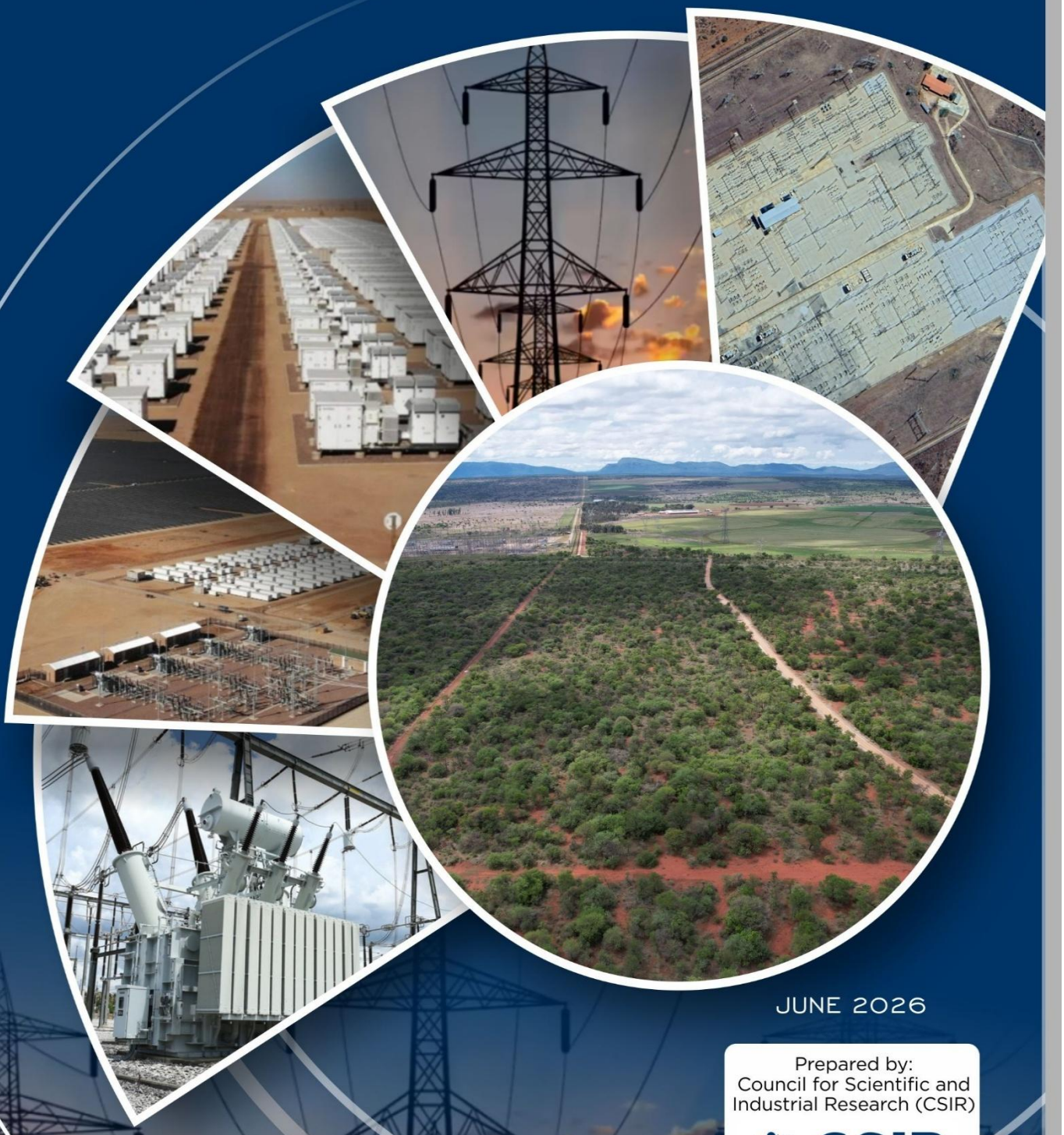
DRAFT BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo



JUNE 2026

Prepared by:
Council for Scientific and Industrial Research (CSIR)

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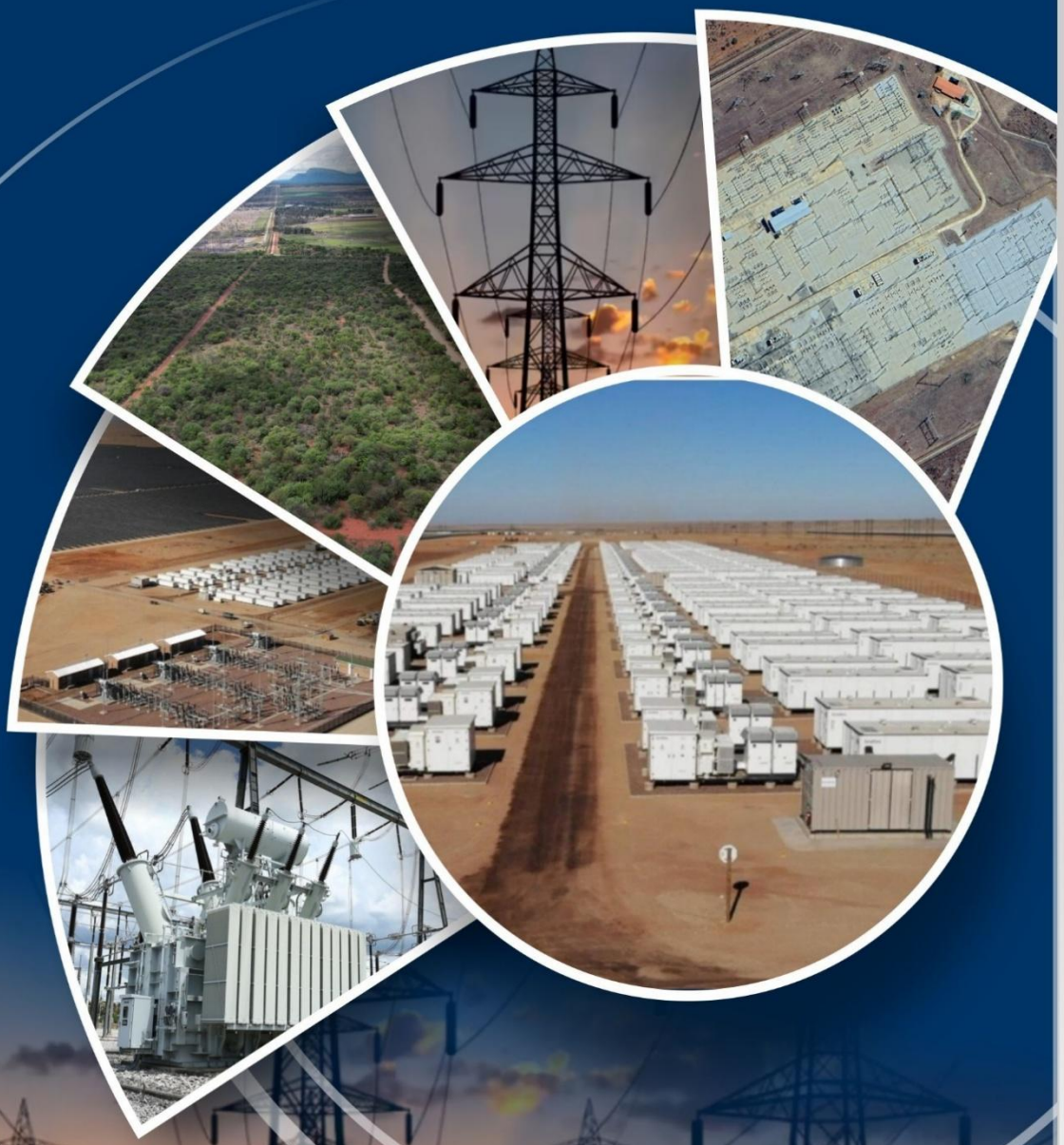
Prepared for:
Veroniva (Pty) Ltd

veroniva
Renewable Energy Development

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

PART A: MAIN REPORT



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BASIC ASSESSMENT

for the

Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

BASIC ASSESSMENT REPORT

June 2026

Prepared for:
Veroniva (Pty) Ltd

Prepared by:
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REPORT DETAILS

Title:	Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo: DRAFT BASIC ASSESSMENT (BA) REPORT.	
Purpose of this report:	The purpose of this Draft BA Report is to: ▪ Present the details of and the need for the proposed projects; ▪ Describe the affected environment at a sufficient level of detail to facilitate informed decision-making; ▪ Provide an overview of the BA Process being followed, including public consultation; ▪ Provide an overview of the potential positive and negative impacts of the proposed projects on the environment; ▪ Provide recommendations to avoid or mitigate negative impacts and to enhance the positive benefits of the proposed projects; and ▪ Provide an Environmental Management Programme (EMPr) for the relevant phases of the proposed projects. The Draft BA Report is being made to all Interested and/or Affected Parties (I&APs), Organs of State and relevant stakeholders for a 30-day review period. All comments submitted during the 30-day review period will be incorporated and addressed, as applicable and where relevant, into the Final BA Report and recorded in a detailed Comments and Responses Report.	
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DFFE Reference No:	To be assigned	
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References for Photos Used in Report Cover Pages	▪ Google Earth (2026). Aerial Imagery of the Eskom Witkop Main Transmission Substation. Accessed: April 2026. ▪ AfriAvian Environmental (Pty) Ltd (2025). Drone Imagery of the proposed Veroniva BESS and EGI site. Imagery Date: November 2025. ▪ My Broadband [Trusted in Tech] (2025). *Biggest battery storage systems in South Africa*. Imagery of the operational Scatec Kenhardt Solar PV and BESS developments in the Northern Cape. Accessed: April 2026. https://mybroadband.co.za/news/energy/581983-biggest-battery-storage-systems-in-south-africa.html ▪ How Stuff Works (No Date). *How Broadband Over Powerlines Works*. Imagery of a power line. Accessed: April 2026. https://computer.howstuffworks.com/bpl.htm ▪ Mark Thomas and Associates Electrical Engineers [MTAEE] (2022). What is a Substation. Imagery of a substation. Accessed: April 2026. https://mtaee.com/what-is-a-substation/	

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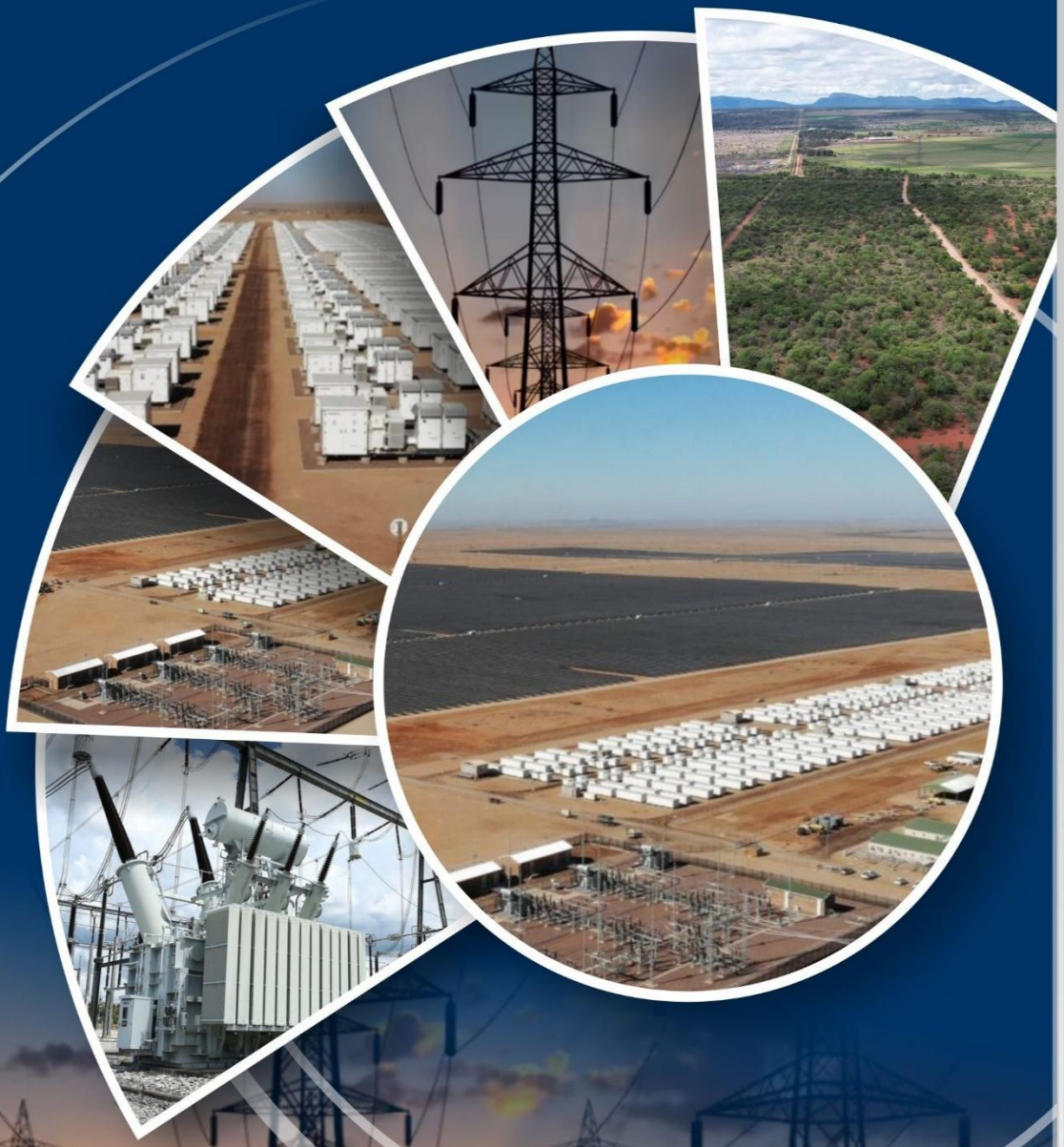
Note from the CSIR: Combined reporting has been approved by the Competent Authority. Therefore, one BA Report has been compiled to address both projects i.e. Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)

PART A: MAIN REPORT		INFORMATION WITHIN APPLICABLE TO BOTH BESS AND EGI	INFORMATION WITHIN APPLICABLE TO BESS ONLY	INFORMATION WITHIN APPLICABLE TO EGI ONLY
Chapter 0	Executive Summary	**X**		
Chapter 1	Introduction	**X**		
Chapter 2	Project Description for the BESS Project		**X**	
Chapter 3	Project Description for the EGI Project			**X**
Chapter 4	Description of the Affected Environment	**X**		
Chapter 5	Approach to the BA Process and Public Participation	**X**		
Chapter 6	Listed Activities for the BESS Project		**X**	
Chapter 7	Listed Activities for the EGI Project			**X**
Chapter 8	Screening Tool Specialist Assessment Recommendations for the BESS Project		**X**	
Chapter 9	Screening Tool Specialist Assessment Recommendations for the EGI Project			**X**
Chapter 10	Description of Alternatives	**X**		
Chapter 11	Impact Assessment for the BESS Project		**X**	
Chapter 12	Impact Assessment for the EGI Project			**X**
Chapter 13	Conclusions and Recommendations	**X**		

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

EXECUTIVE SUMMARY



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EXECUTIVE SUMMARY

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1. INTRODUCTION AND PROJECT LOCALITY

Veroniva (Pty) Ltd (the Project Developer, hereafter referred to as Veroniva), is proposing the development of a Battery Energy Storage System (BESS) Facility, Electricity Grid Infrastructure (EGI), and associated infrastructure, near Polokwane within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo (Figure A). The projects are collectively referred to as the Veroniva BESS and EGI development.

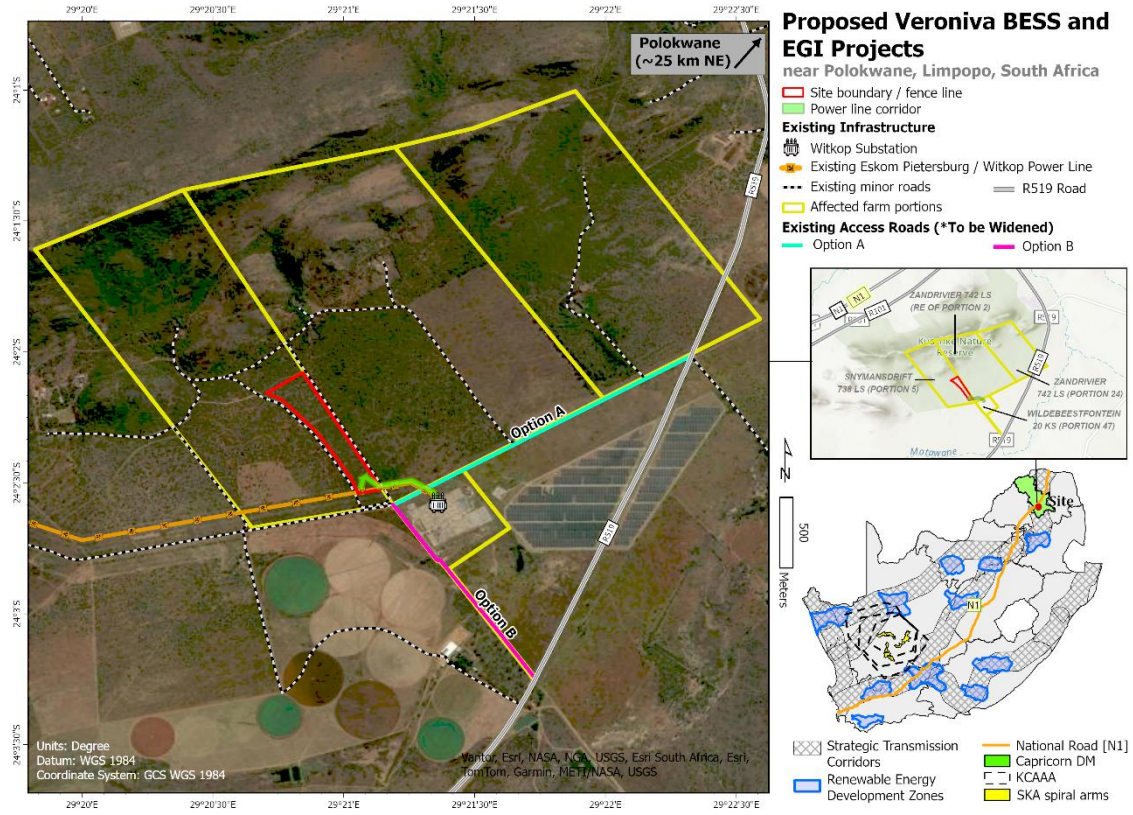


Figure A: Locality Map for the proposed Veroniva BESS (Project 1) and Veroniva EGI (Project 2) development near Polokwane in Limpopo

The proposed projects are not located within any of the Renewable Energy Development Zones (REDZs) that were gazetted in Government Notice (GN) 114 on 16 February 2018; and GN 144 on 26 February 2021; however, are located within the International Strategic Transmission Corridor that was gazetted in GN 113 on 16 February 2018.

The proposed BESS will store and dispatch energy when required and intends to form part of one of the upcoming rounds of the Battery Energy Storage Independent Power Producers Procurement Programme (BESIPPPP) and will therefore buy and sell electricity from and to Eskom under a Power Purchase Agreement, should the proposed development receive Environmental Authorisation (EA) and preferred bidder status. The BESS will have a range of associated infrastructure and is proposed to connect to the existing Eskom Pietersburg / Witkop 1 power line via a dedicated 132 kV Loop-In-Loop-Out (LILO) power line. To accommodate the BESS, the existing Eskom Pietersburg / Witkop 1 power line, from the proposed LILO to the Eskom Witkop Main Transmission Substation (MTS), may require upgrading.

One Basic Assessment (BA) Report has been prepared, and it is proposed that each project will receive its own separate EA (should it be granted). The following projects are being proposed:

- **PROJECT 1**: The proposed development of a BESS and associated infrastructure (Veroniva BESS);
- **PROJECT 2**: The proposed development of a 132 kV Overhead LILO Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

2. REPORT COMBINATION

A request to combine the Environmental Assessment reporting, for Projects 1 and 2, in terms of Regulation 11 (4) of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended), and the issuing of multiple EAs in terms of Regulations 25 (1) and (2) was discussed with the National Department of Forestry, Fisheries and the Environment (DFFE) at the Pre-Application Meeting on 06 March 2026. A letter was submitted to the DFFE to request for the combination and issuing of multiple EAs on 13 March 2026. The DFFE approved the request for combination and multiple EAs (should they be granted) in a letter dated 20 March 2026, sent via email on the same date.

The reporting structure indicated in Figure B has been used to undertake a consolidated assessment process and to ensure that the potential environmental impacts of each activity, in relation to the location at which they will take place, are considered. The combined reporting process reduces the administrative aspects on the Case Officer and reduces the number of reports that need to be reviewed by Interested and/or Affected Parties (I&APs), while still maintaining high levels of environmental rigour and clear reporting.

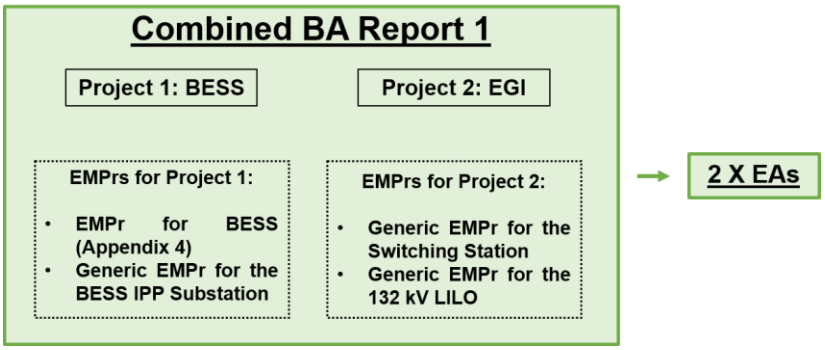


Figure B: Environmental Assessment Reporting Structure

Therefore, one combined report has been compiled for the BESS and EGI projects (i.e. Projects 1 and 2) and it is proposed that two separate EAs will be issued (should they be granted).

Note: The information throughout this Executive Summary applies equally to each of the projects addressed in the BA Report (i.e. Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)), unless where mentioned otherwise.

3. COMPETENT AUTHORITY AND APPLICANT

The Competent Authority for the proposed projects is the DFFE. The Project Applicants are listed below for both projects:

- Project 1: Veroniva BESS and associated infrastructure - Veroniva BESS (Pty) Ltd; and
- Project 2: Veroniva EGI and associated infrastructure - Veroniva BESS (Pty) Ltd.

4. NEED FOR THE BA AND APPROACH

The proposed projects trigger the need for an EA in terms of the 2014 NEMA EIA Regulations (as amended). In terms of the 2014 NEMA EIA Regulations (as amended), a BA Process is required for the proposed projects, and combined reporting has accordingly been approved by the DFFE (as noted above).

Chapter 6 (for Veroniva BESS – Project 1) and Chapter 7 (for Veroniva EGI – Project 2) of this BA Report contains a detailed list of activities, which are triggered by each project and the various project components and thus forms part of this BA Process. Listed below are the key listed activities triggered per project (Table A).

Table A. Key Listed Activities Per Project

Project	Listing Notice, Listed Activity and Description
Project 1: Veroniva BESS and associated infrastructure	**GN R327 (Listing Notice 1), Activity 27**: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
Project 2: Veroniva EGI and associated infrastructure	**GN R327 (Listing Notice 1), Activity 11 (i):** The development of facilities or infrastructure for the transmission and distribution of electricity (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.

The purpose of the BA Process is to identify, assess and report on any potential impacts the proposed projects, if implemented, may have on the receiving environment. The BA therefore needs to show the Competent Authority and the Project Applicant what the consequences of their choices will be in terms of impacts on the biophysical and socio-economic environment and how such impacts can be, as far as possible, enhanced or mitigated and managed as the case may be.

5. PUBLIC PARTICIPATION PROCESS AND CURRENT BA STAGE (I.E. DRAFT BA REPORT)

The Public Participation Process (PPP) for this BA Process is being undertaken in compliance with Chapter 6 of the 2014 NEMA EIA Regulations (as amended). An integrated PPP is being followed for the proposed projects. This Draft BA Report is currently being released to all I&APs, Organs of State and relevant stakeholders for a 30-day review period. All comments submitted during the 30-day review period will be incorporated and addressed, as applicable and where relevant, into the Final BA Report and recorded in a detailed Comments and Responses Report. Details on the PPP are included in Chapter 5 of this BA Report.

6. BA PROJECT TEAM

In accordance with Regulation 12 (1) of the 2014 NEMA EIA Regulations (as amended), the Council for Scientific and Industrial Research (CSIR) Environmental Management Services (EMS) group has been appointed to undertake the required Environmental Assessment Process.

The project team, which is involved in this BA Process, is listed in Table B below. This team includes several specialists who have extensive experience in conducting specialist studies for BESS and EGI projects in South Africa. The specialist studies relevant to the proposed Veroniva BESS and Veroniva EGI projects (i.e. Projects 1 and 2, respectively) are also indicated in Table B below. The term "N/A" in the table below indicates that the specialist study in question is not relevant to that specific project. Chapter 8 (for the Veroniva BESS – Project 1) and Chapter 9 (for the Veroniva EGI – Project 2) also includes motivation for not undertaking certain studies identified by the Screening Tool.

Table B. Project Team for the BA Process

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN	PROJECT 1 – BESS	PROJECT 2 – EGI
Environmental Management Services (CSIR)				
Paul Lochner (*Registered EAP* (2019/745))	CSIR	EAP, Technical Advisor and Quality Assurance	✓	✓
Rohaida Abed (*Pr.Sci.Nat.* and *Registered EAP* (2021/4067))	CSIR	EAP and Project Manager	✓	✓
Suvasha Ramcharan *(Cert.Sci.Nat. and Candidate EAP (2023/6896))*	CSIR	Project Officer	✓	✓
Dhiveshni Moodley (*Pr.Sci.Nat.*)	CSIR	Senior GIS Specialist	✓	✓
Rinae Tsedu *(Candidate EAP (2022/6210))*	CSIR	Junior GIS Specialist	✓	✓
Helen Antonopoulos *(Cand.Sci.Nat.)*	CSIR	Public Participation Specialist	✓	✓
Specialists				
Johann Lanz (*Pr.Sci.Nat.)*	SoilZA	Agriculture and Soils Compliance Statement	✓	✓
Corné Niemandt *(Pr.Sci.Nat.)*	Bios Diversitas Consultants	Terrestrial Biodiversity Assessment, Terrestrial Plant Species Compliance Statement, and Terrestrial Animal Species Compliance Statement	✓	✓
Russell Tate *(Pr.Sci.Nat.)*	Tate Environmental Specialist Services	Aquatic Biodiversity and Species Impact Assessment	✓	✓
Albert Froneman *(Pr.Sci.Nat.)* Dr Megan Loftie-Eaton *(Pr.Sci.Nat.)*	AfriAvian Environmental (Pty) Ltd	Avifauna Impact Assessment	✓	✓
Graham Young (*SACLAP Registered*)	Graham Young Landscape Architect	Visual Impact Assessment	✓	✓
Dr Jayson Orton (*APHP Member; ASAPA CRM Section Member*)	ASHA Consulting (Pty) Ltd	Heritage Impact Assessment (Archaeology and Cultural Landscape)	✓	✓
Dr John Almond *(PSSA and APHP Member)*	Natura Viva cc	Palaeontology Letter of Exemption (*Site confirmed very low to low sensitivity*)	✓	✓
Tony Barbour Schalk van der Merwe	Tony Barbour Environmental Consulting	Socio-Economic Impact Assessment	✓	N/A
Iris Wink (*Pr Eng*)	iWink Consulting	Traffic Impact Assessment	✓	N/A
Kaylin Erasmus (*Cand.Sci.Nat.*) Zita Saal (*Pr.Sci.Nat.*)	GEOSS South Africa (Pty) Ltd	Geohydrology Impact Assessment	✓	N/A
Hardy Luttig (*Pr.Sci.Nat.*) Jaco Pretorius	GEOSS South Africa (Pty) Ltd	Geotechnical Letter of Professional Opinion	✓	✓

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN	PROJECT 1 – BESS	PROJECT 2 – EGI
Debbie Mitchell *(Pr Eng)*	Ishecon (Pty) Ltd	Battery Storage High Level Safety, Health and Environment Risk Assessment	✓	N/A
Rinae Tsedu (*Candidate EAP (2022/6210)*) Helen Antonopoulos *(Cand.Sci.Nat.)* Rohaida Abed *(Pr.Sci.Nat.* and *Registered EAP (2021/4067))*	CSIR	Civil Aviation Site Sensitivity Verification	✓	✓
Rinae Tsedu (*Candidate EAP (2022/6210)*) Helen Antonopoulos *(Cand.Sci.Nat.)* Rohaida Abed *(Pr.Sci.Nat.* and *Registered EAP (2021/4067))*	CSIR	Defence Site Sensitivity Verification	✓	✓

The specialist assessments comply with Appendix 6 of the 2014 NEMA EIA Regulations (as amended), or the Assessment Protocols published in GN 320 on March 2020; or the Assessment Protocols published in GN 1150 on October 2020 (as amended). However, the BESS High Level Safety, Health and Environment Risk Assessment serves as a technical report, the Palaeontology and Geotechnical studies respectively take the form of a Letter of Exemption and Letter of Professional Opinion, and therefore the aforementioned legislation is not applicable.

7. STUDY AREA

The study area or preferred site for the proposed Veroniva BESS, EGI, 132 kV LILO power line, and associated infrastructure (i.e. Projects 1 and 2) covers approximately 65 hectares (ha). The 65 ha study area includes an approximately 18 ha EGI assessment corridor. Overall, the study area for Projects 1 and 2 covers 65 ha, as well as external access roads leading to the site that may need to be widened / upgraded (Figure C).

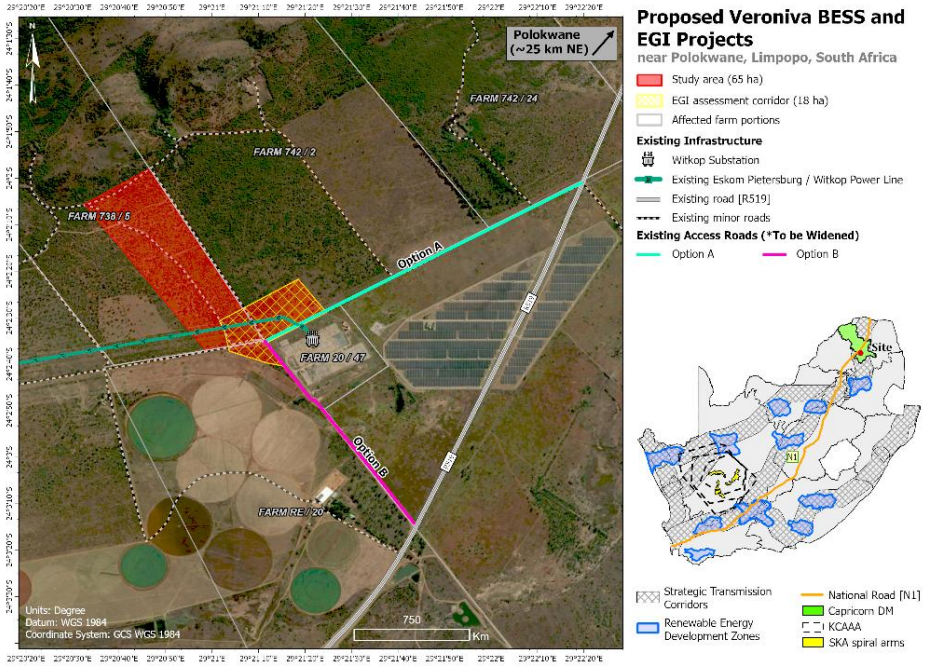


Figure C: Study Area for the proposed Veroniva BESS (Project 1) and Veroniva EGI (Project 2) development

As part of the BA Process, the full extent of the study area was assessed by the specialists in order to identify environmental sensitivities and no-go areas. The preferred site serves as the study area for this BA Process. Therefore, the terms "site" and "study area" are used synonymously in this BA Report.

8. PROJECT DESCRIPTION

8.1. Veroniva BESS – Project 1

Note: The information below applies to Project 1 (Veroniva BESS) only.

A summary of the key components of the proposed Veroniva BESS (Project 1) and technical information is described in Table C below.

Table C. Summary of the components and associated infrastructure for Veroniva BESS (Project 1)

Component	Description
Battery Energy Storage System (BESS)	
BESS Area/Facility	▪ Technology: Lithium-Ion BESS ▪ Total Footprint: Approximately 15 ha (including associated infrastructure) ▪ Height: Between 5 m and 10 m ▪ The BESS area will include the following sub-components: o BESS Units; o Laydown Area; o Independent Power Producer (IPP) Substation; o Transformer at the IPP Substation; o Overhead cables at the IPP Substation; o Operational and Maintenance (O&M) Office, including Ablutions; o External Access Roads; o Internal Roads; o Medium Voltage (MV) cables between BESS Units; o Internal cables at the BESS Facility; o Fencing and Security; and o Parking Area.
BESS Sub-Components *(to be located within the 15 ha area of the overall BESS Facility (except for external access roads))*	
BESS Units	▪ This will include battery packs or containers, with an area of approximately 8 ha, and height up to 5 m.
Laydown Area	▪ Footprint: Approximately 3.2 ha
On-site Substation – BESS IPP Substation Section	▪ This includes the BESS IPP Substation, which includes all the high voltage infrastructure leading up to the Point of Connection (i.e. the Project Applicant's section of the proposed on-site substation). This will be maintained by the IPP. ▪ Footprint: Approximately 0.5 ha ▪ Height: Up to 15 m ▪ Capacity: 33 kV to 132 kV

Component	Description
	▪ Transformer at the IPP Substation: o Capacity: Ranges above 33 kV o Height: Up to 2 m ▪ Cables at the IPP Substation: o Placement: Overhead o Capacity: Ranges above 33 kV o Height: Up to 12 m
Operational and Maintenance (O&M) Office	▪ Maximum height: Up to 5 m ▪ Footprint: Approximately 0.3 ha ▪ The BESS O&M Office will also include Ablution facilities.
External Access Roads	▪ New Access Roads: Where new access roads are required, these will be 4 - 8 m wide. The bell mouth at the access road leading to the IPP substation will extend up to approximately 19 m wide to accommodate turning vehicles. ▪ Existing Access Roads: Existing roads will be used as far as practically achievable. Where existing roads are used, they may need to be upgraded. ▪ The proposed project site can be accessed via various existing main roads and gravel roads. Direct access to the proposed project will be taken from the R519. There are two options for external access to the proposed project site, as follows: o **Option A**: A gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation. The existing road will be used and widened as needed. The existing road currently extends 3 – 4 m wide, and will be widened to about 4 – 8 m. The access point at the R519 may need to be upgraded as close as possible to a 90° approach to improve visibility for construction vehicles. o **Option B**: A tarred road off the R519 (which leads directly to the Eskom Witkop Substation), and a paved road just before the Eskom Witkop Substation gate (slight left), up until the access gate to Farm 738/5. The tarred section of the access road (towards the Eskom Witkop Substation gate) is about 5 m wide currently and may require some work to enable large/heavy construction vehicles to pass each other safely in two-way traffic. The grassed shoulders of this section of the access road will be converted to a hardened gravel surface (~1 m each side). This will enable large/heavy construction vehicles to safely make space for oncoming traffic, and the grass shoulders can be re-instated once the construction phase is concluded. This section of the access road needs to be monitored regularly for any damage. The paved section of the access road (along the western edge of the Eskom Witkop Substation) is currently about 3 – 4 m wide. It is expected to require some widening to up to 6 m wide to allow large construction vehicles to pass each other. Details will be confirmed during detailed design. Alternative to widening, a more temporary measure for consideration, is installing gravel shoulders on each

Component	Description
	side of the road, which then needs to be monitored and repaired for the duration of the construction, and re-instated at the end of construction.
Internal Roads	▪ Details: New internal gravel roads will need to be established within the BESS Facility area. ▪ Width: Up to 4 m
Medium Voltage (MV) cables between the BESS Units	▪ Placement: Buried/Ducted ▪ Capacity: Ranges from 1 kV up to 33 kV ▪ Depth: Up to 2 m
Internal cables in the BESS Facility	▪ Placement: Buried / ducted ▪ Capacity: Ranges from 1 kV up to 33 kV ▪ Depth: Up to 2 m
Fencing of the BESS Facility and Security	▪ Type: Palisade or mesh or fully electrified ▪ Height: Up to 5 m ▪ Security: Access to the BESS Facility will be managed and monitored by an appointed security service provider.
Parking Area	▪ A parking area will be established at the BESS Facility for staff
Storm water channels	▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.
Water Requirements	▪ Approximately 350 m^3 to 450 m^3 of water is estimated to be required per year for the construction phase. ▪ Approximately 200 m^3 to 300 m^3 of water is estimated to be required per year for the operational phase. ▪ Water requirements during the decommissioning phase are expected to be the same as the construction phase. ▪ Potential sources: Existing boreholes on site or from the Local Municipality via trucks.
Construction Period	▪ 12 - 24 months
Operational Period	▪ Once the commercial operation date is achieved, the proposed BESS will store and dispatch electricity for a minimum period of 10 to 30 years.

8.2. Veroniva EGI – Project 2

Note: The information below applies to Project 2 (Veroniva EGI) only.

A summary of the key components of the proposed Veroniva EGI (Project 2) and technical information is described in Table D below.

Table D. Summary of the components and associated infrastructure for Veroniva EGI (Project 2)

Component	Description
On-site Substation - Switching Station Section	▪ The section includes all the high voltage infrastructure extending from the Point of Connection (i.e. Eskom's section of the proposed on-site substation, which is also referred to as the **Switching Station**). This will include the section that will be transferred from the Independent Power Producer (IPP) to Eskom after construction.

Component	Description
	▪ Footprint: Approximately 0.5 ha ▪ Height: Up to 15 m ▪ Capacity: 132 kV
132 kV Overhead Loop-In-Loop-Out (LILO) Power Line on Portion 5 of Farm Snymansdrift 738 LS	▪ The LILO power line will be routed from the switching station to the Eskom Pietersburg / Witkop 1 Power Line. ▪ Capacity: 132 kV ▪ Height: Up to 37 m ▪ Length: Up to 1 km ▪ Servitude: 40 m wide ▪ Pylon specifications: o Type: Lattice structures and/or monopoles. o Tower: Self-supporting and Angle Strain. o Foundation: ▪ Lattice: The size of the footprint area for the base of the tower foundation will be approximately 49 m^2 (7 m by 7 m). The working area required around a structure position is 225 m^2. ▪ Monopole: The size of the footprint area for the base of the tower foundation will range from 0.36 m^2 to 2.25 m^2. The minimum working area required around a structure position is 20 m x 20 m. o Span Length: 200 m – 300 m
Upgrade of the Eskom Pietersburg / Witkop 1 Power Line (on Portion 5 of Farm Snymansdrift 738 LS, Remaining Extent of Portion 2 of Farm Zandrivier 742 LS, and Portion 47 of Farm Wildebeestfontein 20 KS)	▪ In order to accommodate the BESS, the existing Eskom Pietersburg / Witkop 1 Power Line, from the LILO to the Eskom Witkop Main Transmission Substation, needs to be upgraded. ▪ The upgrading will entail developing of new pylons and/or replacing existing pylons. Where there are existing pylon structures, it is proposed to excavate next to the existing pylon structures and cast new foundations for new pylons adjacent to the existing pylons. ▪ The upgrading will occur within the existing power line servitude. ▪ Pylon specifications: o Type: Lattice structures and/or monopoles. o Tower: Self-supporting and Angle Strain. o Foundation: ▪ Lattice: The size of the footprint area for the base of the tower foundation will be approximately 49 m^2 (7 m by 7 m). The working area required around a structure position is 225 m^2. ▪ Monopole: The size of the footprint area for the base of the tower foundation will range from 0.36 m^2 to 2.25 m^2. The minimum working area required around a structure position is 20 m x 20 m. o Span Length: 200 m – 300 m
Work at the Eskom Witkop Main Transmission Substation	▪ Where needed, associated electrical infrastructure will be installed or upgraded at the Eskom Witkop Main Transmission Substation (including but not limited to feeders, busbars, and platform extension).
Service Road	▪ Details: A new gravel service road will need to be established below the LILO on Portion 5 of Farm Snymansdrift 738 LS. ▪ Width: Up to 4 m ▪ Note: Existing service roads (on Remaining Extent of Portion 2 of Farm Zandrivier 742 LS) will be used for the section of the line from the LILO to the Eskom Witkop Main Transmission Substation.

Component	Description
External Access Roads	▪ The EGI project will be developed after the BESS project has commenced (should relevant approval be granted), and as such will make use of the main access roads developed for the BESS project. ▪ However, a new section of road leading from the main BESS access road to the Switching Station will be developed. This will be 4 - 8 m wide, however, the bell mouth at the intersection with the main BESS access road will extend up to approximately 19 m wide to accommodate turning vehicles.
Storm water channels	▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.
Laydown Area	▪ The EGI project will be developed after the BESS project has commenced (should relevant approval be granted), and as such will make use of the laydown area developed for the BESS project.
Water Requirements	▪ Approximately 100 m^3 of water is estimated to be required per year for the construction phase. ▪ Water requirements during the decommissioning phase are expected to be the same as the construction phase. ▪ Potential sources: Existing boreholes on site or from the Local Municipality via trucks.
Construction Period	▪ 6 - 24 months

9. SUMMARY OF IMPACT ASSESSMENT FINDINGS AND MANAGEMENT ACTIONS

Note: The information in this section applies equally to Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI), unless where stated otherwise.

Based on the detailed specialist assessments, various potential impacts have been identified for the Veroniva BESS (Project 1) and Veroniva EGI (Project 2). A summary of the **main impacts** identified is provided in Table E. Note that several mitigation and enhancement measures have been provided by the specialists, however only selected key measures are noted in the table below for direct and indirect impacts only. In general, some of the mitigation and enhancement measures of the most significant impacts (post-mitigation and post-enhancement) have been included in Table E. In Table E, enhancement measures are specified, and all other measures are mitigation.

The specialist studies included in Appendix E of this BA Report, and the summary with Impact Assessment tables included in Chapters 11 (for Project 1 – Veroniva BESS) and Chapter 12 (for Project 2 – Veroniva EGI) of this BA Report, contain all the detailed mitigation and enhancement measures. The recommended mitigation and enhancement measures have also been included in the EMPrs in Appendix H to Appendix K of this BA Report.

Table E. Summary of Key Impacts that were identified and assessed during the BA Phase as part of the Specialist Studies, including key recommended mitigation and enhancement measures

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
Appendix E.1 – Agriculture Compliance Statement	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Direct Impact:** **Construction, Operation and Decommissioning Phases:** ▪ Loss of future agricultural production potential	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Construction, Operation and Decommissioning Phases:** ▪ No mitigation measures are required for the protection of agricultural production potential on the site because the development poses negligible degradation risk to agricultural resources. ▪ Erosion to surrounding farmland poses minimal threat but should nevertheless always be managed by standard erosion control measures where necessary. ▪ For the proposed Independent Power Producer (IPP) substation, there are no additional mitigation measures required, over and above what has already been included in the Generic Environmental Management Programme (EMPr) for substations (Government Notice (GN) 435). **Note: The information presented below applies to Project 2 – Veroniva EGI only.** **Construction, Operation and Decommissioning Phases:** ▪ For the proposed Loop-In-Loop-Out (LILO) and switching station, there are no additional mitigation measures required, over and above what has already been included in the Generic EMPrs for power lines and substations (GN 435).
Appendix E.2: Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Fragmentation and loss of natural habitat and sensitive features. ▪ Impacts on national and provincial protected plant Species of Conservation Concern (SCC). ▪ Disturbance, loss or displacement impacts on animal SCC. ▪ Introduction and spread of alien invasive species. ▪ Increased erosion and soil compaction. ▪ Littering and general pollution. **Operational Phase:** ▪ Direct and indirect faunal disturbance and mortality. ▪ Increase in alien invasive species. ▪ Loss of species composition and diversity.	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2), except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction Phase:** ▪ Infrastructure must be excluded within High sensitivity areas including their buffer zones (where applicable). Suitable habitat for Sensitive species 1252, Sensitive species 550, Sensitive species 1248, *Prunus africana* and *Kinixys lobatsiana* have been identified as high sensitivity. Note: Avoidance of high sensitivity areas have already been achieved by the layout determined and assessed in the BA Phase for the BESS and EGI footprint. Access Road Option A traverses a seep wetland that is assigned high sensitivity and a 32 m buffer; however, this is acceptable provided that the recommended mitigation measures are implemented. Note the 32 m buffer is not a no-go buffer. ▪ Avoid rocky areas. Note: This has already been achieved by the layout determined and assessed in the BA Phase.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	▪ Littering and general pollution. **Decommissioning Phase:** ▪ Loss of habitat. ▪ Direct and indirect disturbance and mortality of fauna. ▪ Waste related impacts associated with disposal of used parts. ▪ Increased alien invasive species. **Note: The information presented below applies to Project 2 – Veroniva EGI only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Fragmentation and loss of natural habitat and sensitive features. ▪ Impacts on national and provincial protected plant SCC. ▪ Disturbance, loss or displacement impacts on animal SCC. ▪ Introduction and spread of alien invasive species. ▪ Increased erosion and soil compaction. ▪ Littering and general pollution. **Operational Phase:** ▪ Increase in alien invasive species. ▪ Loss of species composition and diversity. ▪ Littering and general pollution. **Decommissioning Phase:** ▪ Loss of habitat. ▪ Increased alien invasive species. **Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Cumulative Impacts:** **Construction and Decommissioning Phases**: ▪ Loss of CBAs, natural vegetation and sensitive features. **Construction, Operational and Decommissioning Phases:** ▪ Disturbance, mortality and/or displacement of plant and animal SCC. ▪ Introduction and spread of alien invasive species.	▪ A comprehensive Animal Search and Rescue must be undertaken for the approved layout by a suitably qualified zoological / ecological specialist prior to vegetation clearance and disturbance. ▪ A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified botanical / ecological specialist prior to vegetation clearance and disturbance. ▪ Where the approved layout designs impact on provincially protected individuals, permit applications are required for either the relocation or destruction of provincially protected species (Schedule 12 (Protected Plants) of the Limpopo Environmental Management Act, 2003 (Act 7 of 2003)). ▪ Where the approved layout designs impact on protected tree species, including *Prunus africana* and *Sclerocarya birrea ssp. afra,* a licence / permit is required in terms of the National Forests Act (Act 84 of 1998). ▪ Speed restrictions (40 km / hour is recommended) should be in place to reduce the amount of dust caused by vehicle movement along the roads, and to reduce possible fauna fatalities with vehicle collisions. ▪ Establish and implement an ongoing roadkill monitoring programme (inclusive of wildlife collisions record keeping) to inspect roads for injured and deceased fauna (including tortoises) due to the movement of vehicles to and from site. ▪ If trends or patterns emerge from the data (e.g., high incidence of tortoise mortality), appoint a suitably qualified specialist to develop and implement corrective actions. ▪ **Veroniva BESS**: Widening and upgrading of access roads must be confined to the minimum technically feasible footprint. ▪ **Veroniva BESS**: No indiscriminate vegetation grubbing, side-casting, laydown, turning of vehicles, or stockpiling may take place outside the demarcated road prism (for the upgrading of Access Road Option A). ▪ **Veroniva BESS**: All protected plant individuals and any protected trees along road edges must be avoided where possible. **Operational Phase:** ▪ **Veroniva BESS**: Persecution of fauna species must be reduced through education and awareness campaigns. No physical harm, collection or hunting to any species may occur. ▪ **Veroniva BESS**: Minimise use of infrastructure that could be used for nesting and making structures less suitable by selecting specific designs or using perch deterrents (most effective are long spikes with sloped base, dense spikes facilitate nest-building). ▪ Alien vegetation, within the development footprints, should be removed from the site and disposed of at a registered waste disposal site. ▪ Refuelling may only take place in an appropriate, designated bunded area, if relevant.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
		▪ Any spillages must be reported immediately and dealt with appropriately. ▪ Spill kits must be available on site in case of accidental spillage. **Decommissioning Phase:** ▪ **Veroniva BESS**: All disturbed areas and infrastructure must be dismantled and restored to the previous state of habitat structure (both rocks and vegetation) as far as possibly practical. ▪ **Veroniva BESS**: Decommissioning works should avoid sensitive breeding/migration periods where possible. ▪ **Veroniva EGI**: Implement appropriate rehabilitation measures to return the vegetation to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction. ▪ Follow an alien and invasive species control and monitoring plan in terms of the NEMBA by implementing appropriate control methods during and after decommissioning.
Appendix E.3: Aquatic Biodiversity and Species Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Impacts:** **Construction Phase:** ▪ Water and aquatic habitat impacts stemming from: o site access and clearing of vegetation in working areas (indirect impact). o the establishment of laydown yards/construction camps (indirect impact). o the excavations and earthworks for the setting of the access roads, culverts, BESS and associated structures and stormwater controls (For Access Road Option A) (direct impact). o the excavations and earthworks for the setting of access roads, BESS structures and stormwater controls (For Access Road Option B) (indirect impact). o the storage and use of chemicals, fuels and oils (indirect impact). o the alteration of surface drainage and hydrological processes (indirect impact). **Operational Phase:** ▪ Water and aquatic habitat impacts stemming from: o the storage and use of chemicals, fuels and oils (indirect impact). o the alteration of surface drainage and hydrological processes (for Access Road Option A and Option B) [Direct impact for Option A and indirect impact for Option B].	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2), except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction, Operational and Decommissioning Phases:** ▪ The implementation of an effective Stormwater Management Plan, which includes: o An analysis on peak flow changes between the pre- and post-development landscapes. o Layouts and design of stormwater infrastructure. o The effective attenuation of the expected increased hydrological conditions. ▪ **Veroniva EGI:** Clean and dirty surface water separation must be put into place via standard best practice methods. ▪ **Veroniva EGI:** No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression. **Note: The mitigation measures below apply to Project 1 – Veroniva BESS only.** **Construction, Operational and Decommissioning Phases:** ▪ Mitigation actions and infrastructure design must ensure compliance in the implementation of the standards and measures stipulated in GN 4167 (published in Government Gazette 49833 of 8 December 2023) as specified in the Aquatic Biodiversity and Species Assessment. **Construction Phase:** ▪ Where culverts are required, it is recommended that these are spread across the wetland units and not directed through single culverts.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Decommissioning Phase: ▪ Water and aquatic habitat impacts stemming from: o site access and clearing of vegetation in working areas (indirect impact). o the establishment of laydown yards/camps for decommissioning activities (indirect impact). o the excavations and earthworks for the removal of BESS, associated structures and stormwater controls (indirect impact). o the storage and use of chemicals, fuels and oils (indirect impact). o the alteration of surface drainage and hydrological processes (indirect impact). **Note: The information presented below applies to Project 2 – Veroniva EGI only.** **Negative Indirect Impacts:** **Construction Phase:** ▪ Water and aquatic habitat impacts stemming from: o site access and clearing of vegetation in working areas. o the establishment of laydown yards/construction camps. o excavations and earthworks for the setting of EGI structures, associated structures and stormwater controls. o the storage and use of chemicals, fuels and oils. o the alteration of surface drainage and hydrological processes. **Operational Phase:** ▪ Water and aquatic habitat impacts stemming from: o the storage and use of chemicals, fuels and oils during maintenance activities at the switching station and LILO. o the alteration of surface drainage and hydrological processes. **Decommissioning Phase**: ▪ Water and aquatic habitat impacts stemming from: o site access and clearing of vegetation in working areas. o the establishment of laydown yards/camps for decommissioning activities. o the excavations and earthworks for the removal of EGI structures and associated structures and stormwater controls. o the storage and use of chemicals, fuels and oils. o the alteration of surface drainage and hydrological processes.	▪ Where drifts are utilised, it is recommended that these structures are reinforced with erosion control measures that protect downstream riverine substrates and riparian habitats. ▪ Areas where construction is to take place must be clearly demarcated. Any areas not demarcated must be avoided. ▪ No vehicles shall enter watercourse buffer zones outside of construction footprints. ▪ Drainage channels constructed for the access roads must be constructed so as not to result in erosion. ▪ General stormwater management practices should be included in the design phase and implemented during the construction phase of this project. ▪ Following the completion of the construction phase, all construction materials and debris should be removed and disposed of in a suitable area. An inspection should be completed within a four week period after the construction phase is completed. **Operational Phase:** ▪ A clear stormwater management plan for hardened surfaces must be implemented. ▪ Monitoring of instream structures should be undertaken on an annual basis.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI. **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.	
Appendix E.4: Avifauna Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Displacement of avifauna due to disturbance associated with construction of the BESS and associated infrastructure. ▪ Displacement of avifauna due to habitat loss associated with the construction (and presence) of the BESS and associated infrastructure. **Operational Phase:** ▪ Mortality of avifauna due to electrocution at the on-site substation complex (IPP substation) and/or on the medium voltage overhead power lines (if any). ▪ Mortality of avifauna (power line sensitive species) due to collisions with the overhead sections (if any) of the internal medium voltage reticulation network. **Decommissioning Phase:** ▪ Displacement of avifauna due to disturbance associated with the decommissioning of the BESS and associated infrastructure. **Note: The information presented below applies to Project 2 – Veroniva EGI only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Displacement of avifauna due to disturbance associated with the construction of the EGI. ▪ Displacement of avifauna due to habitat loss associated with the construction (and presence) of the EGI.	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2), except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction Phase:** ▪ The All-Infrastructure Exclusion Zones must be strictly adhered to. Note: This has been achieved in the layout assessed in the BA. ▪ Measures to control noise and dust must be applied according to current best practice in the industry. ▪ Construction activity must be restricted to the immediate footprint of the infrastructure. ▪ To reduce the risk of birds (especially owls) becoming entangled in fences, it is recommended that for any new fences being constructed, at least the top two strands should be smooth wire (not barbed) and the spacing between at least the top two wires should be increased to a minimum of 300 mm. The entanglement risk will also be reduced by ensuring that the wires are correctly tensioned. **Operational Phase:** ▪ **Veroniva BESS:** In instances where the medium voltage cables cannot be buried due to technical constraints or for example, to accommodate other environmental sensitivities, a bird-friendly pylon design must be used, and appropriate mitigation must be implemented pro-actively for pylon structures e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers. A registered South African Council for Natural Scientific Professions (SACNASP) Avifaunal Specialist must sign off on the design for the pylons and overhead lines. ▪ **Veroniva BESS:** In instances where the medium voltage cables cannot be buried, Bird Flight Diverters (BFDs) must be fitted in a staggered configuration (on the earth wire and conductor) to all overhead lines for the full length according to the applicable Eskom Engineering Instruction (5 m apart for medium voltage power lines). Light and dark coloured devices must be alternated to provide contrast against both dark and light backgrounds, respectively. These devices must be installed as soon as the conductors are strung.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Operational Phase: ▪ Mortality of EGI sensitive avifauna due to electrocutions in the switching station and/or on the 132 kV overhead LILO and upgraded power line. ▪ Mortality of EGI sensitive avifauna due to collisions with the 132 kV overhead LILO and upgraded power line. **Decommissioning Phase:** ▪ Displacement of avifauna due to disturbance associated with the decommissioning of the EGI. **Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Cumulative Impacts:** **Construction Phase:** ▪ Displacement of avifauna due to disturbance associated with construction activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Displacement of avifauna due to habitat loss associated with the construction activities and presence of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. **Operational Phase:** ▪ Mortality of priority avifauna due to electrocutions in the substations, on the associated internal medium voltage overhead lines (if any), and on the high voltage overhead power lines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Mortality of priority avifauna due to collisions on the associated internal medium voltage overhead lines (if any) and on the high voltage overhead power lines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. **Decommissioning Phase:** ▪ Displacement of priority species due to disturbance associated with decommissioning activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.	▪ **Veroniva EGI:** A bird-friendly pylon design must be used for the 132 kV LILO and power line upgrade (i.e. for the new proposed LILO and the section of the existing Eskom Witkop-Pietersburg 1 Line that will be upgraded from the LILO to the Eskom Witkop Main Transmission Substation), with appropriate mitigation measures for complicated pole structures (e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers), as recommended by the Avifaunal Specialist. ▪ **Veroniva EGI:** Monitor the electrocution mortality at the switching station monthly. Apply mitigation (insulation of live components) if electrocution of SCC happens more than once per annum. ▪ **Veroniva EGI:** BFDs must be fitted in a staggered configuration (on the earth wire and conductor) for the full length of the 132 kV LILO and power line upgrade (i.e. for length of the new proposed LILO and the section of the existing Eskom Witkop-Pietersburg 1 Line that will be upgraded from the LILO to the Eskom Witkop Main Transmission Substation) according to the applicable Eskom Engineering Instruction (15 m apart for high voltage power lines). These devices must be installed as soon as the conductors are strung. ▪ VulPro must be notified immediately if any vulture is negatively impacted by collisions or electrocutions. **Decommissioning Phase:** ▪ **Veroniva BESS:** Decommissioning activity should as far as possible be restricted to the immediate footprint of the infrastructure. ▪ **Veroniva BESS:** Maximum use must be made of existing access roads, and the construction of new roads must be avoided as far as practical/only developed where absolutely needed. ▪ Measures to control noise and dust must be applied according to current best practice in the industry.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
Appendix E.5: Visual Impact Assessment	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Direct Impacts:** **Construction Phase:** ▪ Potential visual effect of construction activities. **Operational Phase:** ▪ Effect of the operational activities and infrastructure on the landscape character and sense of place. **Decommissioning Phase:** ▪ Potential visual effect of decommissioning activities, and any remaining structures, platforms and disused roads on the landscape. **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during construction, operational and decommissioning phases.	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2), except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction Phase:** ▪ With the preparation of the land within the full extent of the project site onto which activities will take place, the minimum amount of existing vegetation and topsoil should be removed. ▪ Adopt responsible construction practices that strictly contain the construction / establishment activities to demarcated areas. **Operational Phase:** ▪ **Veroniva BESS:** Install light fixtures that provide precisely directed illumination to reduce light "spillage" beyond the immediate surrounds of the site, i.e. lights are to be aimed away from the nearby residences immediately south and south-west of the project site and the R519 access road. ▪ **Veroniva BESS:** Minimise the number of light fixtures to the bare minimum, including security lighting. ▪ **Veroniva BESS:** Avoid high pole top security lighting along the periphery of the site at the BESS area and use only lights activated on illegal entry to the site. ▪ **Veroniva EGI:** Ensure the EGI is properly maintained and kept free of alien vegetation. **Decommissioning Phase:** ▪ All equipment and structures to be dismantled and removed from the site. ▪ Disturbed soil must be vegetated to avoid prolonged exposure to wind and water erosion and to minimise dust generation. ▪ The entire site is to be replanted with natural vegetation indigenous to the study area.
Appendix E.6: Heritage Impact Assessment (Archaeology and Cultural Landscape)	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Direct Impacts:** **Construction Phase:** ▪ Potential impact on archaeology. ▪ Potential impact on graves. ▪ Potential impact on the cultural landscape. **Operational Phase:** ▪ Potential impact on the cultural landscape.	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2).** **Construction Phase:** ▪ Report any chance finds to the South African Heritage Resources Agency (SAHRA) and/or an archaeologist. In the case of graves, protect chance finds *in situ* and appoint an archaeologist to exhume under an approved permit. ▪ Keep the construction duration as short as possible. **Operational Phase:** ▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Decommissioning Phase: ▪ Potential impact on the cultural landscape. **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ Potential impact on archaeology. ▪ Potential impact on graves. ▪ Potential impact on the cultural landscape.	**Decommissioning Phase:** ▪ Minimise the duration of the decommissioning period. ▪ Ensure effective rehabilitation of all affected areas.
Appendix E.7: Palaeontology Letter of Exemption	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** ▪ The study area has been confirmed as very low palaeo-sensitivity. Pending the unlikely discovery of substantial new fossil remains within the project area during the Pre-Construction or Construction Phases, no further specialist palaeontological studies, reporting or mitigation have been recommended or considered necessary for the proposed project. ▪ A Chance Fossil Finds Protocol has been included in the Letter of Exemption, which needs to be implemented by the responsible Environmental Control Officer (ECO) during the Construction Phase. ▪ The recommendations and Chance Fossil Finds Protocol have been included in the EMPrs.	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Construction Phase:** ▪ The Chance Fossil Finds Protocol should be implemented by the ECO during the construction phase.
Appendix E.8: Socio-Economic Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Positive Direct Impacts:** **Construction Phase:** ▪ Creation of employment and business opportunities. **Operational Phase:** ▪ The establishment of infrastructure to improve energy security and support renewable sector. ▪ Creation of employment and business opportunities. ▪ Creation of socio-economic development opportunities. ▪ Benefits to the affected landowner.	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Enhancement Measures:** **Construction Phase:** ▪ Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to the commencement of the construction phase. ▪ Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. ▪ Before the construction phase commences the proponent should meet with representatives from the Polokwane Local Municipality (PLM) to establish the existence of a skills database for the area. If such a database exists, it should be made available to the contractors appointed for the construction phase. ▪ The proponent should liaise with the PLM with regards to the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Negative Direct Impacts: **Construction Phase:** ▪ Increased safety and security risks and impact on farming operations associated with the construction related activities and presence of construction workers on the site. ▪ Increased risk of grass fires associated with construction related activities. ▪ Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles. ▪ Loss of productive land. **Operational Phase:** ▪ Noise, health and safety risks. ▪ Visual impacts and associated impacts on sense of place. ▪ Impact on property values. ▪ Potential fire risk to irrigated crop areas and other operations. **Decommissioning Phase:** ▪ Socio-economic impacts associated with retrenchment, including loss of jobs, and source of income. **Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Positive Cumulative Impacts:** **Construction and Operational Phases:** ▪ Cumulative impacts on the local economy. **Negative Cumulative Impacts:** **Operational Phase:** ▪ Cumulative impacts on sense of place and the landscape.	for construction service providers. These companies should be notified of the tender process and invited to bid for project-related work. **Operational Phase:** ▪ Maximise the number of employment opportunities for local community members. ▪ Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the operational phase. ▪ Implement the rental agreement with the affected landowner for the BESS project (i.e. landowner of Farm Snymansdrift 738/5). ▪ The proponents should liaise with the PLM to identify projects that can be supported by Socio-Economic Development (SED) contributions. **Mitigation Measures:** **Construction Phase:** ▪ Investigate the option of installing CCTV cameras at key access points and along the boundary of the BESS site. ▪ Fence off the BESS site prior to the start of the construction phase. ▪ Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site. ▪ Develop a Code of Conduct for construction workers. The Code of Conduct should be signed by the proponent and the contractors before construction activities commence. ▪ Contractor should provide fire-fighting training to selected construction staff. ▪ Dust suppression measures should be implemented, such as ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. **Operational Phase:** ▪ Ensure that the BESS and associated infrastructure are maintained regularly during the operational phase to ensure optimal operation. ▪ Implement recommendations of the Visual Impact Assessment undertaken for the proposed project. ▪ Provide fire-fighting training for selected operational personnel. ▪ Provide fire-fighting equipment on the site. ▪ Establish and maintain a firebreak around the perimeter of the BESS site. **Decommissioning Phase:** ▪ The proponent should ensure that retrenchment packages are provided for all staff retrenched when the BESS is decommissioned.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
Appendix E.9: Traffic Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Direct Impacts:** **Construction and Decommissioning Phases:** ▪ Increase in trips on external roads due to transport of components, material and labour, possibly leading to delays and road safety issues. ▪ Noise and dust pollution during transport and construction and decommissioning activities on site. ▪ Possible damage to road surfaces along the haulage routes (specifically near the site) caused by construction and decommissioning vehicles. **Operational Phase:** ▪ Slight increase in traffic due to permanent staff travelling to site, and irregular trips for water delivery and maintenance (i.e., exchange of batteries). The traffic generated during this phase is expected to have a nominal impact on the surrounding road network. **Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Cumulative Impacts:** **Construction Phase:** ▪ Further increase in trips on external roads due to transport of components, material and labour to site for several renewable energy, EGI, BESS and other projects within the 30 km radius. ▪ Additional dust pollution during transport and construction activities on site. ▪ Possible further damage to road surfaces along the haulage routes (specifically near the site) caused by construction vehicles.	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Construction and Decommissioning Phases:** ▪ The delivery of components to the site should be staggered and trips spread across the day, as much as possible. ▪ All required widening and resurfacing of the bellmouth(s) on the R519 onto the access road (Option A and Option B) to site needs to be finalised before the start of actual project (based on required approvals). The exact dimensions for the widening can only be confirmed at the detailed design stage. The widening and re-surfacing will need to be in line with the relevant Authority's geometric guidelines, and will require necessary permits and approvals, as relevant. ▪ Regular maintenance of private gravel roads located within the site boundary (i.e. existing internal farm roads on Farm 738/5) that are used by and impacted on by the proposed development, by the Contractor during the construction phase and decommissioning phase, and by the Owner/Facility Manager during the operational phase, if required. ▪ Regular maintenance of the access roads to the site (i.e. **External Access Road Option A**: The gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation), by the Contractor during the construction phase and decommissioning phase, and by the Owner/Facility Manager during the operational phase, if required. For Option A, this must be maintained and repaired in accordance with the original pre-construction condition or a left in a better condition. ▪ Regular maintenance of the access roads to the site (i.e. **External Access Road Option B**: The paved and tarred sections of the access road to the Eskom Witkop Substation off the R519, and towards the western edge of the substation), by the Contractor during the construction phase and decommissioning phase, and by the Owner/Facility Manager during the operational phase, if required. For Option B, this must be achieved under the guidance and approval of the road owner, i.e. Eskom.
Appendix E.10: Geohydrology Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Potential lowering of the local groundwater table due to construction water requirements. ▪ Potential groundwater contamination from accidental construction spillages (hydrocarbons, concrete wash, untreated sanitation waste from onsite ablution facilities), direct contact with wet concrete during sub-surface foundation works and	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Construction Phase:** ▪ The following mitigation measures only apply if groundwater is abstracted for the proposed project: o Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a step test, constant discharge test and recovery monitoring. o Distribute abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume).

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	BESS-related firewater runoff (electrolytes/suppressants) during installation and commissioning. **Operational Phase:** ▪ Potential lowering of the local groundwater table due to operational water requirements. ▪ Potential groundwater contamination from localised accidental spillages associated with the BESS infrastructure (liquid electrolytes or glycol-based coolants). **Decommissioning Phase:** ▪ Potential lowering of the local groundwater table due to decommissioning water requirements. ▪ Potential groundwater contamination from accidental spillages of hydrocarbons (oils and fuels) from heavy machinery, alongside the improper handling, storage or leakage of decommissioned waste materials. **Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ Potential lowering of the groundwater levels because of combined abstraction during the construction, operational and decommissioning phases for the Veroniva BESS and EGI facility and surrounding proposed or existing renewable energy, BESS and EGI projects. **Construction and Decommissioning Phases:** ▪ Potential impact on groundwater quality because of accidental oil, fuel or sewage spillages and/or concrete wash during the construction and decommissioning phases. This includes risks associated with the improper handling, storage or leakage of decommissioned waste materials. **Construction Phase:** ▪ Potential impact on groundwater quality because of foundation construction occurring below the water table during the construction phase. **Operational Phase:** ▪ Potential impact on groundwater quality due to the cumulative use of dust suppressants and cleaning agents within the region. While the Veroniva BESS will not have solar	○ Implement a groundwater monitoring programme prior to construction to establish a baseline, and continue monitoring throughout the construction phase to identify and respond to variances in groundwater levels or quality accordingly. ▪ Vehicles must be regularly serviced and maintained to check and ensure there are no leakages. ▪ Diesel fuel storage tanks, if required, should be above ground on an impermeable surface in a bunded area. **Operational Phase:** ▪ The following mitigation measures only apply if groundwater is abstracted for the proposed project: ○ Implement distributed abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume). ○ Implement and continue to monitor groundwater throughout operations according to the groundwater monitoring programme, using baseline data to identify significant variances in groundwater levels or quality accordingly. ○ Implement and enforce water-saving techniques. ▪ Ensure that all chemicals stored or used on site have secondary containment systems in place with reliable leak detection. ▪ Hazardous waste products from the BESS, substations, maintenance buildings and ablution facilities must be appropriately removed and disposed of at licensed facilities. ▪ The BESS and substation to be positioned at least 50 m away from any existing boreholes. No boreholes were found within the 65 ha study area, or within the footprint of the External Access Road Options A and B, based on the Desktop Hydrogeological Assessment. ▪ BESS units must be installed on impermeable, concrete, level surfaces throughout the operational phase. The area should be designed using specific contouring to direct potential runoff away from sensitive zones and toward a designated collection area where temporary containments can be deployed during an emergency. ▪ Conduct annual physical integrity inspections of all foundation slabs and impermeable surfaces. Repair any cracks immediately to prevent sub-surface infiltration. **Decommissioning Phases:** ▪ Implement similar mitigation measures recommended for the construction phase, if groundwater is abstracted for the decommissioning phase. ▪ All decommissioned BESS units must be inspected for physical damage or leakage prior to removal. Damaged cells must be placed in specialised, chemical-resistant drums or leak-proof containers immediately to prevent electrolyte spills during transport.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	panels, the cumulative use of cleaning agents across 16 nearby solar facilities may contribute to this regional impact. ▪ Potential impact on groundwater quality because of accidental leaks or spillages of hazardous electrolytes (Lithium) and cooling fluids (Glycols) associated with the operational BESS units. Additionally, the combined potential for contaminated fire-water runoff from multiple sites during installation or emergencies may lead to large-scale infiltration of the regional aquifer.	▪ Decommissioned batteries must be stored in a covered, bunded and well-ventilated area to prevent exposure to rainwater.
Appendix E.11: Geotechnical Letter of Professional Opinion	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Direct Impacts:** **Construction Phase:** ▪ Displacement of geologic material resulting in soil erosion. **Construction, Operational and Decommissioning Phases**: ▪ Contamination of subsoils and loss of topsoil. **Operational and Decommissioning Phases**: ▪ Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Construction Phase:** ▪ Development of a stormwater management plan by a qualified professional before construction is highly recommended. ▪ Installation of suitable systems to redirect water away from areas designated for the infrastructure. ▪ Implementation of safeguards during refuelling to protect soil from spillages, ensuring swift and proper disposal if incidents occur. **Operational Phase:** ▪ Similar to the construction phase, stormwater management planning by a qualified professional will be required. ▪ Diversion of water away from road layers and erected structures, similar to the construction phase. ▪ Replication of mitigation measures for spillages/leakages from the construction phase. **Decommissioning Phase:** ▪ Restoration of natural topography and land rehabilitation to near-natural state, including removal of foundations and hard surfaces, followed by proper backfilling. ▪ Use of locally sourced materials for reinstating and backfilling to ensure uniformity. ▪ Implementation of standard environmental management procedures for infrastructure.
Appendix E.12: Battery Energy Storage System (BESS) High Level Safety, Health and Environment (SHE) Risk Assessment	**Note: The information presented below only applies to Project 1 – Veroniva BESS.** Various risks were identified in terms of safety, health and the environment due to the proposed BESS. The BESS High Level SHE Risk Assessment identified risks, hazards, and consequences, such as, but not limited to: **Construction Phase:** ▪ Human Health - chronic exposure to toxic chemical or biological agents. Causes: Construction materials such as cement, paints, solvents, welding fumes, truck fumes etc. Consequences - Employee / contractor illness.	**Note: The information presented below only applies to Project 1 – Veroniva BESS.** ▪ There are numerous different battery technologies but using one consistent battery technology system for the BESS installation would allow for ease of training, maintenance, emergency response and could significantly reduce risks. ▪ Where reasonably practicable, "state-of-the-art" battery technology should be used with all the necessary protective features, e.g., draining of cells during shutdown and standby-mode, full Battery Management System (BMS) with deviation monitoring and trips, leak detection systems.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	▪ Human Health - exposure to noise. Causes: Drilling, piling, generators, air compressors. Consequences - Adverse impact on hearing of workers. Possible nuisance factor in nearby areas. ▪ Human and Equipment Safety - exposure to fire radiation. Causes: Involvement in an external fire. Fire involving fuels used in construction vehicles or vehicles themselves (e.g., tyre fire). Fire due to uncontrolled welding or other hot-work. Consequences - Injuries due to radiation especially amongst first responders and bystanders. Fatalities unlikely from the heat radiation as not highly flammable nor massive fire. ▪ Human and Equipment Safety - exposure to explosion over pressures. With solid state lithium containers, flammable gases generated by thermal run away reach explosive limits. Ignition on hot surfaces, static. Consequences - Potential fatalities amongst first responders. Damage to container, transport truck or other nearby items, e.g., other containers in the port. **Operational Phase:** ▪ Human and Equipment Safety - exposure to fire radiation. Causes: Power Conversion System (PCS) – direct current to alternative current cooling failure electrical fire. Consequences - Fire starts in PCS or another section or room and spreads to battery area. ▪ Human and Equipment Safety - exposure to explosion over pressures. Cause 1 - Transformer shorting / overheating / explosion. Cause 2 - Flammable gases generated by thermal run away reach explosive limits. Ignition on hot surfaces, static. Lithium Cobalt Oxide generates oxygen during decomposition – escalation. Consequences - Potential fatalities amongst first responders. Damage to container or other nearby items, e.g., other container.	▪ Ensure that the technical and system suggestions for managing and reducing risks, as specified in the assessment, specifically in terms of preventative and mitigative measures are included in the design. ▪ The overall design should be subject to a full Hazard and Operability Study (HAZOP) prior to finalisation of the design. ▪ Prior to importing any solid-state battery modules / containers into the country, the contractor should ensure that: o An Emergency Response Plan is in place that would be applicable for the full route from the ship to the site. This plan would include details of the most appropriate emergency response to fires both while the units are in transit and once, they are installed and operating. o An End-of-Life plan is in place for the handling, repurposing or disposal of dysfunctional, severely damaged batteries, modules and containers. ▪ The site layout and spacing between lithium solid-state containers should be such that it mitigates the risk of a fire or explosion event spreading from one container to another. ▪ In order to limit the possibility of domino failures from the BESS onto transformers and to limit direct impacts of any fire or explosion on the substation, the BESS should be separated from the substation by at least 20 m, or greater if specified in local or International Standards. ▪ Suitable separation must be ensured between the BESS containers and other on-site facilities such as transformers, any high voltage overhead power lines etc. In this regard there are National Fire Protection Agency (NFPA - USA) and Eskom guidelines. Separation from offices areas (i.e. the O&M building) should be at least 25 m to avoid direct damage from possible explosions and fires, and possibly be 50 m to avoid minor impacts explosion debris. ▪ Under certain weather conditions, the noxious smoke from a potential fire in a lithium BESS container could travel some distance from the unit. Close to the source of the smoke, the concentration of toxic gases may be high enough to cause irreversible harmful effects. The location of the BESS needs to ensure sufficient separation distance from public facilities and residences (500 m) / main public roads (150 m). The proposed location of the Veroniva BESS is suitable in this regard. ▪ In terms of aquatic risks, lithium ion BESS fires produce toxic smoke, and fire fighting may result in contaminated of firewater runoff. Linked to this, the proposed location for the BESS should be more than 50 m from existing boreholes and more than 100 m from aquatic features. The current chosen location of the BESS meets these separation requirements. There are no boreholes and aquatic features within the BESS and EGI development footprints. ▪ The proposed location of the BESS is acceptable from both a toxic smoke risk and aquatic pollution perspective.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
		▪ Finally, it is suggested once the BESS technology has been chosen and more details of the final design are available, the necessary updated Risk Assessments should be in place (prior to commencement, after Environmental Authorisation and other necessary approvals are granted (should such be granted)).

10. SUMMARY OF THE KEY IMPACT ASSESSMENT FINDINGS

10.1 Veroniva BESS – Project 1

Note: The information below applies to Project 1 (Veroniva BESS) only.

Table F provides a summary of the post-mitigation and post-enhancement impact assessment (direct and indirect impacts) for the proposed Veroniva BESS (Project 1). Some impacts were not identified, or are considered insignificant, or could not be measured empirically at the time of assessment.

Table F. Overall Impact Significance with the Implementation of Mitigation / Enhancement Measures for Direct and Indirect Negative and Positive Impacts for Veroniva BESS (Project 1)

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
DIRECT NEGATIVE IMPACTS						
Agriculture	Low		Low		Low	
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Low		Low		Low	
Aquatic Biodiversity and Species	Low		Very Low		Not identified and/or not applicable	
Avifauna	Low	Moderate	Low	Moderate	Low	
Visual	Low		Very Low		Very Low	
Heritage (Archaeology and Cultural Landscape)	Very Low		Very Low		Very Low	
Palaeontology	Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable	
Socio-Economic	Low		Very Low	Low	Very Low	
Traffic	Low		Very Low		Low	
Geohydrology	Very Low	Low	Very Low	Low	Very Low	Low
Geotechnical	Very Low	Low	Very Low	Low	Very Low	Low
INDIRECT NEGATIVE IMPACTS						
Aquatic Biodiversity and Species	Very Low		Very Low		Very Low	
DIRECT POSITIVE IMPACTS						
Socio-Economic	Moderate		Low	Moderate	Insignificant and/or not identified and/or not applicable	

Based on the findings of the detailed specialist studies, which are included in Appendix E of this BA Report, the following is concluded for the proposed Veroniva BESS (Project 1), as per the summary in Table F:

- With the implementation of mitigation measures, this project is considered to have an **overall Low to Very Low direct negative environmental impact, with only a few moderate negative environmental impacts for Avifauna during the construction and operational phases.** The moderate significance impacts for avifauna relate to displacement of avifauna due to habitat loss associated with the construction and presence of the BESS and associated infrastructure (during the construction phase), and collision mortality of power line sensitive avifauna species due to collisions with any overhead sections of the internal medium voltage reticulation network (during the operational phase). These are not fatal flaws, and the Avifauna specialists have recommended adequate mitigation measures in this regard.

- With the implementation of mitigation measures, this project is considered to have an **overall Very Low indirect negative environmental impact in terms of Aquatic Biodiversity and Species during all phases.**

- With the implementation of enhancement measures, this project is considered to have an **overall Moderate to Very Low positive socio-economic impact for construction and operations**. According to the Socio-Economic Impact Assessment (Appendix E.8 of the BA Report), the establishment of the proposed Veroniva BESS and EGI, and other renewable energy facilities in the vicinity of the Eskom Witkop MTS will create socio-economic opportunities for the Polokwane Local Municipality. The positive cumulative opportunities include creation of employment, skills development and training opportunities, and downstream business opportunities. Given the limited economic opportunities in the area this would represent a positive opportunity.

10.2 Veroniva EGI – Project 2

Note: The information below applies to Project 2 (Veroniva EGI) only.

Table G provides a summary of the post-mitigation and post-enhancement impact assessment (direct and indirect impacts) for the proposed Veroniva BESS (Project 1). Some impacts were not identified, or are considered insignificant, or could not be measured empirically at the time of assessment.

Table G. Overall Impact Significance with the Implementation of Mitigation / Enhancement Measures for Direct and Indirect Negative and Positive Impacts for Veroniva EGI (Project 2)

Specialist Assessment	Construction Phase		Operational Phase	Decommissioning Phase	
DIRECT NEGATIVE IMPACTS					
Agriculture	Very Low		Very Low	Very Low	
Terrestrial Biodiversity, Terrestrial Plant Species,	Low	Very Low	Low	Low	Very Low

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
and Terrestrial Animal Species						
Avifauna	Low		Low	Moderate	Low	
Visual	Very Low		Very Low		Very Low	
Heritage (Archaeology and Cultural Landscape)	Very Low		Very Low		Very Low	
Palaeontology	Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable	
Geotechnical	Very Low	Low	Very Low	Low	Very Low	Low
INDIRECT NEGATIVE IMPACTS						
Aquatic Biodiversity	Very Low		Very Low		Very Low	

Based on the findings of the detailed specialist studies, which are included in Appendix E of this BA Report, the following is concluded for the proposed Veroniva EGI (Project 2), as per the summary in Table G:

- With the implementation of mitigation measures, this project is considered to have an **overall Low to Very Low direct negative environmental impact, with only a few moderate negative environmental impacts for Avifauna during the operational phase.** The moderate significance impacts for avifauna relate to collision mortality of power line sensitive avifauna species due to collisions with the 132 kV overhead LILO and upgraded power line (during the operational phase). This is not a fatal flaw, and the Avifauna specialists have recommended adequate mitigation measures in this regard.

- With the implementation of mitigation measures, this project is considered to have an **overall Very Low indirect negative environmental impact in terms of Aquatic Biodiversity and Species during the construction, operational and decommissioning phases.**

11. OVERALL IMPACT ASSESSMENT AND REASONED OPINION FROM THE EAP

Note: The information in this section equally applies to Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI), unless where mentioned otherwise.

The information presented above contributes to this overall environmental impact statement and reasoned opinion from the Environmental Assessment Practitioner (EAP) as to whether the proposed projects should or should not be authorised, including any conditions that should be made in respect of the authorisation (should it be granted).

Based on the findings of the detailed specialist assessments and technical studies, which all recommend that the proposed projects can proceed and should be authorised by the DFFE, the proposed projects are considered to have an **overall Low to Very Low negative environmental impact, and an overall Moderate to Low positive socio-economic impact** (with the implementation of respective mitigation and enhancement measures).
In addition, cumulative impacts have been assessed by all relevant specialists. It is concluded that no cumulative impacts are considered to be fatal flaws. Based on the findings of the detailed specialist assessments and technical studies, the proposed projects are considered to have an overall Low to Very Low negative cumulative environmental impact (with some Moderate negative cumulative impacts), and an overall highly significant positive cumulative socio-economic impact (with the implementation of respective mitigation and enhancement measures).

The proposed projects will take place within the development footprint on the preferred project site. The development footprint and buildable areas avoid the no-go sensitive features identified and mapped by the respective specialists, where relevant and applicable. Linear infrastructure traverses an area of high sensitivity due to avifauna electrocution and collision risk (as identified by the Avifauna specialists), and a seep wetland (as identified by the Terrestrial Biodiversity and Aquatic Biodiversity specialists), however the relevant specialists have confirmed that this is acceptable with recommended mitigation measures. The project layouts are final, avoid the no-go sensitivities for key infrastructure placement, and are based on the recommendations of the specialists. The specialists also confirmed that the project layouts are acceptable.

This BA has considered the nature, scale and location of the development as well as the wise use of land. When considering the timing of this project, based on the Proposed Balanced Plan for new generation capacity in the 2025 Integrated Resource Plan (IRP), energy storage (including Eskom BESS allocations) had a current base of 712 MW at the end of 2025 (including Eskom BESS allocations); and approximately 3 724 MW of new energy storage capacity is estimated for the period of 2026 to 2030 (i.e. medium term horizon); and approximately 4 500 MW of new energy storage capacity is estimated for the period of 2031 to 2042 (i.e. transition horizon and long-term period). As discussed in the preceding chapters of this BA Report, it is the Project Applicant's intention to bid this project in the future bidding rounds of the BESIPPPP. The project would contribute in the order of 350 MW / 1200 MWh energy storage capacity to the national grid, which has direct and indirect benefits for national economic growth, especially when noting that wind and solar energy are the lowest cost options for new electricity generation in South Africa, and that the BESS would potentially support future solar energy projects in the region.

The proposed projects will be in line with and will be supportive of the objectives of the Polokwane Local Municipality Integrated Development Plan (IDP) in terms of creating more job opportunities and promoting economic growth. If approved by the DFFE, the proposed projects will provide skills development opportunities, create contractual and permanent employment in the area during the construction and operational phases, and consequently provide catalytic opportunities for downstream economic development.

Section 24 of the Constitutional Act states that "*everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that prevents pollution and ecological degradation; promotes conservation; and secures ecologically sustainable development and use of natural resources while promoting justifiable economic and social development*". Based on this, this BA was undertaken to ensure that these principles are met through

the inclusion of appropriate management and mitigation measures, and monitoring requirements. These measures will be undertaken to promote conservation by avoiding the sensitive environmental features present on site and through appropriate monitoring and management plans (refer to the EMPrs in Appendix H to Appendix K of this BA Report).

The outcomes of these projects therefore succeed in meeting the environmental management objectives of protecting the ecologically sensitive areas and supporting sustainable development and the use of natural resources, whilst promoting justifiable socio-economic development in the towns nearest to the project site. The findings of this BA show that all natural resources will be used in a sustainable manner (i.e., the majority of the negative site specific and cumulative environmental impacts are considered to be of low to very low significance with mitigation measures implemented), while the benefits from the projects will promote justifiable economic and social development.

Taking into consideration the findings of the BA Process and given the national and provincial strategic requirements for infrastructure development, particularly from an energy storage perspective, and based on the fact that the environmental sensitivity of the development footprints is largely low to medium (with high sensitivity due to avifauna collision and electrocution risk identified by the Avifauna specialists, and the seep wetland identified by the Aquatic Biodiversity and Terrestrial Biodiversity specialists), it is the opinion of the EAP, that the benefits of the projects outweigh the costs and that the projects will make a positive contribution to sustainable infrastructure development in the Polokwane Local Municipality, as well as the town of Polokwane.

Provided that the specified mitigation measures and management actions are applied effectively throughout, it is recommended that the proposed projects receive EA in terms of the 2014 NEMA EIA Regulations (as amended).

It is understood that the information contained in the BA Report and appendices is sufficient to make a decision in respect of the activities applied for.

In line with the approval of the combination and multiple EA request (as noted in Appendix C.7 of the BA Report), it is proposed that for these projects, separate EAs will be issued (should they be granted), as follows:

- **EA 1 (should it be granted) for the Veroniva BESS (Project 1); and**
- **EA 2 (should it be granted) for the Veroniva EGI (Project 2).**

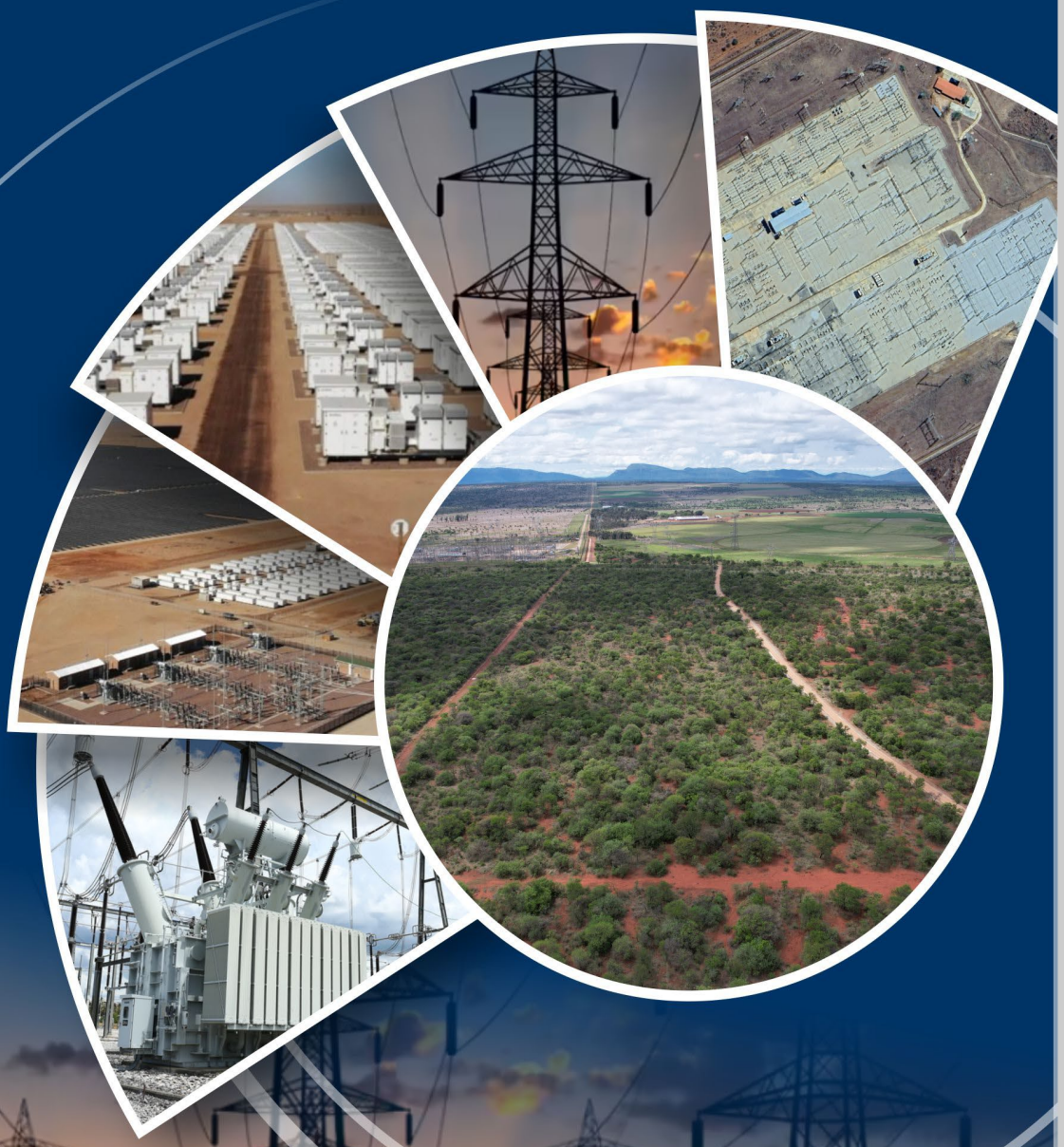
It is recommended that the EAs (should they be granted) be **valid for a period of 10 years**.

In addition, it is recommended that the EMPrs compiled as part of this BA Process, included in Appendix H to Appendix K of this BA Report, be approved concurrently in the EAs (should they be granted). Detailed **final** layouts of the BESS and EGI were identified during the BA Phase and have been included in Chapter 13 of the BA Report, as well as Appendix D and the EMPrs.

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 1:
Introduction



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1. INTRODUCTION

Veroniva (Pty) Ltd (the Project Developer, hereafter referred to as Veroniva) is proposing to develop a Battery Energy Storage System (BESS) Facility, Electricity Grid Infrastructure (EGI), and associated infrastructure, near Polokwane within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo. The projects are collectively referred to as the Veroniva BESS and EGI development.

The BESS facility will have a range of infrastructure, and it is proposed to connect to the existing Eskom Pietersburg / Witkop 1 overhead 132 kV power line via a dedicated Loop-In-Loop-Out (LILO). The BESS and EGI project would require its own separate Environmental Authorisation (EA). The Project Applicant for both projects is Veroniva BESS (Pty) Ltd.

The following projects are being proposed:

- **PROJECT 1**: The proposed development of a BESS and associated infrastructure (Veroniva BESS).
- **PROJECT 2**: The proposed development of a 132 kV Overhead LILO Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

1.1. Report Combination and Multiple EAs

A request to combine the Environmental Assessment reporting, for Projects 1 and 2, in terms of Regulation 11 (4) of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended), and the issuing of multiple EAs in terms of Regulations 25 (1) and (2) was discussed with the Department of Forestry, Fisheries and the Environment (DFFE) at the Pre-Application Meeting that was held on 6 March 2026. A letter was submitted to the DFFE via email on 13 March 2026 to motivate for the combination and issuing of multiple EAs. The DFFE approved the combination and multiple EA request in a letter dated 20 March 2026, sent via email on 20 March 2026. Refer to Appendix C of this BA Report for a copy of the DFFE approval of the report combination and multiple EAs (should they be granted).

The reporting structure indicated in Figure 1.1 has been used to undertake a consolidated assessment process and to ensure that the potential environmental impacts of each activity, in relation to the location at which they will take place, are considered. The combined reporting process reduces the administrative aspects on the Case Officer and reduces the number of reports that need to be reviewed by Interested and Affected Parties (I&APs), while still maintaining high levels of environmental rigour and clear reporting.

