Aquatic Biodiversity Screening: Wetland Confirmation

Portion 91 of the Farm Potteberg Estates No. 516, Swellendam

For: PHS Consulting

May 2026

Project Reference: Portion 91 of the Farm Potteberg Estates No. 516, Swellendam (DEA&DP Ref: 16/3/3/6/2/E3/10/1489/25)

Date: 5 March 2026

Introduction and Scope of Work

This letter provides the findings of the aquatic screening and Site Sensitivity Verification (SSV) conducted for the proposed Set Back Line (SBL) for the expansion of the existing farmhouse and road upgrade on Portion 91 of Farm 516, Swellendam (**Figure 1-1** and **Figure 1-2**). The primary objective was to verify the "Very High" aquatic biodiversity sensitivity rating identified by the National Department of Forestry, Fisheries, and the Environment (DFFE) Web-Based Environmental Screening Tool.

The screening focused on the development footprint, which involves adding two small residential units to the existing house envelope along with a parking area, and a "like-for-like" upgrade of an existing road section. The scope included confirming whether these activities are located within a mapped National Wetland Map Version 5 (NWM5) floodplain wetland and verify the location of onsite watercourses.

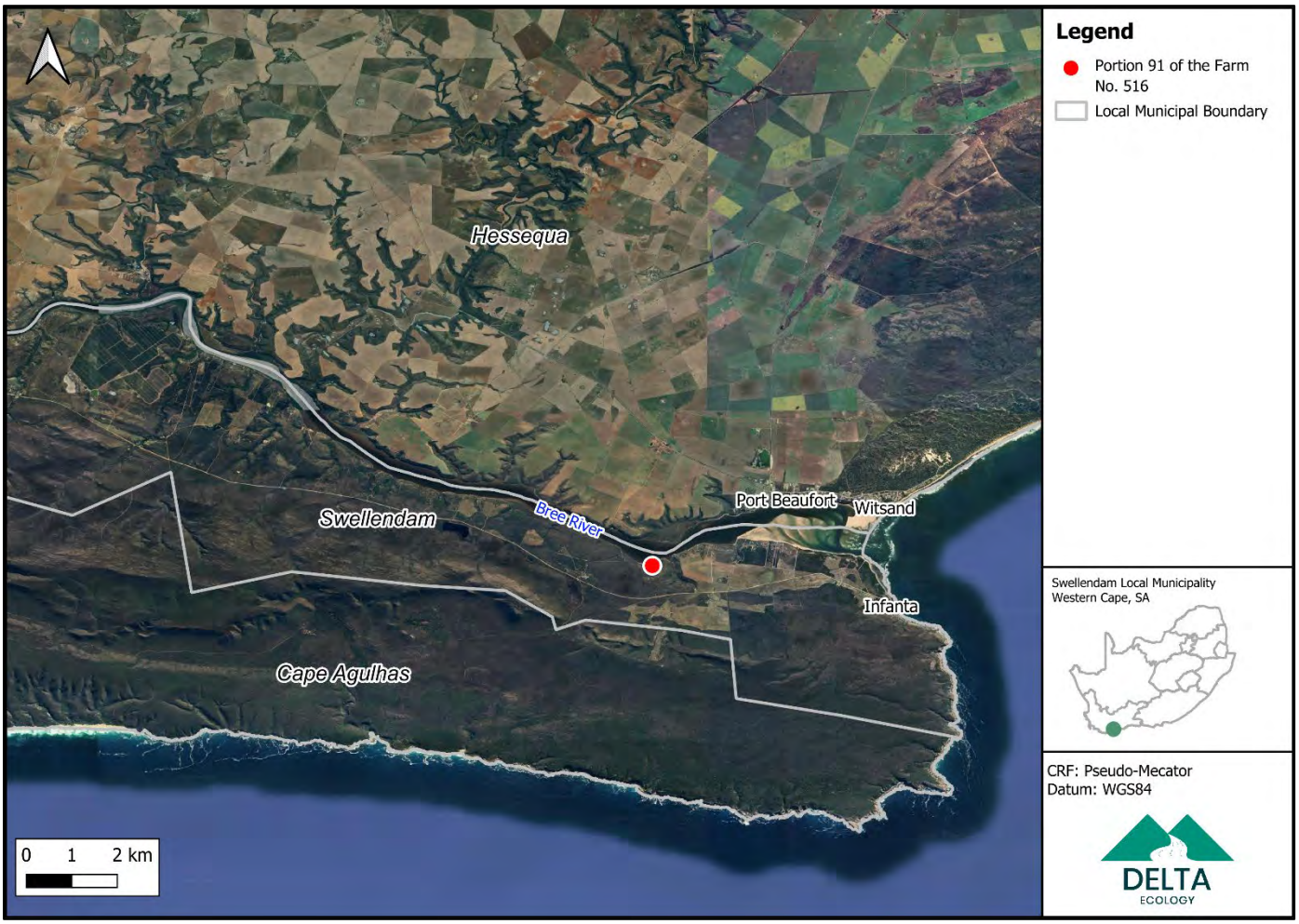

Figure 1: Location of the site.

