



# **Freshwater Compliance Statement for the proposed Zwartwitpensbokfontein 480MW Solar Photovoltaic Facility**

## **Waterberg District Municipality, Limpopo Province, South Africa**

August 2023

### **CLIENT**



### **Prepared by:**

**The Biodiversity Company**

Cell: +27 81 319 1225

Fax: +27 86 527 1965

[info@thebiodiversitycompany.com](mailto:info@thebiodiversitycompany.com)

[www.thebiodiversitycompany.com](http://www.thebiodiversitycompany.com)



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## 1 Introduction

### 1.1 Background

The Biodiversity Company (TBC) was appointed to compile an aquatic compliance statement for the proposed Zwartwitpensbokfontein Solar Photovoltaic Plant (SPP) development. The project is located on Portion 1 of the farm Zwartwitpensbokfontein 434-KQ, approximately 10 km southwest of Koedoeskop in the Waterberg District Municipality within the Limpopo Province (Figure 1-1 and Figure 1-2).

The proposed solar facility will have a total power generation capacity of up to 480MW, covering a total area of approximately 275-hectares. The facility will connect to the Eskom grid via the existing 132kV Spitskop-Mamba power line crossing the application property. The facility will link using an onsite substation and 132kV power line connection.

To assess the baseline ecological state of the area and to present a detailed description of the receiving environment, both a desktop assessment as well as a field survey were conducted during August 2023. Furthermore, the desktop assessment and field survey both involved the detection, identification, and description of any locally relevant water resources. Where sensitive features were identified, the way these features may be affected by the proposed development was also investigated. A 500 m radius has been demarcated for the cluster for the identification of wetlands within the prescribed regulation area. This demarcated area is referred to as the Project Area of Influence (PAOI).

This assessment was conducted in accordance with the amendments to the Environmental Impact Assessment Regulations, 2014 (GNR 326, 7 April 2017) 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): "*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). The National Web based Environmental Screening Tool (2023) has characterised the aquatic biodiversity theme for the area as 'Low' sensitivity (Figure 1-3).

The purpose of conducting the specialist study is to provide relevant input into the overall Environmental Authorisation application process, with a focus on the proposed project activities and their associated impacts. This report, after taking into consideration the findings and recommendations provided by the specialist herein, should inform and guide the Registered Environmental Assessment Practitioner (EAP) and regulatory authorities, enabling informed decision making as to the ecological viability of the proposed project.

