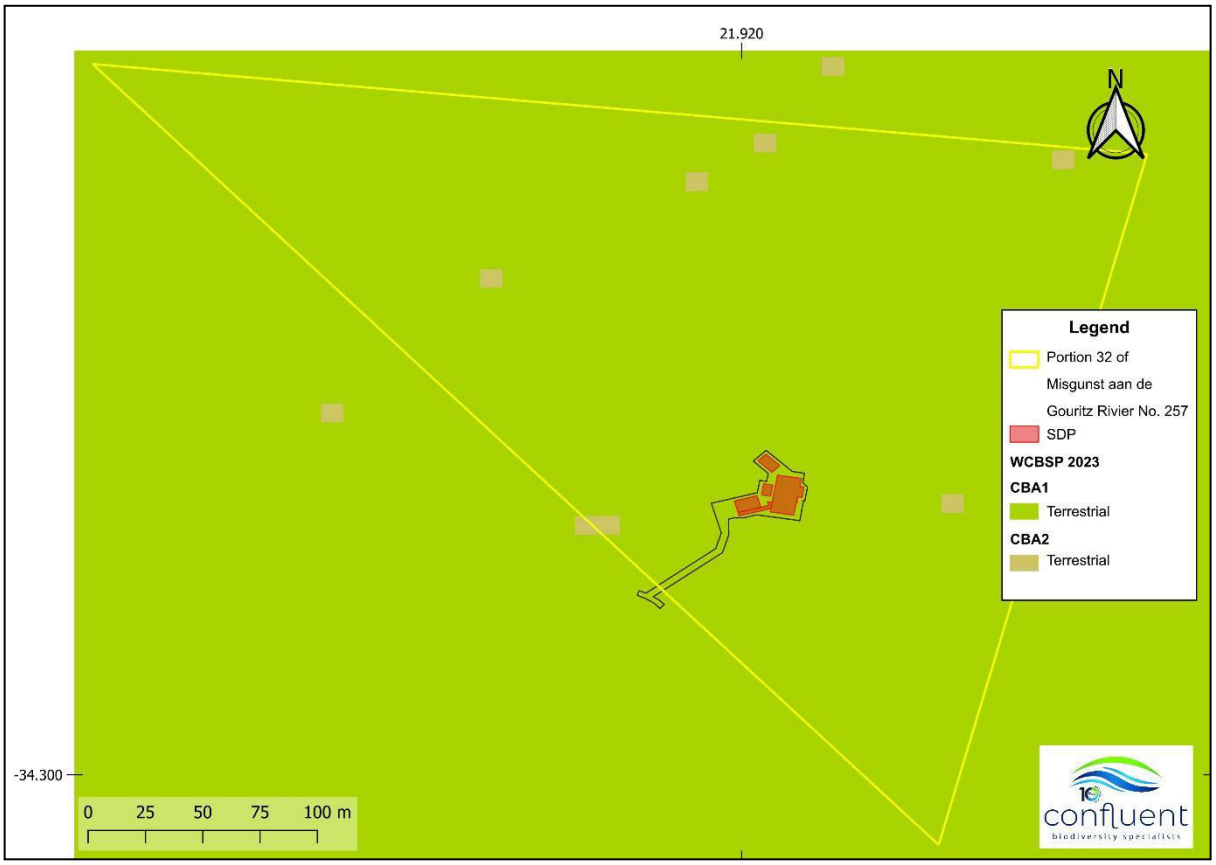

Figure 5: Map of the indicative development area in relation to the Western Cape Biodiversity Spatial Plan (WCBSP, 2023).

5. SITE DEVELOPMENT PLAN

The landowner of Portion 32/257 Misgunst Aan De Gouritz Rivier proposes the development of a single residential dwelling with an associated driveway/access road. The property is 8.56 ha in extent, while the proposed footprint of disturbance associated with the house and access road is indicated as 1 500 sqm according to the Site Development Plan (Figure 6). This includes an area of existing disturbance of around 200 sqm. The proposed driveway will connect to an existing gravel access road and will measure 3.5m wide, leading to a garage for vehicles. The garage area is 93 sqm, while the house measures around 170 sqm and would be elevated on pilings/poles. Space has been set aside for 20 000L water tanks for rainwater harvesting, and wastewater would be discharged to a small sewage package plant with an associated artificial wetland area. Specifications of the proposed Calcamite package plant are provided in Appendix 1.