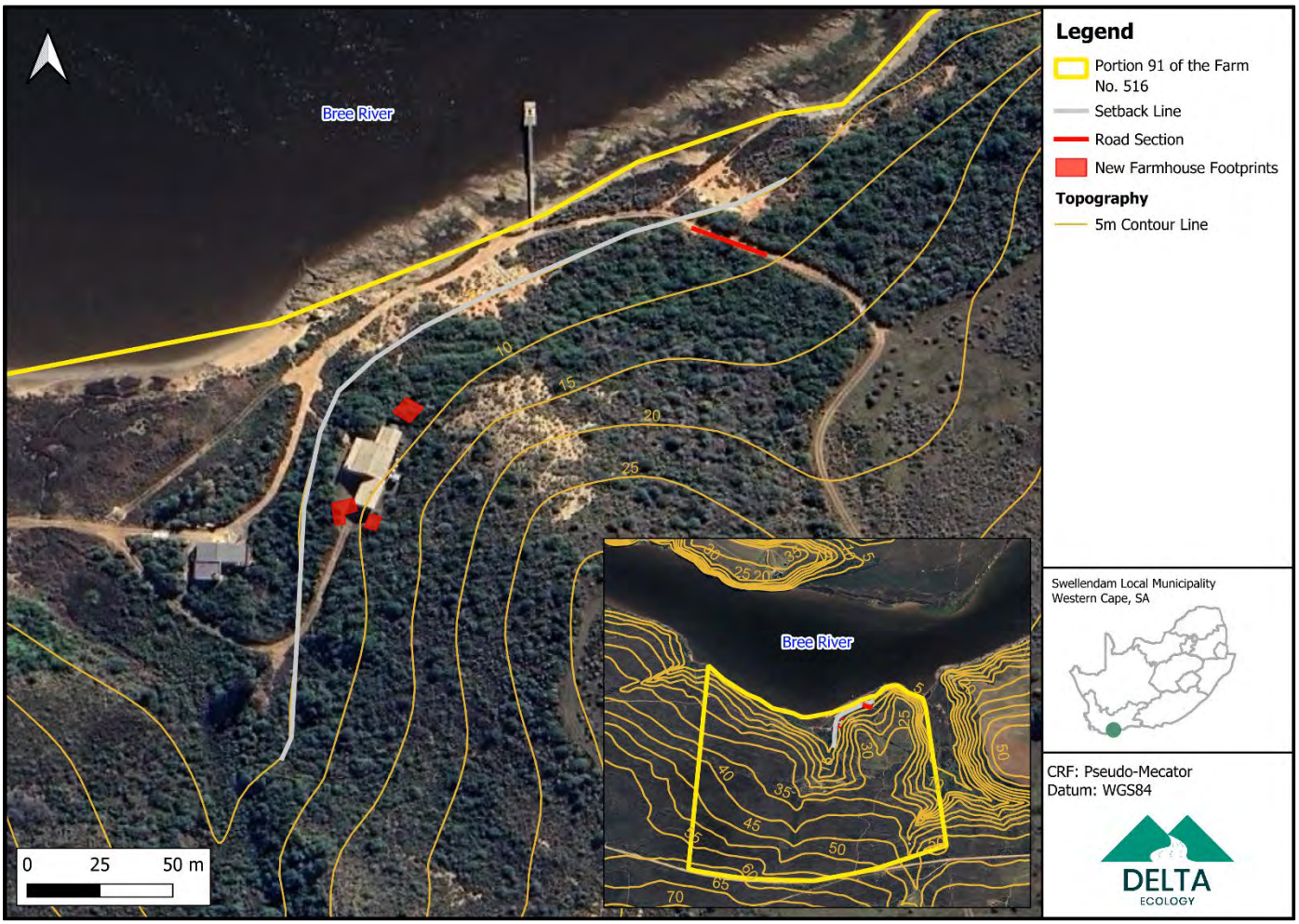

Figure 2: Proposed development areas.

According to the national web-based environmental screening tool report generated for the proposed site, the Combined Aquatic Biodiversity Theme Sensitivity is classified as "Very High" (DFFE, 2026). The classification trigger is the location of activities within the mapped NWM5 floodplain wetland, as well as within the vicinity of the mapped Breede River Estuary and Aquatic Critical Biodiversity Areas (CBAs). Additionally, the development activities are located within a Freshwater Ecosystem Priority Area (FEPA) sub catchment.

As per the National Environmental Management Act (NEMA) (Act No. 107 of 1998) Regulations of 2020 (as amended) (GN R. 320 of 2020), prior to initiation of specialist assessments, the current land use, and the potential environmental sensitivity of the site (s) - as identified by the national web-based environmental screening tool - must be confirmed by undertaking an Initial Site Sensitivity Verification.

This Initial Site Sensitivity Verification aims to confirm or dispute the current use of the land and environmental sensitivity as identified by the national web based environmental screening tool.

Figure 3: Aquatic Biodiversity Theme.

Desktop Assessment

A review of desktop resources was undertaken. A summary of key desktop information relevant to this assessment is provided below.

Biophysical Context

According to the South African Atlas of Climatology and Agrohydrology (Schulze, 2009), obtained from CapeFarmMapper ver.3.4.1, the mean annual rainfall received for the area is 432 mm, occurring mostly during the winter months, with the highest rainfall from May to August.

According to the Council for Geoscience geological map (ENPAT, 2021), the soils surrounding the study area are dominated by Glenrosa and/or Mispah forms (other soils may occur), lime generally present in the entire landscape. Geology in the study consists of Shale and subordinate sandstone of the Bokkeveld Group.

According to the SANBI Vegetation Map 2024, obtained from CapeFarmMapper ver.3.4.1, the natural vegetation within the study area is characterised by Overberg Dune Strandveld Fynbos, which is listed as Endangered (EN) and Well Protected (WP).

According to the NFEPA (CSIR, 2011) spatial dataset, the vegetation surrounding the study area corresponds to the South Strandveld / Western Strandveld wetland vegetation type which, where wetlands are present, is listed as Endangered (EN) and Moderately Protected (MP) (**Figure 4**). The general biophysical characteristics of the proposed area are summarised in **Table 1**.

Table 1: General characteristics of the proposed development area.