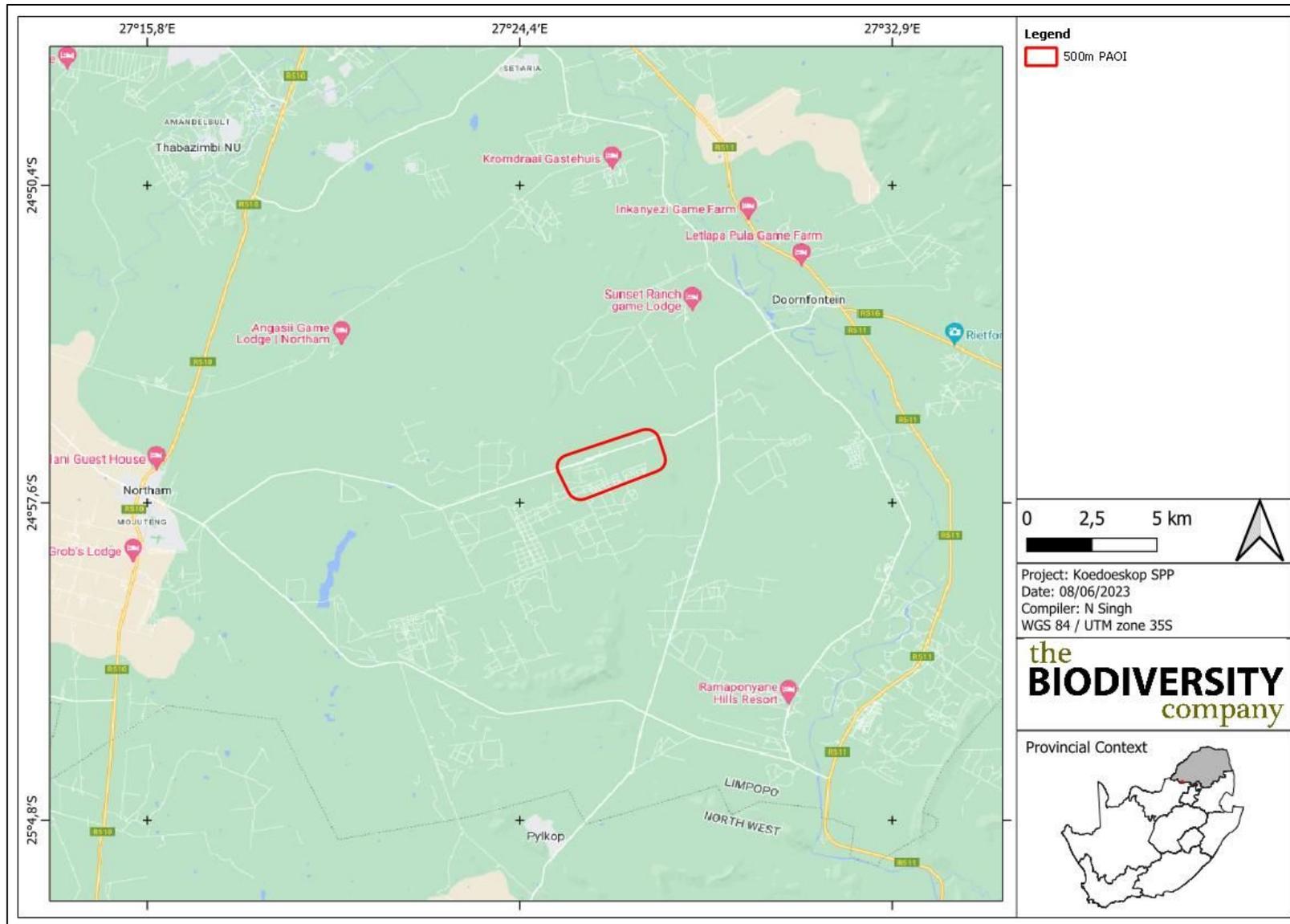


Figure 1-1 Map illustrating the location of the proposed project

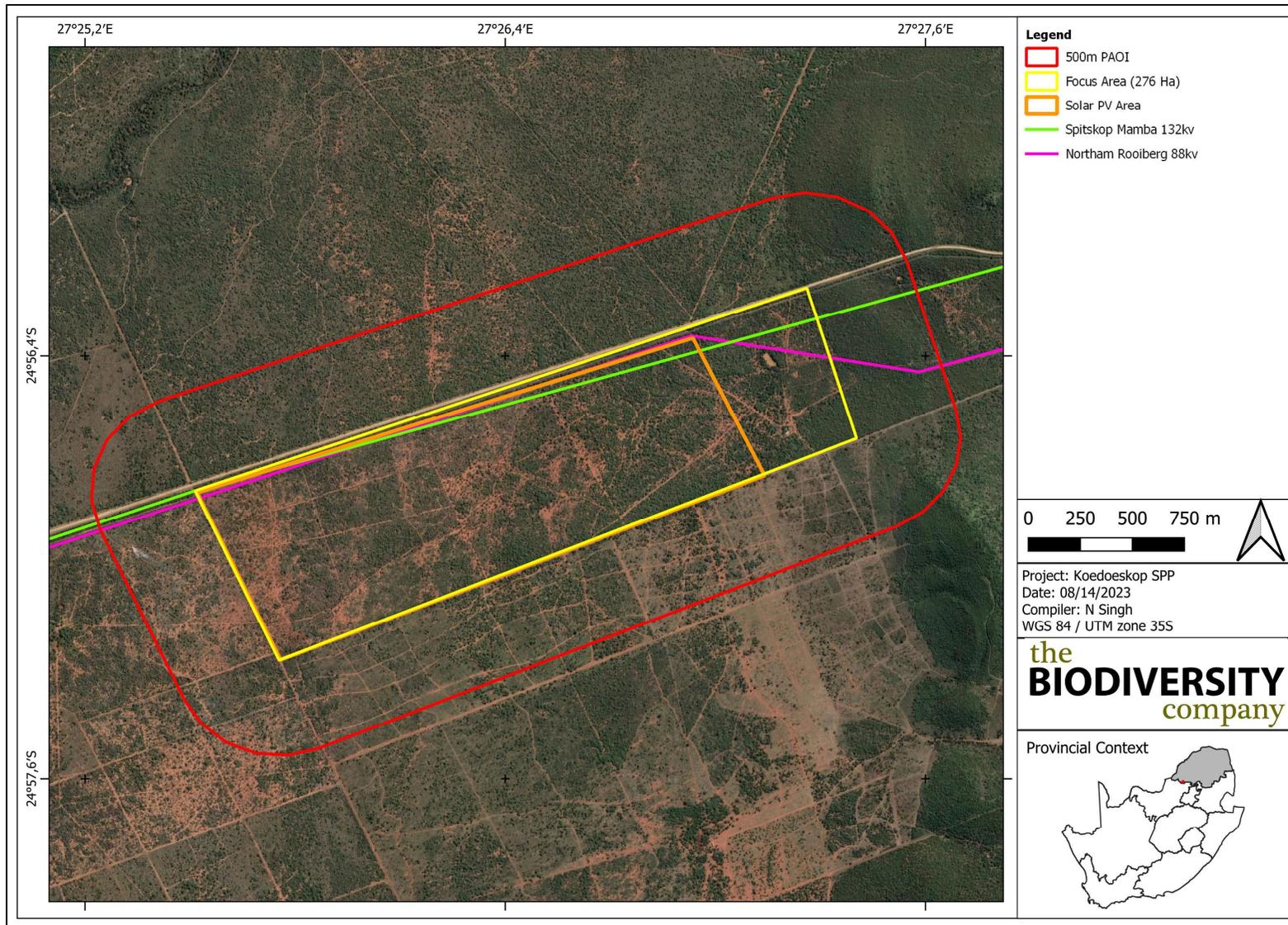
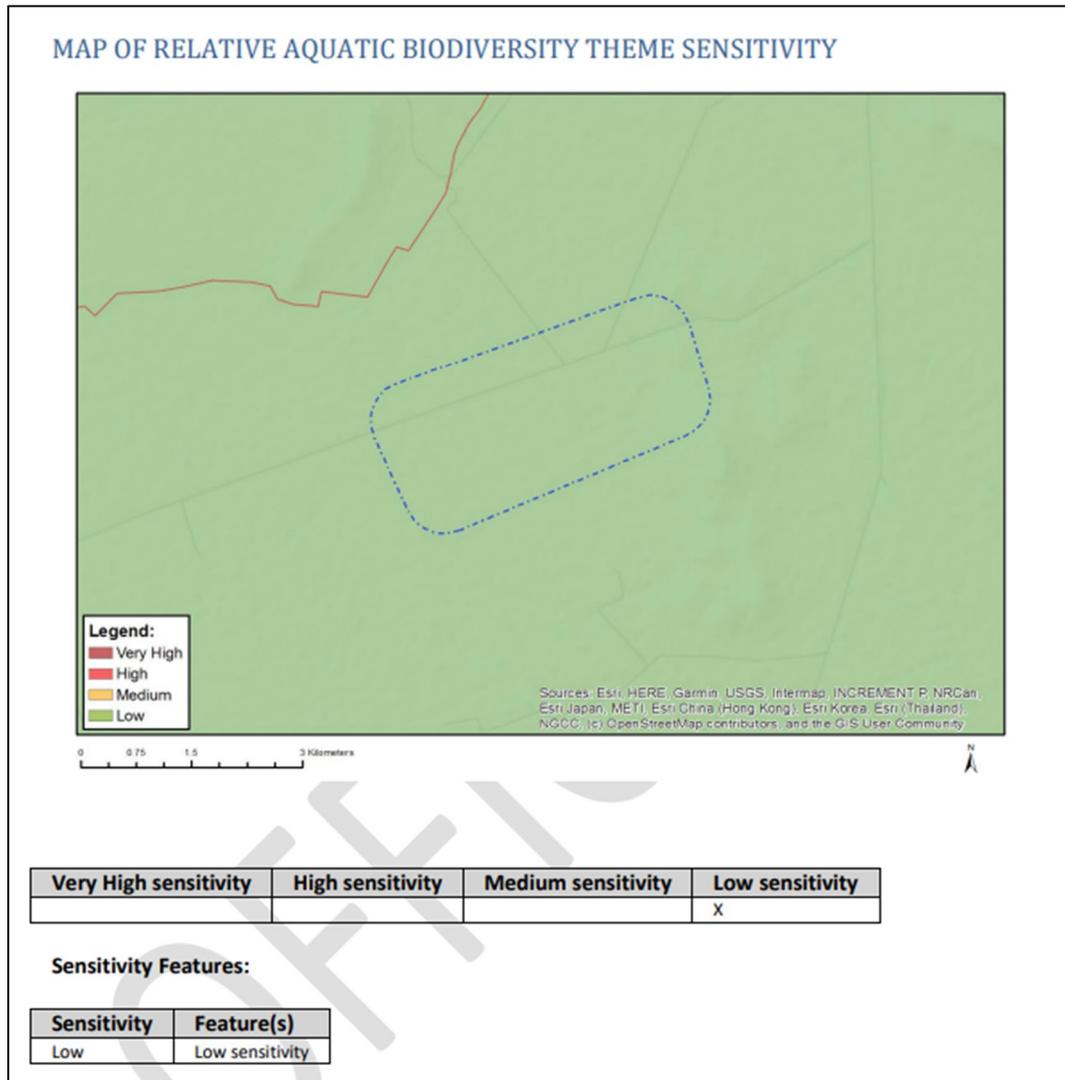