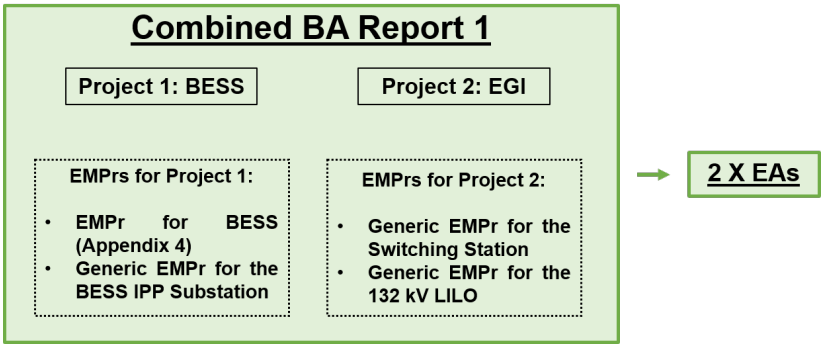


Figure 1.1: Environmental Assessment Reporting Structure for the proposed Veroniva BESS and EGI development.

Therefore, one combined report has been compiled for the BESS and EGI projects (i.e. Projects 1 and 2) and it is proposed that two separate EAs will be issued (should they be granted).

In terms of the Public Participation Process (PPP), an integrated approach is being followed for the proposed projects. This forms an integral part of the BA Process and assists in identifying issues to be considered. Details on the PPP are included in Chapter 5 of this BA Report.

This combined BA Report addresses the **Veroniva BESS and EGI** (i.e. Projects 1 and 2, respectively) (hereafter referred to as the "proposed projects").

Note: The information throughout this chapter applies equally to each of the projects addressed in this report (i.e. Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)), unless where mentioned otherwise.

1.2. Chapter Overview

This chapter provides an introduction of the proposed projects, and includes the following:

- An overview of the proposed BESS, EGI and associated infrastructure;
- Project Motivation;
- The legal requirements for a BA;
- Information on the Project Owner and Project Applicant;
- The Competent Authority and BA Project Team;
- Details and Expertise of the CSIR BA Project Management Team;
- Need and Desirability;
- The objectives of the BA Report; and
- Requirements for a BA Report in terms of Appendix 1 of the 2014 NEMA EIA Regulations (as amended).

Figure 1.2 provides a locality map of the proposed projects (Projects 1 and 2).

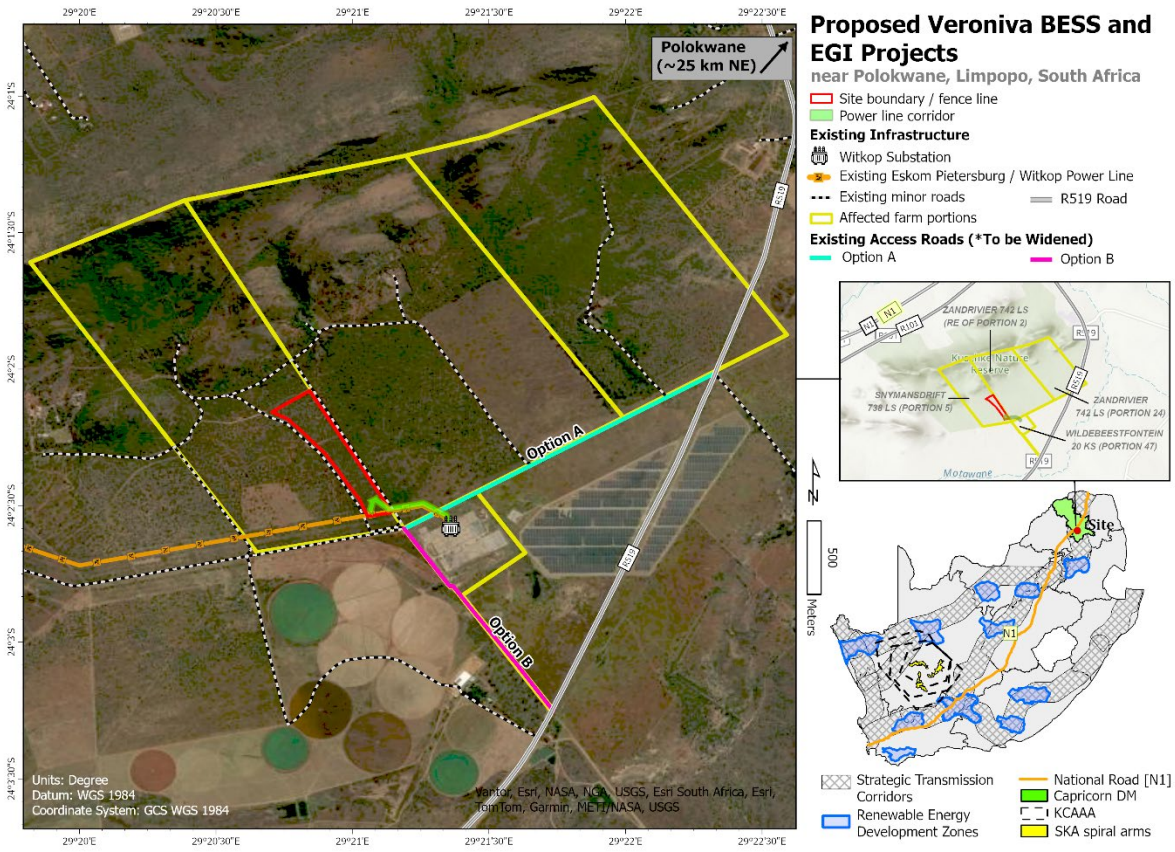


Figure 1.2: Locality map for the proposed Veroniva BESS and EGI, near Polokwane in Limpopo.

1.3. Overview of the Proposed Projects

An overview of the key components of the proposed projects is described in this section. A detailed project description is provided in Chapter 2 (for Veroniva BESS - Project 1) and Chapter 3 (for Veroniva EGI - Project 2) of this BA Report.

1.3.1. Veroniva BESS and associated infrastructure

The proposed BESS facility will consist of the following key components:

- BESS Units;
- Operational and Maintenance (O&M) office, including ablution facilities;
- Independent Power Producer (IPP) Substation;
- Medium Voltage (MV) cables;
- On-site internal cables;
- External access roads (i.e. Option A and Option B leading off the R519);
- Internal roads;
- Fencing;
- Parking area;
- Storm water channels; and
- Laydown area.

1.3.2. Veroniva EGI and associated infrastructure

The proposed EGI will consist of the following key components:

- Switching station, which will be transferred from the IPP to Eskom following construction;
- 132 kV Overhead LILO Power Line from the on-site proposed BESS to the Eskom Pietersburg / Witkop 1 Power Line, which in turn connects to the Eskom Witkop Main Transmission Substation (MTS);
- Potential upgrade of the Eskom Pietersburg / Witkop 1 Power Line;
- Potential work at the Eskom Witkop Substation (i.e., associated electrical infrastructure will be installed or upgraded at the Eskom Witkop Substation, where needed);
- Service road below the power line;
- Access roads;
- Storm water channels; and
- Laydown area.

1.4. Project Motivation

South Africa is one of the highest per capita producers of carbon emissions in the world. These emissions are largely a result of an energy-intensive economy and high dependence on coal-based electricity generation to meet more than 90% of the country's energy needs. Consequently, the South African government is committed to supplementing the existing generation capacity of thermal and nuclear power plants with renewable energy power generation and energy storage, thus creating a framework that will lead to an increase in the supply of clean energy for the nation. The need for renewable energy and energy storage is evident, in both a local and international context, with South Africa becoming an integral part of the global transition towards renewable

sources of electricity generation. The development of renewable energy and energy storage is therefore critical for South Africa to reduce its overall environmental footprint from power generation (including externality costs), and thereby to steer the country on a pathway towards sustainability.

Commitment toward decarbonisation of the economy is clearly illustrated in South Africa's National Development Plan (NDP) Vision 2030 published in 2012. Chapters 4 and 5 of the NDP advocates for increased investment in an energy sector that is both economically inclusive and environmentally sustainable – with renewable energy at the core of enabling this transition. The plan identifies, as a priority, the production of sufficient energy to support industry at competitive prices, ensuring access for poor households, while reducing the carbon intensity of the economy. BESS is therefore central to the NDP Vision 2030.

In addition, due to the current constrained energy landscape, the South African Government has articulated a plan to address the energy crisis. The President of South Africa delivered a speech on 25 July 2022 to inform the public of the plan towards achieving a reliable, affordable and sustainable energy supply (The Presidency, 2022[1]). In addition, the Minister of Forestry, Fisheries and the Environment also held a stakeholder engagement session on 21 July 2022 during which proposed mechanisms were highlighted for streamlining environmental approvals for solar energy and battery storage development in low and medium sensitivity areas throughout the country; as well as power line and substation development within low and medium sensitivity areas within the gazetted EGI corridors (DFFE, 2022[2]). Some of these mechanisms have already been gazetted for implementation (i.e. the EGI Standard published in Government Gazette (GG) 47095; Government Notice (GN) 2313, dated 27 July 2022; Solar Exclusion Norm published in GG 50388; GN 4558, dated 27 March 2024; and Battery Storage Exclusion Norm published in GG 50387; GN 4557, dated 27 March 2024).

Further, in March 2023, the now Department of Electricity and Energy (DEE) (previously operating as the Department of Mineral Resources and Energy (DMRE)) launched the Battery Energy Storage Independent Power Producers Procurement Programme (BESIPPPP), where potential IPPs are invited to submit proposals for the financing, design, construction, operation, and maintenance of grid-scale BESS facilities to provide capacity, energy, and ancillary services to Eskom. Submitted proposals are evaluated according to a Request for Proposal (RFP). The bidders whose responses rank the highest (according to stipulated criteria) generally have the greatest potential to be appointed as "Preferred Bidders" by the DEE.

Bid Window 1 was conducted during 2023 and targeted the procurement of up to 513 MW of battery energy storage capacity. The Preferred Bidders were announced in November 2023.

Bid Window 2 was announced in 2023 and targeted the procurement of up to 615 MW of battery energy storage capacity. The Preferred Bidders were announced in December 2024.

[1] The Presidency (2022). *Address by President Cyril Ramaphosa on actions to address the electricity crisis, Union Buildings, Tshwane.* Accessed online: https://www.thepresidency.gov.za/speeches/address-president-cyril-ramaphosa-actions-address-electricity-crisis%2C-union-buildings%2C-tshwane [August 2022]

[2] DFFE (2022). *Minister Creecy announces improved environmental assessment processes for solar energy.* Accessed online: https://www.dffe.gov.za/creecy_environmentalassessmentprocesses_solarenergy [August 2022]

Bid Window 3 was conducted during 2024 and targeted the procurement of up to 616 MW of battery energy storage capacity. The Preferred Bidders were announced in May 2025.

BESS facilities store electricity for on-demand power supply and can be charged by various energy sources such as, but not limited to, wind and solar energy (Eskom, 2023[3]). BESS facilities balance power supply by storing excess energy during high generation periods and releasing it when there is a low supply and high demand, and thus play a key role in stabilising the electricity grid and improving renewable energy reliability (Eskom, 2023[3]). This is particularly beneficial in the proposed project area, due to the large concentration of planned solar photovoltaic (PV) facilities within the 30 km radius, and the existing and operational Witkop Solar PV facility. The proposed Veroniva BESS and EGI will also provide support to the existing Eskom Witkop MTS ensuring power supply in the area is more regular.

The proposed project (i.e. standalone BESS) is intended to contribute to meeting the need for additional energy storage capacity, as required by the Integrated Resource Plan (IRP) of 2025. Battery storage is part of the 2025 IRP with an energy storage target of 3 724 MW by 2030 (IRP, 2025), and the proposed project will be bid as part of the DEE's BESIPPPP.

Considering the current pressure on the South African power system, renewable energy and BESS projects are critical. This is also evidenced by the DFFE offering support to Provincial Environmental Departments with processing Applications for EA for embedded generation projects (Engineering News, 2022[4]) and the fast-tracking of wind and solar PV projects to 57-day decision-making regardless of their positioning in terms of the gazetted Renewable Energy Development Zones (REDZs) or EGI corridors (DFFE, 2023[5]). The latter was also reiterated during the 2024/25 (Vote 32) DFFE's Budget Vote Speech (DFFE, 2024[6]).

The DFFE 2025/26 – 2029/30 Strategic Plan also explains that in the next five years, the DFFE aims to reduce red tape and boost investor confidence "*by removing bureaucratic delays that prevent businesses from investing in sustainable industries. The Department is streamlining environmental approvals and licensing processes to ensure investors can move from planning to execution faster. Our target is to finalise Environmental Impact Assessment applications within 57 calendar days*" (DFFE, 2025[7], Page iv).

Overall, should the proposed development receive EAs and preferred bidder status, it will facilitate increased integration of renewable energy into the grid, and therefore assist in contributing to the renewable energy and energy storage targets of the country, and it will assist in alleviating grid constraints and providing peak-time energy.

[3] Eskom (2023). *Battery Energy Storage Systems*. Accessed online: https://www.eskom.co.za/distribution/wp-content/uploads/2023/11/BESS-eskom-brochure-Mobile-friendly.pdf [April 2026].

[4] Engineering News (2022). Creecy offers provinces help to process EIAs for 100 MW embedded projects. Accessed online. May 2022. https://www.engineeringnews.co.za/article/creecy-offers-provinces-help-to-process-eias-for-100-mw-embedded-projects-2022-05-18

[5] DFFE (2023). Budget Vote 2023/24 (Vote 32) of Department of Forestry, Fisheries and the Environment delivered by Minister of Forestry, Fisheries and the Environment, Ms Barbara Creecy, Good Hope Chamber, Parliament. Accessed online. October 2023. https://www.dffe.gov.za/node/1975

[6] DFFE (2024). Minister D George (Dr): 2024/25 Budget Vote Speech (Vote 32) for Forestry, Fisheries and the Environment. Accessed online: https://www.dffe.gov.za/speech/george_dffe2024.25budgetvote32 [July 2024].

[7] The Department of Forestry, Fisheries and the Environment [DFFE] (2025). Department of Forestry, Fisheries and the Environment. 2025/26 – 2029/30 Strategic Plan. Accessed online: https://static.pmg.org.za/DFFE_2025-2030_Strategic_Plan.pdf [March 2026].

Should the proposed projects be acceptable and authorised, it is considered viable that long-term benefits for the community and society in the Polokwane area would be realised. The proposed projects will provide an opportunity for additional employment in an area where job creation is identified as a key priority. The proposed projects will make use of local labour as much as possible. It is difficult to specify the actual number of employment opportunities that will be created at this stage; however, estimates are provided below for each proposed project:

- For Project 1 – Veroniva BESS and associated infrastructure, it is envisaged that approximately 15 skilled; and approximately 35 unskilled employment opportunities will be created during the construction phase. Between 1 and 35 skilled; and between 2 and 4 unskilled employment opportunities will be created during the operational phase over the lifespan of the proposed project.

- For Project 2 – Veroniva EGI and associated infrastructure, it is envisaged that between 10 and 20 skilled; and between 30 and 40 unskilled employment opportunities will be created during the construction phase. Between 1 and 3 skilled; and between 2 and 5 unskilled employment opportunities will be created during the operational phase over the lifespan of the proposed project.

It should be noted that the employment opportunities estimates are dependent on the final engineering design and the BESIPPPP RFP provisions at that point in time.

The proposed projects would also have international significance as they contribute to South Africa being able to meet some of its international obligations by aligning domestic policy with internationally agreed strategies and standards as set by the United Nations Framework Convention on Climate Change (UNFCCC), the Paris Agreement on Climate Change, Kyoto Protocol, and United Nations Convention on Biological Diversity (UNCBD), all of which South Africa is a signatory to.

The shortage of electricity generation and storage options, and grid capacity constraints pose major constraints on South Africa's economic recovery. Consequently, the development of a new BESS facility and associated EGI, such as proposed in the Veroniva BESS and EGI development, is urgently needed and will bring significant socio-economic benefits by contributing to national energy security.

It is intended that the Veroniva BESS will be bid into a future bidding program such as the BESIPPPP (or another suitable tender process linked to the IRP). To submit a Bid in terms of the BESIPPPP, the Project Applicant is required to have obtained EA in terms of the 2014 NEMA EIA Regulations (as amended), as well as several additional authorisations or consents.

1.5. Legal Requirements for a BA Process

Section 24(1) of NEMA, states that "*In order to give effect to the general objectives of integrated environmental management laid down in this Chapter, the potential impact on the environment of listed activities must be considered, investigated, assessed and reported to the competent authority charged by this Act with granting the relevant Environmental Authorisation*". The reference to "listed activities" relates to the regulations promulgated in GN R982, R983, R984 and R985 in GG 38282, dated 4 December 2014, which came into effect on 8 December 2014. These

were amended following its promulgation, as detailed in Chapter 5 of this BA Report. GN R327 and GN R324 includes listed activities that trigger the need for a BA Process, whereas GN R325 includes listed activities that trigger the need for a full Scoping and EIA Process. Additional detail is provided in Chapter 5, Chapter 6 (Listed Activities for the Veroniva BESS – Project 1) and Chapter 7 (Listed Activities for the Veroniva EGI – Project 2) of this BA Report.

The proposed projects are not located within any of the Renewable Energy Development Zones (REDZs) that were gazetted in GN 114 on 16 February 2018; and GN 144 on 26 February 2021. The proposed projects are located within the International Strategic Transmission Corridor that was gazetted in GN 113 on 16 February 2018.

Chapters 6 and 7 of this BA Report contains a detailed list of activities contained in GN R327, R325, and R324, which may be triggered by the BESS and EGI projects, respectively, and thus forms part of this BA Process. Listed below are the key listed activities triggered per project (Table 1.1).

Table 1.1: Key Listed Activities Per Project.

Project	Listing Notice, Listed Activity and Description
Project 1: Veroniva BESS and associated infrastructure	**GN R327 (Listing Notice 1), Activity 27**: The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.
Project 2: Veroniva EGI and associated infrastructure	**GN R327 (Listing Notice 1), Activity 11 (i)**: The development of facilities or infrastructure for the transmission and distribution of electricity (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.

1.6. Project Developer

Veroniva is committed to developing renewable energy in South Africa and thus investing in the country. Veroniva was founded in 2012 and is a leading renewable energy developer specialising in developing large-scale renewable energy projects in Southern Africa. Veroniva has successfully developed (from site identification to fully permitted) projects of more than 1 400 MW. Specifically, Veroniva has developed 813 MW of peak solar PV capacity projects in South Africa, which have been awarded to IPPs under the Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP) and Renewable Energy Independent Power Producer Procurement Programme (REIPPPP). This includes the Kenhardt Solar PV 1-3 projects in the Northern Cape, which were awarded preferred bidder status under the RMIPPPP, as well as the Grootfontein Solar PV 1-3 projects in the Western Cape, which were awarded preferred bidder status under Bidding Window 5 of the REIPPPP. The latter projects were taken forward by Scatec Africa (Pty) Ltd.

The Kenhardt Solar PV 1-3 projects have been constructed and are currently in operation and have a total capacity of 540 MW, with 1 140 MWh battery storage. The Grootfontein Solar PV 1-3 projects have also been constructed and are currently in operation with a total capacity of 273 MW. The power is sold under a 20-year Power Purchase Agreement (PPA) with Eskom.

Veroniva was also the original developer of the Oasis Mookodi BESS project in the North-West

Province, and thereafter sold the project. The Oasis Mookodi BESS project (308 MWh) was later awarded preferred bidder status under Bidding Window 1 of the BESIPPPP. The project achieved financial and commercial close in 2024 and is currently in the construction phase.

1.7. Project Applicants

Each of the proposed projects will have a dedicated Project Applicant, as indicated in Table 1.2.

Table 1.2: Project Applicant Per Project.

Project	Project Applicant
Project 1: Veroniva BESS and associated infrastructure	Veroniva BESS (Pty) Ltd
Project 2: Veroniva EGI and associated infrastructure	Veroniva BESS (Pty) Ltd

1.8. Competent Authority

The 2014 NEMA EIA Regulations, as amended in GN 517 on 11 June 2021 states that the Competent Authority (CA) in respect of the listed activities "*is the CA in the province in which the activity is to be undertaken, unless: (a) it is an application for an activity contemplated in Section 24C(2) of the Act, in which case the CA is the Minister or an organ of state with delegated powers in terms of Section 42(1) of the Act; or (b) the application is a mining application in which case the CA is the Minister responsible for mineral resources*".

With relevance to the proposed projects, Section 24C (2) (a) (i) of NEMA states "*(2) the Minister must be identified as the competent authority in terms of subsection (1), unless otherwise agreed to in terms of section 24C (3), if the activity (a) has implications for international environmental commitments or relations, and where (i) it is identified by the Minister by notice in the Gazette*".

The CA determination for each proposed project is discussed below.

1.8.1. Veroniva BESS and associated infrastructure – Project 1

Related to the above, GN 779 states that, in terms of Sections 24C(1), 24C(2)(a)(i) and 24D of the NEMA, the Minister of Environmental Affairs (now Forestry, Fisheries and the Environment) is the CA for activities which are identified as activities in terms of Section 24(2)(a) of NEMA, which may not commence without an EA, and which relates to the IRP 2010 – 2030 and any updates thereto. The proposed project triggers various listed activities and thus requires EA. The proposed project will be bid into a future bidding program of the BESIPPPP. In addition, energy storage is part of the IRP and the energy mix. Therefore, the National DFFE serves as the CA for the proposed Veroniva BESS project. This was confirmed with the DFFE at the Pre-Application Meeting on 6 March 2026. Refer to Appendix C of this BA Report for a copy of the Pre-Application Meeting Notes.

1.8.2. Veroniva EGI and associated infrastructure – Project 2

The proposed project triggers various listed activities and thus requires EA. The EGI is part of the BESS facility, and was assessed in a combined report, thus it constitutes all associated infrastructure that supports a BESS facility to be bid into the BESIPPPP. Therefore, the National DFFE serves as the CA for the proposed Veroniva EGI project. This was confirmed with the DFFE at the Pre-Application Meeting on 6 March 2026. Refer to Appendix C of this BA Report for a copy of the Pre-Application Meeting Notes.

1.9. BA Project Team

In accordance with Regulation 12 (1) of the 2014 NEMA EIA Regulations (as amended), the Council for Scientific and Industrial Research (CSIR) Environmental Management Services (EMS) group has been appointed to undertake the required Environmental Assessment Process in order to determine the potential biophysical, social and economic impacts associated with the proposed development, and to identify how such negative impacts can be avoided, remedied, mitigated or managed; and how positive impacts can be enhanced.

The project team, which is involved in this BA Process, is listed in Table 1.3 below. This team includes several specialists who have extensive experience in conducting specialist studies for BESS and EGI projects in South Africa. The specialist studies relevant to the proposed Veroniva BESS and Veroniva EGI projects (i.e. Projects 1 and 2, respectively) are also indicated in Table 1.3 below. The term "N/A" in the table below indicates that the specialist study in question is not relevant to that specific project. Chapter 8 (for the Veroniva BESS – Project 1) and Chapter 9 (for the Veroniva EGI – Project 2) also includes motivation for not undertaking certain studies identified by the Screening Tool.

Table 1.3: The BA Project Team.

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN	PROJECT 1 – BESS	PROJECT 2 – EGI
Environmental Management Services (CSIR)				
Paul Lochner (*Registered EAP* (2019/745))	CSIR	EAP, Technical Advisor and Quality Assurance	✓	✓
Rohaida Abed (*Pr.Sci.Nat.* and *Registered EAP* (2021/4067))	CSIR	EAP and Project Manager	✓	✓
Suvasha Ramcharan *(Cert.Sci.Nat. and Candidate EAP (2023/6896))*	CSIR	Project Officer	✓	✓
Dhiveshni Moodley (*Pr.Sci.Nat.*)	CSIR	Senior GIS Specialist	✓	✓
Rinae Tsedu *(Candidate EAP (2022/6210))*	CSIR	Junior GIS Specialist	✓	✓
Helen Antonopoulos *(Cand.Sci.Nat.)*	CSIR	Public Participation Specialist	✓	✓
Specialists				
Johann Lanz (*Pr.Sci.Nat.)*	SoilZA	Agriculture and Soils Compliance Statement	✓	✓

NAME	ORGANISATION	ROLE/STUDY TO BE UNDERTAKEN	PROJECT 1 – BESS	PROJECT 2 – EGI
Corné Niemandt *(Pr.Sci.Nat.)*	Bios Diversitas Consultants	Terrestrial Biodiversity Assessment, Terrestrial Plant Species Compliance Statement, and Terrestrial Animal Species Compliance Statement	✓	✓
Russell Tate *(Pr.Sci.Nat.)*	Tate Environmental Specialist Services	Aquatic Biodiversity and Species Impact Assessment	✓	✓
Albert Froneman *(Pr.Sci.Nat.)* Dr Megan Loftie-Eaton *(Pr.Sci.Nat.)*	AfriAvian Environmental (Pty) Ltd	Avifauna Impact Assessment	✓	✓
Graham Young (*SACLAP Registered*)	Graham Young Landscape Architect	Visual Impact Assessment	✓	✓
Dr Jayson Orton (*APHP Member; ASAPA CRM Section Member*)	ASHA Consulting (Pty) Ltd	Heritage Impact Assessment (Archaeology and Cultural Landscape)	✓	✓
Dr John Almond *(PSSA and APHP Member)*	Natura Viva cc	Palaeontology Letter of Exemption (Site confirmed very low to low sensitivity)	✓	✓
Tony Barbour Schalk van der Merwe	Tony Barbour Environmental Consulting	Socio-Economic Impact Assessment	✓	N/A
Iris Wink (*Pr Eng*)	iWink Consulting	Traffic Impact Assessment	✓	N/A
Kaylin Erasmus (*Cand.Sci.Nat.*) Zita Saal (*Pr.Sci.Nat.*)	GEOSS South Africa (Pty) Ltd	Geohydrology Impact Assessment	✓	N/A
Hardy Luttig (*Pr.Sci.Nat.*) Jaco Pretorius	GEOSS South Africa (Pty) Ltd	Geotechnical Letter of Professional Opinion	✓	✓
Debbie Mitchell *(Pr Eng)*	Ishecon (Pty) Ltd	Battery Storage High Level Safety, Health and Environment Risk Assessment	✓	N/A
Rinae Tsedu (*Candidate EAP (2022/6210)*) Helen Antonopoulos *(Cand.Sci.Nat.)* Rohaida Abed *(Pr.Sci.Nat.* and *Registered EAP (2021/4067))*	CSIR	Civil Aviation Site Sensitivity Verification	✓	✓
Rinae Tsedu (*Candidate EAP (2022/6210)*) Helen Antonopoulos *(Cand.Sci.Nat.)* Rohaida Abed *(Pr.Sci.Nat.* and *Registered EAP (2021/4067))*	CSIR	Defence Site Sensitivity Verification	✓	✓

1.10. Details and Expertise of the CSIR BA Project Team

This section provides information on the expertise of the CSIR BA Project Management Team and Environmental Assessment Practitioner (EAPs).

Paul Lochner (Registered EAP; Technical Advisor and Quality Assurance):
Paul Lochner is an EAP at the CSIR in Stellenbosch, with over 30 years of experience in a wide range of environmental assessment and management studies. Paul commenced work at CSIR in 1992, after completing a B.Sc. degree in Civil Engineering and a Masters in Environmental Science, both at the University of Cape Town. His initial work at focused on wetlands and estuarine management; environmental engineering in the coastal zone; and coastal zone management plans. Since 2008, Paul has been the leader and manager of the Environmental Management Services (EMS) group within CSIR that has been at the forefront of advancing environmental assessment in South Africa. This group currently consists of approximately 12 environmental scientists, planners and engineers, with offices in Stellenbosch, Cape Town and Durban. Paul's particular experience is in environmental planning and assessment for renewable energy, EGI, desalination, oil and gas, wetlands and coastal zone management, and industrial and port development. He has been closely involvement in the research and application of Strategic Environmental Assessment (SEA) in South Africa, and also has wide experience in Environmental and Social Impact Assessment, Environmental Management Programmes (EMPrs) and Environmental Screening Studies. He has been the project leader for over 40 SEAs and EIAs. He also served as project leader for a suite of SEAs commissioned by the DFFE from 2014 to 2020. Paul is a Registered EAP (2019/745) with the Environmental Assessment Practitioners Association of South Africa (EAPASA).

Rohaida Abed (*Pr. Sci. Nat*. and Registered EAP, Project Manager):
Rohaida Abed is a Senior EAP at the CSIR. She has 16 years of experience in the Environmental Management field, and has been involved in various transport infrastructure related projects as an Environmental Control Officer. She has also been involved in BAs and EIAs relating to renewable energy, EGI, port infrastructure and bulk liquid storage facilities in the capacity of Project Manager. She also worked on the SEA for Gas Pipeline and EGI Expansion from 2017 to 2019, which was commissioned by the National Departments of Environmental Affairs, Energy and Public Enterprises. She has also been involved in environmental screening studies, applications for amendments to EAs, compilation of EMPr, and legislative reviews. Rohaida is a registered Professional Natural Scientist (400247/14) with the South African Council for Natural Scientific Professions (SACNASP), and a Registered EAP (2021/4067) with EAPASA.

Suvasha Ramcharan (*Cert. Sci. Nat.* and Candidate EAP, Project Officer):
Suvasha Ramcharan is a Junior Environmental Scientist at the CSIR. Suvasha holds a BSc, BSc Honours, and MSc (*cum laude*) degrees in Environmental Science from the University of KwaZulu-Natal. She has assisted with compiling numerous EA Applications, Scoping and EIA Reports, BA Reports and EMPrs for various renewable energy and associated EGI projects in South Africa. Suvasha is a registered Certificated Natural Scientist (159219) with the SACNASP and is a registered Candidate EAP (2023/6896) with EAPASA.

Dhiveshni Moodley (*Pr. Sci. Nat.,* Senior GIS Specialist):
Dhiveshni Moodley is a Junior Environmental Scientist in the EMS group of the CSIR. Dhiveshni holds a BSc, a BSc Honours (*cum laude*) and MSc (*cum laude*) degrees in Environmental Science

from the University of KwaZulu-Natal. Her academic and professional experience includes flood risk assessments, hydropedological and wetland functional studies, conducting BAs and EIAs in the renewable energy sector, GIS-based environmental screening as well as provincial green hydrogen planning. Dhiveshni is registered as a Professional Natural Scientist with the SACNASP (120091). She is a member of the International Association for Impact Assessment South Africa (IAIAsa) and previously served on the organisation's National Executive Committee.

Rinae Tsedu (*Candidate EAP*, Junior GIS Specialist):
Rinae Tsedu is a Junior Environmental Consultant at the CSIR. Rinae holds a BA in Geography and English Language Studies, a BSc Honours in Geographical Information Systems and an MSc in Geography from the Nelson Mandela University. She has been involved in SEAs for renewable energy and port infrastructure projects, as well as EIAs and GIS analyses for environmental, construction, and renewable energy projects. She has also been involved in environmental screening studies and green hydrogen strategy implementation plans. Rinae is a registered Candidate EAP (2022/6210) with EAPASA.

Helen Antonopoulos (*Cand. Sci. Nat.*, Public Participation Specialist):
Helen Antonopoulos is an Environmental Scientist in the EMS group of the CSIR and holds BSc, BSc Honours, and MSc degrees in Environmental and Geographical Science from the University of Cape Town. She has compiled numerous EA applications, and BA, Scoping and EIA Reports for Wind and Solar Energy Facilities in the Western Cape, Northern Cape, and Free State. She currently serves as member of the National Executive Committee of the IAIAsa. Helen is a registered Candidate Natural Scientist (169440) with the SACNASP.

1.11. Need and Desirability

A review of the need and desirability of the proposed projects is an important requirement of the BA Process. Guidelines on Need and Desirability were published by the then Department of Environmental Affairs (DEA) [now operating as the DFFE] in 2017[8]. These guidelines list specific questions to determine need and desirability of proposed developments. This checklist is a useful tool in addressing specific questions relating to the need and desirability of a project and assists in explaining that need and desirability at the provincial and local context. Need and desirability answer the question of whether the activity is being proposed at the right time and in the right place.

Table 1.4 includes a list of questions based on the DFFE's Guideline to determine the need and desirability of the proposed projects. This table is informed by the outcomes of the BA Process, including the Specialist Studies / Inputs / Letter of Opinions completed in the BA Phase. Note that Specialist Studies / Inputs / Letter of Opinions are included in Appendix E of this BA Report, and where relevant, the findings of these studies have been integrated into this table.

It is important to reiterate that the information provided in Table 1.4 below applies to each of the projects addressed in this report (i.e. Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)), unless where mentioned otherwise.

[8] DEA (2017), Guideline on Need and Desirability, Department of Environmental Affairs (DEA), Pretoria, South Africa. ISBN: 978-0-9802694-4-4.

Table 1.4: The Guideline on the Need and Desirability's list of questions to determine the "Need and Desirability" of the proposed projects.

NEED	
Question	**Response**
1. How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	
1.1. How were the following ecological integrity considerations taken into account?: 1.1.1. Threatened Ecosystems, 1.1.2. Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure, 1.1.3. Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs"), 1.1.4. Conservation targets, 1.1.5. Ecological drivers of the ecosystem, 1.1.6. Environmental Management Framework, 1.1.7. Spatial Development Framework, and 1.1.8 Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.).	The ecological integrity considerations such as Threatened Ecosystems; sensitive ecosystems; Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs); and conservation targets have been taken into consideration through environmental screening. At the commencement of this BA Process, the study area was plotted on the National Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool to identify high-level environmental sensitivities, which include various relevant features relating to ecological integrity. The specialists considered these sensitivities and undertook Site Sensitivity Verifications (SSVs) within the study area, where required, in order to confirm or dispute the sensitivities identified by the Screening Tool. The specialists then formulated environmental feature and sensitivity maps for the study area. Thereafter, the Project Developer took such sensitivities, and other considerations, into account and formulated the Buildable Areas, which avoid the no-go areas identified by the specialists. The Buildable Areas were also used to inform the design of the layout. All specialists have confirmed that the project layouts are acceptable, there are no fatal flaws and that all no-go areas have been avoided by the main infrastructure. In addition, linear infrastructure, such as access roads and power lines are permitted to traverse high sensitivity areas (where relevant) as the relevant specialists have provided adequate mitigation measures, which have been incorporated into the relevant EMPrs. The ecological sensitivities present within the study area have been addressed in detail in the following assessments in the BA Phase: ▪ Terrestrial Biodiversity Assessment, and Terrestrial Plant and Terrestrial Animal Species Compliance Statements (Appendix E.2 of this BA Report); ▪ Aquatic Biodiversity and Species Assessment (Appendix E.3 of this BA Report); and ▪ Avifauna Assessment (Appendix E.4 of this BA Report).

NEED	
Question	**Response**
	During the BA Phase, the specialists have identified mitigation measures which guide suitable development within these areas so that the ecological integrity is maintained. As indicated in the Terrestrial Biodiversity Assessment (Appendix E.2 of this BA Report), the study area is located within the Polokwane Plateau Bushveld and the Mamabolo Mountain Bushveld vegetation types. According to the Red List of Ecosystems (SANBI, 2022, cited in Appendix E.2 of this BA Report), the Polokwane Plateau Bushveld and the Mamabolo Mountain Bushveld are listed as Least Concern. The External Access Roads (Options A and B) also fall within the Least Concern Polokwane Plateau Bushveld. According to the 2025 National Spatial Biodiversity Assessment (NSBA), the Mamabolo Mountain Bushveld is listed as Least Threatened. The Terrestrial Biodiversity Assessment notes that the Polokwane Plateau Bushveld and Mamabolo Mountain Bushveld both have a protection status of Poorly Protected. The assessment further notes that the conservation targets of the Polokwane Plateau Bushveld and Mamabolo Mountain Bushveld are 19% and 24%, respectively. The Terrestrial Biodiversity Assessment further notes that the study area is located in the Polokwane Key Biodiversity Area (KBA), with the Kuschke Nature Reserve located within 5 km to the north and south of the proposed project. The Polokwane KBA is a largely protected terrestrial site in Limpopo and is dominated by moderately undulating plains with a short open tree layer with a well-developed grass layer. It is important to note that none of the five threatened plant species that were identified as meeting one or more KBA criteria for this site were recorded within the study area, and that there is a medium to low probability of occurrence on site. Therefore, the study area does not threaten the KBA status or have a significant impact on any of the triggered species and the Terrestrial Biodiversity specialist has confirmed that this site does not pose a flaw to the KBA. Refer to the Terrestrial Biodiversity Assessment (Appendix E.2 of this BA Report) for additional information. The Terrestrial Biodiversity Assessment, Aquatic Biodiversity Assessment and Avifauna Assessment (Appendix E.2, Appendix E.3 and Appendix E.4 of this BA Report, respectively) have considered sensitive ecosystems and landscapes in detail and

NEED	
Question	**Response**
	provided adequate mitigation measures to reduce the significance of potential impacts on these systems. In terms of CBAs and ESAs from a terrestrial perspective, the Screening Tool Reports generated for the proposed projects in April 2026 indicated that the study area contained a CBA1 (i.e., owing to threatened birds (not part of the Terrestrial Biodiversity Assessment), the Mamabolo Mountain Bushveld and Polokwane Plateau Bushveld). The study area (including the BESS and EGI footprints) was therefore classified as Very High sensitivity by the Screening Tool. However, the Terrestrial Biodiversity Specialist disputed this sensitivity rating as both the Mamabolo Mountain Bushveld and Polokwane Plateau Bushveld vegetation units and threatened ecosystems are listed as Least Concern. In addition to the BESS and EGI footprint, the two external access road options also traverse mapped CBA1 (Option A and Option B) and Ecological Support Area (ESA) 2 (Option B) and has been considered in the Terrestrial Biodiversity and Species Assessment. The CBA1 and ESA2 mapped classifications do not preclude the use of the access roads, as both options are based on existing access routes rather than entirely new alignments. However, any widening, shoulder hardening, drainage works, or vegetation clearing along these routes must be micro-sited to minimise encroachment into natural habitat, mapped CBA/ESA areas, and protected area interfaces. Adequate mitigation measures have been recommended in the Terrestrial Biodiversity and Species Assessment (Appendix E.2 of this BA Report). Overall, the study area, including the Access Road Options A and B, are instead regarded as ESA1 as there are no sensitive features which trigger CBA1 status from a terrestrial biodiversity perspective (excluding avifauna which is addressed in a separate report) but rather act as important areas for supporting the ecological functioning of the surrounding CBAs and protected areas. From an aquatic perspective, the Aquatic Biodiversity Specialist confirmed that the footprints of the BESS and EGI do not intersect any NFEPA rivers or wetlands, CBAs, or ESAs for reasons related to aquatic biodiversity and that the aquatic biodiversity and species sensitivity of the study area is confirmed as Low and High. The high sensitivity allocation is due to a seep wetland identified in proximity to Access Road Option A.

NEED	
Question	**Response**
	For additional information, refer to the Specialist Reports for Terrestrial Biodiversity and Species, and Aquatic Biodiversity and Species in Appendix E.2 and Appendix E.3 of this BA Report, respectively. The Terrestrial Biodiversity SSV and Assessment identified the following sensitive features within the study area (including the External Access Road Options A and B): ▪ High sensitivity: o Suitable habitat for Sensitive species 1252, Sensitive species 550, Sensitive species 1248, *Prunus africana* and *Kinixys lobatsiana* [Note that the project layout and development footprint for the BESS and EGI avoids this high sensitivity area]. o The seep wetland at Access Road Option A with a 32 m buffer. The buffer and seep wetland area is not a no-go area since it contains an existing road; rather the buffer is the area where additional mitigation measures must be implemented; ▪ Medium sensitivity: Mamabolo Mountain Bushveld and Polokwane Plateau Bushveld vegetation types (ESA1). ▪ Low sensitivity: Previously transformed areas including agricultural land, alien invasive species stands, fallow lands. ▪ Very Low sensitivity: Hard surfaces including roads, guard house and other infrastructure. No aquatic features were identified within the footprints of the BESS, EGI and Access Road Option B during the field surveys undertaken by the Aquatic Biodiversity Specialist. The aquatic baseline for this portion of the project development area is therefore characterised by the absence of wetlands, drainage lines, riparian habitat, hydromorphic soils and other aquatic features and therefore these sections of the study area are classified as low sensitivity. However, External Access Road Option A was the only infrastructural component directly associated with a seep wetland feature, which is classified as high sensitivity aquatic habitat. The following aquatic features were identified within the wider 500 m Area of Influence (AoI): seep wetlands (high sensitivity),

NEED	
Question	**Response**
	Unchannelled Valley Bottom (UVB) wetland (high sensitivity), artificial impoundments (medium sensitivity) and burrow pit (medium sensitivity). However, these aquatic features occur well outside the proposed project footprints (i.e. BESS, EGI and Access Road Option B), and only Access Road Option A intersects with a seep wetland. The Avifauna SSV and Assessment identified the following sensitivities: ▪ Very High sensitivity (All infrastructure exclusion zone): Cape Vulture roost; and ▪ High sensitivity: Avifauna electrocution and collision risk. Note that this is not a no-go area. The sensitivity mapping is included in Chapter 4 and Chapter 13 of this BA Report, as well as the relevant Specialist Studies / Inputs / Letter of Opinions in Appendix E of this BA Report. The sensitivities identified by the various specialists, as highlighted above, have been taken into consideration and the no-go areas identified by the specialists have been avoided in order to identify the Buildable Areas and project layout. With regards to an Environmental Management Framework (EMF), research indicates that there is no gazetted EMF for the Capricorn District Municipality (CDM) and Polokwane Local Municipality (PLM). This was also corroborated via the Screening Tool. The Limpopo Provincial Spatial Development Framework (SDF), CDM SDF, PLM SDF, PLM Integrated Development Plan (IDP) and CDM IDP have also been taken into consideration in this BA Process, as discussed in Chapter 5 of this BA Report, as well as the Socio-Economic Assessment (Appendix E.8 of this BA Report). The Socio-Economic Assessment notes that the proposed Veroniva BESS and EGI development is supported by key policy and planning documents, including the SDFs, IDPs, as well as the National Development Plan and IRP.
1.2. How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy	The ecological sensitivities present within the study area have been addressed in detail in the following assessments in the BA Phase:

NEED	
Question	**Response**
(including offsetting) the impacts? What measures were explored to enhance positive impacts?	▪ Terrestrial Biodiversity Assessment, and Terrestrial Plant and Animal Species Compliance Statement; ▪ Aquatic Biodiversity and Species Assessment; and ▪ Avifauna Assessment. Refer to the response to Question 1.1 regarding the sensitivities identified in the Terrestrial Biodiversity and Plant and Animal Species, Aquatic Biodiversity and Species, and Avifauna Assessments. These specialists have identified terrestrial, aquatic and avifaunal sensitive areas that need to be avoided by the proposed development. The sensitivity mapping is included in Chapter 4 and Chapter 13 of this BA Report, as well as the relevant Specialist Studies / Inputs / Letter of Opinions in Appendix E of this BA Report. The sensitivities identified by the various specialists, as highlighted above, have been taken into consideration and the no-go areas have been avoided in order to identify the Buildable Areas and the project layout. The Terrestrial Biodiversity Assessment includes the following potential impacts: **Veroniva BESS (Project 1):** Construction Phase: ▪ Fragmentation and loss of natural habitat and sensitive features; ▪ Impacts on national and provincial protected plant species (Species of Conservation Concern (SCC)); ▪ Disturbance, loss or displacement impacts on animal SCC; ▪ Introduction and spread of alien invasive species; ▪ Increased erosion and soil compaction; and ▪ Littering and general pollution. Operational Phase: ▪ Direct and indirect faunal disturbance and mortality; ▪ Increase in alien invasive species;

NEED	
Question	**Response**
	▪ Loss of species composition and diversity; and ▪ Littering and general pollution. Decommissioning Phase: ▪ Loss of habitat; ▪ Direct and indirect disturbance and mortality of fauna; ▪ Waste related impacts associated with disposal of used parts; and ▪ Increased alien invasive species. **Veroniva EGI (Project 2):** Construction Phase: ▪ Fragmentation and loss of natural habitat and sensitive features; ▪ Impacts on national and provincial protected plant species (SCC); ▪ Disturbance, loss or displacement impacts on animal SCC; ▪ Introduction and spread of alien invasive species; ▪ Increased erosion and soil compaction; and ▪ Littering and general pollution. Operational Phase: ▪ Increase in alien invasive species; ▪ Loss of species composition and diversity; and ▪ Littering and general pollution. Decommissioning Phase: ▪ Loss of habitat; and ▪ Increased alien invasive species. Various mitigation measures have been identified to reduce the significance of or to manage the impacts. These measures are documented in the Specialist Assessment included in Appendix E.2 of this BA Report.

NEED	
Question	**Response**
	Measures to avoid, remedy, mitigate and manage impacts have been identified in significant detail and have been included in the EMPrs compiled for the proposed projects. The EMPrs are included in Appendix H to Appendix K of this BA Report. In summary, the potential disturbance of ecosystems, and potential loss or protection of biological diversity have been identified as potential impacts in the Terrestrial Biodiversity Assessment. In addition, avoidance mechanisms have been adopted, whereby the highly sensitive ecological features have been avoided in the Buildable Areas and project layouts. In addition, mitigation measures have been provided to minimise and remedy the potential impacts. All the potential impacts have been assessed in the BA Phase.
1.3. How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Various Specialist Studies and Inputs have been compiled and are included in Appendix E of this BA Report. These studies have identified sensitivities within the study area that should be avoided, based on desktop assessments and field work, where needed. This has informed the identification of the Buildable Areas and the placement of the proposed infrastructure in the project layouts. Note that the project layouts have intentionally been designed to avoid and therefore remain well outside of environmentally sensitive areas identified during the BA Phase. In addition, the relevant specialist assessments have identified various potential negative impacts that the proposed projects may result in, such as degradation to the biophysical environment and potential pollution. The associated mitigation measures have also been identified. Such potential impacts and mitigation measures are summarised in Chapters 11 and 12 of this BA Report and included in the Specialist Studies in Appendix E of this BA Report. Measures to avoid, remedy, mitigate or manage biophysical impacts have also been included in the EMPrs (Appendix H to Appendix K of this BA Report).
1.4. What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether; what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	Low volumes of solid waste are estimated to be generated, as described below: ▪ **Project 1 – Veroniva BESS and associated infrastructure**: o Construction Phase: Approximately 6 m^3 to 10 m^3 per month. o Operational Phase: Approximately 2.5 m^3 to 5 m^3 per month. ▪ **Project 2 – Veroniva EGI and associated infrastructure**:

NEED	
Question	**Response**
	○ Construction Phase: Approximately 12 m^3 to 15 m^3 per month. ○ Operational Phase: Approximately 2.5 m^3 to 5 m^3 per month. The following waste materials are expected during the construction phase for each respective project: ▪ Packaging material, such as the cardboard, plastic and wooden packaging and off-cuts; ▪ Hazardous waste from empty tins, oils, soil containing oil and diesel (in the event of spills), and chemicals; ▪ Building rubble, discarded bricks, wood and concrete; ▪ Domestic waste generated by personnel; and ▪ Vegetation waste generated from the clearing of vegetation. As indicated above, during the operational phase, the proposed projects will produce minor amounts of general solid waste (as a result of the offices or maintenance). Waste generated on site will be disposed of at a registered waste disposal facility. Refer to Chapters 2 and 3 (Project Descriptions for the BESS and EGI Projects, respectively) of this BA Report for further information regarding the proposed waste management. Measures to avoid, remedy, reduce, mitigate or manage waste have been included in the EMPrs (Appendix H to Appendix K of this BA Report).
1.5. How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	A Heritage Impact Assessment (HIA) has been undertaken during this BA Process to assess potential archaeological and cultural impacts resulting from the proposed projects. The following potential impacts have been identified from a heritage perspective: ▪ **Project 1 – Veroniva BESS and associated infrastructure**: ▪ Construction Phase: ○ Damage or destruction of archaeological materials. ○ Damage or destruction of graves. ○ Intrusion of the facility into the cultural landscape.

NEED	
Question	**Response**
	▪ Operational Phase: o Intrusion of the facility into the cultural landscape. ▪ Decommissioning Phase: o Intrusion of the facility into the landscape. ▪ **Project 2 – Veroniva EGI and associated infrastructure:** ▪ Construction Phase: o Damage or destruction of archaeological materials. o Damage or destruction of graves. o Intrusion of EGI into the cultural landscape. ▪ Operational Phase: o Intrusion of EGI into the cultural landscape. ▪ Decommissioning Phase: o Intrusion of EGI into the cultural landscape. Refer to the HIA included in Appendix E.6 of this BA Report for more information on the impacts listed above, which are rated with a very low impact significance after mitigation. The Heritage Specialist confirmed that from a heritage perspective, the study area and the proposed development footprints are of a low sensitivity overall. The HIA identified that no significant heritage resources were found in the study area. The most significant heritage resources found in the wider area are the Makapans Valley National Heritage Site (NHS) (and World Heritage Site (WHS)), the Fort Louis Campbell Provincial Heritage Site (PHS) and the Eersteling Chimney Stack PHS. Overall, the study notes that the landscape is rural with high-lying hills to the north of the study area being the main significant feature. However, due to the distance, none of these sites would be impacted on by the proposed projects. In addition, given the existence of other electrical infrastructure in the area, the high-lying landscape north of the study area will not be further impacted by either of the two proposed projects. The HIA will be submitted to the South African Heritage Resources Agency (SAHRA) for comment during the 30-day comment period on the Draft BA Report. All comments received by SAHRA during the 30-day comment period on the Draft BA Report will be included in an appendix to the Final

NEED	
Question	**Response**
	BA Report and responded to accordingly in the Comments and Responses Report which will be included in the Final BA Report. A Palaeontology Letter of Exemption has been completed and included in Appendix E.7 of this BA Report. The specialist confirmed that the study area is of very low palaeosensitivity and no recorded fossil sites or high palaeosensitivity / no-go areas have been identified within the project study area, based on the geological context, satellite imagery, SAHRA palaeosensitivity mapping, and other Palaeontology Impact Assessments within the surrounding region. As such a Letter of Exemption from further palaeontology studies is required, and no further assessment is necessary from a palaeontology perspective, as explained in Appendix E.7 of this BA Report. Pending the unlikely discovery of substantial new fossil remains within the project area during the Pre-Construction or Construction Phases (which can be handled using the Chance Fossil Finds Protocol), no further specialist palaeontological studies, reporting, or mitigation are considered necessary or recommended for these projects. The Chance Fossil Finds Protocol has been fully incorporated into the EMPrs, (Appendix H to Appendix K of this BA Report), to ensure that it is fully implemented during the pre-construction and construction phases by the Environmental Control Officer (ECO). The Palaeontology Letter of Exemption will also be submitted to SAHRA for comment during the 30-day comment period on the Draft BA Report. All comments received by SAHRA during the 30-day comment period on the Draft BA Report will be included in an appendix to the Final BA Report and responded to accordingly in the Comments and Responses Report which will be included in the Final BA Report. Also from a landscape perspective, a Visual Impact Assessment (VIA) was also undertaken during this BA Process to identify the important visual features and receptors within the surrounding landscape, particularly the features and characteristics contributing to scenic quality and how and to what degree the proposed projects will impact on these scenic values. The Visual specialist has indicated that there are no fatal flaws from a visual perspective for the proposed Veroniva BESS and Veroniva EGI projects and that the proposed projects are acceptable from a visual standpoint provided that the recommended mitigation measures to minimise potential visual impacts are applied

NEED	
Question	**Response**
	throughout all phases of the projects. The VIA is included in Appendix E.5 of this BA Report.
1.6. How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	Measures to avoid, remedy, mitigate or manage impacts on non-renewable natural resources have been included in the EMPrs (Appendix H to Appendix K of this BA Report). However, the proposed projects aim to support renewable energy integration and enhance grid reliability by addressing energy intermittency through battery storage and dispatching of energy. The proposed projects would therefore aid in reducing the dependence on non-renewable natural resources.
1.7. How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts? 1.7.1. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life) 1.7.2. Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources of the proposed development alternative?) 1.7.3. Do the proposed location, type and scale of development promote a reduced dependency on resources?	South Africa has heavily relied on coal as a source of electricity for decades. Due to the nature of coal as a non-renewable resource that causes major environmental degradation, there is a need to identify alternative resources that could promote sustainable energy as well as cleaner energy production mechanisms. The proposed projects aim to support renewable energy integration and enhance grid reliability by addressing energy intermittency through battery storage and dispatching of energy. The Veroniva BESS and EGI development represents an investment in clean, renewable energy infrastructure, which, given the negative environmental and socio-economic impacts associated with a coal-based energy economy and the challenges created by climate change, represents a significant positive social benefit for society as a whole. The proposed projects would therefore aid in reducing the dependence on non-renewable sources. The proposed projects are intended to form part of the Battery Energy Storage Independent Power Producers Procurement Programme (BESIPPPP), and therefore aims to contribute to the energy mix in the country, in line with the Integrated Resource Plan (IRP), which stipulates an energy storage target of 3 724 MW by 2030. The need for renewable energy is clear, with South Africa becoming an integral part of the global transition towards renewable sources of electricity generation. The proposed Veroniva BESS and EGI development would thus play a key enabling role in this transition by enabling the effective integration and reliable use of renewable energy resources, as well as improve grid reliability and enhance energy security.

NEED	
Question	**Response**
	An assessment of the project alternatives including the site suitability for the proposed projects is included in Chapter 10 of this BA Report. The proposed projects are a sustainable option for the area, and the development footprints have avoided areas of high environmental sensitivity. Where impacts cannot be avoided, the footprint has been placed to minimise, mitigate or manage potential impacts to the receiving environment. In this regard, in some areas, linear infrastructure such as access roads and power lines traverse high sensitivity areas, which is permitted by the relevant specialists as adequate mitigation measures have been provided and incorporated into the relevant EMPrs. Furthermore, no fatal flaws were identified that could prevent the proposed projects from being realised, should such authorisation be granted. In addition, various Specialist Studies and Inputs have been compiled and are included in Appendix E of this BA Report. These assessments have identified various potential negative impacts that the proposed projects may result in. The associated mitigation measures have also been identified in these studies and included in the EMPrs, as relevant (Appendix H to Appendix K of this BA Report). Furthermore, the Agriculture Compliance Statement (Appendix E.1 of this BA Report) established that the proposed projects are acceptable because they lead to no loss of potential cropland and therefore minimal loss of future agricultural production potential.
1.8. How were a risk-averse and cautious approach applied in terms of ecological impacts? 1.8.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)? 1.8.2. What is the level of risk associated with the limits of current knowledge? 1.8.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	The approach adopted for this study was to assume the worst-case scenario will occur and then identify ways to mitigate or manage these impacts. In addition, the specialist assessments compiled during this BA process have provided detailed feedback on applicable uncertainties, assumptions, and risks associated with limits of current knowledge. These are captured in Appendix E of this BA Report.
1.9. How will the ecological impacts resulting from this development impact on people's environmental right in terms following:	A detailed Socio-Economic Impact Assessment has been undertaken during this BA Process to consider the impact of the proposed Veroniva BESS project from a socio-economic perspective. The assessment is included in Appendix E.8 of this BA Report.

NEED	
Question	**Response**
1.9.1. Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts? 1.9.2. Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	Note that the Socio-Economic Impact Assessment only applies to the proposed Veroniva BESS project. A socio-economic profile is also included in Chapter 4 of this BA Report. The following impacts have been identified during this BA Process for the proposed Veroniva BESS project: ▪ Construction Phase: o Creation of employment and business opportunities (*positive impact*); o Increased safety and security risks and impact on farming operations associated with the construction related activities and presence of construction workers on the site (*negative impact*); o Increased risk of grass fires associated with construction related activities (*negative impact*); o Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles (*negative impact*); and o Loss of productive land (*negative impact*). ▪ Operational Phase: o The establishment of infrastructure to improve energy security and support renewable sector (*positive impact*); o Creation of employment and business opportunities (*positive impact*); o Creation of socio-economic development opportunities (*positive impact*); o Benefits to the affected landowner (*positive impact*); o Noise, health and safety risks (*negative impact*); o Visual impacts and associated impacts on sense of place (*negative impact*); o Impact on property values (*negative impact*); and o Potential fire risk to irrigated crop areas and other operations (*negative impact*). ▪ Decommissioning Phase: o Loss of jobs, and source of income (*negative impact*).

NEED	
Question	**Response**
	The Socio-Economic Assessment notes that the proposed development will provide social and socio-economic benefits to the PLM, including creation of employment and business opportunities during both the construction and operational phases. The proposed projects will also create socio-economic development opportunities for the PLM and local community. The study identifies various enhancement measures, which should be implemented to maximise the potential benefits. Such measures have been included in the EMPrs as relevant (Appendix H to Appendix K of this BA Report). The findings also indicate that the potential negative impacts associated with the construction phase and operational phase are likely to be Very Low to Low Negative for the Veroniva BESS project with mitigation. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented. The Socio-Economic Assessment also notes that based on the findings of the site visit and review of local land uses, there are no socially sensitive receptors located near the proposed BESS site. Residential receptors are located outside the project site on surrounding properties. Therefore, no third parties reside in the project area, and there is no use of natural resources on site by third parties, e.g. communities. Overall, the proposed development would not compromise the environmental rights of general people. The Socio-Economic Assessment addresses potential impacts relating to nuisance (noise, odour, etc.) and visual aesthetics of the proposed projects. Aspects relating to the potential negative impact of the proposed development in terms of water quality, nuisance (noise, odour, etc.) and visual aesthetics have also been addressed in relevant specialist assessments, such as the VIA (Appendix E.5 of this BA Report) and Geohydrology Assessment (Appendix E.10 of this BA Report), and relevant management actions have also been included in the EMPrs (Appendix H to Appendix K of this BA Report). None of the direct potential impacts identified in the Geohydrology Assessment and VIA were rated as high or moderate significance with the implementation of mitigation measures.

NEED	
Question	**Response**
1.10. Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	Linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area have been considered in this BA Process. Based on the findings of the specialists, there would be no unacceptable adverse impacts across the themes. The Socio-Economic Assessment (Appendix E.8 of this BA Report) notes that the proposed development is aligned with the BESIPPPP which aims to enhance grid reliability, support renewable energy integration, and improve overall system resilience. Furthermore, the proposed projects aim to improve energy security by supporting renewable energy and contributing to the reduction of social and economic risks associated with climate change. The proposed projects would thus result in an improvement in human well-being as well as livelihoods both locally and regionally. There are no harmful emissions associated with renewable energy as compared to other energy sources such as coal. A shift towards renewable energy would help reduce South Africa's reliance on fossil fuels for energy, thus reducing carbon emissions. Therefore, renewable energy enhances human well-being. Refer to the Socio-Economic Assessment and BESS High Level Safety, Health and Environment Risk Assessment for additional information.
1.11. Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives / targets / considerations of the area?	The impacts on ecological integrity objectives of the area are considered in the following assessments: ▪ Terrestrial Biodiversity Assessment, and Terrestrial Plant and Animal Species Compliance Statement; ▪ Aquatic Biodiversity and Species Assessment; and ▪ Avifauna Assessment. Refer to the responses provided to Questions 1.1 to 1.10 regarding the sensitivities identified in these Specialist Assessments, as well as how they have been avoided in the layout determination, and the potential impacts identified on terrestrial biodiversity.

NEED	
Question	**Response**
1.12. Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	Chapter 10 of this BA Report includes a description of the alternatives. The no-go alternative has been assessed during this BA Process for all proposed projects (i.e., Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)). It is important to note that the approach followed to identify the buildable areas was to use environmental and social constraints to avoid sensitive features, thus applying mitigation hierarchy thinking. This approach replaces the need to rank alternative sites and locations, as it leads to the selection of the least sensitive development footprint. All specialists have confirmed that the project layouts are acceptable, there are no fatal flaws and that all no-go areas have been avoided by the main infrastructure. As noted above, linear infrastructure, such as access roads and power lines are permitted to traverse high sensitivity areas (where relevant) as the relevant specialists have provided adequate mitigation measures, which have been incorporated into the relevant EMPrs. The proposed development would not result in unacceptable compromise in any of the environmental themes assessed. Further, the proposed development would support renewable energy, which serves as an alternative to coal-based power.
1.13. Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	Each specialist assessment has taken into consideration and assessed the potential cumulative impacts of these proposed projects. Refer to Appendix E of this BA Report where the potential cumulative impacts are discussed for these projects, where relevant. Chapter 5 of this BA Report contains a list of all other renewable energy, BESS, EGI projects and certain other developments within the 30 km radius that have been considered in the cumulative impact assessment. Note that no residual cumulative impacts of very high significance were rated by the specialists, and no fatal flaws are present.
2.1. What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?	
2.1.1. The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area.	The proposed project is entirely located within the PLM and the CDM.

NEED	
Question	**Response**
	The 2026/2031 Draft IDP lists the following strategic objectives for the PLM (PLM, 2026[9]; Page 807): ▪ "*To ensure efficiency and effectiveness of municipal administration;* ▪ *To ensure the provision of basic and environmental services in a sustainable way to* ▪ *our communities;* ▪ *To ensure social protection and education outcomes;* ▪ *Promotion of economic growth, job creation and sustainable human settlement;* ▪ *To ensure community confidence in the system of local government; and* ▪ *To enhance financial viability and financial management*". The vision and mission of the PLM are listed below (PLM, 2026, Page 47): ▪ Vision: *"The ultimate in innovation and sustainable development"* ▪ Mission: *"Provide cost effective services which promote sustainable livelihood through socio-economic development and good governance".* The PLM IDP recognises renewable energy as an important mechanism for mitigating climate change impacts and identifies investment in renewable energy as one of the key strategies to address climate change (PLM, 2026). The proposed projects are in line with the vision and mission of the PLM as they will support the integration of renewable energy, which is a key driver of sustainability. The proposed projects will also enable the PLM to enhance basic service delivery through improved energy security and reduced grid constraints and achieve local economic development through improved energy security and job creation. The PLM IDP identifies high unemployment as an ongoing challenge in the municipality, and highlights the need for job creation, particularly in the lower skilled categories (PLM, 2026). In line with this, the proposed projects will create various job opportunities (i.e. both

[9] Polokwane Local Municipality (2026). Draft Integrated Development Plan 2026/31. Available online at: https://www.polokwane.gov.za/wp-content/uploads/2026-31-Draft-5-year-IDP-26-March-2026.pdf [Accessed: April 2026].

NEED	
Question	**Response**
	skilled and unskilled job opportunities) and economic spin offs during the construction and operational phases (should EA be granted). Refer to Section 1.4 of this chapter for feedback on estimated job creation opportunities for the proposed projects. Furthermore, the 2026/2027 CDM IDP lists the following key strategic objectives for the CDM (CDM, 2023[10], Page 29): ▪ "*To improve spatial development and environmental management;* ▪ *To provide sustainable basic services and infrastructure outcome;* ▪ *To enhance conditions for economic growth and job creation;* ▪ *To enhance financial viability and management; and* ▪ *To increase the capacity of the district to deliver its mandate*". The proposed projects are also aligned with one of the objectives of the CDM IDP in that it will encourage local economic growth through increased investment and employment opportunities. Therefore, the proposed projects would help to address the need for increased electricity supply to the national grid while also providing advanced skills transfer and training to the local communities and creating contractual and permanent employment in the area. This has been considered in the Socio-Economic Assessment (Appendix E.8 of this BA Report) undertaken for the proposed Veroniva BESS project, as described in the response to Question 1.9 above.
2.1.2. Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.)	This is not applicable as the proposed projects are located within a rural/agricultural area and the study area is zoned for agricultural use.
2.1.3. Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.)	The land within the study area is zoned for agriculture. Although a section within the study has historically been cultivated, the site has not been cultivated for the past 50 years. The cropping potential of the site is limited by climate constraints and soil constraints

[10] Capricorn District Municipality (2026). Capricorn District Municipality Draft Integrated Development Plan (IDP)/Budget 2026/2027 – 2030/2031. Available online: https://www.cdm.org.za/wp-content/uploads/2026/04/CDM-DRAFT-2026-27-IDP-and-budget.pdf. [Accessed: April 2026].

NEED	
Question	**Response**
	(rockiness); therefore, the site is unsuitable for viable rainfed crop production, and its viable agricultural use is limited to grazing. The study area also contains fence lines and paved roads. In addition, the existing Eskom Pietersburg / Witkop 1 Overhead Power Line runs through the study area. There is also a prospecting right application on the affected farm property (Farm 738/5). An HIA was undertaken during this BA Process to assess potential archaeological and cultural impacts resulting from the proposed projects. Refer to the response to Question 1.5 for detailed feedback on the impacts identified on Archaeology and Cultural Heritage, as well as feedback on the palaeontology. An Agricultural Compliance Statement (Appendix E.1 of this BA Report) was also completed during this BA Process. The Compliance Statement considered the impact of the proposed projects in terms of the land capability and agricultural potential. The proposed study area is identified as being of medium sensitivity for agricultural resources. The Compliance Statement further states that due to the fact that the proposed projects will not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed as being of low significance and as acceptable. As noted, EMPrs (i.e. Appendix H to Appendix K of this BA Report) have been compiled for the proposed projects to ensure that all potential negative impacts identified are suitably managed and mitigated, and potential positive impacts are enhanced. The visual impact and considerations were assessed as part of the VIA undertaken during this BA Process. The VIA (included in Appendix E.5 of this BA Report) states that the area surrounding the project site features a bushveld plateau landscape shaped by both ecology and agriculture, with a heavy presence of power infrastructure, and a natural backdrop of rugged hills that dominate the immediate area. The VIA notes that the study area has a low visual and landscape sensitivity risk overall. The proposed projects would not pose a significant risk to the receiving landscape and receptor environment, resulting in minimal impact on the scenic quality of the study area. Furthermore, no fatal flaws have been

NEED	
Question	**Response**
	identified from a sense of place perspective. Recommended mitigation measures have been included in the EMPrs, as required and where relevant. The sensitivity mapping is included in Chapter 4 and Chapter 13 of this BA Report as well as the relevant Specialist Studies / Inputs / Letters of Opinion in Appendix E of this BA Report. The sensitivities identified by the various specialists have been taken into consideration and the no-go areas have been avoided in order to identify the Buildable Areas and project layouts.
2.1.4. Municipal Economic Development Strategy ("LED Strategy").	The City of Polokwane has developed and adopted an LED Strategy that presents a situational analysis of the PLM's economic base, emerging development trends, potential comparative advantages, regional location benefits, and key constraints to investment and development (PLM, 2026). The 2026/2031 PLM Draft IDP, states that the LED Strategy for Polokwane is based on five strategic pillars including agricultural development; tourism development; investment promotion; skills development; and marketing Polokwane Municipality as a venue of choice. The overall aim of the LED Strategy is to support local economic growth, job creation, and poverty alleviation. In addition, the 2026/2031 PLM Draft IDP identified LED as one of the Key Performance Areas and is linked to the strategic objective of promoting economic growth, job creation and sustainable human settlements (PLM, 2026). The Polokwane 2030 Economic Growth and Development Plan is also available and aims to assist the City of Polokwane in achieving real and sustainable economic growth and development (PLM, 2026). The Polokwane 2030 Economic Growth and Development Plan indicates that research and innovation are required to expand alternative energy generation, given that only 1% of electricity is currently generated from solar energy. This could potentially be achieved by integrating renewable energy technologies such as solar geysers, solar panels, and wind farms into all new developments (PLM, n.d.[11]). The proposed projects are aligned with the LED Strategy and the Polokwane 2030 Economic Growth and Development Plan as they will support the renewable energy integration and

[11] Polokwane Local Municipality (n.d.). The Polokwane 2030 Economic Growth and Development Plan. Available online at: https://www.polokwane.gov.za/wp-content/uploads/2024/02/EconomicGrowthDevPlan2030.pdf [Accessed: April 2026].

NEED	
Question	**Response**
	enhance grid reliability by addressing energy intermittency through battery storage and dispatching of energy. The proposed projects will also enable the PLM to enhance basic service delivery through improved energy security and reduced grid constraints and achieve local economic development through improved energy security and job creation.
2.2. Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area? 2.2.1. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	This has been addressed in the Socio-Economic Impact Assessment that has been completed during this BA Process and included in Appendix E.8 of this BA Report. Note that a Socio-Economic Impact Assessment has been undertaken for the proposed Veroniva BESS project only. The assessment considers the impact of the proposed Veroniva BESS project from a socio-economic perspective. The Socio-Economic Assessment also includes detailed feedback on the local socio-economic environment for the PLM, including demographics, education, social characteristics and economy, and housing and services. A socio-economic profile, which includes similar feedback for the CDM, including demographics; education; social characteristics and economy; and housing and services, is included in Chapter 4 of this BA Report. Refer to the response provided to Question 1.9 for a description of the socio-economic impacts identified during this BA Process for the proposed Veroniva BESS project. The BESIPPPP has contributed towards South Africa's transition to a lower-carbon and more resilient energy system by supporting the integration of renewable energy, enhancing grid stability, and improving energy security, thereby supporting economic stability and environmental sustainability. The establishment of BESS and EGI in support of renewable energy, such as the proposed projects, therefore, not only address the environmental issues associated with climate change and consumption of scarce water resources, but also creates significant socio-economic opportunities and benefits, specifically for historically disadvantaged, rural communities.
2.3. How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	These needs and interests of the relevant communities have been addressed in the Socio-Economic Impact Assessment undertaken during this BA Phase and included in Appendix E.8 of this BA Report. Note that a Socio-Economic Impact Assessment has been undertaken for the proposed Veroniva BESS project only. Issues raised by I&APs to this effect will also be addressed in the Comments and Responses Report that will be included in the Final BA Report.

NEED	
Question	**Response**
2.4. Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long term? Will the impact be socially and economically sustainable in the short- and long-term?	This has been addressed in the Socio-Economic Impact Assessment undertaken during this BA Process. Note that a Socio-Economic Impact Assessment has been undertaken for the proposed Veroniva BESS project only. The assessment considers the impact of the proposed Veroniva BESS project from a socio-economic perspective. Refer to the response provided to Question 1.9 for a description of the socio-economic impacts identified during this BA Process for the proposed Veroniva BESS project. This proposed development would, at a broad scale, assist in addressing climate change as the proposed projects would support renewable energy integration, and thus help to achieve the just energy transition from coal. From a positive socio-economic perspective, future generations would benefit from cleaner electricity and less reliance on coal, while current generations could get access to electricity, which is a crucial factor in the current energy crisis. The negative impacts associated with the proposed BESS and EGI projects can be effectively mitigated (and with mitigations being maintained for the life of the project, as required) to acceptable levels whereby the sustainability of the systems within which the proposed development is placed would not be compromised. Also, the positive socio-economic impacts are anticipated to be long-term for the operational phase i.e., for the lifespan of the proposed projects.
2.5. In terms of location, describe how the placement of the proposed development will:	
2.5.1. result in the creation of residential and employment opportunities in close proximity to or integrated with each other	Local employment opportunities will be provided as far as possible. Refer to Section 1.4 of this chapter for feedback on estimated job creation opportunities for the proposed projects. It should be noted that the employment opportunities provided are estimates and is dependent on the final engineering design and the BESIPPPP Request for Proposal provisions at that point in time. In addition, employment during the construction phase will be temporary, whilst the employment opportunities during the operational phase will be long-term. Residential opportunities would not be created by the proposed development as it is not the goal of a BESS facility.

NEED	
Question	**Response**
2.5.2. reduce the need for transport of people and goods	This is not applicable as the proposed projects are located within a remote rural/agricultural area and the study area is zoned for agricultural use. The proposed projects include BESS, EGI and associated infrastructure development. Nevertheless, traffic related impacts of the proposed Veroniva BESS project have been addressed in the Traffic Impact Assessment (included in Appendix E.9 of this BA Report). Note that the Traffic Impact Assessment only applies to the proposed Veroniva BESS project. The assessment concluded that with mitigation, the proposed Veroniva BESS project has a low significance rating for the construction and decommissioning phases and a very low significance rating during operations.
2.5.3. result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport)	This is not applicable as the proposed projects are located within a remote rural/agricultural area and the study area is zoned for agricultural use. Refer to the response provided to Question 2.5.2.
2.5.4. compliment other uses in the area	The land within the study area is zoned for agriculture. Although a section within the study has historically been cultivated, the site has not been cultivated for the past 50 years. The cropping potential of the site is limited by climate constraints and soil constraints (rockiness); therefore, the site is unsuitable for viable rainfed crop production, and its viable agricultural use is limited to grazing. The Agricultural Compliance Statement (Appendix E.1 of this BA Report) provides feedback on the potential impact of the proposed projects on agriculture. The proposed projects will have wider societal benefits of generating additional income and employment in the local economy. The Socio-Economic Assessment undertaken for the proposed Veroniva BESS project (Appendix E.8 of this BA Report), explains that the proposed project would generate income for the affected landowner through a potential rental agreement between the Project Applicant and landowner. The additional income will reduce the risk to the livelihood of the affected landowner, posed by droughts and fluctuating market prices for game and farming inputs, such as fuel, feed etc. In addition to additional income, the establishment of the proposed BESS could also potentially improve local security in the

NEED	
Question	**Response**
	study area associated with the security measures implemented by the operators of the BESS, such as security cameras etc. This will also benefit other landowners in the area. Based on the above, the proposed projects are understood to compliment other uses in the area.
2.5.5. be in line with the planning for the area	The Polokwane 2030 Economic Growth and Development Plan highlights the need to expand alternative energy generation, given that only 1% of electricity is currently generated from solar energy and that this could potentially be achieved by integrating renewable energy technologies such as solar geysers, solar panels, and wind farms into all new developments (PLM, n.d.). The proposed projects are aligned with the Polokwane 2030 Economic Growth and Development Plan as they will support renewable energy integration and enhance grid reliability by addressing energy intermittency through battery storage and dispatch. The development of the proposed projects is also in line with the mission and vision of the PLM in terms of sustainability, improved basic service delivery and job creation.
2.5.6. for urban related development, make use of the underutilised land available with the urban edge	This is not applicable as the proposed projects are located within a remote rural/agricultural area and the study area is zoned for agricultural use.
2.5.7. optimise the use of existing resources and infrastructure	The proposed Veroniva BESS Facility is planned to connect to the existing Eskom Pietersburg / Witkop 1 Power Line via a dedicated proposed overhead 132 kV LILO power line. Therefore, existing infrastructure is being considered.
2.5.8. opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement)	The proposed projects are BESS, EGI and associated infrastructure projects and are not related to bulk infrastructure expansion.
2.5.9. discourage "urban sprawl" and contribute to compaction/densification	The Socio-Economic Impact Assessment undertaken during this BA Process (Appendix E.8 of this BA Report) considers impacts such as those associated with the presence of construction workers on local communities (i.e. increased safety and security risks and impact on farming operations associated with the construction related activities and presence of construction workers on the site). The study states that due the relatively small size of the project and number of construction workers the project will not impact on local communities or result in the influx of jobseekers.

NEED	
Question	**Response**
2.5.10. contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs	This is not applicable as the proposed projects are located within a remote rural/agricultural area and the study area is zoned for agricultural use.
2.5.11. encourage environmentally sustainable land development practices and processes	The development of a BESS facility and associated infrastructure is a sustainable land development practice provided it is constructed and operated in an environmentally conscious manner.
2.5.12. take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.)	Refer to Chapter 10 of this BA Report for a description of the process undertaken to identify the study area as the preferred site for the proposed projects.
2.5.13. the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential)	This has been addressed in the Socio-Economic Impact Assessment undertaken during this BA Process (included in Appendix E.8 of this BA Report). Note that a Socio-Economic Impact Assessment has been undertaken for the proposed Veroniva BESS project only. Refer to the response provided to Question 1.9 for a description of the socio-economic impacts identified during this BA Process for the proposed Veroniva BESS project. Specifically linked to this question, the assessment identified the creation of employment, business and socio-economic development opportunities; the establishment of infrastructure to improve energy security and support renewable sector; as well as benefits to the affected landowner as positive impacts of the proposed projects. The construction and operational phases of the proposed projects will create job opportunities and given the relatively high local unemployment levels and limited job opportunities in the area, this will represent a social benefit. The proposed BESS project would enhance grid stability and support the integration of renewable energy thus improving energy security in the area. This would, in turn, contribute to economic growth, as a reliable electricity supply would lower operational risks and costs for businesses, thereby making the area more attractive to investors. The proposed project would also generate income for the affected landowner through a potential rental agreement between the Project Applicant and landowner. The additional income will reduce the risk to the livelihood of the affected landowner, posed by droughts and fluctuating market prices for game and farming inputs, such as fuel, feed etc.

NEED	
Question	**Response**
2.5.14. impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area	An HIA was undertaken during this BA Process to assess potential archaeological and cultural impacts resulting from the proposed projects. Refer to the response to Question 1.5 for detailed feedback on the impacts identified on Archaeology and Cultural Heritage, as well as feedback on the palaeontology. Refer to the HIA and Palaeontology Letter of Exemption included in Appendix E.6 and Appendix E.7 of this BA Report, respectively, for additional information. The visual impact and considerations, including sense of place, has been assessed as part of the VIA undertaken during this BA Process. A VIA is included in Appendix E.5 of this BA Report. Refer to the response provided to Question 2.1.3 for additional feedback on the potential visual impacts.
2.5.15. in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	Chapter 5 of this BA Report includes a list of other renewable energy, BESS, EGI and certain other related projects within a 30 km radius that have received EA, are currently going through an Environmental Assessment process, in development, or have been constructed and are operational. Note that no unacceptable cumulative impacts were identified during this BA Process.
2.6. How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
2.6.1. What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	The approach adopted for this study was to assume the worst-case scenario will occur and then identify ways to mitigate or manage these impacts. In addition, the specialist assessments compiled during this BA Process have provided detailed feedback on applicable uncertainties, assumptions, and risks associated with limits of current knowledge. These are captured in Appendix E of this BA Report. The Socio-Economic Specialist Assessment that was undertaken for the Veroniva BESS project (Appendix E.8 of this BA Report) provides input on the assumptions and limitations considered in the assessment of socio-economic impacts.
2.6.2. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	
2.6.3. Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	
2.7. How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:	
2.7.1. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if	A detailed Socio-Economic Impact Assessment has been undertaken (Appendix E.8 of this BA Report), and it considers the impact of the proposed projects from a socio-

NEED	
Question	**Response**
avoidance is not possible, to minimise, manage and remedy negative impacts?	economic perspective. Note that a Socio-Economic Impact Assessment has been undertaken for the proposed Veroniva BESS project only. A socio-economic profile is also included in Chapter 4 of this BA Report. Refer to the response provided to Question 1.9 for a description of the socio-economic impacts identified during this BA Process for the proposed Veroniva BESS project. In addition, measures to avoid, remedy, mitigate or manage negative socio-economic impacts and enhance positive socio-economic impacts have been included in the relevant EMPrs compiled for the proposed Veroniva BESS project (i.e. included in Appendix H to Appendix K of this BA Report). Linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area, as well as how the potential socio-economic impacts will result in ecological impacts are considered as part of the relevant specialist assessments. Refer to the response provided to Question 1.12 above for additional information on the linkages and dependencies between human wellbeing, livelihoods, and ecosystem services considered. With regards to the best practicable environmental option, Chapter 10 of this BA Report includes a description of alternatives. The proposed projects have significant socio-economic benefits at the local and regional scale which outweigh the potential negative socio-economic impacts. Therefore, essentially the proposed development would result in greater socio-economic benefit than the status quo on site. Refer to the response provided to Question 1.12 above for additional information on the alternatives.
2.7.2. Positive impacts. What measures were taken to enhance positive impacts?	
2.8. Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socioeconomic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	
2.9. What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic considerations?	
2.10. What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)? Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected, or is there a need for other alternatives to be considered?	
2.11. What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	
2.12. What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?	
2.13. What measures were taken to:	
2.13.1. ensure the participation of all interested and affected parties	The Public Participation Process (PPP) that is being undertaken during this BA Process is described in Chapter 5 of this BA Report. The supporting documentation of the PPP that is being undertaken during this BA Process will be included in an appendix to the Final BA Report. The PPP aims to comply with the 2014 NEMA EIA Regulations (as
2.13.2. provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation	

NEED	
Question	**Response**
2.13.3. ensure participation by vulnerable and disadvantaged persons	amended). An integrated PPP is being followed for all proposed projects. The Draft BA Report is currently being released for a 30-day comment period to all the relevant authorities, I&APs and stakeholders. Various methods are being employed to notify potential I&APs of the proposed projects, namely, through newspaper advertisements, site notices boards, notification letters and communication via email, as well as text messages, and telephonic discussions, where possible.
2.13.4. promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means	The BA Process aims to take cognisance of all interests, needs, and values espoused by all I&APs. Opportunity for public participation will be provided to all I&APs throughout the BA Process in terms of the 2014 NEMA EIA Regulations (as amended).
2.13.5. ensure openness and transparency, and access to information in terms of the process	The PPP that is being undertaken during this BA Process is described in Chapter 5 of this BA Report. The supporting documentation of the PPP that is being undertaken during this BA Process will be included in an appendix to the Final BA Report. Refer to the responses provided to Questions 2.13.1 – 2.13.3 above.
2.13.6. ensure that the interests, needs and values of all interested and affected parties were taken into account and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge	The BA Process will take cognisance of relevant interests, needs and values adopted by I&APs.
2.13.7. ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein was promoted	Public participation of all I&APs will be promoted and opportunities for engagement is being provided during this BA Process.
2.14. Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	This is addressed in the Socio-Economic Impact Assessment that is included Appendix E.8 of this BA Report. Note that a Socio-Economic Impact Assessment has been undertaken for the proposed Veroniva BESS project only. Refer to the responses provided to Questions 1.9, 2.2 and 2.3.
2.15. What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	EMPrs were developed during this BA Process to address environmental, health and safety concerns. An Environmental Control Officer (ECO) will be appointed to monitor compliance with the EMPrs and EAs (should such authorisations be granted) during the construction and operational phases.

NEED	
Question	**Response**
2.16. Describe how the development will impact on job creation in terms of, amongst other aspects:	
2.16.1. the number of temporary versus permanent jobs that will be created	This is addressed in the Socio-Economic Impact Assessment undertaken during this BA Process (Appendix E.8 of the BA Report). Note that a Socio-Economic Impact Assessment has been undertaken for the proposed Veroniva BESS project only. Refer to the response provided to Question 1.9 for a description of the impacts identified during this BA Process from a socio-economic perspective for the proposed Veroniva BESS project, and also the responses to Questions 2.1.1 and 2.5.1 for feedback on potential employment opportunities.
2.16.2. whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area)	
2.16.3. the distance from where labourers will have to travel	
2.16.4. the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits)	
2.16.5. the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	
2.17. What measures were taken to ensure:	
2.17.1. that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment	Various government departments have been listed as I&APs and are being given the opportunity to comment on the Draft BA Report during the 30-day public participation period. Copies of comments received during the 30-day review of the Draft BA Report will be included in an appendix to the Final BA Report. Issues and comments raised during the 30-day review of the Draft BA Report will also be captured and responded to in a Comments and Responses Report which will be included in an appendix to the Final BA Report.
2.17.2. that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	This will be determined following the PPP undertaken as part of this BA Process.
2.18. What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	The proposed projects aim to adhere to the principles of environmental management in NEMA. Measures taken to ensure adherence to the principles of NEMA are essentially addressed through the management actions and monitoring recommendations included in the EMPrs (Appendix H to Appendix K of this BA Report). In addition, the outcomes of this BA Process and the associated conditions of the EAs (should they be granted) serve to address this question.
2.19. Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	The proposed mitigation measures included in the EMPrs were informed by the specialist assessments that were undertaken during this BA Process. This includes a detailed assessment of the environment as well as the impacts associated with the proposed

NEED	
Question	**Response**
	projects. Detailed specialist assessments have all concluded that the projects can proceed, with no fatal flaws or unacceptable impacts identified as part of the proposed projects. Therefore, the mitigation measures are deemed to be realistic and practical. The EMPrs are included in Appendix H to Appendix K of this BA Report.
2.20. What measures were taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	The EMPrs for the proposed projects (included in Appendix H to Appendix K of this BA Report) will form part of the contractual agreement and must be adhered to by the contractors, construction workers and the Project Applicants. The EMPrs include measures to ensure that the costs to potentially remedy pollution, environmental degradation and consequent adverse health effects will be paid for by those responsible for the relevant environmental impacts. The EMPrs accordingly include measures to ensure that the costs to potentially prevent, control or minimise further pollution, environmental damage or adverse health effects will be paid for by those responsible for the relevant environmental impacts. Roles and responsibilities for the implementation of management actions and monitoring thereof are included in the EMPrs.
2.21. Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	Development in support of renewable energy (such as the proposed BESS and EGI projects) is a suitable land use option for the site. The proposed projects would be robust in terms of economic viability and profitability while also being largely uninfluenced by climate change variables. The proposed projects would also provide the landowner with additional income by way of a lease agreement and will also contribute to local socio-economic upliftment through job creation and other socio-economic benefits described above. Chapter 10 of this BA Report includes a description of the alternatives. Refer to the response provided to Question 1.12 above for additional information on the alternatives.
2.22. Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope, and nature of the project in relation to its location and other planned developments in the area?	The potential cumulative impacts resulting from the proposed projects can only be objectively determined at the end of the BA Process. These have been assessed during the BA Phase. Chapter 5 of this BA Report contains a list of all other renewable energy, BESS, EGI, and certain other developments within a 30 km radius that were considered in the cumulative impact assessment. The Socio-Economic Specialist Assessment (Appendix E.8 of the BA Report) identified the following cumulative impacts:

NEED	
Question	**Response**
	▪ Creation of employment, skills development and training opportunities, and creation of downstream business opportunities. This impact is considered to be of moderate to high (positive) significance with enhancement. ▪ Visual impacts on the area's rural sense of place and character of the landscape. This impact is considered to be of low (negative) significance with mitigation.

1.12. Objectives and Structure of this BA Report

The 2014 NEMA EIA Regulations (as amended) stipulates that the BA Process must include a description of the potential environmental outcomes, impacts, and residual risks of the proposed activity. In broad terms, the objectives of the BA Process in terms of the 2014 NEMA EIA Regulations (as amended) are to:

- *"determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context;*
- *identify the alternatives considered, including the activity, location, and technology alternatives;*
- *describe the need and desirability of the proposed alternatives;*
- *through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine (i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and (ii) the degree to which these impacts (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; and*
- *through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to (i) identify and motivate a preferred site, activity and technology alternative; (ii) identify suitable measures to avoid, manage or mitigate identified impacts; and (iii) identify residual risks that need to be managed and monitored".*

In terms of legal requirements, a crucial objective of the BA Report is to satisfy the requirements of Appendix 1 of the 2014 NEMA EIA Regulations (as amended). This section regulates and prescribes the content of the BA Report and specifies the type of supporting information that must accompany the submission of the BA Report to the Competent Authority. An overview of where the requirements of Appendix 1 of the 2014 NEMA EIA Regulations (as amended) are addressed in this BA Report is presented in Table 1.5 below.

Furthermore, this process has been designed to satisfy the requirements of Regulations 41, 42, 43 and 44 of the 2014 NEMA EIA Regulations (as amended) relating to the PPP and, specifically, the registration of and submissions from potential and registered I&APs.

As noted above, the Draft BA Report is being made available to registered I&APs, Organs of State and key relevant stakeholders for a 30-day comment period. All comments received during the 30-day comment period on the Draft BA Report will be incorporated into the Comments and Responses Report which will be included as an appendix to the Final BA Report, and addressed, as applicable and where relevant, in the Final BA Report.

In terms of the structure of this BA Report, Part A includes the Executive Summary, and Chapters 1 to 13. Chapter 1 (i.e. this chapter) introduces the projects and BA Process; Chapters 2 and 3 provide the description of the proposed BESS and EGI projects, respectively; Chapter 4 describes the regional and affected environment including site sensitivity; Chapter 5 details the PPP followed, the applicable legislative context, as well as the specialist terms of reference and scope of work; Chapters 6 and 7 provide the listed activities applicable to the BESS and EGI projects, respectively;

Chapters 8 and 9 details the Screening Tool specialist assessment recommendations for the BESS and EGI projects, respectively; Chapter 10 describes the alternatives considered; Chapters 11 and 12 provide a list of potential impacts and impact assessments for the BESS and EGI projects, respectively; and Chapter 13 provides the conclusion and recommendations of the BA Process.

Part B of the BA Report includes the following supporting documentation:

- Appendix A: Curriculum Vitae of the EAP;
- Appendix B: Declaration of Independence of the EAP;
- Appendix C: Pre-Application Consultation with the Competent Authority;
- Appendix D: Maps;
- Appendix E: Specialist Studies and Inputs;
- Appendix F: Database of I&APs;
- Appendix G: Public Participation;
- Appendix H to Appendix K: EMPrs; and
- Appendix L: Additional Information.

As required in Regulation 19 (4) of the 2014 NEMA EIA Regulations (as amended), the EMPrs that are required as part of this BA Process are provided in Appendix H to Appendix K of this BA Report. The EMPr for the BESS and associated infrastructure (Appendix H of this BA Report) has been structured to comply with the requirements outlined in Appendix 4 of the 2014 NEMA EIA Regulations (as amended). The EMPrs for the BESS IPP Substation (Appendix I of this BA Report), and the Switching Station (Appendix J of this BA Report) comply with the Generic EMPr for substations published in GN 435 in March 2019. The EMPr for the 132 kV LILO Power Line (Appendix K of this BA Report) complies with the Generic EMPr for power lines published in GN 435 in March 2019.

Table 1.5: Compliance with Appendix 1 of the 2014 NEMA EIA Regulations (as amended)[12].

Requirements for a Basic Assessment Process in terms of Appendix 1 of the 2014 NEMA EIA Regulations (GN R982, as amended in GN R326)	Yes / No	Section in the BA Report
Objective of the basic assessment process 2) The objective of the basic assessment process is to, through a consultative process – a) determine the policy and legislative context within which the proposed activity is located and how the activity complies with and responds to the policy and legislative context; b) identify the alternatives considered, including the activity, location, and technology alternatives; c) describe the need and desirability of the proposed alternatives; d) through the undertaking of an impact and risk assessment process, inclusive of cumulative impacts which focused on determining the geographical, physical, biological, social, economic, heritage, and cultural sensitivity of the sites and locations within sites and the risk of impact of the proposed activity and technology alternatives on these aspects to determine –	**Yes**	**Chapter 1 includes the introduction and need and desirability.** **Chapter 5 includes the legislative review.** **Chapter 10 includes the alternatives assessment.** **Appendix E includes the specialist studies. Chapter 11 and Chapter 12 include the impact assessments undertaken for the BESS and EGI, respectively.**

[12] Note that this table is applicable to the proposed Veroniva BESS and Veroniva EGI projects.