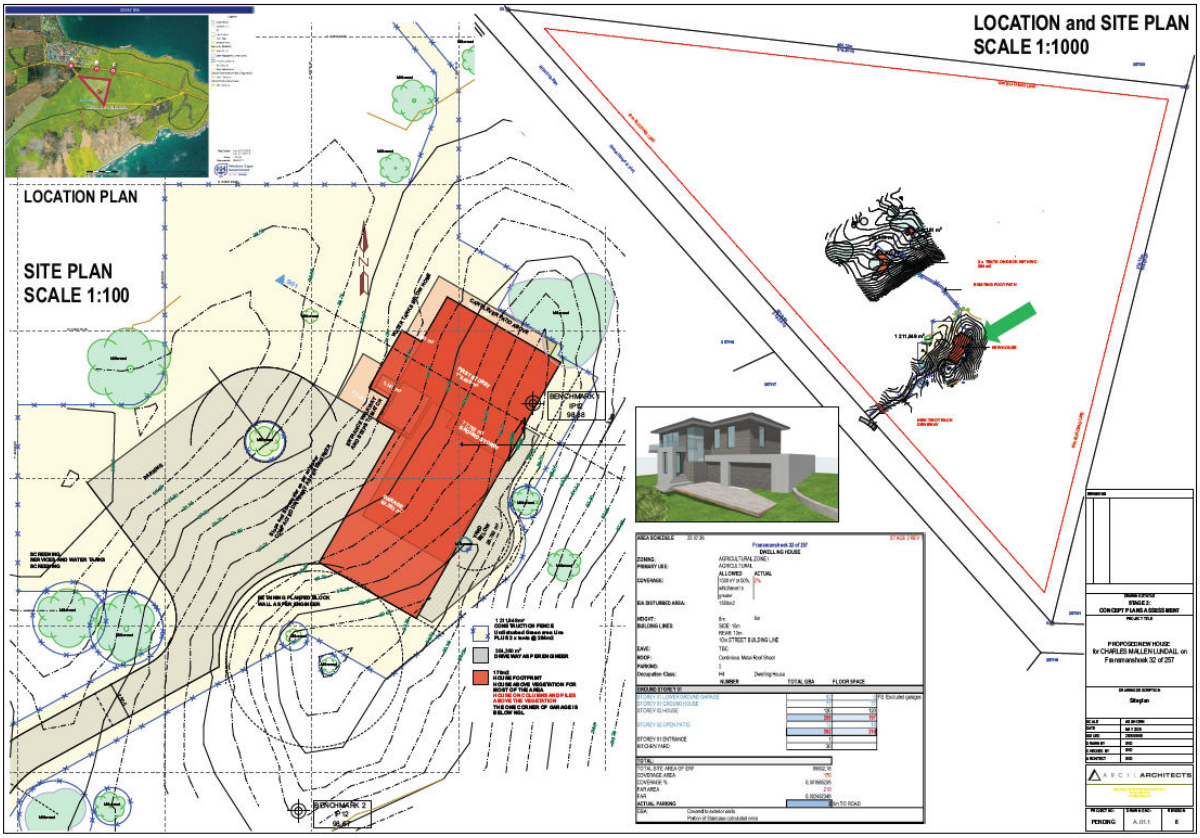

Figure 6: Site Development Plan for the single residential dwelling on Portion 32/257 Misgunst Aan De Gouritz Rivier.

6. SITE VISIT

The site visit was conducted on the 13th of February 2026, during which time the entire extent of the proposed development footprint was traversed on foot. The weather during the site visit was overcast with intermittent light rain. The terrain of the property is moderately undulating dunes, with a valley in which a gravel road is constructed near the centre of the site. The valley is a geomorphological feature only and does not exhibit hydrological or wetland indicators.