Figure 1-2 Broad layout of the proposed project



**Figure 1-3 Aquatic Biodiversity Sensitivity as per the National Environmental Screening Tool**

## 1.2 Specialist Details

Report Name	<b>Wetland Compliance Statement for the proposed Zwartwitpensbokfontein SPP</b>
Reference	<b>Zwartwitpensbokfontein (Koedoeskop) SPP</b>
Submitted to	
Report Writer & Fieldwork	<b>Namitha Singh</b> 
	Namitha Singh is a wetland consultant with experience in wetland assessments, coastal geomorphology, and estuary management. She possesses a BSc. Honours in Environmental Science and has worked on projects related to residential developments, infrastructural developments, sand mining and general natural resource management.
Reviewer	<b>Andrew Husted</b> 
	Andrew Husted is Pr Sci Nat registered (400213/11) in the following fields of practice: Ecological Science, Environmental Science and Aquatic Science. Andrew is an Aquatic, Wetland and Biodiversity Specialist with more than 13 years' experience in the environmental consulting field.
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, 2017. We have no conflicting interests in the undertaking of this activity and have no interests 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.

## 1.3 Project Technical Information

The following information was obtained from the Background Information Document for the “*Notice of an Environmental Impact Assessment Process for The Proposed Zwartwitpensbokfontein 480mw Solar Photovoltaic Facility, Koedoeskop, Waterberg District, Limpopo Province*” (Conserva, 2023).

The solar facility components will include:

- 480MW Solar PV arrays consisting of 1000-Watt mono-facial solar panels;
- Mounting structures and underground cabling (AC/DC);
- Inverters and transformers;
- 132kV Onsite substation;
- Short onsite 132kV power line connection to Eskom grid;
- Operations building and Guardhouse;
- Main entrance from the D1234 NorthamKoedoeskop Road including internal access roads;
- Security residence (existing building to be upgraded);
- Perimeter fence and stormwater infrastructure; and
- Laydown area.

The facility will exclude a Battery Energy Storage System (BESS).

The current solar panel sizes available locally are 500 - 600 Watt/panel but technology is improving rapidly, therefore Allied Green Energy (Pty) Ltd will be able to install 1000-Watt panels.

The solar facility will comprise three phases:

- Construction;
- Operational; and
- Decommissioning.

The project is anticipated to take 24 months to construct and commission. The overall lifespan of the solar facility will be approximately 20-25 years. The facility solar panels can either be replaced after 25 years or the facility can be decommissioned after it has reached its lifespan.

#### 1.4 Legislative Framework

In line with the protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial 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:
  - "low sensitivity" for aquatic biodiversity, must submit an Aquatic Biodiversity Compliance Statement.

An Aquatic Biodiversity Compliance Statement must contain the information as presented in **Error! Reference source not found.**

**Table 1-1 Aquatic Biodiversity compliance statement information requirements as per the protocol, including the location of the information within this document**

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	1.2
A signed statement of independence by the specialist	Appendix A
A statement on the duration, date and season of the site inspection and the relevance of the season to the outcome of the assessment	1 / 2.7
A baseline profile description of biodiversity and ecosystems of the site	3
The methodology used to verify the sensitivities of the aquatic biodiversity features on the site including the equipment and modelling used where relevant;	2
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	N/A
Where required, proposed impact management outcomes or any monitoring requirements for inclusion in the EMPr	4.3
A description of the assumptions made as well as any uncertainties or gaps in knowledge or data	2.7
Any conditions to which this statement is subjected	4

A signed copy of the compliance statement must be appended to the Basic Assessment Report or Environmental Impact Assessment Report.

## 2 Methods

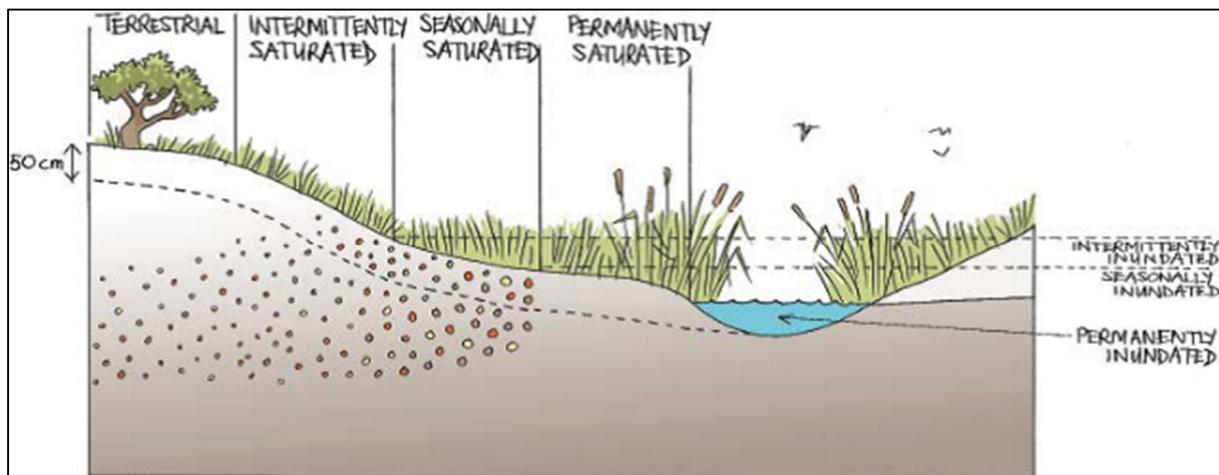
A wetland site visit was conducted on the 3<sup>rd</sup> of August 2023, this would constitute a dry season survey.

### 2.1 Identification and Mapping

The wetland areas were delineated in accordance with the DWAF (2005) guidelines, a cross section is presented in Figure 2-1. 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.

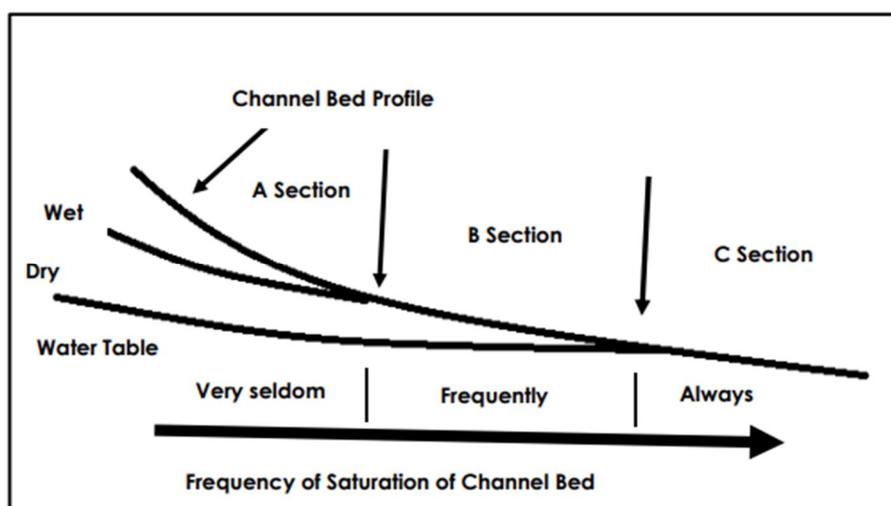
Vegetation is used as the primary wetland indicator. However, in practice the soil wetness indicator tends to be the most important, and the other three indicators are used in a confirmatory role.