Requirements for a Basic Assessment Process in terms of Appendix 1 of the 2014 NEMA EIA Regulations (GN R982, as amended in GN R326)	Yes / No	Section in the BA Report
(i) the nature, significance, consequence, extent, duration, and probability of the impacts occurring to; and (ii) the degree to which these impacts – (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated; and e) through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to – (i) identify and motivate a preferred site, activity and technology alternative; (ii) identify suitable measures to avoid, manage or mitigate identified impacts; and (iii) identify residual risks that need to be managed and monitored.		
Scope of assessment and content of basic assessment reports 3) (1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include – (a) details of – (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	**Yes**	**Section 1.10 of Chapter 1 and Appendix A**
(b) the location of the activity, including: (i) the 21-digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	**Yes**	**Chapter 2 and Chapter 3**
(c) a plan which locates the proposed activity or activities applied for as well as associated structures and infrastructure at an appropriate scale; or, if it is – (i) a linear activity, a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken; or (ii) on land where the property has not been defined, the coordinates within which the activity is to be undertaken;	**Yes**	**Chapter 13 and Appendix D**
(d) a description of the scope of the proposed activity, including – (i) all listed and specified activities triggered and being applied for; and (ii) a description of the activities to be undertaken including associated structures and infrastructure;	**Yes**	**Chapter 2 and Chapter 3 include a description of the activities to be undertaken for the BESS and EGI, respectively.** **Chapter 6 and Chapter 7 include all listed and specified activities triggered and being applied for the BESS and EGI, respectively.**
(e) a description of the policy and legislative context within which the development is proposed including – (i) an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks, and instruments that are applicable to this activity and have been considered in the preparation of the report; and (ii) how the proposed activity complies with and responds to the legislation and policy context, plans, guidelines, tools frameworks, and instruments;	**Yes**	**Chapter 5**
f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	**Yes**	**Chapter 1**

Requirements for a Basic Assessment Process in terms of Appendix 1 of the 2014 NEMA EIA Regulations (GN R982, as amended in GN R326)	Yes / No	Section in the BA Report
(g) a motivation for the preferred site, activity and technology alternative;	**Yes**	**Chapter 10**
(h) A full description of the process followed to reach the proposed preferred alternative within the site, including – (i) details of all the alternatives considered;	**Yes**	**Chapter 10**
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	**Yes**	**Chapter 5 and Appendix G**
(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	**Yes**	**A summary of the issues raised by I&APs will be included in the Final BA Report following the conclusion of the 30-day public comment period.**
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	**Yes**	**Chapter 4 and Appendix E**
(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts – (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	**Yes**	**Chapter 11, Chapter 12 and Appendix E**
(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	**Yes**	**Chapter 5 and Appendix E (as relevant)**
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	**Yes**	**Chapter 11, Chapter 12, Chapter 13, and Appendix E**
(viii) the possible mitigation measures that could be applied and level of residual risk;	**Yes**	**Chapter 11, Chapter 12, Chapter 13, Appendix E and Appendix H to Appendix K**
(ix) the outcome of the site selection matrix;	**Yes**	**Chapter 10**
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	**Yes**	
(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity.	**Yes**	
(i) a full description of the process undertaken to identify, assess and rank the impacts the activity will impose on the preferred location through the life of the activity, including – (i) a description of all environmental issues and risks that were identified during the environmental impact assessment process; and (ii) an assessment of the significance of each issue and risk and an indication of the extent to which the issue and risk could be avoided or addressed by the adoption of mitigation measures;	**Yes**	**Chapter 11, Chapter 12, Chapter 13 and Appendix E**
(j) an assessment of each identified potentially significant impact and risk, including – (i) cumulative impacts; (ii) the nature, significance and consequences of the impact and risk; (iii) the extent and duration of the impact and risk; (iv) the probability of the impact and risk occurring; (v) the degree to which the impact and risk can be reversed;	**Yes**	**Chapter 11, Chapter 12 and Appendix E**

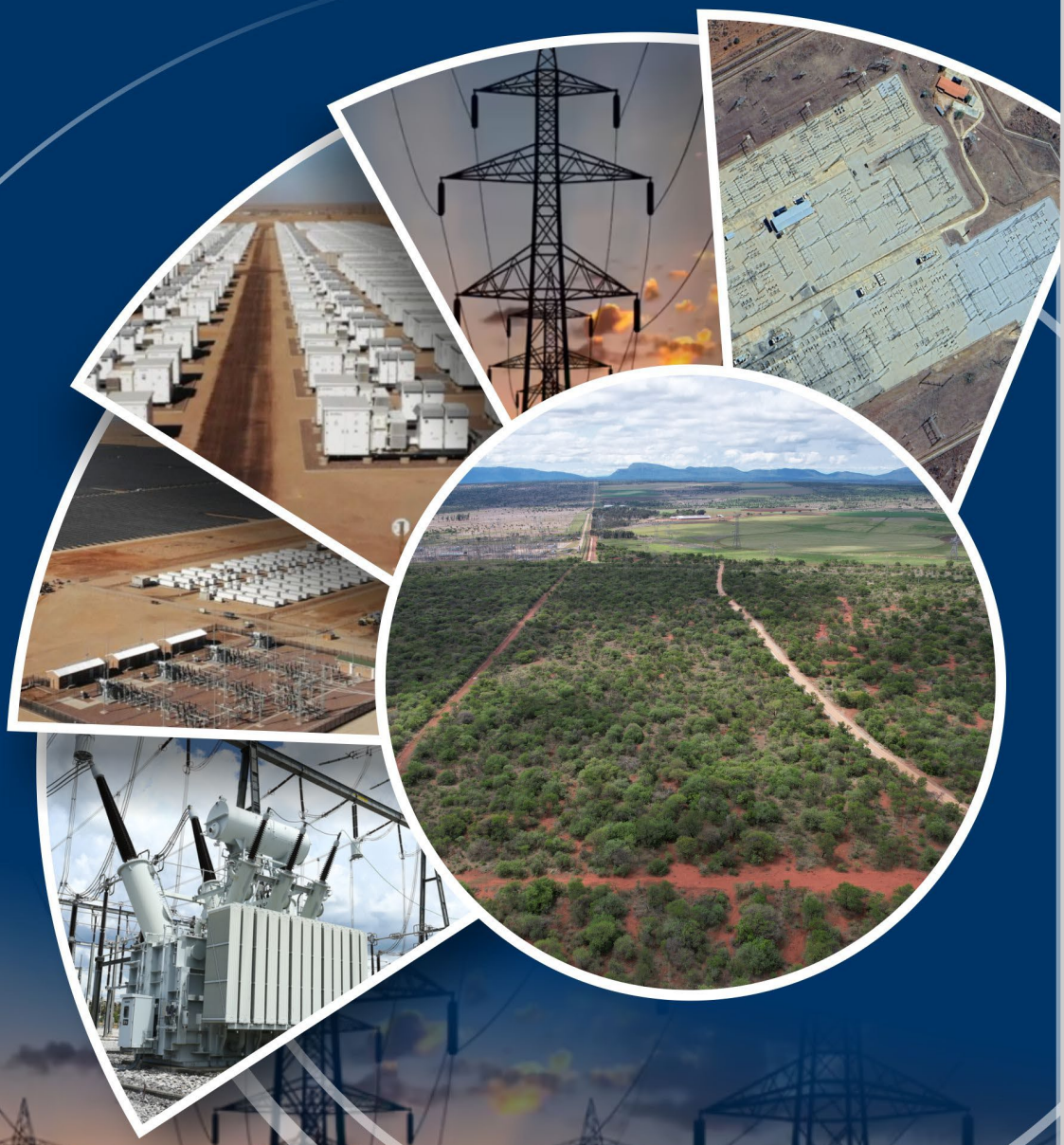
Requirements for a Basic Assessment Process in terms of Appendix 1 of the 2014 NEMA EIA Regulations (GN R982, as amended in GN R326)	Yes / No	Section in the BA Report
(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and (vii) the degree to which the impact and risk can be avoided, managed or mitigated;		
(k) where applicable, a summary of the findings and impact management measures identified in any specialist report complying with Appendix 6 to these Regulations and an indication as to how these findings and recommendations have been included in the final report;	**Yes**	**Chapter 11, Chapter 12 and Chapter 13**
(l) an environmental impact statement which contains – (i) a summary of the key findings of the environmental impact assessment; (ii) a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers; and (iii) a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives;	**Yes**	**Chapter 11, Chapter 12, Chapter 13, Appendix D, Appendix E (as relevant), and Appendix H to Appendix K**
(m) based on the assessment, and where applicable, impact management measures from specialist reports, the recording of the proposed impact management outcomes for the development for inclusion in the EMPr;	**Yes**	**Chapter 11, Chapter 12, Chapter 13, and Appendix H to Appendix K**
(n) any aspects which were conditional to the findings of the assessment either by the EAP or specialist which are to be included as conditions of authorisation;	**Yes**	**Chapter 13 and Appendix E**
(o) a description of any assumptions, uncertainties, and gaps in knowledge which relate to the assessment and mitigation measures proposed;	**Yes**	**Refer to each specialist study included in Appendix E (as relevant)**
(p) a reasoned opinion as to whether the proposed activity should or should not be authorised, and if the opinion is that it should be authorised, any conditions that should be made in respect of that authorisation;	**Yes**	**Chapter 13**
(q) where the proposed activity does not include operational aspects, the period for which the environmental authorisation is required, the date on which the activity will be concluded, and the post construction monitoring requirements finalised;	**No**	**Not Applicable as the proposed projects do have operational aspects.**
(r) an undertaking under oath or affirmation by the EAP in relation to – (i) the correctness of the information provided in the reports; (ii) the inclusion of comments and inputs from stakeholders and I&APs; (iii) the inclusion of inputs and recommendations from the specialist reports where relevant; and (iv) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested and affected parties; and	**Yes**	**Appendix B**
(t) any specific information that may be required by the competent authority; and	**Yes**	**Comments raised during the 30-day review of this Draft BA Report will be addressed at relevant points throughout the Final BA Report.**
(u) any other matters required in terms of section 24(4)(a) and (b) of the Act.	**No**	**Throughout this BA Report**
2) Where a government notice *gazetted* by the Minister provides for the basic assessment process to be followed, the requirements as indicated in such a notice will apply.	**Yes**	**Refer to Chapter 5 for a breakdown of the relevant gazettes that are applicable.**

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 2:

Project Description for the BESS Project



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2. PROJECT DESCRIPTION

This Chapter provides an overview of the conceptual project design and technology for one of the proposed projects that are addressed in this report, specifically:

- **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS).

The purpose of this Chapter is to present sufficient project information on the proposed project to inform the Basic Assessment (BA) Process in terms of design parameters applicable to the project.

Note: The information throughout this Chapter applies to Project 1 (Veroniva BESS) only.

2.1 Definition of Project Study Area

The study area or preferred site for the proposed BESS, Electricity Grid Infrastructure (EGI), 132 kV Loop-In-Loop-Out (LILO) power line, and associated infrastructure (i.e. Projects 1 and 2) covers approximately 65 hectares (ha). The 65 ha study area includes an approximately 18 ha EGI assessment corridor. Overall, the study area for Projects 1 and 2 covers 65 ha, as well as external access roads leading to the site that may need to be widened / upgraded (Figure 2.1). The study area has been assessed by the specialists in order to identify environmental sensitivities and no-go areas. The preferred site serves as the study area for this BA Process. Therefore, the terms “site” and “study area” are used synonymously in this BA Report. Table 2.1 indicates the farm properties that intersect with the 65 ha study area (excluding the external access roads).

Table 2.1: Farm Properties that intersect with the 65 ha Study Area.

FARM PORTION	SG CODE
Portion 5 of Farm Snymansdrift 738 LS	T0LS00000000073800005
Remaining Extent of Portion 2 of Farm Zandrivier 742 LS	T0LS00000000074200002
Portion 47 of Farm Wildebeestfontein 20 KS	T0KS00000000002000047
Remaining Extent (Portion 0) of Farm Wildebeestfontein 20 KS	T0KS00000000002000000

Note from the CSIR: The above farm properties intersect with the 65 ha study area. The actual development footprint, where the proposed infrastructure will be developed, does not occur on the Remaining Extent (Portion 0) of Farm Wildebeestfontein 20 KS. The affected properties for the proposed project are discussed in Section 2.3 of this Chapter.

At the commencement of this BA Process, the study area was plotted on the National Department of Forestry, Fisheries and the Environment (DFFE) Web-Based Environmental Screening Tool (Screening Tool) to identify high-level environmental sensitivities. The specialists considered these sensitivities and undertook Site Sensitivity Verifications (SSVs) within the study area, where required, in order to confirm or dispute the sensitivities identified by the Screening Tool (where relevant). The specialists then formulated environmental feature and sensitivity maps for the study area. Thereafter, the Project Developer took such sensitivities, and other considerations, into

account and formulated the **Buildable Areas**, which avoid the no-go areas identified by the specialists. The Buildable Areas were used to identify the preferred development footprint for the BESS and EGI, and to inform the design of the project layouts. A 15 ha preferred development footprint has been identified for the Veroniva BESS (Project 1), followed by a preferred power line servitude of 40 m wide (i.e. approximately 20 m on either side of the power line) for the Veroniva EGI (Project 2), which is further discussed in Chapter 10 of this BA Report. The external access roads leading to the site (i.e. Option A and Option B) may require widening or upgrading and also forms part of the development footprint for the BESS (Project 1). The layout maps presented in this BA Report are final and deemed acceptable by the specialists.

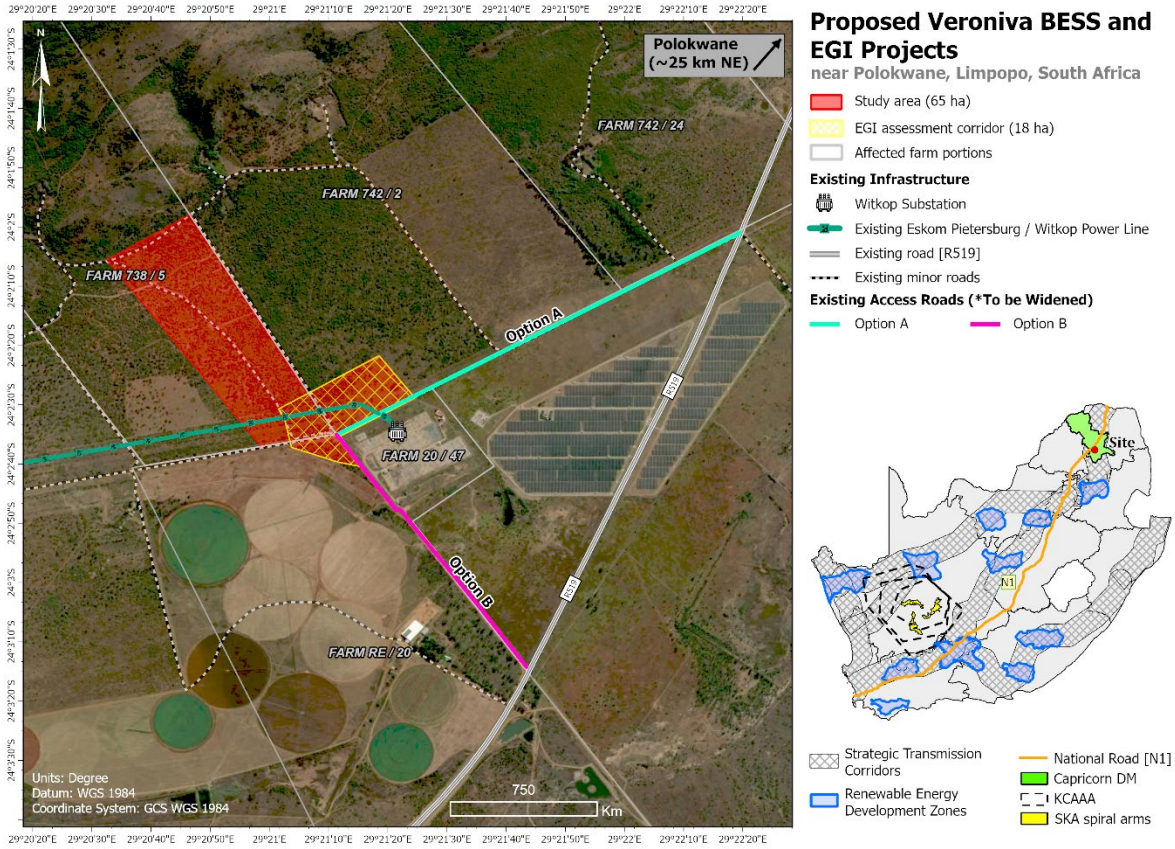


Figure 2.1: Study Area for the proposed Veroniva BESS (Project 1) and Veroniva EGI (Project 2).

2.2 Project Locality

Appendix 1 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended) states that a BA Report must provide the location of the activity, including the 21-digit Surveyor General code of each cadastral land parcel; where available, the physical address and farm name; or the coordinates of the boundary of the property or properties if the aforementioned is not available. Appendix 1 of the 2014 NEMA EIA Regulations (as amended) also states that a BA Report must include a plan which locates the proposed activity or activities, and associated infrastructure,

applied for at an appropriate scale or, if it is a linear activity, then a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken.

In line with the above, refer to Chapter 1 of this BA Report for a locality map of the proposed projects and associated infrastructure. Refer to Appendix D of this BA Report for additional maps, including final layout maps, feature maps for the study area, sensitivity maps for the study area and projects, final combined layout and feature maps, and final combined layout and sensitivity maps. These maps are also included in Chapter 4 and Chapter 13 of this BA Report, as well as the Environmental Management Programmes (EMPrs), where relevant.

The proposed project and associated infrastructure will occur on the farm portions listed in Table 2.2 below, which also specifies the corresponding 21-digit Surveyor General code for each affected farm portion.

The property boundaries were obtained from the following dataset: Chief Surveyor-General National Cadastral Data (March 2026). The property boundaries from the cadastral data were found to be slightly misaligned with satellite imagery for the study area. For purposes of this BA Report, the property fencelines, as groundtruthed and/or confirmed with relevant property landowners (where possible), were used to determine affected and adjacent properties.

2.2.1 Project 1 – Veroniva BESS and associated infrastructure

Table 2.2 details the affected farm portions for Project 1 (Veroniva BESS and associated infrastructure).

Table 2.2: Affected Farm Properties for Project 1 (Veroniva BESS and associated infrastructure).

Farm Portion	21-digit Surveyor General code
BESS and associated infrastructure	
Portion 5 of Farm Snymansdrift 738 LS	T0LS00000000073800005
Main Internal Access Road	
Portion 5 of Farm Snymansdrift 738 LS	T0LS00000000073800005
Widening / Upgrade of Existing External Access Road – Option A	
Remaining Extent of Portion 2 of Farm Zandrivier 742 LS	T0LS00000000074200002
Portion 24 of Farm Zandrivier 742 LS	T0LS00000000074200024
Widening / Upgrade of Existing External Access Road – Option B	
Portion 47 of Farm Wildebeestfontein 20 KS	T0KS00000000002000047

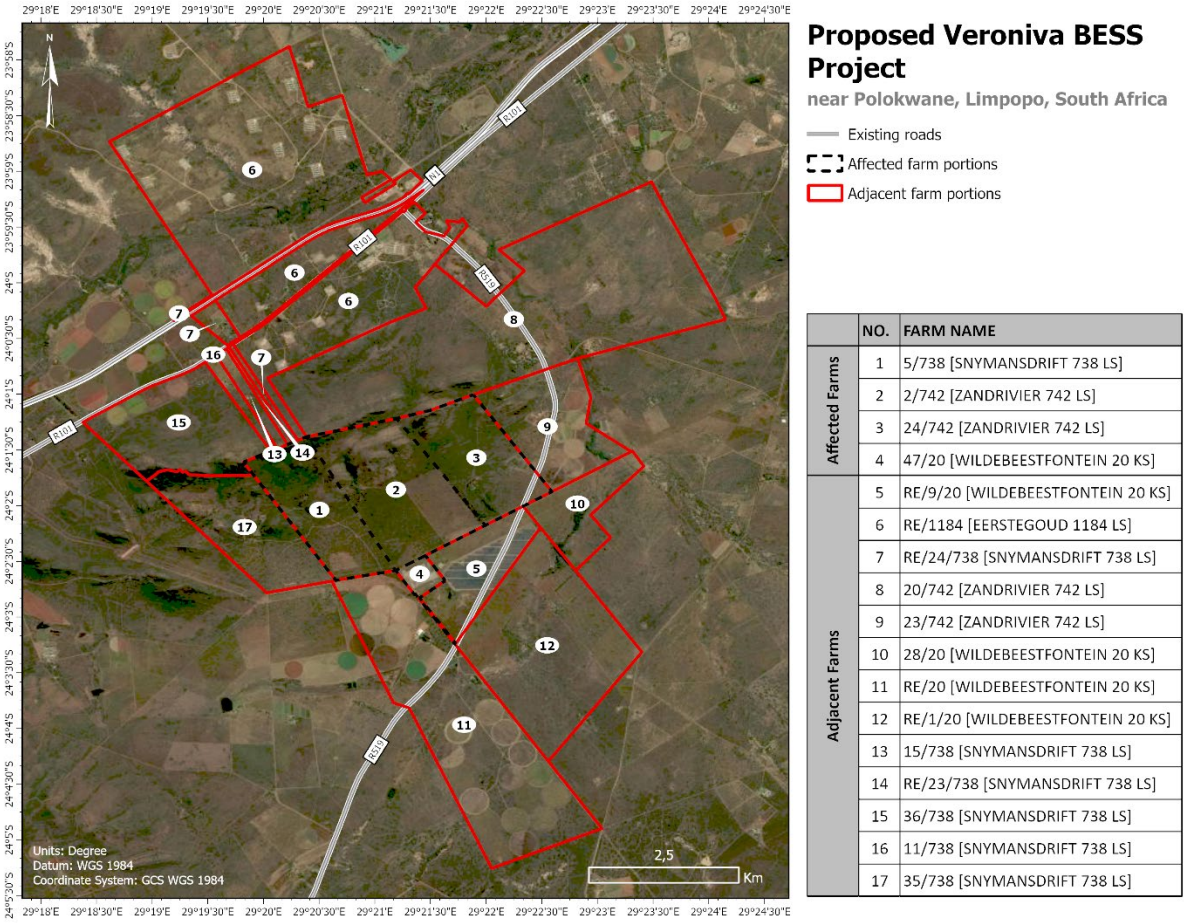
Portion 5 of Farm Snymansdrift 738 LS, on which the proposed BESS (i.e. Project 1) will be developed, will be leased from the property owner by the Project Applicant for the life span of the proposed project.

The Dream Hills Estate / Private Game Farm occurs on Portions 5 and 35 of Farm Snymansdrift 738 LS. Portions 5 and 35 of Farm Snymansdrift 738 LS have the same landowner. There is also an amendment application to an existing prospecting right on Portion 5 of Farm Snymansdrift 738 LS, and surrounding portions. The Project Applicant and the Prospecting Rights Holder have a co-existence agreement noting that no prospecting will occur within the BESS and EGI area.

Overall, the landowner of Portion 5 of Farm Snymansdrift 738 LS has consented to the proposed development and has informed the Applicant of the areas that need to be avoided by the proposed BESS and EGI projects. These landowner exclusion zones were acknowledged and implemented during the site selection process.

2.3 Affected and Adjacent Farm Portions

Figure 2.2 provides an indication of the affected farm portions and the adjacent farm portions for the proposed project.



	NO.	FARM NAME
Affected Farms	1	5/738 [SNYMANSDRIFT 738 LS]
	2	2/742 [ZANDRIVIER 742 LS]
	3	24/742 [ZANDRIVIER 742 LS]
	4	47/20 [WILDEBEESTFONTEIN 20 KS]
Adjacent Farms	5	RE/9/20 [WILDEBEESTFONTEIN 20 KS]
	6	RE/1184 [EERSTEGOUD 1184 LS]
	7	RE/24/738 [SNYMANSDRIFT 738 LS]
	8	20/742 [ZANDRIVIER 742 LS]
	9	23/742 [ZANDRIVIER 742 LS]
	10	28/20 [WILDEBEESTFONTEIN 20 KS]
	11	RE/20 [WILDEBEESTFONTEIN 20 KS]
	12	RE/1/20 [WILDEBEESTFONTEIN 20 KS]
	13	15/738 [SNYMANSDRIFT 738 LS]
	14	RE/23/738 [SNYMANSDRIFT 738 LS]
	15	36/738 [SNYMANSDRIFT 738 LS]
	16	11/738 [SNYMANSDRIFT 738 LS]
	17	35/738 [SNYMANSDRIFT 738 LS]

Figure 2.2: Affected and Adjacent Farm Portions for the proposed Veroniva BESS (Project 1).

2.4 Project Co-ordinates

The co-ordinates of the estimated mid-points or corner points, and start-middle-end points of the proposed project infrastructure are detailed in this section. These co-ordinates have also been included in Appendix D of this BA Report.

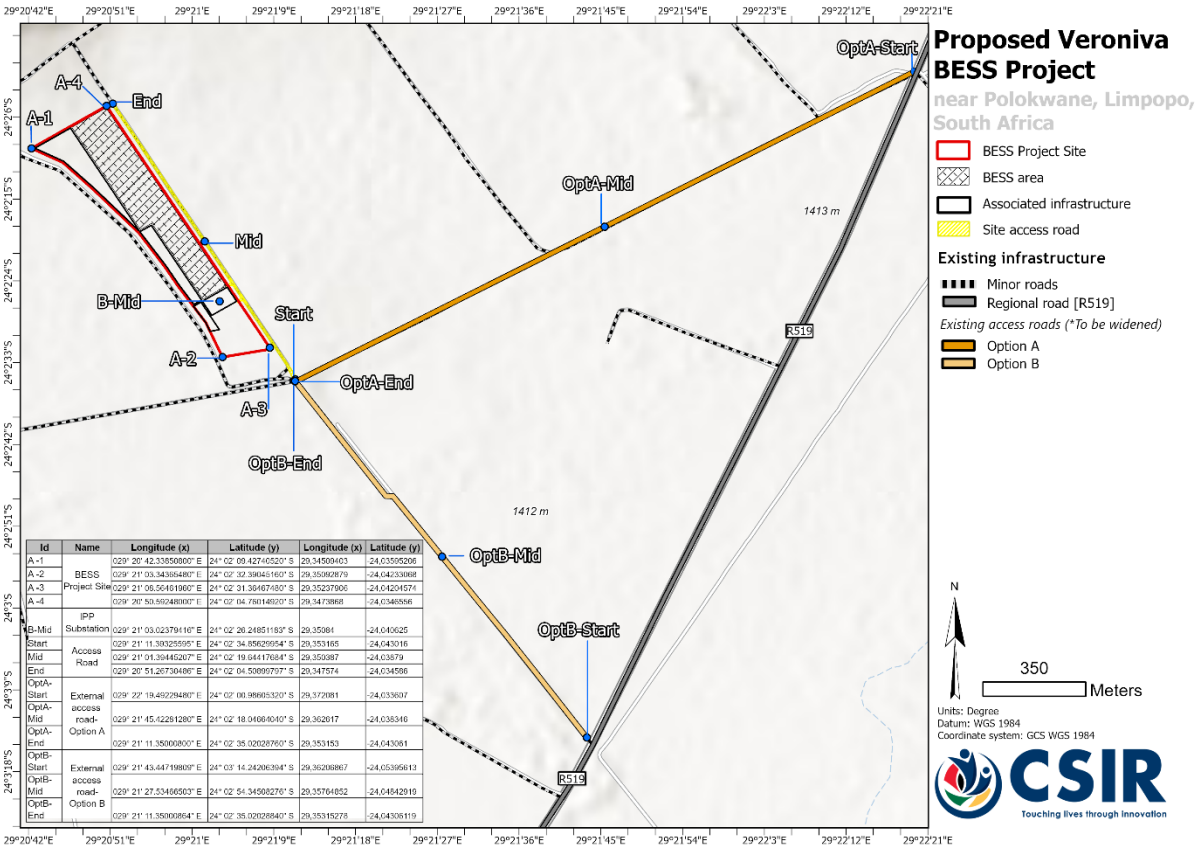
2.4.1 Project 1 – Veroniva BESS and associated infrastructure

Table 2.3 and Figure 2.3 details the co-ordinates of key infrastructure for Project 1 (Veroniva BESS and associated infrastructure).

Table 2.3: Co-ordinates for Project 1 (Veroniva BESS and associated infrastructure).

Co-ordinate Point	Decimal Degrees		Degrees, Minutes, Seconds	
	Latitude (Y)	Longitude (X)	Latitude (S)	Longitude (E)
BESS Facility and associated infrastructure within the fenced off area[1]				
Corner Point 1	-24.03595206	29.34509403	24° 02' 09.42740520" S	029° 20' 42.33850800" E
Corner Point 2	-24.04233068	29.35092879	24° 02' 32.39045160" S	029° 21' 03.34365480" E
Corner Point 3	-24.04204574	29.35237906	24° 02' 31.36467480" S	029° 21' 08.56461960" E
Corner Point 4	-24.0346556	29.3473868	24° 02' 04.76014920" S	029° 20' 50.59248000" E
Independent Power Producer (IPP) Substation				
Mid-Point	-24.040625	29.35084	24° 02' 26.24851183" S	029° 21' 03.02379416" E
Main Internal Access Road				
Start-Point	-24.043016	29.353165	24° 02' 34.85629954" S	029° 21' 11.39325595" E
Mid-Point	-24.03879	29.350387	24° 02' 19.64417684" S	029° 21' 01.39445207" E
End-Point	-24.034586	29.347574	24° 02' 04.50899797" S	029° 20' 51.26730486" E
Widening / Upgrade of Existing External Access Road – Option A				
Start-Point	-24.033607	29.372081	24° 02' 00.98605320" S	029° 22' 19.49229480" E
Mid-Point	-24.038346	29.362617	24° 02' 18.04664040" S	029° 21' 45.42281280" E
End-Point	-24.043061	29.353153	24° 02' 35.02028760" S	029° 21' 11.35000800" E
Widening / Upgrade of Existing External Access Road – Option B				
Start-Point	-24.05395613	29.36206867	24° 03' 14.24206394" S	029° 21' 43.44719809" E
Mid-Point	-24.04842919	29.35764852	24° 02' 54.34508276" S	029° 21' 27.53466503" E
End-Point	-24.04306119	29.35315278	24° 02' 35.02028840" S	029° 21' 11.35000864" E

[1] This area includes the fenced off area for the proposed BESS, which includes the area for BESS placement, the Operational and Maintenance (O&M) Building, laydown area, as well as relevant infrastructure.



Id	Name	Longitude (x)	Latitude (y)	Longitude (x)	Latitude (y)
A -1	BESS Project Site	029° 20' 42.33850860" E	24° 02' 09.42746520" S	29,34509403	-24,03595206
A -2		029° 21' 03.34385480" E	24° 02' 32.39045160" S	29,35092879	-24,04233068
A -3		029° 21' 06.56461960" E	24° 02' 31.39467480" S	29,35237906	-24,04204574
A -4		029° 20' 50.59248800" E	24° 02' 04.78014920" S	29,3473868	-24,0346586
B-Mid	IPP Substation	029° 21' 03.02379416" E	24° 02' 26.24851183" S	29,35084	-24,040625
Start	Access Road	029° 21' 11.30325595" E	24° 02' 34.85629954" S	29,353165	-24,043016
Mid		029° 21' 01.39445207" E	24° 02' 19.64417684" S	29,350387	-24,03879
End		029° 20' 51.26730486" E	24° 02' 04.53899797" S	29,347574	-24,034586
OptA-Start	External access road- Option A	029° 22' 19.49229480" E	24° 02' 00.98605320" S	29,372081	-24,033607
OptA-Mid					
OptA-End		029° 21' 45.42261280" E	24° 02' 18.04864040" S	29,362617	-24,038346
OptB-Start	External access road- Option B	029° 21' 43.44719809" E	24° 03' 14.24206394" S	29,36208867	-24,05395613
OptB-Mid					
OptB-End		029° 21' 27.53466503" E	24° 02' 54.34508276" S	29,35764852	-24,04842919
		029° 21' 11.35000864" E	24° 02' 35.02028840" S	29,35315278	-24,04306119

Figure 2.3: Coordinate Points for the proposed Veroniva BESS (Project 1).

2.5 Key components of Project 1 (Veroniva BESS and associated infrastructure)

The proposed project will consist of the key components listed below in Table 2.4. A summary of the key components of the proposed Veroniva BESS and associated infrastructure (Project 1) and technical information is described in this section.

Table 2.4: Description of the components of the Veroniva BESS and Associated Infrastructure (Project 1).

Component	Description
Battery Energy Storage System (BESS)	
BESS Area/Facility	▪ Technology: Lithium-Ion BESS ▪ Total Footprint: Approximately 15 ha (including associated infrastructure) ▪ Height: Between 5 m and 10 m ▪ The BESS area will include the following sub-components: o BESS Units; o Laydown Area; o Independent Power Producer (IPP) Substation; o Transformer at the IPP Substation; o Overhead cables at the IPP Substation; o Operational and Maintenance (O&M) Office, including Ablutions; o External Access Roads; o Internal Roads; o Medium Voltage (MV) cables between BESS Units; o Internal cables at the BESS Facility; o Fencing and Security; and o Parking Area.
BESS Sub-Components *(to be located within the 15 ha area of the overall BESS Facility (except for external access roads))*	
BESS Units	▪ This will include battery packs or containers, with an area of approximately 8 ha, and height up to 5 m.
Laydown Area	▪ Footprint: Approximately 3.2 ha
On-site Substation – BESS IPP Substation Section	▪ This includes the BESS IPP Substation, which includes all the high voltage infrastructure leading up to the Point of Connection (i.e. the Project Applicant's section of the proposed on-site substation). This will be maintained by the IPP.

Component	Description
	▪ Footprint: Approximately 0.5 ha ▪ Height: Up to 15 m ▪ Capacity: 33 kV to 132 kV ▪ Transformer at the IPP Substation: o Capacity: Ranges above 33 kV o Height: Up to 2 m ▪ Cables at the IPP Substation: o Placement: Overhead o Capacity: Ranges above 33 kV o Height: Up to 12 m
Operational and Maintenance (O&M) Office	▪ Maximum height: Up to 5 m ▪ Footprint: Approximately 0.3 ha ▪ The BESS O&M Office will also include Ablution facilities.
External Access Roads	▪ New Access Roads: Where new access roads are required, these will be 4 - 8 m wide. The bell mouth at the access road leading to the IPP substation will extend up to approximately 19 m wide to accommodate turning vehicles. ▪ Existing Access Roads: Existing roads will be used as far as practically achievable. Where existing roads are used, they may need to be upgraded. ▪ The proposed project site can be accessed via various existing main roads and gravel roads. Direct access to the proposed project will be taken from the R519. There are two options for external access to the proposed project site, as follows: o **Option A**: A gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation. The existing road will be used and widened as needed. The existing road currently extends 3 – 4 m wide, and will be widened to about 4 – 8 m. The access point at the R519 may need to be upgraded as close as possible to a 90° approach to improve visibility for construction vehicles.

Component	Description
	○ **Option B**: A tarred road off the R519 (which leads directly to the Eskom Witkop Substation), and a paved road just before the Eskom Witkop Substation gate (slight left), up until the access gate to Farm 738/5. The tarred section of the access road (towards the Eskom Witkop Substation gate) is about 5 m wide currently and may require some work to enable large/heavy construction vehicles to pass each other safely in two-way traffic. The grassed shoulders of this section of the access road will be converted to a hardened gravel surface (~1 m each side). This will enable large/heavy construction vehicles to safely make space for oncoming traffic, and the grass shoulders can be re-instated once the construction phase is concluded. This section of the access road needs to be monitored regularly for any damage. The paved section of the access road (along the western edge of the Eskom Witkop Substation) is currently about 3 – 4 m wide. It is expected to require some widening to up to 6 m wide to allow large construction vehicles to pass each other. Details will be confirmed during detailed design. Alternative to widening, a more temporary measure for consideration, is installing gravel shoulders on each side of the road, which then needs to be monitored and repaired for the duration of the construction, and re-instated at the end of construction.
Internal Roads	▪ Details: New internal gravel roads will need to be established within the BESS Facility area. ▪ Width: Up to 4 m
Medium Voltage (MV) cables between the BESS Units	▪ Placement: Buried/Ducted ▪ Capacity: Ranges from 1 kV up to 33 kV ▪ Depth: Up to 2 m

Component	Description
Internal cables in the BESS Facility	▪ Placement: Buried / ducted ▪ Capacity: Ranges from 1 kV up to 33 kV ▪ Depth: Up to 2 m
Fencing of the BESS Facility and Security	▪ Type: Palisade or mesh or fully electrified ▪ Height: Up to 5 m ▪ Security: Access to the BESS Facility will be managed and monitored by an appointed security service provider.
Parking Area	▪ A parking area will be established at the BESS Facility for staff
Storm water channels	▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.
Water Requirements	▪ Approximately 350 m^3 to 450 m^3 of water is estimated to be required per year for the construction phase. ▪ Approximately 200 m^3 to 300 m^3 of water is estimated to be required per year for the operational phase. ▪ Water requirements during the decommissioning phase are expected to be the same as the construction phase. ▪ Potential sources: Existing boreholes on site or from the Local Municipality via trucks.
Construction Period	▪ 12 - 24 months
Operational Period	▪ Once the commercial operation date is achieved, the proposed BESS will store and dispatch electricity for a minimum period of 10 to 30 years.

The total footprint of the proposed project is approximately **15 ha**, which includes all associated infrastructure within the fenced off area of the BESS facility i.e. including the BESS units, foundations, buildings and associated infrastructure but excluding the external access roads leading to the BESS site on Farm 738/5.

A final site layout map is included in Chapter 13 and Appendix D of this BA Report, as well as the EMPrs.

A description of the key components of the proposed project is described below.

2.5.1 BESS Facility

The proposed BESS Facility will cover a total area of approximately 15 ha and will include various sub-components as discussed above in Table 2.4 and schematically indicated in Figure 2.4 below.

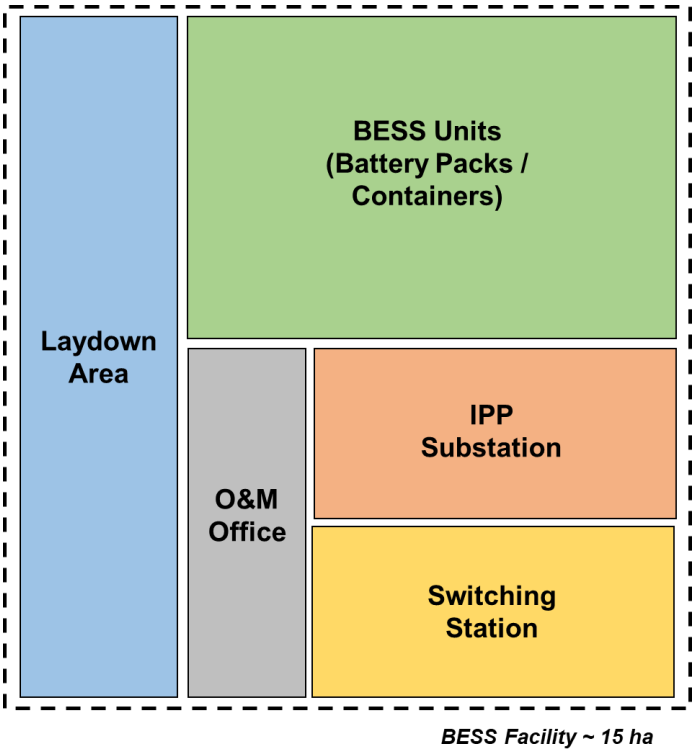


Figure 2.4: Schematic Overview (not to scale) of the Veroniva BESS and associated infrastructure. Note that the Switching Station is shown for context (as it is forms part of Project 2 – Veroniva EGI).

The BESS will extend between 5 m and 10 m in height. There is also the requirement for the installation of a lightning mast within the BESS area, which will not be higher than 21 m.

The BESS will typically also include cooling and thermal management, as well as a battery management system to maintain and manage performance and optimal operation.

Battery storage offers a wide range of advantages to South Africa including electricity supply reliability and quality improvement. In a Media Statement dated 18 November 2024, following two grid-scale Independent Power Producer (IPP) battery energy storage projects in South Africa reaching commercial close under the first Battery Energy Storage Independent Power Producer Procurement Programme (BESIPPPP) Bid Window 1, the Department of Electricity and Energy (2024[2], Page 2) explained that BESS technology "*plays a critical role for grid operation by storing energy during periods of less demand for electricity and releasing that energy when needed (for example, during peak demand periods)*". The Department of Electricity and Energy (2024, Page 2) further explains that BESS provides "*grid stability through Ancillary Services for the System Operator*" and that it "*further allows for more integration of renewable energy onto the grid*". Eskom defines BESS contribution to ancillary services such as "*frequency regulation, voltage support, and reactive power control, enhancing grid reliability and power quality*" (Eskom, 2023[3], Page 3).

Since the Applicant intends to submit a proposal in one of the following bidding rounds of the BESIPPPP, the proposed BESS will have the same objectives (i.e. to alleviate grid constraints, provide peak-time energy, and support renewable integration into the grid).

The BESS technology type will be **Lithium-Ion** with an estimated maximum capacity of 1 200 MWh. To provide an example, Figure 2.5 is an illustration of a 25 MW / 50 MWh Lithium-Ion battery located at the 60 MW Gannawarra Solar Farm in Australia; whereas Figure 2.6 shows the 540 MW Scatec Kenhardt Solar project, with a 225 MW / 1 140 MWh Lithium-Ion battery system.

[2] Department of Electricity and Energy (2024). Media Statement: An Additional Two Grid-Scale IPP Battery Energy Storage Projects in South Africa Reach Commercial Close, 18 November 2024. https://www.ipp-storage.co.za/ [online] – Energy Storage IPP Programme Press Centre. Accessed April 2026.

[3] Eskom SOC Limited (2023). Battery Energy Storage Systems. https://www.eskom.co.za/distribution/wp-content/uploads/2023/11/BESS-eskom-brochure-Mobile-friendly.pdf [online]. Accessed April 2026.



Figure 2.5: Example of Solar Photovoltaic (PV) Technology with Lithium Ion BESS in Australia (ARENAWIRE, 2018[4]).



Figure 2.6: Example of PV Technology with Lithium Ion BESS (1 140 MWh) at the Scatec Kenhardt project in the Northern Cape, South Africa (Scatec, no date[5]).

It must be reiterated that only one technology i.e. Solid State Lithium-Ion BESS was considered in this BA Process. Refer to Chapter 10 for additional information on project alternatives considered in this project.

Lithium-Ion batteries are solid state, sealed systems. They are usually pre-assembled off site and delivered to site for placement as per specifications of the supplier. The supplier of the BESS will be confirmed during the detailed design. The BESS system consists of multiple battery cells that are assembled together to form modules. A module may consist of several cells working in conjunction. Each cell contains a positive electrode, a negative electrode and an electrolyte. The

[4] Arenawire (2018). Solar battery storage in Victoria charging up for summer. https://arena.gov.au/blog/solar-battery-storage-in-victoria-charging-up-for-summer/ [online]. Accessed November 2021.
[5] Scatec (no date). Powering the transition – why Battery Storage matters now. https://www.scatec.com/en/powering-the-transition-why-battery-storage-matters-now/ [online]. Accessed April 2026.

negative electrode for a lithium-ion cell is typically carbon. The positive electrode can be lithium iron phosphate or a lithium metal oxide. The electrolyte is usually a lithium salt dissolved in an organic solvent (CSIR, 2015[6]).

It is proposed that the Lithium-Ion BESS would be housed in containers, with associated operational, safety and control infrastructure. The BESS will be a sealed unit and will remain sealed during operations.

Based on various discussions with the DFFE on previous occasions, it has been confirmed that Lithium-Ion BESS is not classified as containers or structures for the development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good. In addition, it was also confirmed based on discussions with the DFFE that BESS is not classified as a facility for the generation, transmission or distribution of electricity. Hence, listed activities pertaining to these aspects in the 2014 NEMA EIA Regulations (as amended) do not apply.

A BESS High-Level Safety, Health and Environment (SHE) Risk Assessment has been undertaken in the BA Phase to address the risks associated with the proposed BESS development. Refer to Appendix E.12 of the BA Report for the BESS SHE Risk Assessment.

2.5.2 BESS Facility Sub-Components

2.5.2.1 BESS Units and Laydown Area

The containers or battery packs will cover an area of approximately 8 ha within the BESS Facility area, and height of up to 5 m.

The BESS Facility will also include a dedicated laydown area, which will cover a footprint of approximately 3.2 ha, for use during the construction and operational phases. A warehouse/workshop may also be established at the laydown area.

2.5.2.2 BESS IPP Substation

The proposed project will include an on-site substation, which will include the following two sections:

- The section that will be maintained by the IPP. This includes all the high voltage infrastructure leading up to the Point of Connection (i.e. the Project Applicant's section of the proposed on-site substation, which is also referred to as the **BESS IPP Substation**). This is covered in **Project 1 (Veroniva BESS)** and discussed in this Chapter.
- The section that will be transferred from the IPP to Eskom. This includes all the high voltage infrastructure extending from the Point of Connection (i.e. Eskom's section of the proposed on-site substation, also referred to as the **Switching Station**). This is covered in **Project 2 (Veroniva EGI)** and discussed in Chapter 3.

[6] CSIR, 2015. Final Environmental Impact Assessment Report for the proposed construction of Gemsbok Solar PV2 75 MW Solar PV facility on the Remaining Extent of Portion 3 of the Farm Gemsbok Bult 120, Kenhardt, Northern Cape. CSIR Report Number: CSIR/CAS/EMS/ER/2014/0010/B.

Therefore, the IPP substation will be maintained by the IPP, and will extend up to 15 m in height, with an approximate footprint of 0.5 ha, and a capacity stepping up from 33 kV to 132 kV. There is also the requirement for the installation of a lightning mast within the substation yard, which will not be higher than 21 m.

The BESS IPP Substation will include a transformer that ranges above 33 kV and extends up to 2 m high. Overhead cables will also be installed at the IPP Substation, with a capacity ranging above 33 kV, and a heigh up to 12 m.

There will be a metering point between the BESS IPP Substation and the Switching Station to indicate the ownership level between the IPP and Eskom. Additional information on the **Switching Station** is provided in **Chapter 3** of this BA Report (relating to **Project 2 – Veroniva EGI**).

2.5.2.3 Cables between the BESS Units and Internal Cables within the BESS Facility

The BESS Facility will include the following dedicated cables between the BESS units and internally:

- Medium Voltage (MV) cables between the BESS Units. The capacity will range from 1 kV up to 33 kV. These cables will be buried to a depth of up to 2 m.
- Internal cables in the BESS Facility. The capacity will range from 1 kV up to 33 kV. These cables will be buried to a depth of up to 2 m.

The BESS units/containers are connected to each other with cables, which are in turn connected to converters/inverters that convert direct current (DC) to alternating current (AC). The converter/inverter stations will in turn be connected to the proposed BESS IPP substation, via MV internal underground cables. It is highly unlikely that above ground 33 kV power lines will be utilised. However, if overhead 33 kV power lines are considered as an option, it will be approximately 9 m high utilising a standard monopole design.

2.5.2.4 Operational and Maintenance (O&M) Office

The BESS will have a dedicated O&M office, including ablution facilities, within the BESS Facility fenced off area. The O&M office will extend up to 5 m in height and will cover an area of approximately 0.3 ha.

2.5.2.5 Internal Roads

Internal roads will also be constructed within the footprint of the BESS Facility. The internal roads are expected to be composed of gravel and will extend up to 4 m wide.

2.5.2.6 Fencing, Security, and Parking Area

The BESS Facility will be secured via the installation of appropriate fencing, which could be palisade or mesh or fully electrified, with an estimated height of up to 5 m. Access to the BESS Facility will be managed and monitored by an appointed security service provider. Fencing will also be required around the O&M control centre and IPP substation.

It is anticipated that a guard house will also be established at the entrance for security purposes.

A parking area will also be established at the BESS Facility for staff.

2.5.2.7 Additional Infrastructure

The Project Applicant may establish a concrete batching plant on site (within the laydown area) for purposes of the construction phase. Only a limited amount of water (within the overall water usage estimates described in this Chapter) will be utilised during construction for the batching of concrete. Details of the concrete batching plant will be confirmed during detailed design as the development progresses.

2.5.2.8 Storm water

The following design principles are proposed to manage storm water overland flow and mitigate erosion for the development of the BESS Facility:

- The internal roads within the BESS Facility are proposed to be constructed level with the natural ground level to prevent channelization of the surface water. This will also prevent concentrated surface runoff erosion;
- For scattered small ridges that have localized steeper gradients it is proposed that localized storm water cut-off channels be implemented above the areas only when evidence of erosion is observed at the natural state (prior to construction);
- Run-off needs to be managed and controlled with suitable lining and gabion structures; and
- At building structures, allowance will be made to minimize any erosion that might occur. This can be achieved by placing vegetated grass blocks on the verges of these hardened areas to limit flow velocity and to assist with the recharge of the water table.

Storm water infrastructure, such as channels and culverts, will be constructed on site to ensure that storm water run-off from the site is appropriately managed. Such infrastructure falls below the threshold (relating to internal diameter and peak throughput capacity) of the relevant listed activity in terms of the 2014 NEMA EIA Regulations (as amended) for the proposed project.

Water from these channels is unlikely to contain any chemicals or hazardous substances and will be released into the surrounding environment based on the natural drainage contours.

Details of storm water management are to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed Storm Water Management Plan would need to be developed during the detailed design phase (post Environmental Authorisation (EA), should such authorisation be granted) and to be implemented during all phases of the proposed project. Recommendations for the management of storm water have been included in a Storm Water Management Plan in the EMPrs for the proposed project, as relevant (included in Appendix H and Appendix I of this BA Report).

2.6 External Access Roads

A Traffic Impact Assessment was completed in the BA Phase for the proposed BESS project specifically, in order to determine potential traffic and transport related impacts. The information presented below is based on the Traffic Impact Assessment undertaken by iWink Consulting (2026[7]), included in Appendix E.9 of this BA Report.

The proposed project site can be accessed via various existing main roads and gravel roads. Direct access to the proposed project site will be taken from the R519. There are two options for external access to the proposed project site on Farm 738/5, as discussed below, i.e. **External Access Route Option A and External Access Route Option B**. Thereafter, existing roads will be used as far as practically achievable, or new access roads will be developed where they do not align with existing roads. Where new access roads are required, these will be 4 - 8 m wide. The main access road extending from the access road of Farm 738/5 extends up to 14 m wide. In addition, the bell mouth at the access road leading to the IPP substation will extend up to approximately 19 m wide to accommodate turning vehicles. Where existing roads are used, they may need to be upgraded or widened.
The potential access routes to the proposed project site are discussed below and indicated in Table 2.5 and Figure 2.7:

- **Access Routes:**
    - **Option A:** A gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation.
    - **Option B:** Along the R519, Eskom Witkop Main Transmission Substation (MTS) Access Road, and Private Farm Road. This includes a tarred road off the R519 (which leads directly to the Eskom Witkop Substation), and a paved road just before the Eskom Witkop Substation gate (slight left), up until the access gate to Farm 738/5.

The Applicant is seeking authorisation of both road options listed above so that any one of them can be used at the time of construction, depending on feasibility analysis and detailed design. Note that both options have been considered by the specialists, and no fatal flaws have been identified. Corresponding recommendations have been included in the EMPrs as relevant. It is important to note that these options are not alternatives that are ranked against each other. They are different routes that both need authorisation as discussed above. The relevant listed activities for the different routes have been included in the Application for EA.

Refer to Figure 2.8 for photographs of the External Access Route Option A.

Refer to Figures 2.9 to 2.11 for photographs of the External Access Route Option B. Figure 2.9 provides an image of the R519 as well as its intersection with the Eskom Witkop MTS Access Road, Figure 2.10 provides an image of the tarred section of the access road to the Eskom Witkop

[7] iWink Consulting (2026). Traffic Impact Assessment for the Proposed Veroniva Battery Energy Storage System (BESS) Facility, Limpopo Province. Prepared for the Basic Assessment (BA) for the Veroniva BESS Development.

MTS, while Figure 2.11 provides an image of the paved section of the access road to the Eskom Witkop MTS.

Table 2.5: Existing Access Road Specifications.

Road Name	Road Authority	Road Width	Gravel / Surfaced
R519	Limpopo Department of Public Works, Roads and Infrastructure and the Road Agency Limpopo (RAL) as the custodian.	10 m	Surfaced
Private Farm Road (External Access Road A)	Privately owned by landowners of Farms 742/2 and 742/24	3 – 4 m	Gravel
Unnamed (Eskom Witkop MTS Access Road) [External Access Road B]	Eskom	Surfaced: ~5 m Paved: 3 - 4 m	Surfaced and Paved

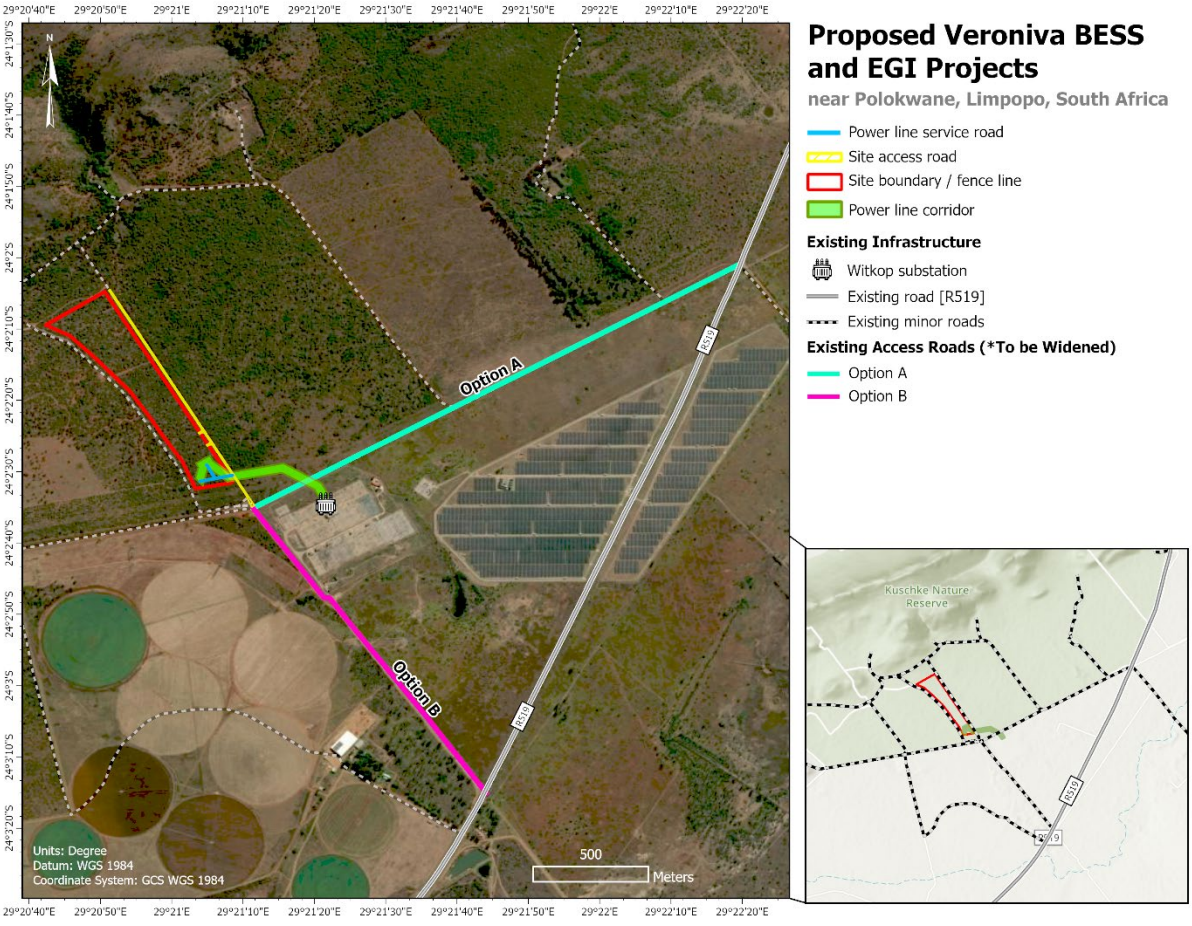


Figure 2.7: Access Routes to the proposed project.



A B

Figure 2.8: External Access Road Option A: (A) Photograph of the access road to the north of the Eskom Witkop MTS on Farm 742/2, directly adjacent to the MTS; and (B) Photograph of the access road to the north of the Eskom Witkop MTS in the vicinity of Farm 742/2 and Farm 742/24 (Source: Veroniva, 2026).



A B

Figure 2.9: External Access Road Option B: Photographs of the intersection of the R519 and the access road to the Eskom Witkop MTS (A) facing north-east with the R519 shown towards the right of the image; and (B) facing south with the R519 along the centre frame of the image (Source: CSIR, 2026).



A B

Figure 2.10: External Access Road Option B: Photographs of the tarred section of the access road leading to the Eskom Witkop MTS (A) near the intersection with the R519; and (B) close to the main access gate to the substation (Source: (A) CSIR (2026); (B) Tony Barbour Environmental Consulting (2026[8])).

[8] Tony Barbour Environmental Consulting (2026). Socio-Economic Impact Assessment for the Proposed Veroniva Battery Energy Storage System (BESS) Facility, Limpopo Province. Prepared for the Basic Assessment (BA) for the Veroniva BESS Development.



Figure 2.11: External Access Road Option B: Photographs of the (A) start of the paved section of the access road along the western border of the Eskom Witkop MTS. Note that this photo is facing south-east; and (B) along the western border of the MTS facing north towards the site access point (Source: CSIR, 2026).

The Traffic Specialist has noted the following based on preliminary investigations:

- The bellmouths of the turn off from the R519 onto either of the access road options to the proposed project site are expected to require some upgrading (i.e., widening and re-surfacing of bellmouths) to safely accommodate abnormal load vehicles. The exact dimensions for the widening can only be confirmed at detail design stage, and therefore has not been accounted for specifically in this BA Process in terms of listed activities. The widening and re-surfacing will need to be in line with the relevant Authority's geometric guidelines, and will require necessary permits and approvals, as relevant (including an Application for EA if needed).
- It is further advised to align the Access Road Option A as close as possible to a 90-degree approach with the R519 to improve visibility for construction vehicles. This must also be undertaken with relevant approvals in place.
- The site access roads (Options A and B) need to be maintained if damaged by construction vehicles associated with the proposed project.
- For Option B, specifically the tarred section of the access road (towards the Eskom Witkop MTS gate), it is recommended that the grassed shoulders of this section be converted to a hardened gravel surface (~1 m each side). This will enable large/heavy construction vehicles to safely make space for oncoming traffic, and the grass shoulders can be re-instated once the construction phase is concluded. This section of the access road needs to be monitored regularly for any damage.
- For Option B, due to its limited width, the paved section of the road parallel to the Eskom Witkop MTS may either require widening or passing embayments or installing gravel shoulders on each side of the road, which then needs to be monitored and repaired for the duration of the construction, and re-instated at the end of construction.
- Temporary road signage in line with the South African Road Signs Manual (SARTSM) needs to be erected along the R519 section that passes the turn off towards the site to alert other drivers along this road of large construction vehicles turning into and out of the access.
- Both the proposed access roads are supported from a traffic engineering perspective and therefore acceptable, provided that the relevant recommendations in the Traffic Impact Assessment are adhered to.

- **Haulage of Imported Materials**

All components fabricated in foreign countries will need to be imported into South Africa via one of the ports. The Port of Richards Bay and Port of Durban are the closest ports to the proposed project, which would result in a route from the port northwards via the N2, R33, R540, R37 and R519 to the access point to the site.

If both the above ports are not available, then the Port of Ngqura or Port of Saldanha can also handle the project components, however, both ports are much further away. The Port of Cape Town has not been considered for the import of large components (i.e. abnormal loads) due to some bridges having height restrictions, which would not allow the transport of abnormal loads out of the port.

2.7 Service Provision

The Project Developer will attempt to consult with the Polokwane Local Municipality in order to confirm the supply of services (in terms of water usage, sewage removal, solid waste removal, and electricity requirements) for the proposed projects. The Project Developer will continue to seek feedback from the municipality during the relevant phases of the project. The municipality will also be consulted during the 30-day public review period on the Draft BA Report in order to seek comments on the proposed projects.

Should the local municipality not have adequate capacity available for the handling of waste, provision of water and sewage handling provisions; then the Project Applicant will make use of private contractors to ensure that these services are provided. An outline of the services that will be required are discussed below.

2.7.1 Water Usage

The proposed project will require water during the construction, operational and decommissioning phases. The estimated volumes of water required and intended use are described in Table 2.6.

Table 2.6: Estimated volumes of water required and intended use.

Project	Construction Phase	Operational Phase	Decommissioning Phase
Project 1 – Veroniva BESS associated infrastructure	**Volume**: Approximately 350 m^3 to 450 m^3 per year **Intended Use**: Human consumption and construction activities.	**Volume**: Approximately 200 m^3 to 300 m^3 per year **Intended Use**: Human consumption and other activities.	**Volume**: Approximately 350 m^3 to 450 m^3 per year **Intended Use**: Human consumption and decommissioning activities.

Water will be stored in storage tanks on site in the vicinity of the O&M area. It is anticipated that there will be 20 x 10 000 litre tanks on site to store the water during this phase.

Water required for human consumption and other construction, operational and decommissioning phase activities should be potable water from a reputable source and should conform to South African National Standards (SANS) quality standards. If potable water is not available from an existing municipal infrastructure system, it will therefore need to be sourced and imported and safely stored on site.

The EMPrs include recommendations for water conservation techniques during the construction, operational and decommissioning phases. The staff would also be encouraged to use water sparingly during all phases.

Water required for the construction, operational and decommissioning phases will either be sourced from the following sources (in order of priority and likelihood):

- **Existing boreholes on site to source groundwater**. A Geohydrology Assessment was commissioned as part of this BA Process. The Geohydrology Assessment explained that from a desktop perspective, groundwater is physically available, but is suitable for use only with treatment, as regional data indicates high alkalinity, significant hardness and potential microbial contamination that may not meet potable standards or SANS 51008 requirements for concrete mixing. Based on this data the water may be suitable for construction; however, this must be confirmed through site-specific water quality testing. Additional detail is provided in the Geohydrology Assessment (Appendix E.10 of this BA Report). Groundwater will be transported by trucks from the boreholes to the site.

- **The Polokwane Local Municipality**. Specific arrangements will be agreed with the local municipality in a Service Level Agreement (SLA). The water will be trucked to site, and such impacts have been considered in the Traffic Impact Assessment (Appendix E.9 of this BA Report).

Both the above water sources have been considered in this BA Process. However, these are not alternatives, as both water sources need to be available should one not realise post-EA (should

such authorisation be granted). Therefore, both the water sources are recommended for inclusion in the EA (should such authorisation be granted).

2.7.2 Sewage or Liquid Effluent

The proposed project will require sewage services during the construction and operational phases. Low volumes of sewage or liquid effluent are estimated to be generated, as described in Table 2.7. Volumes for the decommissioning phase cannot be defined at this stage.

Table 2.7: Estimated Volumes of Sewage / Liquid Effluent Generation.

Project	Construction Phase	Operational Phase
Project 1 – Veroniva BESS and associated infrastructure	Approximately 55 m^3 to 65 m^3 per month	Approximately 3 m^3 to 5 m^3 per month

Liquid effluent will be limited to the ablution facilities during the construction and operational phases. Portable sanitation facilities (i.e. chemical toilets) will be used during the construction phase. These will be regularly serviced and emptied by a suitable and registered (private) contractor on a regular basis.

Permanent ablution facilities may be installed during the operational phase for Project 1 (Veroniva BESS). The effluent will be stored on site in watertight concrete structures (conservancy tanks) and thereafter transported to and disposed of at the Local Municipal sewerage treatment works or similar facility by a registered service provider. Due to the remote locality of the project site, sewage cannot be disposed in the municipal waterborne sewage system.

2.7.3 Solid Waste Generation

The quantity of waste generated will depend on the length of the construction phase. Low volumes of solid waste are estimated to be generated during the construction and operational phase, as described in Table 2.8. Volumes for the decommissioning phase cannot be defined at this stage.

Table 2.8: Estimated Volumes of Solid Waste Generation.

Project	Construction Phase	Operational Phase
Project 1 – Veroniva BESS and associated infrastructure	Approximately 6 m^3 to 10 m^3 per month	Approximately 2.5 m^3 to 5 m^3 per month

The following waste materials are expected during the construction phase:

- Packaging material, such as the cardboard, plastic and wooden packaging and off-cuts;
- Hazardous waste from empty tins, oils, soil containing oil and diesel (in the event of spills), and chemicals;
- Building rubble, discarded bricks, wood and concrete;
- Domestic waste generated by personnel; and
- Vegetation waste generated from the clearing of vegetation.

Solid waste will be managed via the EMPr during all project phases. The EMPrs (Appendix H and Appendix I of this BA Report), incorporate waste management principles. During the construction phase, general solid waste will be collected and temporarily stockpiled in skips in a designated area on site and thereafter removed, emptied into trucks, and disposed at a registered waste disposal facility on a regular or monthly basis by an approved waste disposal Contractor (i.e. a suitable Contractor) or the municipality.

Any hazardous waste (such as contaminated soil as a result of spillages) will be temporarily stockpiled in a designated area on site (i.e. placed in leak-proof storage skips), and thereafter removed off site by a suitable service provider for safe disposal at a registered hazardous waste disposal facility.

Waste disposal slips and waybills will be obtained for the collection and disposal of the general and hazardous waste. These disposal slips (i.e. safe disposal certificates) will be kept on file for auditing purposes as proof of disposal. The waste disposal facility selected will be suitable and able to receive the specified waste stream (i.e. hazardous waste will only be disposed of at a registered/licenced waste disposal facility). The details of the disposal facility will be finalised during the contracting process, prior to the commencement of construction. Where possible, recycling and re-use of material will be encouraged. Waste management is further discussed in the EMPrs (included in Appendix H and Appendix I of this BA Report).

During the operational phase after construction, minor amounts of general waste (as a result of the offices or maintenance) will be generated.

2.7.4 Electricity Requirements

In terms of electricity supply, the developer will make use of generators on site during the construction, operational and decommissioning phases. The operational electrical requirements would be nominal.

2.8 Socio-Economic

It should be noted that the employment opportunity specifications provided in this report are estimates and is dependent on the final engineering design and the BESIPPPP Request for Proposal provisions, or similar programme requirements, at that point in time.

It is difficult to specify the actual number of employment opportunities that will be created at this stage; however, estimates are indicated in Table 2.9.

Table 2.9: Total Estimated Employment Opportunities.

Project	Construction Phase	Operational Phase
Project 1 – Veroniva BESS and associated infrastructure	▪ **Skilled**: Between 15 ▪ **Unskilled**: 35 The above is for the entire 12 - 24 month construction phase.	▪ **Skilled**: Between 1 and 35 ▪ **Unskilled**: Between 2 and 4 The unskilled jobs will be linked to services such as maintenance and security. The above is for the lifespan of the proposed BESS Facility.

During the construction phase, employees will most likely be housed in local nearby towns and villages. Typically, the EPC contractor will be responsible for the provision of transport of construction personnel to and from the site.

2.8.1 Socio-Economic Investment and Development

The Applicant will ultimately own the project, if successful, and will compile an Economic Development Plan which will be compliant with the BESIPPPP requirements (or similar process) and will *inter alia* set out to achieve the following:

- Create a local community trust or similar (as required by BESIPPPP) which has an equity share in the project life to benefit historically disadvantaged communities;
- Initiate a skills development and training strategy to facilitate future employment from the local community;
- Give preference to local suppliers for the construction of the proposed projects; and
- Support local community upliftment projects and entrepreneurship through socio-economic and enterprise development initiatives.

2.9 Overview of the Project Development Cycle

This section provides an outline of the main activities that are proposed during each phase of the proposed project. The project can be divided into the following main phases:

- Detailed Planning and Design Phase;
- Construction Phase;
- Operational Phase; and
- Decommissioning Phase.

Each activity undertaken as part of the above phases may have environmental impacts and, where applicable, has been assessed in the relevant specialist studies as part of the BA Phase. The specialist studies are included in Appendix E of this BA Report.

2.9.1 Planning and Design Phase

The project layout, including the exact placement of building infrastructure was finalised in the BA Phase. The project layout was informed by the findings of the specialist assessments. The specialists have commented on the final project layout, and confirmed that the layout is acceptable, there are no fatal flaws and that all no-go areas have been avoided by the main infrastructure, and that linear infrastructure such as access roads and power lines are permitted to traverse high sensitivity areas (where relevant) as adequate mitigation measures have been recommended. The final layout maps are included in Chapter 13 and Appendix D of this BA Report, as well as the EMPrs.

2.9.2 Construction Phase

The construction phase will take place subsequent to the issuing of the EA (should such authorisation be granted) and if a successful bid in terms of the BESIPPPP or a similar tender process is issued, and once a power purchase agreement (PPA) is signed.

The duration of the construction phase is described below:

- **Project 1 (Veroniva BESS)**: 12 to 24 months.

The main activities that will form part of the construction phase are:

- Removal of vegetation, where necessary, within the approved development footprint to facilitate the construction and/or establishment of infrastructure;
- Excavations for infrastructure and associated infrastructure;
- Establishment of a laydown area for equipment;
- Stockpiling of topsoil and cleared vegetation, where necessary;
- Creation of employment opportunities;
- Transportation of material and equipment to site, and personnel to and from the site; and
- Construction of the infrastructure, structures and buildings.

All efforts will be made to ensure that construction work will be undertaken in compliance with local, provincial and national legislation, local and international best practice, as well as the EMPr that

has been compiled and included in Appendix H and Appendix I of this BA Report. An independent Environmental Control Officer (ECO) will be appointed during the construction phase and will monitor compliance with the recommendations and conditions of the EMPr and EA, respectively.

2.9.3 Operational Phase

The following activities will occur during the operational phase:

- **Project 1 (Veroniva BESS)**:
  - The storage and dispatching of energy; and
  - Maintenance of the BESS and associated infrastructure.

During the life span of the proposed project, on-going maintenance will be required on a scheduled basis to ensure the continued optimal functioning of the infrastructure. In general, maintenance on the structures will involve visual inspection, and only equipment that fails will be replaced in a manner similar to that of construction activities. The EMPr includes the requirement for method statements to be compiled prior to the operational phase to describe the manner in which maintenance will be undertaken to ensure environmental impacts are minimised.

2.9.4 Decommissioning Phase

At the end of the operational phase, the proposed project may be decommissioned or may be redesigned and refitted so as to operate for a longer period. The main aim of decommissioning is to return the land to its original, pre-construction condition. Should the unlikely need for decommissioning arise i.e. if the proposed infrastructure becomes outdated or the land needs to be used for other purposes, the decommissioning procedures will be undertaken in line with an approved EMPr and relevant legislation at the time, and the site will be rehabilitated and returned to its pre-construction state.

2.10 Schematic Overview of the Proposed Development

Figure 2.12 provides a **schematic** overview (not to scale) of the proposed Veroniva BESS and EGI development (Projects 1 and 2).

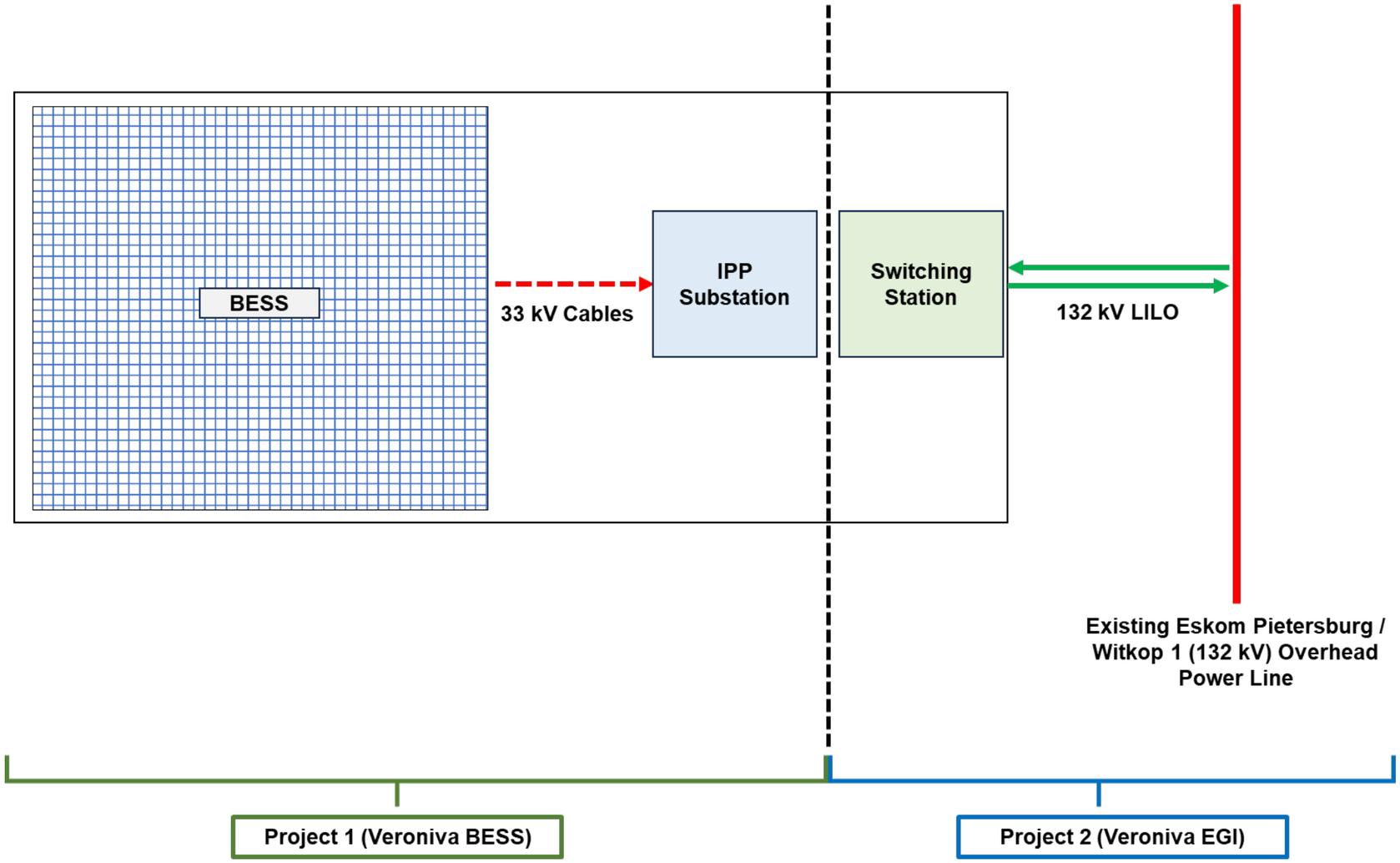


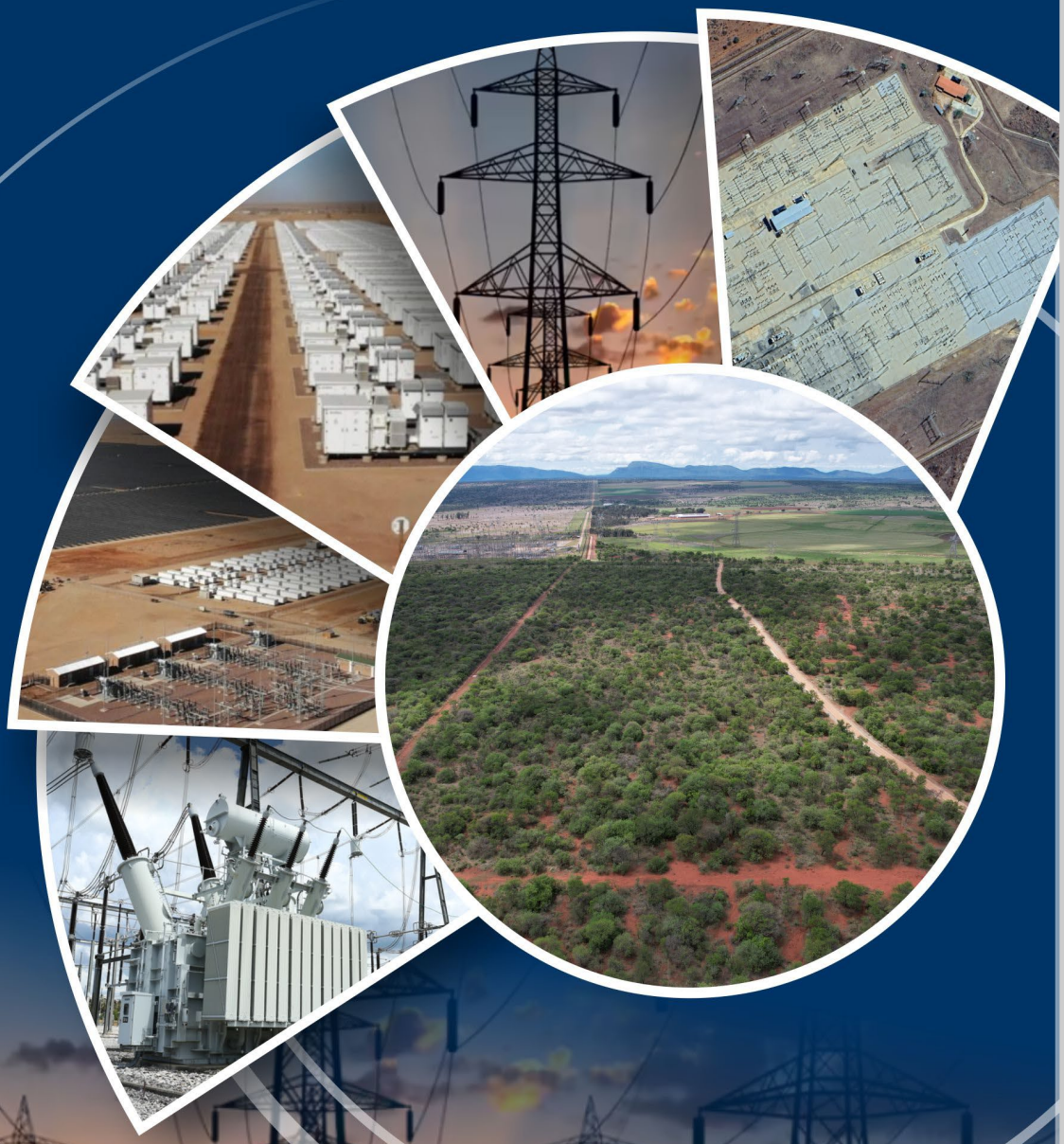
Figure 2.12: Schematic Overview (not to scale) of the Veroniva BESS and EGI development.

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 3:

Project Description for the EGI Project



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3. PROJECT DESCRIPTION

This Chapter provides an overview of the conceptual project design and technology for one of the proposed projects that are addressed in this report, specifically:

- **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

The purpose of this Chapter is to present sufficient project information on the proposed project to inform the Basic Assessment (BA) Process in terms of design parameters applicable to the project.

Note: The information throughout this Chapter applies to Project 2 (Veroniva EGI) only.

3.1 Definition of Project Study Area

The study area or preferred site for the proposed BESS, Electricity Grid Infrastructure (EGI), 132 kV LILO power line, and associated infrastructure (i.e. Projects 1 and 2) covers approximately 65 hectares (ha). The 65 ha study area includes an approximately 18 ha EGI assessment corridor. Overall, the study area for Projects 1 and 2 covers 65 ha, as well as external access roads leading to the site that may need to be widened / upgraded (Figure 3.1). The study area has been assessed by the specialists in order to identify environmental sensitivities and no-go areas. The preferred site serves as the study area for this BA Process. Therefore, the terms “site” and “study area” are used synonymously in this BA Report. Table 3.1 indicates the farm properties that intersect with the 65 ha study area (excluding the access roads).

Table 3.1: Farm Properties that intersect with the 65 ha Study Area.

FARM PORTION	SG CODE
Portion 5 of Farm Snymansdrift 738 LS	T0LS00000000073800005
Remaining Extent of Portion 2 of Farm Zandrivier 742 LS	T0LS00000000074200002
Portion 47 of Farm Wildebeestfontein 20 KS	T0KS00000000002000047
Remaining Extent (Portion 0) of Farm Wildebeestfontein 20 KS	T0KS00000000002000000

Note from the CSIR: The above farm properties intersect with the 65 ha study area. The actual development footprint, where the proposed infrastructure will be developed, does not occur on the Remaining Extent (Portion 0) of Farm Wildebeestfontein 20 KS. The affected properties for the proposed project is discussed are Section 3.3 of this Chapter.

At the commencement of this BA Process, the study area was plotted on the National Department of Forestry, Fisheries and the Environment (DFFE) Web-Based Environmental Screening Tool (Screening Tool) to identify high-level environmental sensitivities. The specialists considered these sensitivities and undertook Site Sensitivity Verifications (SSVs) within the study area, where required, in order to confirm or dispute the sensitivities identified by the Screening Tool (where relevant). The specialists then formulated environmental feature and sensitivity maps for the study

area. Thereafter, the Project Developer took such sensitivities, and other considerations, into account and formulated the **Buildable Areas**, which avoid the no-go areas identified by the specialists. The Buildable Areas were used to identify the preferred development footprint for the BESS and EGI, and to inform the design of the project layouts. A 15 ha preferred development footprint has been identified for the Veroniva BESS (Project 1), followed by a preferred power line servitude of 40 m wide (i.e. approximately 20 m on either side of the power line) for the Veroniva EGI (Project 2), which is further discussed in Chapter 10 of this BA Report. The external access roads leading to the site (i.e. Option A and Option B) may require widening or upgrading and also forms part of the development footprint for the BESS (Project 1), which is discussed in Chapter 2 of this BA Report. The layout maps presented in this BA are final and deemed acceptable by the specialists.

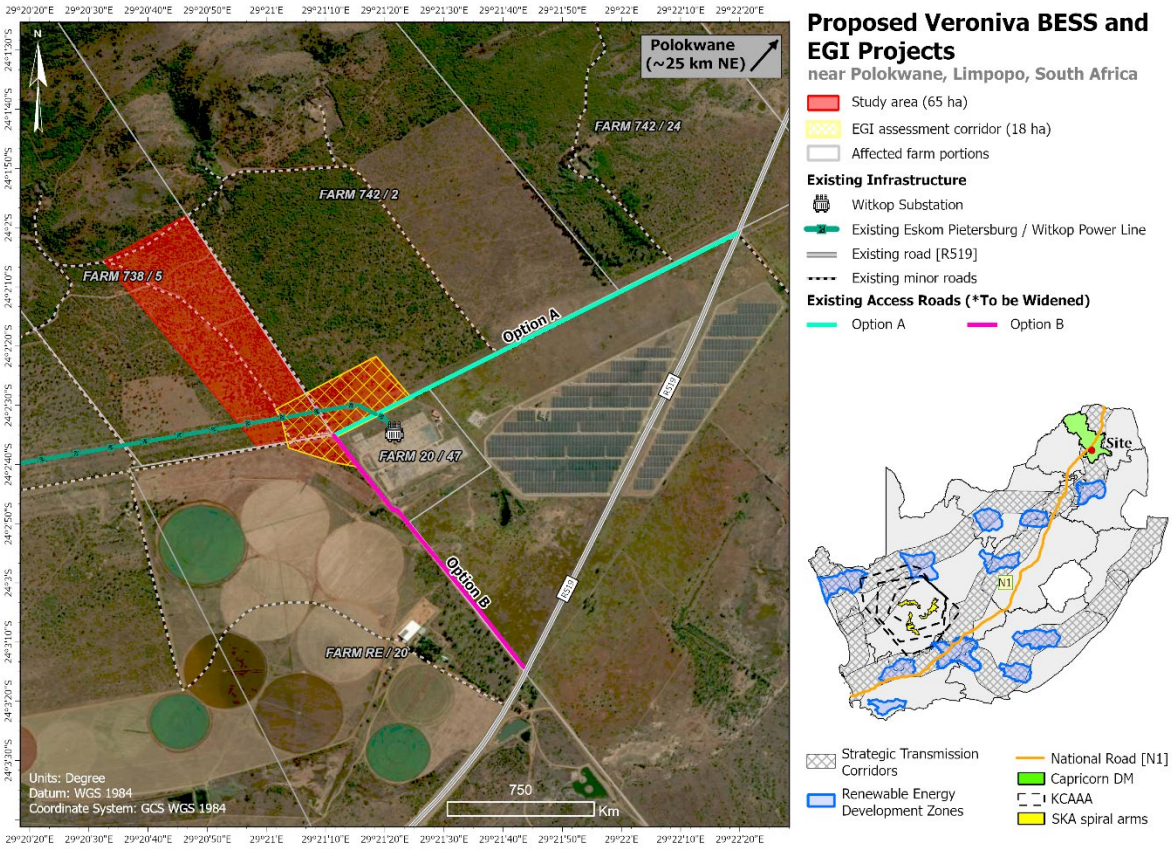


Figure 3.1: Study Area for the proposed Veroniva BESS (Project 1) and Veroniva EGI (Project 2).

3.2 Project Locality

Appendix 1 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended) states that a BA Report must provide the location of the activity, including the 21-digit Surveyor General code of each cadastral land parcel; where available, the physical address and farm name; or the coordinates of the boundary of the property or properties if the aforementioned is not available. Appendix 1 of the 2014 NEMA EIA Regulations (as amended) also states that a BA Report must

include a plan which locates the proposed activity or activities, and associated infrastructure, applied for at an appropriate scale or, if it is a linear activity, then a description and coordinates of the corridor in which the proposed activity or activities is to be undertaken.

In line with the above, refer to Chapter 1 of this BA Report for a locality map of the proposed projects and associated infrastructure. Refer to Appendix D of this BA Report for additional maps, including final layout maps, feature maps for the study area, sensitivity maps for the study area and projects, final combined layout and feature maps, and final combined layout and sensitivity maps. These maps are also included in Chapter 4 and Chapter 13 of this BA Report, as well as the Environmental Management Programmes (EMPrs), where relevant.

The proposed project and associated infrastructure will occur on the farm portions listed in Table 3.2 below, which also specifies the corresponding 21-digit Surveyor General code for each affected farm portion.

The property boundaries were obtained from the following dataset: Chief Surveyor-General National Cadastral Data (March 2026). The property boundaries from the cadastral data were found to be slightly misaligned with satellite imagery for the study area. For purposes of this BA Report, the property fencelines, as groundtruthed and/or confirmed with relevant property landowners (where possible), were used to determine affected and adjacent properties.

3.2.1 Project 2 – Veroniva EGI and associated infrastructure

Table 3.2 details the affected farm portions for Project 2 (Veroniva EGI and associated infrastructure).

Table 3.2: Affected Farm Properties for Project 2 (Veroniva EGI and associated infrastructure).

Farm Portion	21-digit Surveyor General code
132 kV Overhead LILO Power Line, EGI Servitude Corridor and Service Road below the LILO	
Portion 5 of Farm Snymansdrift 738 LS	T0LS00000000073800005
Eskom's Section of the On-Site Substation (Switching Station) and Access Road to the Switching Station	
Portion 5 of Farm Snymansdrift 738 LS	T0LS00000000073800005
Upgrade of the Eskom Pietersburg / Witkop 1 Power Line and EGI Servitude Corridor	
Portion 5 of Farm Snymansdrift 738 LS	T0LS00000000073800005
Remaining Extent of Portion 2 of Farm Zandrivier 742 LS	T0LS00000000074200002
Portion 47 of Farm Wildebeestfontein 20 KS	T0KS00000000002000047

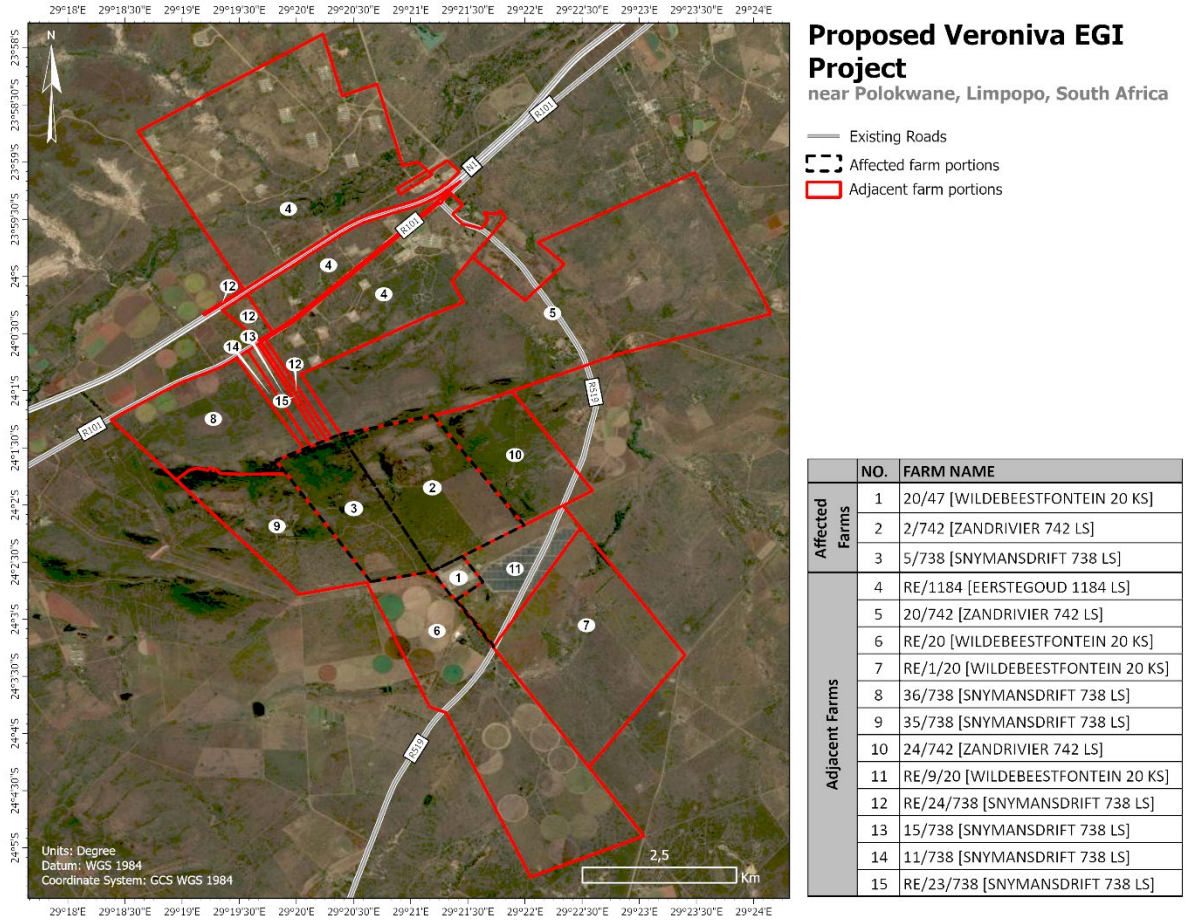
Existing Eskom servitudes on the Remaining Extent of Portion 2 of Farm Zandrivier 742 LS, and Portion 47 of Farm Wildebeestfontein 20 KS will be used by the Project Applicant, and no new land rights or servitudes will be required on these properties.

The Dream Hills Estate / Private Game Farm occurs on Portions 5 and 35 of Farm Snymansdrift 738 LS. Portions 5 and 35 of Farm Snymansdrift 738 LS have the same landowner. There is also an amendment application to an existing prospecting right on Portion 5 of Farm Snymansdrift 738 LS, and surrounding portions. The Project Applicant and the Prospecting Rights Holder have a co-existence agreement noting that no prospecting will occur within the BESS and EGI area.

Overall, the landowner of Portion 5 of Farm Snymansdrift 738 LS has consented to the proposed development and has informed the Applicant of the areas that need to be avoided by the proposed BESS and EGI projects. These landowner exclusion zones were acknowledged and implemented during the site selection process.

3.3 Affected and Adjacent Farm Portions

Figure 3.2 provides an indication of the affected farm portions and the adjacent farm portions for the proposed project.



	NO.	FARM NAME
Affected Farms	1	20/47 [WILDEBEESTFONTEIN 20 KS]
	2	2/742 [ZANDRIVIER 742 LS]
	3	5/738 [SNYMANSDRIFT 738 LS]
Adjacent Farms	4	RE/1184 [EERSTEGOUD 1184 LS]
	5	20/742 [ZANDRIVIER 742 LS]
	6	RE/20 [WILDEBEESTFONTEIN 20 KS]
	7	RE/1/20 [WILDEBEESTFONTEIN 20 KS]
	8	36/738 [SNYMANSDRIFT 738 LS]
	9	35/738 [SNYMANSDRIFT 738 LS]
	10	24/742 [ZANDRIVIER 742 LS]
	11	RE/9/20 [WILDEBEESTFONTEIN 20 KS]
	12	RE/24/738 [SNYMANSDRIFT 738 LS]
	13	15/738 [SNYMANSDRIFT 738 LS]
	14	11/738 [SNYMANSDRIFT 738 LS]
	15	RE/23/738 [SNYMANSDRIFT 738 LS]

Figure 3.2: Affected and Adjacent Farm Portions for the proposed Veroniva EGI (Project 2).

