# Wetland Compliance Statement for the Proposed Onderstepoort Grid Connection Infrastructure Project

## Rustenburg Local Municipality, Bojanala District Municipality, North West Province, South Africa

**13/02/2025**


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| **Report Name** | **Wetland Compliance Statement for the Proposed Onderstepoort Grid Connection Infrastructure Project** | |
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| **Reviewer** | Namitha Singh (SACNASP Pr. Sci. Nat .157927) |  |
| **Declaration** | The Biodiversity Company and its associates operate as independent consultants under the auspice of the South African Council for Natural Scientific Professions. We declare that we have no affiliation with or vested financial interests in the proponent, other than for work performed under the Environmental Impact Assessment Regulations, Amended. We have no conflicting interests in the undertaking of this activity and have no interest in secondary developments resulting from the authorisation of this project. We have no vested interest in the project, other than to provide a professional service within the constraints of the project (timing, time and budget) based on the principals of science. | |

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# 1 Introduction

## 1.1 Background

The Biodiversity Company was commissioned to conduct a wetland baseline and impact assessment in support of the water use and environmental authorisation process for the proposed Onderstepoort Grid Connection Infrastructure project. The project is located near Boshoek, in the Rustenburg Local Municipality, Bojanala District Municipality, North West Province (Figure 1-1). The grid connection solution will include the development of a double-circuit 132kV power line and collector substation to connect the proposed solar PV facilities to the national grid via the existing Ngwedi Main Transmission Substation (MTS). A 500 m radius has been demarcated for the project to facilitate the identification of wetlands; this area is referred to as the Project Area of Influence (PAOI) (refer to Figure 1-2 below).

This assessment has been completed in accordance with the requirements of the published Government Notice (GN) 4167 by the Department of Water and Sanitation (DWS) (previously GN 509 of 2016 and GN 3139 of 2023). The said notice was published in the Government Gazette (no. 49833) under Section 39 of the National Water Act (Act no. 36 of 1998) in December 2023, for a Water Use Licence (WUL) in terms of Section 21(c) & (i) water uses. The GN 4167 process provides an allowance to apply for a WUL for Section 21(c) & (i) under a General Authorisation (GA), as opposed to a full Water Use Licence Application (WULA). A water use (or potential) qualifies for a GA under GN 4167 when the proposed water use/activity is subjected to analysis using the DWS Risk Assessment Matrix (RAM), provided the identified risks are all considered a low risk and the applicant is listed under Appendix D1 or Appendix D2 of the same notice. This assessment will implement the RAM and provide a specialist opinion on the favourability for a water use authorisation.

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations (2014) (amended by GNR 326, 7 April 2017 and GNR. 517, 11 June 2021) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA). The approach has taken cognisance of the recently published Government Notices (GN) 320 (20 March 2020) and GN 1150 (30 October 2020) in terms of NEMA, dated 20 March and 30 October 2020: “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” (Reporting Criteria).

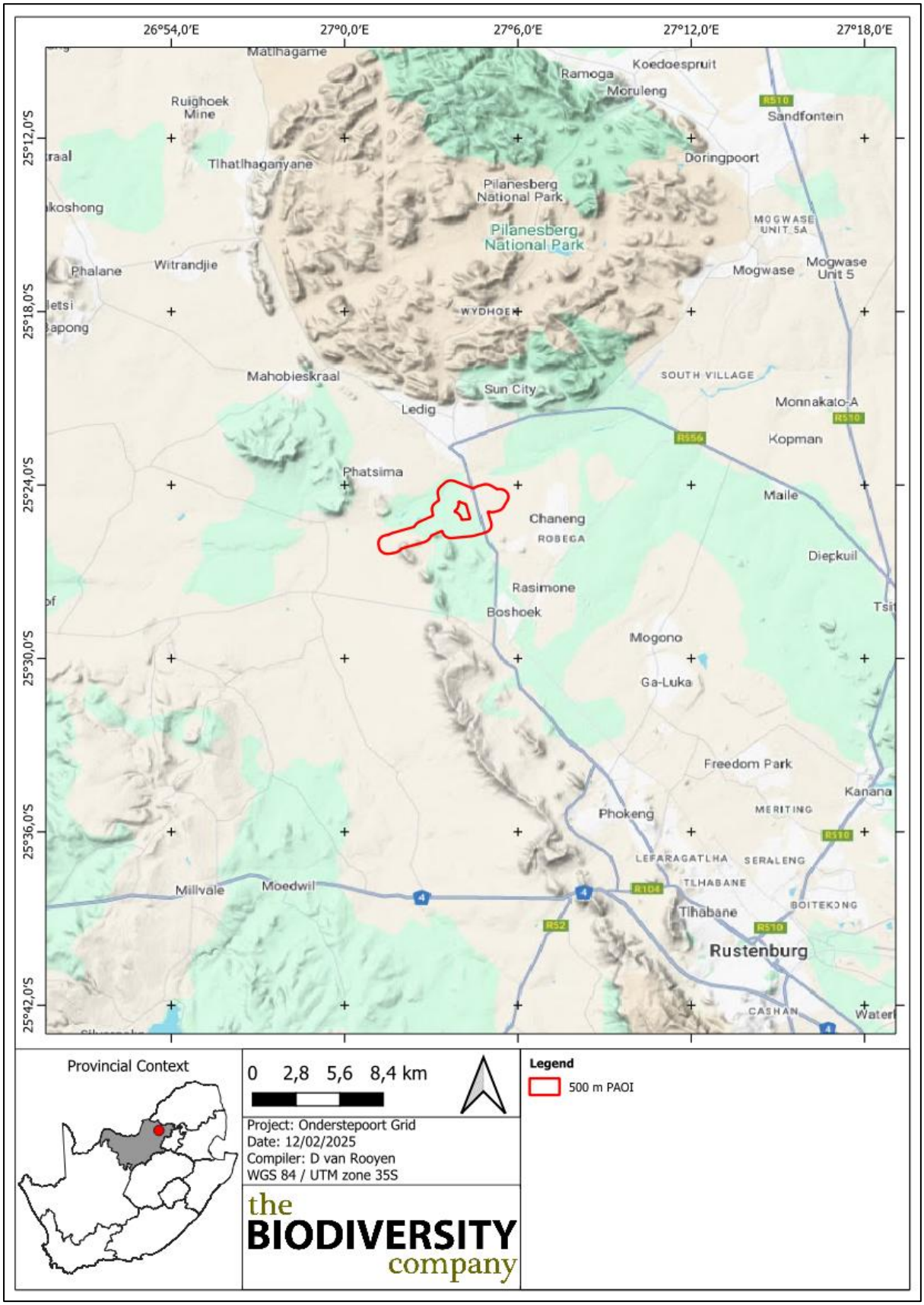



***Figure 1-1 Location of the proposed project***

### 1.2 Scope of Work

The following tasks were completed in fulfilment of the terms of reference for this assessment:

- A desktop assessment of available and related datasets to provide context of the freshwater biodiversity of the project area and to indicate potential wetland areas;
- The delineation, classification and assessment of wetlands within 500 m of the project area, where perceivable and significant risks are potential;
- An assessment of the related impacts through the use of the Risk Assessment (DWS, 2023);
- The provision of recommendations relevant to associated impacts; and
- Report compilation detailing the baseline findings.

### 1.3 Project Description and Technical Information

Onderstepoort Solar 1 (Pty) Ltd proposes the construction and operation of a grid connection solution for the proposed Onderstepoort Solar 1 (DFFE Reference: 14/12/16/3/3/2/2319) and Onderstepoort Solar 2 (DFFE Reference: 14/12/16/3/3/2/2320) solar PV facilities, near Boshoek in the North West Province. The grid connection solution will include the development of a double-circuit 132kV power line and collector substation to connect the proposed solar PV facilities to the national grid via the existing Ngwedi Main Transmission Substation (MTS). Other associated infrastructure will also be required for the grid connection solution, including access tracks/roads, administrative buildings and laydown areas.

A corridor 100 m wide and approximately 11 km long is being assessed to allow for the optimisation of the grid and associated infrastructure and to accommodate environmental sensitivities. The grid infrastructure will be developed within the assessed corridor. The height of the power line pylons will be up to 32 m and the servitude width of the power line will be 31 m. The extent of the collector substation will be 100 m x 200 m and the capacity of the substation will be 132kV. Two grid route alternatives are being considered. The Project Site and respective 500 m PAOI for the identification and delineation of water resources is indicated in Figure 1-2.

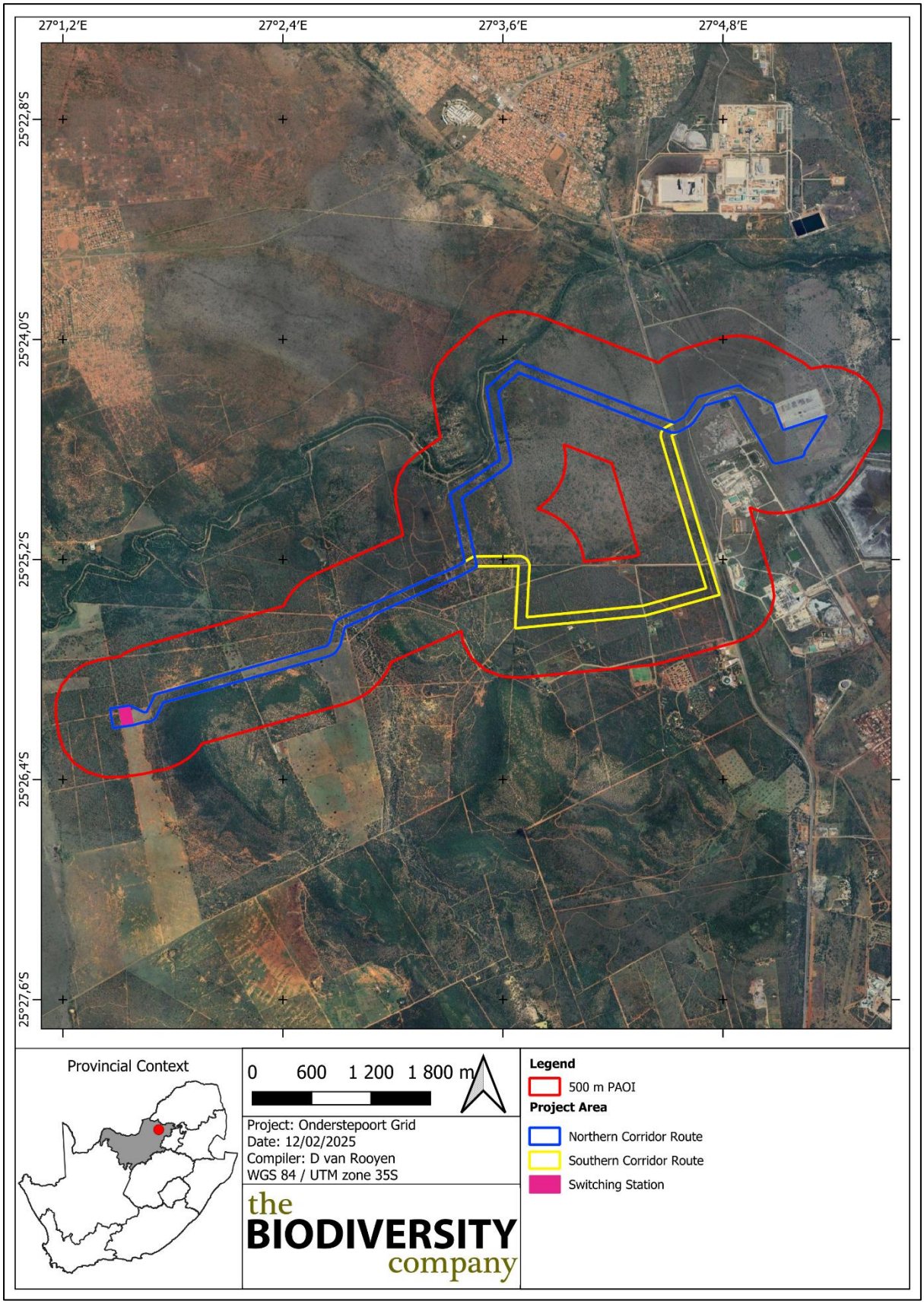



***Figure 1-2 Proposed site and Project Area of Influence***

### 1.4 Assumptions and Limitations

The following aspects were considered as limitations:

- It has been assumed that the spatial files provided to the specialist is accurate;
- Apart from the Corridor routes, as indicated in Figure 1-2, no other relevant spatial information in terms of the project layout and infrastructure was provided in relation to the proposed project at the time of survey and report preparation;
- Representative sampling was conducted within the 500 m Activity Buffer, and by its nature infers that some areas were not covered on foot however, the results obtained are considered to be sufficient to derive a meaningful baseline for the purpose of the assessment;
- No natural wetlands were identified within the Grid Corridor however, several drainage features and a Riparian area were identified therefore, no wetland health and functional assessments were conducted for the project;
- The seasonality of the survey, is not considered to be a limiting factor of the assessment, for which the results are conclusive in the opinion of the specialist; and
- The GPS used for water resource delineations is accurate to within five meters. Therefore, the wetland delineation plotted digitally may be offset by a maximum of five meters to either side.

