Aquatic Biodiversity Compliance Statement

Proposed Residential Dwellings & Jetty on Portion 4 of the Farm Middelburg 643, Stanford

For: Lornay Consulting

May 2026

Report Information

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1. Introduction and Scope of Work

The applicant proposes to build two residential dwellings and associated infrastructure on Portion 4 of Farm Middelburg 643, located near the town of Stanford within the Overstrand Local Municipality, Western Cape (**Figure 1-1**). The proposed development comprises several infrastructure components, including two primary dwellings (House 1: 1,662 m² and House 2: 1,220 m²), a manager's cottage (1,000 m²), a gatehouse (595 m²), and associated infrastructure such as a swimming pool, fire pit, and footpaths (approximately 420 m² combined), as well as a jetty (53 m²) (**Figure 1-2**).

According to the South African National Biodiversity Institute National Wetland Map (NWM5) Version 5 (SANBI, 2018), the northern portion of the site falls within the extent of the Klein River Estuary. The property is bordered to the north by the estuary and its associated estuarine functional zone (EFZ), with no additional aquatic features mapped within the remainder of the site.

While the primary built infrastructure is proposed outside of the EFZ and landward of the coastal management line, the development remains within the coastal protection zone. As such, it is subject to the requirements of the Coastal Protection Zone Environmental Management Overlay Zone (EMOZ) of the Overstrand Municipality, as well as the applicable provisions of the Klein River Estuarine Management Plan.

It is noted that the proposed jetty infrastructure encroaches into the estuarine environment. Given that the Klein River Estuary is recognised as a national priority estuary, these components are expected to result in direct impacts on the estuarine system. Accordingly, the suitability and authorisation of these elements require careful consideration in terms of applicable environmental legislation, management objectives, and estuarine conservation priorities.

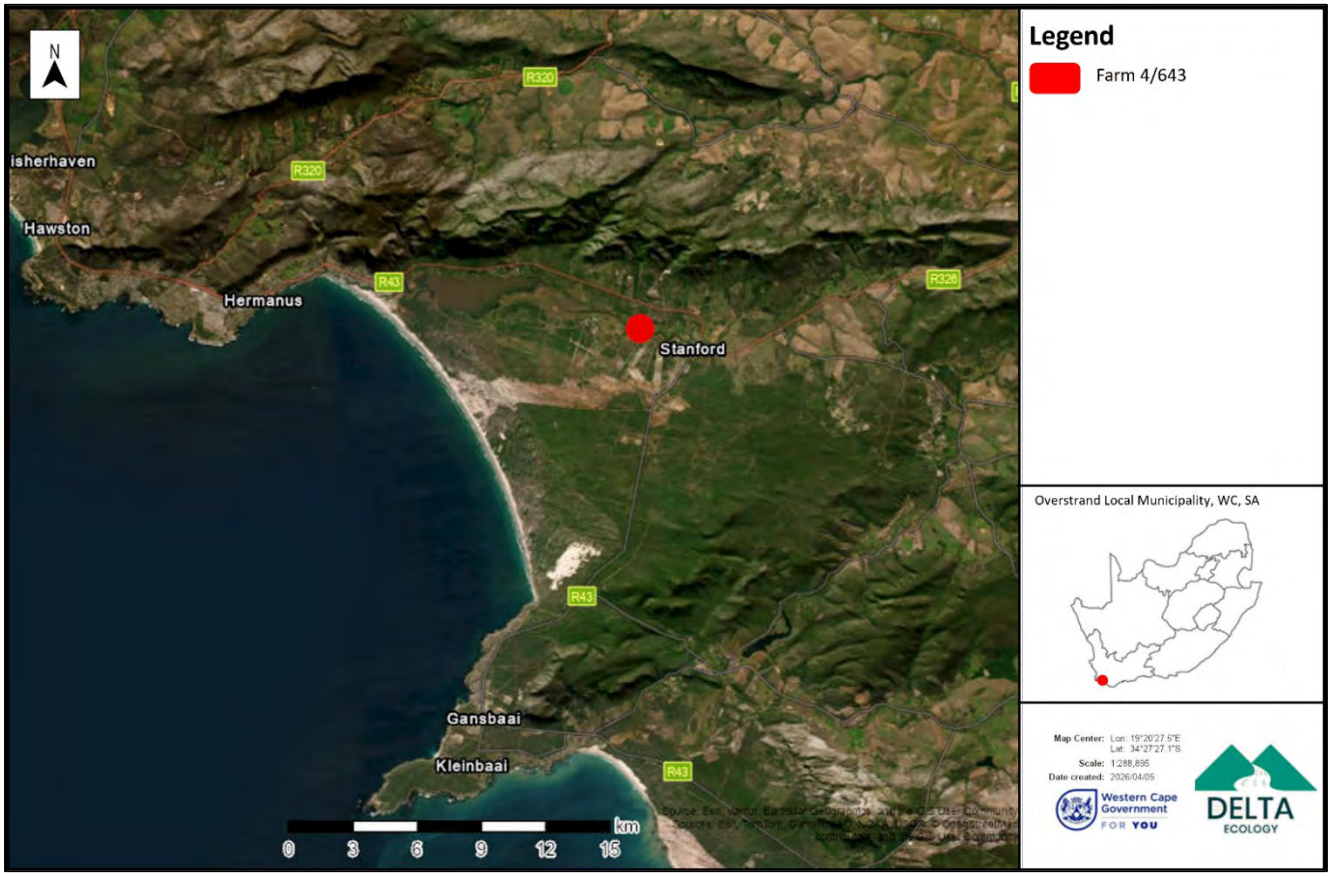

Figure 1-1: Regional setting locality map of the proposed site (Portion 4 of the Middelburg Farm 643).