The soil on the property is very sandy, consistent with the dunes on the property and the surrounding area (Figure 7 A). The vegetation on the property can be described as Hartenbos Dune Thicket, dominated by *Olea exasperata* (Dune Olive) and *Searsia* species with a noticeable amount of *Sideroxylon inerme* (White Milkwood; Figure 7 B). Within the remainder of the property towards the north, an increase in *Acacia cyclops* (rooikrans) was observed with very dense patches between the more natural, indigenous vegetation (Figure 7 E).

No natural hydrological landscape features (depressions, confined valleys, channels etc.) indicating the presence of a definable watercourse (i.e. stream, river or wetland) are present within or near the property. Furthermore, no aquatic or water-loving plants are present on the property.

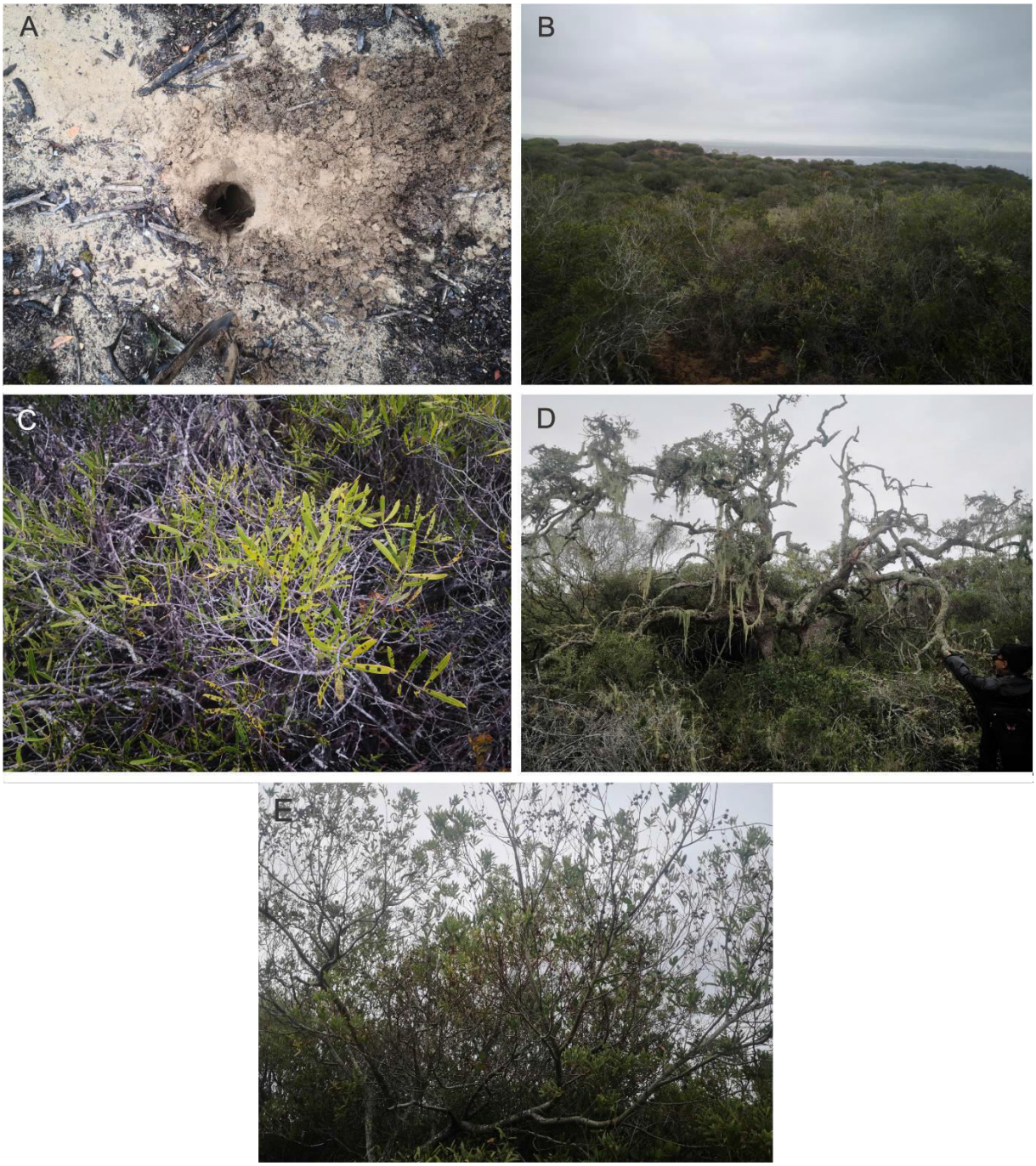

Figure 7: Photographs taken during the site visit, including very sandy soil on the property (A), the relatively natural vegetation on the properties (B), dominant Olea exasperata (Dune Olive; C), a large Sideroxylon inerme (White Milkwood; D), and Acacia cyclops (rooikrans) present more in the northern part of the property (E).