### 1.5 Key Legislative Requirements

The legislation, policies and guidelines listed below in Table 1-1 are applicable to the current project. The list below, although extensive, may not be complete and other legislation, policies and guidelines may apply in addition to those listed below.

***Table 1-1 A list of key legislative requirements***

| Region | Legislation / Guideline | Comment |
|---|---|---|
| National | National Environmental Management Act (Act No. 107 of 1998) (NEMA) | To provide for the effective protection and controlled utilisation of the environment and for matters incidental thereto. |
| | NEMA: Environmental Impact Assessment Regulations (2014) (GNR 326, 7 April 2017), Appendix 6 requirements | Minimum content for specialist reports. |
| | NEMA: Government Notices (GN) 320 (20 March 2020) and GN 1150 (30 October 2020) | The minimum criteria for reporting. Protocol for the specialist assessment and minimum report content requirements. |
| | The National Environmental Management: Biodiversity Act (Act No. 10 of 2004) (NEMBA), Threatened or Protected Species Regulations | The protection of species and ecosystems that warrant protection. |
| | National Environmental Management: Waste Act (Act No. 59 of 2008) | The regulation of waste management to protect the environment. |
| | National Water Act (Act No. 36 of 1998) (NWA) | To provide for the regulation of water uses. |
| | NWA: Government Notice (GN) 4167 (previously GN 509 of 2016 and GN 3139 of 2023) | Water Use Licence (WUL) in terms of Section 21(c) & (i) water uses and the provision to apply for a General Authorisation subject to usage and outcome of the Risk Assessment Matrix. |
| | NEMBA: Alien and Invasive Species Regulations (2014) (GNR R598, 1 August 2014) | The regulation and management of alien invasive species. |
| | Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983) (CARA) | To provide for control over the utilisation of the natural agricultural resources, including the vegetation and the combating of weeds and invader plants. |

| | | |
|---|---|---|
| **Provincial** | North West Biodiversity Management Act, 2016 (Act No. 4 of 2016) in conjunction with the North West Biodiversity Amendment Bill, 2017 (Provincial Gazette No. 7801) | To provide for the management and conservation of the Northwest Province's biophysical environment and protected areas. |
| | North West Biodiversity Sector Plan (2015) | A spatial tool comprising of set of maps of biodiversity priority areas accompanied by contextual information and land-use guidelines for use in land-use and development planning, environmental assessment and regulation, and natural resource management. |

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

The 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. The National Water Act (Act No. 36 of 1998) (NWA) allows for the protection of water resources, which includes:

- The maintenance of the quality of the water resource to the extent that the water resources may be used in an ecologically sustainable way;
- The prevention of the degradation of the water resource; and
- The rehabilitation of the water resource.

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 a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks.

The NWA recognises that the entire ecosystem, not just the water itself, constitutes a water resource and as such needs to be conserved. No activity may therefore take place within a watercourse unless it is authorised by the DWS. Any area within a wetland or riparian zone is therefore excluded from development unless authorisation is obtained from the DWS in terms of Section 21 (c) and (i).

### 1.7 National Environmental Management Act (NEMA, 1998)

The National Environmental Management Act (NEMA) (Act 107 of 1998) and the associated Regulations as amended in April 2017, states that prior to any development taking place within a wetland or riparian area, an environmental authorisation process needs to be followed. This could follow either the Basic Assessment Report (BAR) process or the Environmental Impact Assessment (EIA) process depending on the scale of the impact.

### 1.8 Legislative Framework

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on freshwater biodiversity, as per Government Notice 320 published in terms of NEMA, dated 20 March 2020: "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" – the following has been assumed:

- An applicant intending to undertake an activity identified in the scope of this protocol on a site identified on the screening tool as being of:
    - "very high sensitivity" for aquatic biodiversity, must submit an Aquatic Biodiversity Specialist Assessment;
    - "low sensitivity" for aquatic biodiversity, must submit an Aquatic Biodiversity Compliance Statement;
- Where the information gathered from the site sensitivity verification differs from the screening tool designation of "very high" aquatic biodiversity sensitivity, and it is found to be of a "low" sensitivity, an Aquatic Biodiversity Compliance Statement must be submitted;
- Similarly, where the information gathered from the site sensitivity verification differs from the screening tool designation of "low" aquatic biodiversity sensitivity, and it is found to be of a "very high" sensitivity, an Aquatic Biodiversity Specialist Assessment must be submitted; and
- If any part of the proposed development footprint falls within an area of "very high" sensitivity, the assessment and reporting requirements prescribed for the "very high" sensitivity apply to the entire footprint, excluding a linear activity for which impacts on aquatic biodiversity are temporary and the land in the opinion of the aquatic biodiversity specialist, based on the mitigation and remedial measures, can be returned to the current state within two years of the completion of the construction phase, in which case a compliance statement applies.

Given that the proposed project is of a linear nature, the reporting requirements for a compliance statement has been followed.

An Aquatic Biodiversity Compliance Statement must contain the information as presented in Table 1-2 below.

***Table 1-2 Aquatic Biodiversity Compliance Statement information requirements as per the relevant protocol, including the location of the information within this report***

| Information to be Included (as per GN 320, 20 March 2020) | Report Section |
|---|---|
| contact details of the specialist, their SACNASP registration number, their field of expertise and a curriculum vitae | 8.4 |
| a signed statement of independence by the specialist | 8.3 |
| a statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment | 3.2 |
| a baseline profile description of biodiversity and ecosystems of the site | 3.1.4 |
| the methodology used to verify the sensitivities of the aquatic biodiversity features on the site including the equipment and modelling used where relevant; | 8.1 |
| in the case of a linear activity, confirmation from the aquatic biodiversity specialist that, in their opinion, based on the mitigation and remedial measures proposed, the land can be returned to the current state within two years of completion of the construction phase | 6.1 |
| where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr | 5 |
| a description of the assumptions made as well as any uncertainties or gaps in knowledge or data | 1.4 |
| any conditions to which this statement is subjected | 6.2 |

# 2 Fieldwork

A field survey for the area was undertaken on the 30th of January 2025, which constitutes a wet season survey in relation to identifying wetland features. The seasonality of the survey is not considered to be a limiting factor of the assessment, for which the results are conclusive in the opinion of the specialist.

# 3 Results & Discussion

## 3.1 Desktop Dataset Assessment

### 3.1.1 Climate

The dominant vegetation types within the PAOI (Zeerust Thornveld and Gold Reef Mountain Bushveld) were used to draw inferences on the climate of the area. This region (Zeerust Thornveld) is characterised by summer rainfall with very dry winters. The Mean Annual Precipitation (MAP) ranges between 550- and 600-mm. Frost is fairly frequent in the winter months (Figure 3-1; Mucina & Rutherford, 2006).

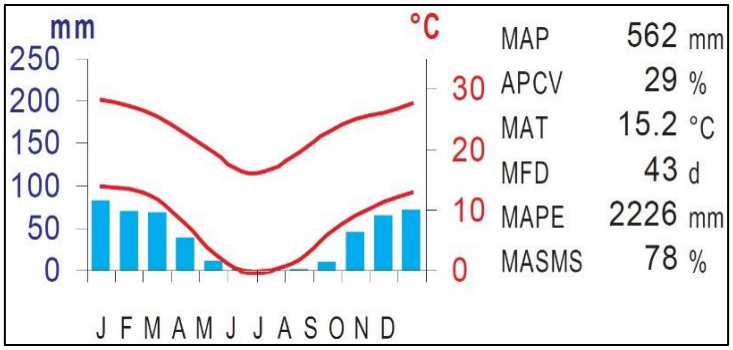



***Figure 3-1 Climate for the project area based on the Zeerust Thornveld (Mucina & Rutherford, 2006)***

Part of this region is also characterised by dry winters with a summer rainfall, see Figure 3-2. The mean annual precipitation ranges from 600 to 700mm with frost occurring fairly frequent around the base of hills during winter months, Mucina & Rutherford (2006).

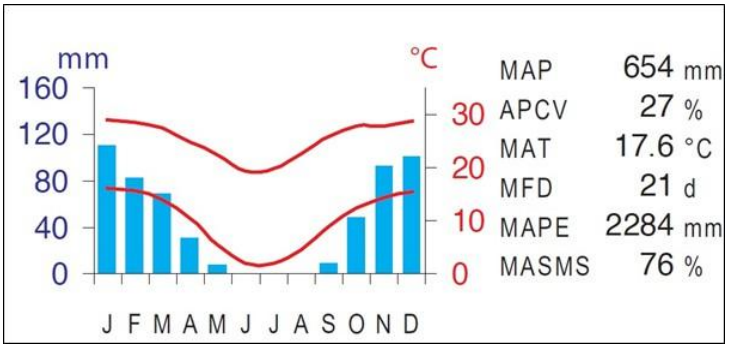



***Figure 3-2 Climate for the project area based on the Gold Reef Mountain Bushveld (Mucina & Rutherford, 2006)***

### 3.1.2 Soils and Geology

According to Mucina and Rutherford (2006) the geology of the Zeerust Thornveld vegetation is predominantly characterized by sediments from the Pretoria Group (Transvaal Supergroup), specifically the Silverton and Rayton Formations. These formations are primarily composed of shale, with lesser amounts of quartzite and conglomerate. Additionally, the Pretoria Group includes carbonates, volcanic rocks, breccias, and diamictites. Furthermore, the Rustenburg Layered Suite (Bushveld Igneous Complex) contributes bronzite, harzburgite, gabbro, and norite to the geological composition. The soils in this region are generally deep, red-yellow, apedal, and freely drained, exhibiting high base saturation, with some areas containing vertic or melanic clays. The predominant land types are classified as Ae and Ea (Mucina and Rutherford, 2006).

Similarly, the geology of the Gold Reef Mountain Bushveld is characterised by mafic intrusive rocks from the Bushveld Igneous Complex's Rustenburg Layered Suite. These rocks include norite, gabbro, anorthosite and pyroxenite. The Pretoria Group is included in this region specifically with the presence of quartzites and shale. Melanic and Vertic clays are commonly found within this region with mesotrophic or dystrophic plinthic catenas as well as deep, freely drained soils (Mucina & Rutherford, 2006).

According to the land type database (Land Type Survey Staff, 1972 - 2006), the project area is categorised by the Ea 68, Ae 64, Ib 3, Bc 8 and Ea 3 land types. The Ea land type consists of one or more of the following soils: Vertic, Melanic, and red structured diagnostic horizons, of which these soils are all undifferentiated. The Ae land type consists of red-yellow apedal soils which are freely drained. The soils tend to have a high base status and is deeper than 300 mm. The Ib land type consists of miscellaneous land classes including rocky areas with miscellaneous soils. This Bc land type is characterised by plinthic catena. Upland duplex and margalitic soils are rare within this land type. Eutrophic red soils are widespread across this area.