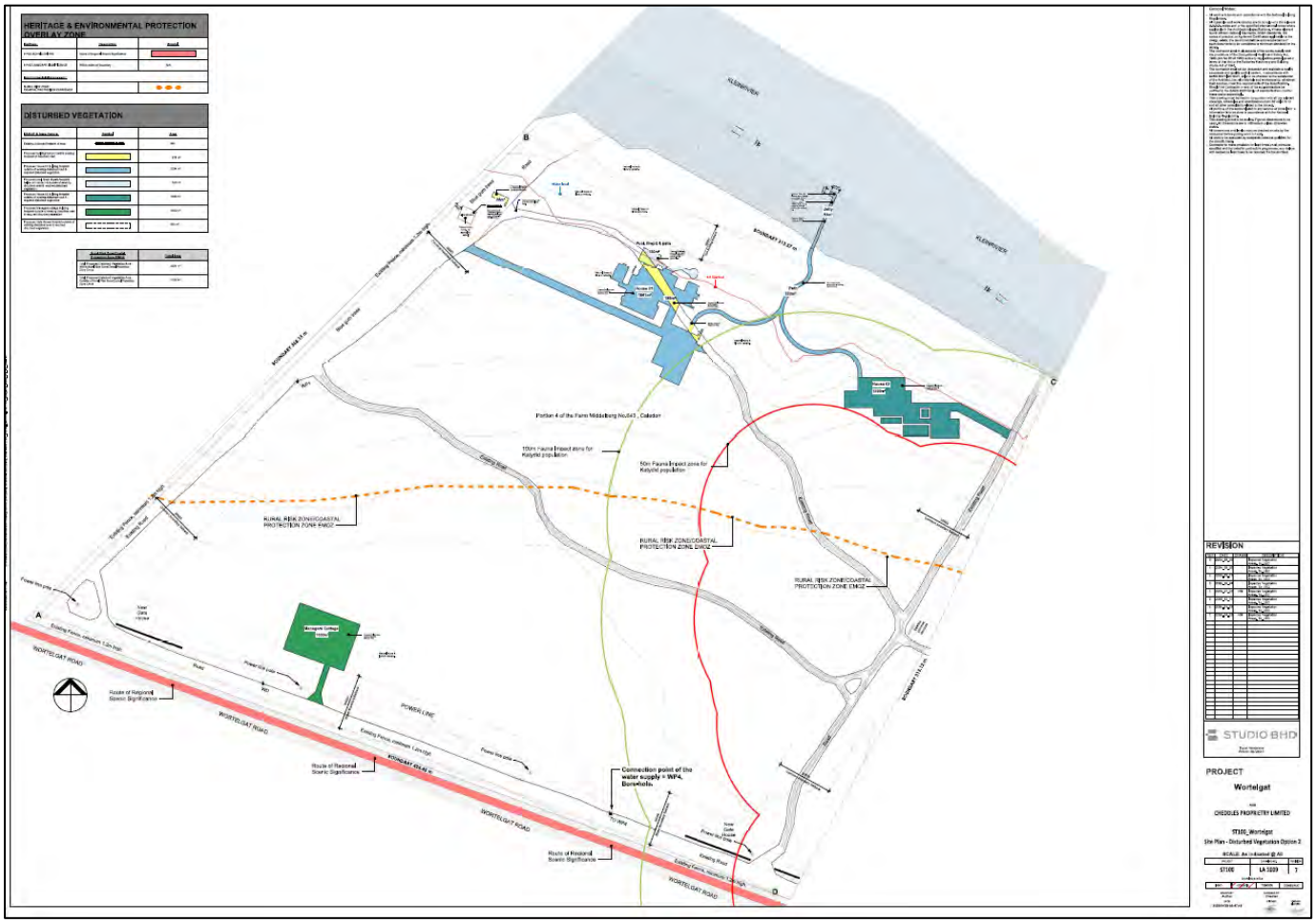

Figure 1-2: Layout Plan.

2. Site Sensitivity Verification

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 the site within the mapped Klein River Estuary and Western Cape Biodiversity Spatial Plan (WCBSP, 2023) Aquatic Critical Biodiversity Areas (CBAs). 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 (SSV).

The site verification confirms that the development is situated outside of any sensitive freshwater environments. In response to the Breede-Olifants Catchment Management Agency (BOCMA) letter dated 23 February 2026, this assessment confirms that the development is not located within or near a wetland.