3.4 Project Co-ordinates

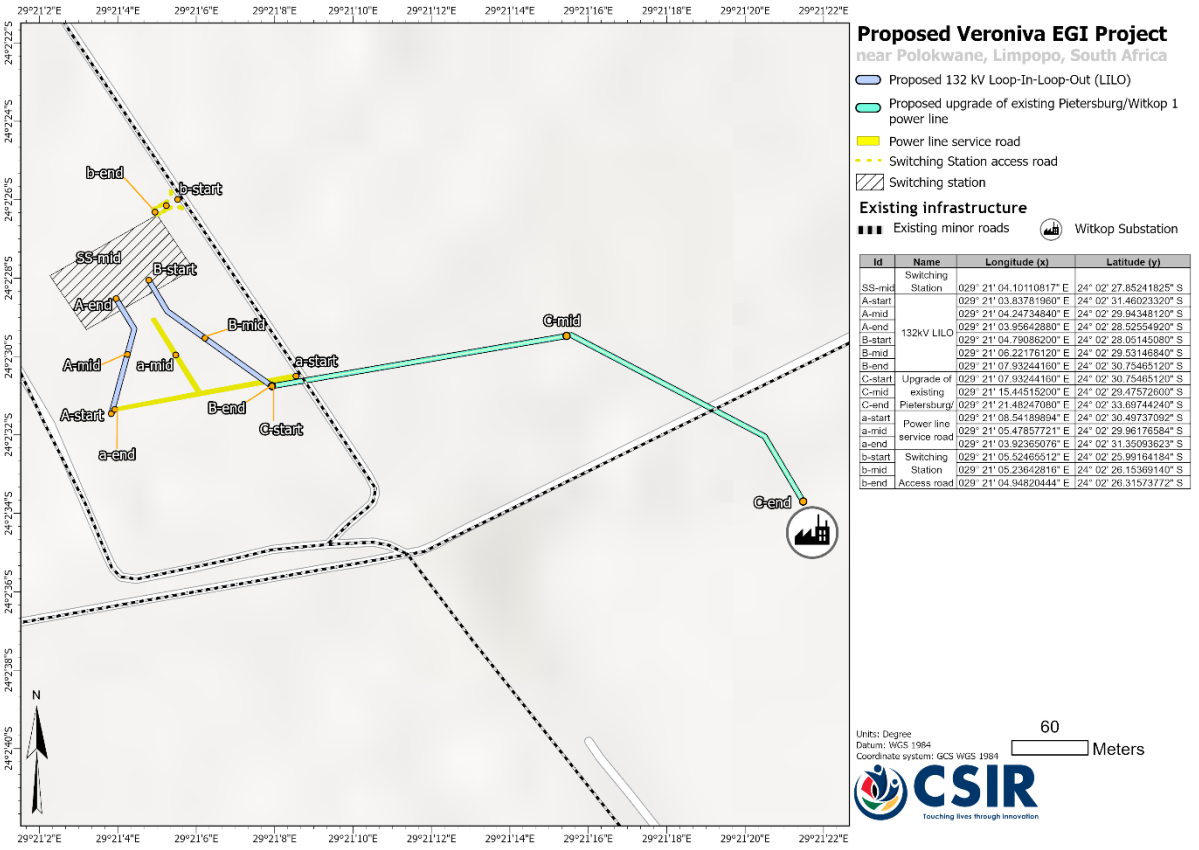
The co-ordinates of the estimated mid-points or corner points, and start-middle-end points of the proposed project infrastructure are detailed in this section. These co-ordinates have also been included in Appendix D of this BA Report.

3.4.1 Project 2 – Veroniva EGI and associated infrastructure

Table 3.3 and Figure 3.3 details the co-ordinates of key infrastructure for Project 2 (Veroniva EGI and associated infrastructure).

Table 3.3: Co-ordinates for Project 2 (Veroniva EGI and associated infrastructure).

Co-ordinate Point	Decimal Degrees		Degrees, Minutes, Seconds	
	Latitude (Y)	Longitude (X)	Latitude (S)	Longitude (E)
132 kV Overhead LILO Power Line				
Start-Point (A)	-24.04207229	29.35106606	24° 02' 31.46023320" S	029° 21' 03.83781960" E
Mid-Point (A)	-24.04165097	29.35117982	24° 02' 29.94348120" S	029° 21' 04.24734840" E
End-Point (A)	-24.0412571	29.35109901	24° 02' 28.52554920" S	029° 21' 03.95642880" E
Start-Point (B)	-24.0411254	29.3513308	24° 02' 28.05145080" S	029° 21' 04.79086200" E
Mid-Point (B)	-24.04153652	29.35172827	24° 02' 29.53146840" S	029° 21' 06.22176120" E
End-Point (B)	-24.04187629	29.35220346	24° 02' 30.75465120" S	029° 21' 07.93244160" E
Service Road below the 132 kV Overhead LILO Power Line				
Start-Point	-24.04180483	29.35237275	24° 02' 30.49737092" S	029° 21' 08.54189894" E
Mid-Point	-24.04165605	29.35152183	24° 02' 29.96176584" S	029° 21' 05.47857721" E
End-Point	-24.04204193	29.3510899	24° 02' 31.35093623" S	029° 21' 03.92365076" E
Eskom's Section of the On-Site Substation (Switching Station)				
Mid-Point	-24.04107	29.351139	24° 02' 27.85241825" S	029° 21' 04.10110817" E
Switching Station Access Road				
Start-Point	-24.04055323	29.35153463	24° 02' 25.99164184" S	029° 21' 05.52465512" E
Mid-Point	-24.04059825	29.35145456	24° 02' 26.15369140" S	029° 21' 05.23642816" E
End-Point	-24.04064326	29.3513745	24° 02' 26.31573772" S	029° 21' 04.94820444" E
Upgrade of the Eskom Pietersburg / Witkop 1 Power Line				
Start-Point	-24.04187629	29.35220346	24° 02' 30.75465120" S	029° 21' 07.93244160" E
Mid-Point	-24.04152103	29.35429032	24° 02' 29.47572600" S	029° 21' 15.44515200" E
End-Point	-24.04269373	29.35596735	24° 02' 33.69744240" S	029° 21' 21.48247080" E



Id	Name	Longitude (x)	Latitude (y)
SS-mid	Switching Station	029° 21' 04.10110817" E	24° 02' 27.85241825" S
A-start	132kV LILO	029° 21' 03.83781960" E	24° 02' 31.46023320" S
A-mid		029° 21' 04.24734840" E	24° 02' 29.94348120" S
A-end		029° 21' 03.95642880" E	24° 02' 28.52554920" S
B-start		029° 21' 04.79086200" E	24° 02' 28.05145080" S
B-mid		029° 21' 06.22176120" E	24° 02' 29.53146840" S
B-end		029° 21' 07.93244160" E	24° 02' 30.75465120" S
C-start	Upgrade of existing Pietersburg/ Witkop 1 power line service road	029° 21' 07.93244160" E	24° 02' 30.75465120" S
C-mid		029° 21' 15.44515200" E	24° 02' 29.47572600" S
C-end		029° 21' 21.48247080" E	24° 02' 33.69744240" S
a-start		029° 21' 08.54189894" E	24° 02' 30.49737092" S
a-mid		029° 21' 05.47857721" E	24° 02' 29.96176584" S
a-end		029° 21' 03.92365076" E	24° 02' 31.35093623" S
b-start	Switching Station Access road	029° 21' 05.52465512" E	24° 02' 25.99164184" S
b-mid		029° 21' 05.23642816" E	24° 02' 26.15369140" S
b-end		029° 21' 04.94820444" E	24° 02' 26.31573772" S

Figure 3.3: Coordinate Points for the proposed Veroniva EGI (Project 2).

3.5 Key components of Project 2 (Veroniva EGI and associated infrastructure)

The proposed project will consist of the key components listed below in Table 3.4. A summary of the key components of the proposed Veroniva EGI and associated infrastructure (Project 2) and technical information is described in this section.

Table 3.4: Description of the components of Veroniva EGI and Associated Infrastructure (Project 2).

Component	Description
On-site Substation - Switching Station Section	▪ The section includes all the high voltage infrastructure extending from the Point of Connection (i.e. Eskom's section of the proposed on-site substation, which is also referred to as the **Switching Station**). This will include the section that will be transferred from the Independent Power Producer (IPP) to Eskom after construction. ▪ Footprint: Approximately 0.5 ha ▪ Height: Up to 15 m ▪ Capacity: 132 kV
132 kV Overhead Loop-In-Loop-Out (LILO) Power Line on Portion 5 of Farm Snymansdrift 738 LS	▪ The LILO power line will be routed from the switching station to the Eskom Pietersburg / Witkop 1 Power Line. ▪ Capacity: 132 kV ▪ Height: Up to 37 m ▪ Length: Up to 1 km ▪ Servitude: 40 m wide ▪ Pylon specifications: o Type: Lattice structures and/or monopoles. o Tower: Self-supporting and Angle Strain. o Foundation: ▪ Lattice: The size of the footprint area for the base of the tower foundation will be approximately 49 m^2 (7 m by 7 m). The working

Component	Description
	area required around a structure position is 225 m^2. ▪ Monopole: The size of the footprint area for the base of the tower foundation will range from 0.36 m^2 to 2.25 m^2. The minimum working area required around a structure position is 20 m x 20 m. o Span Length: 200 m – 300 m
Upgrade of the Eskom Pietersburg / Witkop 1 Power Line (on Portion 5 of Farm Snymansdrift 738 LS, Remaining Extent of Portion 2 of Farm Zandrivier 742 LS, and Portion 47 of Farm Wildebeestfontein 20 KS)	▪ In order to accommodate the BESS, the existing Eskom Pietersburg / Witkop 1 Power Line, from the LILO to the Eskom Witkop Main Transmission Substation, needs to be upgraded. ▪ The upgrading will entail developing of new pylons and/or replacing existing pylons. Where there are existing pylon structures, it is proposed to excavate next to the existing pylon structures and cast new foundations for new pylons adjacent to the existing pylons. ▪ The upgrading will occur within the existing power line servitude. ▪ Pylon specifications: o Type: Lattice structures and/or monopoles. o Tower: Self-supporting and Angle Strain. o Foundation: ▪ Lattice: The size of the footprint area for the base of the tower foundation will be approximately 49 m^2 (7 m by 7 m). The working area required around a structure position is 225 m^2. ▪ Monopole: The size of the footprint area for the base of the tower foundation will range from 0.36 m^2 to 2.25 m^2. The minimum working area required around a structure position is 20 m x 20 m. o Span Length: 200 m – 300 m

Component	Description
Work at the Eskom Witkop Main Transmission Substation	▪ Where needed, associated electrical infrastructure will be installed or upgraded at the Eskom Witkop Main Transmission Substation (including but not limited to feeders, busbars, and platform extension).
Service Road	▪ Details: A new gravel service road will need to be established below the LILO on Portion 5 of Farm Snymansdrift 738 LS. ▪ Width: Up to 4 m ▪ Note: Existing service roads (on Remaining Extent of Portion 2 of Farm Zandrivier 742 LS) will be used for the section of the line from the LILO to the Eskom Witkop Main Transmission Substation.
External Access Roads	▪ The EGI project will be developed after the BESS project has commenced (should relevant approval be granted), and as such will make use of the main access roads developed for the BESS project. ▪ However, a new section of road leading from the main BESS access road to the Switching Station will be developed. This will be 4 - 8 m wide, however, the bell mouth at the intersection with the main BESS access road will extend up to approximately 19 m wide to accommodate turning vehicles.
Storm water channels	▪ Details to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed storm water management plan would need to be developed.
Laydown Area	▪ The EGI project will be developed after the BESS project has commenced (should relevant approval be granted), and as such will make use of the laydown area developed for the BESS project.
Water Requirements	▪ Approximately 100 m^3 of water is estimated to be required per year for the construction phase. ▪ Water requirements during the decommissioning phase are expected to be the same as the construction phase. ▪ Potential sources: Existing boreholes on site or from the Local Municipality via trucks.
Construction Period	▪ 6 - 24 months

A final site layout map is included in Chapter 13 and Appendix D of this BA Report, as well as the EMPrs.

A description of the key components of the proposed project is described below.

3.5.1 Switching Station

The proposed project will include an on-site substation, which will include two sections, namely: the BESS Independent Power Producer (IPP) Substation (described in Chapter 2 of this BA Report as part of Project 1 (Veroniva BESS)); and the **Switching Station**, which forms part of **Project 2 (Veroniva BESS and associated infrastructure) [discussed in this Chapter]**. The Switching Station includes all the high voltage infrastructure extending from the Point of Connection (i.e. Eskom's section of the proposed on-site substation). This section will be transferred from the IPP to Eskom at the Commercial Operational Date (COD). At this point, the Environmental Authorisation (EA) (should it be granted), will be officially transferred to Eskom via a Part 1 EA Amendment Process.

There will be a metering point between the above two sections to indicate the ownership level and contractual boundaries between the IPP and Eskom.

The Switching Station, or Eskom's section of the proposed on-site substation, will include various connecting bays and yards. At a minimum, it will include a dedicated bay for the connection of the BESS Facility.

The Switching Station will extend up to 15 m in height, with a footprint of approximately 0.5 ha, and a capacity stepping up from 33 kV to 132 kV. There is also the requirement for the installation of a lightning mast within the substation yard, which will not be higher than 21 m.

3.5.2 132 kV Overhead LILO

A dedicated overhead 132 kV LILO power line will be constructed to connect the proposed BESS Facility to the existing Eskom Pietersburg / Witkop 1 Power Line.

The overhead 132 kV LILO power line will connect the switching station to the above-mentioned Eskom line. The power line will extend up to approximately 37 m in height, and up to 1 km in length. The servitude for the 132 kV LILO power line will be approximately 40 m wide (i.e. approximately 20 m on either side of the power line). The entire servitude will not be cleared of vegetation. Vegetation clearance within the servitude will be undertaken in compliance with relevant standards and specifications.

The line will consist of either lattice structures or monopoles, with self-supporting and angle strain towers. The span lengths are estimated to range between 200 m and 300 m. For lattice structures, the size of the footprint area for the base of the tower foundation will be approximately 49 m^2 (7 m by 7 m), and the working area required around a structure position is 225 m^2. For monopoles, the size of the footprint area for the base of the tower foundation will range from 0.36 m^2 to 2.25 m^2; and the minimum working area required around a structure position is 20 m x 20 m. Exact specifications will be confirmed during the detailed design phase.

Underground power lines are not feasible because of technical losses and high costs. Maintenance is also easier on aboveground power lines in comparison to underground cables, the latter of which would result in more disruption.

As indicated above, an 18 ha EGI assessment corridor was considered in the BA Process. The assessment corridor is a minimum of 250 m wide, and it led to the identification of the EGI servitude corridor within. These have been displayed on the maps, where relevant, in Appendix D of this BA Report.

3.5.3 Upgrade of the Existing Eskom Power Line

In order to accommodate the BESS, a section of the existing Eskom Pietersburg / Witkop 1 Power Line, extending from the proposed LILO to the Eskom Witkop Main Transmission Substation (MTS), may require upgrading. The upgrading will entail developing of new pylons and/or replacing existing pylons. Where there are existing pylon structures, it is proposed to excavate next to the existing pylon structures and cast new foundations for new pylons adjacent to the existing pylons.

The proposed upgrading will occur within the existing power line servitude, which is currently maintained by Eskom.

The proposed upgraded section of the power line will consist of either lattice structures or monopoles, with self-supporting and angle strain towers. The span lengths are estimated to range between 200 m and 300 m. For lattice structures, the size of the footprint area for the base of the tower foundation will be approximately 49 m^2 (7 m by 7 m), and the working area required around a structure position is 225 m^2. For monopoles, the size of the footprint area for the base of the tower foundation will range from 0.36 m^2 to 2.25 m^2; and the minimum working area required around a structure position is 20 m x 20 m. Exact specifications will be confirmed during the detailed design phase based on requirements and input from Eskom.

3.5.4 Infrastructure at the Eskom Witkop MTS

Where needed, associated electrical infrastructure will be installed or upgraded at the Eskom Witkop MTS. This includes, but is not limited to, feeders, busbars, and platform extensions. Exact specifications will be confirmed during the detailed design phase based on requirements and input from Eskom. All proposed work at the Eskom Witkop MTS will occur within the footprint or operational area of the MTS on Portion 47 of Farm Wildebeestfontein 20 KS.

3.5.5 Access Road to the Switching Station

The EGI project will be developed after the BESS project has commenced (should relevant approval be granted), and as such will make use of the main access road developed for the BESS project. However, a dedicated new section of road leading from the main BESS access road to the Switching Station will be developed. This will be 4 - 8 m wide, however, the bell mouth at the intersection with the main BESS access road will extend up to approximately 19 m wide to accommodate turning vehicles.

3.5.6 Service Road

A service road will also be constructed below the proposed LILO for maintenance purposes, specifically on Portion 5 of Farm Snymansdrift 738 LS. The service road is expected to be composed of gravel and will extend up to 4 m wide.

Existing service roads, specifically on Remaining Extent of Portion 2 of Farm Zandrivier 742 LS, will be used for maintenance of the section of the proposed upgraded line from the LILO to the Eskom Witkop MTS.

3.5.7 Storm water

Storm water infrastructure, such as channels and culverts, will be constructed on site to ensure that storm water run-off from the site is appropriately managed. Such infrastructure falls below the threshold of the relevant listed activity in terms of the 2014 NEMA EIA Regulations (as amended) for the proposed project.

Water from these channels is unlikely to contain any chemicals or hazardous substances and will be released into the surrounding environment based on the natural drainage contours.

Details of storm water management are to be confirmed once the Engineering, Procurement and Construction (EPC) contractor has been selected and the design is finalised. Where necessary, a detailed Storm Water Management Plan would need to be developed during the detailed design phase (post EA, should such authorisation be granted) and to be implemented during all phases of the project. Recommendations for the management of storm water have been discussed in the EMPrs for the proposed project, as relevant (included in Appendix J and Appendix K of this BA Report).

3.6 External Access Roads

A Traffic Impact Assessment was completed in the BA Phase for the proposed BESS project specifically, in order to determine potential traffic and transport related impacts. EGI projects do not require Traffic Impact Assessments according to the Screening Tool, and the expected traffic generation for EGI project is anticipated to be less than the BESS project. However, the findings of the Traffic Impact Assessment have informed the EGI project, where relevant. Furthermore, the EGI project will be developed after the BESS project has commenced (should relevant approval be granted), and as such will make use of access roads developed for the BESS project. Where needed, access and service roads that are relevant to the EGI project have been discussed in this Chapter (i.e. Section 3.5.5 and Section 3.5.6).

3.7 Service Provision

The Project Developer will attempt to consult with the Polokwane Local Municipality in order to confirm the supply of services (in terms of water usage, sewage removal, solid waste removal, and electricity requirements) for the proposed projects. The Project Developer will continue to seek feedback from the municipality during the relevant phases of the project. The municipality will also be consulted during the 30-day public review period on the Draft BA Report in order to seek comments on the proposed projects.

Should the local municipality not have adequate capacity available for the handling of waste, provision of water and sewage handling provisions; then the Project Applicant will make use of private contractors to ensure that these services are provided. An outline of the services that will be required are discussed below.

3.7.1 Water Usage

The proposed project will require water during the construction and decommissioning phases. The estimated volumes of water required and intended use are described in Table 3.5.

Table 3.5: Estimated volumes of water required and intended use.

Project	Construction Phase	Operational Phase	Decommissioning Phase
Project 2 – Veroniva EGI and associated infrastructure	**Volume**: Approximately 100 m^3 per year **Intended Use**: Human consumption and construction activities.	Not applicable	**Volume**: Approximately 100 m^3 per year **Intended Use**: Human consumption and decommissioning activities.

Water will be stored in storage tanks on site in the vicinity of the O&M area. Specific tanks will not be installed for the EGI project, and the tanks for the BESS project will be used to store water collectively.

Water required for human consumption and other construction and decommissioning phase activities should be potable water from a reputable source and should conform to South African National Standards (SANS) quality standards. If potable water is not available from an existing municipal infrastructure system, it will therefore need to be sourced and imported and safely stored on site.

The EMPr includes recommendations for water conservation techniques during the construction, operational and decommissioning phases. The staff would also be encouraged to use water sparingly during all phases.

Water required for the construction, operational and decommissioning phases will either be sourced from the following sources (in order of priority and likelihood):

- **Existing boreholes on site to source groundwater**. A Geohydrology Assessment was commissioned as part of this BA Process for Project 1 (Veroniva BESS). The Geohydrology Assessment explained that from a desktop perspective, groundwater is physically available, but is suitable for use only with treatment, as regional data indicates high alkalinity, significant hardness and potential microbial contamination that may not meet potable standards or SANS 51008 requirements for concrete mixing. Based on this data the water may be suitable for construction; however, this must be confirmed through site-specific water quality testing. Additional detail is provided in the Geohydrology Assessment (Appendix E.10 of this BA Report). Groundwater will be transported by trucks from the boreholes to the site.

- **The Polokwane Local Municipality**. Specific arrangements will be agreed with the local municipality in a Service Level Agreement (SLA). The water will be trucked to site, and such impacts have been considered in the Traffic Impact Assessment (Appendix E.9 of this BA Report).

Both the above water sources have been considered in this BA Process. However, these are not alternatives, as both water sources need to be available should one not realise post-EA (should

such authorisation be granted). Therefore, both the water sources are recommended for inclusion in the EA (should such authorisation be granted).

3.7.2 Sewage or Liquid Effluent

The proposed project will require sewage services during the construction phase. Low volumes of sewage or liquid effluent are estimated to be generated, as described in Table 3.6. Volumes for the decommissioning phase cannot be defined at this stage.

Table 3.6: Estimated Volumes of Sewage / Liquid Effluent Generation.

Project	Construction Phase	Operational Phase
Project 2 – Veroniva EGI and associated infrastructure	Approximately 55 m^3 to 65 m^3 per month	Not applicable

Liquid effluent will be limited to the ablution facilities during the construction phase. Portable sanitation facilities (i.e. chemical toilets) will be used during the construction phase. These will be regularly serviced and emptied by a suitable and registered (private) contractor on a regular basis.

3.7.3 Solid Waste Generation

The quantity of waste generated will depend on the length of the construction phase. Low volumes of solid waste are estimated to be generated during the construction and operational phase, as described in Table 3.7. Volumes for the decommissioning phase cannot be defined at this stage.

Table 3.7: Estimated Volumes of Solid Waste Generation.

Project	Construction Phase	Operational Phase
Project 2 – Veroniva EGI and associated infrastructure	Approximately 12 m^3 to 15 m^3 per month	Approximately 2.5 m^3 to 5 m^3 per month

The following waste materials are expected during the construction phase:

- Packaging material, such as the cardboard, plastic and wooden packaging and off-cuts;
- Hazardous waste from empty tins, oils, soil containing oil and diesel (in the event of spills), and chemicals;
- Building rubble, discarded bricks, wood and concrete;
- Domestic waste generated by personnel; and
- Vegetation waste generated from the clearing of vegetation.

Solid waste will be managed via the EMPr during all project phases. The EMPrs (Appendix J and Appendix K of this BA Report), incorporate waste management principles. During the construction phase, general solid waste will be collected and temporarily stockpiled in skips in a designated area on site and thereafter removed, emptied into trucks, and disposed at a registered waste disposal facility on a regular or monthly basis by an approved waste disposal Contractor (i.e. a suitable Contractor) or the municipality.

Any hazardous waste (such as contaminated soil as a result of spillages) will be temporarily stockpiled in a designated area on site (i.e. placed in leak-proof storage skips), and thereafter removed off site by a suitable service provider for safe disposal at a registered hazardous waste disposal facility.

Waste disposal slips and waybills will be obtained for the collection and disposal of the general and hazardous waste. These disposal slips (i.e. safe disposal certificates) will be kept on file for auditing purposes as proof of disposal. The waste disposal facility selected will be suitable and able to receive the specified waste stream (i.e. hazardous waste will only be disposed of at a registered/licenced waste disposal facility). The details of the disposal facility will be finalised during the contracting process, prior to the commencement of construction. Where possible, recycling and re-use of material will be encouraged. Waste management is further discussed in the EMPrs (included in Appendix J and Appendix K of this BA Report).

During the operational phase after construction, minor amounts of general waste (as a result of the offices or maintenance) will be generated.

3.7.4 Electricity Requirements

In terms of electricity supply, the developer will make use of generators on site during the construction, operational and decommissioning phases. The operational electrical requirements would be nominal.

3.8 Socio-Economic

It should be noted that the employment opportunity specifications provided in this report are estimates and is dependent on the final engineering design and the Battery Energy Storage Independent Power Producer Procurement Programme (BESIPPPP) Request for Proposal provisions, or similar programme requirements, at that point in time.

It is difficult to specify the actual number of employment opportunities that will be created at this stage; however, estimates are indicated in Table 3.8.

Table 3.8: Total Estimated Employment Opportunities.

Project	Construction Phase	Operational Phase
Project 2 – Veroniva EGI and associated infrastructure	▪ **Skilled**: Between 10 and 20 ▪ **Unskilled**: Between 30 and 40 The above is for the entire 6 – 24 month construction phase.	▪ **Skilled**: Between 1 and 3 ▪ **Unskilled**: Between 2 and 5

During the construction phase, employees will most likely be housed in local nearby towns and villages. Typically, the EPC contractor will be responsible for the provision of transport of construction personnel to and from the site.

3.8.1 Socio-Economic Investment and Development

The Applicant will ultimately own the project, if successful, and will compile an Economic Development Plan which will be compliant with the BESIPPPP requirements (or similar process) and will *inter alia* set out to achieve the following:

- Create a local community trust or similar (as required by BESIPPPP) which has an equity share in the project life to benefit historically disadvantaged communities;
- Initiate a skills development and training strategy to facilitate future employment from the local community;
- Give preference to local suppliers for the construction of the proposed projects; and
- Support local community upliftment projects and entrepreneurship through socio-economic and enterprise development initiatives.

3.9 Overview of the Project Development Cycle

This section provides an outline of the main activities that are proposed during each phase of the proposed project. The project can be divided into the following main phases:

- Detailed Planning and Design Phase;
- Construction Phase;
- Operational Phase; and
- Decommissioning Phase.

Each activity undertaken as part of the above phases may have environmental impacts and, where applicable, has been assessed in the relevant specialist studies as part of the BA Phase. The specialist studies are included in Appendix E of this BA Report.

3.9.1 Planning and Design Phase

The project layout, including the exact placement of building infrastructure was finalised in the BA Phase. The project layout was informed by the findings of the specialist assessments. The specialists have commented on the final project layout, and confirmed that the layout is acceptable, there are no fatal flaws and that all no-go areas have been avoided by the main infrastructure, and that linear infrastructure such as access roads and power lines are permitted to traverse high sensitivity areas (where relevant) as adequate mitigation measures have been recommended. The final layout maps are included in Chapter 13 and Appendix D of this BA Report, as well as the EMPrs.

3.9.2 Construction Phase

The construction phase will take place subsequent to the issuing of the EA (should such authorisation be granted) and if a successful bid in terms of the BESIPPPP or a similar tender process is issued, and once a power purchase agreement (PPA) is signed.

The duration of the construction phase is described below:

- **Project 2 (Veroniva EGI)**: 6 to 24 months.

The main activities that will form part of the construction phase are:

- Removal of vegetation, where necessary, within the approved development footprint to facilitate the construction and/or establishment of infrastructure;
- Excavations for infrastructure and associated infrastructure;
- Establishment of a laydown area for equipment;
- Stockpiling of topsoil and cleared vegetation, where necessary;
- Creation of employment opportunities;
- Transportation of material and equipment to site, and personnel to and from the site; and
- Construction of the infrastructure, structures and buildings.

All efforts will be made to ensure that construction work will be undertaken in compliance with local, provincial and national legislation, local and international best practice, as well as the EMPr that has been compiled and included in Appendix J and Appendix K of this BA Report. An independent Environmental Control Officer (ECO) will be appointed during the construction phase and will monitor compliance with the recommendations and conditions of the EMPr and EA, respectively.

3.9.3 Operational Phase

The following activities will occur during the operational phase:

- **Project 2 (Veroniva EGI)**:
    - The transmission of energy stored by the proposed BESS; and
    - Maintenance of the EGI and associated infrastructure.

During the life span of the proposed project, on-going maintenance will be required on a scheduled basis to ensure the continued optimal functioning of the infrastructure. In general, maintenance on

the structures will involve visual inspection, and only equipment that fails will be replaced in a manner similar to that of construction activities. The EMPr includes the requirement for method statements to be compiled prior to the operational phase to describe the manner in which maintenance will be undertaken to ensure environmental impacts are minimised.

3.9.4 Decommissioning Phase

At the end of the operational phase, the proposed project may be decommissioned or may be redesigned and refitted so as to operate for a longer period. The main aim of decommissioning is to return the land to its original, pre-construction condition. Should the unlikely need for decommissioning arise i.e. if the proposed infrastructure becomes outdated or the land needs to be used for other purposes, the decommissioning procedures will be undertaken in line with an approved EMPr and relevant legislation at the time, and the site will be rehabilitated and returned to its pre-construction state.

3.10 Schematic Overview of the Proposed Development

Figure 3.4 provides a **schematic** overview (not to scale) of the proposed Veroniva BESS and EGI development (Projects 1 and 2).

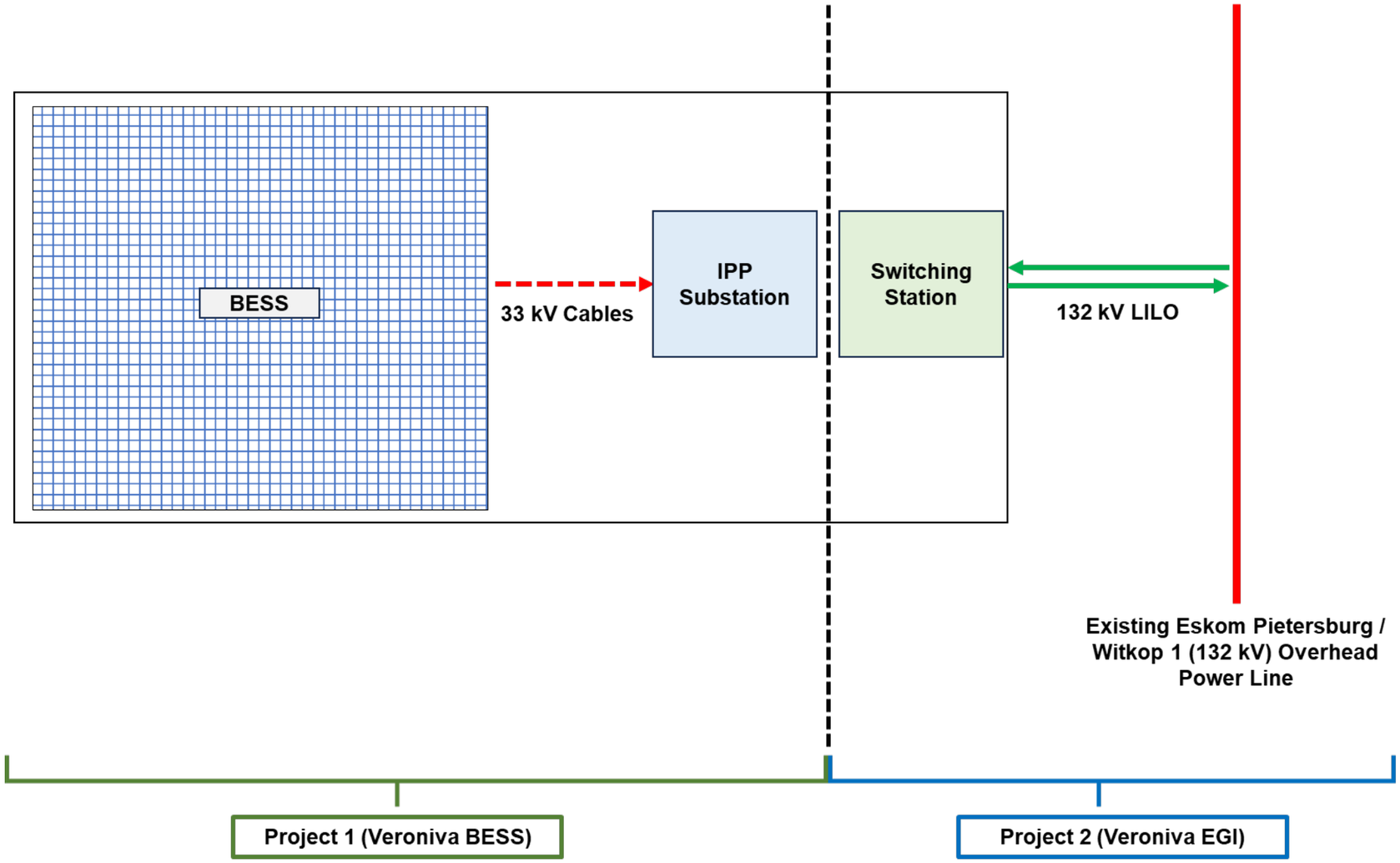


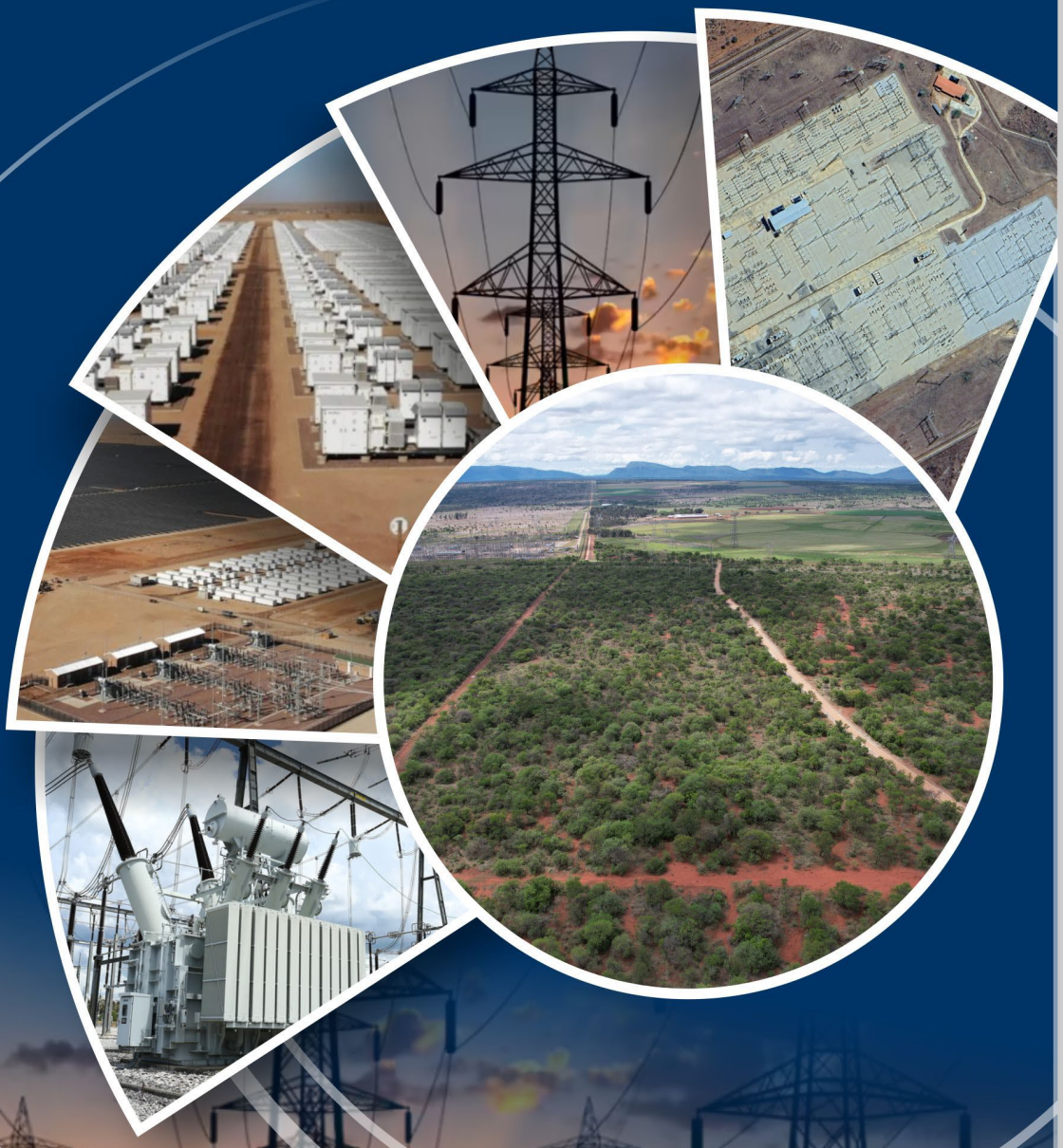
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BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 4:

Description of the Affected Environment



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4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

This chapter provides a broad overview of the affected environment for the following proposed projects that are addressed in this report:

- **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS).
- **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

The information presented throughout this chapter equally applies to each of the projects addressed in this report (i.e. **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**), unless where mentioned otherwise.

The receiving environment is understood to include biophysical, socio-economic, and heritage aspects, which could be affected by the proposed projects or which in turn might impact on the proposed projects.

This information was used to inform the identification of potential issues and impacts of the proposed projects on the environment and vice versa. The information presented within this chapter was sourced from *inter alia*:

- Specialist Studies and Inputs (where relevant) and Site Sensitivity Verifications (SSVs) from the specialists that form part of the project team (which are included in Appendix E of this Basic Assessment (BA) Report);
- Feedback from the National Department of Forestry, Fisheries and the Environment (DFFE) National Web-based Environmental Screening Tool (hereafter referred to as the Screening Tool), where applicable;
- Review of *inter alia* information sources available on the South African National Biodiversity Institute (SANBI) Biodiversity Geographical Information System (BGIS);
- Limpopo Community Survey 2016 Provincial Profile and Statistics South Africa Census data;
- Capricorn District Municipality (CDM) Integrated Development Plan (IDP);
- Polokwane Local Municipality (PLM) IDP;
- PLM Spatial Development Framework (SDF); and
- CDM Local Economic Development (LED) Strategy.

It is important to note that this chapter intends to provide a broad overview of the affected environment. Detailed descriptions of the preferred project footprints, that are focused on significant environmental aspects of the proposed projects, are provided in the relevant specialist assessments and inputs that were completed for this BA Process. Refer to Appendix E of this BA Report for the Specialist Studies and Inputs.

4.1 Background, Study Area, and Development Footprints

As indicated in Chapter 1 of this BA Report, the proposed projects comprise a BESS facility, a 132 kV LILO power line from the BESS to an existing Eskom power line, and associated infrastructure. The projects are collectively referred to as the Veroniva BESS and EGI development. The study area or preferred site for all the proposed Veroniva projects and associated infrastructure (i.e., Projects 1 and 2) covers approximately 65 hectares (ha). The 65 ha study area includes an approximately 18 ha Electricity Grid Infrastructure (EGI) assessment corridor. The External Access Road Options A and B were also considered in the specialist reports, where required.

The farm properties on which the development footprints occur are listed in Chapter 2 (Project Description for the Veroniva BESS – Project 1) and Chapter 3 (Project Description for the Veroniva EGI – Project 2) of this BA Report.

As part of this BA Process, the full extent of the study area was assessed by the specialists in order to identify environmental sensitivities and no-go areas. The preferred site serves as the study area for this BA Process. Therefore, the terms “site” and “study area” are used synonymously in this report. Refer to Chapter 10 of this BA Report for feedback on the process followed to assess the study area and identify the buildable areas, as well as the layout and development footprints for the proposed projects.

The proposed projects are located within the PLM and CDM. Chapter 1 of this BA Report provides a locality map of the study area.

4.2 Biophysical Environment

4.2.1 Climate and Climate Change

4.2.1.1 General Context

The study area falls within the Savanna Biome and comprises a mosaic of Polokwane Plateau Bushveld and Mamabolo Mountain Bushveld, together with transformed and secondary habitats associated with historical land use, roads, existing infrastructure, and edge effects from surrounding agricultural and peri-urban land uses.

More specifically, according to the Köppen-Geiger climate classification method, the study area is classified as “BSk”, which is indicative of a cold, steppe, semi-arid climate characterised by cold winters and hot, dry summers (Figure 4.1). The region is characteristic of summer rainfall with most of the rainfall occurring during November to March (Figure 4.2). The Agriculture Compliance Statement states that mean annual precipitation in the area is 522 mm. Figure 4.3, displaying the mean annual precipitation for the Polokwane area for the period 2010 to 2026, indicates that in 2011, Polokwane had the highest mean annual precipitation of greater than 130 mm. The Polokwane area also has average high temperatures varying from 20°C in June and July to 28°C in October, and average low temperatures varying from 8°C in June and July to 17°C in December, January and February with the highest average temperatures occurring from September to March (Figure 4.4). In addition, the Polokwane area is characteristic of gusty winds prevailing for most of the year, with the average gust falling within the 15 to 26 kmph range (Figure 4.5).

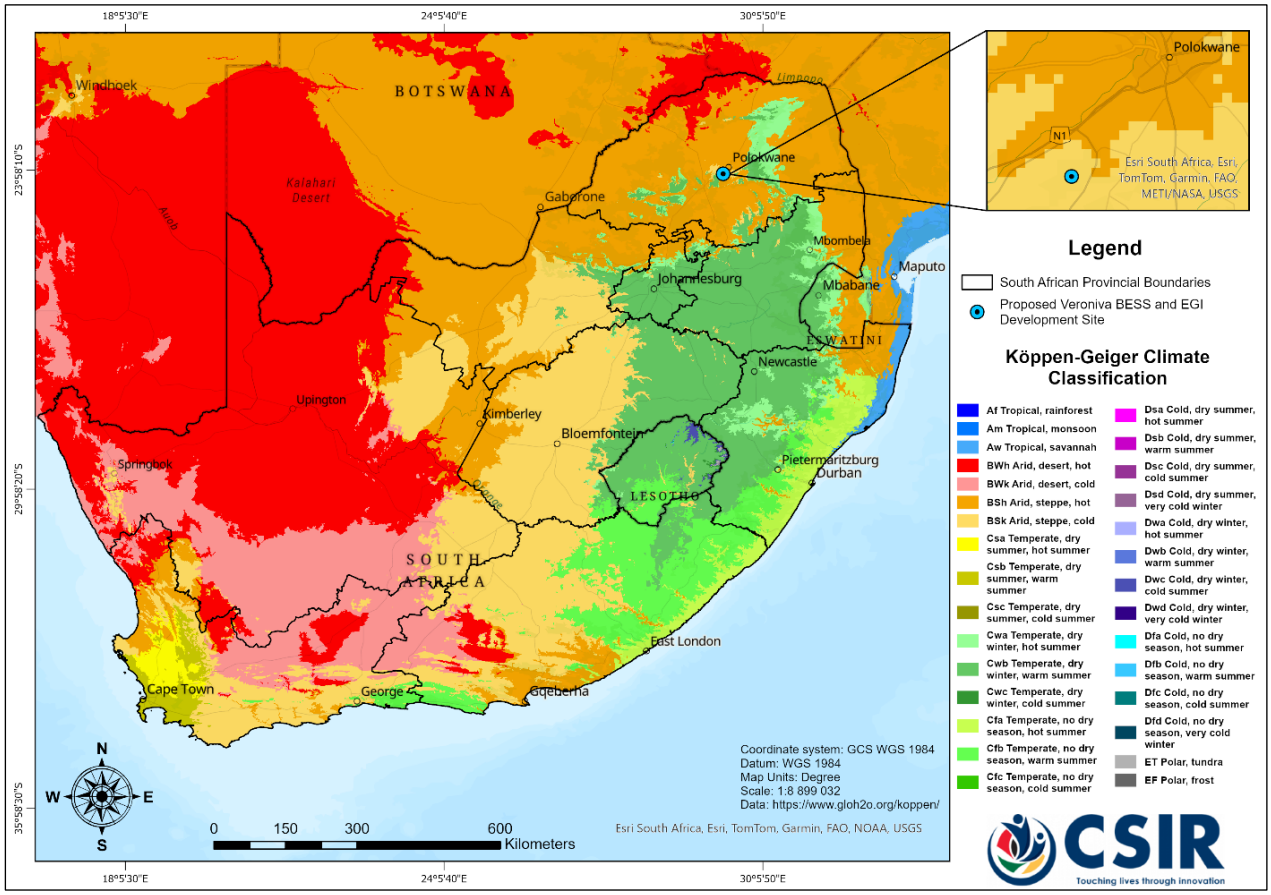


Figure 4.1: Köppen-Geiger Climate Classification of South Africa, including the study area (*Source*: Beck et al., 2023[1]).

[1] Beck, H.E., McVicar, T.R., Vergopolan, N., Berg, A., Lutsko, N.J., Dufour, A., Zeng, Z., Jiang, X., Van Dijk, A.I. and Miralles, D.G., 2023. High-resolution (1 km) Köppen-Geiger maps for 1901–2099 based on constrained CMIP6 projections. Scientific data, 10(1), p.724. doi:10.1038/s41597-023–02549-6. Available online at: https://www.gloh2o.org/koppen/ [Accessed: May 2026].

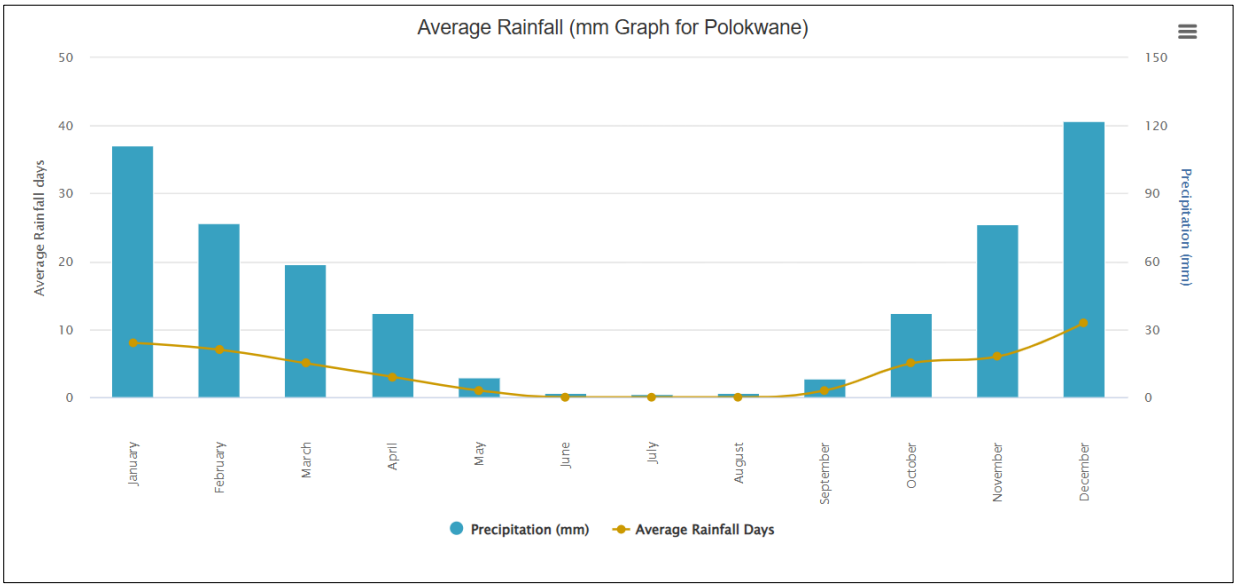


Figure 4.2: The average monthly distribution of rainfall within the Polokwane area, including the study area (*Source*: World Weather Online, 2026[2]).

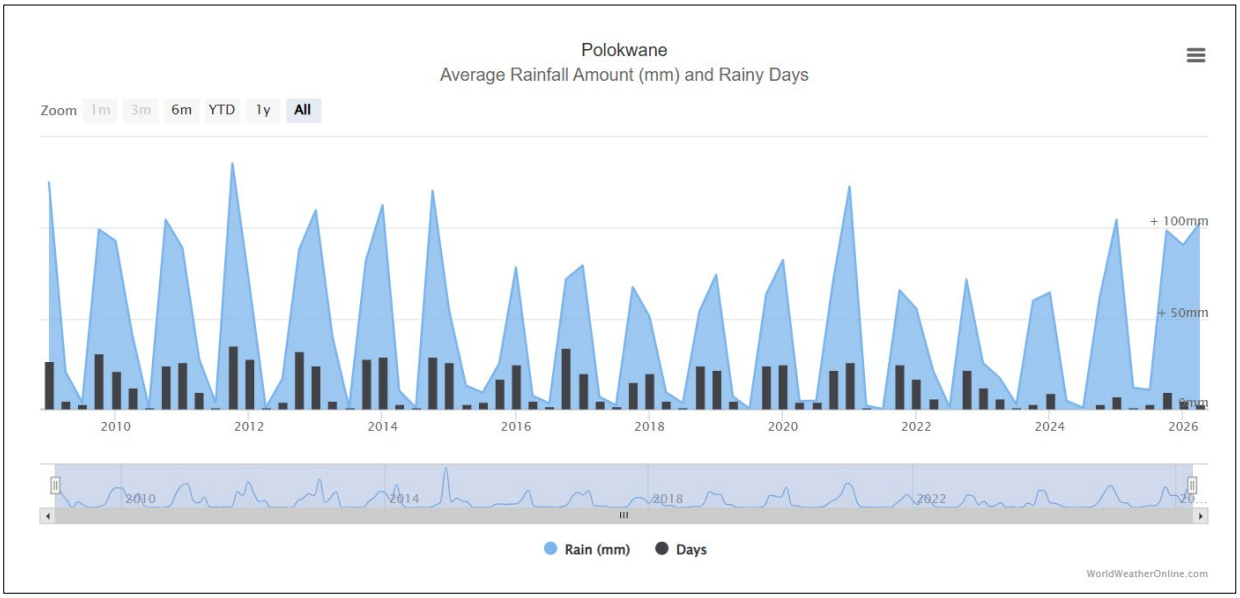


Figure 4.3: The average annual rainfall within the Polokwane area, including the study area for the period 2010 – 2026 (*Source*: World Weather Online, 2026[2]).

[2] World Weather Online (2026). Polokwane Annual Weather Averages. Available online at: https://www.worldweatheronline.com/polokwane-weather-averages/limpopo/za.aspx [Accessed: May 2026].

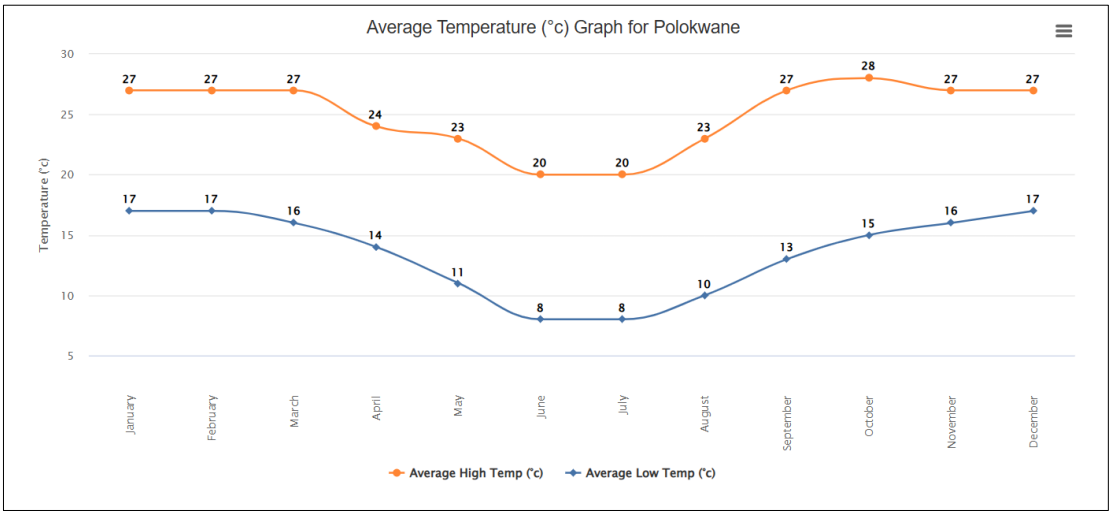


Figure 4.4: The average monthly maximum and minimum temperature for the Polokwane area, including the study area (*Source*: World Weather Online, 2026[2]).

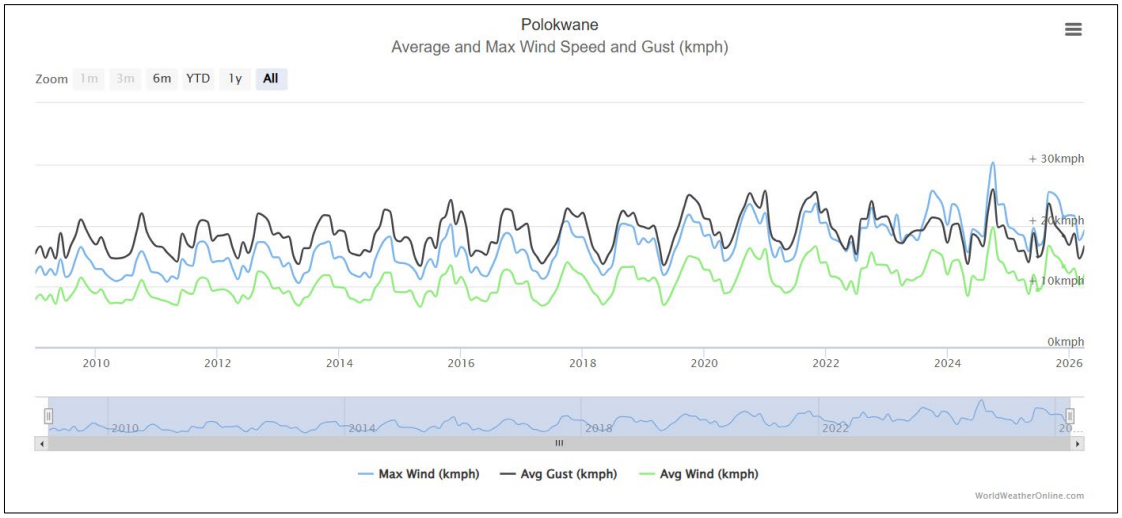


Figure 4.5: The average and maximum annual wind speeds and gusts for the Polokwane area, including the study area for the period 2010 – 2026 (*Source*: World Weather Online, 2026[2]).

4.2.1.2 Climate Change

Projected climate change data indicates that by 2050 the Limpopo Province and the CDM in particular, is expected to be affected by higher annual average temperatures, increasing rainfall variability, increasing storm and flood events and changing biomes[3].

The higher temperatures will be associated with an increase in evaporation rates and an increase in the intensity of droughts. This will likely cause agricultural outputs to reduce, thereby adversely affecting food security. Water security is a climate-sensitive issue and a key concern for the CDM

[3] https://letsrespondtoolkit.org/municipalities/limpopo/capricorn/

due to its limited surface and groundwater resources (CDM, 2026[4]). Projected shifts in climate patterns, such as droughts in the west, more intense rainfall events in the east, and a decline in groundwater recharge potential by 2050, are expected to place an increased strain on the CDM's already limited water resources, intensify competition among users, and increase the risk of water depletion for communities (CDM, 2026). This, in turn, threatens long-term water security in the CDM. Furthermore, the increase in temperatures anticipated with climate change may result in increased veld fires. The CDM (2026) states that the occurrence and spread of invasive alien plant species is a challenge facing the CDM. Invasive alien plants are often highly flammable and with their large volumes, are likely to also fuel more frequent fires. The combination of more frequent and intense fires will have severe impacts on the region. The changing climate is also projected to result in the shifting of bioregions across the country. Projected biome shifts under a high-risk scenario could likely result in the Savanna biome replacing the Grassland biome within the CDM[3], in turn causing a significant loss in Grassland related species. Climate change is thus one of the biggest risks facing the CDM; therefore, the CDM should prioritise efforts to reduce greenhouse gas emissions to mitigate the effects of climate change.

The Green Book provides detailed projections for future climate change in South Africa. The information captured below has been summarised from the Green Book (Engelbrecht et al., 2019[5]). The projections used in the Green Book are for the following two climate change mitigation scenarios: Representative Concentration Pathways (RCP) 8.5 – where low mitigation is implemented; and RCP 4.5 – where high mitigation is implemented.

- **Fire Likelihood** - The likelihood of wildfires occurring in the interface between developed land and fire-prone vegetation in Polokwane is regarded as likely in terms of current hydro-meteorological trends. In terms of the projected number of fire danger days under an RCP 8.5 low mitigation (worst case) scenario, the study area varies from about 20 to 59. Polokwane is at a high risk of increases in wildfires by the year 2050.

- **Flood Hazard** – The region of the PLM mainly includes a medium to high flooding hazard currently. There is largely a moderate increase in extreme rainfall days projected for the year 2050. Polokwane is at a moderate risk of increase in urban flooding under an RCP 8.5 low mitigation (worst case) scenario (projected change for 2050).

- **Drought** – In terms of the projected change in drought tendencies for the period of 1995 to 2024, relative to the 1986-2005 baseline period, Polokwane ranges from -0.2 to -0.59 (more frequent than the observed baseline). In terms of the projected change in drought tendencies for the period of 2035–2064, relative to the 1986–2005 baseline period, there is an increase in drought tendencies per 10 years within the study area (ranging from -1 to -1.39) (more frequent than the observed baseline). Polokwane is at a high risk of increases in drought tendencies by the year 2050.

[4] Capricorn District Municipality (2026). Capricorn District Municipality Draft Integrated Development Plan (IDP)/Budget 2026/2027 – 2030/2031. Available online: https://www.cdm.org.za/wp-content/uploads/2026/04/CDM-DRAFT-2026-27-IDP-and-budget.pdf. [Accessed: April 2026].

[5] Engelbrecht, F., Le Roux, A., Arnold, K. and Malherbe, J. 2019. *Green Book. Detailed projections of future climate change over South Africa*. Pretoria: CSIR. Available at: https://pta-gis-2-web1.csir.co.za/portal/apps/GBCascade/index.html?appid=b161b2f892194ed5938374fe2192e537 [Accessed: May 2026].

4.2.2 Topography and Landscape

The information described below is based on the Palaeontology and Socio-Economic Specialist Reports, which are included in Appendix E.7 and Appendix E.8, respectively, of this BA Report.

The study area is situated on gently sloping terrain of about 1380 to 1460 m above mean sea level. The topography of the area to the east of the site is gently undulating interspersed with a series of mountain ranges to the south. The site is located on the southern flank of a range of hills that run parallel to the R101 located to the north of the site. The Kuschke Nature Reserve is located within this hilly area. The study area falls within the Central Bushveld bioregion of the Savanna biome which stretches from Pretoria (Gauteng) to the Soutpansberg in the north. Natural vegetation in the study area consists of Polokwane Plateau Bushveld (most of the broader study area), with intrusions of Mamabolo Mountain Bushveld associated with inselbergs (such as that to the north of the site).

4.2.3 Geology and Soils

The information described below is based on the Palaeontology, Geohydrology and Geotechnical Specialist Reports / Letters, which are included in Appendix E.7, E.10 and E.11 of this BA Report, respectively.

The main geology of the study area is listed in Table 4.1, and an extract from the 1:250 000 geological map sheet 2428 Nylstroom (Council for Geoscience, Pretoria) overlain by the study area is shown in Figure 4.6.

The entire project area is underlain at depth by a Neo-Archaean (early Precambrian) granitoid intrusion known as the Turfloop Granite (Rt), characterised by fine- to medium- to coarse-grained, leucocratic biotite granite. The Turfloop Granite represents a late-stage intrusion into the older Mothiba Formation. The Mothiba Formation forms the prominent hill to the north of the study area and is comprised of meta-ultramafic rocks, specifically talc-chlorite and amphibole-chlorite schists, talc schist and serpentinite. The uplands to the northwest of the study area are built of Archaean metasediments and volcanics of the Pietersburg Greenstone Belt (Zp) which consists of acid to intermediate lavas, pyroclasts, and resistant iron formations. Regionally, these units are bounded by the Hout River Gneiss (Rhr), a leucocratic migmatitic gneiss and pegmatitic suite.

The Archaean granitoid intrusions beneath the project study area are entirely unfossiliferous. Superficial sediments such as residual / alluvial sandy soils and pedocretes overly the Archaean granitoid bedrocks at surface. The sedimentary rock units present near the surface within the study area include Late Caenozoic sandy soils, eluvial gravels.

Table 4.1: Geology of the study area listed in order of relative age (GEOSS, 2026[6]).

Symbol	Formation/ Subgroup	Group	Lithology
Q	Quaternary Cover		Sandy soils.
Rtu	Turfloop Granite (Neoarchaean Intrusions)		Fine- to medium-grained granite.
Rhr	Hout River Gneiss Suite (Paleoarchean Intrusions)		Light grey, medium-grained biotite gneiss.
Zp	Pietersburg Group		Acid to intermediate lava, pyroclasts.
Zmt	Mothiba Formation	Pietersburg Group	Talc-chlorite and amphibole-chlorite schists, talc schist and serpentinite.

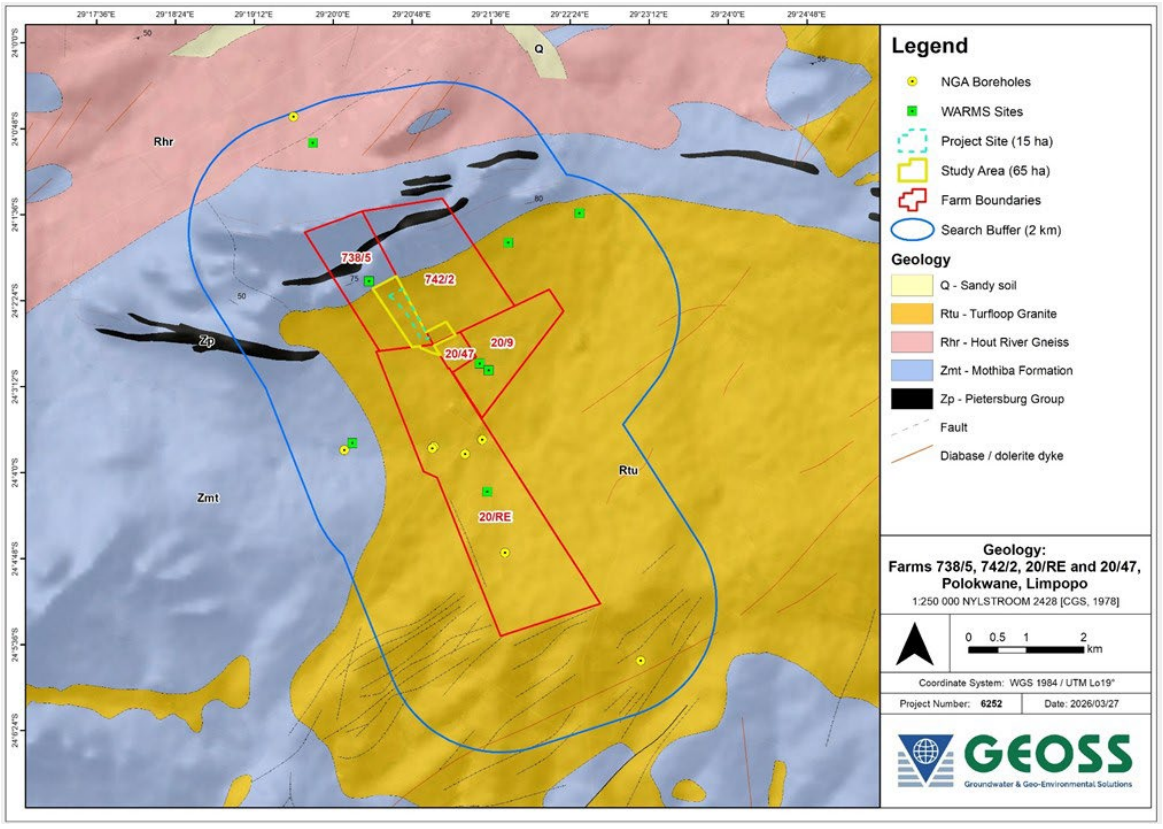


Figure 4.6: Geological setting for the proposed projects and associated infrastructure (*Source*: Council for Geoscience, 1978, Map: 1:250 000 scale 2428 Nylstroom in GEOSS, 2026).

[6] GEOSS (2026). Geohydrology Assessment for the proposed Veroniva BESS (Project 1). Appendix E.10 of this BA Report.

4.2.4 Agriculture and Land Capability

The information described below is based on the SSV and Compliance Statement provided by the Agricultural Specialist (Lanz, 2026[7]), which is included in Appendix E.1 of this BA Report.

4.2.4.1 General Context

The aim of an agricultural assessment is to determine whether a proposed development will cause a significant reduction in future agricultural production potential and if it will result in a loss of arable land. Agricultural production potential, and particularly cropping potential, is one of the four factors that determines the significance of an agricultural impact. The other three factors include magnitude of impact, size of footprint, and duration of impact. Cropping potential also directly determines the true agricultural sensitivity of the land.

The Screening Tool attempts to indicate whether the land is suitable for crop production (high and very high sensitivity) or unsuitable for crop production (low and medium sensitivity). To do this, the Screening Tool classifies agricultural sensitivity according to three independent criteria, from three independent data sets. The three criteria include:

- Whether the land is classified as cropland or not on the field crop boundary data set. All classified cropland is, by definition, either high or very high sensitivity.
- The land capability rating as per the Department of Agriculture's updated and refined, country-wide land capability mapping (then Department of Agriculture, Forestry and Fisheries (DAFF), 2017). Land capability is defined as the combination of soil, climate, and terrain suitability factors for supporting rain-fed agricultural production. Refer to Table 4.2 for a summary of the direct relationship between land capability rating, agricultural sensitivity, and rain-fed cropping suitability.
- Whether the land is classified as a protected agricultural area (PAA) or not. All classified PAAs are, by definition, either high or very high sensitivity.

Table 4.2: Relationship between land capability, agricultural sensitivity, and rain-fed cropping suitability (*Source*: Lanz, 2026).

<table>
<tr><th rowspan="2">Land capability value</th><th rowspan="2">Agricultural sensitivity</th><th colspan="2">Rain-fed cropping suitability</th></tr>
<tr><th>Summer rainfall areas</th><th>Winter rainfall areas</th></tr>
<tr><td>1 - 5</td><td>Low</td><td rowspan="3">Unsuitable</td><td rowspan="2">Unsuitable</td></tr>
<tr><td>6</td><td rowspan="2">Medium</td></tr>
<tr><td>7</td><td rowspan="3">Suitable</td></tr>
<tr><td>8 - 10</td><td>High</td><td rowspan="2">Suitable</td></tr>
<tr><td>11 - 15</td><td>Very High</td></tr>
</table>

[7] Lanz, J. (2026). Agriculture SSV and Compliance Statement for the proposed Veroniva BESS and Veroniva EGI development (Projects 1 and 2). Appendix E.1 of this BA Report.

4.2.4.2 Screening Tool Descriptions and Site Sensitivity Verification

Note: The Screening Tool Reports were generated in 2025 for the study area per relevant classification (i.e. transformation of land – indigenous vegetation; power line development and substation development). Screening Tool Reports were also generated in 2026 per relevant classification based on the finalised project layouts and footprints. In April 2026, the Screening Tool data (specifically for plant and animal species) was updated. Such updates are discussed where relevant in this chapter and the specialist studies in Appendix E.

The information presented in the section below is project specific.

- **Project 1 – Veroniva BESS**

A map of the study area and project footprints for the Veroniva BESS and BESS IPP Substation in relation to the Agricultural Sensitivity provided by the Screening Tool is shown in Figure 4.7. The Screening Tool classified the study area as ranging from low to very high agricultural sensitivity with the very high sensitivity rating due to the land being classified as the Ranch PAA, and the high sensitivity rating due to some of the land being classified as rainfed annual crop cultivation/planted pastures. The high sensitivity classification by the Screening Tool that underlies the PAA layer is due to some land being classified as high sensitivity because of a classified land capability rating of 8 to 10 as per the Table 4.2 above. However, according to the agricultural specialist, the true agricultural sensitivity of land is determined by its actual suitability for crop production on the ground, rather than by a parameter that serves as a proxy for crop suitability in a dataset, which is how the Screening Tool typically determines sensitivity.

The determinants of agricultural sensitivity are summarised below:

- Land that is suitable for viable crop production (i.e. it can deliver an above break-even crop yield on a sustainable basis) is considered to have high or very high agricultural sensitivity.
- Conversely, land with limitations that prevent it from being able to deliver an above break-even crop yield on a sustainable basis is considered to have medium or low agricultural sensitivity.

During the on-site investigation undertaken by the agricultural specialist, it was found that the cropping potential of the site is limited by the combination of climate constraints and soil constraints (rockiness). Due to these constraints, the site is unsuitable for viable rainfed crop production, and its viable agricultural use is limited to grazing. Although a section within the study was historically cultivated, the site has not been cultivated for the past 50 years. Cropping in the area is restricted to irrigation on non-rocky soils that occur further down the slope and away from the mountain.

The very high agricultural sensitivity, as identified by the Screening Tool, is therefore disputed by the Agriculture SSV (Appendix E.1 of this BA Report). The entire site was verified as being of medium agricultural sensitivity due to its assessed cropping potential. The entire development footprint is considered to be below the threshold for needing to be conserved as agricultural production land due to the limitations that make it unsuitable as viable cropland. The proposed development on this land will result in negligible loss of future agricultural production potential in terms of national food security.

Since the proposed development does not occupy scarce, viable cropland, the overall negative agricultural impact of the development (loss of future agricultural production potential) is assessed by the agricultural specialist as being of low significance and as acceptable.

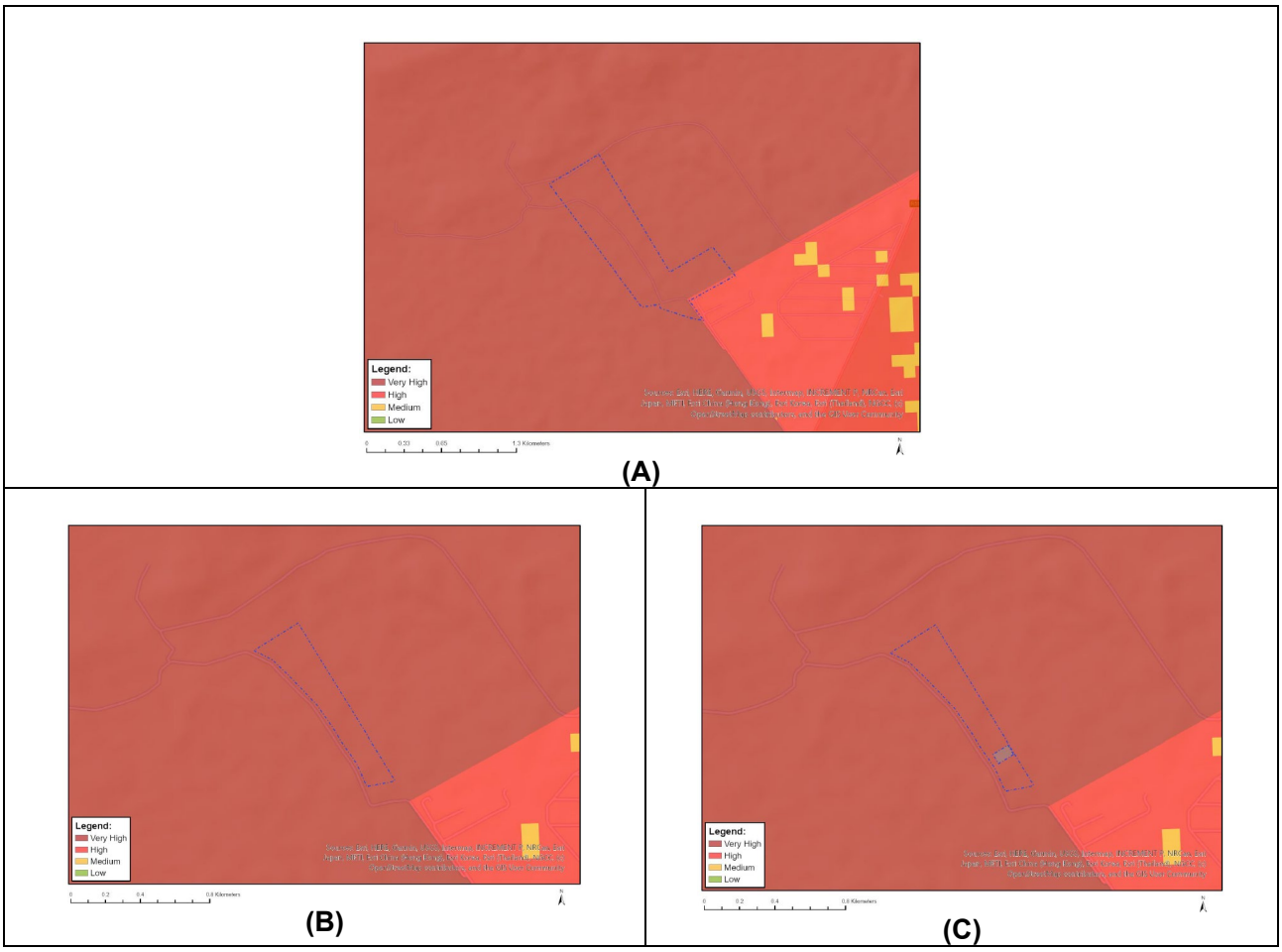


Figure 4.7: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Agricultural theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Agricultural theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Agricultural theme. (*Source*: (A): DFFE Screening Tool, 2025; (B) and (C): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Agricultural theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included above (Figure 4.7).

In addition, the Screening Tool Report for the External Access Road Option A and Option B are included in Appendix L of this BA Report. The Screening Tool Map for the access road options for the Agricultural theme shows Very High sensitivity (due to the Ranch PAA), High sensitivity (due to the Rainfed Annual Crop Cultivation / Planted Pastures; 08 – 10 land capability) and Medium sensitivity (due to 07 land capability). The external access roads do not have any implications from an agricultural perspective, and is also verified as medium sensitivity.

The information presented in the section below is project specific.

▪ Project 2 – Veroniva EGI

A map of the study area in relation to the Agricultural Sensitivity provided by the Screening Tool is shown in Figure 4.7 (A). Figure 4.8 shows the Screening Tool Agricultural sensitivity for the Veroniva EGI project footprint i.e. the Switching Station and EGI Servitude Corridor Area.

The same agricultural sensitivity as discussed for Project 1 (Veroniva BESS) above applies to Project 2 (Veroniva EGI). It is confirmed as medium sensitivity.

The Veroniva EGI is regarded as a linear development, and the power line will include the development of pylons. The proposed overhead LILO and proposed upgrading of a section of the existing power line has negligible agricultural impact, regardless of its route and design and the agricultural potential and sensitivity of the land it crosses. The power line development will result in negligible loss of future agricultural production potential, and its agricultural impact is therefore assessed by the agricultural specialist as being of very low significance and as acceptable.

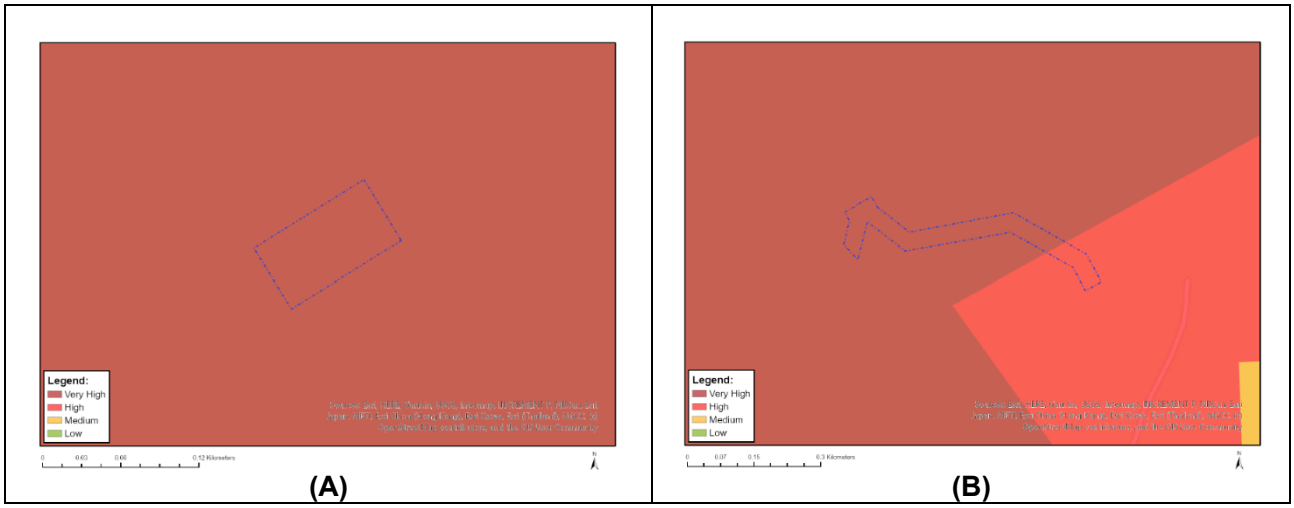


Figure 4.8: (A) Screening Tool map of the Switching Station footprint indicating sensitivities for the Agricultural theme. (B) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Agricultural theme. (*Source*: DFFE Screening Tool, 2026).

4.2.5 Geohydrology

Note: The information presented in this section applies only to Project 1 (Veroniva BESS).

A Geohydrology Assessment was commissioned and was aimed at determining the potential availability of groundwater during the construction, operational and decommissioning phases, as well as the potential impacts of the BESS development to nearby groundwater resources. The Geohydrology Assessment conducted during this BA Process is included in Appendix E.10 of this BA Report.

The study found that the proposed project site is located within the upper sand aquifer and is underlain by the fractured aquifer of the Turfloop Granites, with average borehole yield potentials ranging from 0.5 litres per second (L/s) to 2.0 L/s. In addition, general groundwater levels in the area are approximately 16 metres below ground level.

To obtain more hydrogeological information and to determine whether any groundwater users in the area may be affected by activities on site, a database search was conducted by the specialists using a 2 km radius around the site boundary. The desktop hydrocensus confirmed that there are several boreholes within the 2 km search area, but not within the 65 ha study area for the BESS and EGI, and not within the footprint of the External Access Road Options A and B. While these represent viable sources for the 450 m^3/ha/a requirement for the BESS, the specialist recommended that the groundwater be used with caution as the regional area is prone to drought and surrounding users are highly dependent on groundwater for livestock and domestic use. From a regional perspective, the Geohydrology Assessment noted that groundwater is physically available, but unsuitable for consumption without treatment and might not meet potable or SANS 51008 requirements for concrete mixing. Based on this data the water may be suitable for construction; however, this must be confirmed through site-specific water quality testing, as current data is extrapolated from nearby towns.

Recommendations for placement of the BESS in relation to these boreholes has been provided by the specialist, as discussed in Section 4.7 of this chapter.

4.2.5.1 Screening Tool Descriptions and Site Sensitivity Verification

There are no dedicated Geohydrology or Groundwater related themes on the Screening Tool; therefore, the verification of environmental sensitivity of the proposed project area as identified by the Screening Tool is not applicable. Therefore, no SSV report is required.

4.2.6 Strategic Water Source Areas

Strategic Water Source Areas (SWSAs) are defined as “areas of land that either: (a) supply a disproportionate (i.e., relatively large) quantity of mean annual surface water runoff in relation to their size and so are considered nationally important; or (b) have high groundwater recharge and where the groundwater forms a nationally important resource; or (c) areas that meet both criteria (a) and (b)” (Le Maitre *et al.*, 2018:1 in Department of Environment, Forestry and Fisheries (DEFF) [now operating as the DFFE], 2019: Page 60[8]).

[8] Department of Environment, Forestry and Fisheries (DEFF), 2019. Strategic Environmental Assessment for the Development of a Phased Gas Pipeline Network in South Africa. CSIR Report Number: CSIR/SPLA/EMS/ER/2019/0077/B. ISBN Number: ISBN 978-0-7988-5649-2. Stellenbosch and Durban.

Thirty-seven groundwater SWSAs have been identified in South Africa and are considered to be strategically important at a national level for water and economic security. The total area for groundwater SWSAs extends approximately 104 000 km^2 and covers approximately 9% of the land surface of South Africa (Le Maitre et al., 2018, in DEFF, 2019: Page 61). They also include transboundary Water Source Areas that extend into Lesotho and Swaziland.

The proposed project site is located entirely within the Upper Sand (Polokwane) Aquifer System SWSA (Figure 4.9). The proposed project site is also located approximately 12.7 km from the Nyl and Dorps River Valley SWSA and approximately 21.6 km from the Northern Lowveld Escarpment SWSA. Therefore, according to the Geohydrology Assessment (GEOSS, 2026), the project site is important for regional water security which necessitates adequate groundwater monitoring. Refer to the Geohydrology Assessment included in Appendix E.10 of this BA Report for additional information.

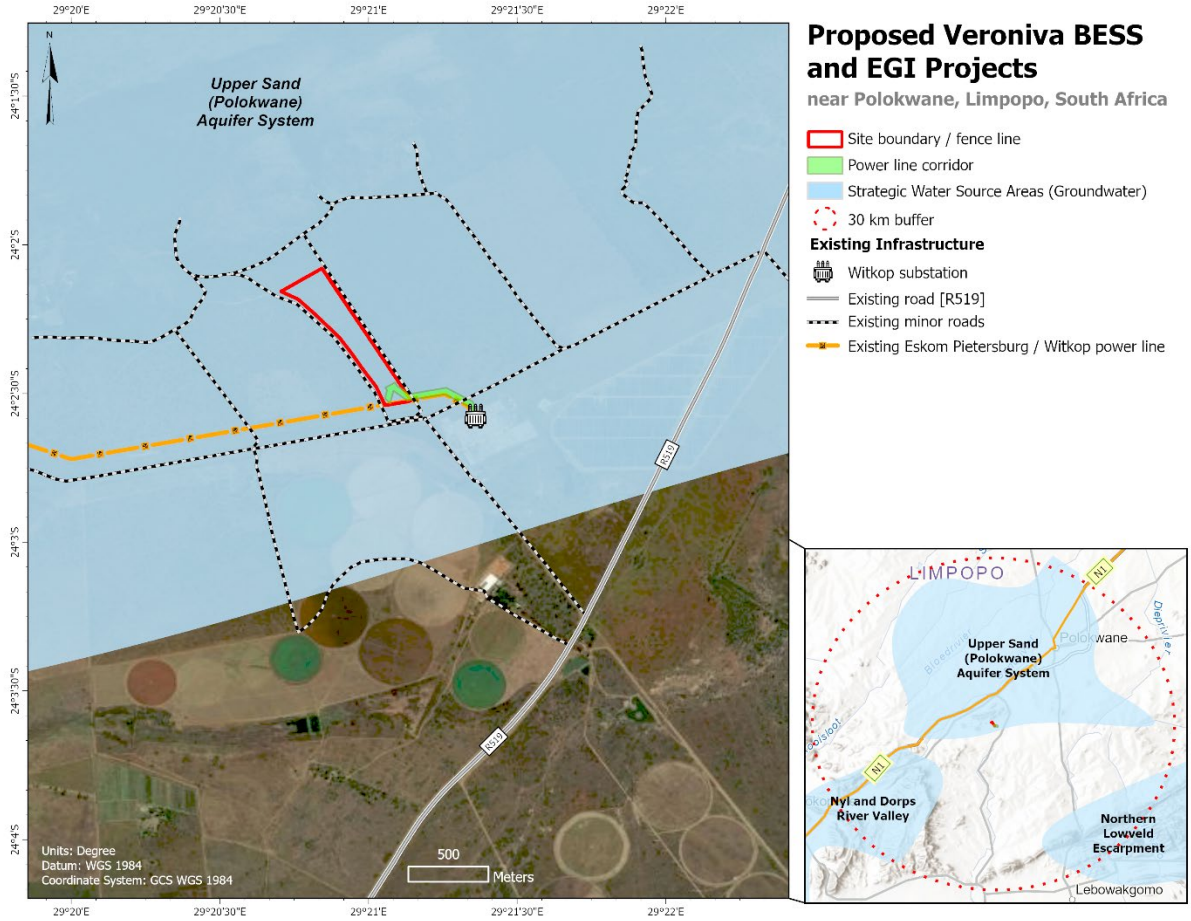


Figure 4.9: SWSAs in relation to the study area.

4.2.7 Aquatic Biodiversity

The information described below is based on the Aquatic Biodiversity and Species Specialist Assessment and SSV provided by the Aquatic Specialist (Tate, 2026[9]), which is included in Appendix E.3 of this BA Report.

The following were used to inform the Aquatic SSV:

- A desktop analysis, using various existing datasets and the latest Google Earth satellite imagery; and
- Two on-site surveys were conducted by the Aquatic Specialist. The first survey was undertaken in January 2026 and it represented the high flow or high rainfall period and was an ideal timeframe to understand the presence/absence of watercourses. The second survey was completed in June 2026 during the low flow or low rainfall period. Undertaking the survey at this time is acceptable from a wetland perspective and would not be a significant limitation on the study.

The surveys conducted as part of the aquatic study include an area of interest (AoI) of 500 m around the development footprint (also referred to as the Proposed Development Areas (PDA)).

4.2.7.1 General Context

The study area is located within the Limpopo Water Management Area (WMA), within the A71A quaternary catchment. The nearest Sub-Quaternary Reach is the A71A-00249 of the Sand River. There are no open water or rivers directly associated with the proposed projects. The Mean Annual Precipitation in the AoI was approximately 611 mm. The Mean Monthly Precipitation indicates a unimodal rainfall regime peaking in the summer months between October and November. The Mean Annual Runoff within the AoI was indicated to be 82 mm.

4.2.7.2 Screening Tool Descriptions and Site Sensitivity Verification

The Aquatic Specialist assessed and delineated the watercourses associated with the AoI. The watercourse delineations in the AoI are provided in Figure 4.10. Figure 4.11 provides an indication of the desktop wetlands and topographic river lines in the AoI based on the Wetland Map 6 dataset in the National Biodiversity Assessment (NBA) (2024). It was confirmed that wetlands were present within the broader 500 m AoI, however only Access Road Option A traverses a seep wetland. The aquatic features identified in the AoI comprised seep wetlands, Unchanneled Valley Bottom wetland, artificial impoundments, drains (associated with the Witkop Solar Park), and burrow pits.

A total of three wetland hydrogeomorphic (HGM) types were associated with the proposed development area. The HGM types observed included temporary seep wetlands and a single Unchanneled Valley Bottom (UVB) wetland. Table 4.3 presents the watercourse classification of the AoI.

[9] Tate, R. (2026). Aquatic Biodiversity and Species Assessment for the proposed Veroniva BESS and Veroniva EGI development (Projects 1 and 2). Appendix E.3 of this BA Report.

Table 4.3: Watercourse classification of the AoI (Source: Tate, 2026).

HGM Name	Hectares	System	DWS Ecoregion/s	NFEPA Wet Veg Group/s	Landscape Unit	HGM Type	Permanence	Impact Expected
HGM1	10	Inland	Northern Plateau	Central Bushveld Group 6	Footslope	Seep	Temporary	No
HGM2	5.7	Inland	Northern Plateau	Central Bushveld Group 6	Footslope	Seep	Temporary	Yes
HGM3	1.0	Inland	Northern Plateau	Central Bushveld Group 6	Valley Bottom	Unchanneled Valley Bottom	Seasonal (Non-Perennial)	No

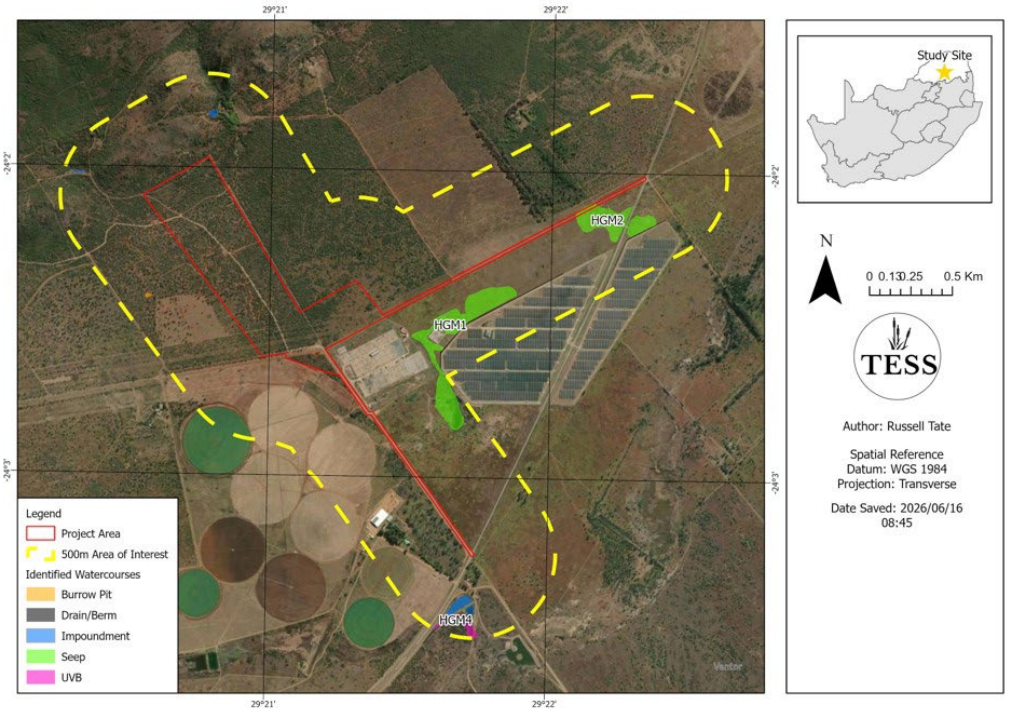


Figure 4.10: Watercourse delineation in the AoI (*Source*: Tate, 2026).

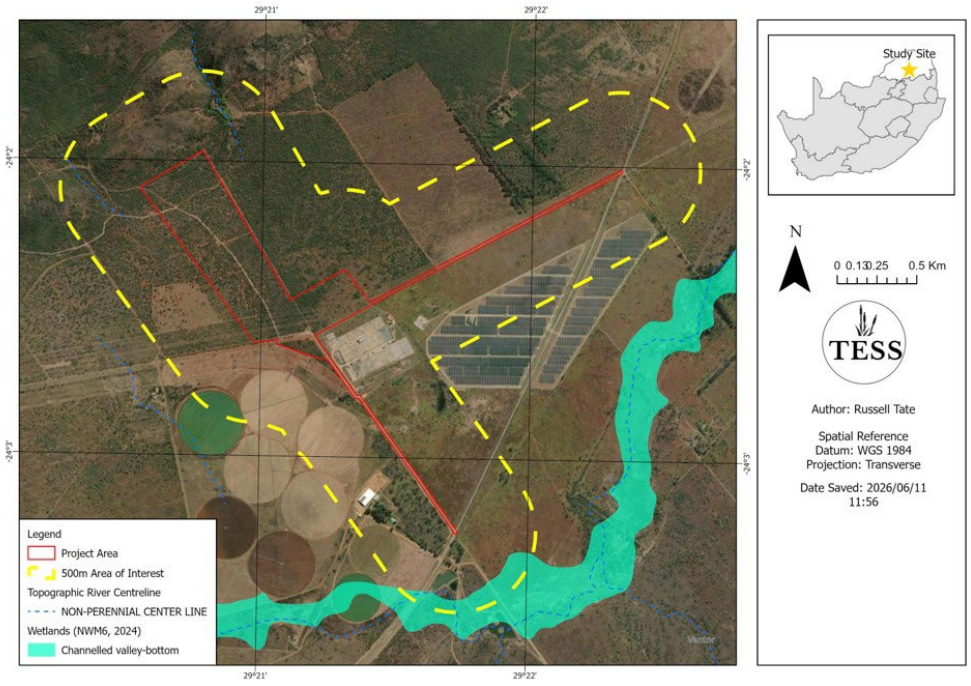


Figure 4.11: Desktop wetlands and topographic river lines in the AoI (*Source*: Tate, 2026).