### 3.1.3 Hydrological Characteristics

The PAOI falls within the Highveld Ecoregion, within the Limpopo-Olifants Management Area (WMA). At a finer scale, within the A22F quaternary catchment (Figure 3-3). The fine scale hydrological features are presented in the following section.

The topographical inland and river line data for the "2527" dataset indicated a handful of inland water areas, which were classified as dams (Figure 3-3). Furthermore, several topographic drainage features were identified (Figure 3-3), one of which was classified as being perennial (Elands River), with the others being non-perennial features.

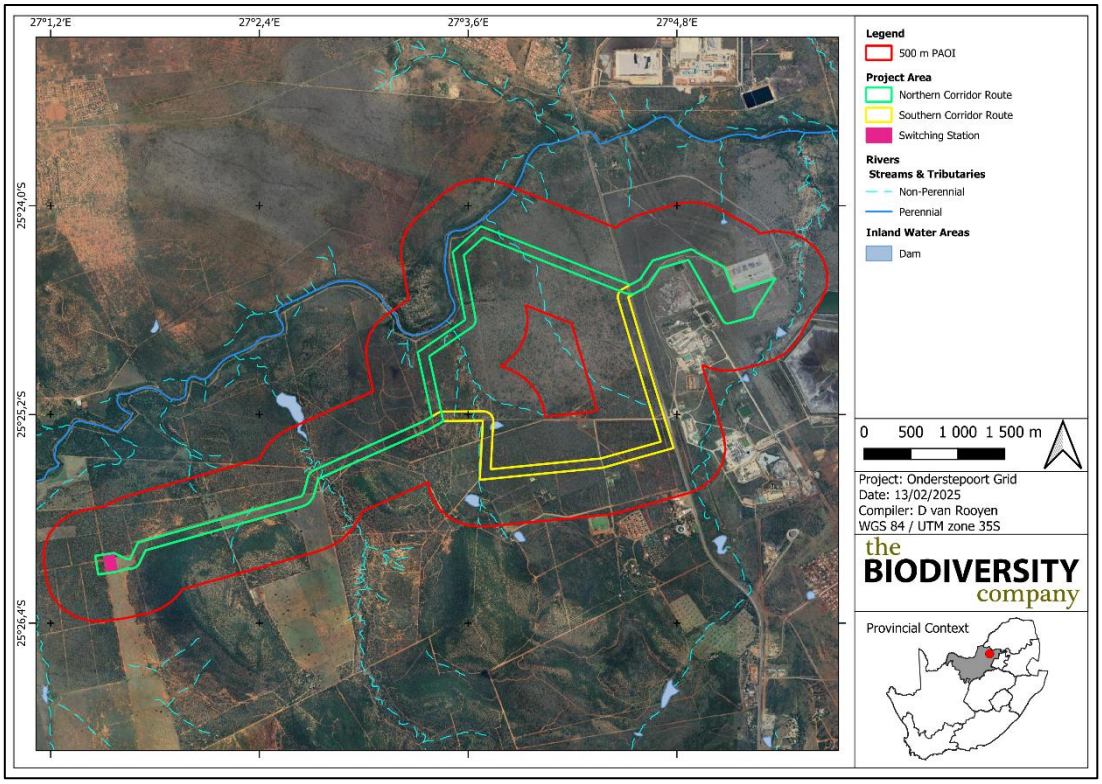



***Figure 3-3 Topographical River Lines that intersect the Project Area of Influence***

### 3.1.4 Ecologically Important Landscape Features

The GIS analysis pertaining to the relevance of the proposed project to ecologically important landscape features is summarised in Table 3-1. Only features that were identified to be relevant to the proposed project were further discussed.

***Table 3-1 Summary of relevance of the proposed project to ecologically important landscape features***

| Desktop Information Considered | Relevant/Irrelevant | Section |
|---|---|---|
| National Freshwater Priority Area | Relevant – PAOI overlaps with NFEPA wetlands and rivers. | 3.1.4.1 |
| South African Inventory of Inland Aquatic Ecosystems (SAIIAE) | Relevant – PAOI overlaps with overlap with SAIIAE wetlands and rivers. | 3.1.4.2 |
| Provincial Conservation Plan | Relevant – PAOI overlaps with Aquatic ESA's. | 3.1.4.3 |
| Strategic Water Source Areas | Irrelevant – PAOI does not overlap with a SWSA. | - |

#### 3.1.4.1 National Freshwater Ecosystem Priority Areas

Two wetland types have been identified within the PAOI, namely three channelled valley-bottoms (CVB) and two unchannelled valley-bottoms (Figure 3-4). According to the dataset, the wetlands have been classified to have "Z3 - Heavily to Critically Modified" conditions and are classified as "non-priority" systems. Furthermore, one river was identified within the PAOI, the Elands River.

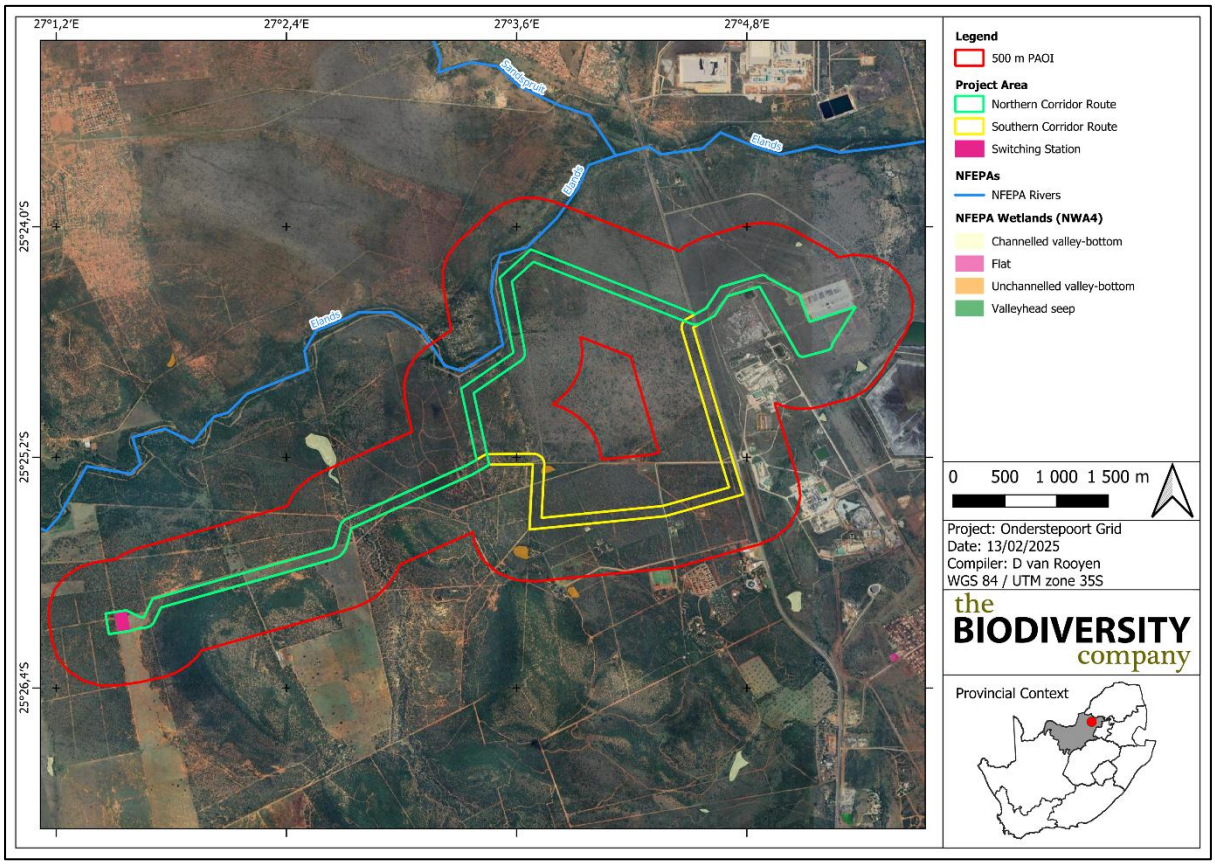



***Figure 3-4 Wetland features identified within the Project Area of Influence according to the National Freshwater Ecosystem Priority Areas dataset***

### 3.1.4.2 South African Inland Inventory of Aquatic Ecosystems

Two wetlands were identified within the PAOI according to the dataset, these were classified as a CVB and a seep wetland (Figure 3-5). The CVB and seep wetlands have both been classified according to the dataset to have “D / E / F – Largely to Critically Modified” conditions. Furthermore, the wetlands are considered to be “Critically Endangered” and “Not Protected” with regard to Ecosystem Threat and Protection Status, respectively.

The Elands River identified through the dataset is a “Critically Endangered” and “Not Protected” ecosystem with regard to Ecosystem Threat and Protection Status, respectively.

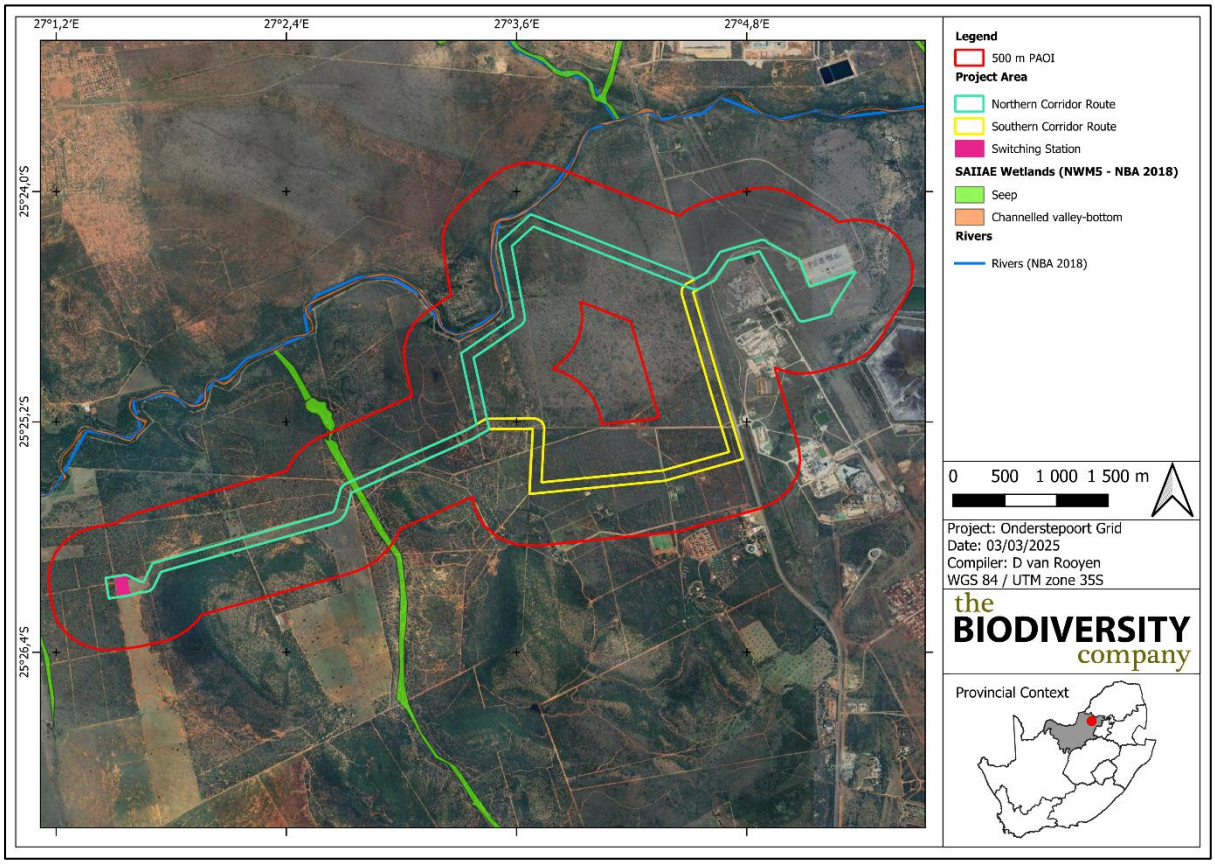



***Figure 3-5 Wetland features identified within the Project Area of Influence according to the South African Inland Inventory of Aquatic Ecosystems dataset***