**Figure 2-1** Cross section through a wetland, indicating how the soil wetness and vegetation indicators change (Ollis et al. 2013)

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. 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 2-2** The watercourse classifications (DWAF, 2005)

## 2.2 Ecological 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).

## 2.3 Functional Assessment

Wetland Functionality refers to the ability of wetlands to provide healthy conditions for the wide variety of organisms found in wetlands as well as humans. Eco Services serves as the main factor contributing to wetland functionality.

The assessment of the ecosystem services supplied by the identified wetlands was conducted per the guidelines as described in WET-EcoServices (Kotze *et al.* 2008). An assessment was undertaken that examines and rates the following services according to their degree of importance and the degree to which the services are provided (Table 2-1).

**Table 2-1** Classes for determining the likely extent to which a benefit is being supplied

Score	Rating of likely extent to which a benefit is being supplied
< 0.5	Low
0.6 - 1.2	Moderately Low
1.3 - 2.0	Intermediate
2.1 - 3.0	Moderately High
> 3.0	High

## 2.4 Present Ecological Status

The overall approach is to quantify the impacts of human activity or clearly visible impacts on wetland health, and then to convert the impact scores to a Present Ecological Status (PES) score. This takes the form of assessing the spatial extent of impact of individual activities/occurrences and then separately assessing the intensity of impact of each activity in the affected area. The extent and intensity are then combined to determine an overall magnitude of impact. The Present State categories are provided in Table 2-2.

**Table 2-2 The Present Ecological Status categories (Macfarlane, et al., 2008)**

Impact Category	Description	Impact Score Range	PES
None	Unmodified, natural	0 to 0.9	A
Small	Largely Natural with few modifications. A slight change in ecosystem processes is discernible and a small loss of natural habitats and biota may have taken place.	1.0 to 1.9	B
Moderate	Moderately Modified. A moderate change in ecosystem processes and loss of natural habitats has taken place, but the natural habitat remains predominantly intact.	2.0 to 3.9	C
Large	Largely Modified. A large change in ecosystem processes and loss of natural habitat and biota has occurred.	4.0 to 5.9	D
Serious	Seriously Modified. The change in ecosystem processes and loss of natural habitat and biota is great, but some remaining natural habitat features are still recognizable.	6.0 to 7.9	E
Critical	Critical Modification. The modifications have reached a critical level and the ecosystem processes have been modified completely with an almost complete loss of natural habitat and biota.	8.0 to 10	F

## 2.5 Importance and Sensitivity

The importance and sensitivity of water resources is determined to establish resources that provide higher than average ecosystem services, biodiversity support functions or are particularly sensitive to impacts. The mean of the determinants is used to assign the Importance and Sensitivity (IS) category as listed in Table 2-3.

**Table 2-3 Description of Importance and Sensitivity categories**

IS Category	Range of Mean	Recommended Ecological Management Class
Very High	3.1 to 4.0	A
High	2.1 to 3.0	B
Moderate	1.1 to 2.0	C
Low Marginal	< 1.0	D

## 2.6 Buffer Requirements

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

## 2.7 Assumptions and Limitations

The following assumptions and limitations are applicable for this assessment:

- The focus area was based on the spatial files provided by the client and any alterations to the area and/or missing GIS information would have affected the area surveyed;
- Only the outline area of the proposed site and the powerline route was provided to the specialist;
- The seasonality of the site survey, namely winter, is not considered to be a limiting factor for this project;
- The GPS used for the survey has a 5 m accuracy and therefore any spatial features may be offset by 5 m;
- No natural water resources were identified within the PAOI and the proposed approach (methodology) could not be implemented, with the exception of confirming the absence of water resources within the regulated area; and

- It is noted that the aquatic theme sensitivity for the area is dominantly “Low”. This assessment confirmed there to be no natural wetlands within the developable area, and the resulting “Low” aquatic biodiversity theme sensitivity only warrants a compliance statement.