The delineated EFZ edge is associated with the Klein River Estuary and therefore falls within the coastal environment regulated in terms of the Integrated Coastal Management Act and associated estuarine management frameworks. Ground-truthing confirmed that the proposed residential development footprint is located outside of freshwater wetland and riverine systems typically regulated as inland watercourses under NEMA. The proposed residential infrastructure is located more than 32 m from the nearest freshwater feature.

Based on the limited footprint and localised nature of the proposed jetty infrastructure, significant long-term impacts on the ecological functioning of the Klein River Estuary are not anticipated, provided that construction is undertaken in accordance with the recommended mitigation measures and applicable estuarine management requirements.

As a result, the aquatic biodiversity sensitivity of the development footprint is verified as "**Low"**.

3. Desktop Assessment

The proposed development is located within quaternary catchment G40L of the Breede-Olifants Water Management Area (WMA).

According to the National Freshwater Ecosystem Priority Areas (NFEPA) and NWM5 datasets, the Klein River Estuary is located within the northern portion of the proposed site (NFEPA, 2011; NWM5, 2018) (**Figure 3-1** & **Figure 3-2**). The National Geo-Spatial Information (NGI) River line vector data (2019) indicates the Klein River associated with the estuary along the northern border of the site, no additional rivers are located within the 100 m regulated proximity of the study site (**Figure 3-1** & **Figure 3-2**).

The Klein River Estuary, which is a large temporary open / closed estuarine-lake system covers approximately 1 153 ha. The estuary is fed by the Klein River, a perennial river that flows from the Klein River Mountain Range, part of the Cape Fold Belt. The Klein River has been recognised as a potential water source for the water stressed Onrus River Catchment.

According to the WCBSP (2023), aquatic CBAs 1, associated with the Klein River and the Klein River Estuary are located within the northern section of the proposed site (**Figure 3-3**).