### 3.1.4.3 North West Biodiversity Sector Plan

According to the North West Biodiversity Sector Plan for Aquatic biodiversity (Figure 3-6), the PAOI intersects the following map categories:

- Ecological Support Areas 1; and
- Ecological Support Areas 2;

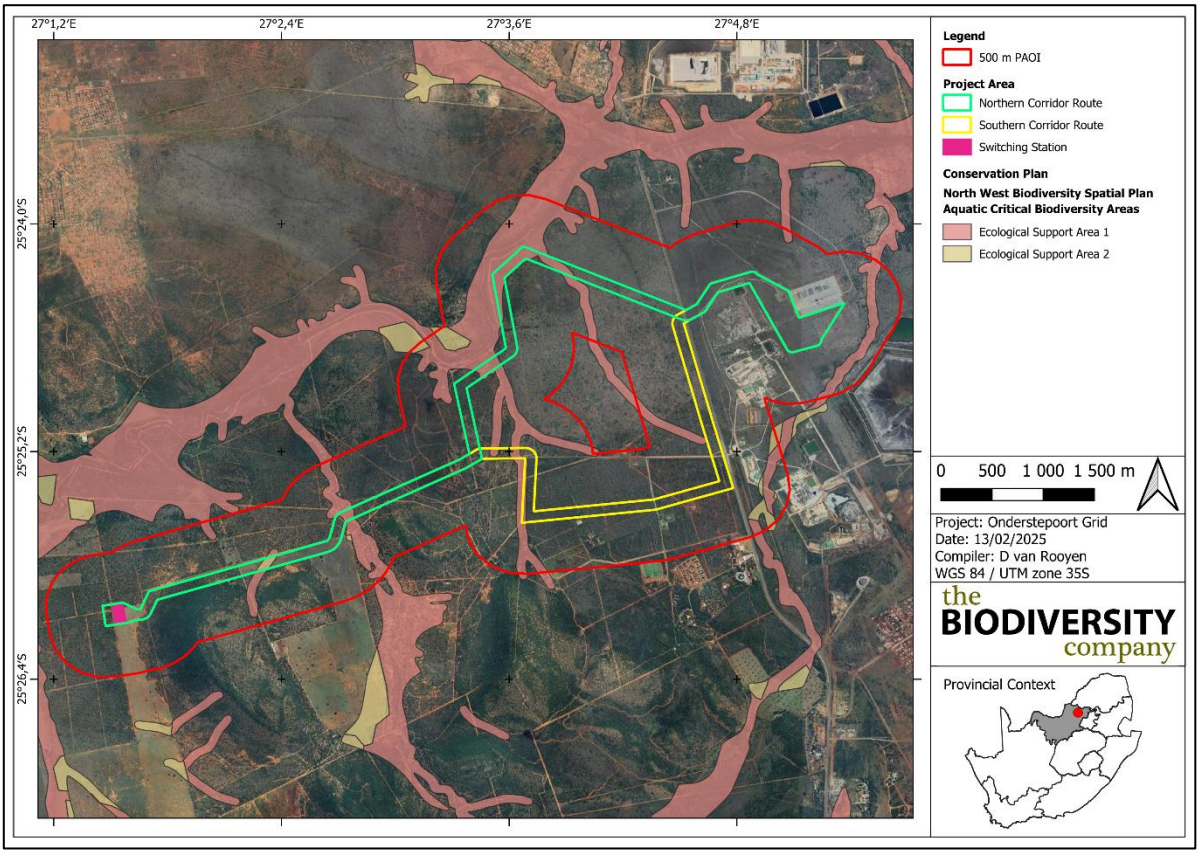



***Figure 3-6 Conservation Plan overlayed with the Project Area of Influence***

## 3.2 Wetland Field Survey

### 3.2.1 Delineation

No natural wetlands were identified within the Grid Corridor, however, two hydrogeomorphic units (HGMs) were identified within the larger 500 m PAOI. These were classified as a CVB (HGM 1) and a depression (HGM 2). In addition to these, four non-perennial drainages, and a riparian zone was identified within the PAOI (Figure 3-7). The proposed grid corridor only traverses non-perennial drainages.

Additionally, several artificial watercourses were identified within the PAOI. These were classified as artificial farm dams and attenuation ponds. The Elands River riparian zone is located along the Northern Corridor Route. The non-perennial drainages were characterised by steep banks with a sand dominated channel and a distinct tree fringe and some features without a clear-cut channel where excess stormwater after heavy rains are transported away from the area (Figure 3-8).

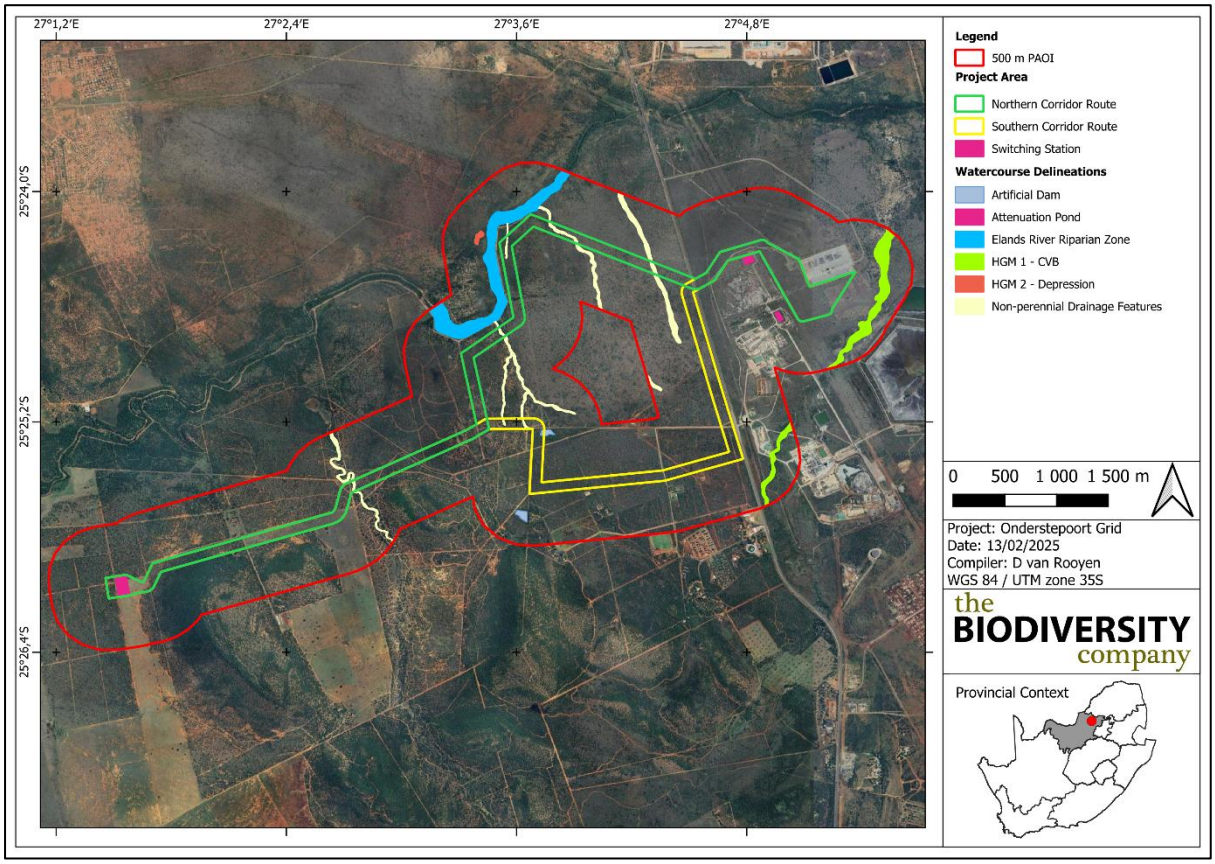



***Figure 3-7 Delineation of features within the Project Area of Influence***

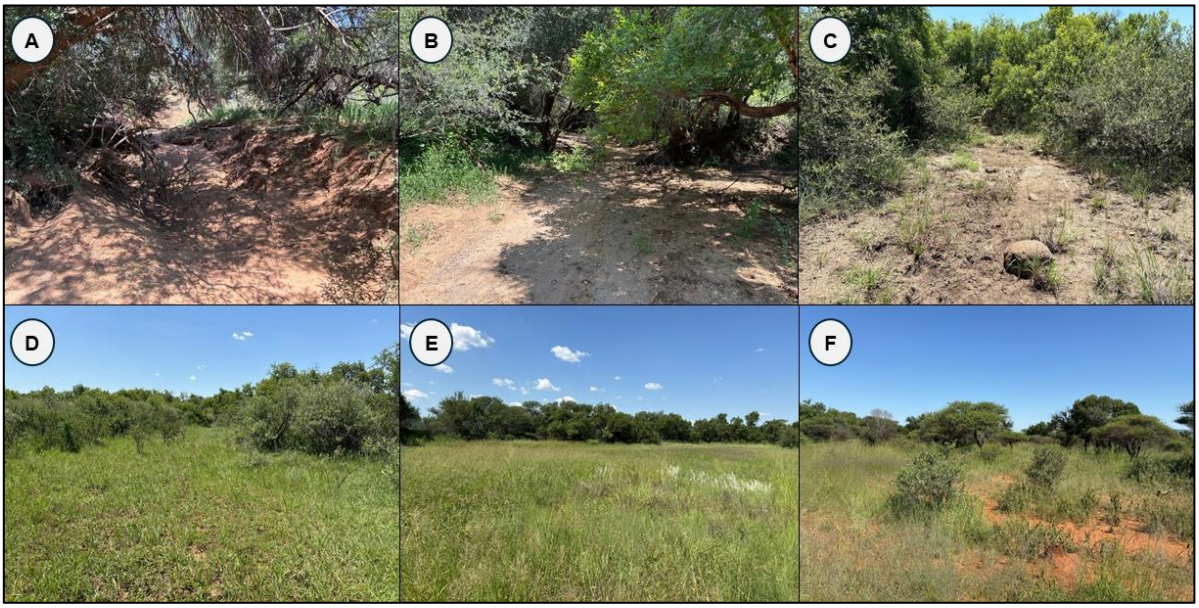



***Figure 3-8 Representative photographs of identified features. A, B, C & D) Non-perennial drainages; E) Artificial Dam; and F) General Environment within the PAOI***

### 3.2.2 Classification and Description

The non-perennial drainage features are classified as A – Section channels (Figure 3-9).

The DWAF (2005) manual separates the classification of watercourses into three (3) separate types of channels or sections defined by their position relative to the zone of saturation in the riparian area (Figure 3-9). The classification system separates channels into:

- those that do not have baseflow ('A' Sections);
- those that sometimes have baseflow ('B' Sections) or non-perennial; or
- those that always have baseflow ('C' Sections) or perennial.