### 3 Receiving Environment

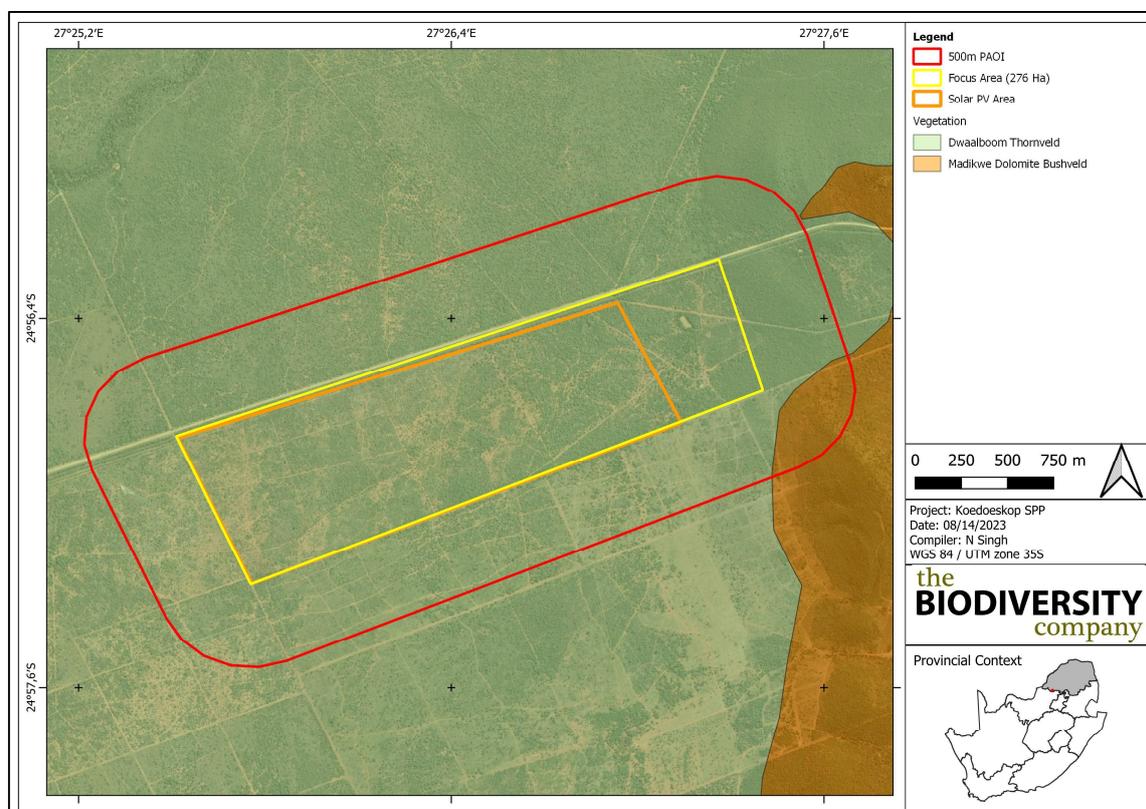
#### 3.1 Vegetation Type

The PAOI is located within two vegetation types, namely the Dwaalboom Thornveld (SVcb 1) and the Madikwe Dolomite Bushveld (SVcb 2) (Figure 3-1). Only the SVcb 1 vegetation unit was discussed further as it is the predominant vegetation type within the proposed footprint of the project.

The Dwaalboom Thornveld is distributed in the North-West and Limpopo Provinces. Occurring on the flats north of the Dwarsberge and associated ridges, west of the Crocodile River in the Dwaalboom area and inclusive of a patch around Sentrum. South of the above-mentioned ridges it extends eastwards from Nietverdiend, north of Pilaneberg to Northam. The altitude of the SVcb 1 vegetation ranges between 900 m – 1200 m.

The main landscape features consist of plains with a layer of scattered, low to medium high deciduous microphyllous trees and shrubs. Furthermore, a few broad-leaved tree species and a relatively continuous herbaceous layer dominated by grasses.

The vegetation type is least threatened, although over a third of the remaining vegetation is considered to be degraded. The target percentage for the unit is 19%. Approximately than 6% statutorily conserved mainly in the Madikwe Game Reserve. Approximately 14% of the vegetation unit has already been transformed, owing to crop cultivation (Mucina & Rutherford, 2006). Cattle grazing is amongst one of the dominant land uses which has been conducted extensively within the region.



**Figure 3-1** Vegetation types within the PAOI

### 3.2 Soils and Geology

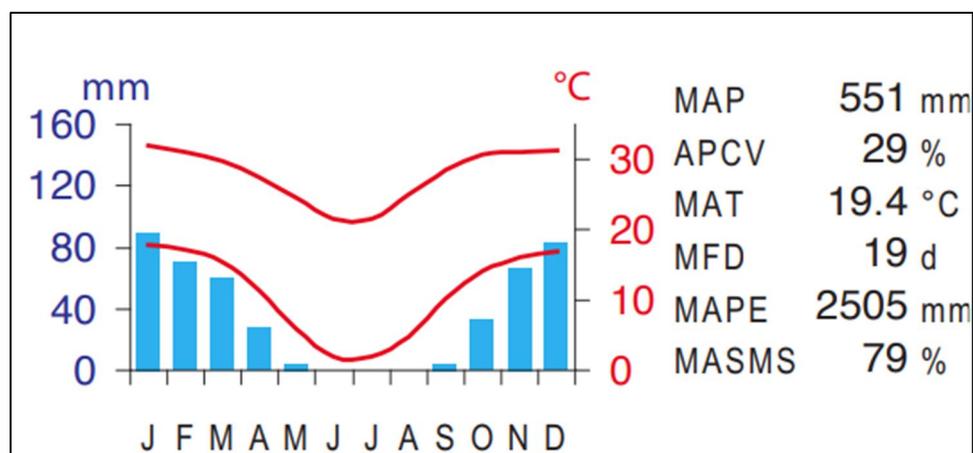
The Rustenburg Layered Suite as well as the Bushveld Igneous Complex are present in this region with a lot of mafic intrusive rocks present. The underlying geology of this region is a granite-gneiss terrane (Archaean) and it is covered partly with chemical and clastic sediments, and volcanics derived from the Rayton and Silverton formations which both form part of the Pretoria Group.

Vertic clays had developed in the area due to the presence of norite and gabbro rocks. The land types Ea and Ae are mostly present in these areas (Mucina and Rutherford, 2006).

According to the Land Types database (Land Type Survey Staff, 1972 - 2006), the Ae 64 landtype is predominant within the PAOI which consists of red-yellow apedal, freely drained soil with a high base status, which correlates with the findings from Mucina and Rutherford (2006).

### 3.3 Climate

The SVcb 1 vegetation type is characterised by a summer rainfall with a Mean Annual Precipitation (MAP) that ranges between 500 mm and 600 mm (Figure 3-2). Of the savanna vegetation units that are located outside Kalahari bioregions, this unit has the highest mean annual potential evaporation. In the winter season frost is frequent (Mucina & Rutherford, 2006).



**Figure 3-2** Climate for the SVcb 1 vegetation type (Mucina & Rutherford, 2006)

### 3.4 South African Inventory of Inland Aquatic Ecosystems

The South African Inventory of Inland Aquatic Ecosystems (SAIIAE) wetland dataset is a recent outcome of the National Biodiversity Assessment (NBA, 2018) and, was a collaborative project by the South African National Biodiversity Institute (SANBI) and the Council for Scientific and Industrial Research (CSIR). The SAIIAE dataset provides further insight into wetland occurrences and extents building on the information from the NFEPA, as well as other datasets.

No wetlands were identified within the PAOI by means of this dataset (**Error! Reference source not found.**).