No aquatic features were identified within the PDA and study area for the BESS and EGI, and Access Road Option B specifically, during the field surveys. The aquatic baseline for that portion of the PDA is therefore characterised by the absence of wetlands, drainage lines, riparian habitat, hydromorphic soils and other aquatic features. Access Road Option A was the only infrastructural component directly associated with a wetland feature which was classified as “high” sensitivity aquatic habitat. The aquatic study determined that there is no plausible routine runoff, sediment transfer, or altered drainage pathways from the BESS and EGI development footprint and the development footprint of Access Road Option B, to the mapped seep wetlands or artificial impoundments or the UVB wetland. The impacts are primarily associated with proposed Access Road Option A only.

In terms of aquatic faunal species, no fish are expected to be associated with the proposed project due to an absence of permanently inundated habitats with connectivity to downstream aquatic habitats. The presence of impoundments does indicate that aquatic biodiversity species would occur in the AoI. Odonata are therefore expected to occur. It was determined that aquatic animals of Species of Conservation Concern (SCC) are expected to occur in the greater 500 m AoI of the proposed projects. A single SCC Odonate (i.e. the *Pseudagrion assegai* (Spearhead Sprite)) is expected to occur in the AoI in the impoundments.

Within the Southern African region, *Pseudagrion assegai* has a wide distribution and is not considered to be declining at a rate that would qualify it for a threatened or Near Threatened category. It is therefore assessed as Least Concern regionally, and its current global conservation status is also Least Concern. However, within South Africa, this species is marginal and rare, with its specialised habitat considered highly vulnerable to drought and over-abstraction. Additional potential threats include future mining activities and trampling by cattle. This species is therefore assessed as Vulnerable in South Africa. This species is expected to occur, with a moderate

confidence, within the 500 m AoI; however, it is not expected to occupy the actual developmental footprint area. Refer to the Aquatic Biodiversity and Species Assessment (Appendix E.3 of this BA Report) for a full list of the expected Odonata in the AoI.

The overall sensitivity for aquatic animal species is derived to be high in areas associated with wetlands, moderate in impoundments and low in the remaining areas.

SANBI (2020)[10] recommends a 300 m buffer around suitable/confirmed *Pseudagrion assegai* habitat, particularly large pools (impoundments) and associated long-grass riparian margins which would likely be present at the impoundment in HGM1.

The Aquatic Specialist conducted a scientific buffer analysis and recommended a 15 m buffer for the remaining aquatic habitats. The recommended buffer zones are presented in Figure 4.12. It is noted that the proposed Access Road Option A intersects with the proposed 15 m buffer. Therefore, the Aquatic Specialist clarified that the 15 m buffer would be applicable to ancillary activities required for the road construction including the positioning of laydown yards and stockpile materials. The 15 m buffer zone is not applicable to the placement of the road watercourse crossing structures.

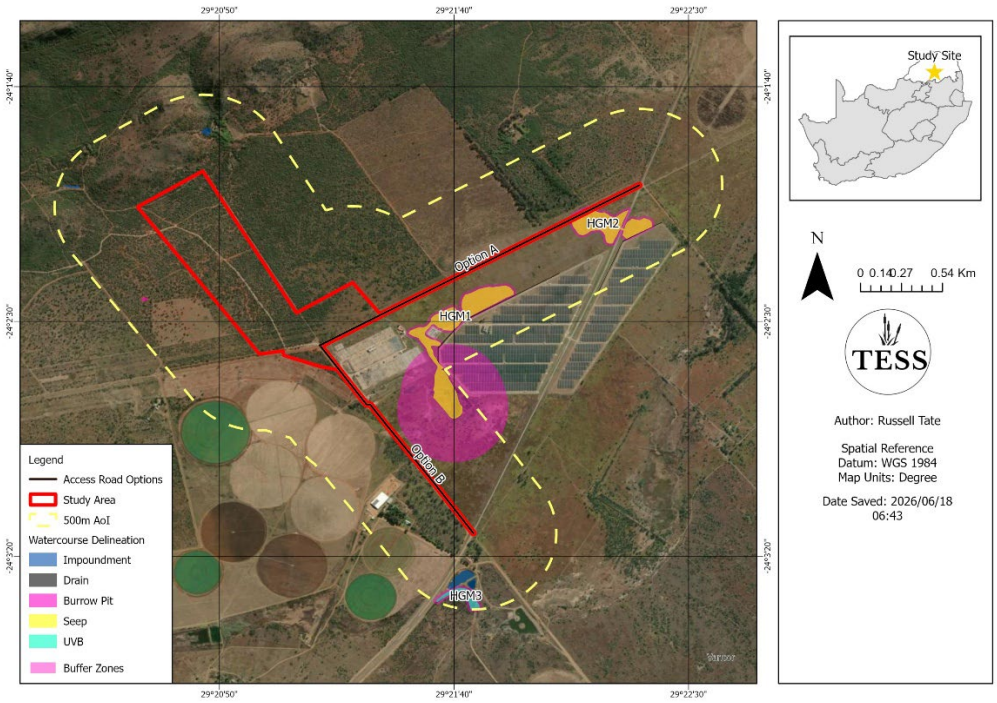


Figure 4.12: Recommended buffer zones (Source: Tate, 2026).

[10] South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline: Guidelines for the implementation of the Fauna and Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 4.1, 2026.

The information presented in the section below is project specific.

No aquatic plant SCC were observed during the surveys within the study area.

- **Project 1 – Veroniva BESS**

From an aquatic perspective, the Screening Tool classified the study area and the footprints of the proposed Veroniva BESS (Project 1) (i.e., the proposed BESS and BESS IPP Substation footprints, as well as the external access roads) as low sensitivity overall for the Aquatic Biodiversity theme (Figure 4.13), as there are no wetlands or watercourses immediately associated with the study area. In addition, the Screening Tool does not list any aquatic species in the Animal Species theme and Plant Species theme. The findings of the SSV undertaken by the Aquatic Specialist confirmed and provided evidence which does not support the results of the Screening Tool. The overall sensitivity for the aquatic biodiversity theme is verified as high sensitivity.

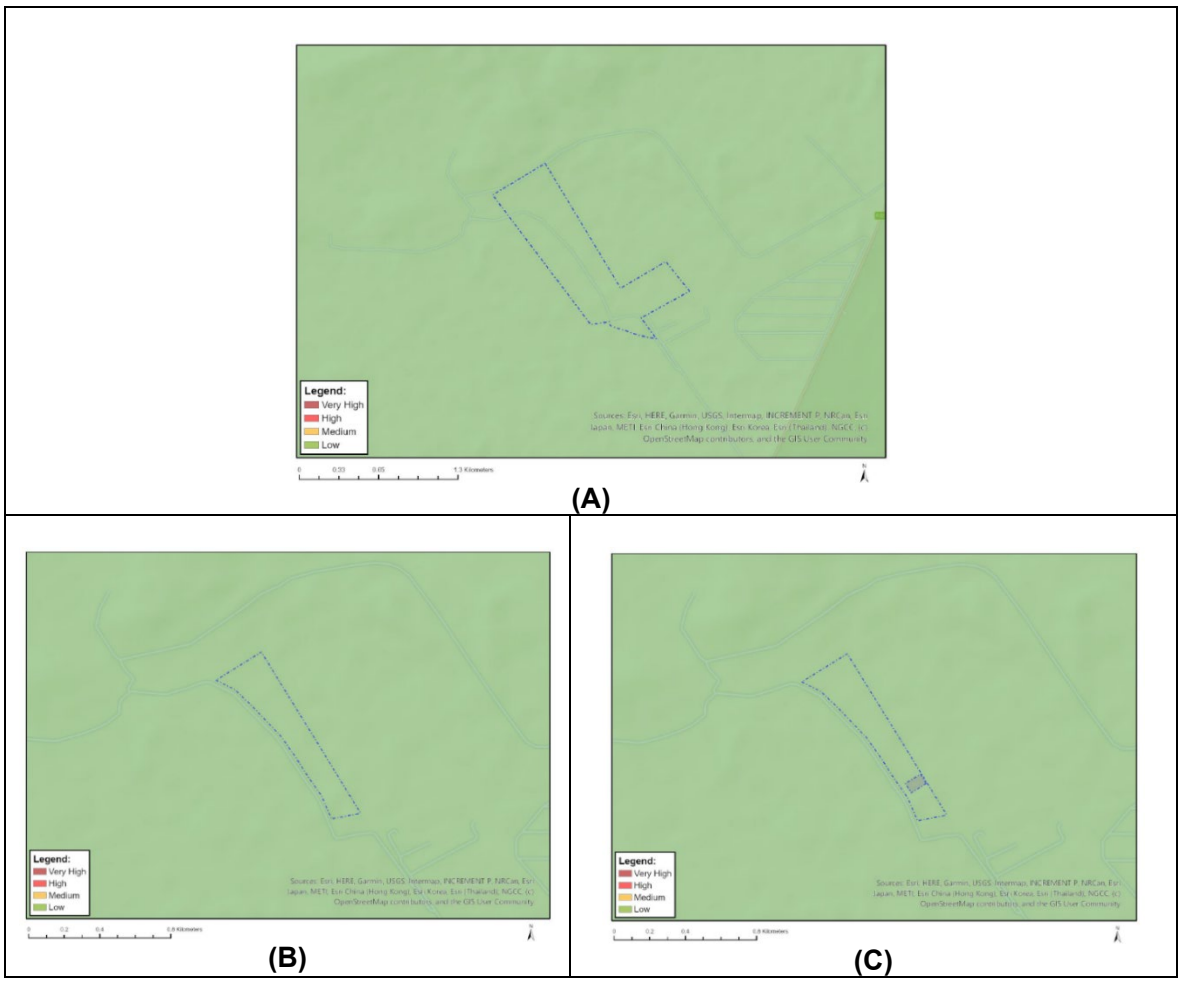


Figure 4.13: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Aquatic Biodiversity theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Aquatic Biodiversity theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Aquatic Biodiversity theme. (*Source*: (A): DFFE Screening Tool, 2025; (B) and (C): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Aquatic Biodiversity theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included (Figure 4.13).

In addition, the Screening Tool Report for the External Access Road Option A and Option B are included in Appendix L of this BA Report. The Screening Tool Map for the access road options for the Aquatic Biodiversity theme shows Low sensitivity. The external Access Road Option B does not have any implications from an aquatic biodiversity perspective as there are no aquatic features identified within this area and is verified as low sensitivity. Access Road Option A is directly associated with a wetland feature and is verified as high sensitivity.

The information presented in the section below is project specific.

- **Project 2 – Veroniva EGI**

From an aquatic perspective, the Screening Tool classified the study area and the footprints of the proposed Veroniva EGI (Project 2) (i.e., the proposed Switching Station footprint and EGI Assessment Corridor Area) as low sensitivity overall for the Aquatic Biodiversity theme (Figure 4.13 [study area] and Figure 4.14 [switching station footprint and EGI Assessment Corridor Area]), as there are no wetlands or watercourses located within the study area and project footprints. In addition, the Screening Tool does not list any aquatic species in the Animal Species theme and Plant Species theme. The same aquatic biodiversity sensitivity as discussed for Project 1 (Veroniva BESS) above applies to Project 2 (Veroniva EGI). It is confirmed as high sensitivity overall.



Figure 4.14: (A) Screening Tool map of the Switching Station footprint indicating sensitivities for the Aquatic Biodiversity theme. (B) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Aquatic Biodiversity theme. (*Source*: DFFE Screening Tool, 2026).

The information presented in the section below applies to both Veroniva BESS (Project 1) and Veroniva EGI (Project 2).

- **Project 1 – Veroniva BESS and Project 2 – Veroniva EGI**

Figure 4.15 below presents the aquatic biodiversity sensitivities for the proposed BESS and AoI. Seep wetlands, UVB wetland, artificial impoundments, drains and burrow pits were identified within the broader 500 m AoI. No wetlands, riparian areas, drainage lines, hydromorphic soils, or other aquatic features were identified within the BESS and EGI footprint, and within the footprint for Access Road Option B during the field surveys. The aquatic features occur outside the BESS, EGI and Access Road Option B disturbance footprints and are separated from the proposed infrastructure by distance, topographic breaks and the absence of hydrological connectivity. The low sensitivity finding for the BESS, EGI and Access Road Option B is therefore based not only on the absence of aquatic features within these specified footprints, but also on the absence of credible direct or indirect impact pathways between the proposed development (linked to these specified footprints) and aquatic receptors..

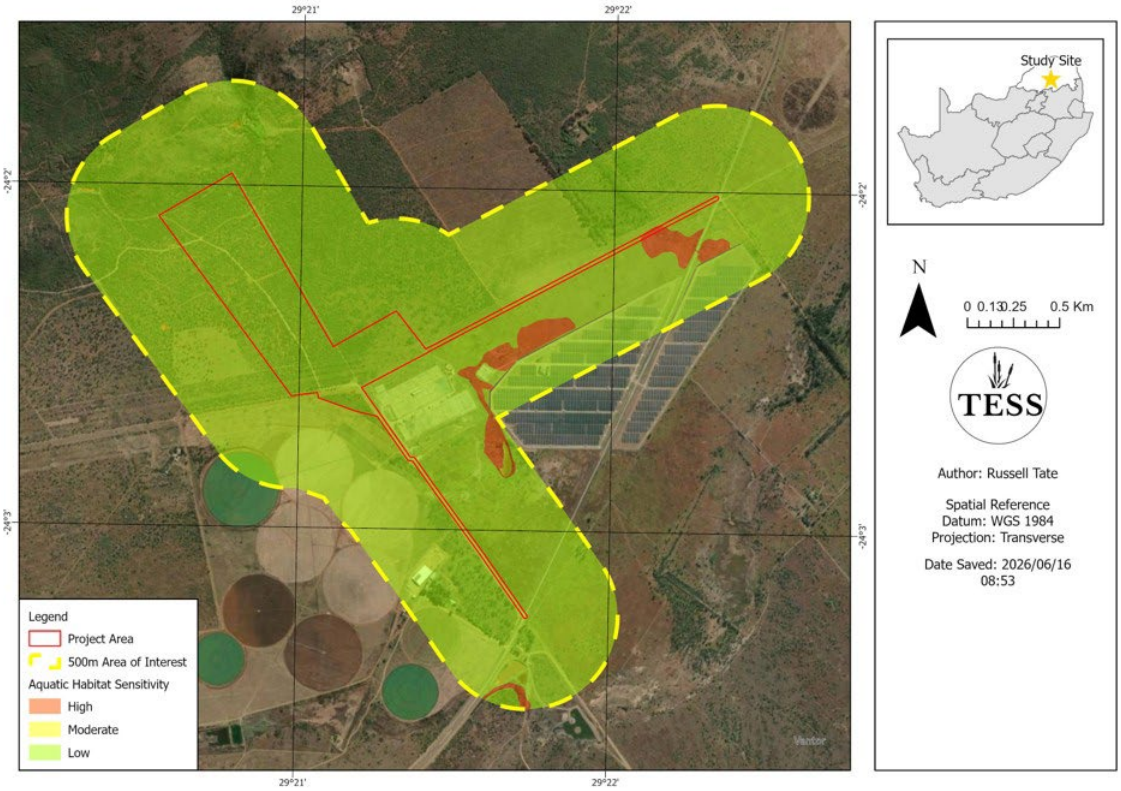


Figure 4.15: Sensitivity map for the proposed BESS and EGI study area, including the external access road options, and AoI. On this map, wetlands shown in red are assigned High sensitivity (*Source*: Tate, 2026).

4.2.8 Terrestrial Biodiversity

The information described below is based on the Terrestrial Biodiversity and Species Assessment and SSV provided by the Terrestrial Specialist (Bios Diversitas Consultants (Pty) Ltd, 2026[11]), which is included in Appendix E.2 of this BA Report.

[11] Bios Diversitas Consultants (Pty) Ltd. (2026). Terrestrial Biodiversity and Species Assessment for the proposed Veroniva BESS and Veroniva EGI development (Projects 1 and 2). Appendix E.2 of this BA Report.

The following was undertaken as part of the initial sensitivity screening:

- A Desktop Screening Assessment was conducted using various existing information and datasets, such as *inter alia*, the Red List of South African Plants and Animals; Ecosystem and vegetation type sensitivity layers; Key Biodiversity Areas; Protected and Conservation areas of South Africa (South Africa Protected Areas Database [SAPAD] and South Africa Conservation Areas Database [SACAD]); the Screening Tool; iNaturalist; Global Biodiversity Information Facility; the Species Environmental Assessment Guideline (SANBI, 2020 updated in 2026[12]); and the Botanical Database of Southern Africa (BODATSA).
- A desktop survey to consider the best information available in order to provide a better evaluation of all conditions present within the study area.
- An onsite SSV survey was undertaken in November 2025 by the specialist to evaluate the terrestrial biodiversity including sensitive plant and animal species of the study area. During the field survey performed, the area was evaluated on foot and by vehicle, GPS track records and a series of georeferenced photographs were taken to provide verifiable evidence of survey coverage and representative habitat conditions across the study area. In terms of seasonality, the area receives summer rainfall with very dry winters. Accordingly, the site visit occurred in optimal wet conditions.

4.2.8.1 Regional Vegetation and Ecosystems

The study area falls within the Savanna Biome and is composed of elements of two overlapping vegetation types, namely, the Polokwane Plateau Bushveld (SVcb 23) and the Mamabolo Mountain Bushveld (SVcb 24), as indicated in Figure 4.16 (SANBI, 2024[13]; SANBI, 2022[14]).

The Polokwane Plateau Bushveld varies from a dense, short Bushveld to an open tree savanna with a well-developed grass layer. They distinguished the Mamabolo Mountain Bushveld as a subsection of the Polokwane Plateau Bushveld. The Mamabolo Mountain Bushveld consists of a combination of dense shrubby thickets and small trees of *Senegalia* and *Vachellia* species and various broad-leaved species. The rock slabs or domes are sparsely vegetated, and then mostly with a mixture of xerophytes, with several succulents.

[12] SANBI (2020). Species Environmental Assessment Guideline. Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 4.1. 2026.
[13] SANBI (2024). The Vegetation Map of South Africa, Lesotho and Swaziland, Mucina, L., Rutherford, M.C. and Powrie, L.W. (Editors), Version 2024.
[14] SANBI (2022). Red List of Ecosystems (RLE) for terrestrial realm for South Africa - Original extent [Vector] 2021. Available from the Biodiversity GIS website.

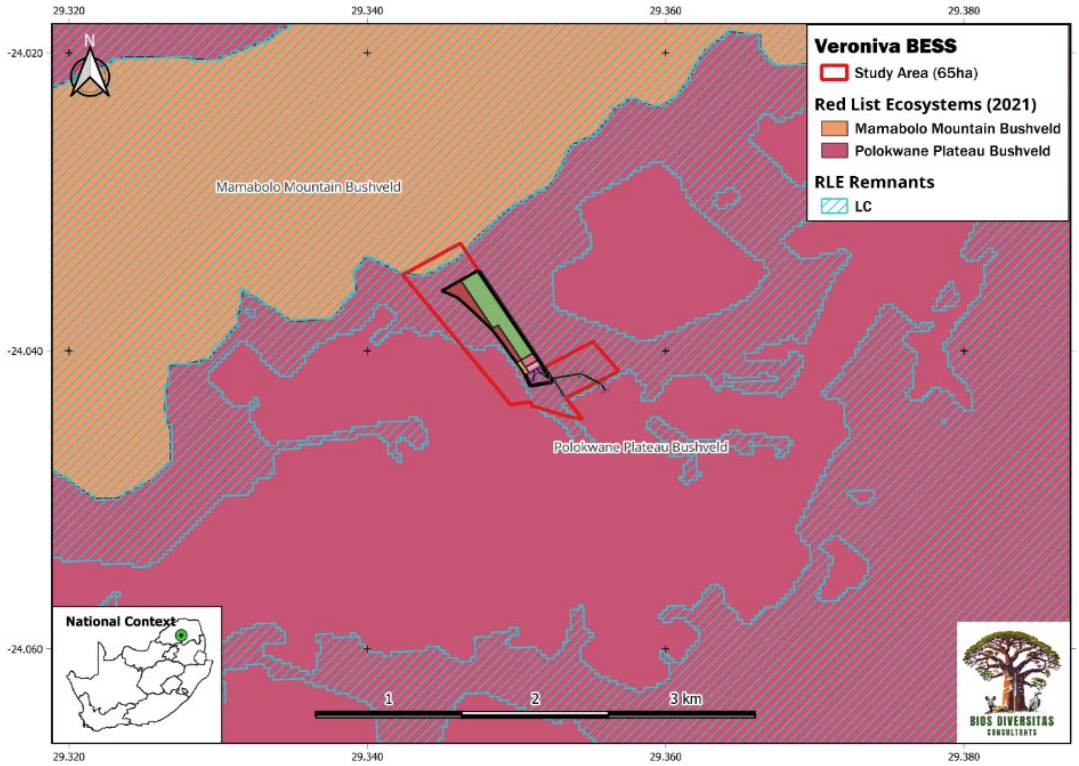


Figure 4.16: The study area and project layout for the BESS and EGI in relation to the National Vegetation Map (SANBI, 2024) and terrestrial Red List of Ecosystems (SANBI, 2022) (*Source*: Bios Diversitas Consultants (Pty) Ltd, 2026).

4.2.8.2 Biodiversity Conservation Planning

Key Biodiversity Areas and Protected Areas

The proposed projects are located within the Polokwane Key Biodiversity Area (KBA), the Dream Hills Snymansdrift Game Farm and close to Kuschke Nature Reserve (formally Protected Area).

The Polokwane KBA is a terrestrial site of high conservation importance in Limpopo. The landscape is characterised primarily by moderately undulating plains supporting a short, open tree layer above a well-developed grass layer. Hills of Mamabolo Mountain Bushveld occur as embedded landscape features within the site. These comprise low mountainous areas with moderate to steep, rocky slopes supporting small trees and shrubs. Exposed rock slabs and domes are sparsely vegetated and are occupied mainly by xerophytic and resurrection plants, together with several succulent species.

Figure 4.17 indicates the KBAs in relation to the proposed BESS and EGI projects. Table 4.4 provides an overview of the Polokwane KBA.

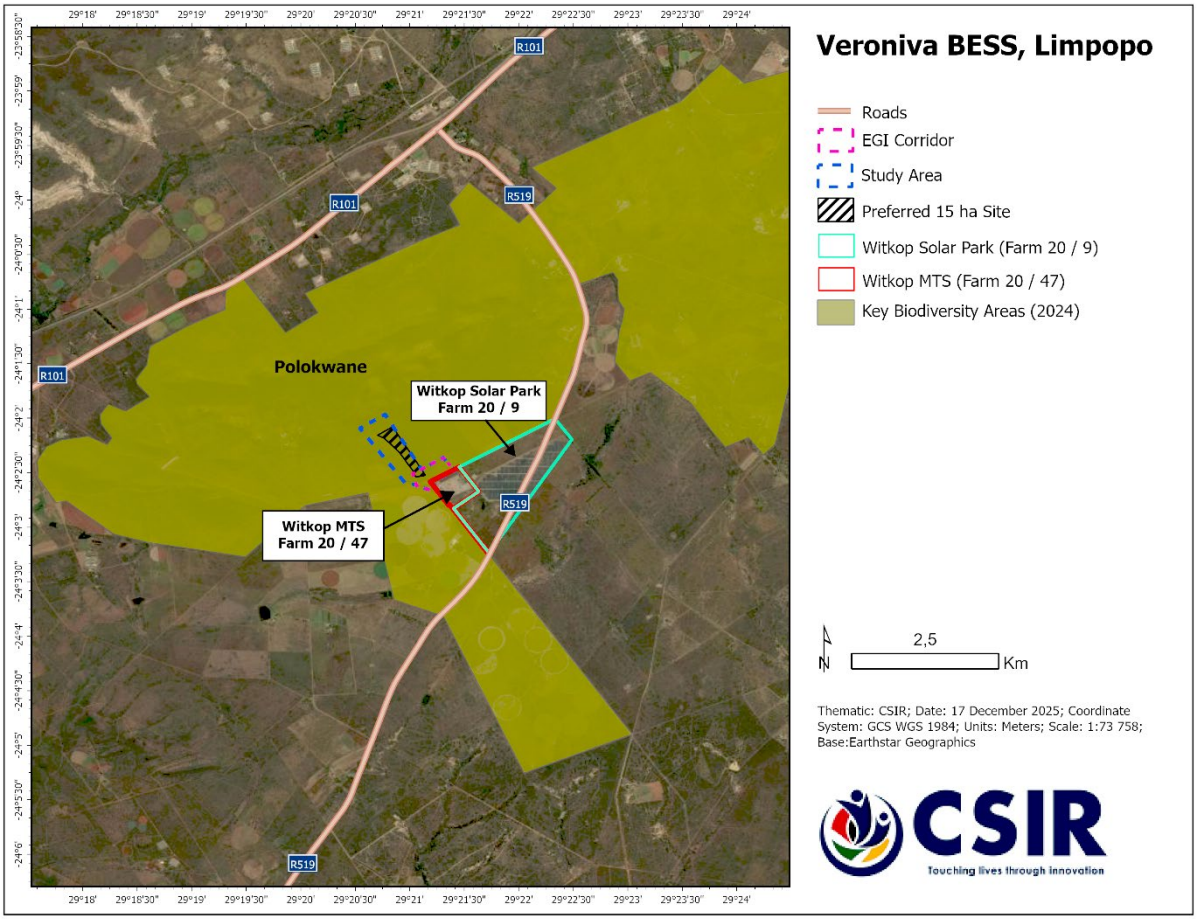


Figure 4.172: Key Biodiversity Areas in relation to the proposed BESS and EGI study area.

Table 4.4: Overview of the Polokwane Key Biodiversity Area (*Source*: Bios Diversitas Consultants (Pty) Ltd, 2026).

Site overview	
National site name	Polokwane
Central coordinates	Latitude: -23.9417, Longitude: 29.5394
KBA status	Confirmed
Global KBA criteria	A1b, B1, E
Year of last assessment	2024
System	terrestrial, freshwater
Elevation (m)	1217 to 1510
Area of KBA (km²)	308.52647
Protected area coverage (%)	16.02
KBA classification	Global
Legacy site	No

This site qualifies as a KBA of international significance, meeting the thresholds for three criteria under the Global Standard for the Identification of KBAs. Based on the currently available

information, five threatened plant species trigger one or more KBA criteria at this site. One Endangered species is considered to occur almost entirely within the site, while substantial proportions of the global populations of the other four species are also represented, thereby meeting Criterion A1. In addition, four species are individually geographically restricted, and the site therefore meets Criterion B1. A quantitative irreplaceability analysis further indicates that the site is 100% irreplaceable for the global persistence of all five species, thus meeting Criterion E.

A further five potential trigger species satisfy the minimum population parameter thresholds for the site. However, available data are insufficient to confirm their presence and/or the minimum number of reproductive units required for these species to formally meet the KBA criteria.

The site is managed primarily by a protected area management authority, with a portion falling under the jurisdiction of a regional conservation authority responsible for enforcing statutory controls over land-use change in CBAs and threatened ecosystems.

In terms of the KBA, since the study area does not intersect with CBAs and threatened ecosystems, the risk is lowered and the triggers become less relevant to this particular site. None of the threatened species that occur within this KBA were recorded in the study area, with a medium to low probability of occurring on site. Accordingly, the site does not threaten the KBA status or does not have a significant impact on any of the triggered species. Development on this site therefore does not pose a flaw to the KBA.

Figure 4.18 indicates the Protected Areas in relation to the proposed BESS and EGI projects. According to the SAPAD, Quarter 4 (2025), the study area does not include any formally Protected Areas (Figure 4.18), as defined by the National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEM:PAA). The closest formally Protected Area is the Kuschke Nature Reserve, which is located approximately 3 - 4 km north and south-east of the study area for the BESS and EGI (Kuschke Nature Reserve [A] and [B]) (Figure 4.18). The external access roads (Options A and B) lie closer to the Kuschke Nature Reserve.

The Nawilger Private Nature Reserve is more than 4 km east of the study area; and the Pietersburg Nature Reserve, Percy Fyfe Nature Reserve, Fossil Hominid Sites of South Africa World Heritage Site, and Mogoto Private Nature Reserve are more than 10 km from the study area.

Conservation Areas

According to the SACAD, Quarter 4 (2025), the study area does not include any Conservation Areas.

National Protected Area Expansion Strategy Focus Areas

There are no NPAES focus areas within the study area. The Limpopo Central Bushveld NPAES Focus Area is located approximately 7 km southeast of the study area (refer to the inset map in Figure 4.18).

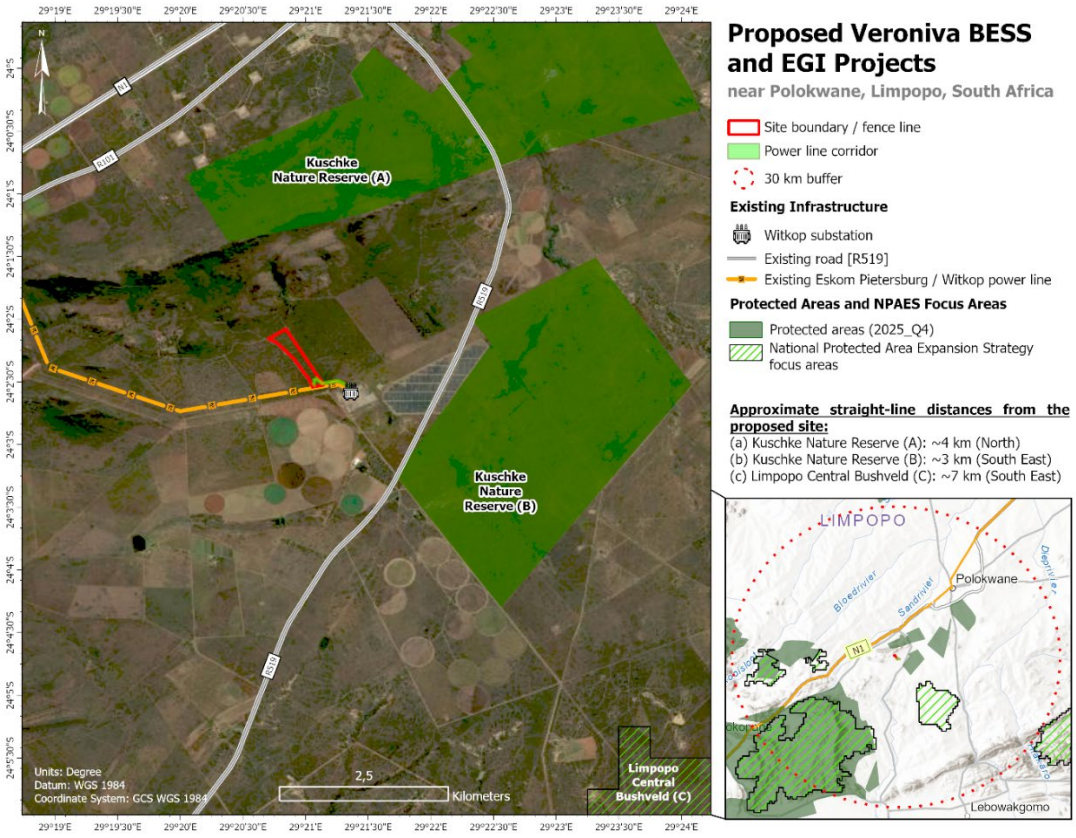


Figure 4.18: Proposed BESS and EGI in relation to Protected Areas and National Protected Area Expansion Strategy Focus Areas (SAPAD; Quarter 4, 2025).

Capricorn District Bioregional Plan, Critical Biodiversity Areas (CBAs) and Ecological Support Areas (ESAs)

The Capricorn District Bioregional Plan is applicable to the proposed projects. The Capricorn District Bioregional Plan is based on the Critical Biodiversity Area (CBA) maps developed in the Limpopo Conservation Plan V2, 2013 (LCPv2), which is the current systematic biodiversity plan for the province undertaken by the Limpopo Department of Economic Development, Environment and Tourism (LEDET). The LCP Version 2 was updated in 2018.

One of the outputs of the LCPv2 is a map of CBAs and Ecological Support Areas (ESAs). These are classified into different categories based on biodiversity characteristics, spatial configuration and requirements for meeting targets for both biodiversity pattern and ecological processes. These categories include:

- **Protected Areas**: Areas that are declared and formally protected under the National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003) (Protected Areas Act). These include National Parks, Nature Reserves, World Heritage Sites and Protected Environments that are secured by appropriate legal mechanisms.
- **Critical Biodiversity Areas**: Sites that are required to meet biodiversity targets for ecosystems and species and need to be maintained or restored into good ecological condition.

- **Ecological Support Areas**: Areas that are important for supporting the ecological functioning of CBAs and protected areas and for meeting biodiversity targets for ecological processes.
- **Other Natural Areas (ONAs)**: Areas that still contain natural habitat but that are not required to meet biodiversity targets.
- **No Natural Areas Remaining**: Areas without intact habitat remaining.

The Capricorn District Bioregional Plan indicates that the study area is located within a CBA1 (Figure 4.19) due to bird SCC (excluded from the Terrestrial Biodiversity Assessment), the two vegetation types and ecological corridor. The Polokwane Plateau Bushveld was previously classified as Vulnerable but has since been reassessed as Least Concern. According to the Terrestrial Specialist, the Limpopo Bioregional Plans are outdated and needs to realign with the latest information for ecosystems and species assessments.

The Terrestrial Biodiversity Assessment (Appendix E.2 of this BA Report) states that the study area does not meet the requirements for CBA1 classification (from a terrestrial biodiversity, plant and animal species themes perspective) but is still an important ecological corridor, provides important ecosystem services and support areas important for climate refugia. Therefore, the study area should be treated as an ESA1. Accordingly, the CBA1 has been disputed by the specialist and the study area at best can be considered as an ESA1 as it retains significant importance from an ecological process perspective by maintaining landscape connectivity.

In addition to the main BESS and EGI footprint, the two external access road options also traverse mapped CBA1 (Option A and Option B) and ESA2 (Option B), and has therefore also been considered in the terrestrial assessment. This does not necessarily preclude their use, as both options are based on existing access routes rather than entirely new alignments. However, any widening, shoulder hardening, drainage works, or vegetation clearing along these routes must be micro-sited to minimise encroachment into natural habitat, mapped CBA/ESA areas, and protected area interfaces.

Based on the SSV and findings of the Terrestrial Biodiversity Assessment, there are no Critically Endangered, Threatened and/or Vulnerable Ecosystems present within the study area of the proposed projects. Refer to Appendix E.2 of this BA Report for the Terrestrial Biodiversity and Species Assessment for additional information.

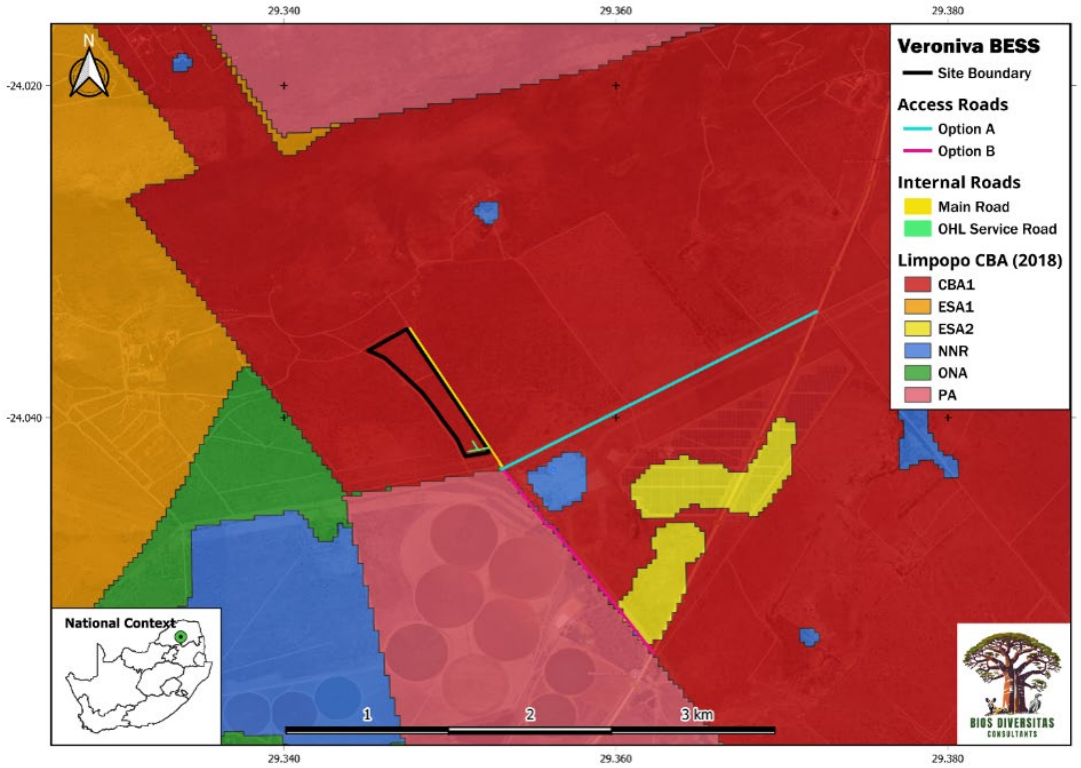


Figure 4.19: Critical Biodiversity Areas and Ecological Support Areas within the wider region including areas designated as No Natural Remaining (NNR), Other Natural Area (ONA) and Protected Area (PA) (based on the Limpopo Integrated CBA Map, 2018) (*Source*: Bios Diversitas Consultants (Pty) Ltd, 2026).

4.2.8.3 Animal Species (Excluding Avifauna)

Screening Tool Descriptions and Site Sensitivity Verification

Mammals

The study area is likely to support a range of small- to medium-sized bushveld mammals associated with open woodland, secondary grassland, thicket patches, and transformed edge habitats. Habitat within the preferred development footprint is moderately disturbed and fragmented by existing roads, fences, historical agricultural activity, and other infrastructure, and therefore does not represent optimal habitat for highly sensitive mammal species. More natural habitat persists toward the northern portion of the study area and in the adjacent higher-sensitivity bushveld areas.

The Lobatse hinged-back tortoise (*Kinixys lobatsiana*) is a near-endemic species associated with rocky hillsides in mixed woodlands of the Bushveld, where it often brumates (i.e., enters a state of 'deep sleep') in rock crevices or abandoned animal burrows. It can be found in open savanna with few rocks or burrows, where it finds refuge under low vegetation cover. This species is currently listed, regionally and globally, as Vulnerable A4cde. The most important impact is direct habitat loss and degradation through vegetation clearing, levelling, internal roads, laydown areas and associated infrastructure, especially where development affects rocky habitat or the plains and valleys that maintain connectivity between rocky habitat patches. This species was not observed

directly within the study area but has been confirmed for the region but limited to no suitable rocky habitat was encountered or observed within the development footprint. The species is expected to occur within the Mamabolo Mountain Bushveld located north of the study area where rocky habitat has been confirmed.

The Maquassie Musk Shrew (*Crocidura maquassiensis*), within South Africa, is patchily distributed and generally associated with localised pockets of suitable natural habitat that retain dense ground cover and moist microhabitats. For Limpopo, the main consideration is not broad regional occurrence alone, but whether suitable habitat such as wetlands, riparian areas, rank grassland or other persistently moist habitat is present within the site. This species is listed as Vulnerable B2ab(ii,iii,iv). The main threats to the species are the loss or degradation of moist, productive areas such as wetlands and rank grasslands within suitable habitat. Domestic pets in urban and peri-urban areas also pose a significant predation risk. This species favours habitats that offer dense vegetation and moist environments, providing both cover and a steady supply of invertebrate prey. Although tolerant of a range of different habitats, this species is dependent on moist habitats such as montane grasslands, coastal forests and riparian or wetland areas.

Recent Red List information indicates that *Crocidura maquassiensis* may tolerate a broader range of habitats, including rocky or montane grassland, grassy hillsides, mixed grassland, and modified rural or urban landscapes. The main BESS and EGI footprints do not include confirmed wetland habitat; however, a seep wetland was identified overlapping with External Access Road Option A. The absence of permanent open water or mapped wetland habitat in the main BESS and EGI footprint therefore does not in itself exclude the species from the broader project area. Within the current project context, the seep wetland associated with Access Road Option A remains the most plausible microhabitat owing to its seasonal wet soils and dense graminoid vegetation cover, but suitable habitat may also occur more broadly in grassy or rocky habitat within the surrounding landscape.

Although no open water is present and the wetland appears seasonal, the presence of persistent seasonal moisture and dense grass cover increases the likelihood of suitable microhabitat for the species relative to the surrounding upland bushveld. The species was not recorded during the survey, and its presence remains unconfirmed. However, the Terrestrial Specialist recommended that a precautionary moderate probability of occurrence be assigned, with Access Road Option A considered more sensitive than Access Road Option B from a terrestrial small-mammal perspective. However, both are acceptable, with the implementation of recommended mitigation for Access Road Option A. As the latest Red List rationale uses wetland-associated natural habitat as a planning proxy for occupancy, while the species also appears capable of using a broader range of moist and grassy habitats, the Terrestrial Specialist recommended that a precautionary ecological buffer of 32 m be applied around the seep wetland and associated graminoid vegetation for terrestrial planning purposes.

Reptiles

Reptile habitat within the study area includes open bushveld, grass-covered plains, edge habitat associated with old fields, and more structurally complex rocky habitat toward the northern section linked to the Mamabolo Mountain Bushveld. The preferred BESS footprint is dominated by less complex plateau bushveld and transformed areas, while the more suitable rocky reptile habitat occurs outside the preferred footprint in the northern higher-sensitivity area. Other common

bushveld reptiles are likely to occur throughout the site, especially in areas with cover in the form of grass tussocks, stones, woody debris, and shrubs.

Invertebrates

No dedicated invertebrate specialist survey was undertaken as it was not required for this assessment, and no invertebrate SCC were confirmed within the study area during the field visit. The site is nevertheless expected to support a range of common savanna invertebrates associated with bushveld and grassland habitats, including pollinators, detritivores, and soil-dwelling taxa that contribute to ecosystem functioning. The preferred development footprint is not considered to contain unique or exceptional invertebrate habitat based on the available field evidence. However, intact vegetation, surface rock, coarse woody debris, and undisturbed soils provide microhabitats that support invertebrate diversity at a local scale.

The information presented in the section below is project specific.

- **Project 1 – Veroniva BESS**

The Screening Tool Report Animal Species Sensitivity Map is considered to be of high and medium sensitivity for the entire study area and medium sensitivity for the footprints of the proposed Veroniva BESS (Project 1). The high sensitivity is linked to the potential occurrence of Lanner Falcon (*Falco biarmicus*) (Regionally Near Threatened) which is discussed in the Avifauna SSV in Section 4.2.9 below; and the medium sensitivity is linked to the potential occurrence of *Crocidura maquassiensis* and *Kinixys lobatsiana* (Figure 4.20). The site survey confirmed possible suitable habitat for *Kinixys lobatsiana* in the northern section of the study area where the probability of occurrence is high, but no individuals were recorded. Suitable habitat for *Crocidura maquassiensis* was not identified within the main BESS and EGI footprints.

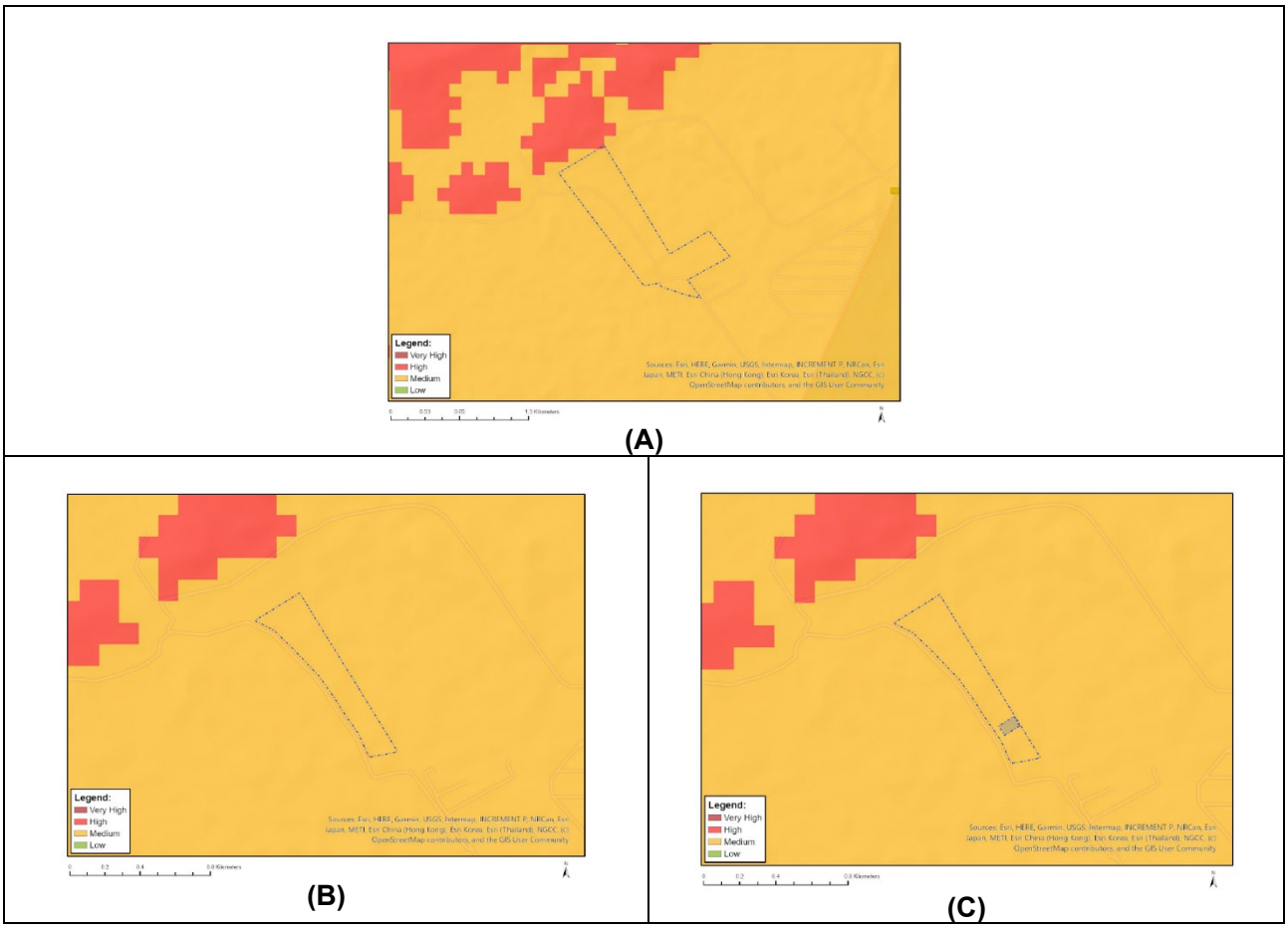


Figure 4.20: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Animal Species theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Animal Species theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Animal Species theme. (*Source*: (A): DFFE Screening Tool, 2025; (B) and (C): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Animal Species theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included (Figure 4.20).

In addition, the Screening Tool Report for the External Access Road Option A and Option B are included in Appendix L of this BA Report. The Screening Tool Map for the access road options for the Animal Species theme shows Medium sensitivity linked to the potential occurrence of *Crocidura maquassiensis* and *Kinixys lobatsiana*. A seep wetland intersects Access Road Option A and provides potentially suitable habitat for *Crocidura maquassiensis* at that location. The probability of occurrence of this species at that location is moderate; however, this species was not recorded during the survey and its presence remains unconfirmed. The external access roads are verified as low sensitivity from an animal species perspective.

The information presented in the section below is project specific.

- **Project 2 – Veroniva EGI**

The Screening Tool Report Animal Species Sensitivity Map is considered to be of high and medium sensitivity for the entire study area, and medium sensitivity for the footprints of the proposed Veroniva EGI (Project 2) (Figure 4.20 (A) [study area] and Figure 4.21 [switching station footprint and EGI Assessment Corridor Area]). The medium sensitivity is linked to the potential occurrence of *Crocidura maquassiensis* and *Kinixys lobatsiana*.



Figure 4.21: (A) Screening Tool map of the Switching Station footprint indicating sensitivities for the Animal Species theme. (B) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Animal Species theme. (*Source*: DFFE Screening Tool, 2026).

The information presented below equally applies to **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**.

- **Overall SSV Concluding Statement for Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**

Based on the SSV, the medium sensitivity rating as classified by the Screening Tool for terrestrial animal species (excluding birds) is confirmed for the study area overall, and it is rated as high sensitivity for the northern section of the study area and lower for the southern section. For the development footprints (including access roads), the animal species sensitivity is low. No individuals of either species [*Kinixys lobatsiana* (Lobatse hinged-back tortoise) and *Crocidura maquassiensis* (Maquassie musk shrew)] were recorded during the field survey. The preferred footprint contains limited suitable habitat for *K. lobatsiana*, with better habitat occurring in the northern rocky section outside the preferred development footprint. Suitable habitat for *Crocidura maquassiensis* was not identified within the main BESS and EGI footprint; however, a seep wetland intersects Access Road Option A and provides potentially suitable habitat for the species at that location. A precautionary 32 m ecological buffer is recommended around the seep wetland and associated graminoid vegetation for terrestrial planning purposes.

Based on the above, the following is collectively and identically concluded for **Veroniva BESS (Project 1) and Veroniva EGI (Project 2)** for Terrestrial Animal Species:

- The **medium sensitivity** for the **Animal Species** Theme on the DFFE Screening Tool is confirmed.
- For the development footprint (including access roads), the Animal Species sensitivity is **low**.
- A precautionary 32 m ecological buffer is recommended around the seep wetland and associated graminoid vegetation.

4.2.8.4 Plant Species

Screening Tool Descriptions and Site Sensitivity Verification

The study area was surveyed to find any sensitive plant species, focusing on areas of suitable habitat. It was found that at least four SCC (sensitive species 1252, sensitive species 550, sensitive species 1248 and *Prunus africana)* could occur within the study area owing to suitable habitat. No SCC or provincially protected species were found on site; however, the protected tree species *Sclerocarya birrea ssp. afra* was recorded in the preferred development footprint. In addition, *P. africana* has a high probability of occurring on site and has been recorded in the vicinity of the study area.

The information presented in the section below is project specific.

- **Project 1 – Veroniva BESS**

Based on the Screening Tool Reports generated in April 2026, the Plant Species Sensitivity Map indicated low sensitivity for the project footprints (Screening Tool Maps (B) and (C) of Figure 4.22). In a previous version of the Screening Tool Report (dated November 2025)[15] and captured in Screening Tool Map (A) of Figure 4.22 below, medium sensitivity was indicated for the full study area based on suitable habitat for at least four SCC within the study area (i.e. Sensitive species 1252, Sensitive species 550, Sensitive species 1248 and *Prunus africana)*. Note that none of the listed SCC were found during the onsite survey that was undertaken by the specialist. All four species are expected to occur further north where there is suitable habitat. The Screening Tool Animal and Plant Species theme were updated in April 2026, which showed that the footprints and study area are now low sensitivity.

[15] Note that the Plant and Animal Species Themes on the Screening Tool were updated on 09 April 2026 (pers. comms. Lisa Pretorius, DFFE Directorate: Environmental Spatial Information).

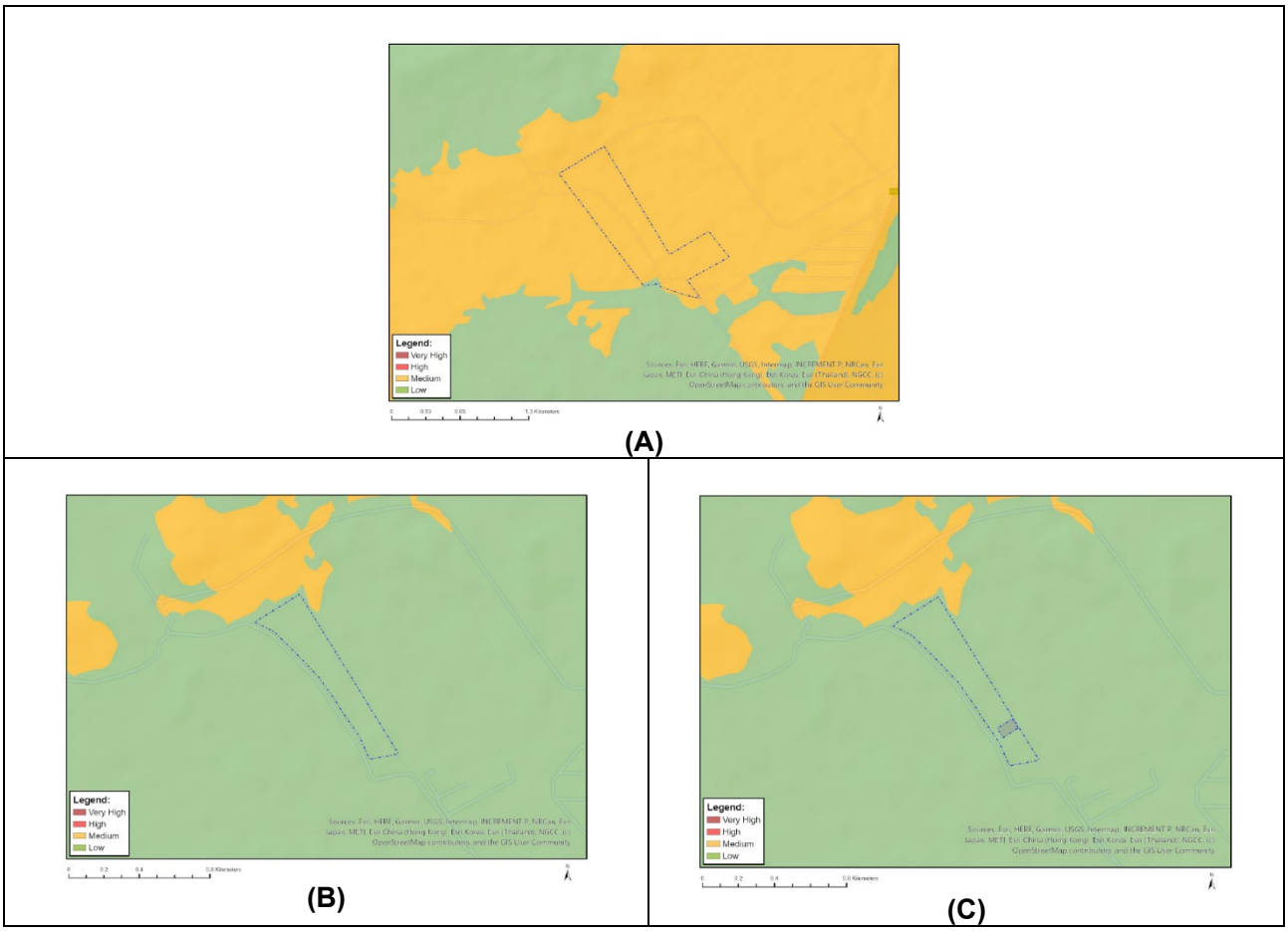


Figure 4.22: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Plant Species theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Plant Species theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Plant Species theme. (*Source*: (A): DFFE Screening Tool, 2025; (B) and (C): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Plant Species theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included (Figure 4.22).

In addition, the Screening Tool Report for the External Access Road Option A and Option B are included in Appendix L of this BA Report. The Screening Tool Map for the access road options for the Plant Species theme shows low sensitivity. The external access roads are verified as low sensitivity from a plant species perspective.

The information presented in the section below is project specific.

- **Project 2 – Veroniva EGI**

The same plant species sensitivity as discussed for Veroniva BESS (Project 1) above applies to Veroniva EGI (Project 2). Based on the Screening Tool Reports generated in April 2026, the Plant

Species Sensitivity Map indicated low sensitivity for the project footprints (Screening Tool Maps (A) and (B) of Figure 4.23).

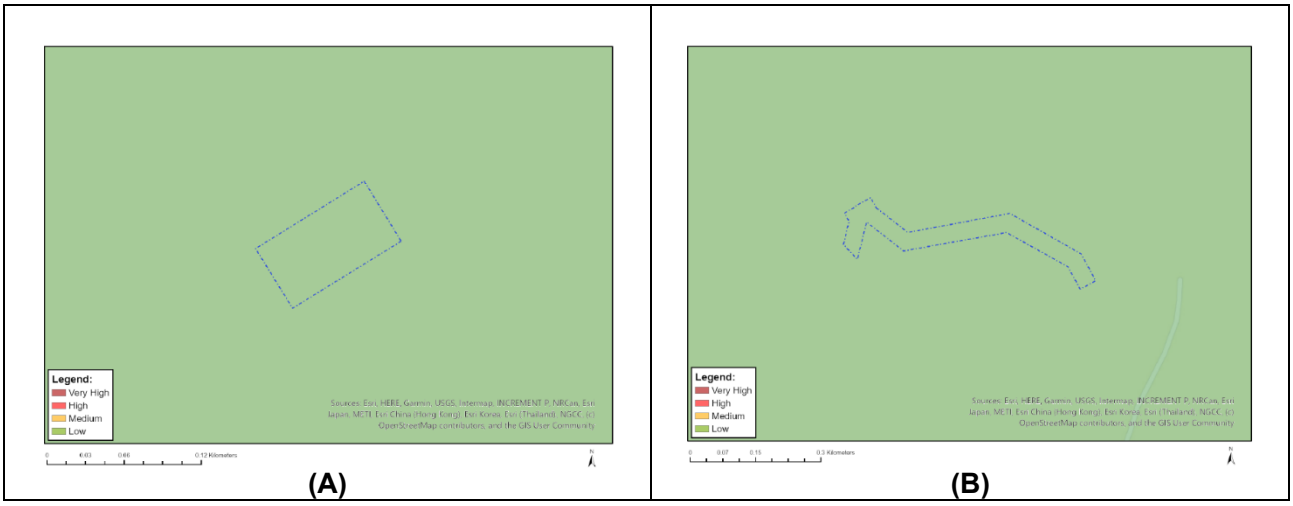


Figure 4.23: (A) Screening Tool map of the Switching Station footprint indicating sensitivities for the Plant Species theme. (B) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Plant Species theme. (*Source*: DFFE Screening Tool, 2026).

The information presented below equally applies to **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**.

- **Overall SSV Concluding Statement for Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**

Based on the SSV and desktop work, the Screening Tool sensitivity rating for terrestrial plant species is confirmed to be low for the development footprint area (including access roads). Sensitivity increases further north owing to suitable habitat and potential presence of plant SCC. The protected tree *Sclerocarya birrea ssp. afra* was recorded in the preferred development footprint and a licence application is required for any individuals which will be impacted on by the development footprint.

There are no areas that need to be avoided by the proposed development from a plant species perspective. Therefore, no buffers have been identified.

Based on the above, the following is collectively and identically concluded for **Veroniva BESS (Project 1) and Veroniva EGI (Project 2)** for Terrestrial Plant Species:

- The **low sensitivity** for the **Terrestrial Plant Species** Theme on the DFFE Screening Tool is confirmed for the project footprints (including access roads).

4.2.8.5 Terrestrial Biodiversity

Screening Tool Descriptions and Site Sensitivity Verification

The study area falls primarily within open woodland and natural grassland, with patches of dense forest and woodland. Surrounding the site are extensive commercial annual crops and various categories of fallow land and old fields (trees, bush, grass and bare), with small areas mapped as industrial and existing roads.

Plateau Bushveld

The southern and central portions of the study area are dominated by Plateau Bushveld, which is the principal habitat associated with the preferred BESS and EGI footprints. This habitat comprises mainly open woodland with a variable but generally well-developed grassy ground layer, interspersed with local bare patches and areas showing evidence of historical disturbance. Structurally, it is less complex than the rocky bushveld to the north and is characterised by a relatively open tree layer with scattered shrubs and grasses, especially in portions previously affected by grazing, roads, old fields, and other anthropogenic disturbance. Dominant and conspicuous woody species recorded in this habitat include *Vachellia karroo*, together with *V. tortilis* and *V. hebeclada subsp. hebeclada.* Ecologically, this habitat remains semi-natural. However, portions of the habitat have been modified by historical agricultural activity, internal roads, fencing, animal management infrastructure, and the presence of alien invasive plants. As a result, the Plateau Bushveld within the study area reflects a mosaic of intact bushveld, secondary vegetation, and disturbed patches.

The Plateau Bushveld is considered to be of low to medium sensitivity, increasing locally where vegetation remains more intact or where protected trees such as *Sclerocarya birrea* occur. No plant SCC were confirmed within the preferred BESS and EGI footprint (i.e. the 15 ha site within the 65 ha study area), and none were found within the footprint of the Access Road Options, during the field survey, and the habitat is not considered optimal for the key reptile SCC identified for the broader study area, namely *Kinixys lobatsiana*. Consequently, this habitat is regarded as the more suitable portion of the site for development, provided that disturbance is kept within the approved footprint, protected trees are avoided where possible, and degraded areas are rehabilitated after construction.

Mountain Bushveld

The northern portion of the study area includes Mountain Bushveld associated with the Mamabolo Mountain Bushveld vegetation type. This habitat is characterised by denser woodland, rocky slopes, exposed boulders, shallow skeletal soils, and a greater diversity of microhabitats created by rock slabs, crevices, woody cover, and local topographic variation. Although the woody species composition overlaps with that of the Plateau Bushveld, the habitat is more heterogeneous and supports a higher diversity of niches for plants and animals.

The rocky character of this habitat increases its biodiversity significance. Surface rock, crevices, and sheltered microsites provide refugia for reptiles and other fauna, while also creating suitable conditions for certain regionally relevant SCC and protected species. This habitat is therefore considered to have a higher probability of supporting sensitive species than the more transformed

plateau habitat, including species associated with rocky bushveld and moister, better-sheltered microsites. In particular, the northern mountain bushveld provides the most suitable habitat in the study area for *Kinixys lobatsiana*, while some of the plant SCC flagged by the Screening Tool are more likely to occur in this part of the site than within the preferred development footprint.

Compared to the Plateau Bushveld, the Mountain Bushveld has better ecological integrity and lower levels of historical transformation. It therefore performs a more important role in maintaining local ecological processes, habitat continuity, and landscape connectivity within the broader bushveld system and the surrounding KBA. Owing to its more intact condition, lower resilience to disturbance, and stronger association with SCC habitat, this habitat is considered to be of medium to high sensitivity, with some portions effectively functioning as high-sensitivity areas for terrestrial biodiversity planning purposes.

The information presented in the section below is project specific.

- **Project 1 – Veroniva BESS**

The Screening Tool Report Terrestrial Biodiversity Sensitivity Map is very high sensitivity for the entire study area due to the presence of CBA1. The CBA1 sensitive features are owing to threatened birds (excluded from the Terrestrial Biodiversity and Species Assessment), the Mamabolo Mountain Bushveld and Polokwane Plateau Bushveld. This was however disputed by the specialist as both the Mamabolo Mountain Bushveld and Polokwane Plateau Bushveld vegetation units and threatened ecosystems are listed as Least Concern. Based on the Screening Tool Reports generated in April 2026, the Screening Tool Report Terrestrial Biodiversity Sensitivity Map is very high sensitivity for the project footprints of the proposed Veroniva BESS (including access roads) (Figure 4.24).

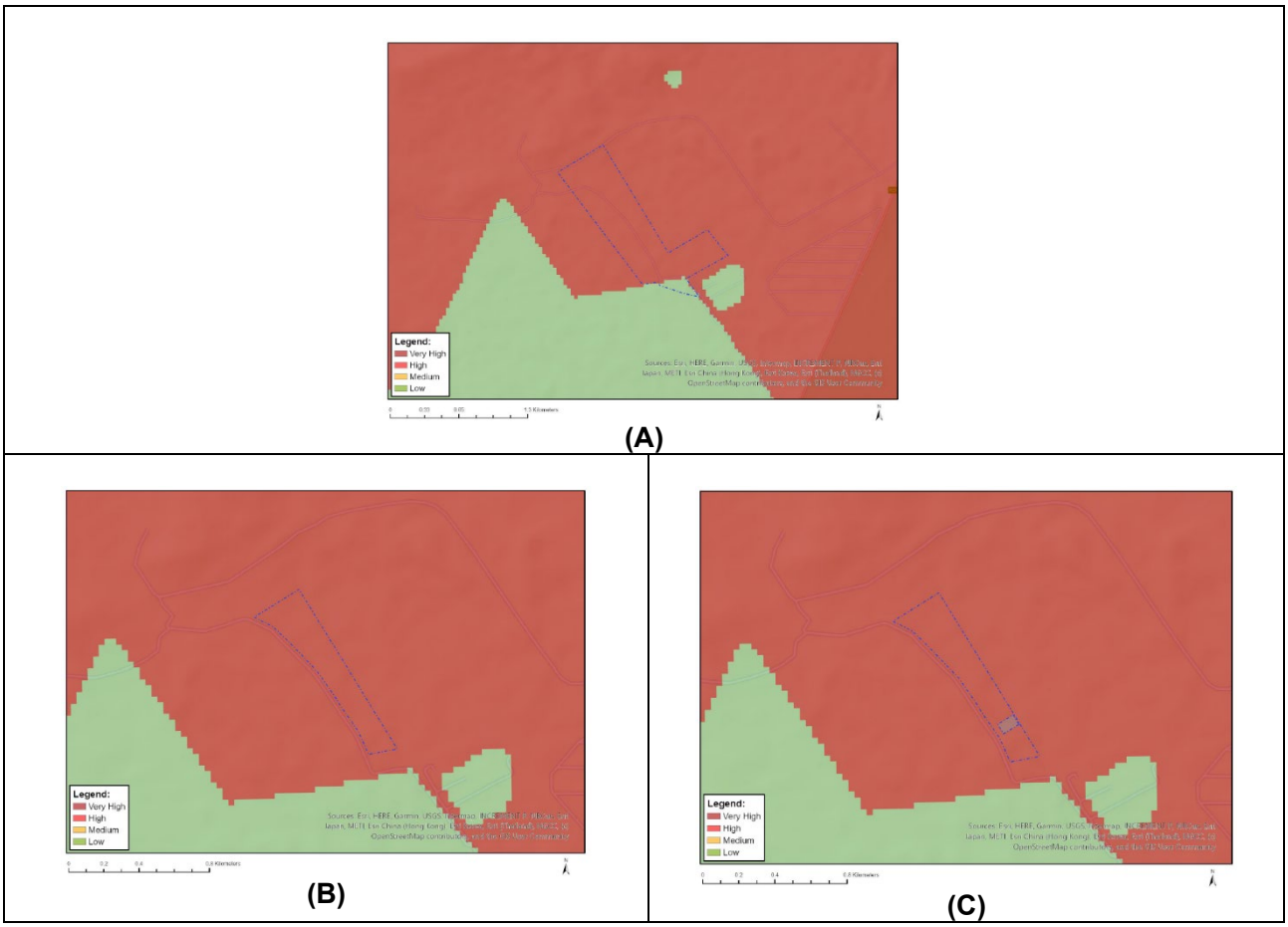


Figure 4.24: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Terrestrial Biodiversity theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Terrestrial Biodiversity theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Terrestrial Biodiversity theme. (*Source*: (A): DFFE Screening Tool, 2025; (B) and (C): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Terrestrial Biodiversity theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included (Figure 4.24).

In addition, the Screening Tool Report for the External Access Road Option A and Option B are included in Appendix L of this BA Report. The Screening Tool Map for the access road options for the Terrestrial Biodiversity theme shows very high sensitivity. The external access roads are verified as high sensitivity from a terrestrial biodiversity perspective.

The information presented in the section below is project specific.

- **Project 2 – Veroniva EGI**

Based on the Screening Tool Reports generated in April 2026, the Screening Tool Report Terrestrial Biodiversity Sensitivity Map is very high sensitivity for the project footprints of the proposed Veroniva EGI (Figure 4.25).

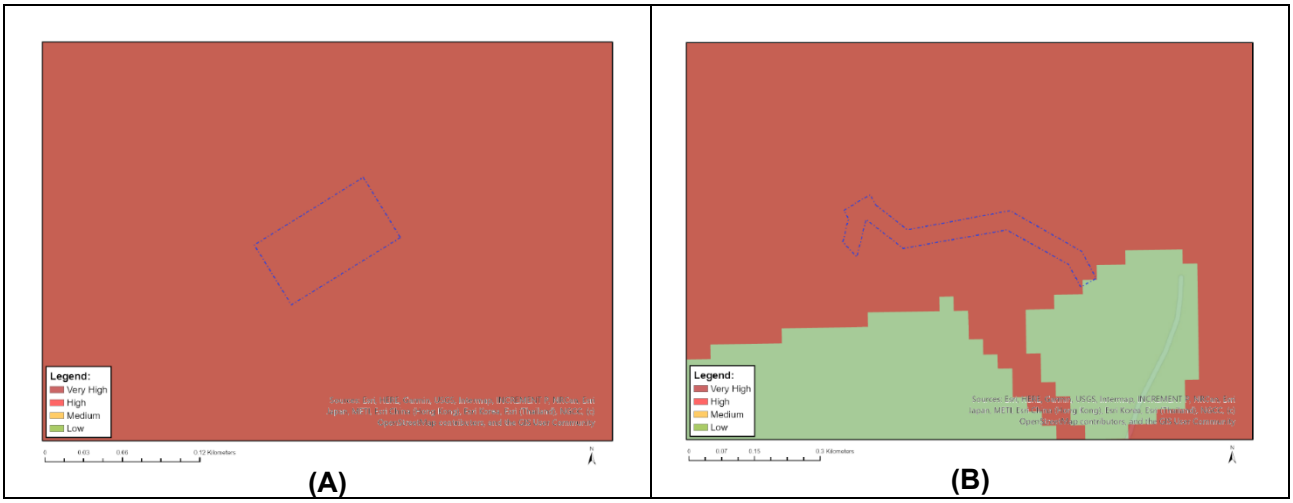


Figure 4.25: (A) Screening Tool map of the Switching Station footprint indicating sensitivities for the Terrestrial Biodiversity theme. (B) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Terrestrial Biodiversity theme. (*Source*: DFFE Screening Tool, 2026).

The information presented below equally applies to **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**.

- **Overall SSV Concluding Statement for Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**

The area is regarded as ESA1 as there are no sensitive features which trigger CBA 1 status from a terrestrial biodiversity perspective (excluding avifauna) but rather act as important areas for supporting the ecological functioning of the surrounding CBAs and protected areas. The study area is located in the Polokwane KBA, with the Kuschke Nature Reserve bordering its boundary to the north.

The **Polokwane KBA** is a terrestrial site with substantial protection. Based on current available information, 5 threatened plant species meet one or more KBA criteria for this site. None of the species were recorded in the study area, with a medium to low probability of occurring on site.

Based on the above, the Terrestrial Biodiversity sensitivity can be considered **high** for the study area (inclusive of the access roads) but **medium** for the BESS and EGI development footprints.

There are no areas that need to be avoided by the proposed development from a terrestrial biodiversity perspective. Therefore, no buffers have been identified.

Based on the above, the following is collectively and identically concluded for **Veroniva BESS (Project 1) and Veroniva EGI (Project 2)** for Terrestrial Biodiversity:

- The **very high sensitivity** for the **Terrestrial Biodiversity** Theme on the DFFE Screening Tool is disputed for the project footprints.
- Terrestrial Biodiversity theme sensitivity can be considered **high** for the study area (inclusive of the access roads) but **medium** for the BESS and EGI development footprints.

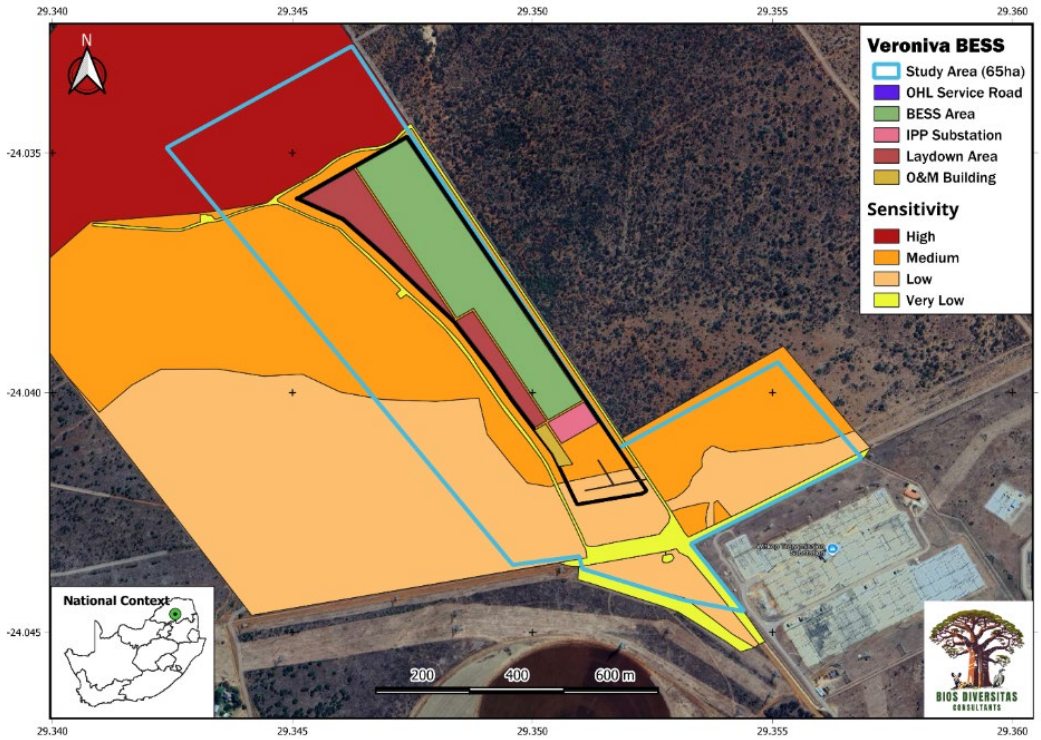


Figure 4.26: Terrestrial Biodiversity and Species sensitivity and layout map for the study area and footprint for the proposed Veroniva BESS (Project 1), based on the SSV and manual delineations (*Source*: Bios Diversitas Consultants (Pty) Ltd, 2026).

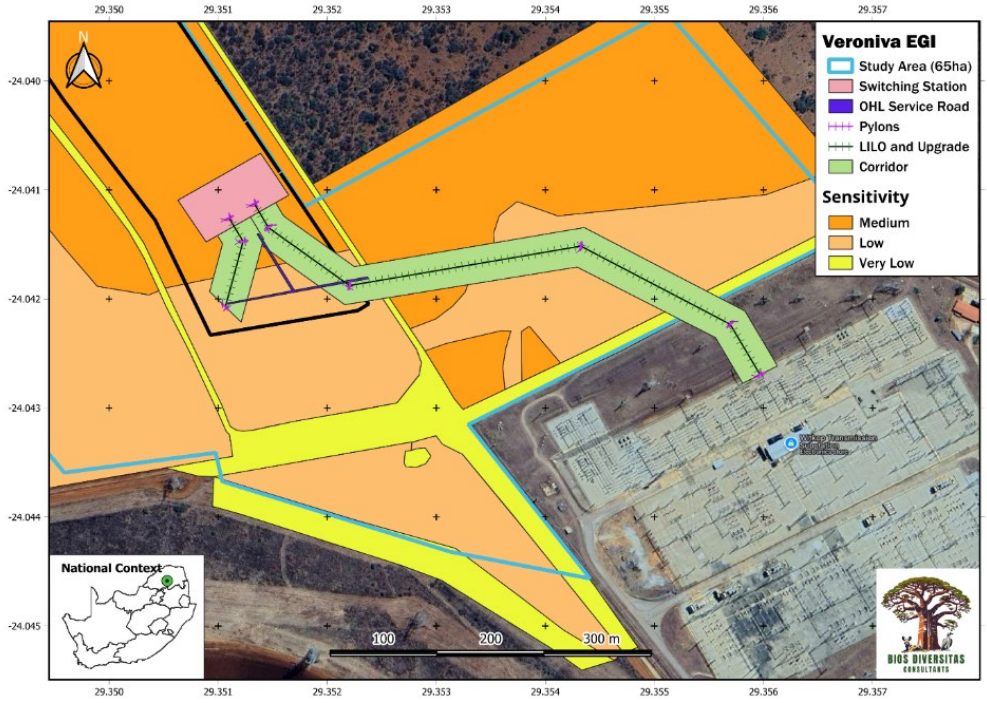


Figure 4.27: Terrestrial Biodiversity and Species sensitivity and layout map for the study area and footprint for the proposed Veroniva EGI, based on the SSV and manual delineations (*Source*: Bios Diversitas Consultants (Pty) Ltd, 2026).

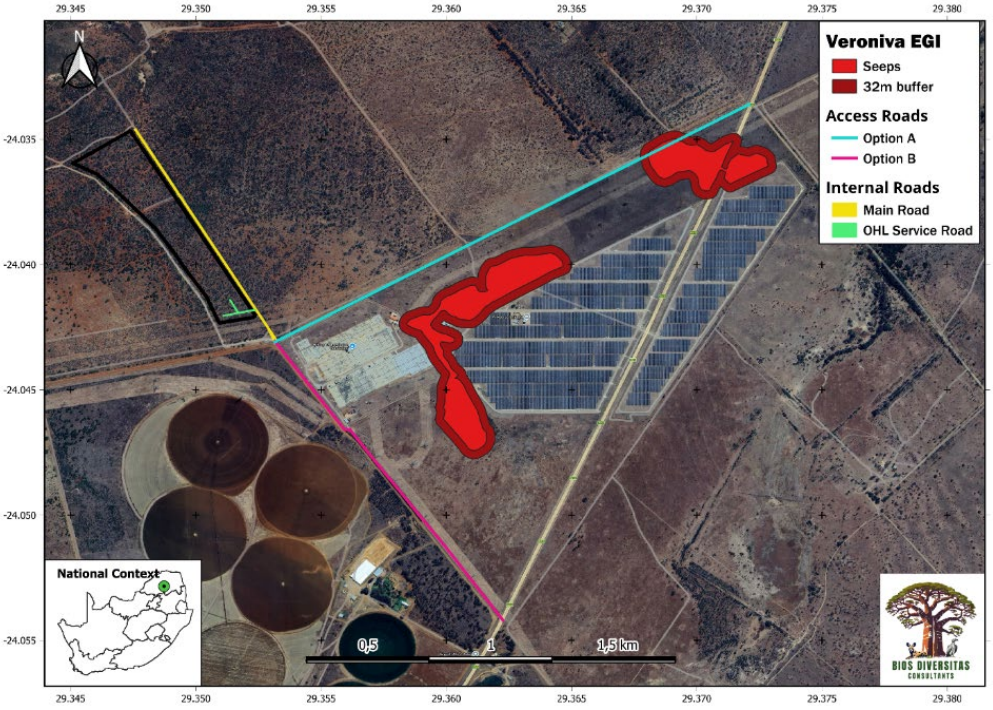


Figure 4.28: Sensitivity map including buffer for the proposed Veroniva Access Road Options based on site sensitivity verification and aquatic delineations (*Source*: Bios Diversitas Consultants (Pty) Ltd, 2026).

4.2.9 Avifauna

The information described below is based on the Avifauna Assessment and SSV provided by the Avifauna Specialist (AfriAvian Environmental (Pty) Ltd, 2026[16]), which is included in Appendix E.4 of this BA Report.

The following were used to inform the Avifauna SSV:

- A desktop analysis was undertaken using the latest Google Earth satellite imagery as well as existing datasets including *inter alia* the Second Southern African Bird Atlas Project (SABAP2); Red Data Book of Birds of South Africa and the authoritative summary of southern African bird biology; the 2025 International Union for the Conservation of Nature (IUCN) Red List of Threatened Species; the First Atlas of Southern African Birds (SABAP1); the 2024 National Vegetation Map from the SANBI BGIS map viewer; as well as the database on the KBAs of South Africa.
- An on-site survey was conducted in November 2025 to identify site characteristics found within the study area such as habitats, important bird species and site sensitivities. Data collected during previous surveys to the broader area were also considered.

4.2.9.1 Screening Tool Descriptions and Site Sensitivity Verification

The SABAP2 and field survey data indicated that a total of 321 bird species could potentially occur within the broader area where the study area (encompassing the proposed BESS, EGI and associated infrastructure) is located.

Of these 321 bird species, 102 species were classified as priority species for BESS developments, of which 26 were Red Listed species (i.e., SCC). Of the 102 priority species, seven were recorded within or near the study area during the on-site surveys (Table 4.5).

Of the 321 bird species, 84 species were classified as EGI sensitive avifauna, and 24 of these were SCC. Of the 84 EGI sensitive avifauna nine were recorded during the on-site surveys (Table 4.6).

Table 4.5: Priority Species for the Veroniva BESS recorded during the on-site surveys conducted in November 2025 (*Source*: AfriAvian Environmental (Pty) Ltd, 2026).

Species Name	Scientific Name	Global Conservation Status	Regional Conservation Status
Black-winged Kite	*Elanus caeruleus*	-	NT
Cape Vulture	*Gyps coprotheres*	VU	VU
Cape White-eye	*Zosterops virens*	-	-
Karoo Thrush	*Turdus smithi*	-	-
Little Sparrowhawk	*Accipiter minullus*	-	-
Spotted Eagle-Owl	*Bubo africanus*	-	-
Yellow-billed Kite	*Milvus aegyptius*	-	-

[16] AfriAvian Environmental (Pty) Ltd (2026). Avifauna Assessment for the proposed Veroniva BESS and Veroniva EGI development (Projects 1 and 2). Appendix E.4 of this BA Report.

VU = Vulnerable, NT = Near Threatened

Table 4.6: EGI sensitive species recorded during the on-site surveys conducted in November 2025 (*Source*: AfriAvian Environmental (Pty) Ltd, 2026).

Species Name	Scientific Name	Global Conservation Status	Regional Conservation Status
Black-winged Kite	*Elanus caeruleus*	-	NT
Cape Vulture	*Gyps coprotheres*	VU	VU
Hadada Ibis	*Bostrychia hagedash*	-	-
Helmeted Guineafowl	*Numida meleagris*	-	-
Little Sparrowhawk	*Accipiter minullus*	-	-
Pied Crow	*Corvus albus*	-	-
Spotted Eagle-Owl	*Bubo africanus*	-	-
Swainson's Spurfowl	*Pternistis swainsonii*	-	-
Yellow-billed Kite	*Milvus aegyptius*	-	-

VU = Vulnerable, NT = Near Threatened

Figure 4.29 provides an indication of the locations of priority species recorded during the on-site survey conducted at the study area and surrounds.

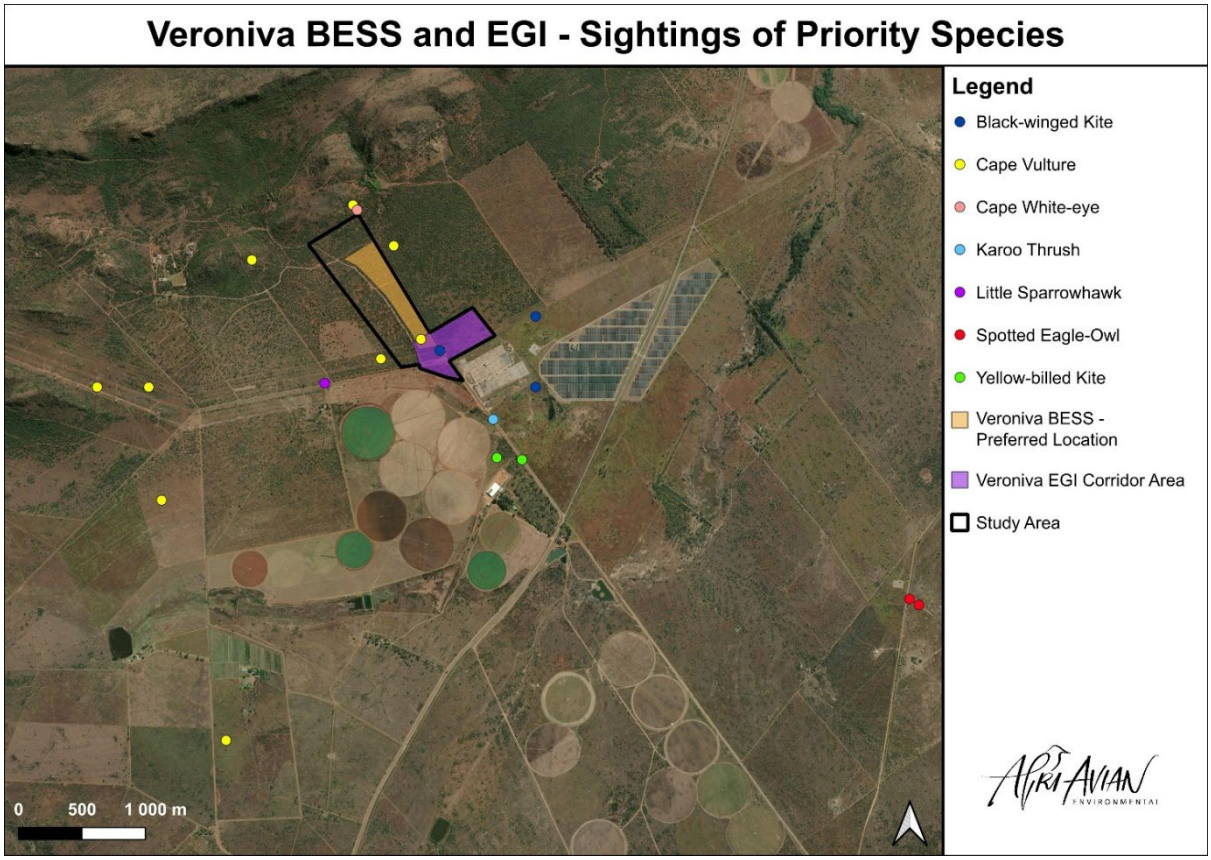


Figure 4.29: Priority species recorded during the on-site surveys at the proposed study area.

Refer to the Avifauna Assessment (Appendix E.4 of this BA Report) for a full list of priority species potentially occurring in the study area, their habitat preferences, and potential impacts of the proposed BESS and EGI projects on avifauna.

Table 4.7 provides the habitat delineation for the study area following the SSV. These include woodland, grassland and existing high voltage power lines.

Table 4.7: Delineated Habitats within the Study Area (*Source*: AfriAvian Environmental (Pty) Ltd, 2026).

Habitats	Description
Woodland	Woodland habitat is found throughout the study area. Woodland habitats can be important roosting and nesting areas for avian species. Raptors will also use the trees as perches. The woodland areas consist of mainly fine-leaved, semi-deciduous *Vachellia*-dominated habitat.  **Woodland habitat within the study area**
Grassland	Grassland is dominated by grasses, with geophytes and herbs also well represented. Grasslands are maintained by a combination of relatively high summer rainfall, frequent fires, frost, and grazing, which limit the presence of shrubs and trees. Many bird species depend on open grassland habitats, such as Secretarybirds.  **Grassland habitat within the study area**

Habitats	Description
Existing High Voltage Power Lines	There are several existing high voltage overhead power lines that cross the Study Area. Birds, such as raptors, vultures and crows, often use power lines as perches or even as nesting sites.  **Existing overhead power lines traversing the study area**

The information presented in the section below is project specific.

- **Project 1 – Veroniva BESS**

From an avifaunal perspective, the Screening Tool classified the BESS study area and immediate environment as High sensitivity for the Animal Species theme (Figure 4.30). The High sensitivity classification is linked to the potential occurrence of Lanner Falcon (*Falco biarmicus*) (Regionally Near Threatened).

Based on the SABAP2 data for the broader area and the on-site survey, Lanner Falcon is considered as having a medium likelihood of regular occurrence. They could utilise the grassland habitat and the existing overhead power lines in the study area. Lanner Falcon was not recorded during the on-site survey. The study area contains suitable habitat for avian SCC, namely, species listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered, Vulnerable or Near Threatened. Two SCC were recorded on-site during the site visit, namely, Black-winged Kite (*Elanus caeruleus*) (Regionally Near Threatened) and Cape Vulture (*Gyps coprotheres*) (Globally and Regionally Vulnerable), and according to the SABAP2 data, a total of 26 SCC have been recorded in the broader area.

Based on the SABAP2 data and the field surveys to date, the High sensitivity classification for avifauna by the Screening Tool is confirmed for the BESS study area.

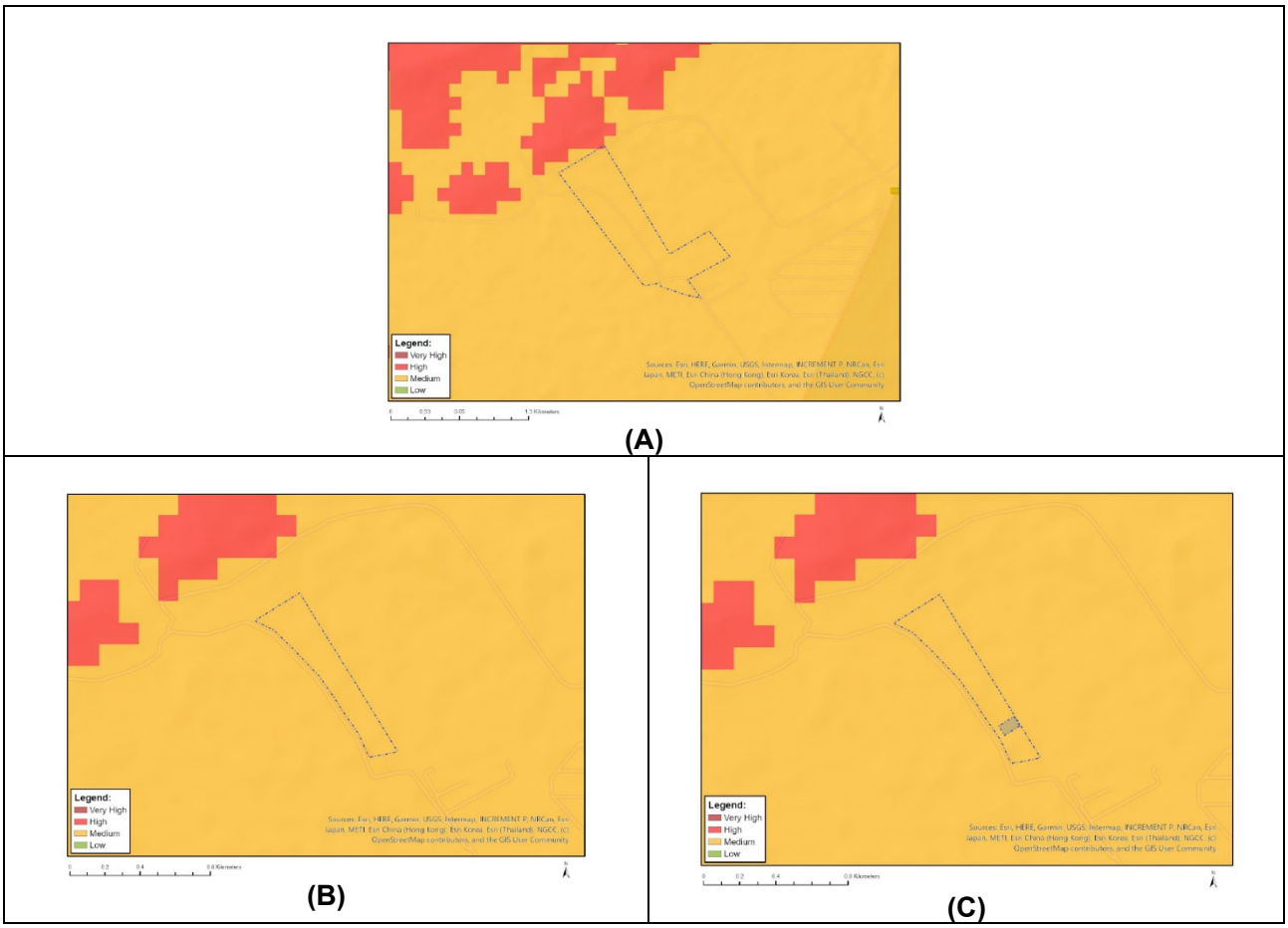


Figure 4.30: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Animal Species theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Animal Species theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Animal Species theme. (*Source*: (A): DFFE Screening Tool, 2025; (B) and (C): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Animal Species theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included (Figure 4.30).