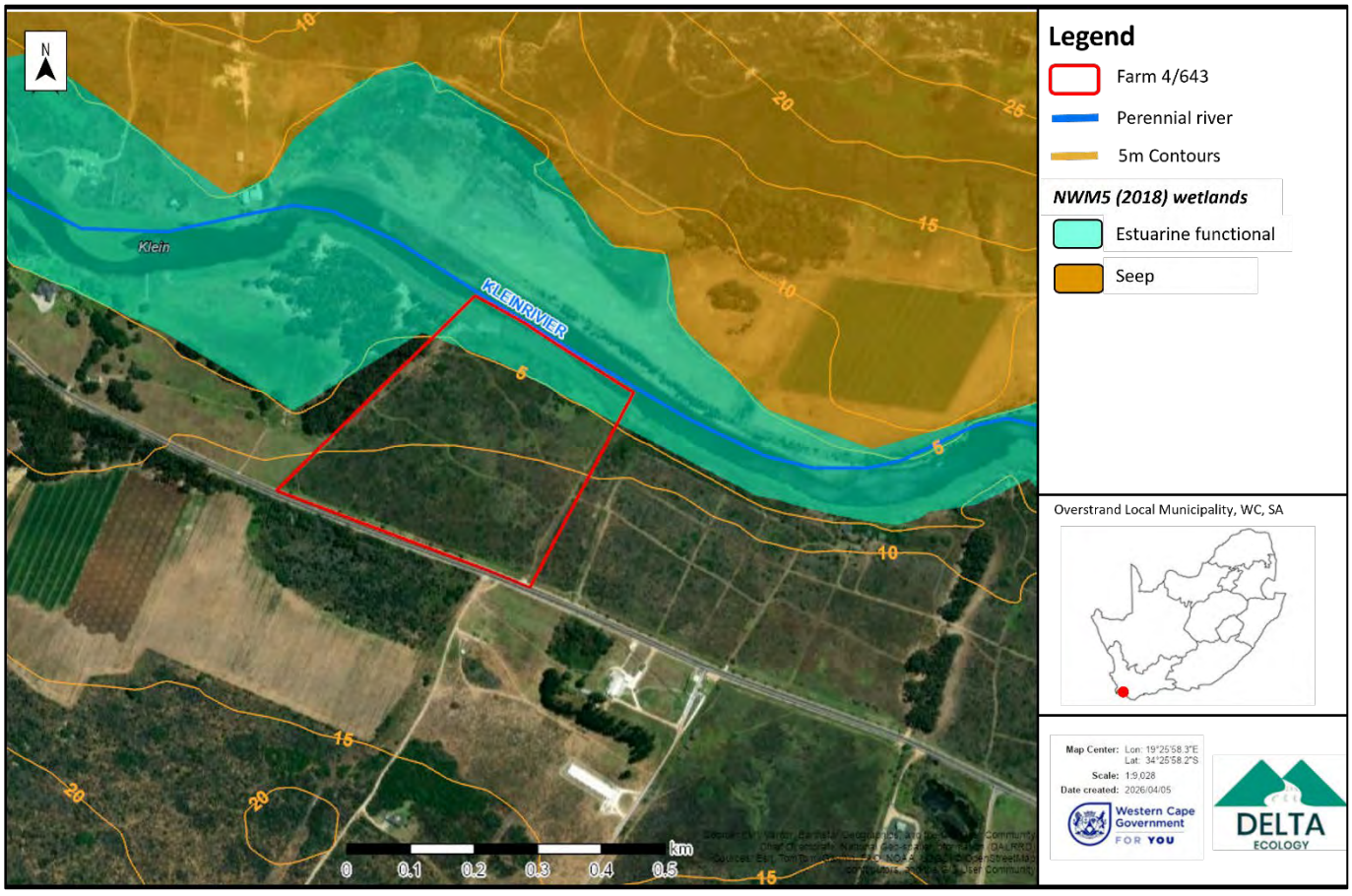

Figure 3-1: Proposed site overlayed on the NWM5 (2018) dataset.

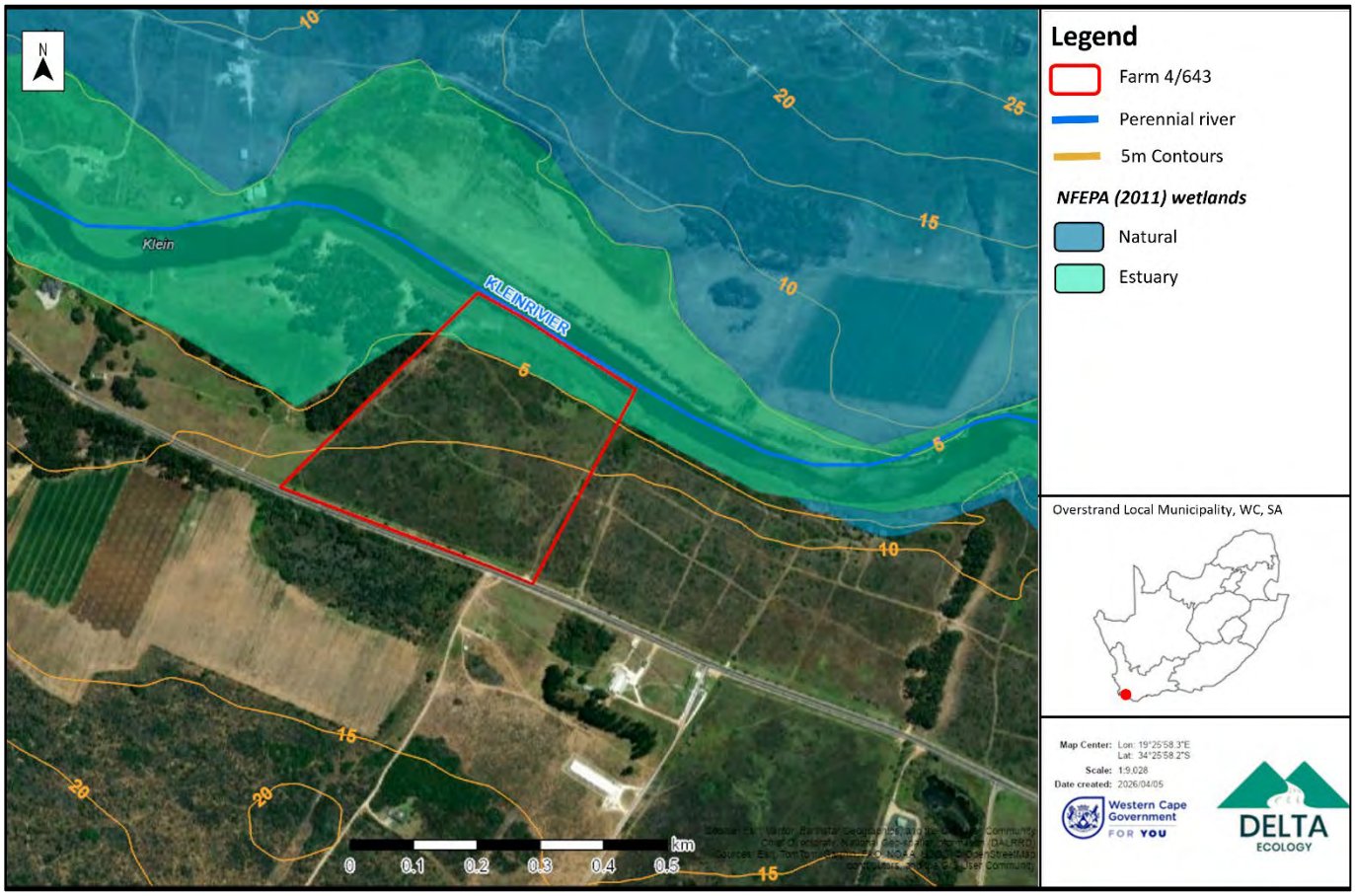

Figure 3-2: Proposed site overlayed on the NFEPA (2011) wetland dataset.