### 3.5 NFEPA Wetlands

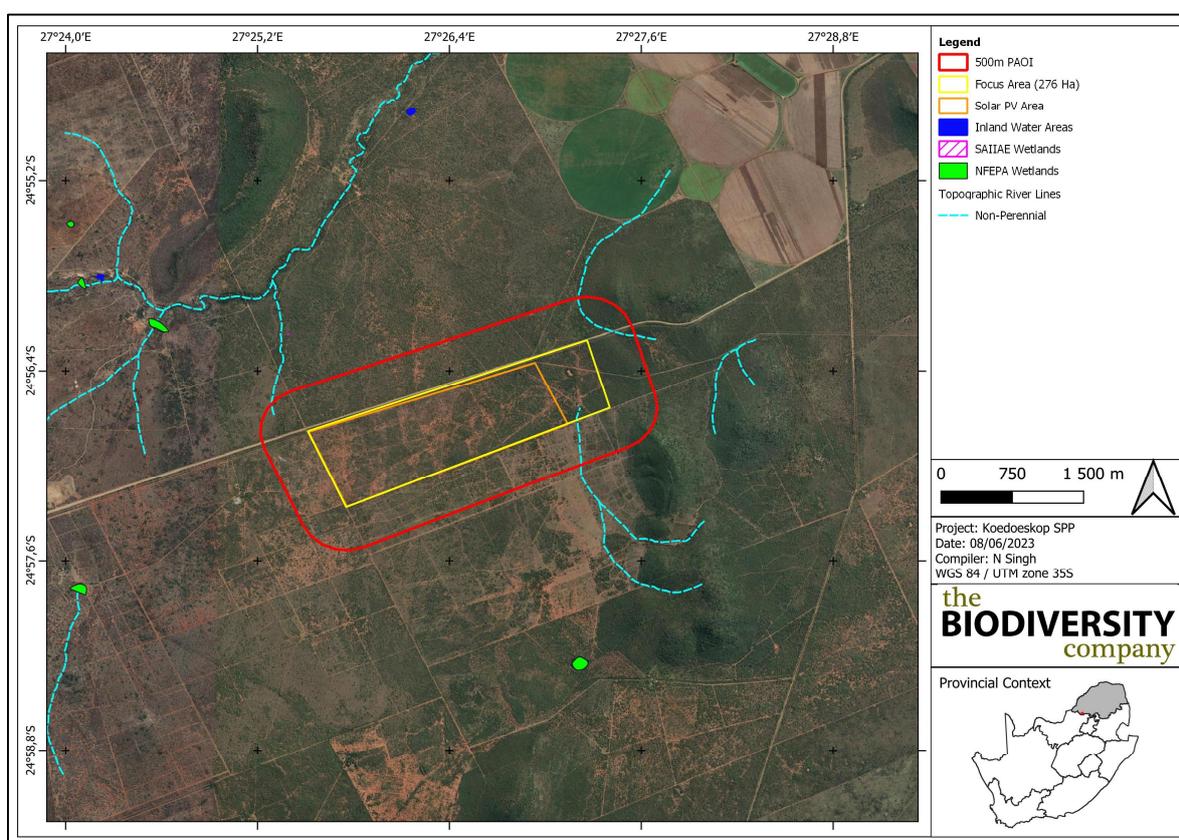
The National Freshwater Ecosystem Priority Areas (NFEPA) database forms part of a comprehensive approach to the sustainable and equitable development of South Africa's scarce water resources. This database provides guidance on how many rivers, wetlands and estuaries, and which ones, should remain in a natural or near-natural condition to support the water resource protection goals of the National Water Act (Act 36 of 1998) (NWA). This directly applies to the NWA, which feeds into Catchment Management Strategies, water resource classification, reserve determination, and the

setting and monitoring of resource quality objectives (Nel *et al.*, 2011). The NFEPA are intended to be conservation support tools and envisioned to guide the effective implementation of measures to achieve the biodiversity goals of the National Environment Management Biodiversity Act (NEM:BA) (Act 10 of 2004), informing both the listing of threatened freshwater ecosystems and the process of bioregional planning provided for by this Act (Nel *et al.*, 2011).

No NFEPA features were identified within the PAOI by means of this dataset (Figure 3-3).

### 3.6 Topographical Inland Water and River Lines

The topographical inland and river line data for “2427” quarter degree was used to identify potential wetland areas within the PAOI. This data set indicates the absence of inland water areas within the PAOI (**Error! Reference source not found.**). Furthermore, the presence of three non-perennial drainage features were identified within the PAOI, only one of which partially falls within the ‘focus area’ of the project (Figure 3-3).



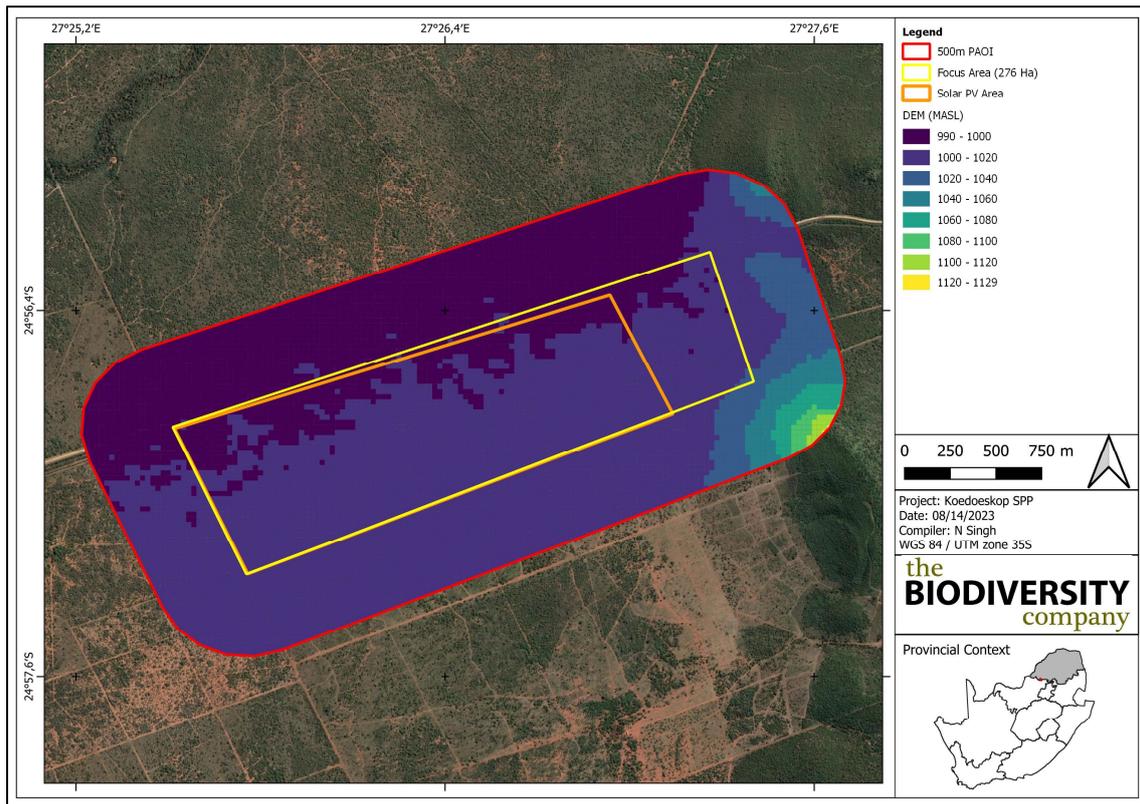
**Figure 3-3** Features identified within the PAOI at a desktop level

### 3.7 Terrain

The terrain of the PAOI has been analysed to determine potential areas where water is more likely to accumulate due to convex topographical features, preferential pathways, or more gentle slopes.

#### 3.7.1 Digital Elevation Model (DEM)

A Digital Elevation Model (DEM) has been created to identify lower laying regions as well as potential convex topographical features which could point towards preferential flow paths. The PAOI ranges from 990 to 1 129 metres above sea level (MASL). The lower laying areas (generally represented in dark blue) represent the area that will have the highest potential to be characterised as wetlands (Figure 3-4).