The following avifaunal sensitivities were identified by the specialists for the proposed BESS study area:

- **Very High Sensitivity – All Infrastructure Exclusion Zones:**
  - **Cape Vulture roost:** A 1 km all infrastructure exclusion zone must be implemented around the identified Cape Vulture power line roost location, west of the study area, to prevent displacement due to disturbance (Figure 4.31). **Note: The study area does not overlap with the recommended All Infrastructure Exclusion Zone**.

- **High Sensitivity Zone**
  - The entire study area, although regarded as high sensitivity from an avifaunal perspective, does not contain any specific avifaunal environmental sensitivities.

However, it should be noted that vultures frequent the broader area. Any overhead power lines in the study area could potentially pose a risk of electrocution and collision, particularly for Cape Vultures and White-backed Vultures.

No specific no-go zones have been identified for the proposed BESS and associated infrastructure within the study area and access road options.

Figure 4.31 below indicates the avifaunal sensitivities identified for the BESS study area, based on SABAP2 data and field surveys.

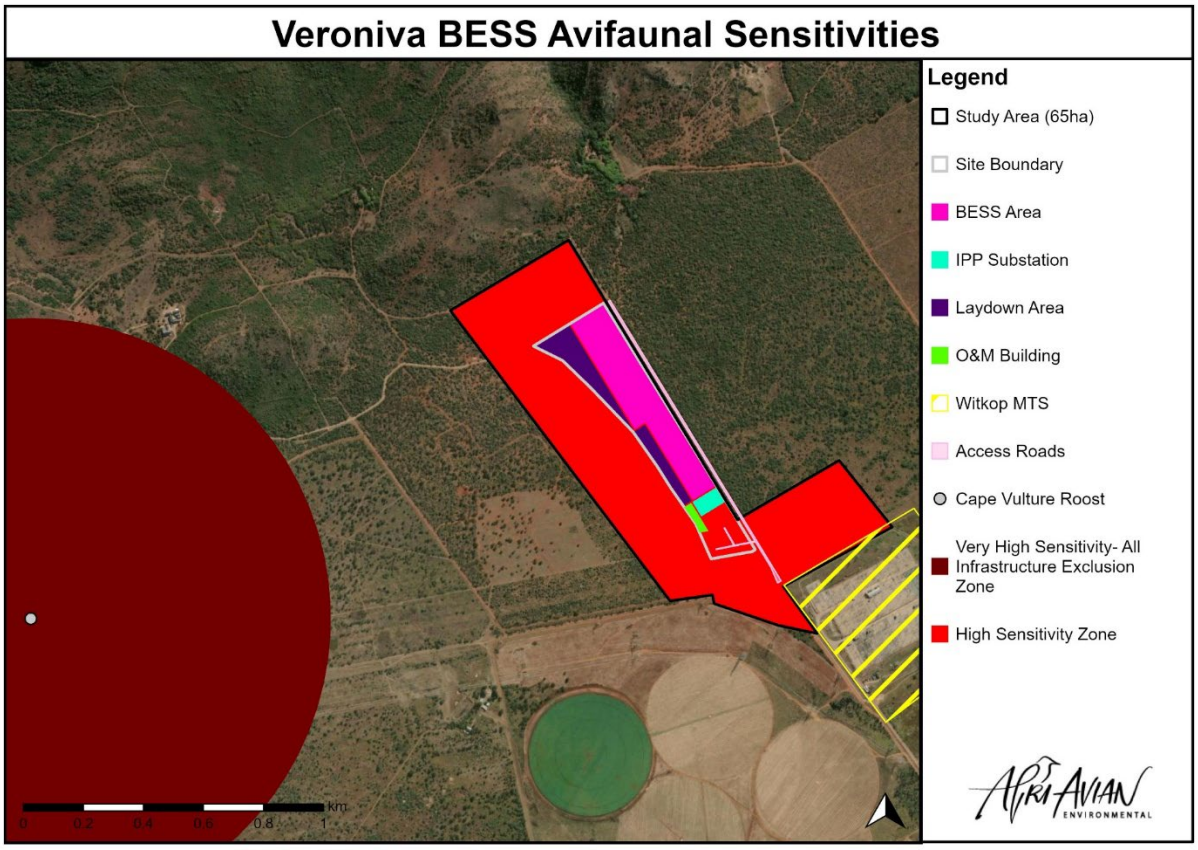


Figure 4.313: Avifaunal sensitivities identified at/near the Veroniva BESS study area. Based on the SABAP2 data and the field surveys to date, a classification of high sensitivity for avifauna is confirmed for the study area (*Source*: AfriAvian Environmental (Pty) Ltd, 2026).

The Screening Tool Report (Appendix L of the BA Report) did not identify any avifaunal species in the animal species theme for the external access road options.

The information presented in the section below is project specific.

- **Project 2 – Veroniva EGI**

From an avifaunal perspective, the Screening Tool classified the EGI study area, Corridor Area and immediate environment as High sensitivity for the Animal Species theme (Figure 4.31 [study area] and Figure 4.32 [switching station footprint and EGI Assessment Corridor Area]). The High

sensitivity classification is linked to the potential occurrence of Lanner Falcon (*Falco biarmicus*) (Regionally Near Threatened).

Based on the SABAP2 data for the broader area and the on-site survey, Lanner Falcon is considered as having a medium likelihood of regular occurrence. They could utilise the grassland habitat and the existing overhead power lines in the study area. Lanner Falcon was not recorded during the on-site survey. The study area contains suitable habitat for avian SCC, namely, species listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered, Vulnerable or Near Threatened. Two SCC were recorded on-site during the site visit, namely, Black-winged Kite (*Elanus caeruleus*) (Regionally Near Threatened) and Cape Vulture (*Gyps coprotheres*) (Globally and Regionally Vulnerable), and according to the SABAP2 data, a total of 24 SCC have been recorded in the broader area.

Based on the SABAP2 data and the field surveys to date, the High sensitivity classification for avifauna by the Screening Tool is confirmed for the EGI.



Figure 4.32: (A) Screening Tool map of the Switching Station footprint indicating sensitivities for the Animal Species theme. (B) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Animal Species theme. (*Source*: DFFE Screening Tool, 2026).

The following environmental sensitivities from an avifaunal perspective were identified by the specialists for the EGI:

- **Very High Sensitivity – All Infrastructure Exclusion Zones**
    - **Cape Vulture roost:** A 1 km all infrastructure exclusion zone must be implemented around the identified Cape Vulture power line roost location, west of the study area, to prevent displacement due to disturbance (Figure 4.33). **Note: The study area does not overlap with the recommended All Infrastructure Exclusion Zone**.
- **High Sensitivity – Line Marking Required & Bird-Friendly Pylon Design:**
    - Due to the potential presence of several EGI sensitive avifauna (including SCC) that could utilise the study area and broader area for foraging, roosting, and nesting, **the entire**

study area has been assessed to be a high sensitivity zone from a collision and electrocution impact perspective. Note that this is not a fatal flaw.

No specific no-go zones have been identified for the proposed EGI and associated infrastructure within the study area.

Figure 4.33 below indicates the avifaunal sensitivities identified for the EGI study area, based on SABAP2 data and field surveys.

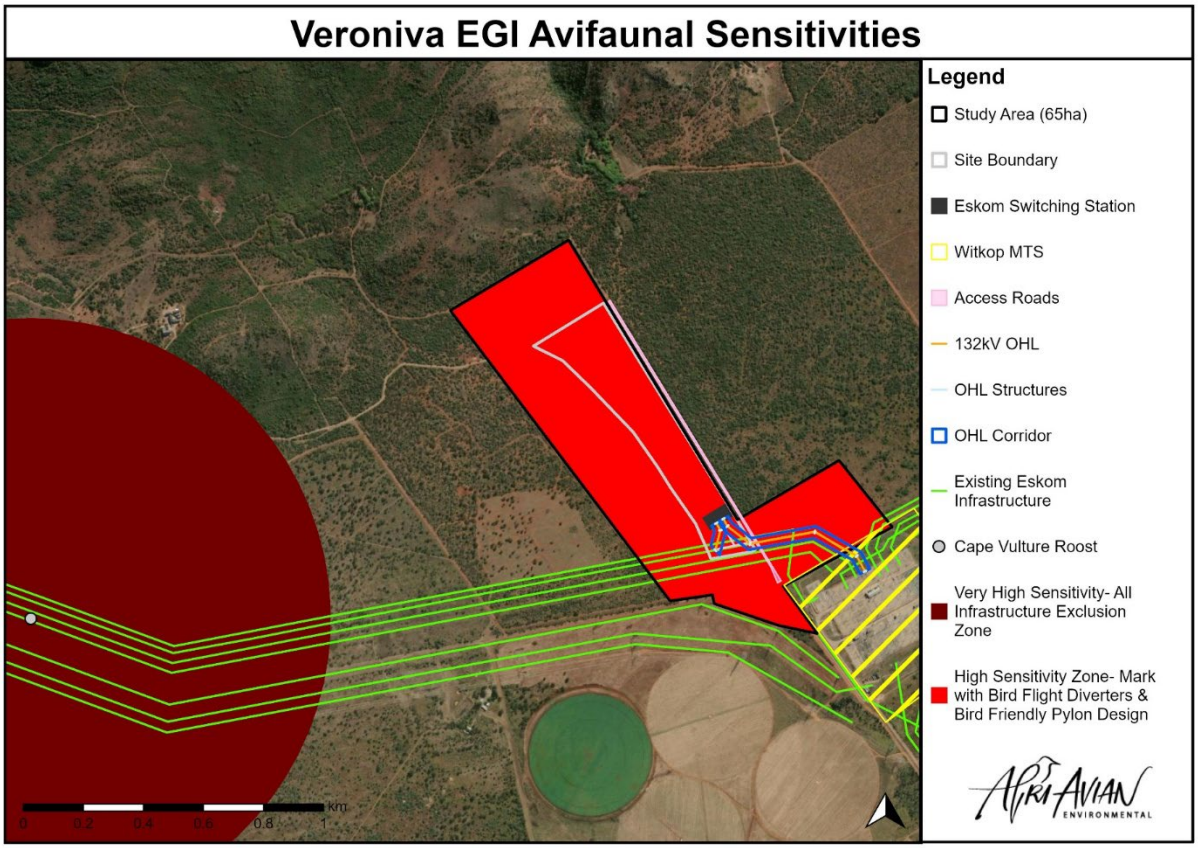


Figure 4.334: Avifaunal sensitivities identified at/near the Veroniva EGI study area. Based on the SABAP2 data and the on-site surveys, a classification of high sensitivity for avifauna is confirmed for the study area (*Source*: AfriAvian Environmental (Pty) Ltd, 2026).

4.2.10 Visual Aspects and Sensitive Receptors

The information described below is based on the Visual Impact Assessment and SSV provided by the Visual Specialist (Young, 2026[17]), which is included in Appendix E.5 of this BA Report.

[17] Young, G.A. (2026). Visual Impact Assessment for the proposed Veroniva BESS and Veroniva EGI development (Projects 1 and 2). Appendix E.5 of this BA Report.

4.2.10.1 General Context

The visual assessment provides information on landscape, terrain, and vegetation, as well as other aspects such as land use and sensitive receptors. The SSV was undertaken using the following means:

- Desktop analysis, using Google Earth satellite imagery;
- On-site inspection; and
- Any other available and relevant information from available databases.

The field survey entailed travelling along public roads surrounding and crossing the study area and visiting the project site and adjacent properties to determine the nature and character of the landscape.

The dominant landscape types found within the study area include power infrastructure, degraded bushveld, cultivated agriculture and grazing land, Polokwane Plateau Bushveld on rolling topography, Mamabolo Mountain Bushveld on natural hills (lower slopes), and Mamabolo Mountain Bushveld on natural hills (ridge lines). Key viewpoints and public roads within the study area include tourist facilities, farmsteads, and the R519 provincial road.

4.2.10.2 Screening Tool Descriptions and Site Sensitivity Verification

The dominant landscape types found within the study area together with their respective scenic quality and sensitivity to development is provided in Table 4.8 below.

Table 4.8: Dominant landscape types within the study area together with their respective scenic quality and sensitivity to development (*Source*: Young, 2026).

Landscape Type	Scenic Quality	Sensitivity to Development
Power infrastructure	Low	Not sensitive to development
Degraded Bushveld	Low	Not sensitive to development
Cultivated agriculture and grazing land	Moderate	Moderate landscape sensitivity
Polokwane Plateau Bushveld on rolling topography	Moderate	Moderate landscape sensitivity
Mamabolo Mountain Bushveld on natural hills (lower slopes)	High	Highly sensitive to inappropriate development
Mamabolo Mountain Bushveld on natural hills (ridge lines)	High	Very high sensitivity to inappropriate development

The visual absorption capacity (VAC) of the study area is regarded as moderate to high due to the comparatively low height of the BESS structures, existing vegetation, topography, and the low elevation of the receptor areas relative to the proposed facilities. Also, the predominance of power infrastructure (i.e., the Witkop Main Transmission Substation (MTS), Witkop Solar Park and existing overhead power lines) would tend to 'absorb' the activities into the scene. The consequence is that most views of the development, including those from tourist areas (Kuschke Nature Reserve properties (where relevant)), nearby farmsteads, and the R519, would be partially

or fully screened from sensitive viewing areas or would include existing power infrastructure in the view.

Views from the farmsteads west and north of the project site and the northern portion of the Kuschke Nature Reserve would be screened by topography and vegetation and views from the farmsteads south of the site would be screened by vegetation on their properties. People visiting the southern portion of the Kuschke Nature Reserve may see the proposed BESS; however, all views would include the Witkop Solar Park, the Witkop MTS, and overhead power lines in the foreground, so views from these locations would already be severely compromised. Therefore, the visual exposure and intrusion of the proposed development are low relative to the identified key sensitive viewing areas.

Visual receptor sensitivity is considered moderate to low, mainly due to the project site being located next to major power infrastructure (i.e., the proposed development would not seem out of place) and is approximately 1.5 km (within the theoretical viewshed) from the nearest boundary of the Kuschke Nature Reserve and over 1 km (within the theoretical viewshed) from an arterial road and the closest farmstead.

The potential of a significant visual impact is therefore low, as the proposed development is likely to cause only minor loss of the key characteristics of the baseline landscape. Therefore, the proposed projects would not pose a significant risk to the receiving landscape and receptor environment, resulting in minimal impact on the scenic quality of the study area.

The information presented in the section below is project specific.

- **Project 1 – Veroniva BESS**

The Screening Tool does not include a Landscape Theme Sensitivity map for the proposed BESS project, including the external access road options. Following the site inspection and based on detailed viewshed mapping and local site conditions, the specialist undertook visual sensitivity mapping (at the project scale) for the proposed Veroniva BESS (Project 1).

A visual sensitivity map for sensitive receptors in relation to the proposed Veroniva BESS (Project 1) is provided in Figure 4.34.

Visually, there are no fatal flaws in the proposed Veroniva BESS (Project 1). The proposed BESS falls outside the medium, high and very high landscape and receptor buffers. Overall, the specialist confirmed that the study area has a low visual and landscape sensitivity risk.

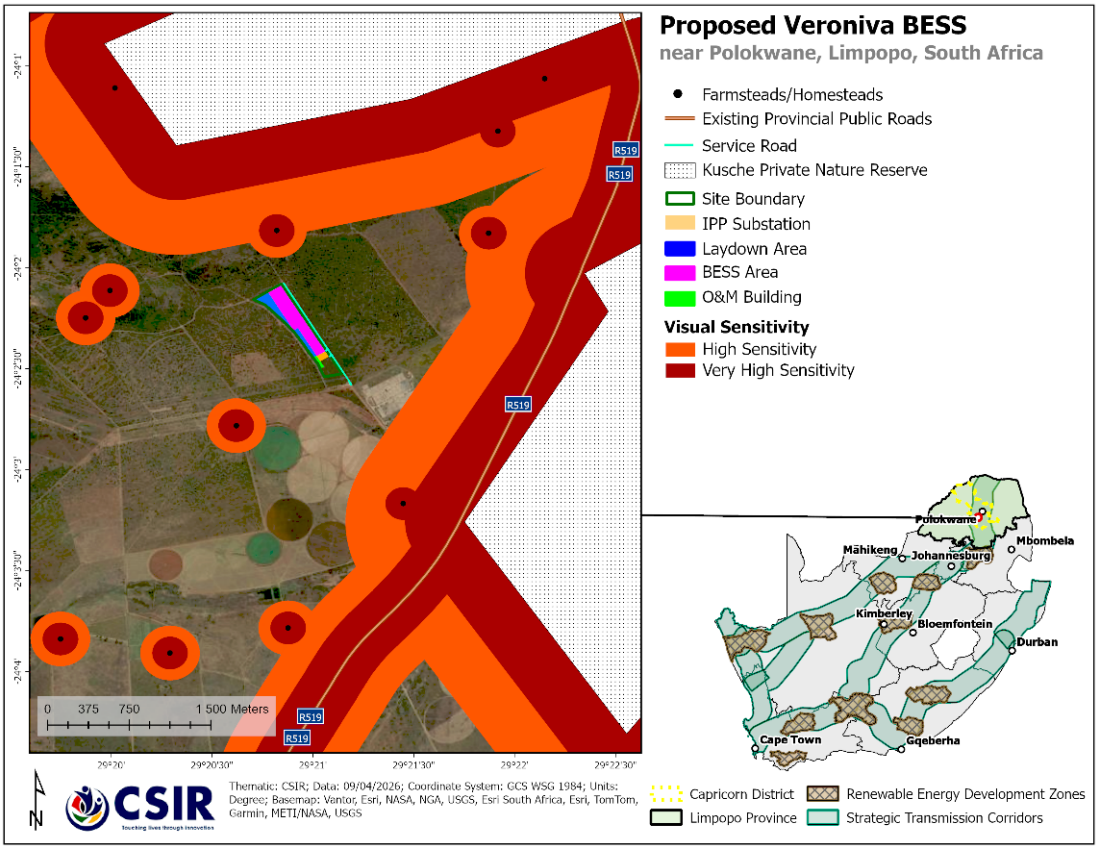


Figure 4.34: Map of sensitive receptors and their associated visual sensitivity buffers for the proposed BESS and associated infrastructure following the SSV and detailed mapping.

The information presented in the section below is project specific.

▪ Project 2 – Veroniva EGI

The Screening Tool does not include a Landscape Theme Sensitivity map for the proposed EGI project. Following the site inspection and based on detailed viewshed mapping and local site conditions, the specialists undertook visual sensitivity mapping (at the project scale) for the proposed Veroniva EGI (Project 2).

A visual sensitivity map for sensitive receptors in relation to the proposed Veroniva EGI (Project 2) is provided in Figure 4.35.

Visually, there are no fatal flaws in the proposed Veroniva EGI (Project 2). The proposed EGI falls outside the medium, high and very high landscape and receptor buffers. Overall, the specialist confirmed that the study area has a low visual and landscape sensitivity risk.

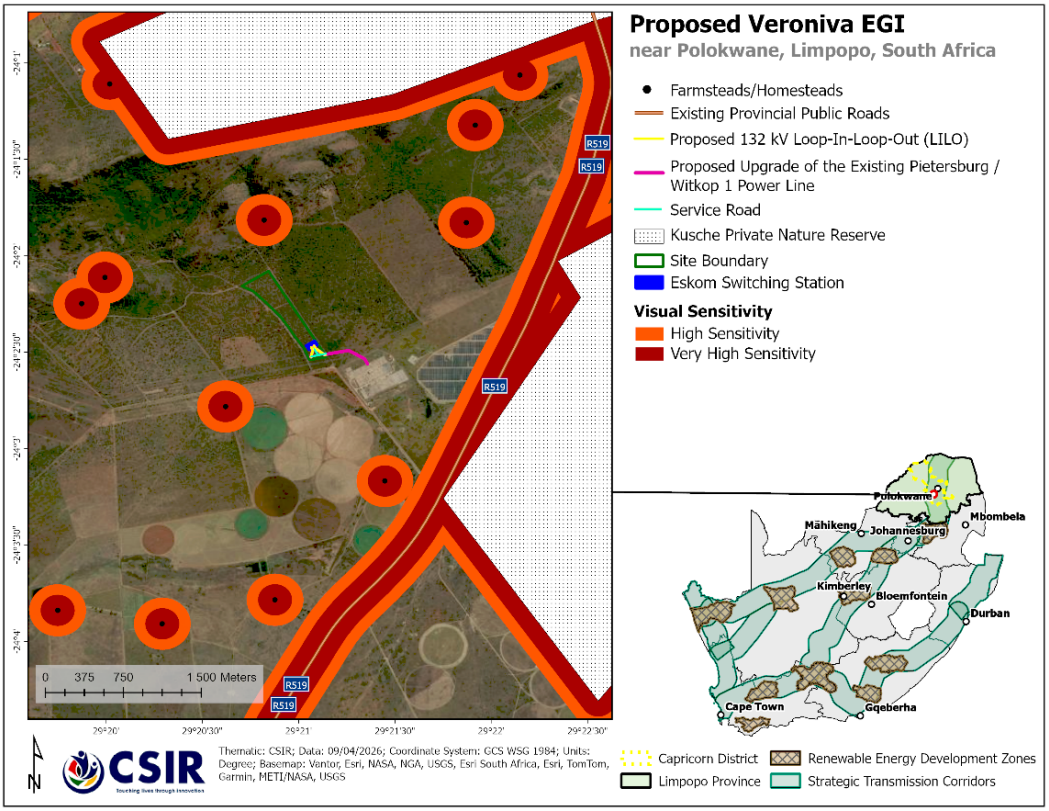


Figure 4.35: Map of sensitive receptors and their associated visual sensitivity buffers for the proposed EGI and associated infrastructure following the SSV and detailed mapping.

4.2.11 Heritage: Archaeology and Cultural Landscape

A detailed description of the archaeological features and cultural landscape within the study area is provided in the Heritage Impact Assessment (Archaeology and Cultural Landscape), that was completed during this BA Phase and is included in Appendix E.6 of this BA Report.

The information described below is based on the Heritage Impact Assessment and SSV provided by the Heritage Specialist (Orton, 2026[18]), which are included in Appendix E.6 of this BA Report.

4.2.11.1 General Context

Initial work was carried out using satellite aerial photography in combination with the specialist's accumulated knowledge of the local landscape. This was used to determine whether any obviously sensitive areas were present and that needed to be targeted during the survey. The subsequent fieldwork undertaken in November 2025 served to ground truth the study area. Desktop research using maps, historical aerial photography, published literature and commercial reports was also conducted to inform the heritage context of the area.

The heritage resources within the study area and surrounds are discussed below. Note that the sensitivity for heritage resources is assigned by the heritage specialist as follows:

[18] Orton, J. (2026). Heritage Impact Assessment for the proposed Veroniva BESS and Veroniva EGI development (Projects 1 and 2). Appendix E.6 of this BA Report.

SAHRA grade	Cultural significance	Sensitivity rating
I	Very high	Very high sensitivity
II	Very high	Very high sensitivity
IIIA	Very high	Very high sensitivity
IIIB	High	Very high sensitivity
GPA	Medium	High sensitivity
GPB	Low	Medium sensitivity
GPC	Very low	Low sensitivity

No archaeological resources were found. One possible archaeological feature was found within the BESS site (recorded as PW001 (S24° 02' 06.8" E29° 20' 41.8")). This consisted of a clustering of stones that might represent an anthropogenic feature. There was no obvious structure to the stones and there were no associated artefacts. It is most likely that this scatter of rocks represents a natural, eroded bedrock outcrop, since the location is in the northern part of the study area on the slope of the low ridge. No isolated background scatter artefacts were found during the survey. It is important to note that this stone cluster is outside of the affected footprint area. There may still be isolated artefacts present, but these would be of very low cultural significance at the local level for their scientific value and could be graded GPC.

No graves were seen in the present study area. Graves are deemed to have high cultural significance at the local level for their social value. None are expected to be present but if human remains were discovered during development, then they would be allocated a grade of IIIA.

The cultural landscape is largely a rural landscape with aesthetic value. This value lies largely in the hills that form a backdrop to the development as viewed from the south and southeast. The landscape has been compromised by the addition of a modern electrical layer but is nonetheless rated as having medium cultural significance at the local level.

No significant heritage resources were found in the study area. The most significant heritage resources in the wider area are the Makapans Valley National Heritage Site (NHS) (and World Heritage Site), the Fort Louis Campbell Provincial Heritage Site (PHS) and the Eersteling Chimney Stack PHS. Due to distance, none of these sites would be impacted in any way. Specifically, the Fort Louis Campbell PHS lies some 5 km northeast of the BESS study area but will not be affected in any way (the nearest project component for either project is Access Road Option A which comes to within 4.1 km of the PHS). The only potential heritage concern is impacts to the cultural landscape, however given the existence of other electrical infrastructure in the area, the high-lying landscape north of the study area will not be further impacted by the proposed projects.

4.2.11.2 Screening Tool Descriptions and Site Sensitivity Verification

The information presented in the section below is project specific.

- **Project 1 – Veroniva BESS**

Note that separate Screening Tool Reports were generated for the study area and footprints for each project. However, the maps for the Archaeological and Cultural Heritage Theme in the separate Screening Tool Reports were identical in terms of sensitivity for the study area and footprints.

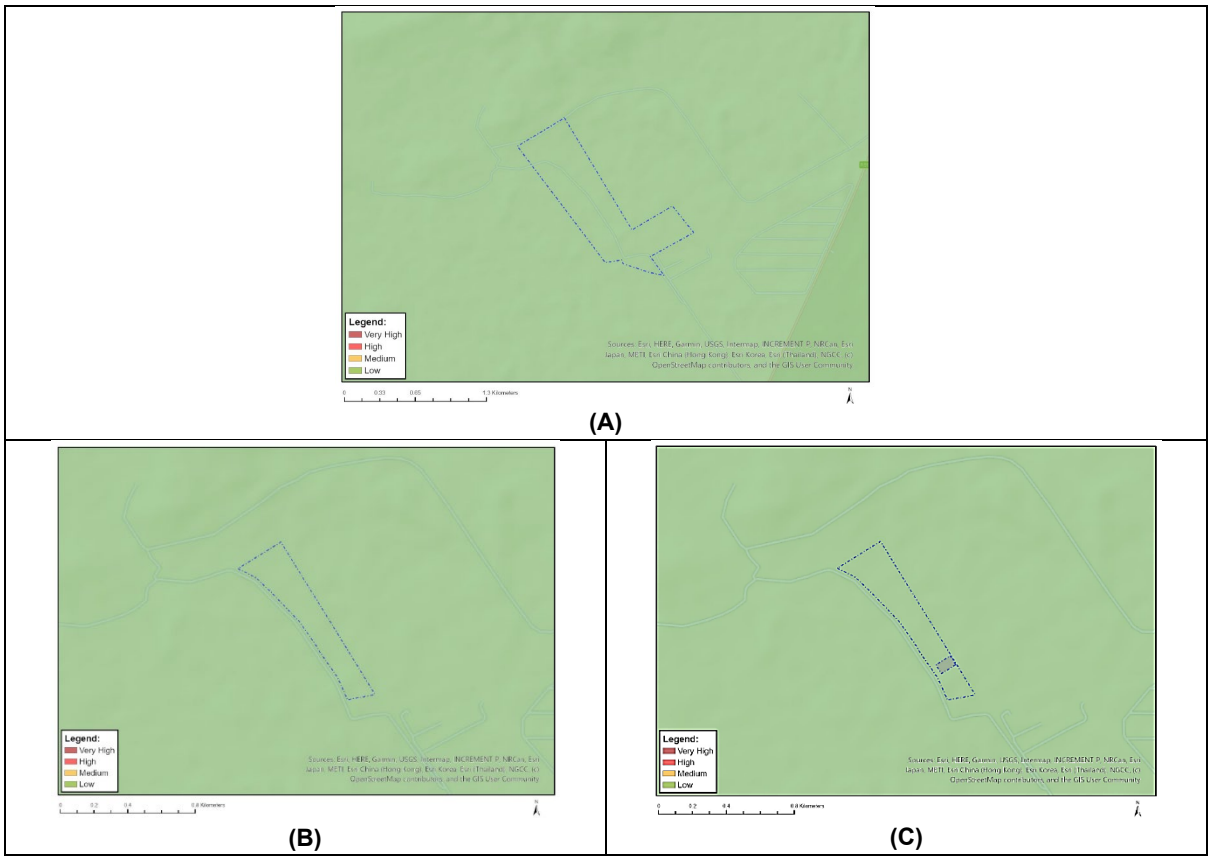


Figure 4.36: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Archaeological and Cultural Heritage theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Archaeological and Cultural Heritage theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Archaeological and Cultural Heritage theme. (*Source*: (A): DFFE Screening Tool, 2025; (B) and (C): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Archaeological and Cultural Heritage theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included (Figure 4.36).

Based on the Screening Tool Maps (Figure 4.36), the entire study area and project footprints and surrounds are low sensitivity for the Archaeological and Cultural Heritage Theme.

In addition, the Screening Tool Report for the External Access Road Option A and Option B are included in Appendix L of this BA Report. The Screening Tool Map for the access road options for the Archaeological and Cultural Heritage theme shows Low sensitivity.

The information presented in the section below is project specific.

- **Project 2 – Veroniva EGI**

Based on the Screening Tool Maps (Figure 4.37), the project footprints for the Veroniva EGI (Project 2) and surrounds are low sensitivity for the Archaeological and Cultural Heritage Theme.



Figure 4.37: (A) Screening Tool map of the Switching Station footprint indicating sensitivities for the Archaeological and Cultural Heritage theme. (B) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Archaeological and Cultural Heritage theme (*Source*: DFFE Screening Tool, 2026).

The information presented below equally applies to **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**.

- **Overall SSV Concluding Statement for Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**

The site visit by the specialist found that the entire development footprint and 65 ha study area for both the BESS and EGI projects, including the external access road options, are of low heritage sensitivity (Figure 4.38). Based on the lack of heritage resources in the study area, the heritage specialist concurs with the highest sensitivity rating generated by the Screening Tool Reports (i.e. low sensitivity) but has also refined the sensitivity mapping by adding other sensitive areas in the surrounding landscape. The one record (PW001) made in the field is almost certainly not an archaeological site and is deemed low sensitivity. However, note that it falls outside the development footprint as indicated in Figure 4.38 below. The hilly area to the north is of high sensitivity from a cultural landscape point of view.

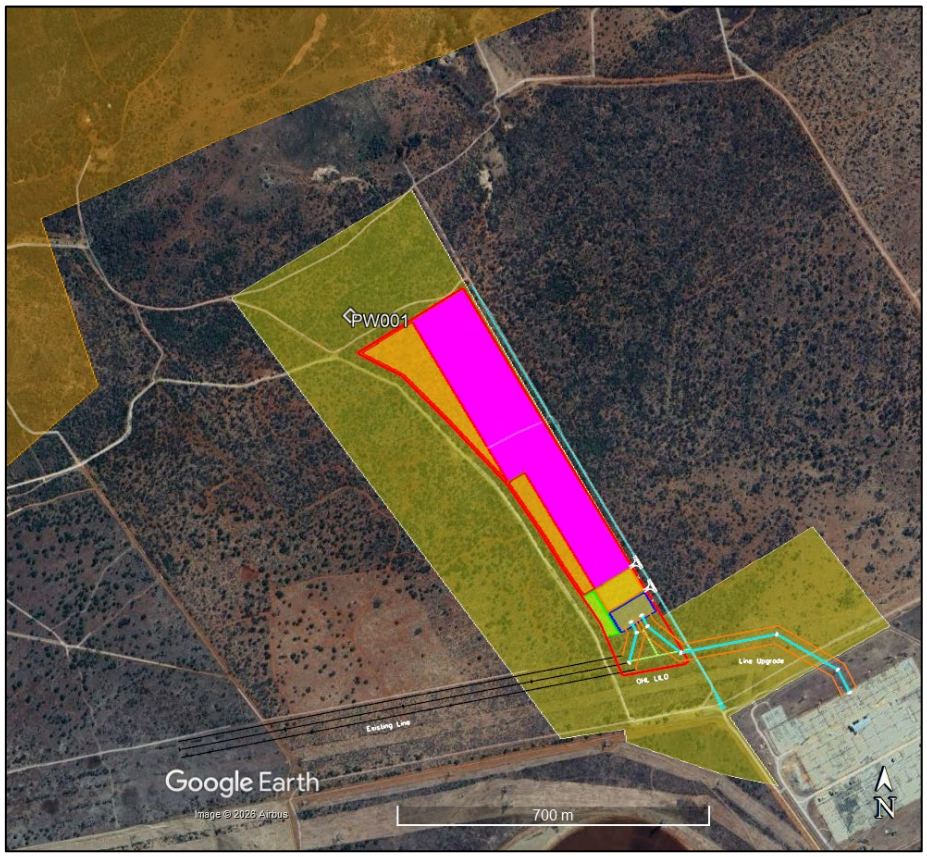


Figure 4.38: Cultural heritage sensitivity map for the combined project area. Orange shading (medium cultural significance) = high sensitivity. The single record (PW001) is of low sensitivity (it is almost certainly not heritage) and requires no further consideration.

4.2.12 Palaeontology

The information presented below equally applies to **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**.

The information described below is based on the Palaeontology Letter of Exemption provided by the Palaeontologist (Almond, 2026[19]), which is included in Appendix E.7 of this BA Report. One combined Letter of Exemption was compiled for Projects 1 and 2. Therefore, the information presented below, applies equally to all the projects forming part of the Veroniva BESS and EGI development.

The study area is situated on level to gently sloping terrain. The area, located just northwest of the Witkop MTS and the existing Witkop Solar Park, is mantled by orange, sandy soils (probably with associated granitic eluvial gravels) with sparse, woody Bushveld vegetation and farm tracks but no obvious bedrock exposures, pans or deeply incised drainage lines.

[19] Almond, J. (2026). Palaeontological Heritage Recommendation Letter of Exemption for the proposed Veroniva BESS and Veroniva EGI development (Projects 1 and 2). Appendix E.7 of this BA Report.

The Archaean granitoid intrusions beneath the study area are entirely unfossiliferous, as expected from their great age and igneous origin. Potentially fossiliferous Pleistocene or older alluvial sediments or pan deposits are unlikely to occur. Rich Plio-Pleistocene fossil mammal assemblages (including australopithecines) are known from the Makapansgat Cave system situated approximately 17 km to the southwest of the study area (Makapans Valley World Heritage Site). However, comparable Precambrian carbonate bedrocks and associated cave breccias do not occur in the latter area.

4.2.12.1 Screening Tool Descriptions and Site Sensitivity Verification

Note that separate Screening Tool Reports were generated for the study area and footprints for each project. However, the maps for the Palaeontology Theme in the separate Screening Tool Reports were identical in terms of sensitivity for the study area and footprints (Figure 4.39).

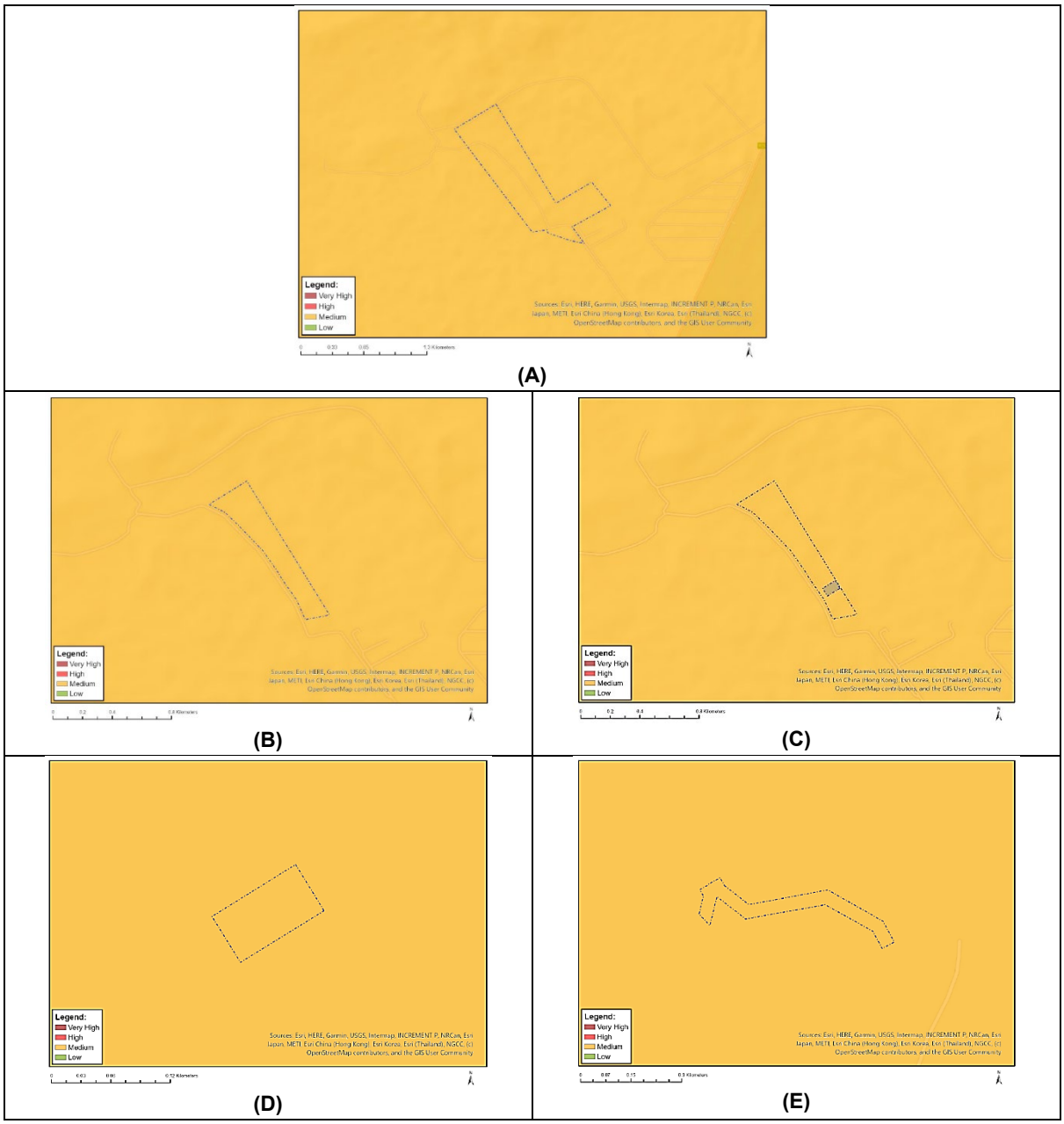


Figure 4.39: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Palaeontology theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Palaeontology theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Palaeontology theme. (D) Screening Tool map of the Switching Station footprint indicating sensitivities for the Palaeontology theme. (E) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Palaeontology theme (*Source*: (A): DFFE Screening Tool, 2025; (B), (C) (D), and (E): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Palaeontology theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included (Figure 4.39).

According to the Screening Tool, the study area and project footprints are of a Medium palaeontological sensitivity. However, the Screening Tool sensitivity allocations have been contested by the Palaeontologist.

According to the South African Heritage Resources Agency (SAHRA) (2025), the sensitivities identified on the Palaeontology theme layer of the Screening Tool represents a limited number of known palaeontology resources. SAHRA further explains in a guidance note that palaeontology resources are widely dispersed and can occur on any development site in South Africa. Therefore, SAHRA recommends that Palaeontological Impact Assessments (PIAs) must be undertaken as per the Palaeosensitivity Map provided on the South African Heritage Resources Information System (SAHRIS), irrespective of the sensitivity shown on the palaeontology theme layer of the Screening Tool, i.e. the SAHRIS Palaeosensitivity Map should guide the level of assessment.

According to the SAHRIS Palaeosensitivity Map (Figure 4.40) the Veroniva BESS and EGI project study area, including the External Access Roads (Options A and B), is of Insignificant / Zero palaeosensitivity. This conclusion is supported by the Palaeontology Letter of Exemption (Appendix E.7 of this BA Report) as well as by several previous PIA reports for closely comparable solar projects in the vicinity. A minor section of the study area intersects with the low palaeosensitivity of the SAHRIS Palaeosensitivity Map. However, the actual development footprints of the proposed projects fall within the Insignificant / Zero palaeosensitivity areas.

The Palaeontolgist confirmed that the study area is in fact of Very Low to Zero Palaeosensitivity.

Pending the unlikely discovery of substantial new fossil remains within the project area during the Pre- Construction or Construction Phases, no further specialist palaeontological studies, reporting or mitigation are recommended or considered necessary for these projects. The Chance Fossil Finds Protocol (included in Appendix E.7 of the BA Report) should be fully implemented during the Construction Phase. The protocol has also been included into the Environmental Management Programmes (EMPrs) (Appendix H to Appendix K of this BA Report).

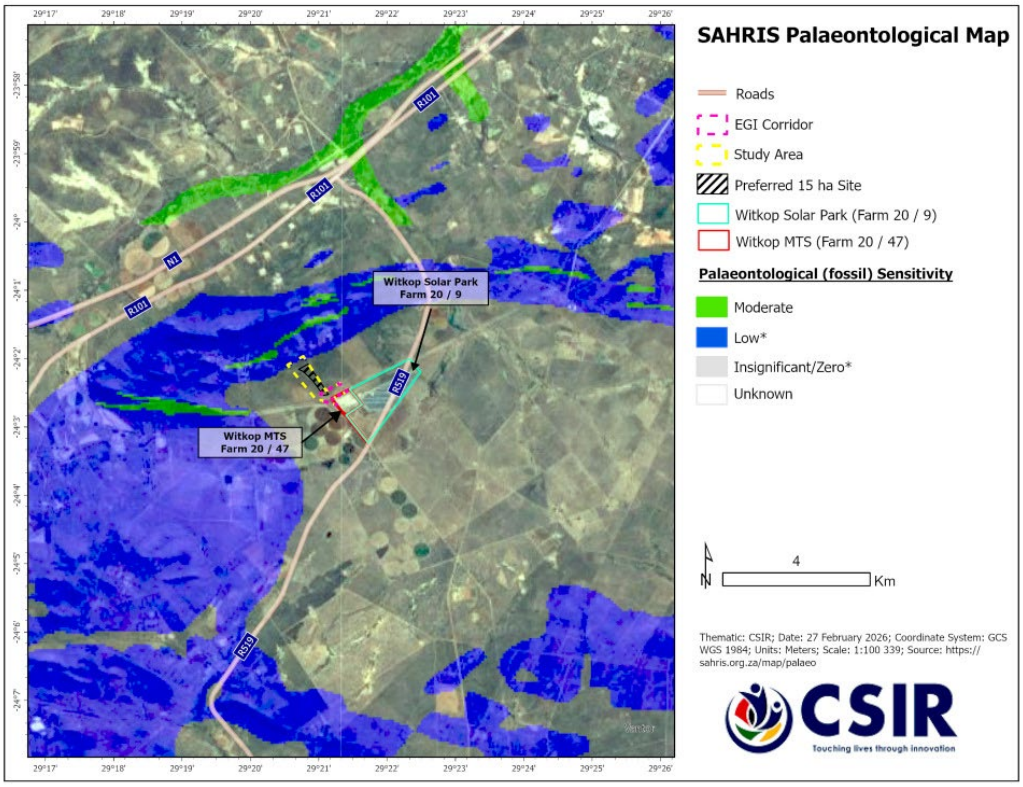


Figure 4.40: Provisional palaeosensitivity mapping of the study area for the Veroniva BESS and EGI, and surrounding region, shown by the SAHRIS palaeosensitivity map.

4.3 Socio-Economic Environment

The available data used to compile the socio-economic baseline for the PLM, CDM, and Polokwane area, although not exhaustive, is interpreted in terms of professional opinion and is indicative of generally accepted trends within the Limpopo Province and the broader South Africa.

The information described below is based on CSIR's review of Census data sourced from Statistics South Africa, as well as, where relevant, the Socio-Economic Impact Assessment (Barbour and van der Merwe, 2026[20]), as well as a review of various planning documents such as IDPs and SDFs that were available at the time of compiling this BA Report.

The information presented below equally applies to **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**.

4.3.1 Regional Context – Capricorn District Municipality

The CDM is one of five district municipalities in Limpopo and is located in the centre of Limpopo, sharing its borders with the Vhembe, Mopani, Sekhukhune and Waterberg District Municipalities (CDM, 2026). The CDM is situated at the core of economic development in the Limpopo Province and includes the capital of the province, the City of Polokwane (CDM, 2020[21]). The CDM covers an area of approximately 21 705 km^2, which constitutes 12% of the total surface area of the province. The CDM comprises four local municipalities, namely, the Polokwane, Lepelle-Nkumpi, Blouberg, and Molemole Local Municipalities. Polokwane is the administrative seat of the PLM and CDM.

4.3.1.1 Demographics and Economic Profile

According to the Statistics South Africa (Stats SA) Provincial Profile Limpopo Census 2022 (StatsSA, 2024[22]), the CDM had a population of 1 261 463 in 2011 (Table 4.9), which subsequently increased to about 1 447 103 in 2022 (Stats SA, 2024). Of the CDM's total population in 2022, the largest (62.3%) age category was the working age group (15-64 years), followed by the 0-14 age category (30.2%) with the smallest age category (7.5%) being 65 years and over (StatsSA, 2024). In terms of race groups, in 2022, Black Africans made up 96.0% of the population in the CDM, followed by Whites (2.7%), Indians/Asians (0.7%) Coloureds (0.5%), and other (0.2%) (StatsSA, 2024). The main languages spoken in 2022 was Sepedi (55.5%) followed by Tshivenda (17.4%), Xitsonga (17.3%), Afrikaans (2.3%), Shona (1.6%), Setswana (1.4%), isiNdebele (1.1%) and English (1.0%) (StatsSA, 2024).

[20] Barbour, T. and van der Merwe, S. (2026). Socio-Economic Assessment for the proposed Veroniva BESS (Project 1). Appendix E.8 of this BA Report.
[21] Capricorn District Municipality (2020). Capricorn District Municipality Profile and Analysis District Development Model. Available online at: https://www.cogta.gov.za/wp-content/uploads/2023/11/DistrictProfile_Capricorn26072020.pdf [Accessed: May 2026].
[22] Statistics South Africa (2024). Provincial Profile: Limpopo Census 2022. Report 03-01-78. Available online at: https://www.statssa.gov.za/publications/Report-03-01-78/Report-03-01-782022.pdf [Accessed: May 2026].

Table 4.9: Total population of the CDM, PLM, Limpopo, and National for the period 2011 – 2022 (*Sources*: Stats SA, 2018[23]; Stats SA 2024).

Region → / Year ↓	CDM	PLM	Limpopo	National Total	PLM as a % of the DM	PLM as a % of the province	PLM as a % of national
2011	1 261 463	728 633	5 404 868	51 770 560	57.76%	13.48%	1.41%
2016	1 330 436	797 127	5 799 090	55 653 654	59.91%	13.75%	1.43%
2022	1 447 103	843 459	6 572 721	62 027 503	58.29%	12.83%	1.36%

With a Gross Domestic Product (GDP) of R 177 billion in 2023 (up from R 90.5 billion in 2013), the CDM contributed 33.11 % to the Limpopo Province GDP of R 536 billion in 2023 (CDM, 2026). The Community Services sector was the largest economic sector in 2023 within the CDM, at R66.7 billion or 42.3% of the total Gross Value Added (GVA) (CDM, 2026). The trade sector was the second largest economic sector in the CDM, accounting for 17.7% of the GVA in 2023, followed by the finance sector with 16.1% of the GVA in 2023 (CDM, 2026).

4.3.1.2 Social Characteristics

The CDM had an unemployment rate of 27.2% in 2022 (CDM, 2022) which was lower than South Africa's national unemployment rate of 32.7% and Limpopo's unemployment rate of 31.8% both in Quarter 4 of 2022 (Stats SA, 2022[24]). However, the economically active population (i.e., the number of people between 15 and 65 years who are able and willing to work and who are actively looking for work) in the district had an average annual increase of 4.10% from 2012 to 2022 and the working age population has been increasing at an average annual rate of 1.22% since 2012 (CDM, 2026).

Based on the 2011 Census data, the average annual household income for the CDM was R 14 600 which was about half of the national average (R 29 400) (CDM, 2020). The majority of households in the CDM (73%) earned less than R 40 000 per annum in 2011 with 14% of households in the CDM earning no income in 2011 (CDM, 2020). Based on the 2022 Census data, it was estimated that 8.91% of all households within the CDM were living on an income of R 30 000 or less per annum (CDM, 2026). The majority of households in the CDM (12.63%) earned an income of R 54000 - R 72000 per annum, followed by the R 192 000 – R 360 000 income category (12.15%). Only 27 households in the CDM fell within the R 0 – R 2400 income category (CDM, 2026). The COVID-19 pandemic likely impacted income levels and increased the number of households in the CDM that live close to or below the poverty line. In addition, the CDM experienced an increase in the number of grant beneficiaries from 468 038 grant beneficiaries in 2011 to 595 239 grant beneficiaries in 2020, representing an increase of 27.1% (CDM, 2026).

According to the 2022 Census data, formal dwellings dominate the housing landscape in the CDM with approximately 95.8% of households residing in formal dwellings, which is higher than that of

[23] Statistics South Africa (2018). Provincial Profile: Limpopo Community Survey 2016. Report 03-01-15. Available online at: https://cs2016.statssa.gov.za/wp-content/uploads/2018/07/Limpopo.pdf [Accessed: May 2026].
[24] Statistics South Africa (2022). Quarterly Labour Force Survey Quarter 4:2022. Statistical release P0211. Available online at: https://www.statssa.gov.za/publications/P0211/P02114thQuarter2022.pdf [Accessed: May 2026].

Limpopo (94.7%) and South Africa (88.5%) (Stats SA, 2026[25]). Traditional dwellings account for approximately 1.3% of the households in the CDM, while approximately 2.6% of households in the CDM lived in informal dwellings (Stats SA, 2026). The category classified as other dwellings makes up only 0.3% of households in the CDM.

4.3.2 Local Context – Polokwane Local Municipality

The PLM is situated in the central region of the Limpopo Province and spans approximately 5 050 km^2 (PLM, 2026[26]). The PLM derives its name from Sesotho meaning “Place of Safety". The PLM is made up of 45 wards, which are grouped into seven main clusters of settlements, namely, Mankweng Cluster, Moletjie Cluster, Molepo / Chuene / Maja Cluster, Sebayeng / Dikgale Cluster, Aganang Cluster, City Cluster, and the Seshego Cluster (PLM, 2026). Table 4.10 provides an overview of various key statistics for the PLM.

Table 4.10: Key statistics for the PLM for 2001, 2011, 2016 and 2022 (*Sources*: Stats SA, 2018; Stats SA, 2023[27]; Stats SA, 2026; PLM, 2024[28]; PLM, 2026; CDM, 2014[29]; CDM, 2026; Municipalities of South Africa, 2026[30]).

KEY STATISTICS	YEAR			
	2001	2011	2016	2022
Total population	618 735	728 633	797 127	843 459
Young (0-14 years)	37.1%	31.1%	30.7%	28.1%
Working age (15-64 years)	57.5%	63.2%	64.4%	65.1%
Elderly (65+ years)	5.4%	5.7%	4.9%	6.8%
Dependency ratio	73.9	58.2	55.4	53.6
Gender ratio	86.0	91.1	92.8	93.2
Growth rate	n/a	n/a	2.04%	1.42%
Unemployment rate	41.5%	32.4%	n/a	19.3%
Youth unemployment rate	53.2%	42.0%	n/a	n/a
No schooling aged 20+	17.9%	8.6%	9.2%	6.6%
Higher education aged 20+	8.4%	11.8%	13.6%	16.8%
Matric aged 20+	20.4%	28.9%	33.9%	37.7%
Number of households	149 049	203 605	239 116	249 443
Average household size	4.2	3.6	3.3	3.4
Female headed households	n/a	46.2%	44.9%	50.4%
Formal dwellings	81.0%	90.2%	93.4%	95.0%

[25] Statistics South Africa (2026). Stats by Location. Available online at: https://census.statssa.gov.za/#/province/9/2 [Accessed: May 2026].
[26] Polokwane Local Municipality (2026). Draft Integrated Development Plan 2026/31. Available online at: https://www.polokwane.gov.za/wp-content/uploads/2026-31-Draft-5-year-IDP-26-March-2026.pdf [Accessed: April 2026].
[27] Statistics South Africa (2023). Census 2022 Municipal Fact Sheet, Report 03-01-82. Available online at: https://census.statssa.gov.za/assets/documents/2022/Census_2022_Municipal_factsheet-Web.pdf [Accessed: May 2026].
[28] Polokwane Local Municipality (2024). Polokwane Local Municipality Spatial Development Framework 2024. Available online at: https://www.polokwane.gov.za/wp-content/uploads/2024/04/Polokwane-SDF-2024-JS.pdf [Accessed: May 2026].
[29] Capricorn District Municipality (2014). Local Economic Development Strategy: Capricorn District Municipality (CDM). Available online at: https://www.cdm.org.za/wp-content/uploads/2022/11/LED-Strategy.pdf [Accessed: May 2026].
[30] Municipalities of South Africa (2026). Polokwane Local Municipality (LIM354) Demographics. Available online at: https://municipalities.co.za/demographic/1121/polokwane-local-municipality [Accessed: May 2026].

KEY STATISTICS	YEAR			
	2001	2011	2016	2022
Housing owned/paying off	n/a	55.2%	67.3%	50.4%
Flush toilets connected to sewerage	27.0%	38.6%	40.4%	48.3%
Weekly refuse removal	27.6%	38.9%	38.8%	46.5%
Piped water on site (inside dwelling and in the yard)	n/a	69.8%	76.0%	78.9%
Electricity for lighting	60.6%	83.0%	94.4%	95.0%

4.3.2.1 Demographics and Economic Profile

The population of the PLM experienced a steady growth, increasing from 618 735 in 2001 to 843 459 in 2022 with an average annual growth rate of 1.42% in 2022. According to Stats SA (2023), the PLM had the largest population in the CDM. In terms of age structure, the population under the age of 15 gradually decreased from 37.1% in 2001 to 28.1% in 2022. The working age population (15-64 years) increased from 57.5% in 2001 to 65.1% in 2022, indicating a slow but steady rise in the labour-active portion of the population (Table 4.10). The elderly population (65+ years) showed a slight increase from 5.4% in 2001 to 5.7% in 2011, a decline from 2011 to 2016 (4.9%) before increasing again to 6.8% in 2022.

The dependency ratio correspondingly decreased over the years, from 73.9 in 2001 to 53.6 in 2022, reflecting a gradual reduction in the socio-economic burden on the working age population. In terms of population groups, Black African individuals made up the majority of the population within the PLM in 2024, accounting for 95.10% of the population, followed by Whites (3.44%), Coloureds (0.85%), and Asians (0.61%) (PLM, 2026). Sepedi was the dominant language spoken by approximately 84.04% of the population in 2022 followed by Afrikaans (4%), and English (2.47%) (CDM, 2026).

With a GDP of R 140 billion in 2024 (up from R 73.1 billion in 2014), the PLM contributed 76.78% to the CDM's GDP of R 183 billion in 2024 and the PLM was ranked the largest contributor to the CDM's GDP compared to the other local municipalities in the district (PLM, 2026). In addition, the PLM contributes 25.09% to the GDP of Limpopo and 1.91% the GDP of South Africa (PLM, 2026). In 2024, the PLM achieved an annual GDP growth rate of 0.30% which was higher than that of Limpopo (0.12%) but lower than that of South Africa (0.53%). The PLM had the highest average annual economic growth between 2014 and 2024 (1.10%) compared to the other local municipalities in the district (PLM, 2026).

The community services sector (tertiary sector) was the largest within the PLM in 2024, accounting for R 52.8 billion or 42.0% of the total GVA (i.e., the total production of a region in terms of the value that was created within that region), followed by trade sector (18.2%) and the finance sector (17.0%) (PLM, 2026). The electricity sector contributed the least to the PLM's economy in 2024 with a contribution of R 1.26 billion or 1.00% of the total GVA. In addition, the PLM contributes the most community services towards its own GVA (76.59%) compared to other local municipalities in the district and the PLM contributed R 126 billion or 76.93% to the GVA of the CDM in 2024 (PLM, 2026).

4.3.2.2 Education

In terms of the highest education level for ages 20+ in 2011, approximately 8.6% had no schooling, 12.3% had some primary education, 4.6% completed primary school, 33.9% had some secondary education, 28.9% completed Grade 12, and 11,8% had Higher education (Stats SA, 2014[31]). In terms of highest education level for ages 20+ in 2022, 6.6% had no schooling; 5.9% had some primary education; 2.7% completed primary education; 29.2% had some secondary education; 37.7% completed Grade 12; and 16.8% had higher education (Stats SA, 2024).

Overall, the proportion of individuals (aged 20+) with no schooling, some primary education, completed primary school, and some secondary education generally decreased from 2011 to 2022 and the proportion of individuals (aged 20+) that completed Grade 12 and obtained higher education increased from 2011 to 2022. The relatively poor education levels in the PLM could potentially pose a challenge for economic development. In terms of highest levels of education (15+ years age group) in 2024, the number of people with no schooling in the PLM accounted for 35.30% of the number of people with no schooling in the district, 6.07% of the province and 0.93% of national (PLM, 2026). In 2024, the number of people with a Matric only in the PLM constituted 67.78% of the CDM and the number of people with a Matric and a Postgraduate degree constituted 77.73% of the CDM, 24.62% of the province and 1.60% of national in 2024 (PLM, 2026).

4.3.2.3 Employment and Income

According to the 2011 Census, the PLM had an unemployment rate of 32.4% (Stats SA, 2014) which decreased to 19.3% in 2022 (PLM, 2024). In 2022, the unemployment rate for the PLM was lower than the official unemployment rate for the CDM (27.2%), Limpopo Province (31.8%) as well as national (32.7%) (Stats SA, 2022). According to the PLM (2024), approximately 42.3% of the population in the PLM is employed. However, nearly the same number of people (approximately 38.4%) are not economically active (i.e. people who are not employed and also not looking for work). As a result, approximately 57.7% of the working-age population in the PLM are not employed.

In addition, the figures of the 2022 Census indicate that approximately 47.4% of the not economically active population falls within the youth bracket (aged 15 to 35) (PLM, 2024) (Figure 4.41). This could be attributed to *inter alia* a significant portion of the youth being engaged in education, limited job opportunities available which could have discouraged people from actively seeking employment, or the youth lack the skills and/or experience required to successfully enter the job market (PLM, 2024).

[31] Statistics South Africa (2014). Provincial Profile: Limpopo Census 2011. Report 03-01-78. Available online at: https://www.statssa.gov.za/publications/Report-03-01-78/Report-03-01-782011.pdf [Accessed: May 2026].

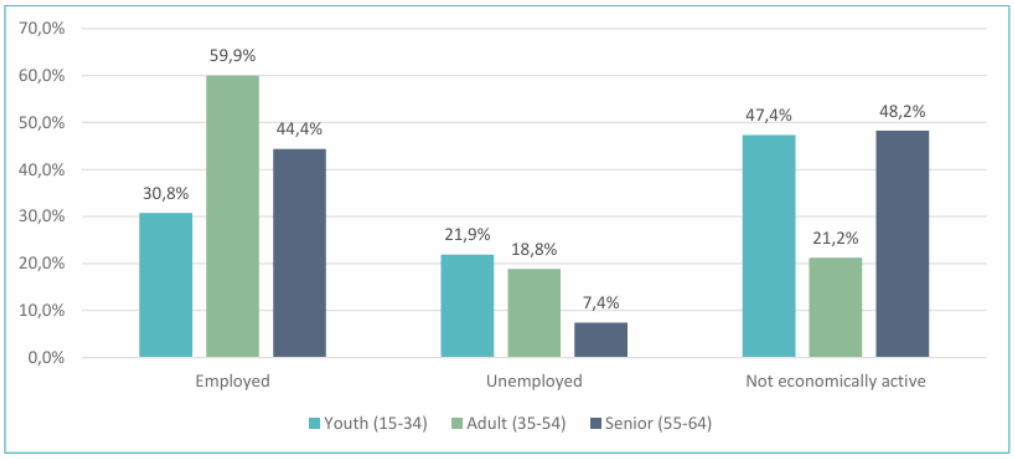


Figure 4.41: Employment per age bracket within the PLM (*Source*: PLM, 2024).

Based on the data from the 2011 Census, 13.8% of the population of the PLM had no formal income, 4.8% earned less than R 4 800, 8.5% earned between R 4 801 and R 9 600 per annum, 19.3% earned between R 9601 and R 19 600 per annum, 19.7% earned between R 19 601 and R 38 200 per annum, 11.7% earned between R 38 201 and R 76 400 per annum, 8.1% earned between R 76 401 and R 153 800 per annum, 7.2% earned between R 153 801 and R 307 600 per annum, 4.6% earned between R307 601 and R614 400 per annum, 1.6% earned between R 614 401 and R 1 228 800 per annum, and 0.4% earned between R 1 228 801 and R 2 457 600 per annum, and 0.3% earned R 2 457 601 + per annum (Stats SA, 2011[32]) (Figure 4.42).

According to the PLM (2026), in 2024, approximately 6.87% of all the households in the PLM were living on R 30 000 or less per annum. Additionally, majority of households in the PLM (14.34%) earned an income of R 192 000 – R 360 000 per annum, followed by the R 72 000 – R 96 000 income category (12.52%). Only 14 households in the PLM fell within the R0-R2400 income category (PLM, 2026).

[32] Statistics South Africa (2011). Statistics by Place Polokwane Local Municipality. Available online at: https://www.statssa.gov.za/?page_id=993&id=polokwane-municipality [Accessed: May 2026].

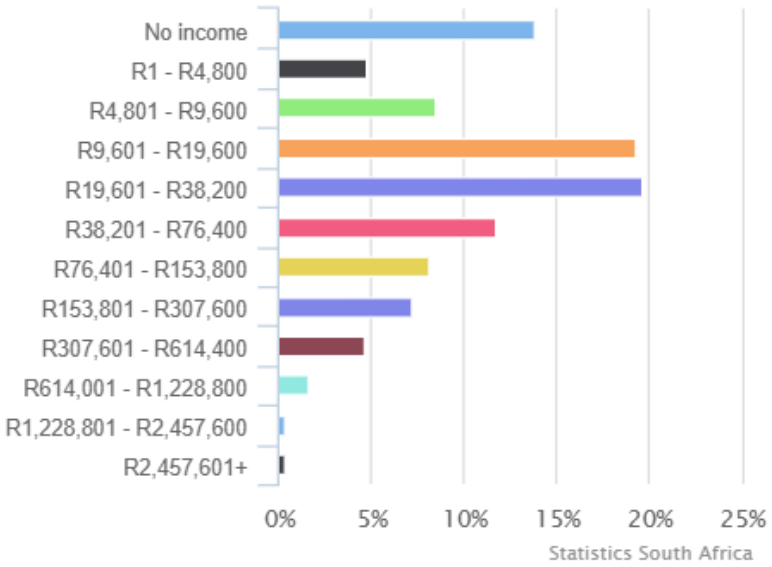


Figure 4.42: Average household income within the PLM (*Source*: Stats SA, 2011).

The upper poverty line (as defined by Stats SA) refers to the level of consumption where people can afford both adequate food and essential non-food items without having to sacrifice one for the other (PLM, 2026). This variable measures the number of people living below this level of consumption for the given area and is balanced directly with the official upper poverty rate as measured by Stats SA (PLM, 2026). In 2024, 514 000 people in the PLM were living in poverty (upper poverty line). The percentage of people living in poverty in the PLM increased from 56.27% in 2014 to 57.48% in 2024 (PLM, 2026). In addition, the poverty gap rate (which is used to indicate the depth of poverty and measures the average distance of the population from the poverty line, expressed as a percentage of the upper poverty line) in the PLM increased from 30.6% in 2014 to 32.2% in 2024. This indicates that the average distance of the population from the poverty line increased, suggesting that there has been no improvement in terms of the depth of poverty in the PLM (PLM, 2024).

The dependency ratio is the ratio of non-economically active dependents (usually people younger than 15 or older than 64) to the working age population group (15 - 64). The dependency ratio for the PLM increased from 54.3% in 2011 to 55.4% in 2016 and decreased from 2016 to 53.6% in 2022 (CDM, 2026). The dependency ratio for the PLM was lower than that of the CDM in 2011 (67%) and 2022 (60.6%) and higher than that of national in 2011 (52.7%). The high dependency ratio of the PLM reflects the limited employment opportunities in the area and represent a significant risk to the district and local municipality. The high dependency ratio also highlights the importance of maximising local employment opportunities and the key role played by training and skills development programmes.

Household income levels in the PLM are likely to have been impacted by the COVID-19 pandemic. The number of households in the PLM and CDM that live close to or below the poverty line is likely to have increased over the last few years. This, coupled with the high dependency ratio for the PLM, is a major cause of concern for the area. The low-income levels are a major concern given that an increasing number of individuals and households are likely to be dependent on social grants. The low-income levels also result in reduced spending in the local economy and less tax

and rates revenue for the PLM. This in turn impacts on the ability of the PLM to maintain and provide services.

4.3.2.4 Health and Community Services

The CDM is served by two Tertiary Hospitals (Mankweng and Pietersburg) and one Mental Health hospital (Thabamoopo). The CDM does not have a regional hospital, which affects the referral system; however, patients are usually referred from the district hospitals directly to the Polokwane and Mankweng tertiary hospitals (CDM, 2026). The City of Polokwane has seven regional hospitals (including Polokwane Hospital; Mankweng Hospital, in Mankweng township [30 km east of Polokwane]; Pholoso Netcare Hospital; Seshego District Hospital [10 km out of Polokwane City]; Knobel Hospital in Aganang Cluster [60 km North West of Polokwane]; Med clinic Limpopo [Polokwane]; and Rethabile Health Centre in Polokwane City) as well as over 40 clinics associated with the above-mentioned regional hospitals (PLM, 2026).

In terms of education, in 2020, the PLM had 253 primary schools; 156 secondary schools; 2 combined schools; 9 special schools; 208 Early Childhood Development (ECD) Centres; and 19 higher institutions (including 16 Further Education and Training (FET) Colleges, 2 Universities (Limpopo University and University of South Africa [UNISA]) and 1 Technicon (TUT)) (CDM, 2026). The CDM has a total of 541 primary schools, 342 secondary schools, 5 combined schools, 14 special schools, 489 ECD Centres, and 22 higher institutions. Some of the main challenges facing the CDM in terms of education include dilapidated schools, a lack of adequate classrooms to accommodate all learners, a lack of water and sanitation facilities at schools, and poor access roads to schools (CDM, 2026).

The PLM also has 8 libraries (including Moletjie Library, Seshego Library, City Library, Nirvana Library, Westernburg Library, Mankweng Library, Tshebela Library, and Ga-Matlala One Stop Centre Library); 5 sport facilities; and 5 community halls.

4.3.2.5 Municipal Services

Access to formal dwellings remains high in the PLM, with 95% of households residing in formal housing in 2022, an increase from 93.4% in 2016 (Stats SA, 2018) and 90.2% in 2011 (Stats SA, 2026). In terms of household ownership, 67.3% of houses in the PLM were owned or being paid off in 2016, suggesting growing residential securing. However, by 2022, this proportion had declined to 50.4%, suggesting a shift in tenure patterns in the PLM (Table 4.10). This decline in household ownership could be attributed to rising housing costs and increasing economic pressures, which have reduced housing affordability.

Access to basic services generally increased across the PLM from 2001 to 2022. In 2022, the majority of households had access to electricity for lighting (95%) and piped municipal water supply inside dwelling/yard (78.9%). Only 48.3% had flush toilets connected to sewerage and 46.5% had refuse removal in 2022 (Table 4.10). The supply of piped water to households (i.e. inside dwelling and in the yard) in the PLM gradually increased from 2011 to 2022 with 69.8%, 76% and 78.9% of households having access to piped water inside dwelling and in the yard in 2011, 2016 and 2022, respectively (Table 4.10). The PLM had a significant improvement in access to electricity for lighting from 60.6% in 2001 to 95% in 2022 (Table 4.10). Flush toilets connected to sewerage gradually increased from 27% in 2001 to 48.3% in 2022, refuse removal also gradually increased from 27.6% in 2001 to 46.5% in 2022 (Table 4.10).

4.3.3 Study Area Context

The proposed projects are located approximately 18 km southwest of Polokwane within the PLM and CDM. Polokwane is South Africa's largest urban centre north of Gauteng. Located along the N1 National Road and at the convergence of significant road networks, Polokwane offers exceptional accessibility and connectivity to the wider area. Limpopo is a major producer of beef cattle and game products. The study area operations are historically based on cattle. However, according to the Socio-Economic Assessment (Appendix E.8 of this BA Report), due to the current foot and mouth epidemic, some cattle farming operations are being switched to sheep farming.

The study area forms part of the Dream Hills Game Farm which is currently used as a private game reserve by the landowners. The closest formally Protected Area is the Kuschke Nature Reserve, located approximately 3 - 4 km north and south-east of the study area. The study area is also located within the Polokwane KBA. Refer to Section 4.2.8 of this chapter for additional information.

4.4 Eco-Tourism Activities

The Socio-Economic Assessment (Appendix E.8 of this BA Report) notes that only one formally protected natural area is located near the study area (i.e., the Kuschke Nature Reserve). The 22.52 km^2 reserve was proclaimed in 1959 with the purpose of habitat protection. The reserve consists of two unconnected portions, namely to the north-east of the study area (largely coinciding with the large hill north of the crestline), and the second adjacent to the east of Witkop Solar Park. The Kuschke Nature Reserve does not cater for tourist visitors.

The Kuschke Agricultural School is located within the Kuschke Nature Reserve. The school campus is located adjacent to the R519, approximately 3.5 km north-east of the Veroniva BESS site. An agricultural school (inclusive of hostels) has been on the premises since 1937. The school provides practical training in various agricultural fields and offers an academic curriculum which offers subjects in commerce, science, and technology and provides hostel accommodation.

Tourism receptors in the study are largely concentrated in the N1/R101 corridor, and to a lesser extent the R519. These include a resort, a few restaurants, game lodges, accommodation facilities, and a 4x4 course. No tourism receptors are located near the proposed development (all >6 km). The site property itself (Snymansdrift 738/5) forms part of Dream Hills Game Farm based on adjacent Snymansdrift 738/35. The properties are currently used as a private game reserve by the owners. The landowner of Farm Snymansdrift 738/5, on which the proposed BESS project will be developed, has consented to the proposed BESS development. The landowner therefore forms part of the proposed project (i.e. affected landowner of the proposed project), and therefore is not considered socially sensitive receptors. However, the Socio-Economic specialists note that Dream Hills is screened from the proposed project site by the natural topography; therefore, no significant visual and or sense of place impacts are anticipated.

In addition, the Polokwane Game Reserve (covering approximately 3 200 ha) is located near the Polokwane City Centre and is one of the largest municipal reserves in South Africa (PLM, 2026). The reserve has unspoilt bushveld and is home to approximately 20 game species and approximately 200 bird species. The reserve also contains around 110 different grasses, approximately 280 flowering plants and 68 tree species (PLM, 2026). According to the PLM (2024), the Polokwane Game Reserve represents the merging of conservation and eco-tourism,

preserving the Pietersburg Plateau False Grassland and various species. The Polokwane Game Reserve lies more than 10 km from the proposed BESS and EGI, and therefore will not be impacted by the proposed projects. The municipality's historical sites, such as the Bakone Malapa and Mankweng Rock Art Site, also hold potential for educational and recreational use (PLM, 2024).

4.5 Civil Aviation

- **Project 1 – Veroniva BESS**

The Screening Tool has indicated that the entire 65 ha study area and footprints of the Veroniva BESS (Project 1) is of high sensitivity overall as it relates to Civil Aviation (Figure 4.43).

The following civil aviation sensitivity features were identified for the 65 ha study area (i.e., for the transformation of land (indigenous vegetation) and substation classifications) and the BESS footprint:

- Within 8 km of other civil aviation aerodrome – High Sensitivity.
- Dangerous and restricted airspace – High Sensitivity.
- Between 15 and 35 km from a civil aviation radar – Medium Sensitivity.
- Between 15 and 35 km from a major civil aviation aerodrome – Medium Sensitivity.
- Between 8 and 15 km of other civil aviation aerodrome – Medium Sensitivity.

The following civil aviation sensitivity features were identified for the BESS IPP Substation footprint:

- Within 8 km of other civil aviation aerodrome – High Sensitivity.
- Dangerous and restricted airspace – High Sensitivity.
- Between 15 and 35 km from a civil aviation radar – Medium Sensitivity.
- Between 15 and 35 km from a major civil aviation aerodrome – Medium Sensitivity.

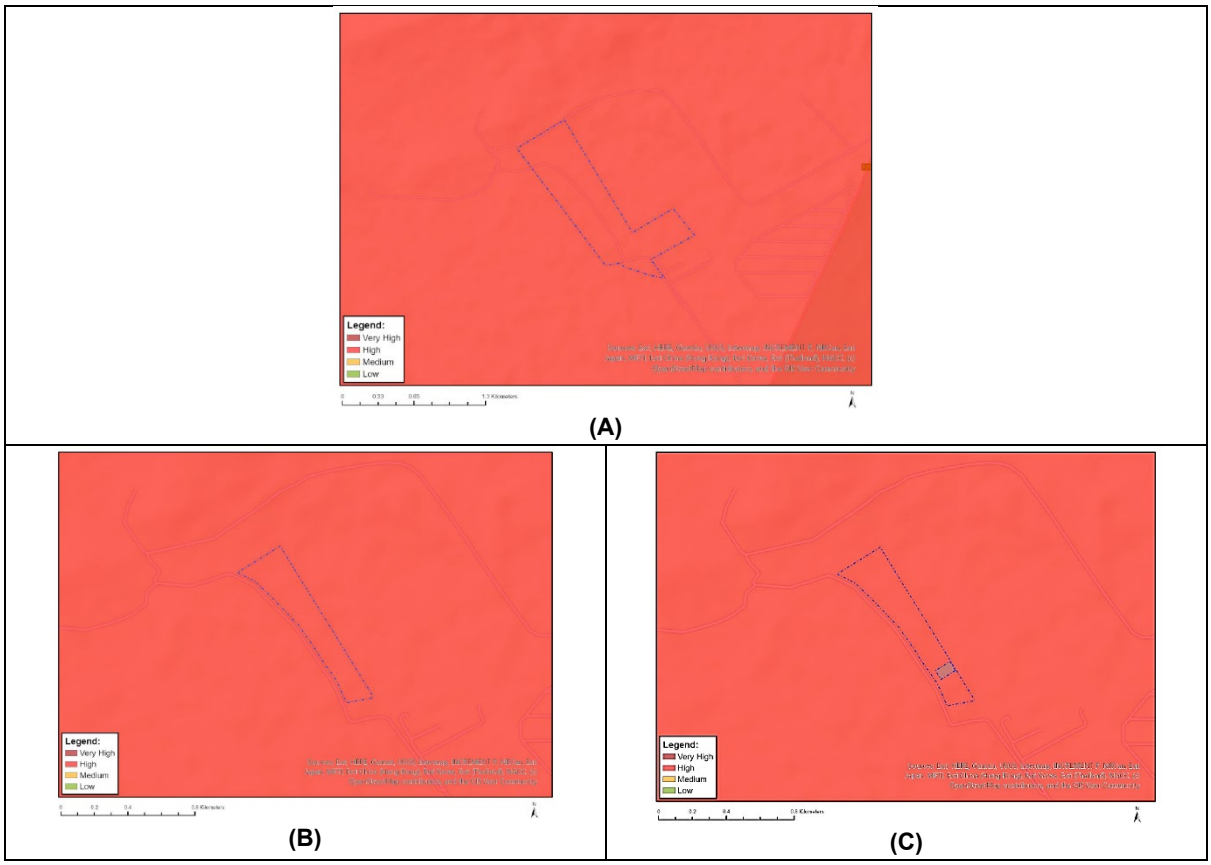


Figure 4.43: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Civil Aviation theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Civil Aviation theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Civil Aviation theme. (*Source*: (A): DFFE Screening Tool, 2025; (B) and (C): DFFE Screening Tool, 2026).

Note that the Screening Tool Map of the Study Area (transformation of land [indigenous vegetation] classification) for the Civil Aviation theme, is identical to the Screening Tool Maps of the Study Area (substation and power line classifications). Therefore, only one Screening Tool Map of the Study Area has been included (Figure 4.43).

In addition, the Screening Tool Report for the External Access Road Option A and Option B are included in Appendix L of this BA Report. The Screening Tool Map for the access road options for the Civil Aviation theme shows High sensitivity (due to dangerous and restricted airspace), and Medium sensitivity (due to between 15 and 35 km from a civil aviation radar; and between 15 and 35 km from a major civil aviation aerodrome). The external access roads do not have any implications from a civil aviation perspective.

- **Project 2 – Veroniva EGI**

The Screening Tool has indicated that the entire 65 ha study area and footprints of the Veroniva EGI (Project 2) is of high sensitivity overall as it relates to Civil Aviation. Figure 4.44 below presents the Screening Tool Map of the footprints of the Veroniva EGI (Project 2).

The following civil aviation sensitivity features were identified for the 65 ha study area (i.e., for the power line and substation classifications) and the Veroniva EGI (LILO) footprint:

- Within 8 km of other civil aviation aerodrome – High Sensitivity.
- Dangerous and restricted airspace – High Sensitivity.
- Between 15 and 35 km from a civil aviation radar – Medium Sensitivity.
- Between 15 and 35 km from a major civil aviation aerodrome – Medium Sensitivity.
- Between 8 and 15 km of other civil aviation aerodrome – Medium Sensitivity.

The following civil aviation sensitivity features were identified for the Switching Station footprint:

- Within 8 km of other civil aviation aerodrome – High Sensitivity.
- Dangerous and restricted airspace – High Sensitivity.
- Between 15 and 35 km from a civil aviation radar – Medium Sensitivity.
- Between 15 and 35 km from a major civil aviation aerodrome – Medium Sensitivity.

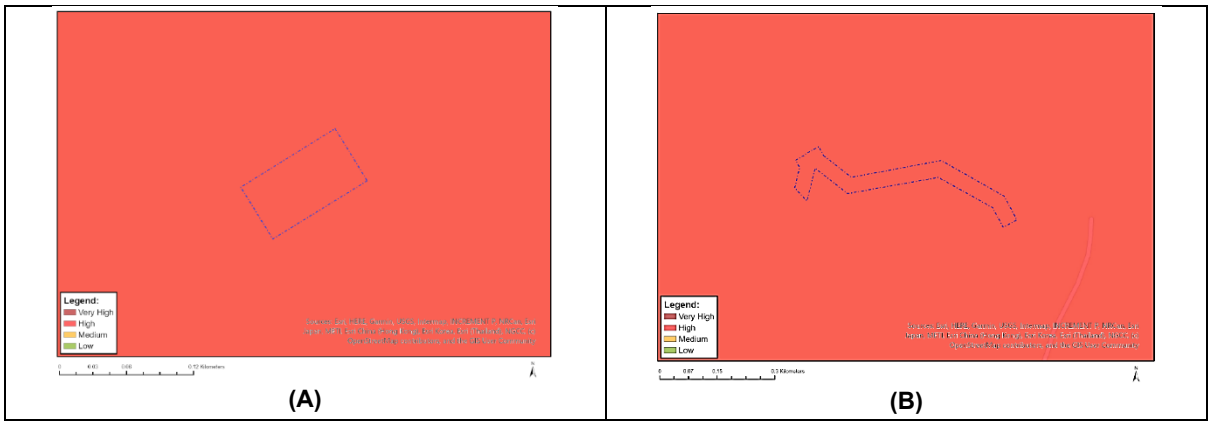


Figure 4.44: (A) Screening Tool map of the Switching Station footprint indicating sensitivities for the Civil Aviation theme. (B) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Civil Aviation theme. (*Source*: DFFE Screening Tool, 2026).

The information presented in the section below applies to both Veroniva BESS (Project 1) and Veroniva EGI (Project 2).

- **Project 1 – Veroniva BESS and Project 2 – Veroniva EGI**

The site visit undertaken in April 2026 confirmed that the study area is predominantly being used for game farming (due to the Dream Hills Game Farm / Estate), and that infrastructure located on the main affected farm portion (Farm Snymansdrift 738/5) include paved roads, waterpoints, gravel roads, fences, overhead power lines and pylons, game viewing hideouts, and alien invasive species. **No civil aviation installations were found within the study area or the proposed BESS, EGI and external access road footprints** (Figure 4.45).

The proposed projects do not intersect with the civil aviation aerodrome, civil aviation radar, and major civil aviation aerodrome features identified by the Screening Tool, but they do intersect with their associated medium and high sensitivity buffers, as well as the dangerous and restricted

airspace (high sensitivity). It was determined that the restricted airspace is significantly higher than the highest point (i.e., 37 m) of the proposed projects. The proposed projects are therefore unlikely to impact the FAR71, thereby verifying the sensitivity as low from a civil aviation perspective. Refer to the Civil Aviation SSV included in Appendix E.13 of this BA Report for additional information.

Overall, the study area and proposed development footprints were determined and verified to be of low sensitivity (as it relates to civil aviation). This was determined through a site visit and based on existing databases. Therefore, the high sensitivity allocated on the Screening Tool is disputed.

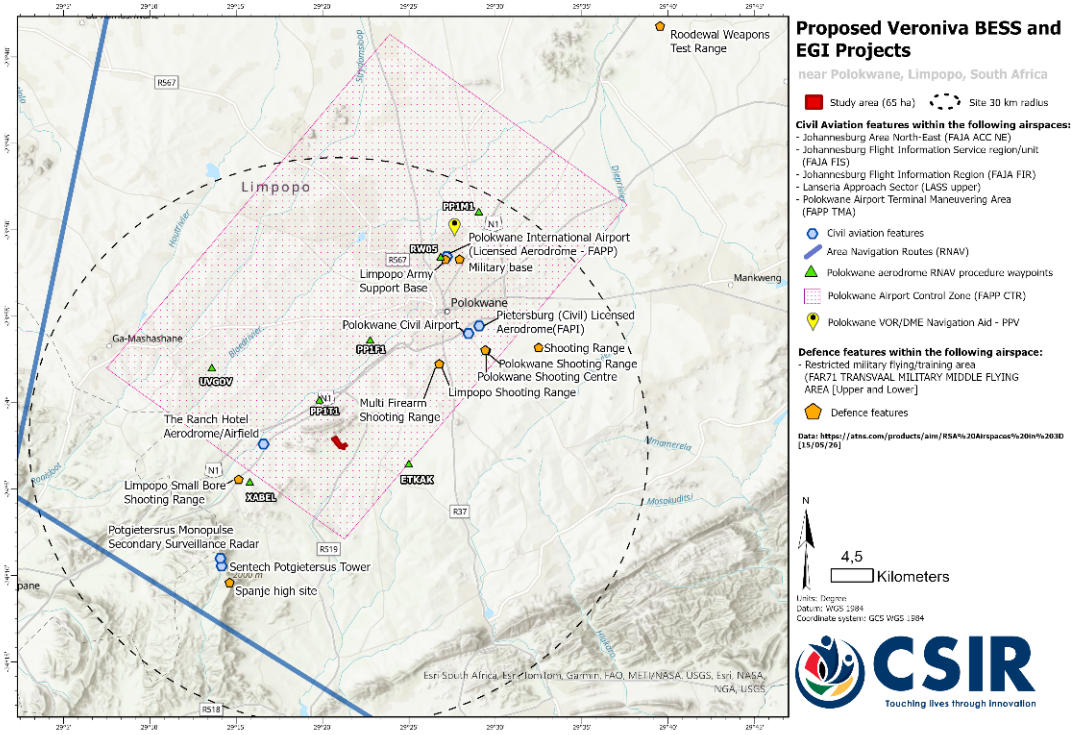


Figure 4.45: Civil Aviation and Defence features relative to the proposed project study area based on the site visit and existing databases.

4.6 Defence

The information presented in the section below applies to both Veroniva BESS (Project 1) and Veroniva EGI (Project 2).

- **Project 1 – Veroniva BESS and Project 2 – Veroniva EGI**

The Screening Tool has indicated that the entire 65 ha study area and footprints of the Veroniva BESS (Project 1) and Veroniva EGI (Project 2) is of high sensitivity overall as it relates to Defence (Figure 4.46).

The following defence sensitivity feature was identified for the 65 ha study area (i.e., for the transformation of land (indigenous vegetation), substation and power line classifications), and the project footprints, including the external access roads:

- Military and Defence Site – High Sensitivity.

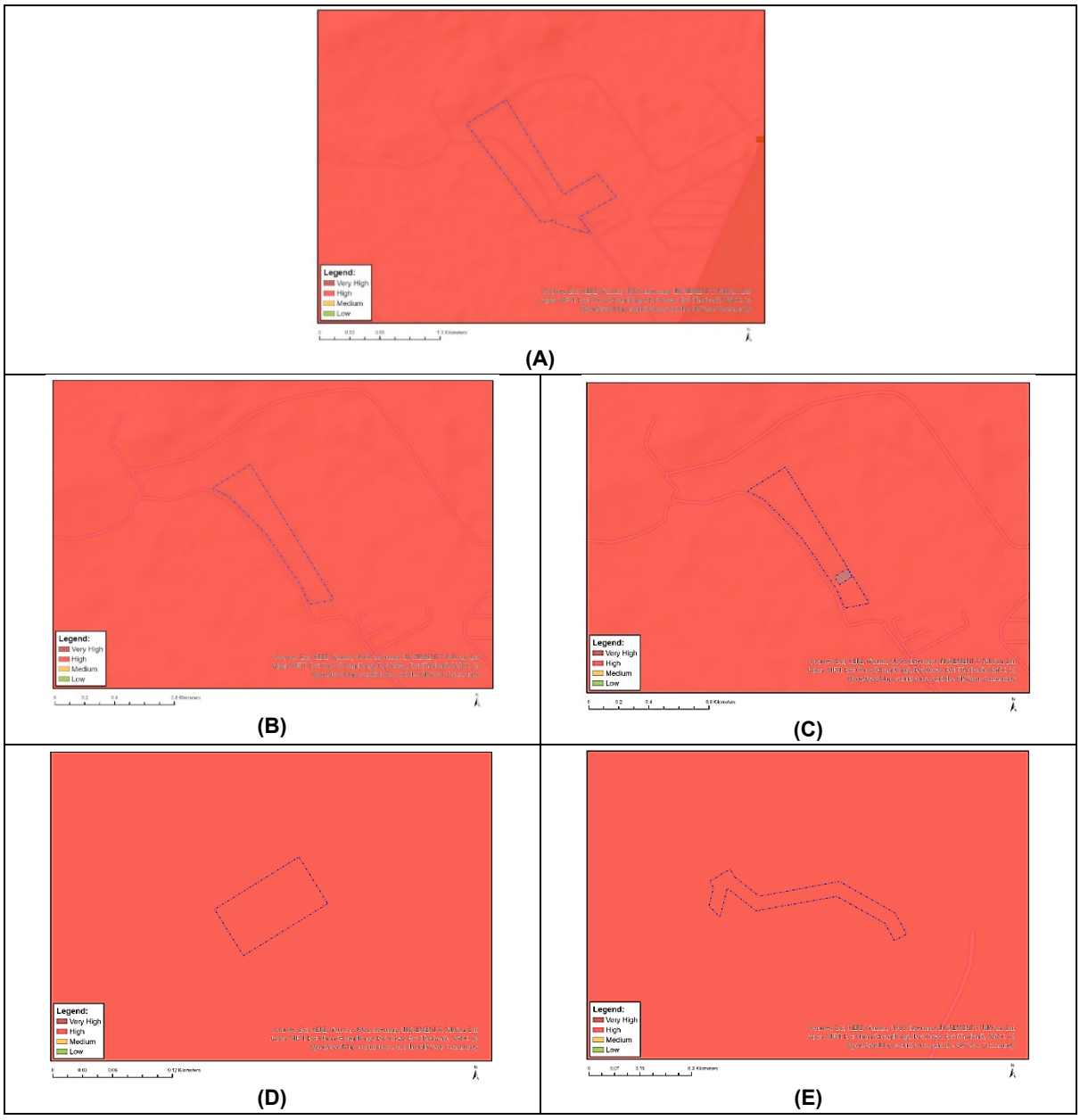


Figure 4.46: (A) Screening Tool map of the Study Area (which includes the EGI Assessment Corridor Area), indicating sensitivities for the Defence theme. (B) Screening Tool map of the BESS footprint indicating sensitivities for the Defence theme. (C) Screening Tool map of the BESS IPP Substation footprint indicating sensitivities for the Defence theme. (D) Screening Tool map of the Switching Station footprint indicating sensitivities for the Defence theme. (E) Screening Tool map of the EGI Servitude Corridor Area indicating sensitivities for the Defence theme (*Source*: (A): DFFE Screening Tool, 2025; (B), (C), (D) and (E): DFFE Screening Tool, 2026).

The site visit undertaken in April 2026. **No defence installations were found within the study area or the proposed BESS, EGI and external access road footprints** (Figure 4.45).

The proposed projects intersect with the high sensitivity buffer surrounding the Roodewal Weapons Test Range. A representative of the Roodewal Weapons Test Range confirmed on 18 May 2026 that the proposed projects are acceptable from a defence perspective due to their distance from the bombing range, thereby verifying the sensitivity as low from a defence perspective. Refer to the Defence SSV included in Appendix E.14 of this BA Report for additional information.

Overall, the study area and proposed development footprints were determined and verified to be of low sensitivity (as it relates to defence). This was determined through a site visit, stakeholder consultation with the Roodewal Weapons Test Range, and existing databases. Therefore, the high sensitivity allocated on the Screening Tool is disputed.

4.7 Environmental Sensitivity Analysis

Based on the environmental sensitivities identified and verified by the relevant specialists on site (included in the Specialist Assessments and Inputs in Appendix E of this BA Report), an overall combined environmental features map (inclusive of buffers, where relevant) (Figure 4.47) and overall combined environmental sensitivity map (Figure 4.48) was compiled for the study area for the proposed projects. These maps are based on the worst-case buffers identified in Table 4.11.

The layouts for Projects 1 and 2 have been overlain onto the feature map (inclusive of buffers, where relevant) (Figure 4.49) and sensitivity map (Figure 4.50) to show how they relate to the environmental features and sensitivities (which are mapped with their associated buffers, where relevant), and how they have been avoided. Project specific maps are included in Chapter 13 of this BA Report, as well as the relevant Specialist Studies and Inputs (included in Appendix E of this BA Report) and EMPrs (Appendix H to Appendix K of this BA Report). Refer to Appendix D of this BA Report for additional maps relative to the proposed projects.

The sensitivity map indicates that the inherent environmental sensitivity of the study area for the proposed projects is generally low and medium sensitivity (Figure 4.48). The entire study area is rated high sensitivity from an avifaunal collision and electrocution risk perspective; however, this is not linked to a specific feature and is not a fatal flaw or avoidance requirement. As indicated in Figure 4.48 and Figure 4.50, all high sensitivity areas and no-go areas have been avoided by the key infrastructure associated with the proposed projects. As noted in Table 4.11 below, the specialists explain that linear infrastructure can traverse areas of high sensitivity as adequate mitigation measures have been recommended. It is important to note that the Terrestrial Biodiversity specialist explained that linear infrastructure such as new roads should be reconsidered in the terrestrial biodiversity high sensitivity area, however none of the proposed infrastructure occurs in this high sensitivity area based on the layout assessed in this BA process. The study area is suited for the proposed development based on the understanding that measures have been taken to firstly avoid the sensitive features as best as possible, and all aspects to manage or mitigate potential impacts have been identified in this BA Process.