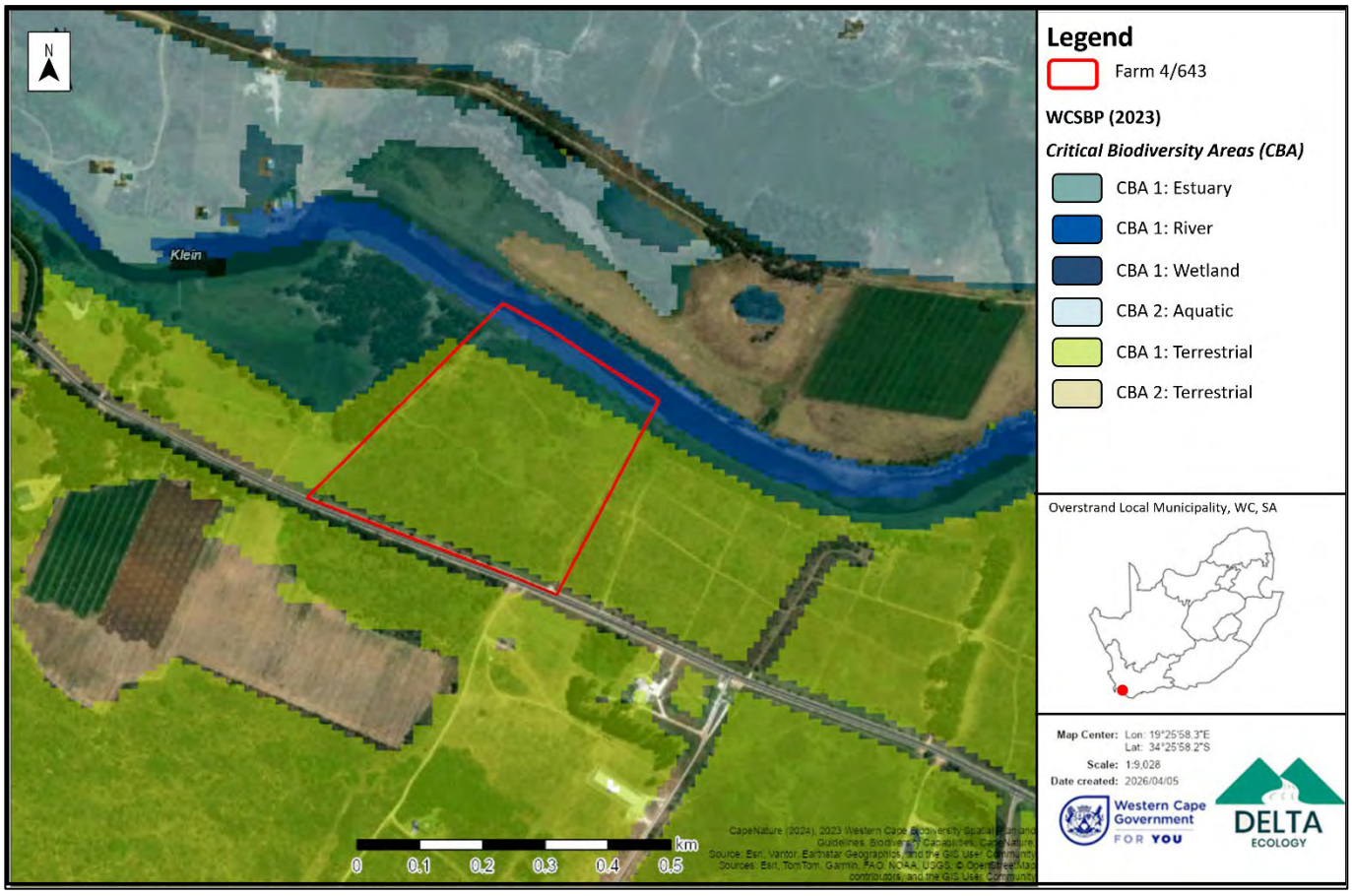

Figure 3-3: WCBSP (2023).

4. Status Quo Assessment

The proposed site is situated to the north of Wortelgat Road, and exhibits a gentle northward slope, descending from approximately 12 m amsl to around 2 m amsl towards the Klein River Estuary.

Currently no infrastructure is present within the site, however there are dirt tracks that intersect the property and provide access. The proposed development area for the two residential dwellings is located within a terrestrial environment that has been historically disturbed by agricultural activities. As a result, the vegetation is moderately transformed and comprises a mosaic of dense fynbos thickets interspersed with areas of more open shrubland dominated by *Stenotaphrum secundatum* (buffalo grass) and *Cynodon dactylon* (couch grass) (**Figure 4-1-Figure 4-4**).

The northern portion of the site where the jetty is proposed is associated with the Klein River Estuary water resource (**Figure 4-5**), which is characterised by dense *Phragmites australis* (Common Reed) reedbeds, fringed by *Stenotaphrum secundatum* (buffalo grass) and patches of dense shrubs (**Figure 4-6**).