Site attribute	Description	Data source
Eco-region	Southern Coastal Belt	Department of Water Affairs Level 1 Ecoregions (DWS, 2011)
Terrestrial Vegetation Type	Overberg Dune Strandveld Fynbos (EN-WP)	National Vegetation Map of South Africa, 2024 (SANBI, 2024)
Dominant Geology and Soils	Geology mainly consists of Shale and subordinate sandstone of the Bokkeveld Group. Soils are dominated by Glenrosa and/or Mispah forms (other soils may occur), lime rare or absent in upland soils but generally present in low-lying soils.	Cape Farm Mapper (ENPAT, 2021)
Soil Erodibility Factor (K)	0.52 (High Erodibility)	SA Atlas of Climatology and Agrohydrology (Schulze, 2009)
Soil Depth & Clay Percentage (%)	<450 mm; Clay < 15%	Soil types and descriptions for the Western Cape, Department of Agriculture, Forestry and Fisheries (DAFF, 2021)
Mean Annual Precipitation (mm)	432 mm	SA Atlas of Climatology and Agrohydrology (Schulze, 2009)
Rainfall seasonality	Winter rainfall	
Mean Annual Temperature (°C)	17.5°C	
Water Management Area	Breede-Olifants	Water Management Areas (DWS, 2023)
Quaternary Catchment	H70K	South African Quaternary Catchments Database (Schulze *et al*. 2007)
Wetland Vegetation Group (for wetlands within the applicable terrestrial vegetation type)	South Strandveld / Western Strandveld (EN-MP)	NFEPA Wetland Vegetation Types (CSIR, 2011)

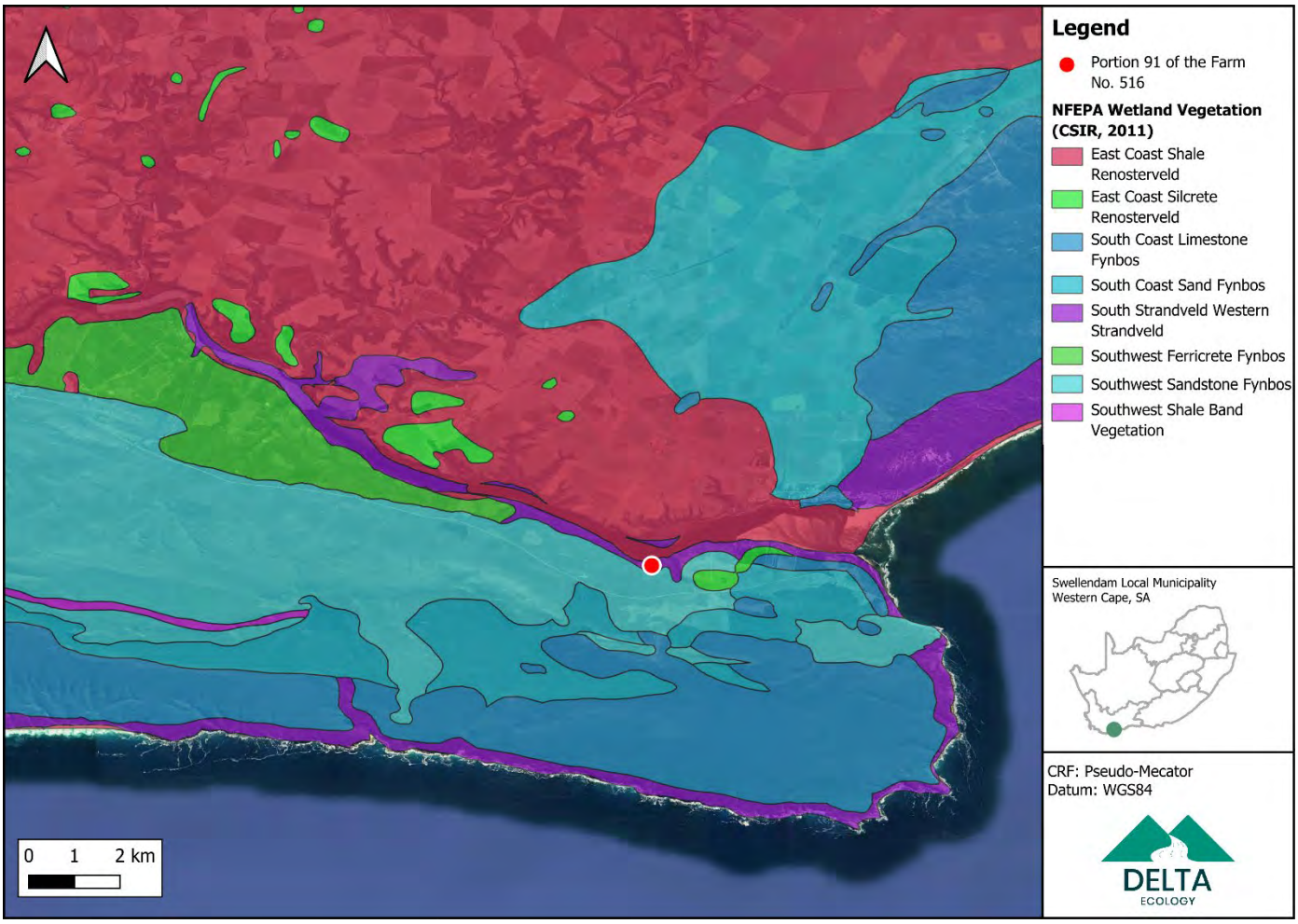

Figure 4: Wetland vegetation.

Biodiversity Planning Context

The area under evaluation is located within the Breede-Olifants Water Management Area in the H70K quaternary catchment. The applicable sub-quaternary catchment is demarcated as a Freshwater Ecosystem Priority Area (FEPA) categorised as a Fish Support Area (CSIR, 2011). The regional setting, in terms of the Level 1 Department of Water Affairs (DWA) (now Department of Water and Sanitation) Ecoregions, falls within the Southern Folded Mountains and the Southern Coastal Belt (**Table 1**).

According to the NFEPA and NWM5 datasets, portions of the proposed development area are located within mapped water resources (CSIR, 2011; NWM5, 2018) (**Figure 5**). The majority of the proposed SBL and the proposed road upgrade area are located within the mapped Estuarine Functional Zone (EFZ) of the Breede River water resource. A portion of Unit 1 overlays a mapped floodplain wetland and natural wetland according to both the NFEPA and NWM5 datasets. Unit 2 does not directly overlay mapped wetlands; however, it is located in close proximity to the mapped estuarine functional zone and floodplain wetland, and portions of the SBL intersect these mapped features.