Table 4.11 provides a summary of the environmental sensitivities identified by the relevant specialists.

Table 4.11: Key Environmental Features and Sensitivities identified by relevant Specialists.

Specialist Theme	Sensitivity Description
Agriculture	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI** ▪ The entire study area, and the external access roads (Options A and B), is confirmed as medium agricultural sensitivity with a land capability value of 7 to 10. ▪ There are no areas that need to be avoided from an agricultural perspective. ▪ The layout has no relevance to agricultural impact in this case.
Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI. The sensitivity allocations do not change per project** **High Sensitivity:** ▪ Suitable habitat for Sensitive species 1252, Sensitive species 550, Sensitive species 1248, *Prunus africana* and *Kinixys lobatsiana*. ▪ This is a no-go area for non-linear infrastructure. Note: None of the proposed infrastructure occurs in this high sensitivity area based on the layout assessed in this BA process. ▪ Linear infrastructure such as new roads should be reconsidered within this area. Note: None of the proposed infrastructure occurs in this high sensitivity area based on the layout assessed in this BA process. ▪ Seep wetland located at Access Road Option A with a 32 m buffer assigned. The buffer and seep wetland area is not a no-go area since it contains an existing road; rather the buffer is the area where additional mitigation measures must be implemented. **Medium Sensitivity:** ▪ This is assigned to the ESA1 based on the CBA1 dispute. ▪ The reasoning for the CBA1 status from a vegetation perspective is based on outdated information. The vegetation types are listed as Least Concern, and no plant SCC were flagged. ▪ Limited disturbance should take place herein, but development is possible with appropriate mitigation measures. **Low Sensitivity:** ▪ Previously transformed areas including agricultural land, alien invasive species stands, fallow lands. ▪ Ideal location for development. **Very Low Sensitivity:** ▪ Hard surfaces including roads, guard house and other infrastructure.

Specialist Theme	Sensitivity Description	
Aquatic Biodiversity	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI** Note: No wetlands, riparian areas, drainage lines, hydromorphic soils, or other aquatic features were identified within the BESS and EGI footprint, and within the footprint for Access Road Option B. However, aquatic features were identified within the broader 500 m AoI which comprised seep wetlands, Unchanneled Valley Bottom wetland, artificial impoundments, drains and burrow pits. Access Road Option A was the only infrastructural component directly associated with a wetland feature. In addition, no aquatic animals or plant SCC were observed within the study area during the SSV surveys. **High Sensitivity:** ▪ These include the delineated seep wetlands. Note: Development in such high sensitivity areas is avoided by the layout for the BESS, EGI and Access Road Option B. Access Road Option A traverses the high sensitivity seep wetland, however this is an existing road that will be widened and adequate mitigation measures have been identified..	
Avifauna	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI** **Very High Sensitivity:** ▪ Cape Vulture power line roost located west of the study area is considered as Very High sensitivity. A 1 km All Infrastructure Exclusion Zone was applied. This area must be excluded from all development activities. Note: The study area does not overlap with the recommended All Infrastructure Exclusion Zone. **High Sensitivity:** ▪ Avifauna collision and electrocution risk. The entire study area is considered as High sensitivity from an avifaunal collision and electrocution impact perspective. Note that this is not a fatal flaw. No buffer is recommended. Note: No specific no-go zones have been identified for the proposed EGI and associated infrastructure within the study area.	
Visual	**Project 1 – Veroniva BESS**	**Project 2 – Veroniva EGI**
	The following features are assigned **Very High** sensitivity (i.e. no-go) and need to be avoided for the proposed BESS: Scenic Resources: ▪ Topographic feature: prominent scarps, peaks and ridges: Within 50 m. ▪ Steep slopes: Slopes > 1:4.	The following features are assigned **Very High** sensitivity (i.e. no-go) and need to be avoided for the proposed EGI: Scenic Resources: ▪ Topographic feature: prominent scarps, peaks and ridges: Feature. ▪ Topographic feature: minor ridges, scarps and outcrops: Feature. Protected Landscapes / Sensitive Receptors:

Specialist Theme	Sensitivity Description	
	Protected Landscapes / Sensitive Receptors: ▪ Private reserves, game farms, guest farms, resorts: Within 500 m. ▪ Farmsteads/homesteads: Within 150 m. ▪ Provincial/arterial routes (rural): Within 250 m. The following features are assigned **High** sensitivity for the proposed BESS: Scenic Resources: ▪ Topographic feature: prominent scarps, peaks and ridges: Within 100 m. ▪ Steep slopes: Slopes > 1:10. Protected Landscapes / Sensitive Receptors: ▪ Private reserves, game farms, guest farms, resorts: Within 1 km. ▪ Farmsteads/homesteads: Within 250 m. ▪ Provincial/arterial routes (rural): Within 500 m. Note: The layouts for the proposed projects avoid the above sensitive areas.	▪ Private reserves, game farms, guest farms, resorts: Within 150 m. ▪ Farmsteads/homesteads: Within 150 m. ▪ Provincial/arterial routes: Within 150 m. The following features are assigned **High** sensitivity for the proposed EGI: Scenic Resources: ▪ Topographic feature: prominent scarps, peaks and ridges: Within 100 m. ▪ Topographic feature: minor ridges, scarps and outcrops: Within 50 m. Protected Landscapes / Sensitive Receptors: ▪ Private reserves, game farms, guest farms, resorts: Within 250 m. ▪ Farmsteads/homesteads: Within 250 m. ▪ Provincial/arterial routes: Within 250 m. Note: The layouts for the proposed projects avoid the above sensitive areas.
Heritage (Archaeology and Cultural Heritage)	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI** ▪ The following sensitivities were mapped within the broader area: o **Very High sensitivity:** Fort Louis Campbell Provincial Heritage Site (PHS). o **High sensitivity**: Hilly landscape (high lying area) towards the north (Grade GPA / medium cultural significance). o **Low sensitivity**: Natural eroded bedrock outcrop (PW001). Note: No heritage resources were found within the project footprints. All of the sensitivities identified in the broader area have been avoided by the proposed projects. Therefore, the study area and project footprints were rated as low sensitivity from a heritage perspective. No buffers were identified by the specialist.	
Palaeontology	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI**	

Specialist Theme	Sensitivity Description
	▪ There are no areas that need to be avoided from a palaeontological perspective. The Palaeontology Letter of Exemption concluded that the site is of very low to zero palaeosensitivity. No recorded fossil sites or high palaeosensitivity / No-Go areas were identified within the project study area.
Socio-Economic Assessment	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS** ▪ Not applicable. There are no sensitivities of this nature that can be mapped spatially and that would influence the layout of the proposed projects.
Traffic	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS** ▪ Not applicable. There are no sensitivities of this nature that can be mapped spatially and that would influence the layout of the proposed projects.
High-level Safety, Health, and Environment (SHE) Risk Assessment for the BESS	**Note: The information presented below only applies to Project 1 – Veroniva BESS** ▪ Ideally, the BESS should be placed at least 50 m away from known boreholes, and 100 m away from major surface water features, such as major rivers and wetlands. Note: The proposed BESS is located well over 100 m from any stream, borehole/water reservoir and therefore aquatic pollution risks are not a concern. ▪ The BESS should also ideally be located 150 m away from busy public roads (i.e. regional roads). Note: There are no major public roads that run through the proposed development area, and this is therefore not a concern. The R519 runs towards the south and is more than 1.5 km away from the proposed BESS footprint. ▪ Due to the possibility of noxious smoke from potential fires, the lithium-ion BESS should be located over 500 m from isolated farmhouses that are occupied. Note: There are no occupied farmhouses located within 500 m of the proposed BESS and toxic smoke risks are therefore not a concern.
Geohydrology	**Note: The information presented below only applies to Project 1 – Veroniva BESS** ▪ It is recommended that the BESS and substation be placed at least 50 m away from any existing borehole (such as in the current layout).
Geotechnical	**Note: The information presented below applies equivalently to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI** ▪ It must be noted that there are no areas within the study area that should be avoided from a geotechnical sensitivity perspective.
Civil Aviation	▪ No sensitive civil aviation features have been identified within the study area.
Defence	▪ No sensitive defence features have been identified within the study area.

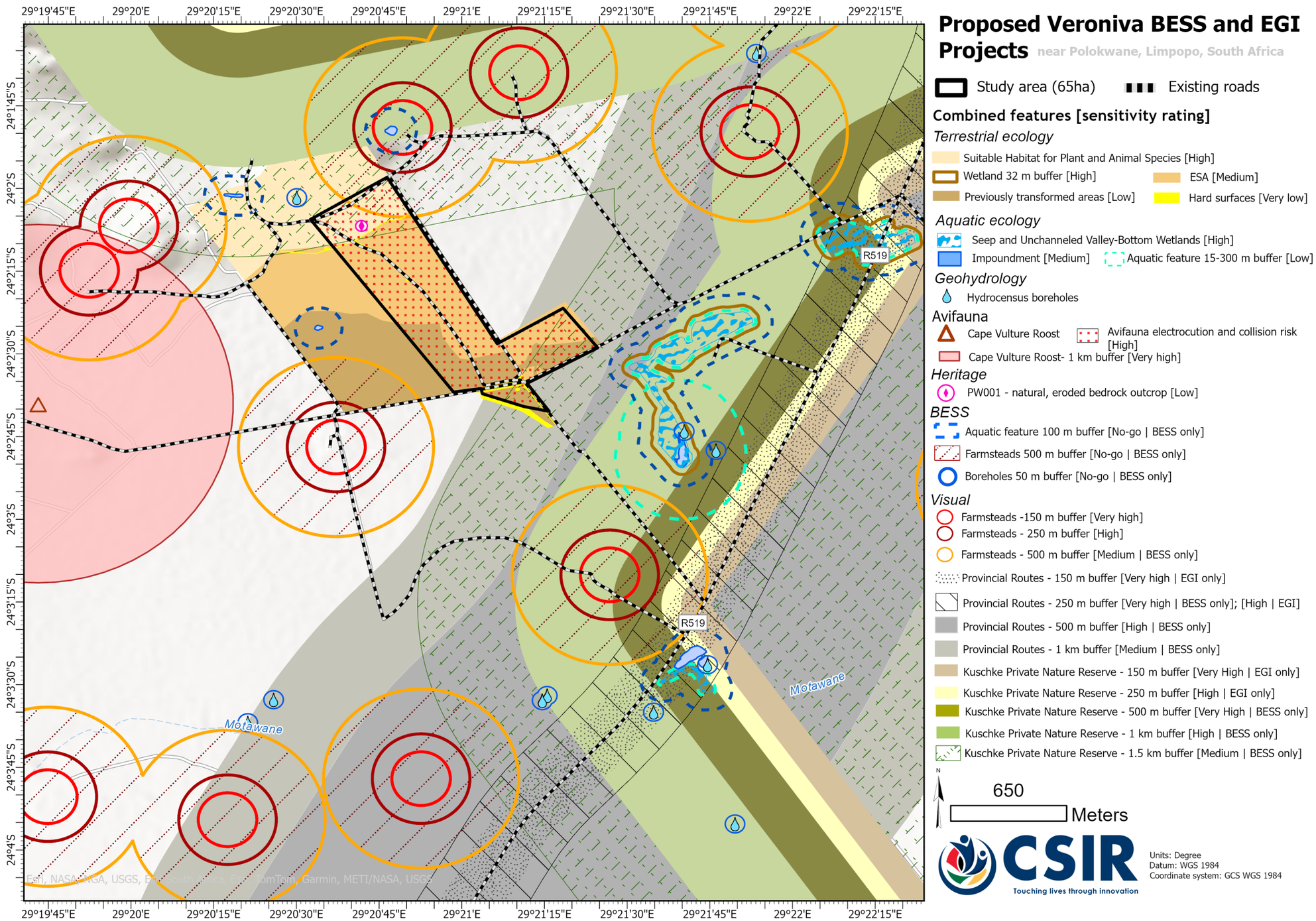


Figure 4.47: Combined environmental feature map for the study area.

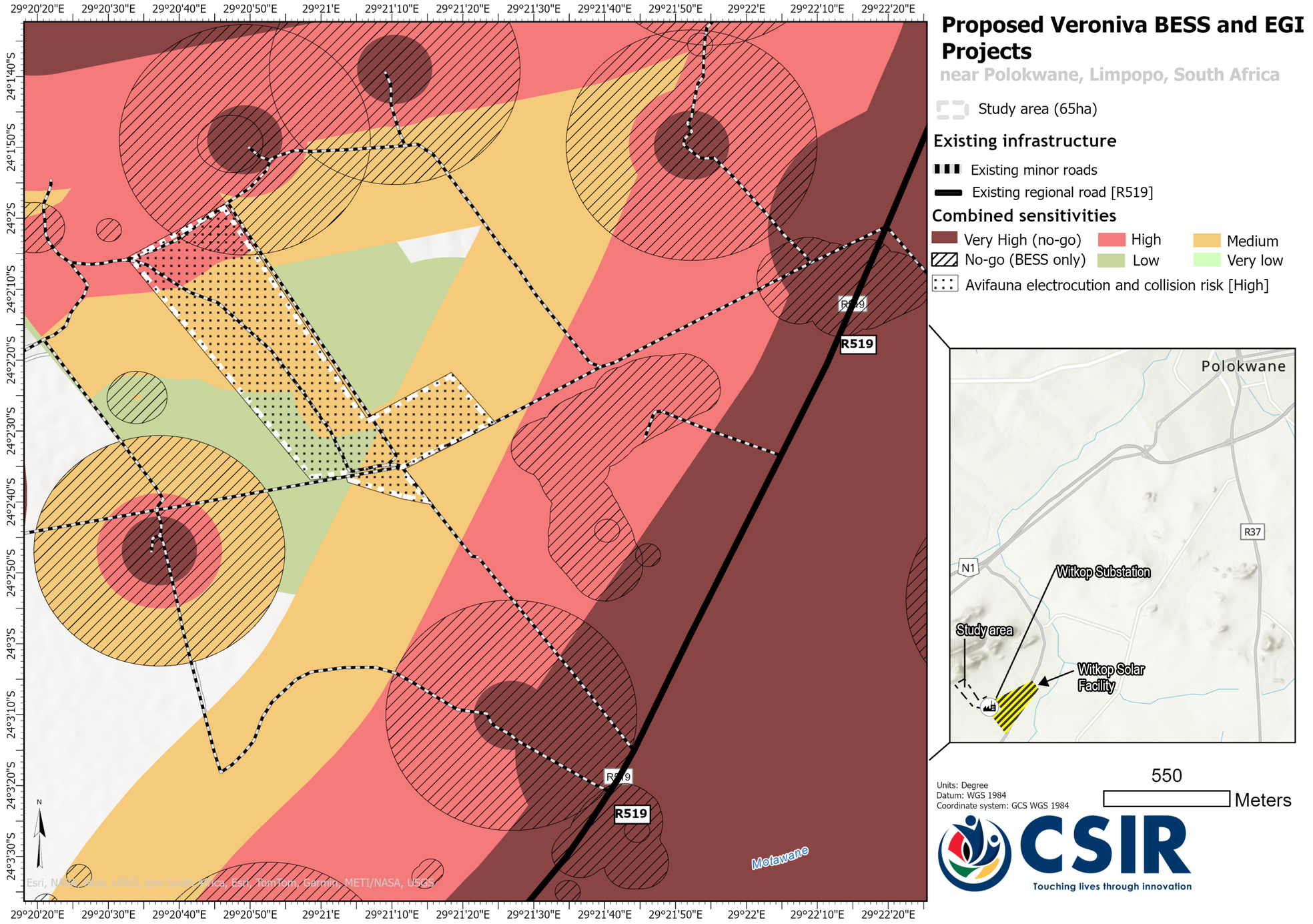


Figure 4.48: Combined environmental sensitivity map for the study area.

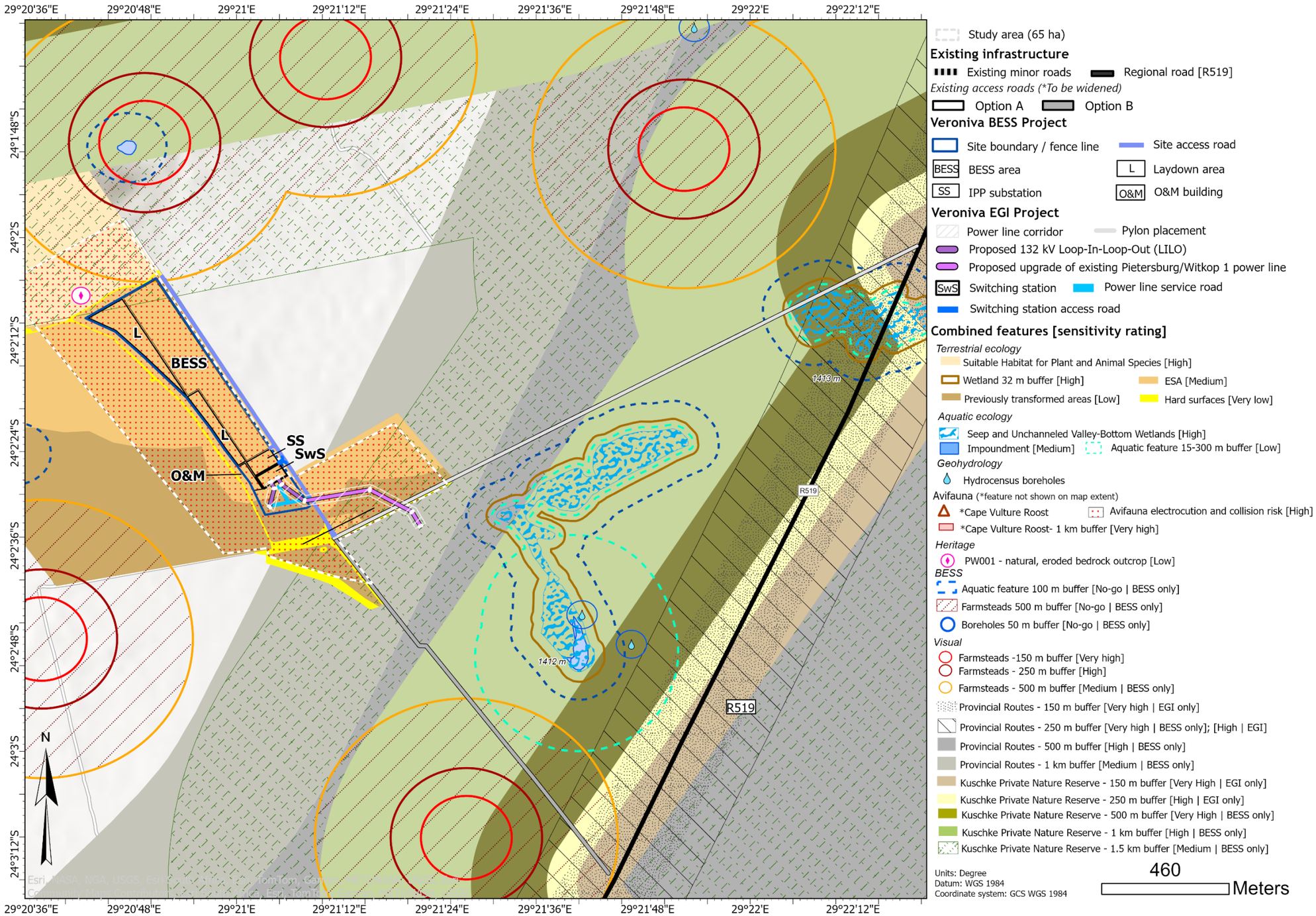


Figure 4.49: Combined environmental feature map for the study area overlain with the layout for Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI).

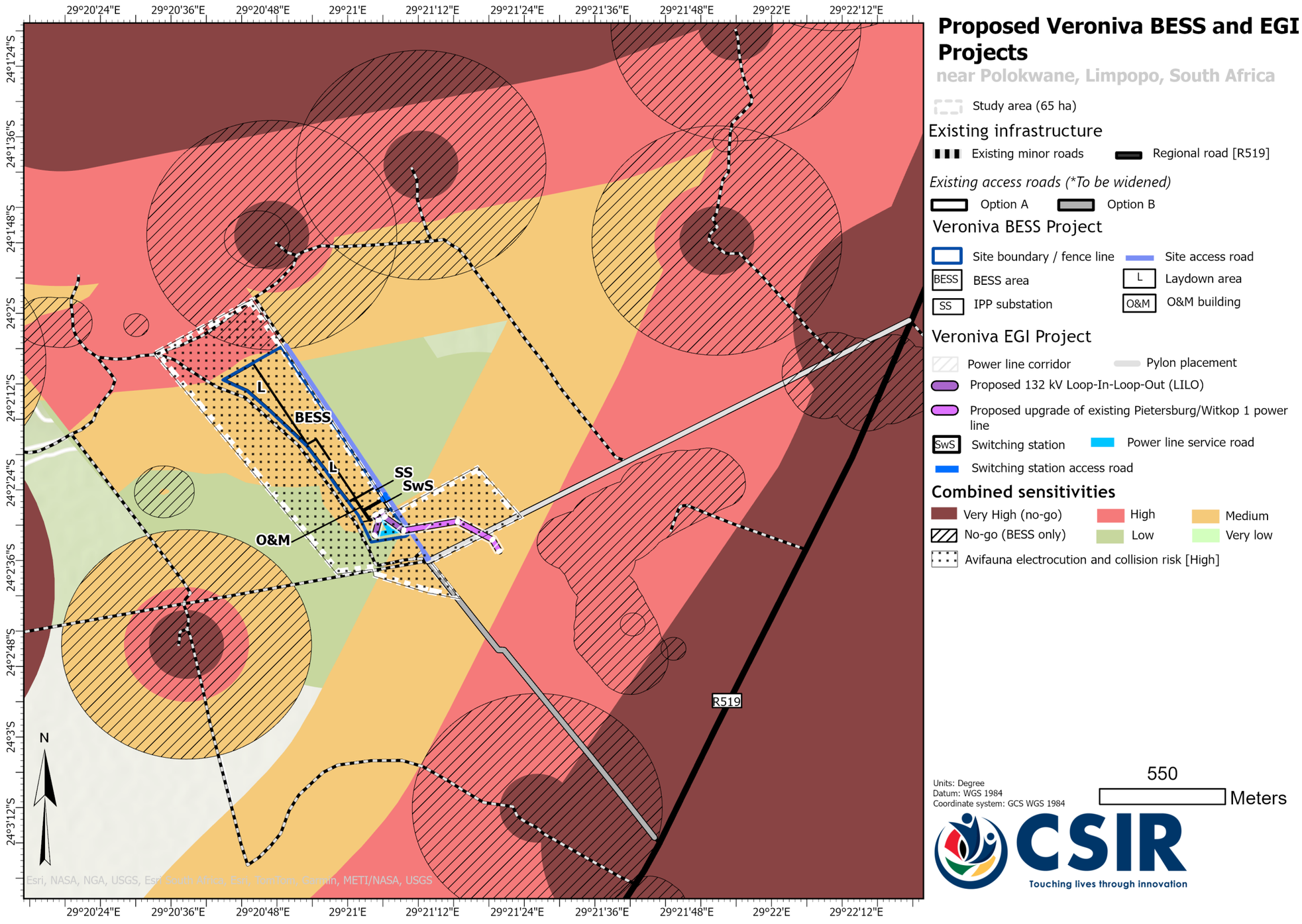


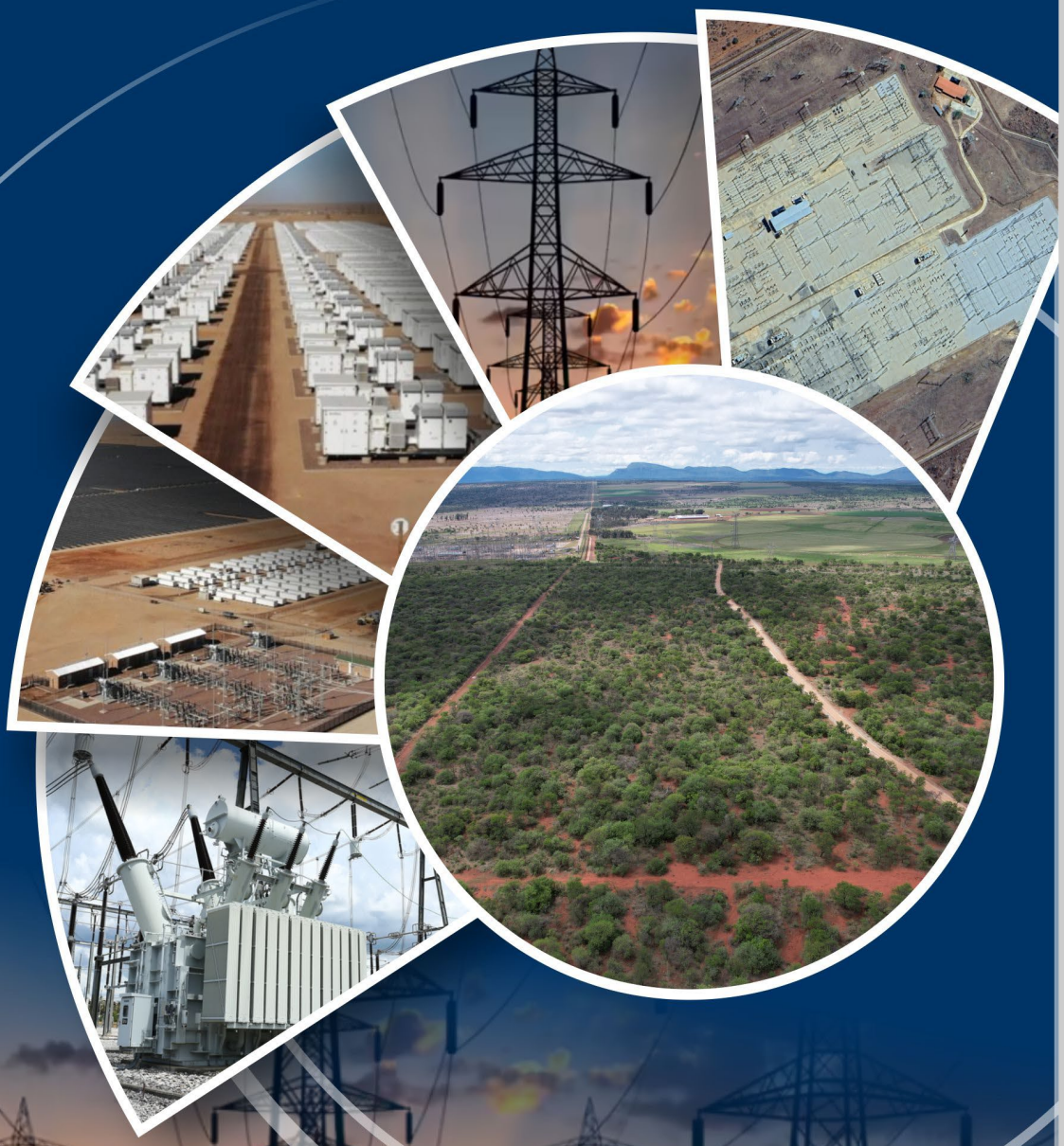
Figure 4.50: Combined environmental sensitivity map for the study area overlain with the layout for Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI).

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 5:

Approach to the BA Process and Public Participation



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5. APPROACH TO THE BA PROCESS AND PUBLIC PARTICIPATION

This chapter gives particular attention to the legal context and guidelines that apply to this Basic Assessment (BA) for the following proposed projects that are addressed in this report, as well as the steps in the Public Participation Process (PPP) of the BA Phase of the process[1], in accordance with Regulations 41, 42, 43 and 44 of Government Notice (GN) R326 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended):

- **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS).
- **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

This chapter also includes the schedule for the BA Process, the Terms of Reference for the Specialist Studies, as well as the impact assessment methodology and cumulative impacts.

The information presented throughout this chapter equally applies to each of the projects addressed in this report (i.e. **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**), unless where mentioned otherwise.

5.1 Purpose of BA and Requirements of the EIA Regulations

Appendix 1 of the 2014 NEMA EIA Regulations (as amended) specifies the content requirements for BA Reports and Section 2 of Appendix 1 details the objectives of the BA Process, as detailed in Chapter 1 of this BA Report.

The BA Process is a planning, design and decision-making tool used to demonstrate to the responsible authority, the DFFE, and the Project Applicant, what the consequences of their choices will be in biophysical, social, and economic terms. As such, it identifies potential impacts (negative and positive) that the proposed projects may have on the environment. The BA makes recommendations to mitigate negative impacts and enhance positive impacts associated with the proposed projects.

5.2 Legislation, Policies and Guidelines Pertinent to this BA

The scope and content of this BA Report have been informed by the main legislation, policies, guidelines and information series documents described in this section. Additional information on applicable legislation is provided in the Specialist Studies and Inputs included in Appendix E of this BA Report.

[1] Note that an integrated PPP is being undertaken for the Veroniva BESS and EGI projects, hence in some cases this is referred to as “proposed projects”.

5.2.1 National Legislation

5.2.1.1 The Constitution of the Republic of South Africa (Act 108 of 1996)

The Constitution, which is the supreme law of the Republic of South Africa, provides the legal framework for legislation regulating environmental management in general, against the backdrop of the fundamental human rights. Section 24 of the Constitution states that:

- "*Everyone has the right:*
  - *to an environment that is not harmful to their health or well-being; and*
  - *to have the environment protected, for the benefit of present and future generations through reasonable legislative and other measures that –*
    - *prevent pollution and ecological degradation;*
    - *promote conservation; and*
    - *secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development*."

Section 24 of the Bill of Rights therefore guarantees the people of South Africa the right to an environment that is not detrimental to human health or well-being, and specifically imposes a duty on the State to promulgate legislation and take other steps that ensure that the right is upheld and that, among other things, ecological degradation and pollution are prevented.

In support of the above rights, the environmental management objectives of the proposed projects are to protect ecologically sensitive areas and support sustainable development and the use of natural resources, whilst promoting justifiable socio-economic development in the towns nearest to the study area[2].

5.2.1.2 NEMA and EIA Regulations published on 8 December 2014 (as amended)

Chapter 1, Section 2 of the NEMA sets out several principles to give guidance to developers, private landowners, members of the public and authorities. The proclamation of the NEMA gives expression to an overarching environmental law. Various mechanisms, such as cooperative environmental governance, compliance and non-compliance, enforcement, and regulating government and business impacts on the environment, underpin NEMA. NEMA, as the primary environmental legislation, is complemented by many sectoral laws governing marine living resources, mining, forestry, biodiversity, protected areas, pollution, air quality, waste and integrated coastal management.

Principle number 3 determines that a development must be socially, environmentally and economically sustainable. Principle Number 4(a) states that all relevant factors must be considered, *inter alia* i) that the disturbance of ecosystems and loss of biological diversity are avoided, or, where they cannot be altogether avoided, are minimised and remedied; ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied; vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their

[2] The preferred site for the proposed projects covers 65 ha and the footprint of the external access roads (Option A and Option B), which serve as the study area for this BA Process. Therefore, the terms "site" and "study area" are used synonymously in the report. The Buildable Areas and "development footprint" fall within the preferred site (or study area).

integrity is jeopardised; and viii) that negative impacts on the environment and on peoples' environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied.

Section 24 (1) of the NEMA deals with the requirement to consider, investigate, assess and report on the potential impact of listed activities on the environment. The reference to "listed activities" in Section 24 (1) of NEMA relates to the regulations promulgated in GN R982, R983, R984 and R985 in Government Gazette (GG) 38282, dated 4 December 2014, which came into effect on 8 December 2014. These were amended in GN R326, R327, R325 and R324 in GG 40772, dated 7 April 2017. GN R326 contains the regulations for the Environmental Assessment Process. GN R327 and GN R324 includes listed activities that trigger the need for a BA Process, whereas GN R325 includes listed activities that trigger the need for a full Scoping and EIA Process.

The 2014 NEMA EIA Regulations (as amended) were further amended as follows:

- GG 41766, GN 706 on 13 July 2018;
- GG 43358, GN 599 on 29 May 2020;
- GG 44701, GN 517 on 11 June 2021; and
- GG 45999, GN 1816 on 3 March 2022.

Based on the transitional arrangements, these amendments (where they have been commenced with) apply to the proposed projects as the Applications for EA were not submitted before the above amendments took effect (where relevant). The relevant amendments have been taken into consideration in this BA Process.

In terms of the NEMA and the 2014 NEMA EIA Regulations (as amended), a BA Process is required for the proposed projects. Refer to Chapters 6 and 7 of this BA Report for additional information on the 2014 NEMA EIA Regulations (as amended).

5.2.1.3 GN 960 (published 5 July 2019)

GN 960 was published on 5 July 2019 and came into effect for compulsory use of the National Web-based Environmental Screening Tool (hereafter referred to as the Screening Tool) from 4 October 2019. The notice outlines the requirement to submit a report generated by the Screening Tool, in terms of Section 24(5)(h) of the NEMA and Regulation 16(1)(b)(v) of the 2014 NEMA EIA Regulations (as amended), when submitting an Application for EA in terms of Regulations 19 and 21 of the 2014 NEMA EIA Regulations (as amended).

As such, the proposed projects were run through the Screening Tool in November / December 2025 for the 65 ha study area for the following key classifications or application categories:

- **Project 1 (Veroniva BESS)**: Transformation of land, indigenous vegetation;
- **Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)**: Utilities infrastructure, electricity, distribution and transmission, substation; and
- **Project 2 (Veroniva EGI)**: Utilities infrastructure, electricity, distribution and transmission, power line.

The specialist Site Sensitivity Verifications (SSVs) were undertaken based on the above Screening Tool Reports. Once the final layouts were determined, the project development footprints were plotted on the Screening Tool in April 2026 for the same key classifications above, and in June 2026 for the external access road options.

In April 2026, the plant and animal species data on the Screening Tool was updated. These updates are discussed in the Terrestrial Biodiversity and Species Report (Appendix E.2 of this BA Report), and Chapter 4 of this BA Report. The Screening Tool Reports have been attached to the Applications for EA, which is being submitted to the DFFE with the Draft BA Report. The Screening Tool Reports are also included in Appendix L of this BA Report.

In addition, the findings of the Screening Tool Reports are discussed in the SSV Reports, where relevant, which are included in the Specialist Studies and Inputs in Appendix E of this BA Report, as well as Chapter 4 of this BA Report.

5.2.1.4 GN 320 (published 20 March 2020)

GN 320 prescribes the general requirements for undertaking SSVs and protocols for the assessment and minimum report content requirements for identified environmental impacts for environmental themes in terms of Sections 24(5)(a) and (h) and 44 of NEMA, when applying for EA. The protocols were enforced within a period of 50 days of publication of the notice i.e. on 9 May 2020.

The Specialist Assessments undertaken as part of this BA Process have complied with Part B of GN 320, where applicable, specifically Agriculture, Terrestrial Biodiversity, and Aquatic Biodiversity. Some of the remaining specialist assessments have complied with Appendix 6 of the 2014 NEMA EIA Regulations (as amended), and where relevant, Part A of GN 320 which contains SSV requirements where a Specialist Assessment is required but no specific assessment protocol has been prescribed. This specifically applies to the Visual; Heritage (Archaeology and Cultural Heritage); Socio-Economic; Traffic; and Geohydrology studies. However, in some instances there are no themes on the Screening Tool that relate to some of these studies and as such sensitivities cannot be verified against the Screening Tool. More information in this regard is included in the Specialist Studies and Inputs in Appendix E of this BA Report, which also address the aspect of SSVs, where relevant and applicable.

Some of the specialist assessments also comply with the Assessment Protocols published in GN 1150 on 30 October 2020 (as amended in GN 3717 published on 28 July 2023), specifically Terrestrial Biodiversity and Species, Aquatic Biodiversity and Species, and Avifauna (as described below).

The BESS High Level Safety, Health and Environment Risk Assessment (included in Appendix E.12 of this BA Report) serves as a technical report, and the aforementioned legislation is thus not applicable. In addition, the Geotechnical Letter of Opinion (included in Appendix E.11 of this BA Report) serves as a professional opinion regarding the development of the proposed projects from a geotechnical perspective and therefore does not comply with the aforementioned legislation, as discussed in Chapters 8 and 9 of this BA Report. The same applies to the Palaeontology Letter of Exemption (included in Appendix E.7 of this BA Report), which serves as a letter confirming that

no further palaeontology studies are required as per the South African Heritage Resources Information System (SAHRIS) PalaeoSensitivity Map.

The SSVs for Civil Aviation and Defence also comply with GN 320. Additional detail on Civil Aviation and Defence is included in Appendix E.13 and Appendix E.14 of this BA Report, respectively.

In summary the following studies comply with GN 320:

- **Part A of GN 320:**
  - Visual;
  - Heritage (Archaeology and Cultural Heritage);
  - Socio-Economic *(Note: This study is applicable to Veroniva BESS – Project 1 only)*;
  - Traffic *(Note: This study is applicable to Veroniva BESS – Project 1 only)*; and
  - Geohydrology *(Note: This study is applicable to Veroniva BESS – Project 1 only)*.

- **Part B of GN 320:**
  - Agriculture;
  - Terrestrial Biodiversity and Species;
  - Aquatic Biodiversity and Species;
  - Civil Aviation; and
  - Defence.

5.2.1.5 GN 1150 (published on 30 October 2020)

GN 1150 prescribes procedures and protocols in respect of specific environmental themes for the assessment of, as well as the minimum criteria for reporting on identified environmental themes in terms of sections 24(5)(a) and (h) and 44 of the NEMA, when applying for EA. GN 1150 includes a protocol for the specialist assessment and minimum report content requirements for environmental impacts on a) terrestrial animal species and b) terrestrial plant species. The requirements of these protocols apply from the date of publication (i.e. from 30 October 2020), except where the Project Applicant provides proof to the Competent Authority that the specialist assessment affected by these protocols had been commissioned prior to the date of publication of these protocols in the GG, in which case Appendix 6 of the 2014 NEMA EIA Regulations (as amended) will apply to such applications. This exception does not apply to the proposed Veroniva projects, as the specialist assessments and compliance statements were commissioned after the date of publication of GN 1150 dated 30 October 2020.

The Terrestrial Biodiversity and Species Assessment, Aquatic Biodiversity and Species Assessment, and Avifauna Assessment that have been undertaken as part of this BA Process were commissioned following the publication date of the Species Protocols. Therefore, the Terrestrial and Aquatic Plant and Animal Species components, and Avifauna study have been undertaken in compliance with GN 1150. One combined report has been compiled for Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species. The same applies to Aquatic Biodiversity and Species. The Specialist Assessment, including the findings of the SSV, for Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species; Aquatic Biodiversity and Species; and Avifauna are included in Appendix E.2, Appendix E. 3 and Appendix

E.4 of this BA Report, respectively. Additional detail is provided in the relevant specialist reports in the aforementioned appendices.

GN 3717 was promulgated on 28 July 2023 which amends the Terrestrial Plant and Animal Species Protocol that was published in GN 1150 in October 2020. The amendment entails the removal of the term “terrestrial” from the protocol to ensure that it applies to all plant and animal species, including both aquatic and terrestrial species; and to capture other amendments regarding Compliance Statements. The Terrestrial Biodiversity and Species Assessment, Aquatic Biodiversity and Species Assessment, and Avifauna Impact Assessment were commissioned after GN 3717 was gazetted in July 2023. Therefore, GN 3717 applies to these specific studies (i.e. Terrestrial Plant and Animal Species; Aquatic Plant and Animal Species; and Avifauna).

5.2.1.6 Battery Storage Exclusion Norm

The DFFE published the Battery Storage Exclusion Norm for the exclusion of the development and expansion of Battery Storage Facilities from the requirement to obtain an EA in GG 50387, GN 4557 on 27 March 2024.

Paragraph 4.9 of the BESS Exclusion Norm states that if a Species of Conservation Concern (SCC) is found or is confirmed to be likely present on the project footprint, then the BESS Exclusion Norm does not apply, and an application for EA is required. this exclusion does not apply, and an Application for an Environmental Authorisation (EA) must be submitted.

Paragraph 2.1.2 of the BESS Exclusion Norm states that the norm applies when activities are proposed entirely in areas of low or medium environmental sensitivity.

With respect to the proposed Veroniva BESS and EGI project, two SCC, namely the Black-winged Kite (Regionally Near Threatened) and Cape Vulture (Globally and Regionally Vulnerable), were recorded on site during the site visit that was undertaken by the Avifauna Specialist in November 2025. In addition, based on the Second Southern African Bird Atlas Project (SABAP2) data, other avifaunal SCC were confirmed to be present in the broader area. Therefore, according to Paragraph 4.9 of the BESS Exclusion Norm, the norm does not apply due to the SSC presence.

The study area and project footprint was also rated as High sensitivity based on the specialist site visit findings. Although regarded as high sensitivity from an avifaunal perspective, the study area and project footprint does not contain any specific avifaunal environmental sensitivities but has been assigned High sensitivity due to avifauna collision and electrocution risk. Vultures frequent the broader area, and therefore any overhead power lines in the study area could potentially pose a risk of electrocution and collision, particularly for Cape Vultures and White-backed Vultures. Therefore, according to Paragraph 2.1.2 of the BESS Exclusion Norm, the norm does not apply due to the assigned high sensitivity.

Therefore, due to the presence of SCC on site and in the broader area (as confirmed by specialists), and the assigned high sensitivity from an avifaunal perspective, the Battery Storage Exclusion Norm does not apply to the proposed projects. Therefore, a BA Process is being undertaken for the proposed projects.

5.2.1.7 National Environmental Management: Biodiversity Act (Act 10 of 2004)

The National Environmental Management: Biodiversity Act (Act 10 of 2004, as amended) (NEMBA) provides for "*the management and conservation of South Africa's biodiversity within the framework of the NEMA, the protection of species and ecosystems that warrant national protection, and the use of indigenous biological resources in a sustainable manner, amongst other provisions*". The Act states that the state is the custodian of South Africa's biological diversity and is committed to respect, protect, promote and fulfil the constitutional rights of its citizens.

Overall, the NEMBA focuses on the protection of national biodiversity through the regulation of activities that may affect biodiversity including habitat disturbance, culture of and trade in organisms, both exotic and indigenous. Lists of threatened ecosystems (Sections 52 (1) (a)), threatened and protected species (Sections 56 (1)), and alien invasive organisms (Section 97 (1)) have been published and maintained in terms of NEMBA.

Chapter 1 sets out the objectives of the Act, and they are aligned with the objectives of the Convention on Biological Diversity, which are the conservation of biodiversity, the sustainable use of its components, and the fair and equitable sharing of the benefits of the use of genetic resources. The Act also gives effect to CITES, the Ramsar Convention, and the Bonn Convention on Migratory Species of Wild Animals. The State is endowed with the trusteeship of biodiversity and has the responsibility to manage, conserve and sustain the biodiversity of South Africa.

This Act therefore serves to control the disturbance and land utilisation within certain habitats, as well as the planting and control of certain exotic species. Effective disturbance and removal of threatened or protected species encountered on or around the sites, will require specific permission from the applicable authorities.

Furthermore, NEMBA states that the loss of biodiversity through habitat loss, degradation or fragmentation must be avoided, minimised or remedied. The loss of biodiversity includes *inter alia* the loss of endangered, threatened or protected plant and animal species.

5.2.1.7.1 Threatened Ecosystems

GG 34809, GN 1002, published on 9 December 2011 in terms of Section 52 (1) (a) of the NEMBA, provides a list of threatened terrestrial ecosystems categorised as Critically Endangered (CR), Endangered (EN), Vulnerable (VU) and Protected.

However, a revised national list of ecosystems that are threatened and in need of protection was published in GG 47526, GN 2747 on 18 November 2022 in terms of Section 52 (1) (a) of NEMBA. The revised list includes threatened terrestrial ecosystem types that are classed as CR, EN and VU.

The list of threatened ecosystems includes threatened ecosystems based on vegetation types present within these ecosystems. Should a project fall within a listed vegetation type or ecosystem that is listed, actions in terms of NEMBA are triggered. In addition, Listing Notice 3 (GN R324) of the 2014 NEMA EIA Regulations (as amended) includes Listed Activity 12, for the clearance of an area of 300 m^2 or more of indigenous vegetation in Limpopo, specifically within any CR or EN

ecosystem listed in terms of Section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as CR in the National Spatial Biodiversity Assessment 2004.

Based on the findings of the Terrestrial Biodiversity and Species Assessment (Appendix E.2 of this BA Report), according to Mucina & Rutherford (2006, as amended[3]), the study area is located in the Polokwane Plateau Bushveld (SVcb 23) and the Mamabolo Mountain Bushveld (SVcb 24) vegetation types, which are listed as **Least Concern** under the Revised List of Threatened Terrestrial Ecosystems (GG 47526, GN 2747, November 2022) (DFFE, 2022) with conservation targets of 19% and 24%, respectively. The External Access Roads, Option A and Option B, also fall withing the Polokwane Plateau Bushveld (SVcb 23). Therefore, the above GN and Activity 12 (e) (i) of Listing Notice 3 do not apply to the proposed projects.

5.2.1.7.2 Threatened and Protected Species

The 2007 Threatened or Protected Species Regulations of the NEMBA declares species of high conservation value, national importance or that are considered threatened and in need of protection. Furthermore, the regulations provide for the prohibition of specific restricted activities involving specific listed threatened or protected species.

The list of CR, EN, VU or Protected species was published in GG 29657, GN R151 on 23 February 2007 in terms of Section 56 (1) of the NEMBA. The list was further amended in GG 30568, GN R1187 on 14 December 2007, as well as in GG 43386, GN R627 of 3 June 2020. Should a project include threatened and protected species that are listed, actions in terms of NEMBA are triggered.

The animal SCC flagged by the Screening Tool were *Kinixys lobatsiana* (Lobatse hinged-back tortoise) and *Crocidura maquassiensis* (Maquassie musk shrew). The Terrestrial Biodiversity Specialist confirmed that no animal SCC were recorded within the project footprint. During the field survey, no individuals of the Lobatse hinged-back tortoise or Maquassie musk shrew species were recorded. The BESS and EGI footprint contain limited suitable habitat for the Lobatse hinged-back tortoise, with better habitat occurring in the northern rocky section outside the development footprint. However, the Lobatse hinged-back tortoise remains a species of concern in the broader landscape, particularly in rocky habitat to the north.

Suitable habitat for Maquassie musk shrew was not identified within the main BESS and EGI footprint; however, a seep wetland intersects Access Road Option A and provides potentially suitable habitat for the species at that location.

From a plant perspective, the Screening Tool flagged Sensitive species 1252, Sensitive species 550, Sensitive species 1248 and *Prunus africana*. None of the listed SCC were found during the survey within the development footprint. All four species are expected to occur further north, where there is suitable habitat.

No species (excluding introduced species associated with the Dream Hills Game Farm) included in the NEMBA list of CR, EN, VU and Protected Species were recorded in the project area.

[3] Mucina, L. and Rutherford, M.C. (Eds.) (2006). The vegetation of South Africa, Lesotho and Swaziland. Strelizia 19. South African National Biodiversity Institute, Pretoria.

Refer to the Terrestrial Biodiversity and Species Assessment (Appendix E.2 of this BA Report) and Chapter 4 of this BA Report for additional information.

5.2.1.7.3 Alien and Invasive Species

Chapter 5 of NEMBA (Sections 73 to 75) regulates activities involving invasive species, and lists duty of care as follows:

- the landowner/land user must take steps to control and eradicate the invasive species and prevent their spread, which includes targeting offspring, propagating material and regrowth, in order to prevent the production of offspring, formation of seed, regeneration or re-establishment;
- take all required steps to prevent or minimise harm to biodiversity; and
- ensure that actions taken to control/eradicate invasive species must be executed with caution and in a manner that may cause the least possible harm to biodiversity and damage to the environment.

The Alien and Invasive Species Regulations, published in 2014 and amended in 2020, in terms of the NEMBA provides for the protection of biodiversity through the control and eradication of listed alien and invasive species categorised as follows:

- Category 1a Listed Invasive Species – must be combatted or eradicated;
- Category 1b Listed Invasive Species – must be controlled or 'contained' in accordance with the requirements of an Invasive Species Management Programme;
- Category 2 Listed Invasive Species – require a permit to carry out a restricted activity e.g. cultivation within an area;
- Category 3 Listed Invasive Species – species that are less-transforming invasive species, but introduction, trade or transportation should be limited. Category 3 plant species are automatically Category 1b species where located within riparian and wetland areas;
- Exempted Alien Species – species that are not regulated; and
- Prohibited Alien Species – species for which a permit for restricted activities (e.g. inter alia hunting, gathering, breeding, cultivating, trading, transporting) may not be issued.

The Alien and Invasive Species List was published in terms of sections 66(1), 67(1), 70(1)(a), 71(3) and 71A of the NEMBA in GG 40166, GN 864 on 29 July 2016, and thereafter in GG 43726, GN 1003 on 18 September 2020.

In terms of alien invasives, the Terrestrial Biodiversity specialist has noted the presence of alien invasive species including *Opuntia* species, *Jacaranda mimosifolia*, *Lantana camara* and *Agave sisalana* within the study area.

5.2.1.8 The National Heritage Resources Act (Act 25 of 1999)

The National Heritage Resources Act (Act 25 of 1999) (NHRA) introduces an integrated and interactive system for the management of national heritage, archaeological and palaeontological resources (which include landscapes and natural features of cultural significance).

Parts of sections 35(4), 36(3) (a) and 38(1) of the NHRA apply to the proposed projects:

Archaeology, palaeontology and meteorites:
Section 35 (4) – No person may, without a permit issued by the responsible heritage resources authority:

a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
c) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves:
Section 36 (3) (a) – No person may, without a permit issued by the South African Heritage Resources Agency (SAHRA) or a provincial heritage resources authority (such as the Limpopo Heritage Resources Authority (LIHRA)):

a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

Heritage resources management:
38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as:

a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
b) the construction of a bridge or similar structure exceeding 50 m in length;
c) any development or other activity which will change the character of the site –
    (i) exceeding 5 000 m^2 in extent, or
    (ii) involving three or more erven or subdivisions thereof; or
    (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
    (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;
d) the re-zoning of a site exceeding 10 000 m^2 in extent; or
e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development,

notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

While landscapes with cultural significance do not have a dedicated Section in the NHRA, they are protected under the definition of the National Estate (Section 3). Section 3(2)(c) and (d) list "historical settlements and townscapes" and "landscapes and natural features of cultural significance" as part of the National Estate. Furthermore, Section 3(3) describes the reasons a place or object may have cultural heritage value. Section 38 (2a) of the NHRA states that if there is reason to believe that heritage resources will be affected then an impact assessment report must be submitted.

A Heritage Impact Assessment (including Archaeology and Cultural Landscape) has been completed during this BA Process in accordance with GN 320 (Part A) and Appendix 6 of the 2014 NEMA EIA Regulations (as amended). This specialist study and SSV are included in Appendix E.6 of this BA Report. Refer to Chapter 4 and Appendix E.6 of this BA Report for additional information regarding heritage.

In terms of Palaeontology, due to the very low PalaeoSensitivity, a Letter of Exemption from a Palaeongoloy Impact Assessment was compiled, together with a Chance Fossil Finds Protocol. Refer to Appendix E.7 of this BA Report for the Palaeontology Letter of Exemption.

SAHRA is required to provide comment on the proposed projects. To this end and to facilitate comment from the relevant heritage authorities, the Draft BA Report, Heritage Impact Assessment and Palaeontology Letter of Exemption will be uploaded to the SAHRIS at the commencement of the 30-day review period.

Issues / comments raised by SAHRA during the 30-day review of the Draft BA Report will be included in an appendix to the Final BA Report. Copies of the comments received from SAHRA during the 30-day review period will also be captured and responded to in a Comments and Responses Report which will be included in the Final BA Report.

The proposed project may require a permit in terms of the NHRA prior to any fossils or artefacts being removed by professional palaeontologists and archaeologists. If archaeological mitigation is needed prior to construction, then the appointed archaeologist will need to contact SAHRA and/or the LIHRA in order to confirm requirements to conduct the work. A built environment permit for demolition or alteration of heritage buildings, if required, would need to be obtained from LIHRA. The permit application must be carried out well in advance of construction to ensure that there is enough time for the authorities to approve the mitigation work before construction commences.

Should professional palaeontological mitigation be necessary during the construction phase, the palaeontologist concerned will need to apply for a Fossil Collection Permit. Palaeontological collection should comply with international best practice. All fossil material collected must be deposited, together with key collection data, in an approved depository (museum / university). Palaeontological mitigation work including the ensuing Fossil Collection reports should comply with the minimum standards specified by SAHRA (2013).

5.2.1.9 National Forests Act (Act 84 of 1998)

The National Forests Act (Act 84 of 1998, as amended) (NFA) allows for the protection of certain tree species. The Minister has the power to declare a particular tree to be a protected tree. The most recent list of protected tree species was published in March 2024 in GN 4496. In terms of Section 15(1) of the NFA, no person may cut, disturb, damage or destroy any protected tree; or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated. The DFFE is authorised to issue licences for any removal, cutting, disturbance, damage to or destruction of any protected trees. Therefore, the removal of any protected tree species listed within the NFA will require a tree removal permit, which can be obtained from the DFFE.

Where the proposed projects impact on any of the protected species, a permit for the removal will be required during the pre-construction phase, should EA be granted.

The Terrestrial Biodiversity Specialist also confirmed that *Sclerocarya birrea ssp. Afra* (Marula), a protected tree species under the NFA, was recorded on site, within the preferred development footprint, during the field survey undertaken in November 2025. The specialist further noted that *P. africana* (Red stinkwood) has a high probability of occurring on site and has been recorded in the vicinity of the study area (but not within the preferred development footprint). A licence / permit application is required for any individuals which will be impacted on by the development footprint. Refer to the Terrestrial Biodiversity and Species Assessment (Appendix E.2 of this BA Report) for additional information.

In addition, protection of natural forests through gazetted lists of Natural Forests in terms of Sections 7 (2) of the NFA must also be highlighted. In terms of section 7(1)(a) of the NFA, no person may cut, disturb, damage or destroy any indigenous tree or any other indigenous vegetation in a natural forest except in terms of (a) a license issued under subsection (4) or section 23 of the NFA; or (b) an exemption from the provisions of subsection (4) of the NFA published by the Minister in the Gazette.

5.2.1.10 Conservation of Agricultural Resources Act (Act 43 of 1983)

The objectives of the Conservation of Agricultural Resources Act (Act 43 of 1983) (CARA) are to provide for the conservation of the natural agricultural resources of South Africa by the:

- maintenance of the production potential of land;
- combating and prevention of erosion and weakening or destruction of the water sources; and
- protection of the vegetation and the combating of weeds and invader plants.

The CARA states that no land user shall utilise the vegetation of wetlands (a watercourse or pans) in a manner that will cause its deterioration or damage. This includes cultivation, overgrazing, diverting water run-off and other developments that damage the water resource. The CARA includes regulations on alien invasive plants. According to the amended regulations (GN R280 of March 2001), declared weeds and invader plants are divided into three categories:

- Category 1 may not be grown and must be eradicated and controlled,
- Category 2 may only be grown in an area demarcated for commercial cultivation purposes and for which a permit has been issued, and must be controlled, and
- Category 3 plants may no longer be planted, and existing plants may remain as long as their spread is prevented, except within the flood line of watercourses and wetlands. It is the legal duty of the land user or landowner to control invasive alien plants occurring on the land under their control.

Invasive alien species likely to occur on site is discussed in the Terrestrial Biodiversity and Species Assessment (Appendix E.2 of this BA Report). Alien plant species will be managed in line with the EMPrs, which are included in Appendix H to Appendix K of this BA Report.

5.2.1.11 Subdivision of Agricultural Land Act (Act 70 of 1970)

The Agriculture Specialist has indicated that the proposed projects will require agricultural approval (or at least comment from Department of Agriculture) as part of the required approval in terms of applicable municipal land use legislation, as well as in terms of the Subdivision of Agricultural Land Act (Act 70 of 1970) (SALA), as the affected property on which the BESS will be developed (i.e. Portion 5 of the Farm Snymansdrift 738 LS) is currently zoned for agriculture. The requirements should be discussed with a planning professional during the design phase.

It is expected that the first approval is a No Objection Letter. This letter is one of the requirements for receiving zoning consent use. Such an application is being submitted for the proposed projects by the Applicant.

It is expected that the second required approval is a consent for long-term lease in terms of the SALA. SALA approval is not required if the lease is over the entire farm portion. In the case of the proposed projects, portions of the affected farm property on which the BESS will be developed (i.e. Portion 5 of the Farm Snymansdrift 738 LS) will be leased (hence SALA approval is required for this property)

SALA approval can only be applied for once the Zoning Consent Use and EA have been obtained (should it be granted). This will be dealt with by the Project Developer (outside of the BA Process).

5.2.1.12 Preservation and Development of Agricultural Land Act (Act 39 of 2024)

The Preservation and Development of Agricultural Land Act (Act 39 of 2024) (PDALA) has been enacted but is not yet in operation as many of the norms, standards, and detailed regulations still need to be finalised. Once this Act comes into operation, it will replace SALA, however it is uncertain when this Act will come into operation. Therefore, the SALA is still applicable at this stage.

5.2.1.13 National Water Act (Act 36 of 1998)

One of the important objectives of the National Water Act (Act 36 of 1998) (NWA) is to ensure the protection of the aquatic ecosystems of South Africa's water resources. Section 21 of this Act identifies certain land uses, infrastructural developments, water supply/demand and waste disposal as 'water uses' that require authorisation (licensing) by the Department of Water and Sanitation (DWS).

Chapter 4 (Part 1) of the NWA sets out general principles for the regulation of water use. Water use is defined broadly in the NWA, and includes taking and storing water, activities which reduce stream flow, waste discharges and disposals, controlled activities (activities which impact detrimentally on a water resource), altering the bed, banks, course or characteristics of a watercourse, removing water found underground for certain purposes, and recreation. In general, a water use must be licensed unless it is listed in Schedule I, is an existing lawful use, is permissible under a General Authorisation (GA), or if a responsible authority waives the need for a licence. The Minister may limit the amount of water which a responsible authority may allocate. In making regulations the Minister may differentiate between different water resources, classes of water resources and geographical areas.

All water users who are using water for agriculture: aquaculture, agriculture: irrigation, agriculture: watering livestock, industrial, mining, power generation, recreation, urban and water supply service must register their water use. This covers the use of surface- and groundwater.

Section 21 of the NWA lists the following water uses that need to be licensed:

a) taking water from a water resource;
b) storing water;
c) impeding or diverting the flow of water in a watercourse;
d) engaging in a stream flow reduction activity contemplated in section 36;
e) engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
f) discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
g) disposing of waste in a manner which may detrimentally impact on a water resource;
h) disposing in any manner of water which contains waste from, or which has been heated in, any industrial or power generation process;
i) altering the bed, banks, course or characteristics of a watercourse;
j) removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
k) using water for recreational purposes.

Any activities that take place within 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; within a watercourse; within 100 m of the edge of a watercourse; or within 500 m of a delineated wetland boundary, will require a water use authorisation in terms of Section 21 (c) and Section 21 (i) of the NWA.

The GA for Section 21 (c) and (i) water uses as defined under the NWA were revised in 2016 (GN R509) and further revised in December 2023 (GN R4167). Determining if a Water Use Authorisation is required for these water uses is associated with the risk of degrading the ecological status of a watercourse. A low risk of impact could be authorised in terms of a GA.

The Aquatic Specialist confirmed that no watercourses or wetlands were found within the development footprints (of the BESS, EGI and External Access Road Option B), however a seep wetland was found in the vicinity of External Access Road Option A.

The Aquatic Specialist has noted that based on the layout assessed, and provided that the stormwater controls, containment measures and impact management requirements set out in the Aquatic Biodiversity and Species Assessment (Appendix E.3 of this BA Report) are implemented, the proposed development will likely trigger a Section 21(c) or Section 21(i) water use, and a DWS Risk Assessment process is therefore considered necessary. The Aquatic Biodiversity specialist completed a standardised Risk Assessment Matrix (RAM) for the proposed projects. It was concluded that only HGM2 (the identified seep wetland) is expected to be impacted by the proposed access road activities for **External Access Road Option A**. The results of the RAM indicate low risk impacts to the aquatic ecosystem associated with the proposed projects. The low risk nature of the expected impacts indicates that a GA process may be followed for the proposed watercourse crossing at **External Access Road Option A**. **The remaining project components i.e. the BESS, EGI, associated infrastructure and Access Road Option B footprints are not considered likely to trigger a section 21(c) or section 21(i) water use**. Refer to the Aquatic Biodiversity and Species Assessment included in Appendix E.3 of this BA Report for additional information.

The NWA also provides for measures to prevent, control and remedy the pollution of surface and groundwater sources. The study area is located within the Limpopo Water Management Area in the A71A quaternary catchment. The groundwater GA for the catchment is 0 m^3/ha/a (published on 2 September 2016, in GG 40243, GN 538 (i.e. Revision of GA for the taking and storing of water)). The maximum anticipated water requirement for the Veroniva BESS is approximately 450 m^3 per annum. According to the Geohydrology Assessment (Appendix E.10 of this BA Report), since the project falls within a quaternary catchment with a groundwater GA of 0 m^3/ha/a, any groundwater abstraction for the project, regardless of the volume, would trigger the need for an integrated Water Use Licence (WUL) in terms of Section 21(a) of the NWA to meet the demands of the construction, operational and decommissioning periods. Therefore, if groundwater is used for the proposed project, a WUL application will be submitted to the DWS. Additional information has been provided in the Geohydrology Assessment (Appendix E.10 of this BA Report).

The proposed site is underlain by the fractured aquifer of the Turfloop Granites, with average borehole yield potentials ranging from 0.5 litres per second to 2.0 litres per second. The Geohydrology Specialist has indicated that the water requirements for the Veroniva BESS must be met by abstraction from multiple boreholes across the area earmarked for the proposed development including neighbouring farm portions, rather than a single source. This is particularly critical during the construction phase to ensure the sustainability of the aquifer for both the project and existing livestock farming activities.

Should groundwater be used as a water source for the proposed projects, then it is planned to be transported by trucks from the boreholes to the site. In addition, groundwater may also need to be stored on site in suitable, closed containers or reservoir tanks during the construction, operational and decommissioning phases. It is understood that such storage may trigger the need for a Water Use Authorisation. According to the Revision of GA for the taking of and storing of water published in terms of the NWA, a total of 2000 m^3/a can be stored on each property in an open container under the regional GA as long as it is not in a water course. If this is exceeded, then a WUL would be needed. Therefore, for the proposed projects, it is proposed that a total of 2000 m^3/a will be stored at the facility on the affected property in an open container.

In addition, the disposal of sewage from the developed site is likely to be stored in conservancy tanks for removal and treatment at the nearby wastewater treatment works of the local authority. This low volume would be within the GA for Section 21 (g) water use activities.

In terms of GAs or WULs needed for the proposed projects, these will be undertaken post EA (should such authorisation be granted), as there are various factors to consider, such as confirmation of the selected water source in terms of the various options available; and the fact that the proposed projects still need to be subjected to the competitive Battery Energy Storage Independent Power Producer Procurement Programme (BESIPPPP). Note that precedent has been set in the sense that EAs for renewable energy, BESS and EGI projects have been granted positively and are not contingent on the application for WUL or GA. Nevertheless, the relevant applications will be made by the Applicant, post EA (should it be granted) once relevant investigations have been completed. This approach has been previously accepted by the DWS on other similar projects.

The Draft BA Report is currently being released for a 30-day comment period. Any comments received from DWS during the comment period will be included as an appendix to the Final BA Report and will also be captured and responded to in the Comments and Responses Report.

5.2.1.14 Water Services Act (Act 108 of 1997)

Water will be required during the construction, operational and decommissioning phases of the proposed projects. Potable water is only to be utilised for human consumption purposes, whereas greywater is to be used for earthworks, dust suppression, etc. Water will be sourced from the following potential sources: Existing boreholes in the surrounding region or the Polokwane Local Municipality (PLM). Compliance with the Water Services Act (Act 108 of 1997) will be undertaken during the relevant phase of the proposed projects, in consultation with the local and district municipalities, if relevant (i.e., if water is sourced from the local municipality).

5.2.1.15 Hazardous Substances Act (Act 15 of 1973)

During the construction phase of the proposed projects, fuel and diesel will be utilised to power vehicles, generators and equipment. In addition, potential spills of hazardous materials could occur during the relevant phases. Such management actions have been recommended in the EMPrs, which are included in Appendix H to Appendix K of this BA Report.

5.2.1.16 National Environmental Management: Waste Act (Act 59 of 2008, as amended) (NEM:WA)

The National Environmental Management: Waste Act (Act 59 of 2008, as amended) (NEM:WA) was published with one of the main objectives to reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development. Section 19 of the NEM:WA allows the Minister to publish a List of Waste Management Activities that have, or are likely to have, a detrimental effect on the environment published. Such a list specifies the waste management activities that will require a Waste Management Licence.

The List of Waste Management Activities was originally published in GN 921 on 29 November 2013 and thereafter amended in GN 332 on 2 May 2014; GN 633 on 24 July 2015; GN 1094 on 11 October 2017; and GN 1757 on 11 February 2022. The List of Waste Management Activities include Categories A, B and C. If any waste management activities listed in Category A are triggered by a development, a BA process must be undertaken in terms of the 2014 NEMA EIA Regulations (as amended), as part of the Waste Management Licence application. Waste management activities in Category B will, however, require a full Scoping and EIA Process in terms of the 2014 NEMA EIA Regulations (as amended), as part of the Waste Management Licence application. If any of the waste management activities in Category C are triggered, then the relevant Norms and Standards must be followed.

Based on a review of the project description, the proposed projects will **not** trigger the need for a Waste Management Licence. However, general and hazardous waste will be generated during the construction, operational and decommissioning phases, which will require proper management. Such management actions have been recommended in the EMPrs, which are included in Appendix H to Appendix K of this BA Report.

5.2.1.17 National Environmental Management: Air Quality Act (Act 39 of 2004)

The National Environmental Management: Air Quality Act (Act 39 of 2004, as amended) (NEM: AQA) was published in 2004 and came into full effect on 31 March 2010, when the Atmospheric Pollution Prevention Act (Act 45 of 1965) (APPA) was repealed. The NEM: AQA was published with the overall objective to:

- "*reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development;*
- *provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto*".

The list of activities which result in atmospheric emissions which have or may have a significant detrimental effect on the environment, including health, social conditions, economic conditions, ecological conditions or cultural heritage was published under GN 248, GG 33064 dated 31 March 2010 and thereafter amended in GN 893, GG 37054 dated 22 November 2013. The list of activities was further amended in GN 551, GG 38863 dated 12 June 2015; GN 1207, GG 42013 dated 31

October 2018; GN 687, GG 42472 dated 22 May 2019; and GN 421, GG 43174 dated 27 March 2020.

Section 22 of the NEM: AQA deals with the consequences of listing, and it states that "*no person may without a provisional atmospheric emission licence, or an atmospheric emission licence conduct an activity (a) listed on the national list anywhere in the Republic; or (b) listed on the list applicable in a province anywhere in that province*". Therefore, a Provisional Atmospheric Emissions Licence (AEL) and/or AEL is required for any plant or proposed development that triggers a listed activity.

Based on a review of the project description, the proposed projects will **not** trigger the need for an AEL. However, the proposed vegetation clearance and stockpiling activities, including earthworks, may result in the unsettling of, and temporary exposure to, dust. Appropriate dust control methods will need to be applied. Such management actions have been recommended in the EMPrs, which are included in Appendix H to Appendix K of this BA Report.

5.2.1.18 National Environmental Management: Protected Areas Act (NEM: PAA) (Act 57 of 2003) and National Protected Area Expansion Strategy (NPAES) Focus Areas

According to the South African Protected Areas Database (SAPAD), the project area is not located within any formally Protected Areas, as declared under the National Environmental Management: Protected Areas Act (Act 57 of 2003) (NEM: PAA). The Kuschke Nature Reserve is the closest formally protected area, which lies to the north and south of the proposed projects.

The National Protected Area Expansion Strategy (NPAES) focus areas for land-based expansion are comprised of large, intact and unfragmented areas of importance for biodiversity representation and ecological persistence. As such, these areas are suitable for the creation or expansion of extensive Protected Areas. According to the NPAES 2018 Priority Areas data (DFFE, 2025)[4], the project area is not located within any NPAES focus areas.

Refer to Chapter 4 of this BA Report for feedback on relevant protected areas in relation to the proposed Veroniva BESS and EGI project.

5.2.1.19 Astronomy Geographic Advantage (Act 21 of 2007)

The Astronomy Geographic Advantage (AGA) Act (Act 21 of 2007) aims to provide for the preservation and protection of areas within the Republic that are uniquely suited for optical and radio astronomy; to provide for intergovernmental co-operation and public consultation on matters concerning nationally significant astronomy advantage areas; and to provide for matters connected therewith. The purpose of the AGA Act is to preserve the geographic advantage areas that attract investment in astronomy. The AGA Act also notes that declared astronomy advantage areas are to be protected and properly maintained in terms of Radio Frequency Interference (RFI). The AGA Act is administered by the Department of Higher Education, Science and Technology (previously the Department of Science and Technology).

[4] Department of Forestry, Fisheries and the Environment (DFFE), 2025. National Protected Area Expansion Strategy (NPAES) 2018 Priority Areas. Available online at: https://www.dffe.gov.za/egis [Accessed: April 2026].

According to the CSIR Wind and Solar Phase 2 Strategic Environmental Assessment (SEA) (Department of Environment, Forestry and Fisheries (DEFF), 2019: Part 3, Page 2[5]), the majority of the mid-frequency dish array of the Square Kilometre Array (SKA) will be constructed in the core which is in located in the Northern Cape; with dish antennas being located in the spiral arms. The South African component of the SKA will consist of approximately 3 000 receptors comprising dish antennas, each with a diameter of 15 m, and radio receptors known as dense aperture-arrays. The outer stations in the spiral arms will extend beyond the borders of South Africa and at least 3 000 km from the core area. About 80% of the receptors, including a dense core and up to 5 spiral arms, will be located in the Karoo Central Astronomy Advantage Area (KCAAA) (DEFF, 2019[5]: Part 3, Page 2).

The KCAAA, which is located between Brandvlei, Van Wyksvlei, Carnarvon and Williston in the Northern Cape Province, was officially declared in 2014 by the Minister of Science and Technology in terms of the AGA Act for the purposes of protection RFI and Electromagnetic Interference (EMI). The declaration of the KCAAA ensures the long-term viability of the area to be used for astronomical installations (DEFF, 2019: Part 3, Page 2).

The proposed project study area is not located within the KCAAA, and therefore not expected to have any significant impacts on the SKA. Refer to the locality map provided in Chapter 1 of this BA Report for additional information in this regard.

The South African Radio Astronomy Observatory (SARAO) / SKA Office have been pre-identified as a key stakeholder and therefore included on the project database of Interested and/or Affected Parties (I&APs) (as shown in Appendix F of this BA Report). The SARAO / SKA Office will be given an opportunity to comment on the proposed projects during the 30-day comment period on the Draft BA Report.

5.2.1.20 Development Facilitation Act (Act 67 of 1995)

The Development Facilitation Act (Act 67 of 1995) (DFA) sets out a number of key planning principles which have a bearing on assessing proposed developments in light of the national planning requirements. The planning principles most applicable to the study area include:

- Promoting the integration of the social, economic, institutional and physical aspects of land development;
- Promoting integrated land development in rural and urban areas in support of each other;
- Promoting the availability of residential and employment opportunities in close proximity to or integrated with each other;
- Optimising the use of existing resources including such resources relating to agriculture, land, minerals, bulk infrastructure, roads, transportation and social facilities;
- Contributing to the correction of the historically distorted spatial patterns of settlement in the Republic and to the optimum use of existing infrastructure in excess of current needs;
- Promoting the establishment of viable communities; and
- Promoting sustained protection of the environment.

[5] Department of Environment, Forestry and Fisheries (DEFF), 2019. Phase 2 Strategic Environmental Assessment for wind and solar PV energy in South Africa. CSIR Report Number: CSIR/SPLA/SECO/ER/2019/0085 Stellenbosch, Western Cape.

It is understood that the Development Facilitation Act (Act 67 of 1995) has been repealed and replaced by the Spatial Planning and Land Use Management Act (Act 16 of 2013) [SPLUMA]. SPLUMA is discussed below

5.2.1.21 Spatial Planning and Land Use Management Act (Act 16 of 2013)

The SPLUMA came into effect on 1 July 2015. The Act provides a framework for spatial planning and land use management within South Africa. One of the objectives of the Act is to ensure that spatial planning and land use management enhances social and economic inclusion. SPLUMA seeks to promote consistency and uniformity in procedures and decision-making in this field. The other objectives of the Act include addressing historical spatial imbalances and the integration of the principles of sustainable development into land use planning, regulatory tools and legislative instruments. This legislation will be taken into consideration by the Project Applicant during the planning and design phase.

5.2.1.22 Other Applicable Legislation

Other applicable national legislation that may apply to the proposed projects include:

- Advertising on Roads and Ribbons Act (Act 21 of 1940);
- Electricity Act (Act 41 of 1987), as amended;
- Electricity Regulations Amendments (August 2009);
- Promotion of Administrative Justice Act (Act 2 of 2000);
- Civil Aviation Act (Act 13 of 2009) and Civil Aviation Regulations (CAR) of 1997;
- Civil Aviation Authority Act (Act 40 of 1998);
- White Paper on Renewable Energy (2003);
- Integrated Resource Plan for South Africa (2025);
- Occupational Health and Safety Act (Act 85 of 1993), as amended by Occupational Health and Safety Amendment (Act 181 of 1993)[6];
- Road Safety Act (Act 93 of 1996);
- Fencing Act (Act 31 of 1963); and
- National Road Traffic Act (Act 93 of 1996).

5.2.2 Provincial Legislation

5.2.2.1 Limpopo Environmental Management Act 2003 (Act 7 of 2003)

This Act aims to promote sustainability through the balanced use of natural resources as well as the protection and conservation of natural resources within the province. It includes thirteen schedules, as follows:

- Schedule 1 – Protected areas
- Schedule 2 – Specially protected wild animals
- Schedule 3 – Protected wild animals
- Schedule 4 – Game
- Schedule 5 – Wild animals to which section 31(1)(f) applies
- Schedule 6 – Non-indigenous wild animals

[6] The proposed Battery Energy Storage System (BESS) must be designed, operated, maintained and decommissioned according to the requirements of Occupational Health and Safety Act (Act 85 of 1993).

- Schedule 7 – Invasive alien animals
- Schedule 8 – Wild animals to which section 41(1)(a),(b) and (3) applies
- Schedule 9 – Prohibited aquatic growths
- Schedule 10 – Invertebrates to which section 61(1)(a) and (b) applies
- Schedule 11 – Specially protected plants
- Schedule 12 – Protected plants
- Schedule 13 – Laws repealed

The Act provides for, *inter alia*, the conservation and protection of fauna and flora within the province, regulates the hunting and catching of wild and alien animals, including animals causing damage, and makes provision for matters incidental thereto. The Act further enables the declaration and protection of species through prescribed listings of protected fauna and protected flora, as well as the regulation of activities that may impact these resources.

With regards to protected plants, the Act includes a list of protected flora in Schedule 12. Section 64 of the Act prohibits picking, possession, sale, purchase, donation, conveyance, import/export or removal of protected plants from the province, and also prohibits conveyance through the province without the necessary permit or other relevant document. Only Sensitive species 550 is listed under the Limpopo Environmental Management Act (Act 7 of 2003), which was not recorded during the survey. Relocation permits will be required from the Limpopo Department of Economic Development, Environment and Tourism (LEDET) under the Act, should the final development footprint of the proposed projects necessitate the removal or relocation of protected plant species in terms of Schedule 12 of the Act. Additional information has been provided in the Terrestrial Biodiversity and Species Assessment (Appendix E.2 of this BA Report).

The LEDET, serving as the provincial authority for issuing of the relevant permits, has been pre-identified as a key stakeholder and is included on the project database (as shown in Appendix F of this BA Report). Efforts will be made to seek comments from the LEDET during the 30-day review period on the Draft BA Report. Comments received from the LEDET will be included in an appendix to the Final BA Report as well as responded to in a Comments and Responses Report to be included in the Final BA Report.

5.2.2.2 Limpopo Provincial Spatial Development Framework (2024)

The 2024 Limpopo Spatial Development Framework (LSDF) lists secured energy supply and renewable energy as one of the key provincial strategic enablers of spatial development in the province (Limpopo Provincial Government, 2024a[7]). According to the 2024 LSDF, renewable energy infrastructure is critical for supporting economic growth, improving energy security, and enabling a just energy transition to a low-carbon economy. The 2024 LSDF further recognises that private sector participation (e.g., through procurement programmes such as the BESIPPPP) is critical to the development of a more resilient, efficient and sustainable energy sector (Limpopo Provincial Government, 2024a). The 2024 LSDF also highlights the high unemployment rates in the province and recognises the need for investment in critical infrastructure, including electricity infrastructure, to support economic growth and job creation.

[7] Limpopo Provincial Government (2024a). Limpopo Spatial Development Framework. Available online at: FINAL-LSDF-Composite-Draft-16-Sept-2024.pdf [Accessed: April 2026].

The proposed projects are in line with the objectives of the 2024 LSDF, as they will support the integration of renewable energy and enhance grid capacity. In addition, the proposed development will create employment opportunities during both the construction and operational phases, supporting local economic development and growth.

5.2.2.3 Limpopo Development Plan (2025-2030) and Limpopo Renewable Energy Strategy and Action Plan (2024)

According to the 2025-2030 Limpopo Development Plan (LDP) (Limpopo Provincial Government, 2025)[8], renewable energy provides environmental, economic and social benefits making it a critical component of sustainable development. The global transition to renewable energy presents a significant opportunity for South Africa, with Limpopo well positioned to utilise its strong renewable energy potential, particularly solar energy, to support sustainable development, diversify the energy sector, contribute to national clean energy targets, and promote economic development (Limpopo Provincial Government, 2025).

The Socio-Economic Impact Assessment (Appendix E.8 of this BA Report) explains that the LDP (Limpopo Provincial Government, 2025, Page 90) "*indicates that renewable energy technologies including solar [Photovoltaic] PV and wind are becoming increasingly cost-competitive, dropping significantly in price over the past decade. This, coupled with climate change concerns, has driven a global boom in renewable energy deployment, supported by falling battery storage costs. The LDP notes that this presents exciting possibilities for Limpopo to contribute to the country's clean energy goals and achieve economic development via the renewable energy value chain*" (Limpopo Provincial Government, 2025, Page 90).

The Limpopo Renewable Energy Strategy recognises the importance of balancing economic development with environmental and social considerations and provides a framework for harnessing Limpopo's renewable energy potential while addressing the challenges associated with the just energy transition (Limpopo Provincial Government, 2024b[9]). Its vision is to achieve a secure and reliable energy supply to support sustained economic growth within the province, while ensuring a just energy transition. The strategy aims to address complex challenges including high levels of unemployment, grid constraints, and loadshedding. According to the Limpopo Provincial Government, 2024b, these complex challenges can be addressed by narrowing the gap between energy supply and demand through a focus on sustainable and reliable energy provision.

The proposed projects are in line with both the LDP and Limpopo Renewable Energy Strategy and Action Plan as the proposed BESS and EGI will aid in strengthening energy security and reducing grid constraints, supporting renewable energy integration and a just energy transition, contributing to job creation and economic development, and facilitating private sector investment in the energy sector.

[8] Limpopo Provincial Government (2025). Limpopo Development Plan 2025-2030. Available online at: https://www.limpopo.gov.za/webDocs/LIMPOPO_DEVELOPMENT_PLAN_2025_2030.pdf [Accessed: April 2026].
[9] Limpopo Provincial Government (2024b). Limpopo Renewable Energy Strategy and Action Plan July 2024. Available online at: https://www.limpopo.gov.za/webDocs/Documents/AIA_Limpopo_Renewable_Energy_Final_Strategy.pdf [Accessed: April 2026].

5.2.2.4 Limpopo Conservation Plan (2013)

The Limpopo Conservation Plan version 2 (LCPv2) was developed in line with the Bioregional Planning Guidelines that were published by South African National Biodiversity Institute (SANBI) in 2009. The LCPv2 is aimed at developing the spatial component of a bioregional plan (i.e., a map of the Critical Biodiversity Areas (CBAs) and associated land-use guidelines) (Desmet et al., 2013[10]). Bioregional plans support the conservation of biodiversity in priority areas that are outside of the protected area network and aim to inform land-use planning, environmental assessment and authorisations, and natural resource management, across sectors whose policies and decisions impact biodiversity.

The LCPv2 uses a systematic, target-driven spatial planning methodology, based on the best available data and set of biodiversity targets, to produce a map of CBAs and ESAs (CBA Map) that represents the minimum areas required to maintain biodiversity patterns and ecological processes (Desmet et al., 2013). The CBA Map produced by the LCPv2 was updated in 2018 based on inputs from the bioregional plans for the Waterberg (2015), Mopani (2016), Vhembe (2017), Sekhukhune (2018) and Capricorn (2018) district municipalities (Limpopo Provincial Government, 2023[11]). Refer to Section 5.2.3.6 below for additional information on the Capricorn District Bioregional Plan.

Refer to Chapter 4 and the Terrestrial Biodiversity and Species Assessment (Appendix E.2 of this BA Report) for additional information regarding the LCPv2 and how it relates to the SSV.

5.2.3 District and Local Planning Legislation

5.2.3.1 Environmental Management Framework

Research indicates that there is no gazetted Environmental Management Framework (EMF) for the Capricorn District Municipality (CDM) and PLM. The Screening Tool also notes that no intersections with EMF areas have been found.

5.2.3.2 Polokwane Local Municipality Spatial Development Framework (2024)

The 2024 PLM Spatial Development Framework (SDF) states that access to electricity is critical as it facilitates local economic development, it is also essential for businesses, industries and various economic activities and that access to reliable electricity enables business growth, attracts investment, and contributes to job creation (PLM, 2024[12]). Therefore, access to electricity remains a top priority for the municipality. The 2024 PLM SDF lists access to electricity as a key challenge facing the municipality. In addition, the PLM SDF lists high unemployment levels and low education levels as key challenges facing the municipality.

[10] Desmet, P. G., Holness, S., Skowno, A. & Egan, V.T. (2013). Limpopo Conservation Plan v.2: Technical Report. Contract Number EDET/2216/2012. Report for Limpopo Department of Economic Development, Environment & Tourism (LEDET) by ECOSOL GIS. Available online at: https://www.conservationcorridor.org/cpb/Desmet_et_al_2013.pdf [Accessed: May 2026].

[11] Limpopo Provincial Government (2023). Limpopo Spatial Development Framework Phase 2: Spatial Analysis Report. Part B: Bio-Physical Analysis. Available online at: https://www.limpopo.gov.za/webDocs/SDF/B_LSDF_Spatial_Analysis_Bio-Physical_Environment.pdf [Accessed: May 2026].

[12] Polokwane Local Municipality (2024). Polokwane Local Municipality Spatial Development Framework. Available online at: https://www.polokwane.gov.za/wp-content/uploads/2024/04/Polokwane-SDF-2024-JS.pdf [Accessed: May 2026].

The proposed projects will support the integration of renewable energy and enhance grid capacity which would, in turn, improve access to energy. The proposed projects will also create both skilled and unskilled employment opportunities during both the construction and operational phases. Therefore, the proposed development will aid in addressing some of the key challenges facing the PLM.

5.2.3.3 Polokwane Local Municipality Integrated Development Plan (IDP)

The 2026-2031 PLM Integrated Development Plan (IDP) states that the vision for the municipality is to be the ultimate in innovation and sustainable development and that the municipality's mission is to "*provide cost effective services which promote sustainable livelihood through socio-economic development and good governance*" (PLM, 2026[13], Page 47).

The five Key Performance Areas (KPAs) of the PLM IDP include:

- "*Basic Service Delivery;*
- *Local Economic Development;*
- *Good Governance and Public Participation;*
- *Municipal Transformation and Organisational Development; and*
- *Financial Viability*".

The proposed projects are in line with the PLM IDP as they will enable the PLM to enhance basic service delivery through improved energy security and reduced grid constraints and achieve local economic development through improved energy security and job creation.

5.2.3.4 Capricorn District Municipality Draft Spatial Development Framework (2025)

The 2025 Draft CDM SDF states that engineering services is critical for establishing sustainable human settlements and facilitating economic development and job creation. The 2025 Draft CDM SDF further states that in order to ensure sustainable provision of engineering services over the short-, medium- and long-term, the CDM should focus on promoting the development of renewable energy plants and enhancing universal access to clean, renewable energy services (CDM, 2025[14]).

The proposed projects are aligned with the CDM SDF, as they would support the integration of renewable energy and enhance grid reliability by addressing energy intermittency through battery storage and dispatching of energy. The proposed projects will contribute to improved energy security and service delivery within the CDM.

5.2.3.5 Capricorn District Municipality Integrated Development Plan (IDP)

The 2026/2027 CDM IDP states that the vision for the municipality is "*Capricorn District, the home of excellence and opportunities for a better life*" and that the municipality's mission is "*to provide quality services, in a cost effective and efficient manner, through competent people, partnerships,*

[13] Polokwane Local Municipality (2026). Draft Integrated Development Plan 2026/31. Available online at: https://www.polokwane.gov.za/wp-content/uploads/2026-31-Draft-5-year-IDP-26-March-2026.pdf [Accessed: April 2026].
[14] Capricorn District Municipality (2025). Capricorn District Municipality Draft Spatial Development Framework. Draft Report V2, February 2025. Available online at: https://www.cdm.org.za/wp-content/uploads/2025/02/Draft-Capricorn-Spatial-Development-Framework-V2.pdf [Accessed May 2026].

information and knowledge management creating sustainability of economic development in the interest of all stakeholders".
The CDM IDP lists the following key strategic objectives for the municipality (CDM, 2023[15], Page 29):

- "*To improve spatial development and environmental management;*
- *To provide sustainable basic services and infrastructure outcome;*
- *To enhance conditions for economic growth and job creation;*
- *To enhance financial viability and management; and*
- *To increase the capacity of the district to deliver its mandate*".

The proposed projects are in line with the CDM IDP as they will enable the CDM to achieve environmental sustainability. Furthermore, the proposed projects are aligned with one of the objectives of the IDP in that it will encourage local economic growth through increased investment and employment opportunities. The proposed projects will create job opportunities and economic spin offs during the construction and operational phases (if EA is granted by the DFFE).

5.2.3.6 Capricorn District Bioregional Plan (2018)

The Capricorn District Bioregional Plan is based on the CBA maps developed in the LCPv2, which is the current systematic biodiversity plan for Limpopo. The Capricorn District Bioregional Plan recommends guidelines for decision-making which provide a framework for land-uses compatible with the land management objectives of each category on the CBA Map. These guidelines aim to assist planners in identifying appropriate zones and controls to impose on areas designated as CBAs or Ecological Support Areas (ESAs). The Capricorn District Bioregional Plan provides guidance on appropriate land uses and does not grant or remove existing land-use rights or take the place of development application authorisation processes. The Terrestrial Biodiversity specialist has consulted the 2018 Limpopo Province CBA Map to verify if the study area intersects with any CBAs and/or ESAs. Refer to the Terrestrial Biodiversity and Species Assessment included in Appendix E.2 of this BA Report for additional information.

5.2.4 Guidelines, Frameworks and Protocols

The following guidelines, frameworks and protocols are applicable to the proposed projects:

- Guidelines published in terms of the NEMA EIA Regulations, in particular:
  - Guideline on Alternatives (DEA, 2014);
  - Guideline on Transitional Arrangements (Department of Environmental Affairs and Development Planning (DEA&DP), 2013);
  - Guideline on Alternatives (DEA&DP, 2013);
  - Guideline on Public Participation (DEA, 2012; DEA&DP, 2013; DEA, 2017);
  - National Noise Control Regulations (GN R154 of 1992) and SANS 10103:2008;
  - Guideline on Need and Desirability (DEA&DP, 2013; DEA, 2017);
- Information Document on Generic Terms of Reference for Environmental Assessment Practitioners (EAPs) and Project Schedules (March 2013);

[15] Capricorn District Municipality (2026). Capricorn District Municipality Draft Integrated Development Plan (IDP)/Budget 2026/2027 – 2030/2031. Available online: https://www.cdm.org.za/wp-content/uploads/2026/04/CDM-DRAFT-2026-27-IDP-and-budget.pdf. [Accessed: April 2026].

- Integrated Environmental Management Information Series (Booklets 0 to 23) (Department of Environmental Affairs and Tourism (DEAT), 2002 – 2005);
- Guidelines for Involving Specialists in the EIA Processes Series (DEA&DP; CSIR and Tony Barbour, 2005 – 2007);
- Species Environmental Assessment 2020 Guideline (as amended): Guidelines for the implementation of the Terrestrial Fauna and Terrestrial Flora Species Protocols for EIAs in South Africa. SANBI;
- United Nations Framework Convention on Climate Change (1997); and
- Kyoto Protocol (which South Africa acceded to in 2002).

5.2.5 International Finance Corporation Performance Standards

In order to promote responsible environmental stewardship and socially responsible development, the proposed projects will as far as practical, incorporate the environmental and social policies of the International Finance Corporation (IFC). These policies provide a frame of reference for lending institutions to review environmental and social risks of projects, particularly those undertaken in developing countries.

Through the Equator Principles, the IFC's standards are now recognised as international best practice in project finance. The IFC screening process categorises projects into A, B or C in order to indicate relative degrees of environmental and social risk. The categories are:

- *Category A* - Projects expected to have significant adverse social and/or environmental impacts that are diverse, irreversible, or unprecedented;
- *Category B* - Projects expected to have limited adverse social and/or environmental impacts that can be readily addressed through mitigation measures; and
- *Category C* - Projects expected to have minimal or no adverse impacts, including certain financial intermediary projects.

Accordingly, projects such as the proposed Veroniva BESS and EGI are categorised as Category B projects. The BA Process for Category B projects examine the project's potential negative and positive environmental impacts. As required for Category B projects, a BA Process was commissioned.

Other Acts, standards and/or guidelines are reviewed in more detail as part of the specialist studies that have been conducted in this BA Process.

5.3 Overview of Approach to Preparing the BA Report and EMPr

The BA Report has been compiled in line with the requirements of Appendix 1 of the 2014 NEMA EIA Regulations (as amended). Refer to Chapter 1 of this BA Report for feedback on how these requirements have been met.

The specialist studies / inputs / technical studies / letters of opinion have been undertaken based on compliance with relevant legislation and based on the Terms of Reference indicated in Section 5.8 of this chapter, as well as Appendix E of this BA Report, where relevant. The results of the specialist studies / inputs / technical studies / letters of opinion and other relevant project information, as well as research undertaken for the proposed projects have been integrated into this BA Report.

As indicated in Chapter 1 of this BA Report, combined reporting has been approved by the DFFE for Projects 1 and 2. The Draft BA Report is being released for a 30-day I&AP and authority comment period. I&APs registered on the project database have been notified in writing of the release of the Draft BA Report for comment.

Comments raised through written correspondence (emails and letters) will be captured in a Comments and Responses Report that will be included as an appendix to the Final BA Report that will be submitted to the DFFE for decision-making. Refer to Section 5.4.8 of this chapter for additional information regarding this process.

The BA Report includes EMPrs (Appendix H to Appendix K) which have been prepared in compliance with the relevant regulations. The content of an EMPr must either contain the information set out in Appendix 4 of the 2014 NEMA EIA Regulations (as amended) or must be a Generic EMPr relevant to an application as identified and gazetted by the Minister in a GN. As part of the 2016 EGI SEA, a Generic EMPr was compiled for the development and expansion of (a) overhead electricity transmission and distribution infrastructure; and (b) substation infrastructure for the transmission and distribution of electricity. On 2 March 2018, these two Generic EMPrs were gazetted in GG 41473, GN 162 and GN 163, for public comment for a period of 45 days. On 22 March 2019, these two Generic EMPrs were gazetted for implementation, in GG 42323, GN 435.