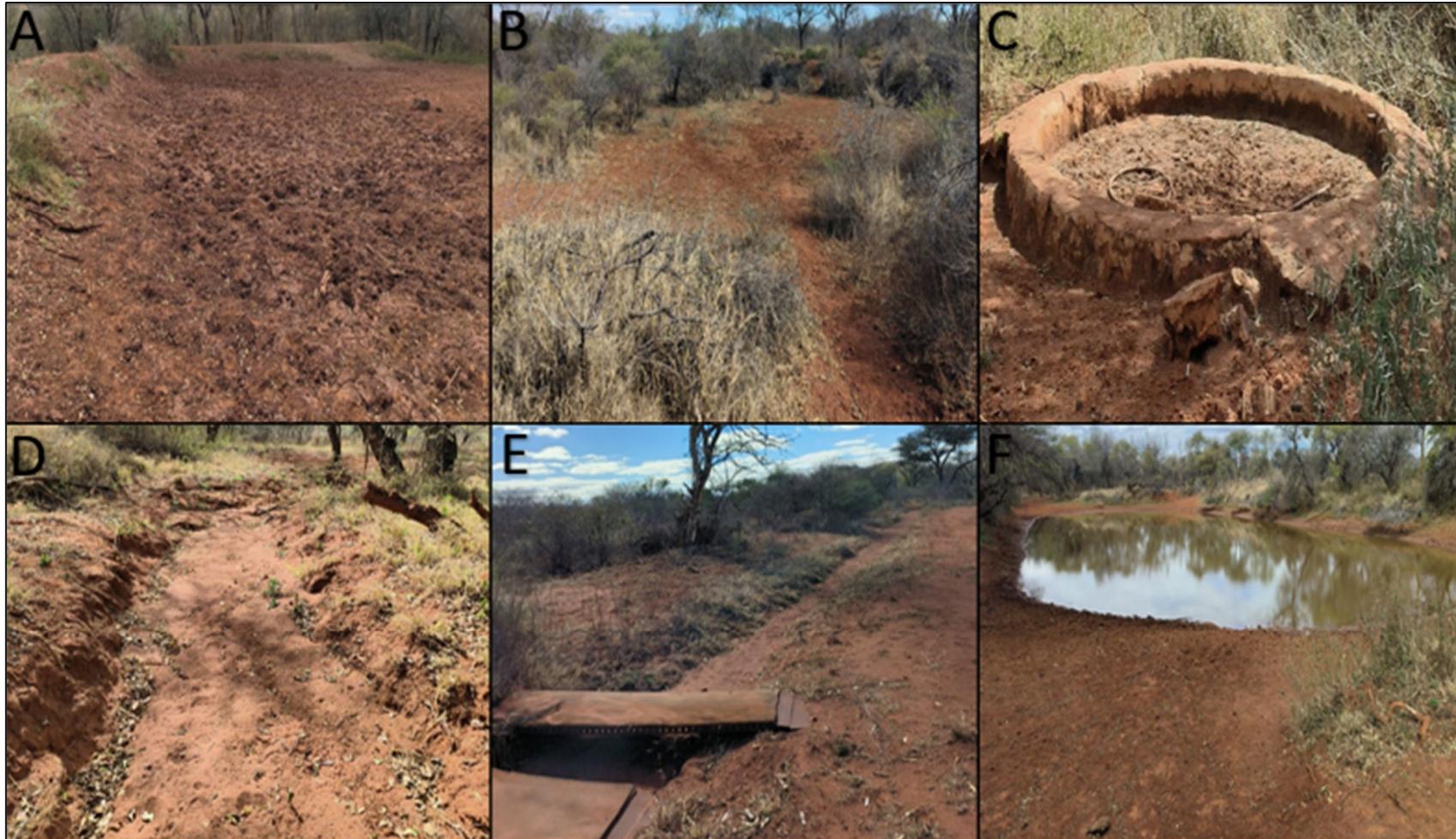


**Figure 3-4** Digital Elevation Model of the PAOI

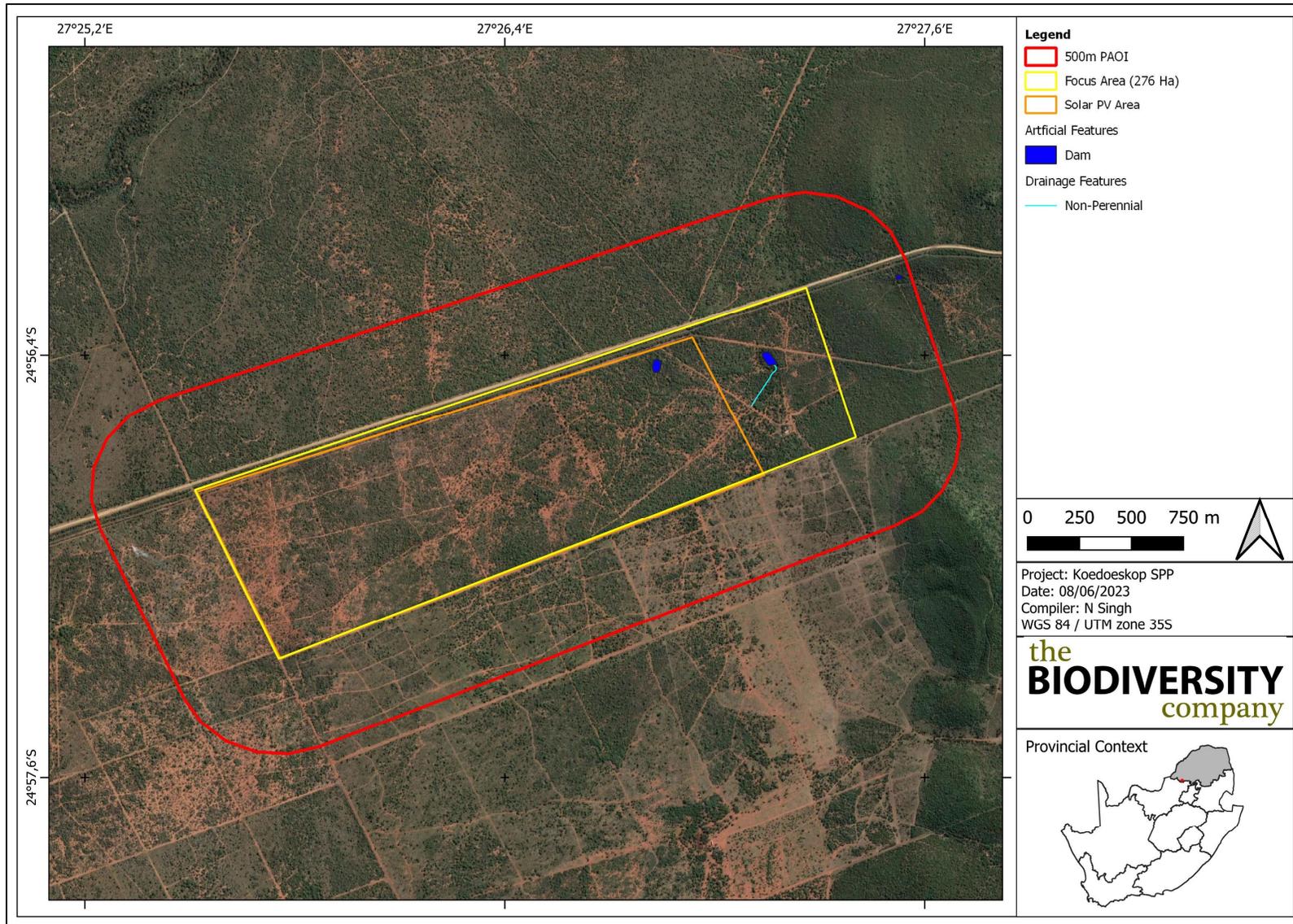
## 4 Survey Results

### 4.1 Delineation and Description of Features

During the site survey, no natural wetlands were identified within the PAOI (Figure 4-1 and Figure 4-2). However, three artificial dam features were identified which are assumed to be used for the provisioning of water for the game or cattle that were previously present within the property. Two of the dams were dry during the field visit, with no distinct inflow channels and overflow areas. Furthermore, none of the systems were vegetated with hydrophytes. The remaining dam feature contained water and had a minor inflow channel which presents as a sandy eroded non-perennial flow path which drains surface runoff from the adjacent roads and surrounding land towards the dam basin. Apart from this, other artificial features included old, bricked ponds used for the provisioning of water for livestock or game.



**Figure 4-1** *Identified features within the PAOI. A & B) Dry dams; C) Artificial water feeder; D & E) Downstream and upstream extent of the identified drainage feature; F) Dam with water*



**Figure 4-2** Delineation of the different features identified within the PAOI

## 4.2 Ecological Sensitivity

The National Web based Environmental Screening Tool has characterised the aquatic theme sensitivity of the project area as “Low”. The site survey confirmed the absence of natural wetland features within the development footprint.

Table 4-1 provides a comparison between the Environmental Screening Tool and the specialist determined Site Ecological Importance (SEI) of the project. The specialist-assigned sensitivity ratings are based largely on the SEI process.

**Table 4-1 Summary of the Screening Tool Sensitivity versus the Specialist assigned Site Ecological Importance (SEI) for the Field Survey Area of the Project Area**

Screening Tool Theme	Screening Tool	Specialist	Tool Validated or Disputed by Specialist - Reasoning
Aquatic Biodiversity Theme	Low	Low	Validated – No natural water resources and management catchments present or demarcated for the area.

## 4.3 Impact Assessment

No natural water resources were identified within the PAOI, based on this an impact assessment is not necessary (or feasible) for the proposed project.

As good practice it is recommended that general stormwater management with erosion control or flow dissipation techniques be implemented, where applicable, during the construction and operational phases of the development.

## 5 Conclusion

The development area was traversed, with several checks being undertaken to identify any soil wetness indicators. During the survey, no natural wetlands were identified within the development area. Features identified within the proposed project footprint and PAOI consisted of dams which were all classified to be artificial. Apart from this, only one non-perennial drainage feature was observed which is likely an eroded flow path attributed to surface runoff from the adjacent roads (hardened surfaces) and surrounding land.

The National Web based Environmental Screening Tool has characterised the aquatic theme sensitivity of the project area as “Low”. The site survey confirmed the absence of natural wetland features within the proposed project area. Therefore, overall aquatic biodiversity theme for the project is determined to be “Low”.