According to the Western Cape Biodiversity Spatial Plan (WCBSP, 2023), the proposed development units do not fall directly within mapped aquatic Critical Biodiversity Areas (CBAs), however the proposed SBL does fall within this CBA. A terrestrial CBA occurs over the proposed SBL and unit 1, however does not overlap unit 2 (**Figure 6**). Small portions of aquatic and terrestrial Ecological Support Areas (ESAs) occur south of the study area, approximately 870 m and 945 m from the development area respectively.

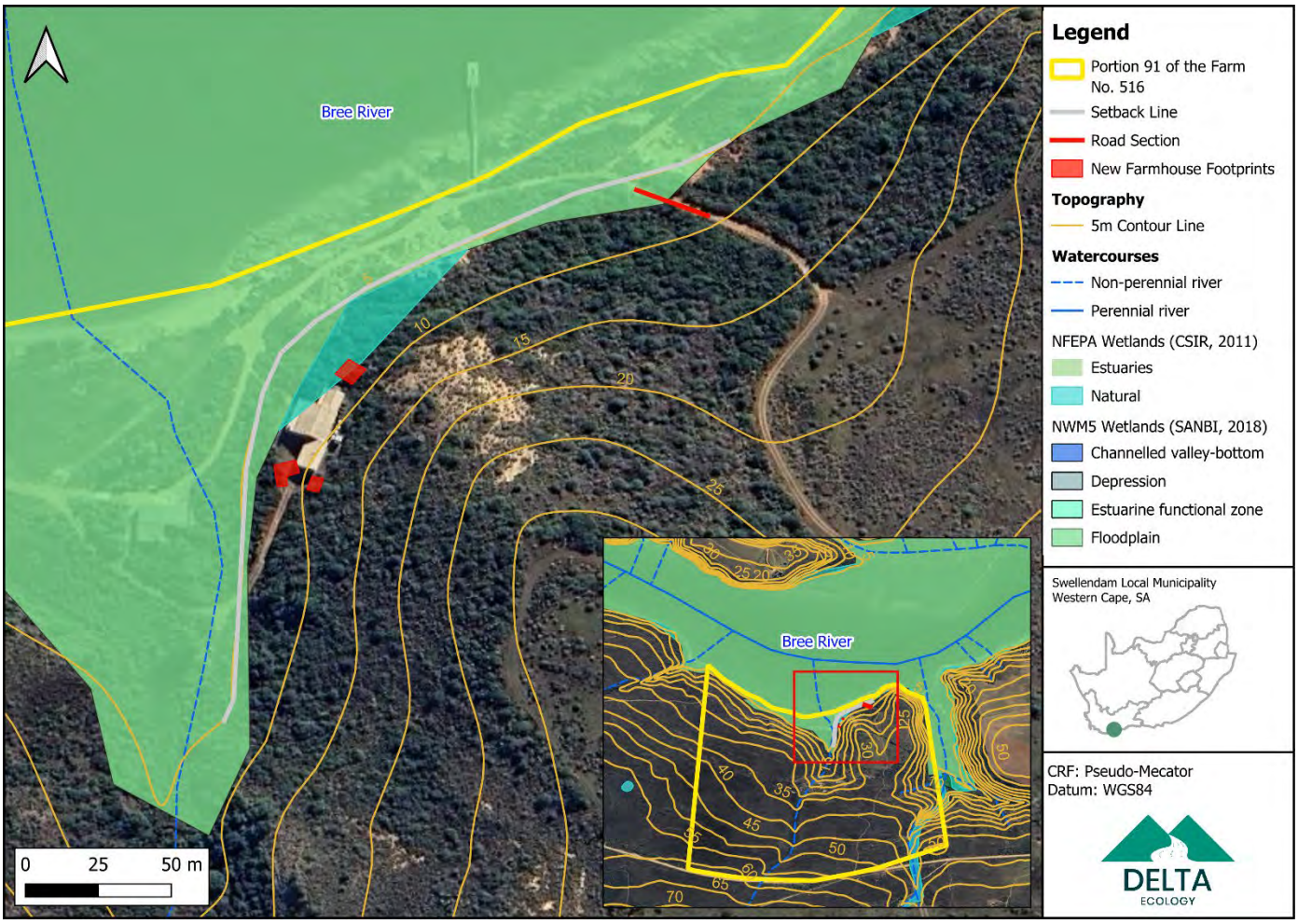

Figure 5: Watercourses indicated by NWM5.