7. AQUATIC BIODIVERSITY COMPLIANCE STATEMENT

Information obtained from the desktop study and observations made during the site visit indicated that the sensitivity of aquatic biodiversity is **Low,** as no watercourses are present on the property. As the development falls outside the regulated area of any watercourses, it is highly unlikely that any development within the property will have a negative effect on the water quality of the sub-quaternary catchment, thus having no effect on the FEPA in which the property is situated. In terms of legislation pertaining to the NWA, the development falls

outside of the regulated area of any watercourses (Figure 8) and will therefore not require any water use authorisation in terms of **Section 21 (c) and (i)** of the NWA

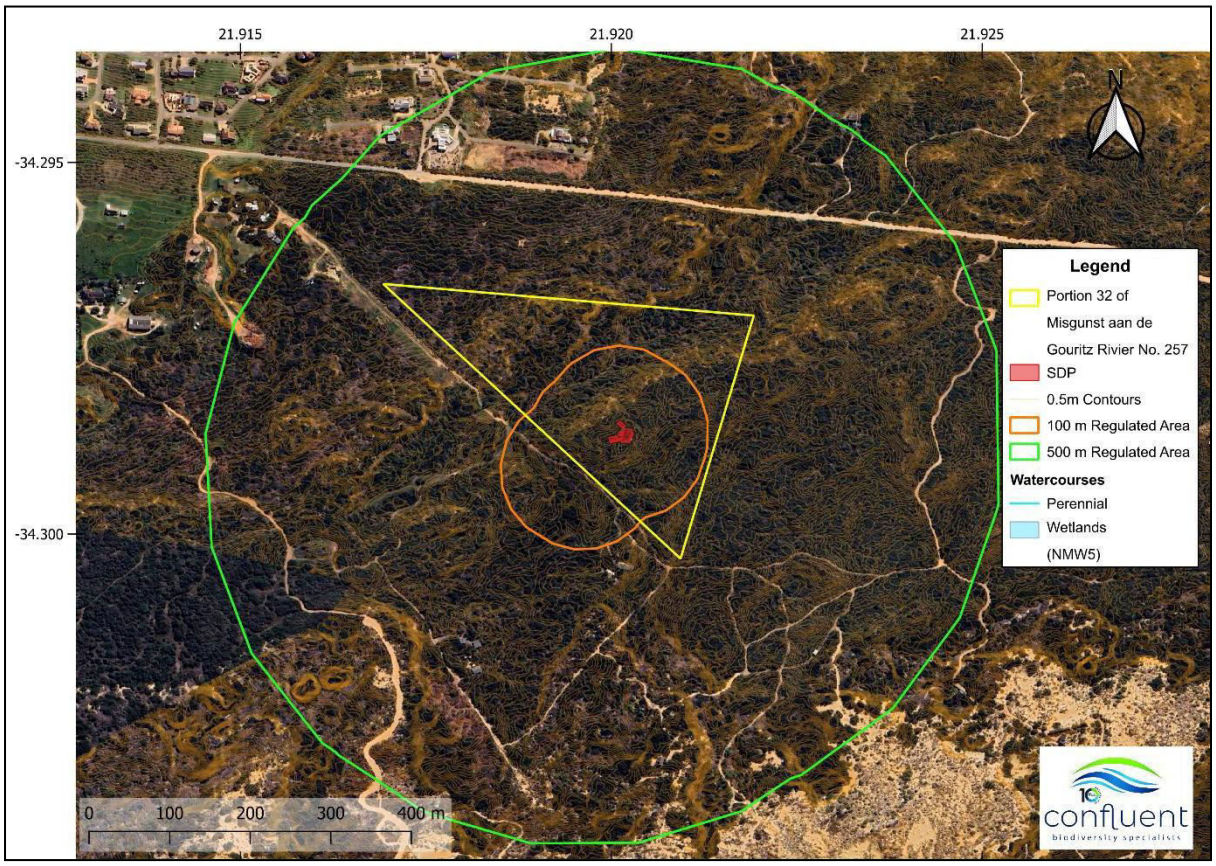

Figure 8: Map indicating the 100 m and 500 m regulated areas relative to the properties.