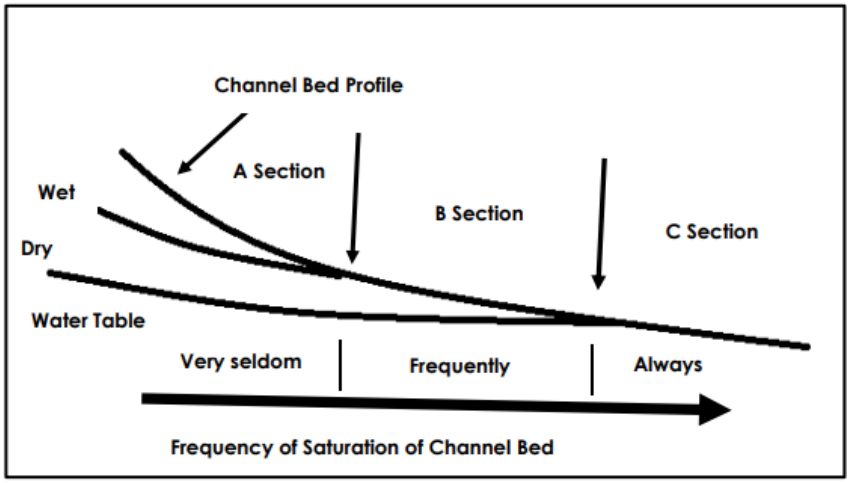



***Figure 3-9 The watercourse classifications (DWAF, 2005)***

## 3.3 Risk Screening

Table 3-2 provides the results of risk screening for the features and provides motivation for each of the determined categories.

***Table 3-2 Risk status of the delineated wetlands***

| Feature | Risk Status | Rationale |
|---|---|---|
| Non-perennial Drainages | At Risk | These features were directly intersected and is located in proximity or downslope of the proposed activities and, has therefore been determined as "At Risk". It is anticipated that direct and / or indirect impacts to the feature is potential. |
| HGM 1<br>HGM 2<br>Elands River Riparian Zone<br>Artificial Watercourses | Not at Risk | These features are not directly intersected by the proposed activities and is not located in a position of the landscape that will be susceptible to potential impact; therefore, this system has been determined as "Not at Risk". |

## 3.4 Buffer Requirements

The recommended buffers for the drainage features are 15 m (Figure 3-10). The buffers consider the nature of the proposed activities which is perceived to be local and minimally disruptive to the functioning of the drainage features. Furthermore, the pylon positions were not available at the time of the assessment, therefore, it is assumed that the pylons will be situated outside of the 15 m buffer. However, if the pylon positions can't be located outside of the 15 m buffer zone, it is deemed acceptable with the implementation of mitigation measures, the buffer must be in effect for all other ancillary activities of the proposed project as a precautionary measure to prevent additional impacts to the drainage feature.

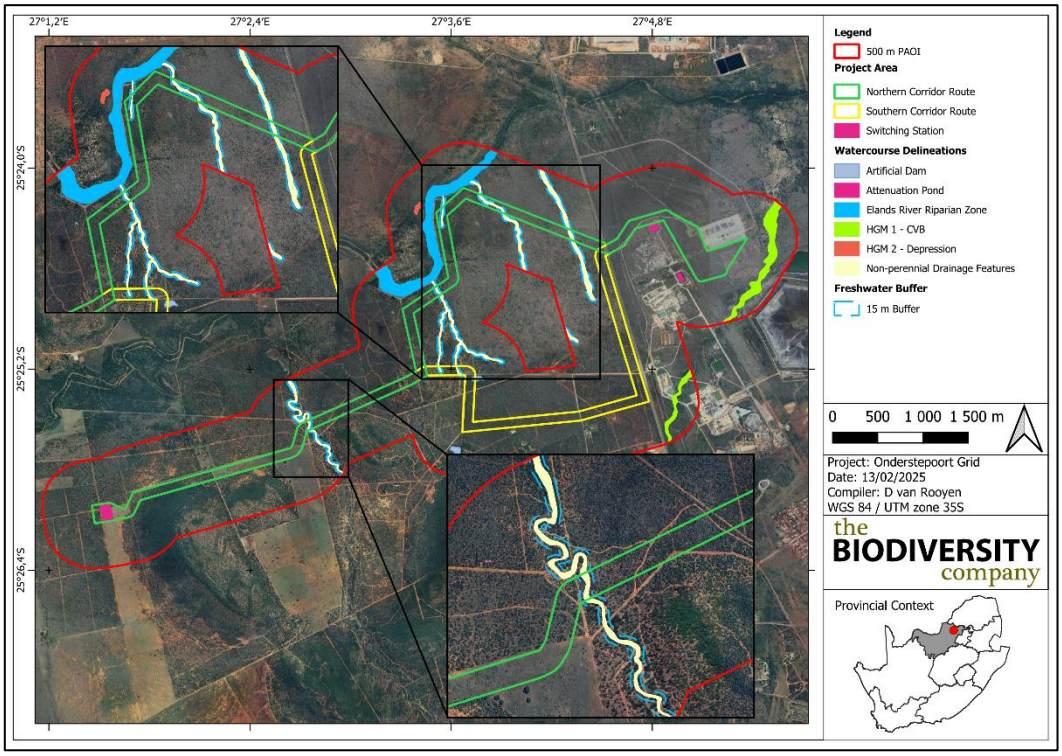



***Figure 3-10 Recommended buffers for the relevant features***

### 3.4.1 Regulation Zones

Table 3-3 presents the legislated zones of regulation that would be applicable to the delineated freshwater features. The proposed grid corridor falls within 100 m and 32 m of drainage features and a riparian zone which is the regulation zone of non-wetland watercourses in relation to the NWA and the NEMA, respectively (Figure 3-11). In addition, the proposed corridor also falls within 500 m regulation zone of wetlands in relation to NWA (Figure 3-12).

***Table 3-3 Legislated zones of regulation***

| Regulatory authorisation required | Zone of applicability |
|---|---|
| Water Use License Application in terms of the National Water Act, 1998 (Act No. 36 of 1998).<br><br>GN 4167 as published in the Government Gazette 49833 of 2023.<br><br>GN 509 as published in the Government Gazette 40229 of 2016.<br><br>Department of Water and Sanitation (DWS) | In accordance with GN 4167 of 2023 and GN 509 of 2016, as it relates to the National Water Act, 1998 (Act 36 of 1998), a regulated area of a watercourse in terms of water uses as listed in Section 21c and 21i is defined as:<br><br>• 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;<br><br>• in the absence of a determined 1 in 100 year flood line or riparian area the area within 100 m from the edge of a watercourse where the edge of the watercourse is the first identifiable annual bank fill flood bench; or<br><br>• a 500 m radius from the delineated boundary (extent) of any wetland or pan in terms of this regulation. |
| The National Environmental Management Act, 1998 (Act No. 107 of 1998).<br><br>EIA Regulations (2014), as amended. | Activity 12 of Listing Notice 1 (GN 327) of the National Environmental Management Act, 1998 (Act No.107 of 1998) EIA regulations, 2014 (as amended) states that:<br><br>The development of:<br><br>(xii) Infrastructure or structures with a physical footprint of 100 square meters or more; |

Where such development occurs—

a) Within a watercourse;
b) In front of a development setback; or
c) If no development setback has been adopted, within 32 meters of a watercourse, measured from the edge of a watercourse.

Excluding –

…(dd) where such development occurs within an urban area…

Activity 19 of Listing Notice 1 (GN 327) of the National Environmental Management Act, 1998 (Act No. 107 of 1998) EIA regulations, 2014 (as amended) states "The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse."