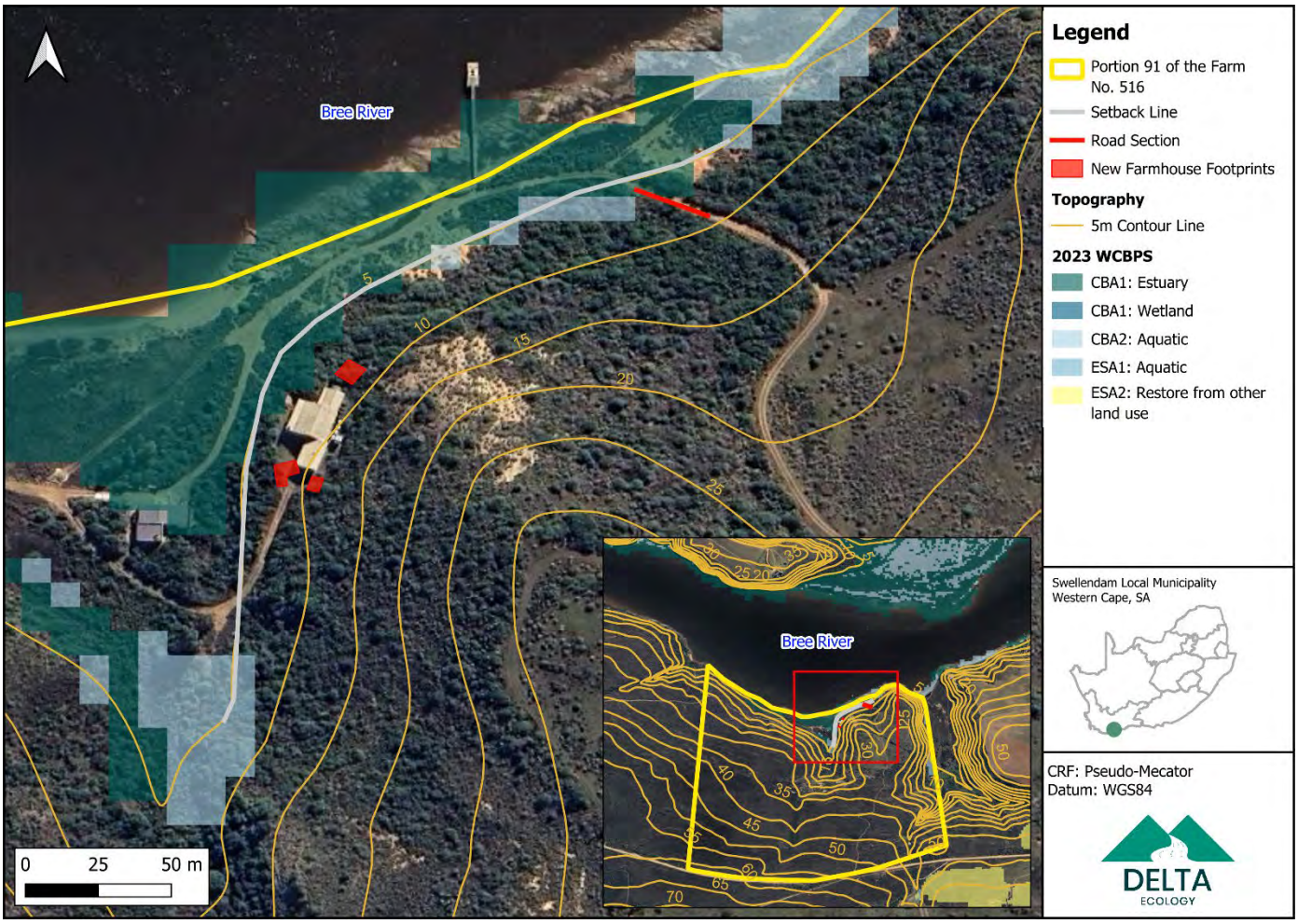

Figure 6: Western Cape Biodiversity Spatial Plan.

Site Description

Based on the site assessment and verification of the development footprint on Portion 91 of Farm 516, the following water resource (EFZ) and terrestrial characteristics were observed:

- **Absence of Aquatic Indicators:** No watercourse or wetland indicators were identified within the proposed development areas. The expansion footprints for the residential unit and the "like-for-like" road upgrades are strictly terrestrial in nature (Refer to **Annexure A**).
- **Delineation of the Breede River Estuary water resource:** The EFZ was delineated approximately 20 m downslope from the expanded house footprint and 15 m downslope from the proposed road upgrade. The estuary is dominated by *Salicornia mossiana* (Short Glasswort), marking a clear transition from the terrestrial development site to the estuarine environment (**Annexure A**).
- **Vegetation Profile:** The vegetation within the proposed development area is characteristic of a terrestrial ecosystem, dominated by *Hermannia alnifolia* (Fanleaf Dollsrose), *Searsia glauca* (Blue Kunibush), *Putterlickia pyracantha* (Bastard Spikethorn), *Oedera uniflora* (Limestone Perdekaroo), and *Eriocephalus racemosus* (Kapkap Kapok) (**Annexure A**). These species are typical terrestrial shrubland components of dune Strandveld vegetation and are not associated with aquatic, riparian, or estuarine habitats.
- **Soil Morphology:** Soil analysis further confirms the terrestrial status of the site. Soil samples taken within the development areas consisted of shallow red to orange soils with high clay content, lacking the anaerobic indicators (such as gleying or mottling) typically associated with wetland or saturated conditions.