8. MANAGEMENT RECOMMENDATIONS

8.1 Erosion Management

The slopes leading down from the development footprint are highly likely to be vulnerable to erosion during the 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 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 (Figure 9).

Figure 9: Examples of silt fences (left) and coir logs (right) used to trap sediment mobilised from steep slopes.

- 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. Utilise plant species recommended in the botanical specialist assessment.
- 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.

8.2 Stormwater Management

A key impact related to the development is an increase in the volume of stormwater associated with an increased area of impermeable surfaces created by the development.

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: (City of Cape Town stormwater management plan).

- Rainwater harvesting tanks must be installed where possible;
- 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;
- Use of permeable paving to encourage infiltration into the soil, and
- Use of retention ponds and artificial wetlands to capture stormwater runoff, prevent its discharge from the site and attenuate pollutants.

9. REFERENCES

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APPENDIX 1: CALCAMITE PACKAGE PLANT EFFLUENT PARAMETERS

1. DESIGN PARAMETERS

2.1 CRITICAL OPERATIONAL REQUIREMENTS FOR WASTEWATER TREATMENT PLANTS

Please note that for Calcamite wastewater treatment plants to effectively treat domestic effluent, the following requirements are important:

- All kitchens must be fitted with correctly sized, operational, and well-maintained grease and fat traps.
- Non-biodegradable material (plastics, metal, composites, personal sanitary items, and grit) entering the system must be kept to a practical minimum. This is often about educating users.
- Likewise harsh chemicals and disinfectants that kill bacteria should not be used in the system. Instead, bio-friendly cleaners and disinfectants need to be used. Calcamite has a range of appropriate products that can be supplied if required.
- The primary treatment (septic) tank, if not supplied by Calcamite, must have a minimum hydraulic retention time of 24 hours.

Please note that failure to comply with the above stipulations will certainly increase the maintenance requirements of your system and in severe cases, it could result in process performance failure that can result in non-compliant final effluent quality and the generation of offensive odors. Refer to the operations and maintenance manual, which will be provided.

Influent Parameters	
Average Daily Flow (ADWF)	8m^3/day
Peak Flow factor	4.5
Peak Daily Flow (PDWF)	1.5m^3/hour
Chemical Oxygen Demand (COD)	600 mg/ℓ

Bio-Chemical Oxygen Demand (BOD)	300 mg/ℓ
Total Suspended Solids	300 mg/ℓ
Ammonia (NH_3-N)	40 mg/ℓ
Phosphate (P)	10 mg/ℓ
Fats, oil, and grease	10 mg/ℓ
pH value	6.8 to 7.8
TKN/COD ratio	<0.1

2. TREATED EFFLUENT PARAMETERS

The plant provided it is operated and maintained within the above design parameters are designed to meet the following effluent parameters

Estimated Effluent Parameter	Discharge limits
pH - Value @ 25 °C	5.5 to 9.5
Electrical Conductivity in mS/m @ 25°C	<200
Suspended Solids in mg/ℓ	<25
Chemical Oxygen Demand in mgO/ℓ	<75
Free and Saline Ammonia in mgN/ℓ	<6
Total Nitrate in mgN/ℓ	<30
Ortho Phosphate in mgP/ℓ	<10
Faecal Coliform Bacteria counts per 100 mℓ	<1000

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TERTIARY EDUCATION

2012-2014: Ph.D. Veterinary Science: University of Pretoria

2010-2011: M.Sc. (*Cum laude*): Veterinary Science, University of Pretoria

2009: B.Sc. Honours (*Cum laude*): Entomology, University of Pretoria

2006-2008: B.Sc. in Biological Sciences: University of Canterbury, New Zealand

EMPLOYMENT RECORD

Present: **Confluent Environmental (Pty) Ltd. - Co-Director:** Established the company Confluent Environmental with the purpose of providing biodiversity consulting and research services to the agricultural, industrial, mining, tourism and private sectors in South Africa and the rest of Africa, including conducting specialist aquatic and water resource studies for environmental assessments as required by national and international legislation.