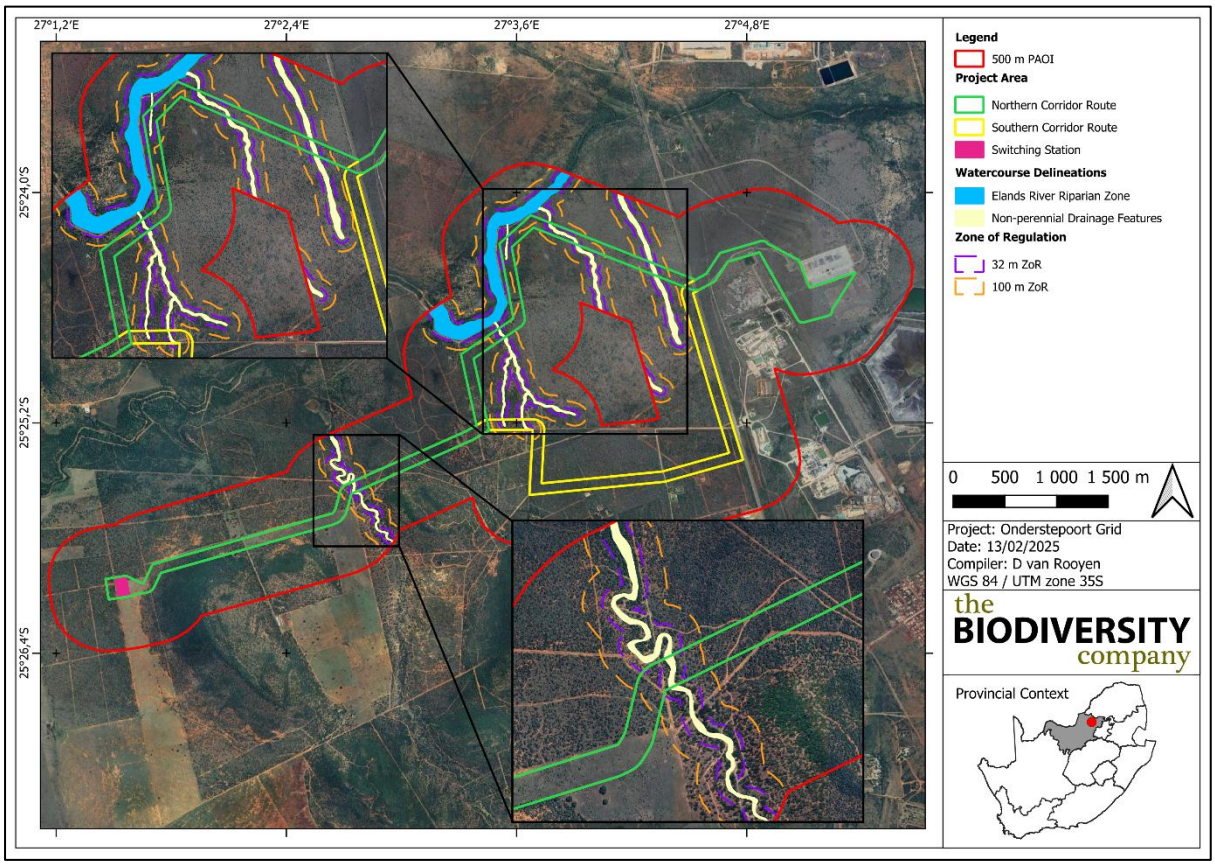



***Figure 3-11 Zones of Regulation for identified drainages and riparian zone***

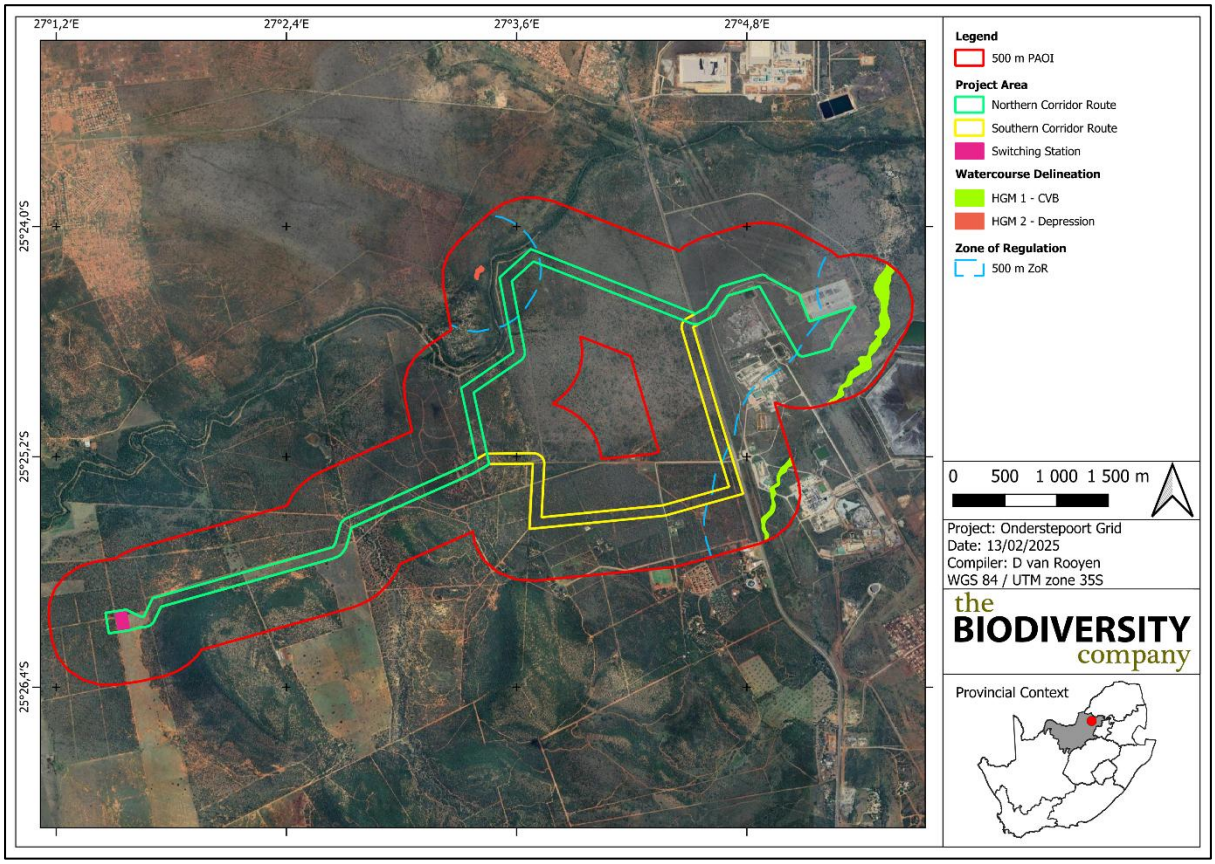


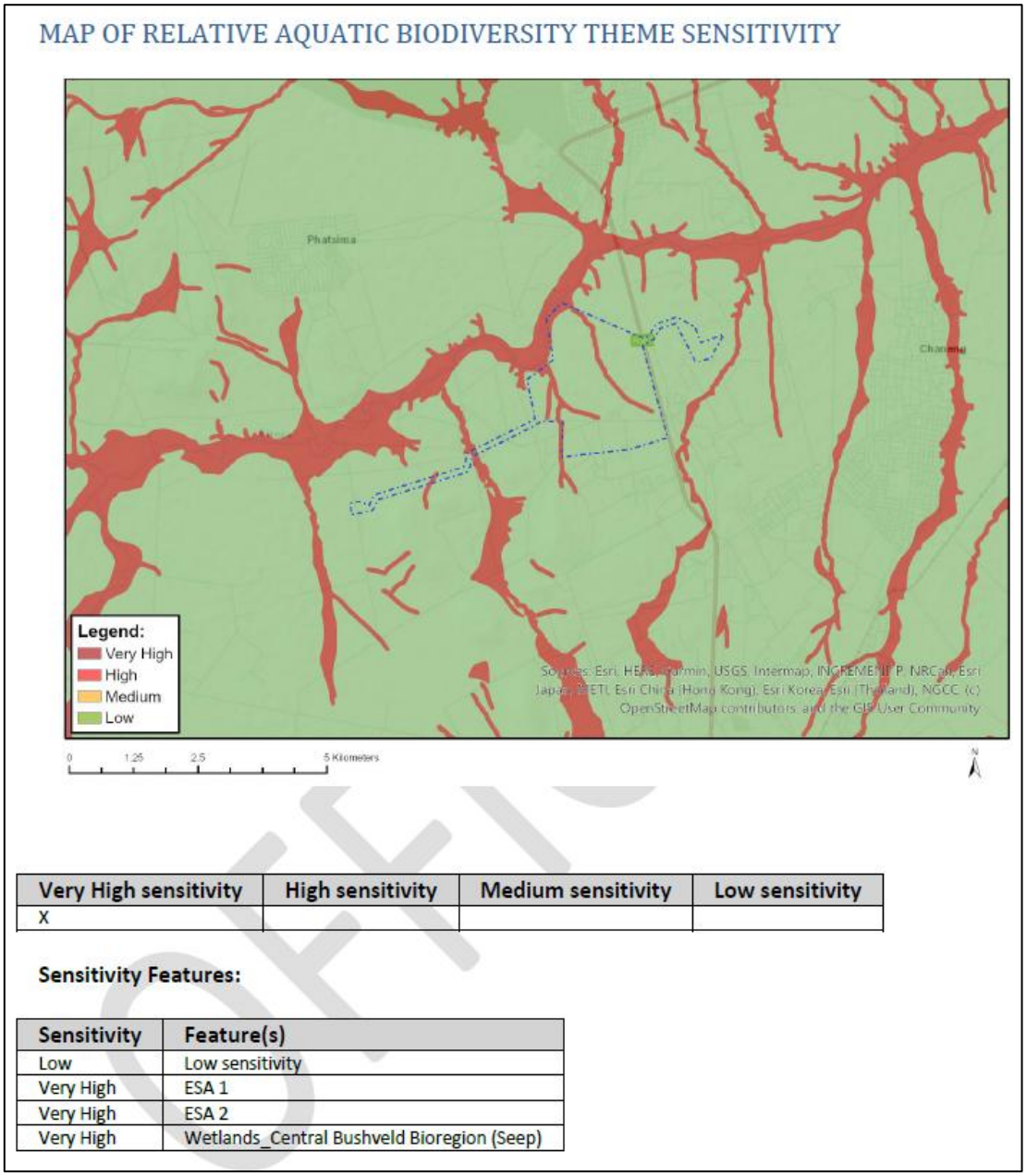

***Figure 3-12 Zones of Regulation for identified wetlands***

## 3.5 Site Sensitivity Verification

### 3.5.1 Desktop Ecological Sensitivity

The following is deduced from the National Web-based Environmental Screening Tool Regulation 16(1)(v) of the Environmental Impact Assessment Regulations 2014, as amended):

- Aquatic Biodiversity Theme Sensitivity as “Very High” for the PAOI attributed to the presence of freshwater features and ESA’s (Figure 3-13).




| Very High sensitivity | High sensitivity | Medium sensitivity | Low sensitivity |
|---|---|---|---|
| X | | | |

**Sensitivity Features:**

| Sensitivity | Feature(s) |
|---|---|
| Low | Low sensitivity |
| Very High | ESA 1 |
| Very High | ESA 2 |
| Very High | Wetlands_Central Bushveld Bioregion (Seep) |

***Figure 3-13 Aquatic Biodiversity Theme Sensitivity for the proposed Grid Corridor and associated infrastructure, according to the National Web-based Environmental Screening Tool***

### 3.5.2 Screening Tool Comparison

The allocated sensitivities for each of the relevant themes are either disputed or validated for the assessed areas as presented in Table 3-4 below. A summative explanation for each result is provided as relevant. It should be noted that the National Web-based Environmental Screening Tool allocates sensitivities to freshwater resources identified through the available national freshwater datasets based on their presence (very high) or absence (low). The specialist-assigned sensitivity ratings presented herein consider the presence of features in conjunction with the understood importance that features have in their landscape. Figure 3-14 presents the delineated systems within the PAOI and the assigned sensitivities.

***Table 3-4 Summary of the screening tool vs specialist assigned sensitivities***

| Feature | Screening Tool Theme | Screening Tool | Specialist Finding | Tool Validated or Disputed by Specialist - Reasoning |
|---|---|---|---|---|
| Non-perennial Drainage | Aquatic Biodiversity Theme | **Very High** | **Moderate** | Disputed – These features provide landscape connectivity and are perceived to contribute to biodiversity value in consideration of the landscape they occur within. |
| Riparian Zone | | **Very High** | **Very High** | Validated – This feature provides landscape connectivity and is perceived to contribute to biodiversity value to the Elands River. |
| HGM units | | **Very High** | **Very High** | Validated – These features provide ecological functions and connectivity to the downstream freshwater features, especially HGM 1. |
| Freshwater Buffers | | **Low** | **Moderate** | Disputed – Whilst the buffer areas do not necessarily represent freshwater features, their conservation is imperative to limiting impact to the watercourses as they form the periphery of the watercourses thereby having spatial connectivity to the watercourses. The sensitivity of the buffers is therefore determined by the landscape and the sensitivity of the features they encompass. |
| Remaining Area | | **Low** | **Low** | Validated – No natural surface water features were identified within these areas. |

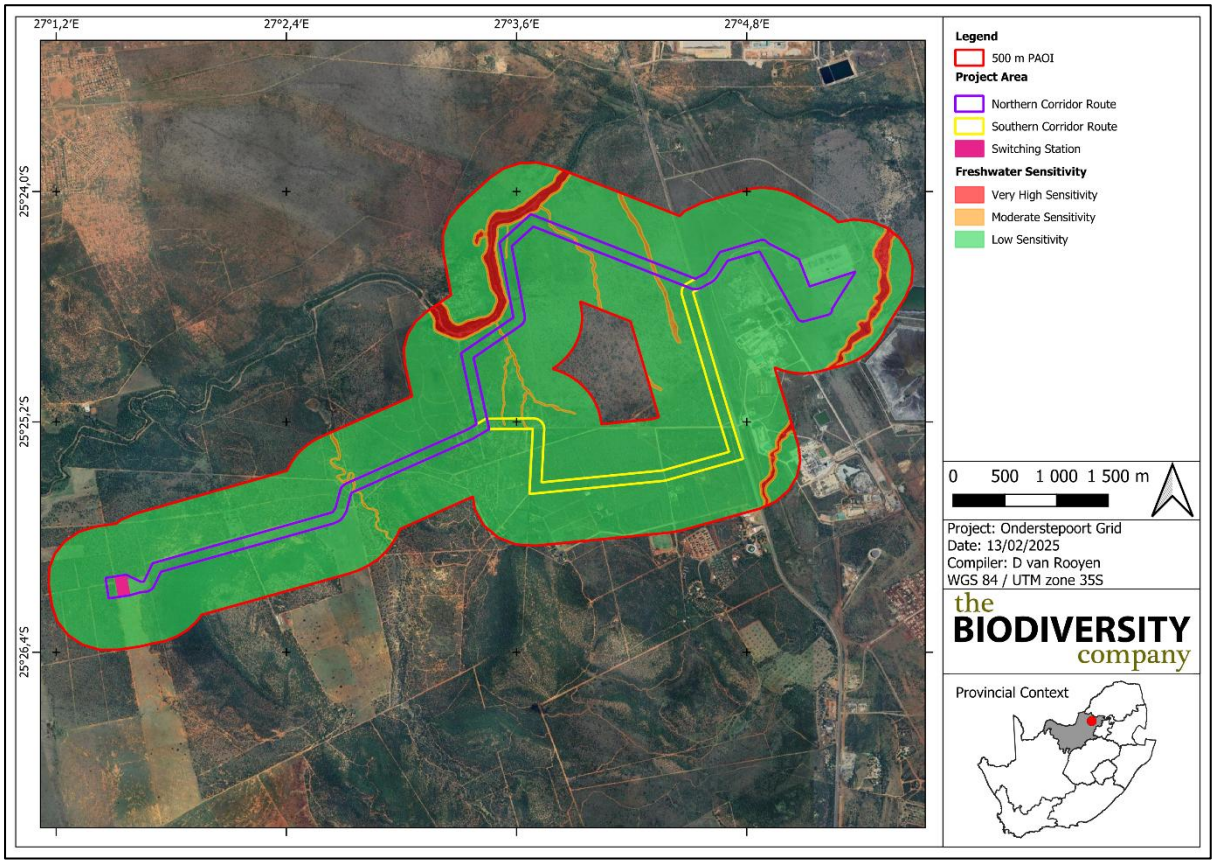



***Figure 3-14 Map illustrating the freshwater sensitivity for the Project Area of Influence***

# 4 Risk Assessment

The Risk Assessment considered the direct and indirect impacts to the drainage systems. The mitigation hierarchy as discussed by the Department of Environmental Affairs (2013) will be considered for this component of the assessment (Figure 4-1). In accordance with the mitigation hierarchy, the preferred mitigatory measure is to avoid impacts by considering options in project location, sitting, scale, layout, technology and phasing to avoid impacts.