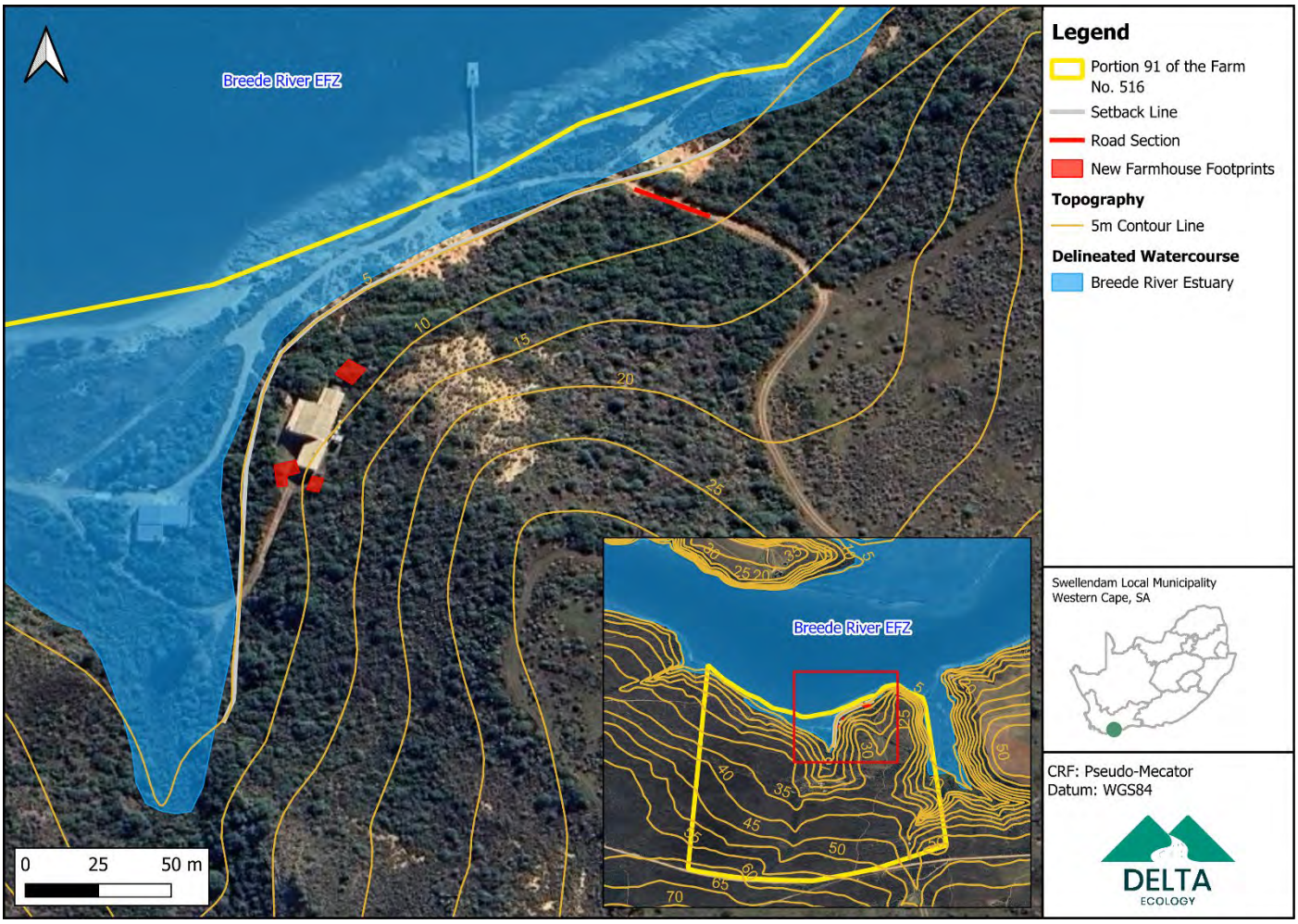

Figure 7: Delineation Map.

Conclusion and Recommendation

The site verification confirms that the development is situated outside of any sensitive freshwater environments. *In response to the DEA&DP letter dated 5 February 2026, this assessment confirms that the site is not located within a wetland.*

Additionally, it is noted that the delineated EFZ edge is, in terms of the NEMA (Act No. 107 of 1998), associated with the coastal environment and therefore forms part of the sea, rather than constituting a "watercourse" as defined under NEMA, which generally refers to inland, predominantly freshwater systems such as rivers, streams and wetlands. Ground-truthing of the site confirmed that the proposed development footprint is located more than 32 m from the nearest NEMA-defined watercourses. As such, no encroachment into the regulated buffer applicable to watercourses is anticipated.

The proposed works are located above the delineated watercourses (non-perennial tributary of the Breede River Estuary) and water resource (Breede River EFZ) and are separated from these features by dense natural vegetation. In addition, the development footprint is situated above both the Coastal Management Line and the future 1:100-year flood line. The proposed activities will involve less than 300 m² of indigenous vegetation clearance and comprise like-for-like upgrades associated with the road improvement. As a result, the aquatic biodiversity sensitivity of the development footprint is verified as "**Low"**.

With the following mitigation measures, the estuary is unlikely to be at risk or impacted:

- Where feasible, the proposed works should be undertaken during the dry season to reduce the potential for stormwater runoff and sediment mobilisation towards nearby watercourses and the estuary.
- Prior to the commencement of construction, the estuary and its associated buffer must be clearly demarcated on site using danger tape or temporary fencing, and workers must be instructed that no access, disturbance, or storage of materials may occur within this area.
- Construction vehicles must remain within clearly defined access routes and may not enter the estuary buffer or surrounding natural vegetation.
- Should construction activities occur outside of the dry season, additional mitigation measures must be implemented to minimise the risk of sediment transport and water quality impairment. These measures include the installation of temporary erosion and sediment control structures (e.g. silt fences, sandbags, or geotextile sediment barriers) downslope of disturbed areas, stabilisation of exposed soils, and the placement of stockpiled materials outside of drainage pathways.
- Road upgrade works must ensure that stormwater runoff from disturbed surfaces is directed through vegetated areas or temporary sediment traps prior to discharge.
- No temporary crossings, drainage diversions, or discharge of stormwater may occur directly into the estuary.
- Construction camps, laydown areas, stockpiling of materials, and waste storage must be located outside of the estuary buffer and away from any drainage pathways that could transport pollutants into the estuary.
- Concrete mixing and cement handling must take place in designated areas located well outside of the estuary buffer, and wash water from concrete works must not be discharged onto the ground where it could enter drainage pathways.
- The storage of fuels, oils, and other hazardous substances must occur within bunded areas, and vehicle refuelling or servicing must not occur near drainage lines or within the estuary buffer.
- A spill response kit must be kept on site at all times, and any accidental spills of fuels, oils, or chemicals must be immediately contained and cleaned up to prevent contamination of soils and stormwater runoff.
- All waste generated during construction must be stored in sealed containers and regularly removed from site to prevent litter and debris from entering the estuary or surrounding natural vegetation.
- Construction activities must be temporarily suspended during periods of heavy rainfall where runoff may mobilise sediments, and
- All disturbed areas must be rehabilitated and stabilised as soon as practicable following completion of the works.

Please do not hesitate to contact us should you require any further information or clarification.

Yours sincerely,

Kimberley van Zyl
Director
Delta Ecology
+ 27 78 275 8815
Kimberley@deltaecologists.com

DELTA
ECOLOGY

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Annexure A: Site Photographs

Breede River EFZ downslope of the proposed activities.

Breede River EFZ downslope of the proposed road upgrade.

Location of proposed new farmhouse unit.

Location of proposed new farmhouse unit.

Location of proposed new farmhouse parking.

Terrestrial soils from proposed new farmhouse area.

Terrestrial soils from proposed new farmhouse area.

New farmhouses are located on the top of this slope, terrestrial vegetation shown.

Area where the road upgrade is proposed.

Annexure B: Flood Lines

Farmhouse and new footprint is in blue, which is above the flood lines, the road is in red (existing) and works will be like-for-like.