No natural water resources were identified within the PAOI, based on this an impact assessment is not necessary (or feasible) for the proposed project. The project will pose no risks to natural water resources and may be considered favourably for authorisation. Due to the absence of natural water resources within the regulated area, but the presence of artificial dam features, together with the proposed water abstraction from a borehole and operation of an existing septic tank and soakaway system (Conserva Environmental Management Services, 2023), a General (Water Use) Authorisation is deemed suitable for the project.

## 6 References

Conserva Environmental Management Services. 2023. Background Information Document: *Notice of an Environmental Impact Assessment Process for The Proposed Zwartwitpensbokfontein 480mw Solar Photovoltaic Facility, Koedoeskop, Waterberg District, Limpopo Province.*

Department of Water Affairs and Forestry (DWA). 2005a. A Practical Field Procedure for Identification and Delineation of Wetlands and Riparian Areas.

Department of Water and Sanitation (DWS). 2005b. River Ecoclassification: Manual for Ecostatus Determination. First Draft for Training Purposes. Department of Water Affairs and Forestry.

Kotze, D.C., Marneweck, G.C., Batchelor, A.L., Lindley, D.C., and Collins, N.B. 2009. A Technique for rapidly assessing ecosystem services supplied by wetlands, Mondi Wetland Project.

Macfarlane, D.M., Bredin, I.P., Adams, J.B., Zungu, M.M., Bate, G.C. and Dickens, C.W.S. 2014. Preliminary guideline for the determination of buffer zones for rivers, wetlands and estuaries. Final Consolidated Report. WRC Report No TT 610/14, Water Research Commission, Pretoria.

Macfarlane, D.M., Kotze, D.C., Ellery, W.N., Walters, D., Koopman, V., Goodman, P. and Goge, C. 2007. A technique for rapidly assessing wetland health: WET-Health. WRC Report TT 340/08.

Mucina, L. and Rutherford, M.C., 2010. The vegetation of South Africa, Lesotho and Swaziland.

Nel J.L. and Driver A. 2012. South African National Biodiversity Assessment 2011: Technical Report. Volume 2: Freshwater Component. CSIR Report Number CSIR/NRE/ECO/IR/2012/0022/A, Council for Scientific and Industrial Research, Stellenbosch.

Nel JL, Murray KM, Maherry AM, Petersen CP, Roux DJ, Driver A, Hill L, Van Deventer H, Funke N, Swartz ER, Smith-Adao LB, Mbona N, Downsborough L and Nienaber S. 2011. Technical Report for the National Freshwater Ecosystem Priority Areas project. WRC Report No. K5/1801.

Ollis DJ, Snaddon CD, Job NM, and Mbona N. 2013. Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland Systems. SANBI Biodiversity Series 22. South African Biodiversity Institute, Pretoria.

SANBI. 2009. Further Development of a Proposed National Wetland Classification System for South Africa. Primary Project Report. Prepared by the Freshwater Consulting Group (FCG) for the South African National Biodiversity Institute (SANBI).

## **Annexure A – Specialist Declarations**

### **Declaration**

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

August 2023

## Declaration

I, Andrew Husted declare that:

- I act as the independent specialist in this study;
- 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 client;
- 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 study, 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.



**Andrew Husted**

**Freshwater Ecologist**

The Biodiversity Company

August 2023