A risk assessment (Table 4-1) was conducted for the proposed activities. For this assessment, the construction and operational phases were focused on. It should be noted that the location of the pylons has not been provided, however it is assumed that the project will implement strategic placement of the pylons which avoid the wetlands and their buffers wherever possible. Furthermore, it is assumed that existing crossings of the watercourses will be used thereby minimising the risks.

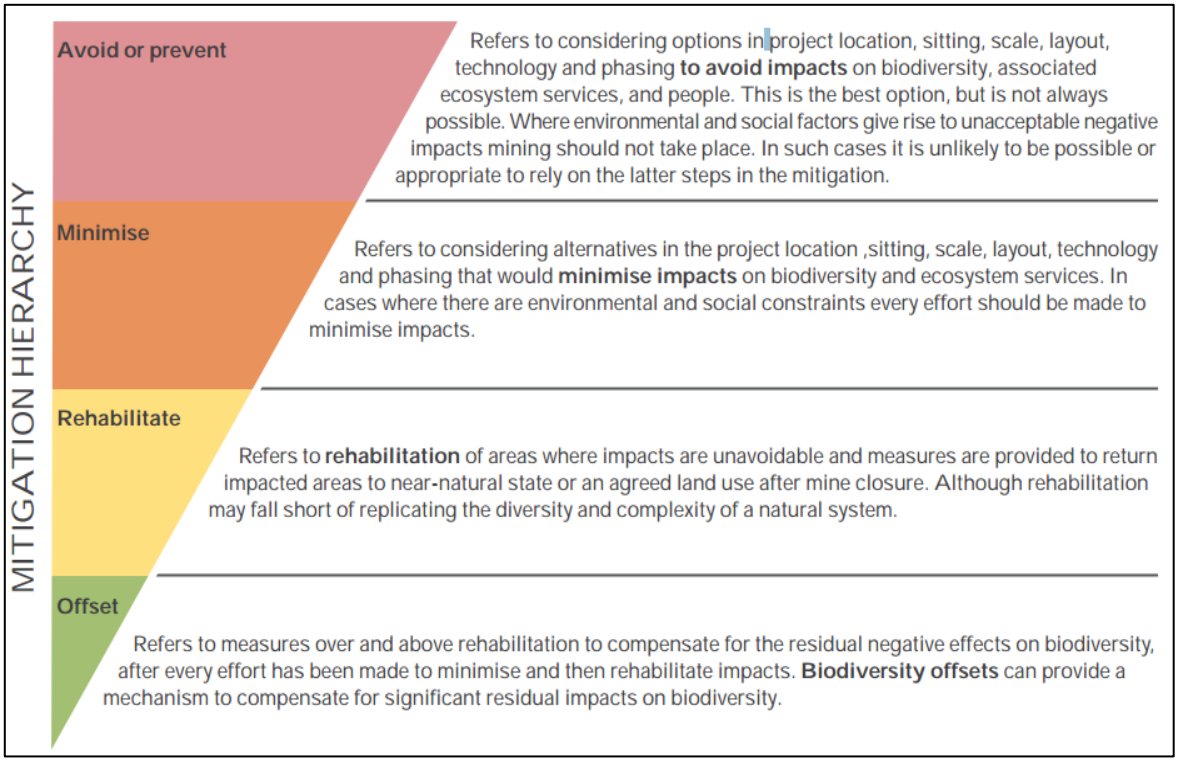



***Figure 4-1 The mitigation hierarchy as described by the DEA (2013)***

Provided that the suggested mitigations are implemented, the project is anticipated to result in “Low” post-mitigation risks to the watercourse. This is attributed to nature of the activities which are considered to be minimally invasive (linear) and are short-term (once established, the operation of the powerline will not require heavy disturbance activity to maintain) which decreases the overall magnitude and likelihood of the impact.

***Table 4-1 Summary of the DWS Risk Assessment conducted for the proposed activities***

| Phase | Activity | Impact | Significance (max = 100) | Risk Rating | Confidence level |
|---|---|---|---|---|---|
| Construction | Construction of Grid Corridor **(Within watercourse buffer)** [Access to pylon sites (possibly intersecting drainage features). Clearing of vegetation. Usage of equipment and machinery. Excavating for pylon placement. Straining of powerline cables.] | Disturbance to natural vegetation and increase in pioneer and weedy species. | **7,2** | **L** | High |
| | | Altered hydrology from creation of preferential flow paths and hardened surfaces with increased risk of erosion. | **9,6** | **L** | High |
| | | Contamination from spills and leaks of hydrocarbons (i.e. oil, grease etc.), use of cement on site, disposal of waste generated on site, temporary toilets used on site. | **7,2** | **L** | High |
| | Construction of Grid Corridor **(Within 100m of watercourse)** [Access to pylon sites (possibly intersecting drainage features). Clearing of vegetation. Usage of equipment and machinery. Excavating for pylon placement. Straining of powerline cables.] | Disturbance to natural vegetation and increase in pioneer and weedy species. | **2,4** | **L** | High |
| | | Altered hydrology from creation of preferential flow paths and hardened surfaces with increased risk of erosion. | **2,4** | **L** | High |
| | | Contamination from spills and leaks of hydrocarbons (i.e. oil, grease etc.), use of cement on site, disposal of waste generated on site, temporary toilets used on site. | **2,4** | **L** | High |
| Operational Phase | Routine Maintenance **(Within watercourse buffer and within 100m of watercourse)** [General access to pylons. Small scale repair work.] | Disturbance to natural vegetation and increase in pioneer and weedy species. | **2,4** | **L** | High |
| | | Altered hydrology from creation of preferential flow paths and hardened surfaces with increased risk of erosion. | **4,8** | **L** | High |
| | | Contamination from spills and leaks of hydrocarbons (i.e. oil, grease etc.), use of cement on site, disposal of waste generated on site, temporary toilets used on site. | **2,4** | **L** | High |

# 5 Mitigation Measures

In light of the expected impacts from proposed activities, the following mitigation measures have been proposed to lower the intensity of the impacts on the ecological integrity of the wetland catchment and its downslope wetland features. The suggested mitigation measures apply mainly to the operational phase of the proposed activities.

The focus of mitigation measures should be to reduce the significance of potential environmental impacts associated with the development and thereby to:

- Prevent the unnecessary destruction of, and fragmentation, of the vegetation community of the wetland areas; and
- Limit the construction area to the defined project areas and only impact those areas where it is unavoidable to do so otherwise.

***Table 5-1 Proposed mitigation measures for the project***

| Impact | Mitigation |
|---|---|
| Disturbance to natural vegetation and increase in pioneer and weedy species. | • Establish a route plan for access to each pylon location in advance, prioritizing existing roads, tracks, and disturbed areas.<br>• No pylon should be located within any of the drainage features.<br>• Use manual techniques for any work that is required within the watercourse, the use of machinery and vehicles must be restricted within these areas.<br>• Avoid creating access routes through drainage habitat, existing crossings or tracks must be used to navigate to the pylons located across the drainage feature. Where unavoidable (watercourse buffer, use a single track to avoid creating turning circles within the drainage and its respective buffer.<br>• Demarcate the footprint for the pylons with danger tape to limit activity to the designated area and minimize the impact on adjacent drainage habitats.<br>• Limit vegetation clearing to the actual pylon footprint. Avoid disturbance of vegetation outside the demarcated footprint.<br>• Backfill all excavations promptly after excavations for the pylons, placing material in the correct order, with topsoil replaced on the surface (where applicable).<br>• Immediately rehabilitate and revegetate the pylon footprint and vehicle tracks after the pylon has been erected. Shallow soil berms can be used within tracks to prevent preferential flow paths and limit erosion where required. |
| Altered hydrology from creation of preferential flow paths and hardened surfaces with increased risk of erosion. | • Establish a route plan for access to each pylon location in advance, prioritizing existing roads, tracks, and disturbed areas.<br>• No pylon should be located within any of the drainage features.<br>• Use manual techniques for any work that is required within the watercourse, the use of machinery and vehicles must be restricted within these areas.<br>• Avoid creating access routes through drainage habitat, existing crossings or tracks must be used to navigate to the pylons located across the drainage feature. Where unavoidable (watercourse buffer, use a single track to avoid creating turning circles within the drainage and its respective buffer.<br>• Demarcate the footprint for the pylons with danger tape to limit activity to the designated area and minimize the impact on adjacent drainage habitats.<br>• Limit vegetation clearing to the actual pylon footprint. Avoid disturbance of vegetation outside the demarcated footprint.<br>• Backfill all excavations promptly after excavations for the pylons, placing material in the correct order, with topsoil replaced on the surface (where applicable).<br>• Immediately rehabilitate and revegetate the pylon footprint and vehicle tracks after the pylon has been erected. Shallow soil berms can be used within tracks to prevent preferential flow paths and limit erosion where required.<br>• Schedule any excavation for the pylons prior to any foreseeable rainfall events to limit the potential for erosion and sedimentation.<br>• Place temporary sediment control structures, such as low earth berms, on the downslope edge of the pylon footprint if erosion risk is anticipated, particularly in relation to the pylons in proximity of the watercourse and buffer.<br>• Prevent formation of preferential flow paths by landscaping and rehabilitating vehicle paths. |
| Contamination from spills and leaks of hydrocarbons (i.e. oil, grease etc.), use of cement on site, disposal of waste generated on site, temporary toilets used on site. | • Use manual techniques for any work that is required within the watercourse, the use of machinery and vehicles must be restricted within these areas.<br>• Use bund trays to contain any contaminated water and spills.<br>• Store any construction additives in appropriate containers on drip trays.<br>• Ensure adequate waste management during the project and remove all waste from the site for proper disposal. Ensure no hazardous chemicals or materials remain on site. |

| | |
|---|---|
| | • Prohibit fuel storage, machinery servicing, and vehicle cleaning on site, especially within watercourse habitats. |

In addition to the implementation of the above mitigation, it is suggested that post-activity inspections be conducted to identify the need for further rehabilitative actions.

# 6 Conclusion

No natural wetlands were identified within the Grid Corridor, however, two hydrogeomorphic units (HGMs) were identified within the larger 500 m PAOI. These were classified as a CVB (HGM 1) and a depression (HGM 2). In addition to these, four non-perennial drainages, and a riparian zone was identified within the PAOI. The proposed grid corridor only traverses non-perennial drainages.

Additionally, several artificial watercourses were identified within the PAOI. These were classified as artificial farm dams and attenuation ponds. The Elands River riparian zone is located along the Northern Corridor Route. The non-perennial drainages consisted of steep banks with a sand dominated channel and a distinct tree fringe.

The recommended buffers for the drainage features are 15 m. The buffers consider the nature of the proposed activities which is perceived to be local and minimally disruptive to the functioning of the drainage feature. Furthermore, the pylon positions were not available at the time of the assessment, therefore, it is assumed that the pylons will be situated outside of the 15 m buffer. However, if the pylon positions can't be located outside of the 15 m buffer zone, it is deemed acceptable with the implementation of mitigation measures, the buffer must be in effect for all other ancillary activities of the proposed project as a precautionary measure to prevent additional impacts to the drainage feature.

## 6.1 Risk and Impact Statement

A risk assessment was conducted for the proposed project. The post-mitigation risks for the project presented within the "Low" significance categories for both alternatives.