Annexure C: Specialist Details

Specialist Details | Kimberley van Zyl	
Company Name	Delta Ecology
Physical address	20 Wessels Road, Kenilworth, Cape Town, 7780
Email Address	Kimberley@deltaecologists.com
Telephone	078 275 8815
Highest Qualification	MSc. Water Resource Management (University of Pretoria)
SACNASP Reg. No.	117097
Area of Specialisation	Ecology

Kimberley van Zyl is an ecologist and environmental scientist with over 9 years' experience in the environmental management field. She holds a MSc. degree in Water Resource Management from the University of Pretoria and her professional affiliations include the South African Council for Natural Scientific Professions (SACNASP) and the Southern African Society of Aquatic Scientists (SASAqS). Kimberley's work experience has exposed her to a range of projects across various business sectors such as mining, agriculture, and construction, as well as the public sector. A full CV can be provided on request.

Co-author's Details | Robyn Morton	
Company Name	Delta Ecology
Physical address	41 Dreyersdal Rd, Bergvliet, Cape Town 7945
Email Address	robyn@deltaecologists.com
Telephone	082 779 7618
Highest Qualification	MSc. Nature Conservation
SACNASP Reg. No.	Pending
Area of Specialisation	Ecology

Robyn Morton has a MSc. degree in Conservation Sciences from the Cape Peninsula University of Technology. Throughout her studies, internships, and consultancy experience, she has gained valuable and informed insight into the functioning of natural and socio-ecological systems, as well as many key research and monitoring skills. Prior to her consulting career, Robyn worked for Zandvlei Estuary Nature Reserve for 4 years and gained experience in the field of urban wetland and estuary management. Robyn specialises in aquatic ecology and is currently working for Delta Ecology as a junior associate under the guidance of Kimberley van Zyl.

Annexure D: Methodology

The methodology used in this screening report, including a desktop background assessment and one site visit is outlined in the subsections below.

Desktop Assessment

A review of desktop resources was undertaken to determine the nature of the proposed site, the presence of watercourses in the vicinity, and the significance of the site in terms of biodiversity planning. The following desktop resources were consulted:

- Topographical and watercourse information from the Department of Rural Development and Land Reform (DRDLR);
- The South African Atlas of Climatology and Agrohydrology (1997, 2007, and 2009);
- Geological information from the Council for Geoscience;
- The SANBI (2018) National Vegetation Map (NVM);
- The National Wetlands Map Version 5 (NWM5 – SANBI, 2018);
- The National Freshwater Ecological Priority Areas (NFEPA – CSIR, 2011) wetland, wetland vegetation group classification, river, & Freshwater Ecological Priority Areas (FEPA) datasets;
- The Chief Directorate: National Geo-spatial Information (NGI) (DRDLR) River's dataset;
- The Western Cape Biodiversity Spatial Plan (WCBSP, 2023).

Wetland Identification & Delineation

Watercourses (if present) were identified and delineated using the method described in the Manual for the Identification and Delineation of Wetlands and Riparian Areas for field-based delineation (DWAF, 2008). This method is the accepted best practice method for delineating watercourses in South Africa, and its use is required by GN 509.

For wetlands / estuaries, the method makes use of three key field indicators to guide the delineation process (refer to **box 1**):

Box 1. Three indicators of wetland presence as described in DWAF (2008):

1. The **position in the landscape** – Identifies parts of the landscape where wetlands are more likely to occur;
2. The presence of **aquatic vegetation communities**;
3. The presence of **hydromorphic soil features**, which are morphological signatures that appear in soils with prolonged periods of saturation (associated with anaerobic conditions). Key hydromorphic features include:
    a. Mottling – Formation of clumps of iron oxide within the soil matrix in the form of orange, yellow, black, or reddish-brown speckling. Mottling occurs in most soils and reaches maximum density in the centre of the seasonal zone with sparse mottling in the temporary zone and no mottling in the permanent zone.
    b. Gleying – Shift in soil colour from the terrestrial baseline towards a blue, green, or grey colour and an overall reduction in soil chroma. This phenomenon is normally difficult to identify in the temporary zone, noticeable in the seasonal zone and most significant in the permanent zone.
    c. Organic Surface Layers – surface layers with very high organic content that typically occur in the wetland seasonal and permanent zones.
    d. Organic Streaking – Streaks of organic matter within the soil column which may be present in all zones, but particularly the temporary and seasonal zones.

Soil samples were taken for inspection by hand augering to determine soil form and presence of redoximorphic and other hydromorphic soil features. Aquatic vegetation communities were identified using the (DWAF, 2008) classification of wetland plant species and descriptions of communities, along with auxiliary information from Van Ginkel *et al.,* 2011. Wetland plant species classification categories are as follows:

- Obligate species (occurring in wetlands >99% of the time – usually in the permanent or seasonal zone);
- Facultative Positive species (67 to 99% of the population occurs within wetlands – typically in the seasonal and temporary zones with the remaining 1 to 33% in the adjacent area on the wetland periphery);
- Facultative Species (33 – 67% of the population occurs within wetlands – usually in seasonal or temporary zones with the remaining 67 – 33% in the adjacent area on the wetland periphery);
- Facultative Negative Species (1 – 33% of the population occurs within wetlands – usually in the temporary zone with the remaining 99 to 67% in the adjacent area on the wetland periphery);
- Wetland Cosmopolitan Species (No specific affinity for wetlands and colonise wetland and terrestrial areas).

Wetland Classification

The Ollis *et al* (2013) Classification System for Wetlands and Other Aquatic Ecosystems in South Africa, as used in this assessment, is a tiered structured classification system that provides a uniform description of wetland types based on their hydrogeomorphic characteristics. This classification system categorises wetlands into 7 distinct hydrogeomorphic units described in **Figure 3-1**.