In summary, based on the site assessment and verification of the development footprint on Portion 4 of Farm 643, the following water resource (EFZ) and terrestrial characteristics were observed:

- **Absence of Aquatic Indicators:** No watercourse or wetland indicators were identified within the proposed site.
- **Vegetation Profile:** Most of the vegetation within the proposed development area is characteristic of a terrestrial ecosystem, typical of Agulhas Limestone Fynbos vegetation and are not associated with aquatic, riparian, or estuarine habitats. The path and the jetty are the only development components which encroach into the EFZ.
- **Delineation of the Klein River Estuary water resource:** The EFZ was delineated approximately 45 m downslope from the majority of the residential dwellings' footprint area and upstream of the 5 m contour line. The estuary is dominated by *Phragmites australis* (Common Reed), marking a clear transition from the terrestrial development site to the estuarine environment.

The PES of the Klein River Estuary was classified from the most recent comprehensive assessment of the estuarine system, the National Biodiversity Assessment, 2019 (Van Niekerk et al., 2019). The Klein River Estuary was determined to have a PES of C, indicating a Moderately Modified system (**Table 4-1**). The National Biodiversity Assessment (NBA) (Van Niekerk *et al*., 2019) notes the following: "the Klein Estuary is impacted by a reduction in freshwater inflow, pollution or eutrophication, overfishing, human settlements and agriculture, with these pressures causing ongoing decline in habitat quality." The estuary was ranked 5th most important in South Africa in terms of its botanical value, fish and bird biodiversity (Clark *et al.,* 2015). The estuary is rated as "Highly important" based on its Estuary Importance Score (EIS) of 93 (Clark *et al.*, 2015). The EIS takes size, the rarity of the estuary type within its biographical zone, habitat, biodiversity and functional importance of the estuary into account (Clark *et al*., 2015).

Using the Buffer Zone Tool (Macfarlane & Bredin, 2017), a buffer of 25 m during Construction and 15 m during the operation of the proposed dwellings was determined for the Klein River Estuary.

Table 4-1: Status Quo of the Klein River Estuary.

	PES	WES	EIS	REC
Klein River Estuary	C	High	High	C

Figure 4-1: Overview of the proposed development area for house 1.

Figure 4-2: Access track through the proposed development area of house 1.

Figure 4-3: Overview of the proposed development area for house 2.

Figure 4-4: The proposed development area of house 2, with the Klein River Estuary in the background.

Figure 4-5: Overview of the Klein River Estuary.

Figure 4-6: Overview of the area proposed for the jetty, dominated by Common Reed.