The cumulative impact of the proposed project on freshwater biodiversity is anticipated to be "Low" for both alternatives given the nature of the activities and their expected short duration. An irreplaceable loss of freshwater biodiversity is not anticipated.

Given the linear nature of the project, it is the opinion of the specialist that the environment will return to its pre-construction state within two years of project completion.

## 6.2 Specialist Opinion

No fatal flaws were identified for the project. It is the opinion of the specialists that the project may be favourably considered for approval, and the Competent Authority must consider the prescribed mitigation measures and recommendations for the authorisation.

It is the opinion of the specialist that the project qualifies for a General Authorisation for Section 21 (c and i) water uses under Government Notice 4167 (Government Gazette no. 49833, under Section 39 of the National Water Act (Act no. 36 of 1998)) given that the identified risks to the watercourse have been determined as "Low".

# 7 References

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# 8 Appendix Items

## 8.1 Appendix A – Methodology

### 8.1.1 Desktop Dataset Assessment

The desktop assessment was undertaken using Geographic Information System (GIS) to access, view and overlay the latest available related datasets with the project area. The information represented within the datasets was used to develop the relevant digital maps used to identify potentially environmentally sensitive areas. These datasets and their respective dates of publishing are provided below:

- Vegetation Types - Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018 & Mucina and Rutherford 2006);
- Soils and Geology - Land Types Database (Land Type Survey Staff, 1972 - 2006); and
- Topographical Inland Water Areas and River Lines (based on the 1994 1:500 000 topographic maps as per the Chief Directorate of the National Geo-spatial Information).

#### 8.1.1.1 Vegetation Types - Vegetation Map of South Africa, Lesotho and Swaziland

The Vegetation Map of South Africa, Lesotho and Swaziland (SANBI, 2018) is the latest and updated version of the maps published in earlier time such as those presented by Mucina and Rutherford (2006) and those presented in the National Biodiversity Assessment (2011). The map provides spatial details on the representative vegetation of South Africa and is complemented in this report using information from Strelitzia (Mucina & Rutherford, 2006) to provide insight on the landscape features, biogeography, climate, geology, and soils of the project area.

#### 8.1.1.2 Soils and Geology - Land Type Database

The Land Type Survey provides information on the soils, terrain, climate, and geology of areas within South Africa. The data includes the pedological classification of soils and is used in this report to provide insight on the common soil forms associated with aquatic or freshwater systems of a particular area.

#### 8.1.1.3 Topographical River Lines and Inland Water Areas

Topographical Inland Water Areas and River Lines for South Africa are based on the topographic maps dated 1994 as per the National Geo-spatial Information. These datasets are used in this report to provide insight on potential wetland areas and serves to highlight the location and extent of drainage features, dams, wetlands, reservoirs and other relevant inland waterbodies.

#### 8.1.1.4 Ecologically Important Landscape Features

The datasets listed below were incorporated to establish the relation between the project and ecologically important or sensitive freshwater entities. Emphasis was placed around the following spatial datasets:

- South African Inventory of Inland Aquatic Ecosystems (SAIIAE), NBA 2018 Rivers and Wetlands (Van Deventer *et al.,* 2019);
- National Freshwater Priority Areas, Rivers and Wetlands, 2011 (Nel *et al.,* 2011); and
- Strategic Water Source Areas, 2021 (Lötter & Le Maitre, 2021).

#### 8.1.1.4.1 The South African Inventory of Inland Aquatic Ecosystems

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) was established during the 2018 NBA, the SAIIAE is a collection of spatial data layers that represent the extent of river and inland wetland ecosystem types as well as the pressures on these systems. The same two headline indicators, and their associated categorisations, are applied as with the terrestrial ecosystem NBA, namely Ecosystem Threat Status and Ecosystem Protection Level. The Ecosystem Threat Status of river and wetland ecosystem types are based on the extent to which each ecosystem type had been altered from its natural condition.

#### 8.1.1.4.2 National Freshwater Ecosystem Priority Areas, Rivers and Wetlands

In an attempt to better conserve aquatic ecosystems, South Africa has categorised its inland aquatic systems according to set ecological criteria (i.e., ecosystem representation, water yield, connectivity, unique features, and threatened taxa) to identify Freshwater Ecosystem Priority Areas (FEPAs). The FEPAs are intended to be conservation support tools and it is envisioned that they will guide the effective implementation of measures to achieve the National Environment Management: Biodiversity Act's biodiversity conservation goals (Nel *et al.,* 2011).

#### 8.1.1.4.3 Strategic Water Source Areas

SWSAs are defined as areas of land that supply a disproportionate quantity of mean annual surface water runoff in relation to their size, and therefore contribute considerably to the overall water supply of the country, as well as national aquatic and terrestrial biodiversity resources. These are considered key ecological infrastructure assets and the effective protection of SWSAs is vital for national security because a lack of water security will compromise national security and human wellbeing on all levels.

### 8.1.2 Wetland Field Survey

#### 8.1.2.1 Identification and Mapping

The wetland areas were delineated in accordance with the DWAF (2005) guidelines, a cross section is presented in Figure 8-1. The outer edges of the wetland areas were identified by considering the following four specific indicators:

- The Terrain Unit Indicator helps to identify those parts of the landscape where wetlands are more likely to occur;
- The Soil Form Indicator identifies the soil forms, as defined by the Soil Classification Working Group (1991), which are associated with prolonged and frequent saturation.
- The soil forms (types of soil) found in the landscape were identified using the South African soil classification system namely; Soil Classification: A Taxonomic System for South Africa (Soil Classification Working Group, 1991);
- The Soil Wetness Indicator identifies the morphological "signatures" developed in the soil profile as a result of prolonged and frequent saturation; and
- The Vegetation Indicator identifies hydrophilic vegetation associated with frequently saturated soils.

Vegetation is used as the primary wetland indicator. However, in practise the soil wetness indicator tends to be the most important, and the other three indicators are used in a confirmatory role.

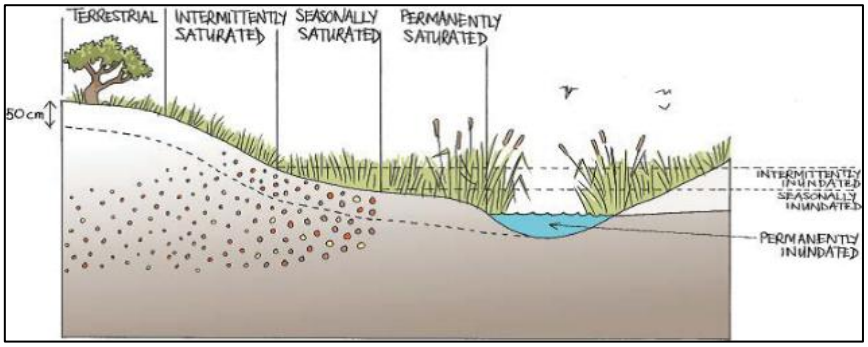



***Figure 8-1 Cross section of a wetland, indicating how the soil wetness and vegetation indicators respond to changes in topography (Ollis et al. 2013)***

#### 8.1.2.2 Delineation

The wetland indicators described above are used to determine the boundaries of the wetlands within the project area. These delineations are then illustrated by means of maps accompanied by descriptions.

#### 8.1.2.3 Classification and Description

The National Wetland Classification Systems (NWCS) developed by the South African National Biodiversity Institute (SANBI) will be considered for this study. This system comprises a hierarchical classification process of defining a wetland based on the principles of the hydrogeomorphic (HGM) approach at higher levels, and then also includes structural features at the lower levels of classification (Ollis *et al.,* 2013).

### 8.1.3 Risk Screening

A risk screening procedure which considers the general topography of the proposed area in conjunction with the spatial proximity of the natural wetlands to the proposed areas of development was used to determine the 'Risk Status' of the delineated wetlands. Two broad categories are included in the screening process which classify wetlands to be 'At Risk' or 'Not at Risk'.

### 8.1.4 Buffer Requirements

The "Preliminary Guideline for the Determination of Buffer Zones for Rivers, Wetlands and Estuaries" (Macfarlane *et al.,* 2014) was used to determine the appropriate buffer zone for the proposed activity.

## 8.2 Appendix B – Risk Assessment

The Department of Water and Sanitation (DWS) risk matrix assesses impacts in terms of consequence and likelihood. The significance of the impact is rated according to the classes presented in Table 8-1.

***Table 8-1 Significance ratings matrix***

| Rating | Class | Management Description |
|---|---|---|
| 1 – 29 | (L) Low Risk | Acceptable as is or with proposed mitigation measures. Impact to watercourses and resource quality small and easily mitigated, or positive. |
| 30 – 60 | (M) Moderate Risk | Risk and impact on watercourses are notable and require mitigation measures on a higher level, which costs more and require specialist input. Licence required. |
| 61 – 100 | (H) High Risk | Watercourse(s) impacts by the activity are such that they impose a long-term threat on a large scale and lowering of the Reserve. Licence required. |

## 8.3 Appendix C – Specialist Declaration of Independence

**Declaration**

I, Divan van Rooyen, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority 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 the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.

Divan van Rooyen

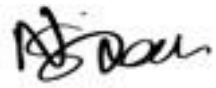
Freshwater Ecologist

The Biodiversity Company

February 2025

I, Namitha Singh, declare that:

- I act as the independent specialist in this application;
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority 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 the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this form are true and correct; and
- I realise that a false declaration is an offence in terms of Regulation 71 and is punishable in terms of Section 24F of the Act.



Namitha Singh

Ecologist

The Biodiversity Company

February 2025

## 8.4 Appendix D – Specialist CVs

# Divan van Rooyen

## Ph.D. Environmental Science

Pri Sci Nat (151272)

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*Email: divan@thebiodiversitycompany.com*
*Identity Number: 9312205072085*
*Date of birth: 20 December 1993*

**Profile Summary**

Working experience throughout Southern Africa

Specialist experience with mining, WWTW's and construction.

Specialist expertise include wetlands resources, aquatic ecology and ecotoxicology.

**Areas of Interest**

Mining, Seismic Surveys, Renewable Energy, Bulk Services Infrastructure Development & WWTW's.

**Key Experience**

- Environmental Impact Assessments (EIA)
- Environmental Management Programmes (EMP)
- Wetland delineations and ecological assessments
- Rehabilitation Plans and Monitoring
- Aquatic biomonitoring

**Country Experience**

South Africa

**Nationality**

South African

**Languages**

English – Proficient

Afrikaans – Proficient

**Qualifications**

- PhD (North-West University of Potchefstroom) – Environmental Science with Aquatic Ecosystem Health
- MSc (North-West University of Potchefstroom) – Environmental Science (Ecological Remediation and Sustainable Management)
- BSc Honours (North-West University of Potchefstroom) – Environmental Science with Ecological Remediation and Sustainable Management
- BSc Environmental sciences
- Pri Sci Nat (151272)

# Namitha Singh

## BSc. (Hons) Environmental Science (*Cum Laude*) (*Pr Sci Nat*)

*Cell: +27 63 684 1752*
*Email: namitha@thebiodiversitycompany.com*
*Identity Number: 9509260335089*
*Date of birth: 26 September 1995*

**Profile Summary**

Working experience in 7 provinces of South Africa.

Specialist experience within construction and development (residential/commercial/mixed-use/solar), wastewater infrastructure and agriculture.

Specialist expertise includes wetland resource management and rehabilitation, estuary and coastal management and, hydropedology.

**Areas of Interest**

Water Resource Management, Mining, Renewable Energy, Infrastructure Development, Agriculture, Land contamination, Sustainability and Conservation.

**Key Experience**

- Wetland Delineation and Functional Assessments
- Hydropedology Assessments
- Wetland Rehabilitation
- Coastal and Estuarine Assessments

**Country Experience**

South Africa

**Nationality**

South African

**Languages**

English – Proficient

Afrikaans – Basic

**Qualifications**

- BSc. Honours – Environmental Science (*Cum Laude*)
- BSc. Environmental Science and Life Science