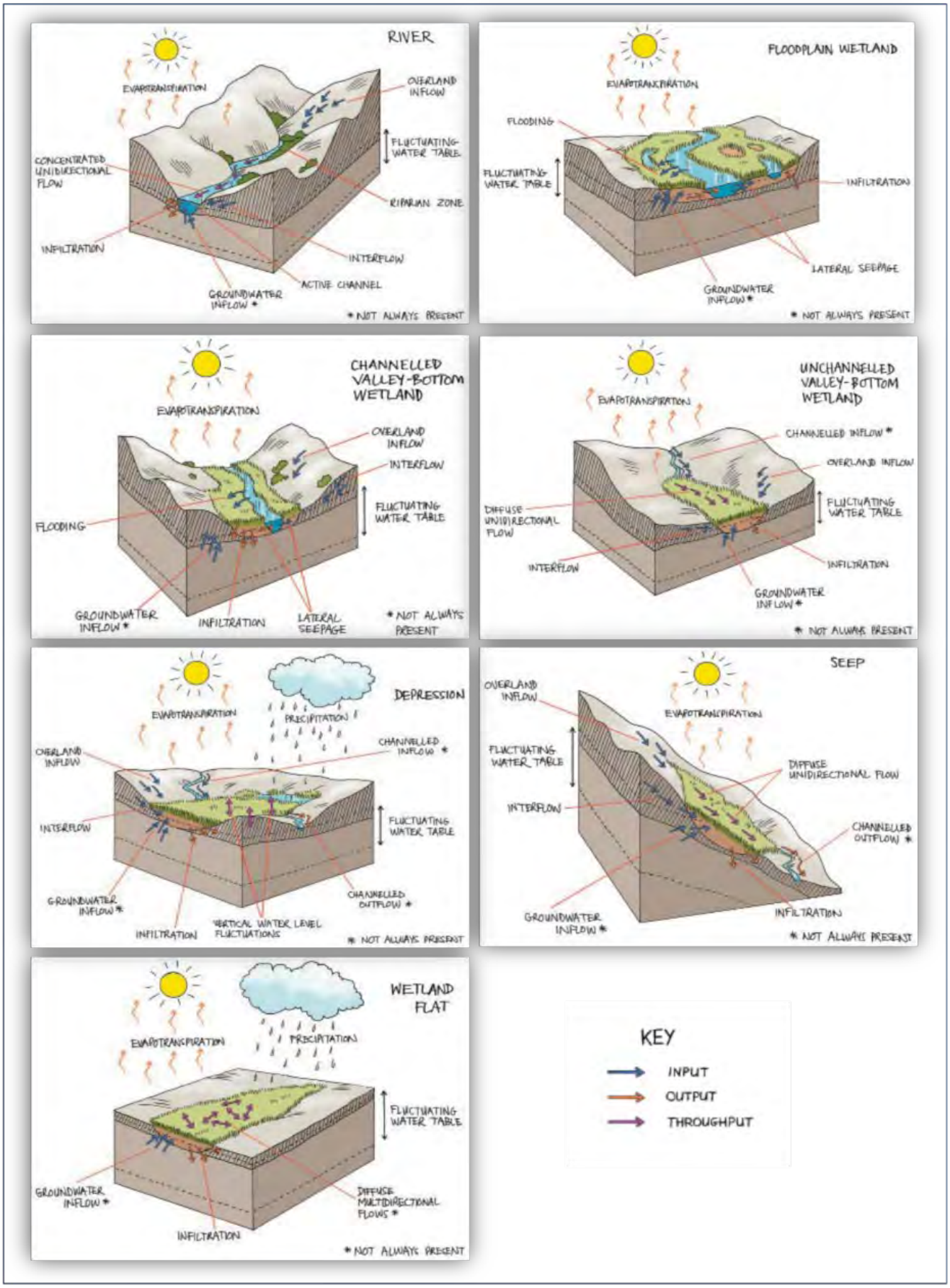

Figure 3-1: Wetland Hydrogeomorphic Types as defined in the Classification System for Wetlands and Other Aquatic Ecosystems in South Africa (Ollis *et al.*, 2013).

Annexure E: Limitations & Assumptions

The following limitations and assumptions apply to this assessment:

- The site assessment was undertaken on the 14th of February 2026, during the summer season. Therefore, this assessment does not cover complete seasonal variation in conditions at the site. This will, however, not have an impact on the aquatic assessment's outcome since hydrology, topography, and vegetation indicators were present and adequate for the delineation and assessment purposes.
- The duration of the site assessment was approximately 2 hour which was sufficient to adequately assess the site and the aquatic biodiversity risk posed by the proposed project.
- The watercourses were delineated using a Garmin handheld GPSMAP 66i with an expected accuracy of 3 m or less at the 95% confidence interval. In the opinion of the specialist, this limitation is of no material significance to the assessment and all aquatic biodiversity constraints have been adequately identified.
- Formal vegetation sampling was not undertaken by the specialist; however, general observations of vegetation were recorded based on onsite visual inspections. Only dominant and noteworthy plant species were noted. Consequently, the vegetation information presented has limitations for detailed botanical application, but this level of detail is considered appropriate and acceptable for the purposes of the aquatic biodiversity assessment, in line with the *Protocol for the Specialist Assessment and Minimum Report Requirements for Environmental Impacts on Aquatic Biodiversity* (GN No. 320 of 20 March 2020).
- Description of geohydrological / hydro pedological processes falls outside the scope of the current assessment and are not considered necessary for the proposed development. Flood line calculations have been conducted by a separate, suitably qualified specialist. This report contains the information which is considered appropriate and acceptable for the purposes of the aquatic biodiversity assessment, in line with the *Protocol for the Specialist Assessment and Minimum Report Requirements for Environmental Impacts on Aquatic Biodiversity* (GN No. 320 of 20 March 2020).
- Watercourse delineation plotted digitally may be offset by at least five meters to either side. Furthermore, it is important to note that, during converting spatial data to final drawings, several steps in the process may affect the accuracy of areas delineated in the current report. The scale at which maps and drawings are presented in the current report may become distorted should they be reproduced by, for example, photocopying and printing.
- The delineation does not consider climate change or future changes to watercourses resulting from increasing catchment transformation. The reason for this is because the accepted best practice method for delineating watercourses in South Africa, required by GN 509[1], uses key indicators obtained in the field to determine the river's current edge. *The applicant should be cognisant that the extent, ecological state, and function of the onsite watercourse may change over time, due to altered land use in the catchment or climate change.*
- Notwithstanding the above limitations, the specialist is of the opinion that the aquatic biodiversity constraints for the site have been adequately identified for the purposes of this aquatic biodiversity assessment.

[1] Also refer to Annexure D for a detailed description of this methodology.