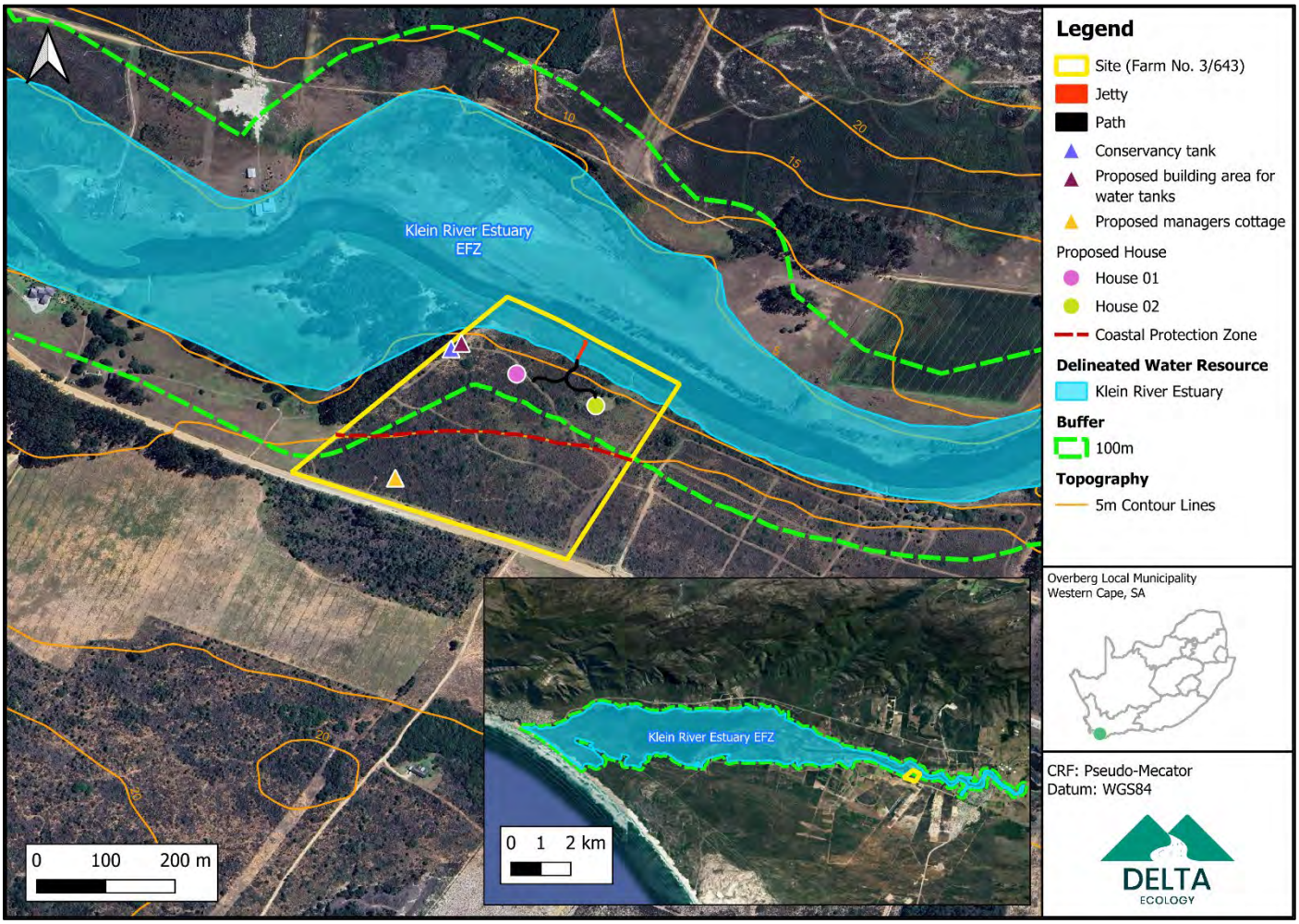

Figure 4-7: Delineation Map.

5. Conclusion and Recommendations

The site verification confirms that the development is situated outside of any sensitive freshwater environments. In response to the Breede-Olifants Catchment Management Agency (BOCMA) letter dated 23 February 2026, this assessment confirms that the development is not located within or near a wetland.

The delineated EFZ edge is associated with the Klein River Estuary and therefore falls within the coastal environment regulated in terms of the Integrated Coastal Management Act and associated estuarine management frameworks. Ground-truthing confirmed that the proposed residential development footprint is located outside of freshwater wetland and riverine systems typically regulated as inland watercourses under NEMA. The proposed residential infrastructure is located more than 32 m from the nearest freshwater feature.

Based on the limited footprint and localised nature of the proposed jetty infrastructure, significant long-term impacts on the ecological functioning of the Klein River Estuary are not anticipated, provided that construction is undertaken in accordance with the recommended mitigation measures and applicable estuarine management requirements. The following mitigation measures are recommended for the water resource Klein River Estuary:

- All activities must comply with the requirements of the Coastal Protection Zone Environmental Management Overlay Zone (EMOZ) of the Overstrand Local Municipality. Of particular note, the jetty must be designed and constructed in accordance with the specifications and requirements

stipulated within the applicable EMOZ provisions and designed in line with Cape nature's specifications.

- The provisions and management objectives of the Klein River Estuarine Management Plan must be adhered to at all times for activities within and adjacent to the Klein River Estuary.
- Construction of the jetty and pathways must be undertaken using low-impact methods and minimal machinery where feasible.
- Prior to the commencement of construction, the estuary and its associated buffer (25 m) must be clearly demarcated on site using temporary fencing and/or danger tape, and workers must be instructed that no access, disturbance, or storage of materials may occur within this area, apart from the development of the footpath and the jetty.
- Construction vehicles must remain within clearly defined access routes and may not enter the estuary buffer or surrounding natural vegetation.
- Where feasible, the proposed works should be undertaken during the dry season to reduce the potential for stormwater runoff and sediment mobilisation towards the nearby estuary.
- 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.
- Access track and construction-related 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 pathways 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.
- All disturbed areas must be rehabilitated and stabilised as soon as practicable following completion of the works.

- Vegetation clearance should be restricted to the relevant development components and indigenous vegetation cover should be maintained as far as practically possible. Furthermore, it is recommended that natural fynbos vegetation be used predominantly for garden establishment, including appropriate local indigenous lawn grass, to contribute towards conservation of the wildlife of the region.
- No invasive alien plant species may be used for landscaping or rehabilitation purposes.
- A conservancy tank is proposed. Therefore, it is recommended that monitoring of sewerage collection tanks should occur to ensure no leakage and ensure that no leakages occur when sewerage collection tanks are emptied. The disposal of sewage must at all times comply with the requirements of Sections 22 and 40 of the National Water Act of 1998, (Act 36 of 1998).
- When a conservancy tank is used for the disposal of sewerage, the Breede-Olifants Catchment Management Agency (BOCMA) must be furnished with a signed copy of the contract between the contractor and/or the municipality which is appointed to pump the conservancy tank.
- The tank must be provided with a fresh air inlet and an intercepting grease trap.
- The tank must have an airtight manhole cover to allow access to the tank for the removal and safe disposal of the tank contents.
- No industrial waste or refuse may be discharged into the conservancy tank except by written agreements with the relevant authorities.
- The size of the conservancy tank must be determined by both the frequency of removal of its contents to the local Wastewater Treatment Works and by the quantity of sewage anticipated from the above-mentioned project.
- The contents of the tank must be removed by a vacuum tanker and conveyed to a local WWTW that is capable of processing the volume and contents of the conservancy tank.
- The contingency plan including a system backup, consideration to any blockage in pipes, and prevention of storm water or groundwater (if applicable) ingress must be drawn up to protect against overflow of the conservancy tank.
- As per above, ingress of storm water or groundwater (if applicable) into the conservancy tank must be prevented. Consider installing a grey water system, as washing/dishwashing machines require the capacity of the conservancy tank to be increased.
- Rainwater harvesting systems should be installed to reduce runoff volumes.
- External lighting associated with the development should be minimised and directed away from the estuarine environment to reduce disturbance to estuarine fauna and avifauna.