2014-2016: **CSIR (Natural Resources and Environment) – Senior Researcher:** Responsible for attracting funding, mentoring junior staff, and conducting research in the fields of water quality and drought, aquatic ecosystem health, fish health and aquatic food webs.

2012-2013: **CSIR (Natural Resources and Environment) – Ph.D. Researcher (Professional Development Programme):** Joined the Water Ecosystems and Human Health group as a Ph.D. student and intern basis. Contributed to project proposals, publications, field work and laboratory experiments.

KEY AREAS OF EXPERTISE

- Aquatic food webs;
- Aquatic specialist studies for environmental authorisations;
- Aquatic ecology;
- Wetland delineations and assessment;
- Biodiversity of ephemeral wetlands in arid climates;
- Dairy sector best practice for aquatic ecosystems;
- Drought and water quality;
- Eutrophication;
- Fish kill investigations;

- Land rehabilitation with dung beetles;
- Macroinvertebrate diversity;
- Water use registrations as required by the National Water Act.

PROFESSIONAL ASSOCIATIONS & OTHER QUALIFICATIONS

Research Affiliations

- Research Associate: Sustainability Research Unit, Nelson Mandela Metropolitan University

Professional Societies

- South African Council for Natural Scientific Professionals (SACNASP)
- South African Society for Aquatic Scientists (SASAqS)

RELEVANT TRAINING

- 2024 River and stormwater hydraulics short course, Stellenbosch University
- 2019 Wetland delineation training presented by SANBI to the Western Cape Wetlands Forum.
- 2013 Wetland rehabilitation (WETRehab) training presented by Piet-Louis Grundling.
- 2012 SASS5 rapid biomonitoring training and assessment with Rob Palmer.

SELECTED PROJECT EXPERIENCE

- **Development of a Biodiversity Offset Framework Plan for Aalwyndal, Mossel Bay** *(Project Leader and Biodiversity Specialist).* Revision of the precinct plan, conservation management plan, selection of offset sites and management arrangements for offset sites. *Client: Western Cape Government: Department of Economic Development and Tourism (2024-2025).*
- **Best practice guidelines for improved wetland and river management on dairy farms through the implementation of sector-specific buffer zones and wetland enhancement** *(Project Leader)* Developed guidelines to support improved sustainability of the dairy sector using buffer zones and enhanced wetlands. *Client: Milk SA (2020-2023).*
- **Development of a Maintenance Management Plan for the Bigai River, Knysna** (Appointed specialist)**.** Compiled a maintenance management plan for submission to regulating authorities aimed at addressing severe flooding in the Bigai River area of Knysna. *Client: Knysna Municipality* (2023).
- **Aquatic Impact Assessment for the Construction of the Western Bypass Freeway in George** (Appointed specialist). Compiled an impact assessment for a 12 km new freeway between the George Airport and Outeniqua Pass with multiple watercourse crossings. *Client: Kantey & Templar (2023).*
- **Development of a Reservoir Management Plan for Swakoppoort Dam (Namibia)** (*Lead Scientist)* Recommendation of remediation measures and the development of a catchment management plan to control eutrophication in a critical water supply dam in Namibia. *Client: NamWater (2019-2021).*
- **Rapid Reserve Determination for the Huis River, Karatara** (Appointed specialist). Determined the ecological reserve for the Huis River. *Client: Lancewood Farm (2019).*
- **Restoration Plan, cyanide non-compliance at New Liberty Gold Mine, Liberia** (Appointed specialist). Reported on the transport and fate of a large cyanide spill from human and ecosystem health perspective. *Client: New Liberty Gold Mine (2018).*
- Extensive experience in **> 450 projects** since 2016 conducting specialist aquatic ecology, rehabilitation, and biomonitoring studies for environmental and water use authorisation projects throughout South Africa with a core focus on the Southern Cape (a comprehensive list can be provided upon request).

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[1] Brown is my maiden name.