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Annexure A: Specialist Details

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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.

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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 B: 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**.

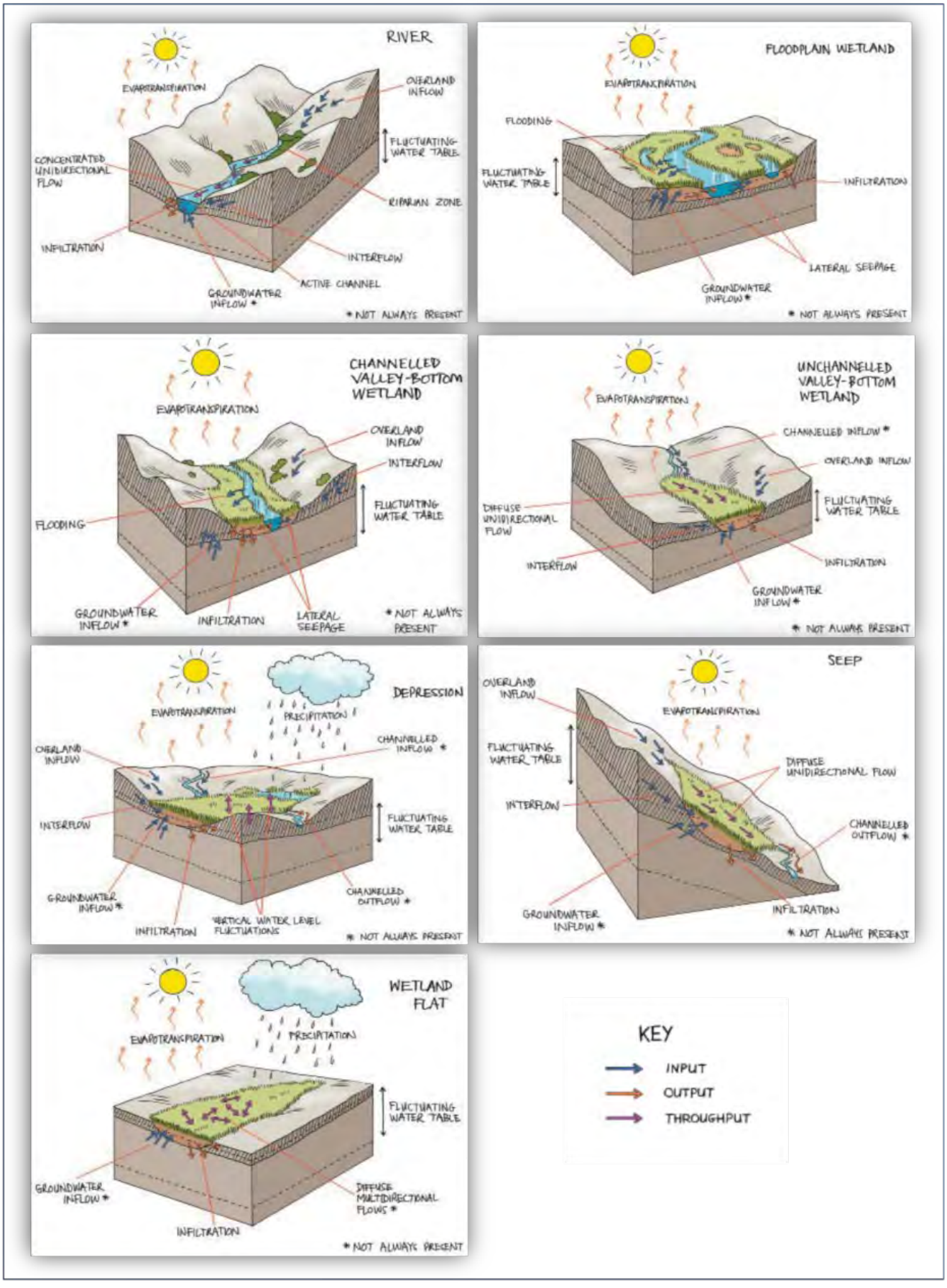

Figure i: Wetland Hydrogeomorphic Types as defined in the Classification System for Wetlands and Other Aquatic Ecosystems in South Africa (Ollis *et al.*, 2013).

Annexure C: Limitations & Assumptions

The following limitations and assumptions apply to this assessment:

- The site assessment was undertaken on the 28th of April 2026, at the start of the winter 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 hours 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 may need to be 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 B for a detailed description of this methodology.