The following EMPrs have been compiled for the proposed projects and comply with the following legislation noted in Table 5.1.

Table 5.1: EMPrs compiled during this BA Process.

Projects	Environmental Management Programmes
▪ **PROJECT 1**: The proposed development of a BESS and associated infrastructure (Veroniva BESS).	▪ EMPr for the BESS (Appendix 4 of the 2014 NEMA EIA Regulations (as amended)). This is included in **Appendix H** of this BA Report. ▪ Generic EMPr for the BESS Independent Power Producer (IPP) Substation (GG 42323, GN 435, Generic EMPr for Substations). This is included in **Appendix I** of this BA Report.
▪ **PROJECT 2**: The proposed development of a 132 kV LILO and associated infrastructure (Veroniva EGI).	▪ Generic EMPr for the Switching Station (GG 42323, GN 435, Generic EMPr for Substations). This is included in **Appendix J** of this BA Report. ▪ Generic EMPr for the 132 kV LILO Power Line (GG 42323, GN 435, Generic EMPr for Power Lines). This is included in **Appendix K** of this BA Report.

The EMPrs compiled for these proposed projects therefore separately comply with Appendix 4 of the 2014 NEMA EIA Regulations (as amended) for the proposed BESS facility and associated infrastructure; the requirements of the gazetted EMPr for substation infrastructure (Gazette 42323, GN 435) for the IPP Substation and Switching Station (as Activity 11 of Listing Notice 1 is included in these applications); as well as the requirements of the gazetted EMPr for overhead power line infrastructure (Gazette 42323, GN 435) for the 132 kV LILO power line (as Activity 11 of Listing Notice 1 is included in these applications).

The EMPrs are based broadly on the environmental management philosophy presented in the ISO 14001 standard, which embodies an approach of continual improvement. Actions in the EMPr have been drawn primarily from the impact management actions in the specialist assessments for the construction and operational phases of the projects. If the project components are decommissioned or re-developed this will need to be done in accordance with the relevant environmental standards and clean-up/remediation requirements applicable at the time. However, general management actions for the decommissioning phase have been provided.

5.4 Public Participation Process

5.4.1 Introduction to the PPP

This section provides an overview of the tasks that have been undertaken in this BA Process, with a particular emphasis on providing a clear record of the PPP that is being followed. An integrated PPP is being undertaken for the Veroniva BESS and EGI (Projects 1 and 2), as confirmed with the DFFE during the Pre-Application Meeting that was held on 6 March 2026.

The information presented in this section applies to both proposed projects (Veroniva BESS (Project 1) and Veroniva EGI (Project 2).

The integrated PPP for the proposed projects ensures that all public participation documents (such as newspaper advertisements, site notices, notification letters, emails etc.) serve to notify I&APs, Stakeholders and Organs of State of the availability of the combined report for the abovementioned projects and provide I&APs with an opportunity to comment on the report. This approach is being undertaken due to the proximity of the sites (i.e. the proposed projects will take place within the same geographical area) and that proposed projects entail the same type of activity (i.e. storing and dispatching of electricity (BESS); and transmission and distribution of electricity via a power line (EGI)).

The PPP for this BA Process is driven by a stakeholder engagement process that includes inputs from authorities, I&APs, technical specialists and the Project Developer. Guideline 4 on "*Public Participation in support of the EIA Regulations*" published by the former DEAT in May 2006, states that public participation is one of the most important aspects of the Environmental Assessment Process. This stems from the requirement that people have a right to be informed about potential decisions that may affect them and that they must be afforded an opportunity to influence those decisions. Effective public participation also improves the ability of the Competent Authority to make informed decisions and results in improved decision-making as the views of all parties are considered.

An effective PPP could therefore result in stakeholders working together to produce better decisions than if they had worked independently. The DEAT guideline (DEAT, 2006, Page 2) states the following in terms of PPP:

- Provides an opportunity for I&APs, EAPs and the Competent Authority to obtain clear, accurate and understandable information about the environmental impacts of the proposed activity or implications of a decision;
- Provides I&APs with an opportunity to voice their support, concern and question regarding the project, application or decision;
- Enables an applicant to incorporate the needs, preferences and values of affected parties into its application;
- Provides opportunities for clearing up misunderstanding about technical issues, resolving disputes and reconciling conflicting interests;
- Is an important aspect of securing transparency and accountability in decision-making; and
- Contributes toward maintaining a healthy, vibrant democracy.

To the above, one can add the following universally recognised principles for public participation:

- Inclusive consultation that enables all sectors of society to participate in the consultation and assessment processes;
- Provision of accurate and easily accessible information in a language that is clear and sufficiently non-technical for I&APs to understand, and that is sufficient to enable meaningful participation;
- Active empowerment of grassroots people to understand concepts and information with a view to active and meaningful participation;
- Use of a variety of methods for information dissemination in order to improve accessibility, for example, by way of discussion, documents, meetings, workshops, focus group discussions, and the printed and broadcast media;
- Affording I&APs sufficient time to study material, to exchange information, and to make contributions at various stages during the assessment process;
- Provision of opportunities for I&APs to provide their inputs via a range of methods, for example, via briefing sessions, public meetings, written submissions or direct contact with members of the BA team; and
- Public participation is a process and vehicle to provide sufficient and accessible information to I&APs in an objective manner to assist I&APs to identify issues of concern, to identify alternatives, to suggest opportunities to reduce potentially negative or enhance potentially positive impacts, and to verify that issues and/or inputs have been captured and addressed during the assessment process.

At the outset it is important to highlight two key aspects of public participation:

- There are practical and financial limitations to the involvement of all individuals within a PPP. Hence, the PPP aims to generate issues that are representative of societal sectors, and not each individual. Therefore, the PPP is designed to be inclusive of a broad range of sectors relevant to the proposed projects; and
- The PPP aims to raise a diversity of perspectives and is not designed to force consensus amongst I&APs. Indeed, diversity of opinions rather than consensus building is likely to enrich ultimate decision-making. Therefore, where possible, the PPP aims to obtain an indication of trade-offs that all stakeholders (i.e. I&APs, technical specialists, the authorities and the development proponent) are willing to accept with regards to ecological sustainability, social equity and economic growth associated with the projects.

The Department of Environmental Affairs (2017) Public Participation guideline in terms of the 2014 NEMA EIA Regulations (as amended) was also considered during this BA Process.

It is important to note that proof of PPP undertaken during the **BA Phase** is captured in Appendix G of this BA Report.

The key steps in the PPP for this BA Process are described below and also illustrated in Figure 5.1. This approach is structured in line with the requirements of Chapter 6 (PPP) of the 2014 NEMA EIA Regulations (as amended, i.e. GN R326), as described below. Various mechanisms have been undertaken to provide notice to all potential and registered I&APs of the proposed projects, as described below.

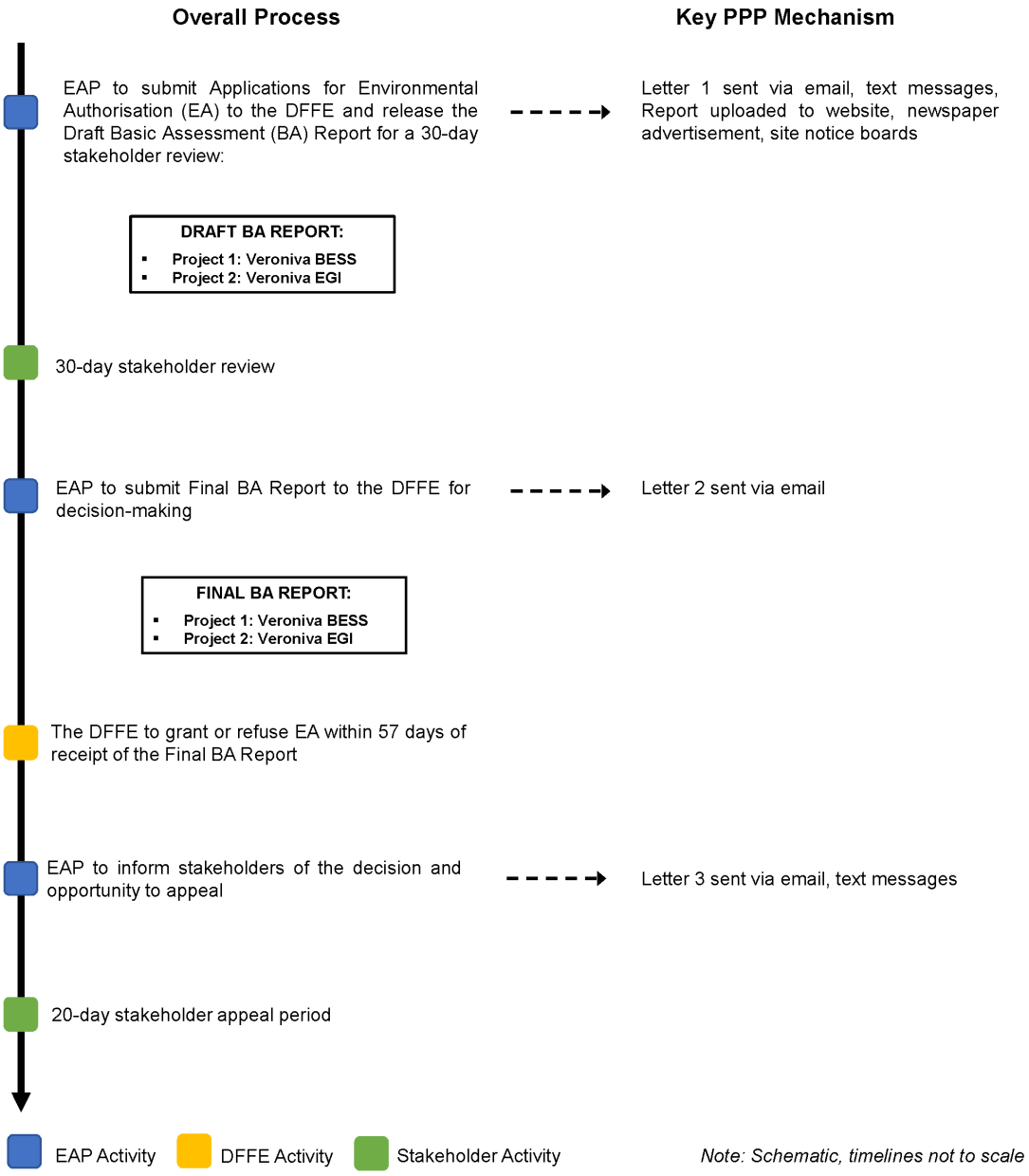


Figure 5.1: Overview of the BA Process and PPP.

5.4.2 Pre-Application Consultation with the DFFE

5.4.2.1 Pre-Application Meeting with the DFFE

A request for a Pre-Application Meeting was submitted to the DFFE on 2 March 2026 after which the EAP received a response from the DFFE on 5 March 2026 (Reference Number: 2026-03-0003). The Pre-Application Meeting was scheduled for and took place on 6 March 2026. The Pre-Application Meeting was undertaken in order to discuss and agree on various aspects prior to the release of the Draft BA Report for a 30-day review period. The following points were discussed with the DFFE:

- Description of the proposed projects;
- Discussion on the specialist assessments to be undertaken; and those that will be motivated against being undertaken;
- Discussion on the approach towards the Environmental Assessment and Specialist Assessment reporting, including a request for combination of the projects, in terms of Regulation 11 (4) of the 2014 NEMA EIA Regulations (as amended), and the issuing of multiple EAs (i.e., two EAs) (should they be granted) in terms of Regulations 25 (1) and (2) of the 2014 NEMA EIA Regulations (as amended);
- Discussion on the proposed Public Participation Process that will be undertaken for all proposed projects; and
- Discussion of the proposed schedule and overall process for the BA Process.

Refer to Appendix C.1 of this BA Report for the proof of submission of the Pre-Application Meeting Request Form to the DFFE; Appendix C.2 for the DFFE's acknowledgement of the Pre-Application Meeting Request Form; Appendix C.3 for a copy of the presentation delivered at the Pre-Application Meeting; Appendix C.4 for a copy of the Pre-Application Meeting Notes; Appendix C.5 for the submission of the Pre-Application Meeting Notes to the DFFE; and Appendix C.6 for a copy of correspondence from the DFFE with approval of the Pre-Application Meeting Notes. The Pre-Application Meeting Notes were submitted to the DFFE via email on 9 March 2026 and approved by the DFFE on 10 March 2026.

5.4.2.2 Request for Report Combination and Multiple EAs

As noted above and in Chapter 1 of this BA Report, a request for report combination and multiple EA approach was also discussed with the DFFE during the Pre-Application Meeting, which was formally submitted to the DFFE in a letter dated 13 March 2026. On 20 March 2026, the DFFE accepted the approach for combination of the BA and Specialist Reports for Projects 1 and 2, and the issuance of multiple EAs for the proposed projects (should they be granted). A copy of this acceptance letter from the DFFE is included in Appendix C.7 of this BA Report.

5.4.3 Landowner Written Consent

Regulation 39 (1) of the 2014 NEMA EIA Regulations (as amended) states that "*if the proponent is not the owner or person in control of the land on which the activity is to be undertaken, the proponent must, before applying for an environmental authorisation in respect of such activity, obtain the written consent of the landowner or person in control of the land to undertake such activity on that land*".

Regulation 39 (2) of the 2014 NEMA EIA Regulations (as amended) further states that "*sub-regulation (1) does not apply in respect of: (a) linear activities; (b) activities constituting, or activities directly related to prospecting or exploration of a mineral and petroleum resource or extraction and primary processing of a mineral or petroleum resource; and (c) strategic integrated projects as contemplated in the Infrastructure Development Act, 2014*".

The proposed projects include non-linear activities for which landowner consent is required for the affected property listed in Chapter 2 (Project Description for Veroniva BESS – Project 1) of this BA Report.

There have been no changes to the legislation regarding the above, therefore written consent was obtained from the landowner of the affected farm portion on which the non-linear infrastructure is proposed to be located (Portion 5 of the Farm Snymansdrift 738 LS). The written consent is included as an appendix to the Applications for EA, which has been submitted to the DFFE, together with this Draft BA Report for comment.

5.4.4 Determination of Appropriate Consultation Measures, and I&AP Identification, Registration and the Creation of an Electronic Database

In order to accommodate the varying needs of I&APs and develop their capacity to participate in the process, information sharing forms an integral and ongoing component of the BA Process to ensure effective public participation.

In line with Regulation 42 of the 2014 NEMA EIA Regulations (as amended) and prior to the commencement of this BA Process, an initial database of I&APs (including key stakeholders and Organs of State) was developed. This was undertaken based on research. Appendix F of this BA Report includes a copy of the latest I&AP database. The I&AP database will be updated throughout the BA Process based on requests for registration and de-registration received, as well as based on stakeholders providing comments, stakeholders communicated with, and additional research to obtain valid email addresses, where possible.

In line with Regulation 41 (2) (b) of 2014 NEMA EIA Regulations (as amended), the database includes the details of the following:

- Landowners of the affected and adjacent farm portions for the study area;
- Occupiers of the affected and adjacent farm portions, where relevant;
- The municipal councillor of the ward in which the proposed projects will be undertaken;
- The municipality which has jurisdiction in the area (i.e. the PLM and CDM);

- Relevant Organs of State that have jurisdiction in respect of any aspect of the activity (e.g. the LEDET, DWS, Department of Agriculture, Eskom etc.); and
- Any other party as required by the Competent Authority.

In addition, the I&AP database includes the Competent Authority (i.e. the DFFE); and potential and registered I&APs.

While I&APs have been encouraged to register their interest in the project from the start of the process, following the public announcements, the identification and registration of I&APs is ongoing for the duration of the study. Stakeholders from a variety of sectors, geographical locations and/or interest groups are expected to show an interest in the proposed projects, for example:

- Provincial and Local Government Departments;
- Local interest groups, for example, Councillors and Rate Payers associations;
- Surrounding landowners;
- Farmer Organisations;
- Environmental Groups and NGOs; and
- Grassroots communities and structures.

As per Regulation 42 of the 2014 NEMA EIA Regulations (as amended), in terms of the electronic database, I&AP details will be captured and automatically updated as and when information is distributed to or received from I&APs. This ongoing record of communication is an important component of the PPP. It must be noted that while not required by the regulations, those I&APs proactively identified at the outset of the BA Process have remained on the project database throughout the process and have been kept informed of all opportunities to comment and were only removed from the database by request.

In accordance with the Protection of Personal Information Act (Act 4 of 2013), the CSIR will conduct itself responsibly when collecting, processing, storing and sharing any personal information collected for the purposes of PPP in terms of the 2014 NEMA EIA Regulations (as amended) and the 2025 National Appeal Regulations (as amended). By registering as an I&AP and/or submitting information and comments, the stakeholder essentially consents to the collection, collation, processing, and storing of such information and the use and disclosure of such information for the aforementioned purpose, including for purposes of potential appeal processes whereby such information may be made available to an appellant in the case of an appeal to satisfy the requirements of Regulation 4 of the 2025 National Appeal Regulations (as amended)[16].

The above is maintained on all correspondence sent throughout the BA Process. The stakeholders will also be given an opportunity to send an email to the EAP if they wish to opt out of communications on the proposed projects.

[16] CSIR Privacy Notice. Website: https://www.csir.co.za/csir-privacy-notice

5.4.5 Site Notices

One specific mechanism of informing I&APs of the proposed projects includes the placement of site notice boards. Regulation 41 (2) (a) of the 2014 NEMA EIA Regulations (as amended) requires that a notice board providing information on the project and BA Process is fixed at a place that is conspicuous to and accessible by the public at the boundary, on the fence or along the corridor of the site where the application will be undertaken or any alternative site.

Notice boards in the English, Afrikaans, and Sepedi languages were placed at the key affected farm portions on which the proposed projects will be constructed, as well as at other strategic locations, such as well-known retail, public and/or government facilities in the wider region, as indicated in Table 5.2.

Table 5.21: Site Notice Board Placement for the Proposed Projects.

Number	Locality / Description	Co-ordinates	
		Latitude	Longitude
1	Security access point leading to Portion 5 of the Farm Snymansdrift 738 (Dream Hills Game Farm / Estate)	24° 02' 35" S	29° 21' 10" E
2	Eskom Witkop Main Transmission Substation (Fenceline)	24° 02' 49" S	29° 21' 24" E
3	Intersection of the R519 and the existing tarred access road (External Access Road Option B) leading to the Eskom Witkop Main Transmission Substation and the study area	24° 3' 15" S	29° 21' 44" E
4	Polokwane Post Office	23° 54' 43" S	29° 27' 11" E
5	Polokwane Local Municipality	23° 54' 47" S	29° 27' 11" E
6	SAPS Polokwane Police Station	23° 54' 48" S	29° 27' 18" E
7	Polokwane City Library	23° 54' 27" S	29° 27' 13" E

Refer to Appendix G.1 of this BA Report for a copy of the content and proof of placement of the site notice boards. The site notice boards include the following, in compliance with Regulation 41 (3) of the 2014 NEMA EIA Regulations (as amended):

- The details of the proposed projects that are subjected to public participation;
- Explanation that a BA procedure is applicable to the proposed projects;
- The nature and location of the proposed projects;
- Details on where further information on the proposed projects can be obtained; and
- The manner in which and the person to whom representations in respect of the proposed projects can be made.

5.4.6 Newspaper Advertisements

Regulation 41 (2) (c) of the 2014 NEMA EIA Regulations (as amended) requires the placement of a newspaper advertisement in one local newspaper or any official Gazette that is published specifically for the purpose of providing public notice of applications or other submissions made in terms of the 2014 NEMA EIA Regulations (as amended).

In line with this, in order to notify and inform the public of the proposed projects, to invite I&APs to register on the project database, as well as to inform I&APs of the release of the Draft BA Report for comment, the BA Process was advertised in two local newspapers at the intended commencement of the 30-day comment period on the Draft BA Report. Specifically, advertisements were placed in the *Capricorn Voice* in Sepedi on 27 May 2026 and in the *Polokwane Observer* in English and Afrikaans on 28 May 2026. The content of the newspaper advertisements complied with Regulation 41 (3) of the 2014 NEMA EIA Regulations (as amended) and also included the details of the project website, where information available on the proposed projects could be downloaded from.

However, the Draft BA Report release was postponed, and a notice was published in the *Capricorn Voice* and the *Polokwane Observer* on 3 June 2026 and 11 June 2026, respectively, to notify I&APs of the postponement of the Draft BA Report release and that a new advertisement will be placed once the Draft BA Report is available for comment. Refer to Appendix G.2 of this BA Report for a copy of the content and proof of placement of the initial newspaper advertisements and additional postponement notice.

A new newspaper advertisement was placed in the *Capricorn Voice* (in Sepedi) and the *Polokwane Observer* (in English and Afrikaans) at the commencement of the 30-day comment period on the Draft BA Report. Refer to Appendix G.2 of the BA Report for a copy of the content and proof of placement of the new newspaper advertisements.

There were no official Gazettes published specifically for the purpose of providing public notice of applications or other submissions made in terms of the 2014 NEMA EIA Regulations (as amended).

5.4.7 Website Notices

As a supplementary mechanism and to keep stakeholders updated, a notice of the postponement of the Draft BA Report release was also placed on the CSIR project website (i.e., https://www.csir.co.za/environmental-impact-assessment). Refer to Appendix G.3 of the BA Report for a copy of this website notice.

5.4.8 PPP for the BA Report Phase

In terms of Regulation 41 (6) of GN R326, the section below outlines the PPP for this assessment in order to provide potential I&APs, Stakeholders and Organs of State access to information on the proposed projects and the opportunity to comment at the various stages of the assessment process.

5.4.8.1 Task 1 - I&AP Review of the Draft BA Report and EMPrs (Current Stage)

The first stage in the process entails the release of the Draft BA Report for a 30-day comment period. Relevant stakeholders, Organs of State and I&APs will be informed of the review period in the manner described below, which summarises the PPP that is being undertaken for the review of the Draft BA Report.

- **Database Development and Maintenance:** In line with Regulation 42 of GN R326, an initial database of potential I&APs (including key stakeholders and Organs of State) was developed for the BA Process and will be updated throughout the process. Refer to Appendix F of this BA Report for a copy of the latest I&AP database that includes all potential and registered I&APs. The database will also be regularly updated based on research to obtain valid email addresses, where possible. Refer to Section 5.4.4 of this chapter for additional information on the I&AP database development and maintenance.

- **Site Notice Boards:** As noted in Section 5.4.5 above, notice boards have been placed for the proposed projects. A copy of the content and proof of placement of the notice boards are included in Appendix G.1 of this BA Report.

- **Advertisements to Register Interest:** As noted in Section 5.4.6 above, a newspaper advertisement was placed in the *Capricorn Voice* (in Sepedi) and the *Polokwane Observer* (in English and Afrikaans) at the commencement of the 30-day comment period on the Draft BA Report. Refer to Appendix G.2 of the BA Report for a copy of the content and proof of placement of the newspaper advertisements.

- **Submission of the Application for EA Forms, Draft BA Report and EMPrs to the DFFE**: The Application for EA Forms, Draft BA Report and EMPrs are being submitted to the DFFE via the DFFE National Environmental Assessment System (NEAS). Proof of upload and submission of the Application for EA Forms, Draft BA Report and EMPrs via the DFFE NEAS will be included in the Final BA Report.

- **Letter 1 to I&APs (Commencement of the BA Process and availability of the Draft BA Report for public comment**): Written notification of the availability of the Draft BA Report (i.e., **Letter 1**) is being sent to all I&APs, Stakeholders and Organs of State (including landowners and adjacent landowners) included on the project database via email, where email addresses are available. This letter is being sent at the commencement of the 30-day review period on the Draft BA Report and includes information on the proposed projects and notification of the release and availability of the report for review. Letter 1 is written in English. Proof of the email, as well as a copy of Letter 1 will be included in the Final BA Report which will be submitted to the DFFE for decision-making. A follow up email will also be sent to all I&APs registered on

the project database to serve as a reminder of the closure of the comment period and to seek as many comments as possible.

- **Text Messaging:** SMS texts are also planned to be sent to all I&APs registered on the project database, where cell phone numbers are available, to inform them of the proposed projects and how to access the Draft BA Report, which is currently available for a 30-day comment period. Text messages are planned to be sent for the release of the Draft BA Report for public comment, as well as a reminder of the comment period closure. Proof of text message consultation will be included in the Final BA Report.

- **Local/Broader Networks**: Where possible, communication will be made during the BA Process with the relevant Municipal Ward Councillor and municipal representatives to provide notification of the release of the Draft BA Report with the objective to increase awareness.

- **30-day Comment Period:** As noted above, potential I&APs, including authorities and Organs of State, will be notified via Letter 1 of the 30-day comment and registration period within which to submit comments on the Draft BA Report and/or to register on the I&AP database.

- **Availability of Information:** As indicated above, the Draft BA Report is currently being made available for a 30-day comment period and distributed electronically to ensure access to information on the projects. The Draft BA Report is being uploaded to the project website (i.e. https://www.csir.co.za/environmental-impact-assessment) for I&APs to access it. As a supplementary mechanism, the Draft BA Report is also being uploaded to Google Drive (https://bit.ly/Veroniva_BESS_EGI_Projects). If an I&AP cannot access the report via the project website or Google Drive, and if additional information is required (other than what is provided in the Executive Summary), then the I&AP can contact the EAP, to then make an electronic copy available (*where feasibly possible*).

- **Executive Summary**: An Executive Summary of the Draft BA Report is also being uploaded to the project website and Google Drive, and the link will be shared with stakeholders via email sent with Letter 1.

- **Reminder / Follow Up Emails of the Comment Period Closure**: Reminder / follow up emails informing stakeholders of the comment period closure and to seek comments will be sent to I&APs, stakeholders and Organs of State registered on the project database, where email addresses are available, during the 30-day comment period on the Draft BA Report. In addition, personalised reminder emails are planned to be sent to various targeted stakeholders continuously throughout the 30-day comment period. Proof of such correspondence will be included as an appendix to the Final BA Report.

5.4.8.2 Task 2 – Comments and Responses Report

A key component of the BA Process is documenting and responding to the comments received from I&APs and the authorities. Copies of all written comments received during the 30-day review of the Draft BA Report will be included in an appendix to the Final BA Report, as well as compiled into a Comments and Responses Report for inclusion in an appendix to the Final BA Report that will be submitted to the DFFE for decision-making.

The Comments and Responses Report will indicate the nature of the comment, as well as when and who raised the comment. The comments received will be considered by the BA team and appropriate responses will be provided by the BA team, the Project Developer and/or specialists. The response provided will indicate how the comment received has been dealt with in the BA Process and considered in the Final BA Report, the project design or EMPrs, as applicable. Should any comments received fall beyond the scope of this BA Process, clear reasoning will be provided.

5.4.8.3 Task 3 – Compilation of the Final BA Report and Submission to the DFFE

Following the 30-day comment period on the Draft BA Report and incorporation of the comments received into the report, the Final BA Report will be submitted to the DFFE for decision-making in line with Regulation 19 (1) (a) of the 2014 NEMA EIA Regulations (as amended). The report will be submitted electronically via the DFFE NEAS, as required by the DFFE since 1 April 2026.

In line with best practice, I&APs registered on the project database will be notified via **Letter 2** via email (where email addresses are available) of the submission of the Final BA Report to the DFFE for decision-making. To ensure ongoing access to information, a copy of the Final BA Report that will be submitted for decision-making and the Comments and Responses Report (detailing comments received during the BA Process and responses thereto) will be placed on the project website (i.e. https://www.csir.co.za/environmental-impact-assessment). As a supplementary mechanism, the Final BA Report will also be uploaded to Google Drive.

The Final BA Report, which will be submitted to the DFFE for decision-making, will include proof of the PPP that was undertaken to inform I&APs, Stakeholders and Organs of State of the availability of the Draft BA Report for the 30-day comment period (as explained above).

As discussed at the Pre-Application Meeting on 6 March 2026, it is understood that the DFFE will aim to make a decision on these Applications for EA within 57 days.

5.4.8.4 Task 4 – Environmental Authorisation (EA) and Appeal Process

Subsequent to the decision-making phase, all registered I&APs, Organs of State and Stakeholders on the project database will receive an emailed notification of the outcome of the DFFE's decision on the proposed projects (i.e. to grant or refuse EA) and the associated appeal period. The 2014 NEMA EIA Regulations (as amended) (i.e., Regulation 4 (1)) states that after the Competent Authority has reached a decision, it must inform the Project Applicant of the decision, in writing, within 5 days of such decision. Regulation 4 (2) of the 2014 NEMA EIA Regulations (as amended) stipulates that I&APs need to be informed of the EA decision and associated appeal period within 14 days of the date of the decision.

The notification of the EA decision and associated appeal period will include a letter (i.e., **Letter 3** (Release of EA decision and Notification of Opportunity to Appeal)) that will be sent via email to all registered I&APs, Stakeholders and Organs of State on the project database, where email addresses are available. The letter will include information on the appeal period, as well as details regarding where to obtain a copy of the EA decision. SMS texts will also be sent to all I&APs on the database, where cell phone numbers are available, to inform them of the EA decision.

5.5 Authority Consultation during the BA Process

Authority consultation is integrated into the PPP, with discussions to be held on online platforms with the lead authorities, where necessary. The Competent Authority (i.e., the DFFE) as well as other lead authorities will be consulted at various stages during this BA Process.

At this stage, the following key authorities have been identified for the purpose of this BA Process (additional authorities might be added to this list as the BA Process progresses):

- Air Traffic Navigation Services (ATNS);
- AgriSA;
- Agri Limpopo;
- Birdlife South Africa;
- DWS;
- Department of Agriculture;
- DFFE Integrated Environmental Authorisations Directorate;
- DFFE Biodiversity and Conservation Directorate;
- DFFE Protected Areas Directorate;
- Endangered Wildlife Trust;
- Eskom SOC Ltd / National Transmission Company South Africa (NTCSA);
- Limpopo Department of Agriculture and Rural Development (LDARD);
- Limpopo Department of Economic Development, Environment and Tourism (LEDET);
- Limpopo Heritage Resources Authority (LIHRA);
- Limpopo Department of Public Works, Roads and Infrastructure;
- Limpopo Department of Transport and Community Safety;
- National Energy Regulator of South Africa (NERSA);
- CDM;
- PLM;
- Roads Agency Limpopo (RAL);
- South African Civil Aviation Authority (SACAA);
- SAHRA;
- South African Local Government Association (SALGA) (Limpopo);
- South African National Parks (SANParks);
- SANRAL;
- SARAO;
- South African Weather Services (SAWS);
- VulPro;
- Wildlife and Environmental Society of South Africa (WESSA); and
- World Wildlife Fund South Africa (WWF SA).

5.6 Schedule for the BA Process

The proposed schedule for the BA Process based on the legislated BA timeframes, is presented in Table 5.3. It should be noted that this schedule is provisional and could be revised during the BA Process, depending on factors such as the time required for decisions from authorities.

Table 5.3: Provisional Schedule for the proposed Veroniva BESS and EGI (Projects 1 and 2).

Key Milestones	Proposed Timeframe
Project Initiation and Pre-Application Consultation with the Department of Forestry, Fisheries and the Environment (DFFE)	Early March 2026
DFFE approval of the Pre-Application Meeting Notes	10 March 2026
Submission of the Combination Request	13 March 2026
DFFE approval of the Combination Request	20 March 2026
Specialist site visits	Nov 2025 – June 2026
Specialist Assessments	Nov 2025 – June 2026
Submit Application for Environmental Authorisation (EA) Forms to the DFFE	June 2026
Release Draft BA Report for 30-day comment period	June 2026 to July 2026
Submit Final BA Report to the DFFE for decision-making	August 2026
DFFE decision-making on the Final BA Report: 57 days	October 2026
EAP to notify I&APs of decisions (14 days)	Within 14 days of decisions being issued

5.7 Approach to the Impact Assessment Methodology and Specialist Assessments

This section outlines the assessment methodology for the specialist assessments, as recommended by the then Department of Environmental Affairs (DEA) 2006 Guideline on Assessment of Impacts.

THIS SECTION IS APPLICABLE TO BOTH PROJECT 1 (VERONIVA BESS) AND PROJECT 2 (VERONIVA EGI)

5.7.1 Impact Assessment Methodology

The impact assessment methodology has been aligned with the requirements for BA Reports. The BA Report requirements stipulated in Appendix 1 (3) (1) (j) of the 2014 NEMA EIA Regulations (as amended) states the following:

- *"A BA Report must contain the information that is necessary for the Competent Authority to consider and come to a decision on the application, and must include an assessment of each identified potentially significant impact and risk, including –*
  - *(i) cumulative impacts;*
  - *(ii) the nature, significance and consequences of the impact and risk;*
  - *(iii) the extent and duration of the impact and risk;*
  - *(iv) the probability of the impact and risk occurring;*
  - *(v) the degree to which the impact and risk can be reversed;*
  - *(vi) the degree to which the impact and risk may cause irreplaceable loss of resources; and*
  - *(vii) the degree to which the impact and risk can be mitigated".*

The identification of potential impacts includes impacts that may occur during the construction, operational and decommissioning phases of the proposed development. The assessment of impacts includes direct, indirect as well as cumulative impacts. In order to identify potential impacts (both positive and negative) it is important that the nature of the proposed activity is well understood so that the impacts associated with the activity can be understood. The process of identification and assessment of impacts includes:

- Determining the current environmental conditions in sufficient detail so that there is a baseline against which impacts can be identified and measured;
- Determining future changes to the environment that will occur if the activity does not proceed;
- Developing an understanding of the activity in sufficient detail to understand its consequences; and
- The identification of significant impacts which are likely to occur if the activity is undertaken.

The following principles underpin the application of this methodology:

- Transparent and repeatable process - specialists are to describe the thresholds and limits they apply in their assessment, wherever possible.
- Adapt parameters to context (where justified) – the methodology proposes some thresholds (e.g. for spatial extent, in Step 3 below), however, if the nature of the impact requires a different definition of the categories of spatial extent, then this can be provided and described.
- Combination of a quantitative and qualitative assessment – where possible, specialists are to provide quantitative assessments (e.g. areas of habitat affected, decibels of noise, number of jobs), however, it is recognized that not all impacts can be quantified, and then qualitative assessments are to be provided.

As per the DEAT *Guideline 5: Assessment of Alternatives and Impacts*, the following methodology has been applied to the prediction and assessment of impacts and risks. Potential impacts and risks have been rated in terms of the direct, indirect and cumulative, where relevant:

- **Direct impacts** are impacts that are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

- **Indirect impacts** of an activity are indirect or induced changes that may occur as a result of the activity. These types of impacts include all the potential impacts that do not manifest immediately when the activity is undertaken or which occur at a different place as a result of the activity.

- **Cumulative impacts** are impacts that result from the incremental impact of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities. Cumulative impacts can occur from the collective impacts of individual minor actions over a period of time and can include both direct and indirect impacts.

In addition to the above, the impact assessment methodology includes the following aspects described below, which has been considered and adopted by the relevant specialists:

- **Step 1**: **Nature of impact/risk** - The type of effect that a proposed activity will have on the environment and includes “what will be affected and how?” The term environment has a broad interpretation that includes both the natural (biophysical) environment and the socio-economic environment. The term socio-ecological system is also used to describe the natural and socio-economic environment and the interactions amongst these components.

- **Step 2**: **Status** - Whether the impact/risk on the overall environment (social, biophysical and economic) will be:
    - Positive - environment overall will benefit from the impact/risk;
    - Negative - environment overall will be adversely affected by the impact/risk; or
    - Neutral - environment overall not be affected.
    - Note: The significance of a negative impact may be called a risk, and the significance of a positive impact may be called an opportunity.

- **Step 3**: Qualitative determination of the consequence of the impact/risk by identifying the a) spatial extent; b) duration; c) reversibility; and d) irreplaceability.

    - **A) Spatial extent** – The size of the area that will be affected by the impact/risk:
        - Site specific;
        - Local (<10 km from site);
        - Regional (<100 km of site);
        - National; or
        - International (e.g. Greenhouse Gas emissions or migrant birds).

    - **B) Duration** – The timeframe during which the impact/risk will be experienced:
        - Very short term (instantaneous);
        - Short term (less than 1 year);
        - Medium term (1 to 10 years);
        - Long term (the impact will cease after the operational life of the activity (i.e. the impact or risk will occur for the project duration)); or
        - Permanent (mitigation will not occur in such a way or in such a time span that the impact can be considered transient (i.e. the impact will occur beyond the project decommissioning)).

    - **C) Reversibility** of the Impacts - the extent to which the impacts/risks are reversible assuming that the project has reached the end of its life cycle (decommissioning phase):
        - High reversibility of impacts (impact is highly reversible at end of project life i.e. this is the most favourable assessment for the environment);
        - Moderate reversibility of impacts;
        - Low reversibility of impacts; or
        - Impacts are non-reversible (impact is permanent, i.e. this is the least favourable assessment for the environment).

    - **D) Irreplaceability** of Receiving Environment/Resource Loss caused by impacts/risks – the degree to which the impact causes irreplaceable loss of resources assuming that the project has reached the end of its life cycle (decommissioning phase):
        - High irreplaceability of resources (project will destroy unique resources that cannot be replaced, i.e. this is the least favourable assessment for the environment);
        - Moderate irreplaceability of resources;
        - Low irreplaceability of resources; or
        - Resources are replaceable (the affected resource is easy to replace/rehabilitate, i.e. this is the most favourable assessment for the environment).

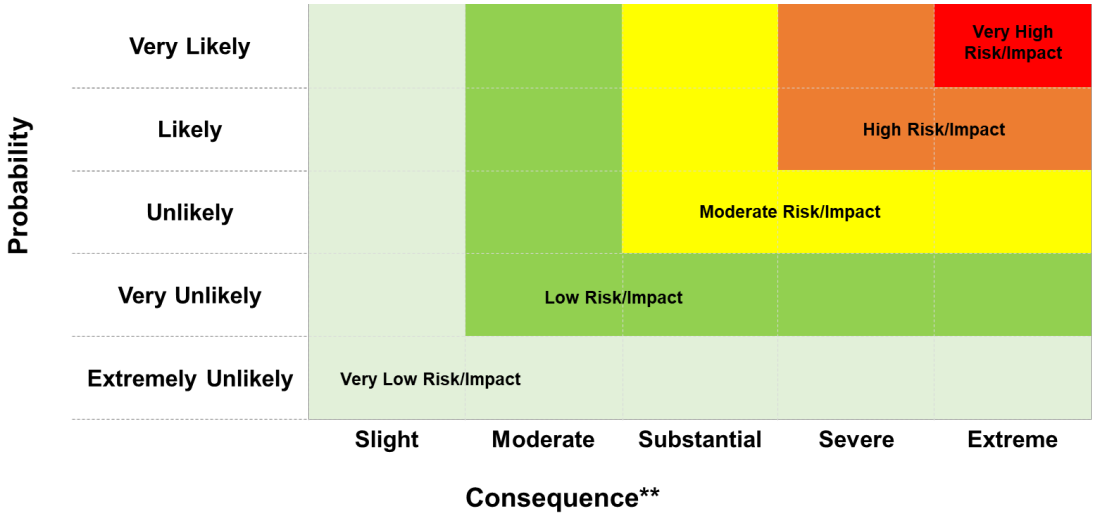
These criteria are then combined in a qualitative manner to determine the **consequence**. The consequence terms ranging from slight to extreme (as described below) are calibrated per specialist study, where required, so that there is transparency and consistency in the way a risk/impact is measured.

- **Consequence** – The anticipated consequence of the risk/impact is generally defined as follows:
    - Extreme (extreme alteration of natural or socio-economic systems, patterns or processes, i.e. where environmental or socio-economic functions and processes are altered such that they permanently cease);
    - Severe (severe alteration of natural or socio-economic systems, patterns or processes, i.e. where environmental or socio-economic functions and processes are altered such that they temporarily or permanently cease);
    - Substantial (substantial alteration of natural or socio-economic systems, patterns or processes, i.e. where environmental or socio-economic functions and processes are altered such that they temporarily or permanently cease;
    - Moderate (notable alteration of natural or socio-economic systems, patterns or processes, i.e. where the natural or socio-economic environment continues to function but in a modified manner; or
    - Slight (negligible and transient alteration of natural or socio-economic systems, patterns or processes, i.e. where natural systems/environmental or socio-economic functions, patterns, or processes are not affected in a measurable manner, or if affected, that effect is transient and the system recovers).

- **Step 4**: The **probability** of the impact/risk is then rated using the criteria below:

    - **Probability** – The probability of the impact/risk occurring:
        - Extremely unlikely (little to no chance of occurring);
        - Very unlikely (<30% chance of occurring);
        - Unlikely (30-50% chance of occurring)
        - Likely (51 – 90% chance of occurring); or
        - Very Likely (>90% chance of occurring regardless of prevention measures).

- **Step 5**: Determination of the **significance** of the identified impact/risk using both the **consequence** and **probability** (qualitatively as shown in Figure 5.2). The approach incorporates internationally recognised methods from the Intergovernmental Panel on Climate Change (IPCC) (2014) assessment of the effects of climate change and is based on an interpretation of existing information in relation to the proposed activity, to generate an integrated picture of the risks related to a specified activity in a given location, with and without mitigation. Risk is assessed for each significant stressor (e.g. physical disturbance), on each different type of receiving entity (e.g. the municipal capacity, a sensitive wetland), qualitatively (very low, low, moderate, high, very high) against a predefined set of criteria. Significance definitions and rankings are provided below:



[Qualitatively determined based on Spatial Extent, Duration, Reversibility and Irreplaceability]

Figure 5.2: Guide to assessing risk/impact significance as a result of consequence and probability

- **Significance** – Will the impact cause a notable alteration of the environment?
  - Very low (the risk/impact may result in very minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
  - Low (the risk/impact may result in minor alterations of the environment and can be easily avoided by implementing appropriate mitigation measures, and will not have an influence on decision-making);
  - Moderate (the risk/impact will result in moderate alteration of the environment and can be reduced or avoided by implementing the appropriate mitigation measures, and will only have an influence on the decision-making if not mitigated);
  - High (the risk/impact will result in major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making); and
  - Very high (the risk/impact will result in very major alteration to the environment even with the implementation on the appropriate mitigation measures and will have an influence on decision-making (i.e. the project cannot be authorised unless major changes to the engineering design are carried out to reduce the significance rating)).

With the implementation of mitigation measures, the residual impacts/risks are ranked as follows in terms of significance:

- Very low = 5;
- Low = 4;
- Moderate = 3;
- High = 2; and
- Very high = 1.

- **Step 6**: Determine the **Confidence Level** – The degree of confidence in predictions based on available information and specialist knowledge:
    - Low;
    - Medium; or
    - High.

Other aspects to be taken into consideration in the assessment of impact significance are:

- Impacts need to be evaluated for the construction, operational and decommissioning phases of the proposed projects, where relevant. The assessment of impacts for the decommissioning phase may be brief, as there is limited understanding at this stage of what this might entail. The relevant rehabilitation guidelines and legal requirements applicable at the time will need to be applied;
- Impacts need to be evaluated with and without mitigation in order to determine the effectiveness of mitigation measures on reducing the significance of a particular impact;
- The impact evaluation needs to, where possible, take into consideration the cumulative effects associated with the Veroniva BESS and EGI projects and other BESS, EGI, Renewable Energy and certain other projects which are either developed or in the process of being developed in the local area (i.e. within 30 km from the proposed study area). Refer to Section 5.7.2 for a description of the cumulative impact assessment methodology; and
- The impact assessment needs to attempt to quantify the magnitude of potential impacts (direct, indirect and cumulative effects) and outline the rationale used. Where appropriate, national standards are to be used as a measure of the level of impact.

Impacts are then collated into the EMPrs, and these include the following:

- Quantifiable standards for measuring and monitoring mitigatory measures and enhancements are set. This includes a programme for monitoring and reviewing the recommendations to ensure their ongoing effectiveness (as required and where relevant);
- Identifying negative impacts and prescribing mitigation measures to avoid or reduce negative impacts. Where no mitigatory measures are possible this is stated; and
- Positive impacts have been identified and augmentation measures have also been identified to potentially enhance positive impacts where possible.

Table 5.4 has been used by the specialists for the rating of impacts and repeated for the Construction, Operational and Decommissioning Phases, where relevant.

Table 5.4: Table for rating of impacts.

Impact	*Impact Criteria*		*Significance and Ranking (Pre-Mitigation)*	*Potential mitigation measures*	*Significance and Ranking (Post-Mitigation)*	*Confidence Level*
CONSTRUCTION PHASE						
Habitat and species loss as a result of clearance of vegetation for the PV Facility	***Status***	*Negative*	*Moderate (3)*	*Plant search and rescue (EMPr)*	*Low (4)*	*Medium*
	Spatial Extent	*Site Specific*				
	Duration	*Long-term*				
	Consequence	*Substantial*				
	Probability	*Very likely*				
	Reversibility	*Moderate*				
	Irreplaceability	*Moderate*				

5.7.2 Cumulative Impact Assessment Methodology

The cumulative impact assessment aimed to include other renewable energy projects (i.e. Wind and Solar PV), BESS and EGI projects within a 30 km radius that are in different stages of planning and/or development (e.g. have received an EA, have lodged the EA application and the BA/EIA has commenced and is in progress at the commencement of this BA Process, or has been constructed); including the proposed Veroniva Projects 1 and 2.

The information has been sourced from the National DFFE Renewable Energy EIA Application (REEA) database; SAHRIS, other EAPs, as well as the Eskom and Open Street Map data.

Based on the above databases, other proposed or existing Solar PV, EGI, BESS developments have been identified within a 30 km radius of the Veroniva study area. A prospecting right on Farm Snymansdrift 738 LS, and an amendment to the prospecting right on the same farm and adjacent farm (Farm 742/2) were also identified, and considered based on the precautionary principle.

All withdrawn or lapsed projects have not been considered.

Tables 5.5, 5.6, and 5.7 provides details, whilst Figure 5.3 provides an illustration of the projects that have been considered in the cumulative impact assessment. Each project has been allocated a specific number indicated in the table below, which correlates to the display on the map below, for ease of reference.

Refer to each specialist assessment in Appendix E of this BA Report for a description on how cumulative impacts have been identified, where relevant.

A summary of the general process flow followed in the cumulative impact assessment is provided below:

- A list of Renewable Energy, BESS and EGI projects (as well as the prospecting right and its amendment application) within a 30 km radius was identified based on research, and the various sources listed above.

The cumulative impacts were then clearly defined, and **where possible** the size of the identified impact was quantified and indicated. In most cases the actual development footprint of the nearby developments could not be easily quantified.

- Therefore, the assessment of cumulative impacts was based on the specialist and EAP's knowledge of similar approved projects. The specialists assessed such impacts based on their expertise and knowledge of similar projects and management actions. However, the following points are important to note in terms of the cumulative impact assessment:

    - The assessment of cumulative impacts is not necessarily solely focused on an assessment of impacts linked to previously authorised similar developments and consideration of their mitigation measures, but also about the sensitivities of the land on which the projects take place.

    - The assessment of cumulative impact is based on available information on projects identified within 30 km of the site. As project status, layout, and authorisation conditions may change over time, the cumulative assessment should be regarded as a reasoned professional interpretation based on the best available information at the time of reporting.

    - From an agricultural perspective, EGI projects do not contribute to a loss of agricultural land and are not therefore included in the calculation of cumulative land loss. With regards to the prospecting right application, at prospecting phase it will also not contribute to land loss and has also not been taken into account in the calculation of cumulative land loss. All the projects contributing to cumulative impact for the agricultural assessment have the same kind of agricultural impact in a very similar agricultural environment, and therefore the same mitigation measures apply to all.

    - From a heritage perspective, these impacts are difficult to assess due to the variable site conditions that would have been experienced in different areas and in different seasons. Survey quality is thus likely to be variable. As such, some assumptions need to be made in terms of what and how much heritage might be impacted by other developments in the broader area. It is also not known what heritage was destroyed by agriculture and urban development in the wider area, since these aspects predate the advent of modern impact assessment studies.

Refer to the relevant specialist studies for additional information.

Table 5.5: Proposed renewable energy, BESS, and EGI projects located within 30 km of the proposed Veroniva BESS and EGI that have been considered in the Cumulative Impact Assessment (in addition to the Veroniva BESS and EGI Project) (Sources: DFFE REEA Quarter 4 (2025); SAHRIS (2026); Blue Crane Environmental (Pty) Ltd (2026); Eskom (2026)). This includes a prospecting right application on the affected properties.

CSIR NUMBER	DFFE/DMR REFERENCE	TECHNOLOGY	CAPACITY (MW/KV)	STATUS	PROJECT TITLE	EIA REGULATIONS/LEGISLATION	PROCESS	APPLICANT	EAP	SOURCE
1	14/12/16/3/3/2/2430	Solar PV	120MW	Approved	ABO Ndau Solar Energy Facility (SEF) 1	NEMA, 2014	Scoping and EIA	ABO Ndau Solar Energy Facility (SEF) 1 (Pty) Ltd	Praxos 373 (Pty) Ltd	SAHRIS / DFFE REEA
2	14/12/16/3/3/2/2431	Solar PV	80MW	Approved	ABO Ndau Solar Energy Facility (SEF) 2	NEMA, 2014	Scoping and EIA	ABO Ndau Solar Energy Facility (SEF) 2 (Pty) Ltd	Praxos 373 (Pty) Ltd	SAHRIS / DFFE REEA
3	14/12/16/3/3/2/2782	Solar PV	300MW	In Process	ABO Ndau Solar Energy Facility 3	NEMA, 2014	Scoping and EIA	ABO Ndau Solar Energy Facility (SEF) 3 (Pty) Ltd	Blue Crane Environmental (Pty) Ltd	SAHRIS / Blue Crane Environmental (Pty) Ltd
4	Unknown	BESS	N/A	Approved	ABO Ndau Battery Energy Storage Facility (BESF)	NEMA, 2014	Basic Assessment	ABO Ndau Battery Energy Storage Facility (Pty) Ltd	Praxos 373 (Pty) Ltd	SAHRIS
5	14/12/16/3/3/2/2553	Solar PV	370MW	Approved	Kuschke Solar Energy Facility	NEMA, 2014	Scoping and EIA	RC Kuschke Solar (Pty) Ltd	Coastal and Environmental Services (Pty) Ltd	SAHRIS / DFFE REEA
6	14/12/16/3/3/2/2552	Solar PV	265MW	Approved	Roodepoort Solar Energy Facility	NEMA, 2014	Scoping and EIA	RC Roodepoort Solar (Pty) Ltd	Coastal and Environmental Services (Pty) Ltd	SAHRIS / DFFE REEA
7	14/12/16/3/3/2/2628	Solar PV	130MW	Approved	Zandrivier Solar 1 Photovoltaic Solar Energy Facility	NEMA, 2014	Scoping and EIA	Zandrivier Solar 1 (Pty) Ltd	Blue Crane Environmental (Pty) Ltd	SAHRIS / DFFE REEA
8	14/12/16/3/3/2/2629	Solar PV	60MW	Approved	Zandrivier Solar 2 Photovoltaic Solar Energy Facility	NEMA, 2014	Scoping and EIA	Zandrivier Solar 2 (Pty) Ltd	Blue Crane Environmental (Pty) Ltd	SAHRIS / DFFE REEA
9	14/12/16/3/3/2/2630	Solar PV	100MW	Approved	Zandrivier Solar 3 Photovoltaic Solar Energy Facility	NEMA, 2014	Scoping and EIA	Zandrivier Solar 3 (Pty) Ltd	Blue Crane Environmental (Pty) Ltd	SAHRIS / DFFE REEA
10	14/12/16/3/3/1/3148	BESS	150MW	Approved	Zandrivier Battery Energy Storage System	NEMA, 2014	Basic Assessment	Zandrivier BESS (Pty) Ltd	Blue Crane Environmental (Pty) Ltd	SAHRIS / Blue Crane Environmental (Pty) Ltd
11	14/12/16/3/3/2/2583	Solar PV	150MW	Approved	Rietfontein PV Plant	NEMA, 2014	Scoping and EIA	Original: MPower (Pty) Ltd Amended: Emilbus (Pty) Ltd	Ages Limpopo (Pty) Ltd	SAHRIS / DFFE REEA / EAP EA Notification
12	To be confirmed	Solar PV and BESS	150MW	To be confirmed	Wildebeest Solar PV Development	Government Gazette 50388, Government Notice 4558	Solar PV Exclusion Norm	Stellar Energy Solutions (Pty) Ltd	AB Enviro Consult cc	SAHRIS
13	14/12/16/3/3/2/2735	Solar PV	240MW	In Process (FEIAR submitted for decision-making)	Broadlands Solar PV1 Facility	NEMA, 2014	Scoping and EIA	Broadlands Solar PV1 (Pty) Ltd	Blue Crane Environmental (Pty) Ltd	SAHRIS / Blue Crane Environmental (Pty) Ltd
14	14/12/16/3/3/2/2736	Solar PV	140MW	In Process (FEIAR submitted for decision-making)	Broadlands Solar PV2 Facility	NEMA, 2014	Scoping and EIA	Broadlands Solar PV2 (Pty) Ltd	Blue Crane Environmental (Pty) Ltd	SAHRIS / Blue Crane Environmental (Pty) Ltd
15	14/12/16/3/3/2/2158	Solar PV	56MW	Approved	Stellar Solar Park	NEMA, 2014	Scoping and EIA	Stellar Energy Solutions (Pty) Ltd	AGES Limpopo (Pty) Ltd	SAHRIS / DFFE REEA
16	To be confirmed	BESS	N/A	To be confirmed	Oasis Witkop BESS	NEMA, 2014	Scoping and EIA	Oasis Royal Maraba BESS (Pty) Ltd	Ecologia Environmental Consulting	SAHRIS
17	14/12/16/3/3/2/2795	Solar PV	100MW	In Process	Mockford Solar PV Energy Facility	NEMA, 2014	Scoping and EIA	Stellar Energy Solutions (RF) Proprietary Limited	Blue Crane Environmental (Pty) Ltd	SAHRIS / Blue Crane Environmental (Pty) Ltd

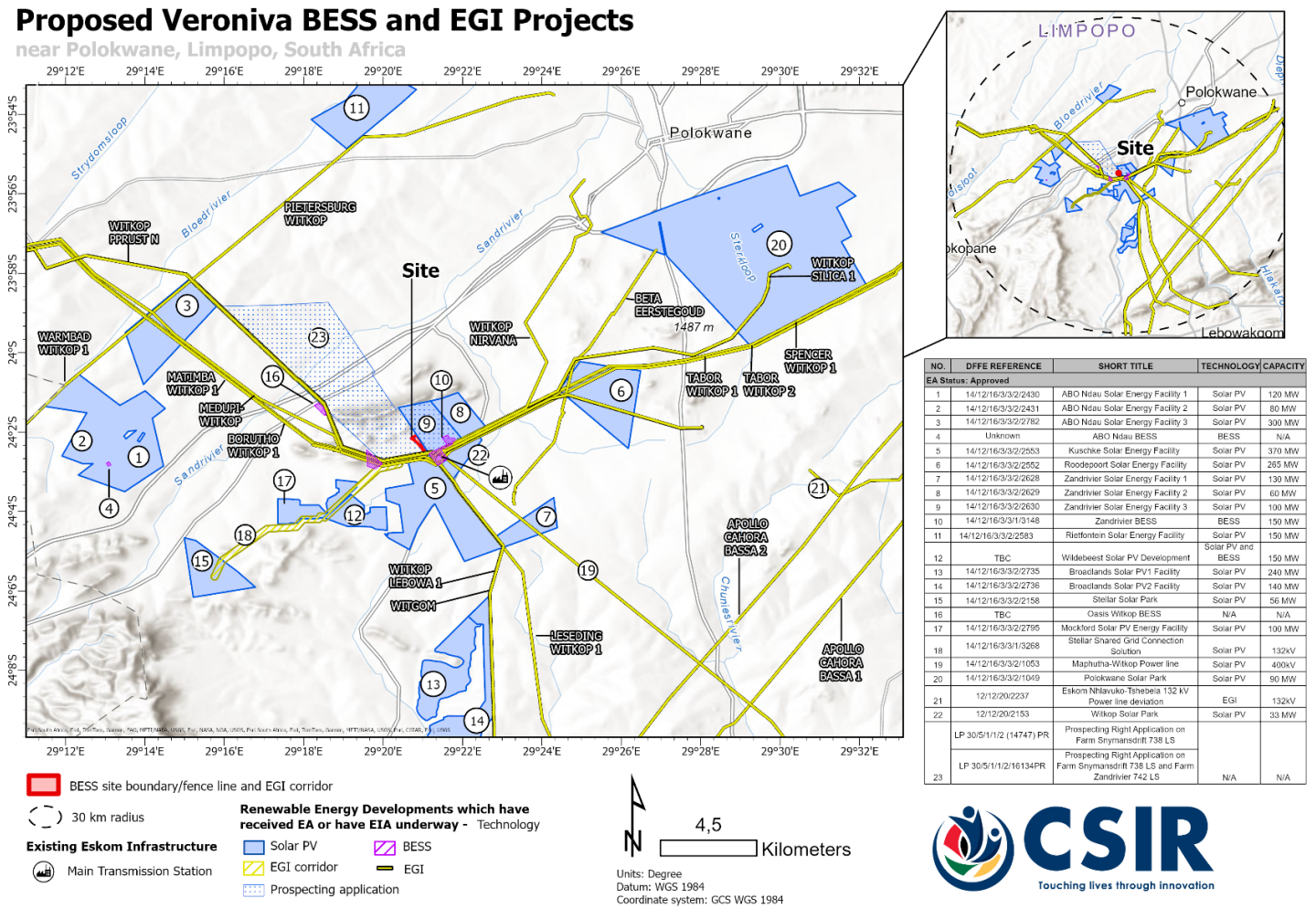
CSIR NUMBER	DFFE/DMR REFERENCE	TECHNOLOGY	CAPACITY (MW/KV)	STATUS	PROJECT TITLE	EIA REGULATIONS/LEGISLATION	PROCESS	APPLICANT	EAP	SOURCE
18	14/12/16/3/3/1/3268	Power line	132kV	In Process	Stellar Shared Grid Connection Solution	NEMA, 2014	Basic Assessment	Stellar Energy Solutions (RF) Proprietary Limited	Blue Crane Environmental (Pty) Ltd	SAHRIS / Blue Crane Environmental (Pty) Ltd
19	14/12/16/3/3/2/1053	Power line	400kV	Approved	Maphutha-Witkop Power line	NEMA, 2014	Scoping and EIA	Eskom Holdings (SOC) Ltd	Nsovo Environmental Consulting (Pty) Ltd	SAHRIS / Eskom
20	14/12/16/3/3/2/1049	Solar PV	90MW	Approved	Polokwane Solar Park	NEMA, 2014	Scoping and EIA	Jeka Resources (Pty) Ltd	Phakanani Environmental (Pty) Ltd	SAHRIS / DFFE REEA
21	12/12/20/2237	Power line	132kV	To be confirmed	Eskom Nhlavuko-Tshebela 132 kV Power line deviation	NEMA, 2014	Basic Assessment and Amendment	Eskom Holding SOC LTD	ACER (Africa) Environmental Consultants	SAHRIS
22	12/12/20/2153	Solar PV	33MW	Approved	Witkop Solar Park	NEMA, 2010	Scoping and EIA	Core Energy Pty Ltd	AGES Limpopo (Pty) Ltd	DFFE REEA
23	LP 30/5/1/1/2 (14747) PR LP 30/5/1/1/2/16134PR	N/A	N/A	To be confirmed	Prospecting Right Application on Farm Snymansdrift 738 LS Prospecting Right Application on Farm Snymansdrift 738 LS and Farm Zandrivier 742 LS	NEMA, 2014	Scoping and EIA Amendment	Altimatum Trading Enterprise (Pty) Ltd	Matavha Environmental (Pty) Ltd (for the Amendment Process)	SAHRIS / Site Visit / Landowner Feedback

Table 5.6: Proposed and existing EGI projects located within 30 km of the proposed Veroniva BESS and EGI that have been considered in the Cumulative Impact Assessment (in addition to the Veroniva BESS and EGI Project) (Sources: Eskom (2026); OSM (2026); Chief Surveyor General (2026)).

CSIR NUMBER	DESCRIPTION	VOLTAGE (kV)	OWNER/OPERATOR	SOURCE	STATUS
24	TABOR WITKOP 1	275kV	Eskom	Eskom / OSM	Existing
25	WARMBAD WITKOP 1	275kV	Eskom	Eskom / OSM	Existing
26	APOLLO CAHORA BASSA 2	533kV	Eskom	Eskom / OSM	Existing
27	SPENCER WITKOP 1	275kV	Eskom	Eskom / OSM	Existing
28	LESEDING WITKOP 1	400kV	Eskom	Eskom / OSM	Existing
29	MATIMBA WITKOP 1	400kV	Eskom	Eskom / OSM	Existing
30	BORUTHO WITKOP 1	400kV	Eskom	Eskom / OSM	Existing
31	APOLLO CAHORA BASSA 1	533kV	Eskom	Eskom / OSM	Existing
32	TABOR WITKOP 2	400kV	Eskom	Eskom / OSM	Existing
33	Medupi-Witkop 1st 400 kV line	400kV	Eskom	Eskom / OSM	Planned
34	Beta Eerstegoud	Not Specified	Eskom	OSM	Existing
35	Witkop PPRUST N	132kV	Eskom	OSM	Existing
36	PTB Witkop 132	132kV	Eskom	OSM	Existing
37	Witkop Sandsloot	132kV	Eskom	OSM	Existing
38	Witkop Silica 1	132kV	Eskom	OSM	Existing
39	Witkop Silica 2	132kV	Eskom	OSM	Existing
40	Witkop Nirvana	132kV	Eskom	OSM	Existing
41	Witkop Lebowa 1	132kV	Eskom	OSM	Existing
42	Witkop Nhluvhuko 2	132kV	Eskom	OSM	Existing
43	WitGom	132kV	Eskom	OSM	Existing
44	Existing line	132kV	N/A	OSM	Existing
45	Existing line	400kV	N/A	OSM	Existing
46	Existing line	400kV	N/A	OSM	Existing
47	Existing line	Not Specified	N/A	OSM	Existing
48	Witkop Substation	400/132kV	Eskom	National Cadastral Layer. Custodian - Chief Surveyor General http://csg.drdlr.gov.za/	Existing

Table 5.7: Proposed Veroniva BESS and EGI that have been considered in the Cumulative Impact Assessment (with the projects listed in Tables 5.5 and 5.6 above).

CSIR NUMBER	DFFE REFERENCE	TECHNOLOGY	CAPACITY (MW/KV)	STATUS	PROJECT TITLE	EIA REGULATIONS/LEGISLATION	PROCESS	APPLICANT	EAP	SOURCE
Shown as the study area on the map	Pending	BESS	N/A	Pre-Application	Veroniva BESS	NEMA, 2014	Basic Assessment	Veroniva BESS (Pty) Ltd	CSIR	EAP and Developer
Shown as the study area on the map	Pending	EGI	132 kV	Pre-Application	Veroniva EGI	NEMA, 2014	Basic Assessment	Veroniva BESS (Pty) Ltd	CSIR	EAP and Developer



NO.	DFFE REFERENCE	SHORT TITLE	TECHNOLOGY	CAPACITY
EA Status: Approved				
1	14/12/16/3/3/2/2430	ABO Ndau Solar Energy Facility 1	Solar PV	120 MW
2	14/12/16/3/3/2/2431	ABO Ndau Solar Energy Facility 2	Solar PV	80 MW
3	14/12/16/3/3/2/2782	ABO Ndau Solar Energy Facility 3	Solar PV	300 MW
4	Unknown	ABO Ndau BESS	BESS	N/A
5	14/12/16/3/3/2/2553	Kuschke Solar Energy Facility	Solar PV	370 MW
6	14/12/16/3/3/2/2552	Roodepoort Solar Energy Facility	Solar PV	265 MW
7	14/12/16/3/3/2/2628	Zandrivier Solar Energy Facility 1	Solar PV	130 MW
8	14/12/16/3/3/2/2629	Zandrivier Solar Energy Facility 2	Solar PV	60 MW
9	14/12/16/3/3/2/2630	Zandrivier Solar Energy Facility 3	Solar PV	100 MW
10	14/12/16/3/3/1/3148	Zandrivier BESS	BESS	150 MW
11	14/12/16/3/3/2/2583	Rietfontein Solar Energy Facility	Solar PV	150 MW
12	TBC	Wildebeest Solar PV Development	Solar PV and BESS	150 MW
13	14/12/16/3/3/2/2735	Broadlands Solar PV1 Facility	Solar PV	240 MW
14	14/12/16/3/3/2/2736	Broadlands Solar PV2 Facility	Solar PV	140 MW
15	14/12/16/3/3/2/2158	Stellar Solar Park	Solar PV	56 MW
16	TBC	Oasis Witkop BESS	N/A	N/A
17	14/12/16/3/3/2/2795	Mockford Solar PV Energy Facility	Solar PV	100 MW
18	14/12/16/3/3/1/3268	Stellar Shared Grid Connection Solution	Solar PV	132kV
19	14/12/16/3/3/2/1053	Maphutha-Witkop Power line	Solar PV	400kV
20	14/12/16/3/3/2/1049	Polokwane Solar Park	Solar PV	90 MW
21	12/12/20/2237	Eskom Nhlavuko-Tshebeia 132 kV Power line deviation	EGI	132kV
22	12/12/20/2153	Witkop Solar Park	Solar PV	33 MW
23	LP 30/5/1/1/2 (14747) PR	Prospecting Right Application on Farm Snymansdrift 738 LS	N/A	N/A
	LP 30/5/1/1/2/16134PR	Prospecting Right Application on Farm Snymansdrift 738 LS and Farm Zandrivier 742 LS		

Figure 5.3: Proposed Renewable Energy, BESS and EGI projects within the 30 km radius considered for the Cumulative Impact Assessment (Source: DFFE REEA, Quarter 4, 2025; SAHRIS; and GCCA (2023)).

5.8 Terms of Reference for the Specialist Assessments

The specialist studies / inputs / technical studies / letters of opinion have been undertaken based on compliance with relevant legislation and based on the Terms of Reference indicated in this section.

The Terms of Reference has also been included in the relevant specialist assessments, i.e., included in Appendix E of this BA Report. The Terms of Reference for the specialist studies / inputs / technical studies / letters of opinion essentially consist of the generic assessment requirements and the specific issues identified for each discipline.

NOTE FROM THE CSIR: THE FOLLOWING TERMS OF REFERENCE ARE APPLICABLE TO BOTH PROJECT 1 (VERONIVA BESS) AND PROJECT 2 (VERONIVA EGI)

5.8.1 Agriculture

Phase 1:

- Comply with the Assessment Protocols that were published on 20 March 2020, in GG 43110, GN 320, specifically the Agriculture Protocol.
- Undertake a site visit in order to identify the level of sensitivity (as it specifically relates to **Agriculture impacts**) assigned to the project area on the Screening Tool, and to verify and confirm this sensitivity and land-use and either compile a Compliance Statement or Agro-Ecosystem Specialist Report, as documented in GN 320.
- Determine, describe and map the baseline environmental conditions and sensitivity of the study area. Specify setbacks or buffers and provide clear reasons for these recommendations.
- Provide GIS information that indicate the environmental features identified, the sensitivity allocated to the environmental features, and the buffer(s) assigned to the environmental features and sensitivities. Provide a description of what infrastructure is permitted in these buffers and features.
- Identify if there are any fatal flaws that prevent the project from progressing to Phase 2 (i.e. the BA Process).

Phase 2:

- Compile an Agricultural Compliance Statement and SSV in adherence to:
    - The gazetted Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on **Agriculture** (GG 43110 / GN 320, 20 March 2020); and
    - Any additional relevant legislation and guidelines that may be deemed necessary.
- Provide review input on the preferred infrastructure locations following the sensitivity analysis and layout identification.
- Describe soil types, soil characteristics, and degradation and erodibility of soils etc. to the extent necessary to inform the assessment.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on agriculture, where possible (although an assessment and rating of impacts is not strictly required for a Compliance Statement stipulated in GN 320).
- Identify any protocols, legal and permit requirements relating to soil and agriculture impacts that are relevant to this project and the implications thereof.

- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Provide feedback on whether or not the proposed development will have an unacceptable impact on the agricultural production capability of the site.
- Provide recommendations with regards to potential monitoring programmes.
- Where required, provide recommendations with regards to proposed impact management outcomes or any monitoring requirements for inclusion in the EMPrs for the proposed projects.
- Determine mitigation and/or management measures which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Review the Generic EMPr for 1) Power Lines and 2) Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.2 Terrestrial Biodiversity and Species

Phase 1:

- Comply with the Assessment Protocols that were published on 20 March 2020, in GG 43110, GN 320, specifically the **Terrestrial Biodiversity**.
- Comply with the Assessment Protocols that were published on 30 October 2020, in GG 43855, GN 1150 and amended in GN 3717, July 2023. This specifically includes the protocol for the specialist assessment and minimum report content requirements for environmental impacts on **terrestrial animal species and plant species**.
- Undertake a site visit in order to identify the level of sensitivity (as it specifically relates to **Terrestrial Biodiversity, Terrestrial Animal Species and Terrestrial Plant Species impacts**) assigned to the project area on the Screening Tool, and to verify and confirm this sensitivity and land-use and either compile a Terrestrial Biodiversity and Plant and Animal Species Specialist Impact Assessment Report; or Compliance Statement, as documented in the aforementioned Assessment Protocols.
- Determine, describe and map the baseline environmental conditions and sensitivity of the study area. Specify setbacks or buffers and provide clear reasons for these recommendations.
- Provide GIS information that indicate the environmental features identified, the sensitivity allocated to the environmental features, and the buffer(s) assigned to the environmental features and sensitivities. Provide a description of what infrastructure is permitted in these buffers and features.
- Identify if there are any fatal flaws that prevent the project from progressing to Phase 2 (i.e. the BA Process).

Phase 2:

- Liaise with the SANBI to obtain information on sensitive terrestrial animal and plant species flagged by the Screening Tool (where species names are obscured/only numbered).
- Compile a SSV Report and Specialist Impact Assessment and/or Compliance Statement in adherence to:
    - The gazetted Environmental Assessment Protocols i.e., Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on **Terrestrial Biodiversity** (GG 43110 / GN 320, 20 March 2020);

  - The gazetted Environmental Assessment Protocols i.e. Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on **Terrestrial Plant Species** (GG 43855 / GN 1150, 30 October 2020 and amended in GN 3717, July 2023);
  - The gazetted Environmental Assessment Protocols – i.e., Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on **Terrestrial Animal Species** (GG 43855 / GN 1150, 30 October 2020 and amended in GN 3717, July 2023); and
  - Any additional relevant legislation and guidelines that may be deemed necessary.
- Provide details on the presence or potential presence of rare or sensitive fauna and flora species and identification of potential additional permitting processes associated therewith.
- Provide review input on the preferred infrastructure locations following the sensitivity analysis and layout identification.
- Describe the terrestrial biodiversity, ecological, floral, and faunal features of the project area, with a focus on features that are potentially impacted by the proposed projects.
- Consider seasonal changes and long-term trends, such as due to climate change.
- Identify any SCC or protected species on site.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on terrestrial biodiversity and species, in accordance with the Impact Assessment Methodology captured in Section 5.7 of this Chapter. Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the proposed projects.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Review the Generic EMPr for 1) Power Lines and 2) Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.3 Aquatic Biodiversity and Species

Phase 1:

- Comply with the Assessment Protocols that were published on 20 March 2020, in GG 43110, GN 320, specifically the **Aquatic Biodiversity Protocol**, as well as the **Aquatic Plant Species** (GG 43855 / GN 1150, 30 October 2020 and amended in GN 3717, July 2023).
- Undertake a site visit in order to identify the level of sensitivity (as it specifically relates to **Aquatic Biodiversity, Aquatic Animal Species and Aquatic Plant Species impacts**) assigned to the project area on the Screening Tool, and to verify and confirm this sensitivity and land-use and either compile an Aquatic Biodiversity and Plant and Animal Species

Specialist Impact Assessment Report; or Compliance Statement, as documented in the Assessment Protocols (GN 320 and GN 1150).

- Determine, describe and map the baseline environmental conditions and sensitivity of the study area. Specify setbacks or buffers and provide clear reasons for these recommendations.
- Provide GIS information that indicate the environmental features identified, the sensitivity allocated to the environmental features, and the buffer(s) assigned to the environmental features and sensitivities. Provide a description of what infrastructure is permitted in these buffers and features.
- Identify if there are any fatal flaws that prevent the project from progressing to Phase 2 (i.e. the BA Process).

Phase 2:

- Liaise with the SANBI to obtain information on sensitive aquatic animal and plant species flagged by the Screening Tool (where species names are obscured/only numbered).
- Compile a SSV Report and Specialist Impact Assessment and/or Compliance Statement in adherence to:
    - The gazetted Environmental Assessment Protocols i.e., Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on **Aquatic Biodiversity** (GG 43110 / GN 320, 20 March 2020);
    - The gazetted Environmental Assessment Protocols i.e. Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on **Aquatic Plant Species** (GG 43855 / GN 1150, 30 October 2020 and amended in GN 3717, July 2023);
    - The gazetted Environmental Assessment Protocols – i.e., Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on **Aquatic Animal Species** (GG 43855 / GN 1150, 30 October 2020 and amended in GN 3717, July 2023); and
    - Any additional relevant legislation and guidelines that may be deemed necessary.
- Provide details on the presence or potential presence of rare or sensitive fauna and flora species and identification of potential additional permitting processes associated therewith.
- Provide review input on the preferred infrastructure locations following the sensitivity analysis and layout identification.
- Describe the aquatic biodiversity, ecological, floral, and faunal features of the project area, with a focus on features that are potentially impacted by the proposed projects.
- Consider seasonal changes and long-term trends, such as due to climate change.
- Identify any SCC or protected species on site.
- Identify and delineate wetlands that may occur on the site, using the relevant protocols established.
- Identify any additional protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Compile a Risk Matrix (Appendix A to GN 4167 of December 2023 (or any later updates thereto)) and determine if a WUL or GA is required and if so, determine the requirements thereof.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on aquatic biodiversity and species, in accordance with the Impact Assessment

Methodology captured in Section 5.7 of this Chapter. Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the proposed projects.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts
- Review the Generic EMPr for 1) Power Lines and 2) Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.4 Avifauna

Phase 1:
- Comply with the Assessment Protocols that were published on 30 October 2020, in GG 43855, GN 1150 and amended in GN 3717, July 2023. This specifically includes the protocol for the specialist assessment and minimum report content requirements for environmental impacts on **terrestrial animal species**.
- Undertake a site visit in order to identify the level of sensitivity (as it specifically relates to **Avifauna impacts**) assigned to the project area on the Screening Tool, and to verify and confirm this sensitivity and land-use and either compile an Avifauna Impact Assessment Report; or Compliance Statement, as documented in the aforementioned Assessment Protocols.
- Determine, describe and map the baseline environmental conditions and sensitivity of the study area. Specify setbacks or buffers and provide clear reasons for these recommendations.
- Provide GIS information that indicate the environmental features identified, the sensitivity allocated to the environmental features, and the buffer(s) assigned to the environmental features and sensitivities. Provide a description of what infrastructure is permitted in these buffers and features.
- Identify if there are any fatal flaws that prevent the project from progressing to Phase 2 (i.e. the BA Process).

Phase 2:
- Compile a SSV Report and Specialist Impact Assessment and/or Compliance Statement in adherence to:
    - The gazetted Environmental Assessment Protocols – i.e., Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on **Terrestrial Animal Species** (GG 43855 / GN 1150, 30 October 2020 and amended in GN 3717, July 2023); and
    - Any additional relevant legislation and BirdLife South Africa (BLSA) guidelines that may be deemed necessary.
- Provide review input on the preferred infrastructure locations following the sensitivity analysis and layout identification.

- Describe the affected environment from an avifaunal perspective, including consideration of the surrounding habitats and avifaunal features.
- Describe bird habitats on the site, based on on-site monitoring, desk-top review, collation of available information, studies in the local area and previous experience.
- Consider seasonal changes and long-term trends, such as due to climate change.
- Identify any SCC or protected species on site.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on avifauna, in accordance with the Impact Assessment Methodology captured in Section 5.7 of this Chapter. Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the proposed projects.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Review the Generic EMPr for 1) Power Lines and 2) Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.5 Heritage: Archaeology and Cultural Landscape

Phase 1:

- Comply with the Assessment Protocols that were published on 20 March 2020, in GG 43110, GN 320. This specifically includes Part A of GN 320, which provides the SSV Requirements where a Specialist Assessment is required but no Specific Assessment Protocol has been prescribed. The study must then comply with the requirements of Appendix 6 of the 2014 NEMA EIA Regulations (as amended).
- Undertake a site visit in order to identify the level of sensitivity (as it specifically relates to **Heritage, Archaeology and Cultural Landscape impacts**) assigned to the project area on the Screening Tool, and to verify and confirm this sensitivity and land-use, as documented in Part A of the Assessment Protocols (GN 320).
- Determine, describe and map the baseline environmental conditions and sensitivity of the study area. Specify setbacks or buffers and provide clear reasons for these recommendations.
- Provide GIS information that indicate the environmental features identified, the sensitivity allocated to the environmental features, and the buffer(s) assigned to the environmental features and sensitivities. Provide a description of what infrastructure is permitted in these buffers and features.
- Identify if there are any fatal flaws that prevent the project from progressing to Phase 2 (i.e. the BA Process).

Phase 2:

- Compile a SSV Report and Specialist Impact Assessment (i.e. Heritage Impact Assessment) in adherence to:
  - the gazetted Environmental Assessment Protocol (Part A of GN 320);
  - Appendix 6 of the 2014 NEMA EIA Regulations (as amended);
  - National Heritage Resources Act (Act 25 of 1999), as applicable; and
  - Any additional relevant legislation and guidelines that may be deemed necessary.
- Provide review input on the preferred infrastructure locations following the sensitivity analysis and layout identification.
- Describe the heritage, archaeological and cultural landscape features of the project area, with a focus on features that are potentially impacted by the proposed projects. Include reference to the grade of heritage feature and any heritage status the feature may have been awarded.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on heritage features, including archaeology and cultural-historical landscape, in accordance with the Impact Assessment Methodology captured in Section 5.7 of this Chapter. Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the proposed projects.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Identify relevant permits that may be required.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Review the Generic EMPr for 1) Power Lines and 2) Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Liaise with the relevant authorities (i.e. SAHRA and/or LIHRA) in order to obtain a letter of approval or comments in terms of the National Heritage Resources Act (Act 25 of 1999), including Regulations issued thereunder, as necessary.
- Fulfil all requirements of the SAHRA Application Process in relation to the proposed projects.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.6 Palaeontology

Phase 1:

- Determine, describe and map the baseline environmental conditions and sensitivity of the study area. Specify setbacks or buffers and provide clear reasons for these recommendations.
- Provide GIS information that indicate the environmental features identified, the sensitivity allocated to the environmental features, and the buffer(s) assigned to the environmental features and sensitivities. Provide a description of what infrastructure is permitted in these buffers and features.

- Identify if there are any fatal flaws that prevent the project from progressing to Phase 2 (i.e. the BA Process).

Phase 2:

- Provide a desktop Letter of Exemption from a full Palaeontology Impact Assessment, taking into consideration the following as relevant:
    - National Heritage Resources Act (Act 25 of 1999), as applicable; and
    - Any additional relevant legislation and guidelines that may be deemed necessary.
- Provide review input on the preferred infrastructure locations following the sensitivity analysis and layout identification.
- Describe the palaeontological features of the project area, with a focus on features that are potentially impacted by the proposed projects. Describe the type and location of known palaeontology and fossil heritage sites in the study area, and characterize all items that may be affected by the proposed projects. This is to be based on desktop reviews, available databases and findings from other palaeontology studies in the area, where relevant, a review of all relevant palaeontological and geological literature, including geological maps and previous reports, and data on the proposed development (e.g. location of footprint, depth and volume of bedrock excavation envisaged).
- Note fossils and associated sedimentological features of palaeontological relevance (photos, maps, aerial or satellite images, and stratigraphic columns).
- Evaluate the potential for occurrence of palaeontology and fossil heritage features within the study area.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations and suggestions regarding fossil heritage management on site, including conservation measures, as well as promotion of local fossil heritage (e.g. for public education, schools) to ensure that the impacts are limited.
- Identify relevant permits that may be required.
- Provide recommendations with regards to potential monitoring programmes.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Review the Generic EMPr for 1) Power Lines and 2) Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.7 Visual

Phase 1:

- Comply with the Assessment Protocols that were published on 20 March 2020, in GG 43110, GN 320. This specifically includes Part A of GN 320, which provides the SSV Requirements where a Specialist Assessment is required but no Specific Assessment Protocol has been prescribed. The study must then comply with the requirements of Appendix 6 of the 2014 NEMA EIA Regulations (as amended).
- Undertake a site visit in order to identify the level of sensitivity (as it specifically relates to **Visual impacts**) assigned to the project area on the Screening Tool (if relevant), and to verify and confirm this sensitivity and land-use, as documented in Part A of the Assessment Protocols (GN 320).
- Determine, describe and map the baseline environmental conditions and sensitivity of the study area. Specify setbacks or buffers and provide clear reasons for these recommendations.
- Provide GIS information that indicate the environmental features identified, the sensitivity allocated to the environmental features, and the buffer(s) assigned to the environmental features and sensitivities. Provide a description of what infrastructure is permitted in these buffers and features.
- Identify if there are any fatal flaws that prevent the project from progressing to Phase 2 (i.e. the BA Process).

Phase 2:

- Compile a SSV Report and Specialist Impact Assessment (i.e. Visual Impact Assessment) in adherence to:
    - the gazetted Environmental Assessment Protocols (i.e., Part A of GN 320);
    - Appendix 6 of the 2014 NEMA EIA Regulations (as amended); and
    - Any additional relevant legislation and guidelines that may be deemed necessary.
- Provide review input on the preferred infrastructure locations following the sensitivity analysis and layout identification.
- The report must describe the visual character of the local area. Any significant visual features or visual disturbances should be identified and mapped, as well as any sensitive visual receptors within the proposed project area or within viewsheds of the project.
- Visual character and visual absorption capacity of the local area or zone of visual influence should be described.
- Viewsheds for various elements of the proposed development should be calculated, defined and presented, and the varying sensitivities of these viewsheds must be highlighted.
- Schematic portrayals of the visual impact of the proposed project infrastructure on the different viewsheds identified must be presented.
- Undertake photo simulations (in addition to the spatial analyses) in order to illustrate the potential visual impact of the proposed infrastructure within the receiving environment.
- Maps depicting viewsheds/line of sight across the site should be generated and included.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a visual perspective, in accordance with the Impact Assessment Methodology captured in Section 5.7 of this Chapter. Impact significance

must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the proposed projects.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Review the Generic EMPr for 1) Power Lines and 2) Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.8 Geotechnical Letter of Opinion

- Compile a letter of professional opinion to confirm whether the study area is suitable from a geotechnical perspective and a statement of whether there are any fatal flaws.
- The letter should on a desktop basis, summarise the geology of the area, including the likely distribution of potential geotechnical challenges related to the underlying geology for the proposed project.
- Obtain relevant geotechnical and geological data for BESS and EGI sites.
- Determine, describe and map the baseline environmental condition and sensitivity of the study area relating to geotechnical features in the area surrounding the proposed development.
- Determine whether problem soils are likely to be encountered within the study area.
- Describe the geology and anticipated soil conditions.
- Include a general discussion of possible and likely engineering characteristics of the respective geological materials.
- Identify possible development constraints that may be present across the study area, e.g., topographical constraints, major discontinuities, or shallow groundwater conditions (permanent or non-permanent).
- Evaluation of the seismic potential of the area based on available published literature.
- Provide commentary on any potentially sensitive areas across the study area, such as ridges, outcrops and exposures.
- Provide broad recommendations that may be used to guide the geotechnical design and plan future investigations within the study area.
- Provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification.
- Identify significant features or disturbances within the proposed project area and define any environmental risks in terms of geology or geotechnical features and the proposed project infrastructure.
- Identify the potential direct, indirect and cumulative impacts of the proposed development from a geotechnical perspective. This does not need to be a formal assessment.
- Provide a reasoned opinion indicating the acceptability of the proposed development and a recommendation if the development should go ahead or not.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.

- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

NOTE FROM THE CSIR: THE FOLLOWING TERMS OF REFERENCE ARE APPLICABLE TO PROJECT 1 (VERONIVA BESS) ONLY

5.8.9 Socio-Economic Assessment

- Comply with the Assessment Protocols that were published on 20 March 2020, in GG 43110, GN 320. This specifically includes Part A, which provides the SSV Requirements where a Specialist Assessment is required but no Specific Assessment Protocol has been prescribed. As at June 2026, there are no sensitivity layers on the Screening Tool for Socio-Economic features, and as such the SSV process must document this and provide any additional feedback as necessary.
- If required, undertake a site inspection to identify the site-specific sensitivities from a socio-economic perspective, such as local socio-economic conditions and sensitive receptors.
- Compile a Specialist Impact Assessment (i.e. Socio-Economic Impact Assessment) in adherence to:
    - the gazetted Environmental Assessment Protocols (i.e., Part A of GN 320);
    - Appendix 6 of the 2014 NEMA EIA Regulations (as amended);and
    - Any additional relevant legislation and guidelines that may be deemed necessary.
- Undertake the collection of both primary and secondary data. The former involves a site visit (if needed) and interviews with the local government authorities and affected land owners and similar sensitive receptors. The latter encompasses the collection and review of relevant policies, local and provincial strategic documents, and statistics presented by Stats SA etc.
- If relevant, provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification.
- Describe the socio-economic context of the study area, focusing on aspects that are potentially affected by the BESS and EGI project, and taking into consideration the current situation as well as the trends, the local planning (IDPs and SDFs), other developments in the area. The study should look more broadly than the individual land parcels on which the proposed projects will developed, as most, if not all, of the anticipated social impacts may be experienced in the urban areas nearest to the proposed project.
- Apply a variety of appropriate options for sourcing information, such as review of analogous studies, available databases and social indicators, and use of interviews with key affected parties such as local communities, local landowners and government officials (local and regional) etc.
- Consider social issues such as potential in-migration of job seekers, opportunities offered by training and skills development, phasing of employment over the duration of the BESIPPPP program, cumulative effects with other BESIPPPP projects in the local area, implications for local planning and resource use.
- Evaluate the implications of the social investment programme associated with BESIPPPP projects on the local socio-economic context.

- The economic aspect of the assessment is anticipated to include aspects such as direct employment figures, feedback on the GDP etc., and is not expected to require a detailed economic analysis.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a socio-economic perspective, in accordance with the Impact Assessment Methodology captured in Section 5.7 of this Chapter. Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the proposed projects.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Where relevant, review the Generic EMPr for Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.10 Traffic Assessment

- Comply with the Assessment Protocols that were published on 20 March 2020, in GG 43110, GN 320. This specifically includes Part A, which provides the SSV Requirements where a Specialist Assessment is required but no Specific Assessment Protocol has been prescribed.
- Gather relevant information in terms of access, road conditions etc. and provide feedback on whether there are any aspects that need to be considered in the layout planning.
- Gather relevant supporting information, including traffic counts, where necessary.
- Compile a Specialist Impact Assessment (i.e. Traffic Impact Assessment) in adherence to:
    - the gazetted Environmental Assessment Protocols (i.e., Part A of GN 320);
    - Appendix 6 of the 2014 NEMA EIA Regulations (as amended); and
    - Any additional relevant legislation and guidelines that may be deemed necessary.
- Provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification.
- Describe the traffic and transportation context of the study area, focusing on aspects that are potentially affected by the BESS and EGI project.
- Determine and describe the baseline transport and traffic condition of the study areas. Specify setbacks where required, and provide clear reasons for these recommendations.
- Consider traffic issues such as impact on the road network, congestion etc. during construction, operational and decommissioning phases.
- Identify if any existing intersections, bridges or roads etc. need widening, lengthening or upgrading as a result of the proposed projects.
- Determine the National and Local haulage routes between port of entry/manufacturer and site.
- Determine the trip generation for the proposed development during the project phases.
- Assessment of proposed site access points.

- Assessment of freight requirements and permitting needed for abnormal loads.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a traffic perspective, in accordance with the Impact Assessment Methodology captured in Section 5.7 of this Chapter. Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the proposed projects.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Where relevant, review the Generic EMPr for 1) Power Lines and 2) Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.11 Geohydrology

- Comply with the Assessment Protocols that were published on 20 March 2020, in GG 43110, GN 320. This specifically includes Part A, which provides the SSV Requirements where a Specialist Assessment is required but no Specific Assessment Protocol has been prescribed.
- Compile a Desktop Geohydrology Impact Assessment in adherence to:
    - the gazetted Environmental Assessment Protocols (i.e., Part A of GN 320);
    - Appendix 6 of the 2014 NEMA EIA Regulations (as amended); and
    - Any additional relevant legislation and guidelines that may be deemed necessary.
- Determine, describe and map the baseline environmental condition and sensitivity of the study area relating to geohydrology (including hydrogeological characterisation of aquifers (types, sensitivity, vulnerability), and groundwater (quality, quantity, use, potential for industrial or domestic use) in the area surrounding the proposed development. Specify setbacks or buffers, and provide clear reasons for these recommendations.
- Provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification.
- Obtain data for the BESS site (i.e. obtain data from the National Groundwater Archive (and associated groundwater use databases) and internal databases (which includes information relevant to the site)). Obtain data from the local DWS monitoring boreholes. Obtain relevant geological maps and geohydrological maps, as well as relevant groundwater reports.
- Identify significant features or disturbances within the proposed project area and define any environmental risks in terms of geohydrology and the proposed project infrastructure.
- Describe the existing environment in terms of geohydrology (including hydrogeological characterisation of aquifers (types, sensitivity, vulnerability)), and groundwater (quality, quantity, use, potential for industrial or domestic use) in the area surrounding the proposed development.

- Provide an indication if groundwater is available in the study area for use during construction, operational and decommissioning phases, and if so, what measures need to be taken to allow usage.
- Assess the consequences and significance of potential groundwater contamination.
- Identify relevant permits that may be required. Confirm what type of authorisation or licence is required to make use of the groundwater.
- Provide a description of assumptions, limitations and/or any uncertainties or gaps in knowledge.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a geohydrological perspective, in accordance with the Impact Assessment Methodology captured in Section 5.7 of this Chapter. Impact significance must be rated both without and with mitigation, and must cover the construction, operational and decommissioning phases of the proposed projects.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts.
- Where relevant, review the Generic EMPr for Substations (GN 435) and confirm if there are any specific environmental sensitivities or attributes present on the site and any resultant site-specific impact management outcomes and actions that need to be included.
- Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

5.8.12 BESS Risk Assessment

- Compile a high-level qualitative Safety, Health and Environment (SHE) Risk Assessment for the BESS in adherence toany additional relevant legislation and guidelines that may be deemed necessary.
- Obtain technical information, information for the proposed BESS, as well as photos of the proposed locations, GPS coordinates etc. Gather all relevant SHE information e.g. locations, surroundings, topography, types of activities surrounding the sites, vulnerable receptors (based on Google Earth and information provided from other specialist reports), material listings (details of the types of batteries), inventories (battery sizes and numbers), design drawings (possible layouts), process conditions, maps, weather data, key operating instructions, emergency procedures (if available).
- Conduct telephonic/e-mail/virtual meeting discussions if needed, with operations and design staff to identify hazards and agree risk assessment terms of reference, e.g. the risk matrix to be used.
- Identify potential SHE hazardous events associated with the installation, during construction, operation and eventual decommissioning.
- Using a suitable risk assessment matrix dimension each of the hazardous events in terms of potential consequences and likelihood. From this determine the raw risk and determine which items may need further attention. Suggest risk reduction measures that should typically be applied. Calculate, and document, the residual risks. Determine if any of the risks require additional risk reduction measures, e.g. separation distances from vulnerable receptors.

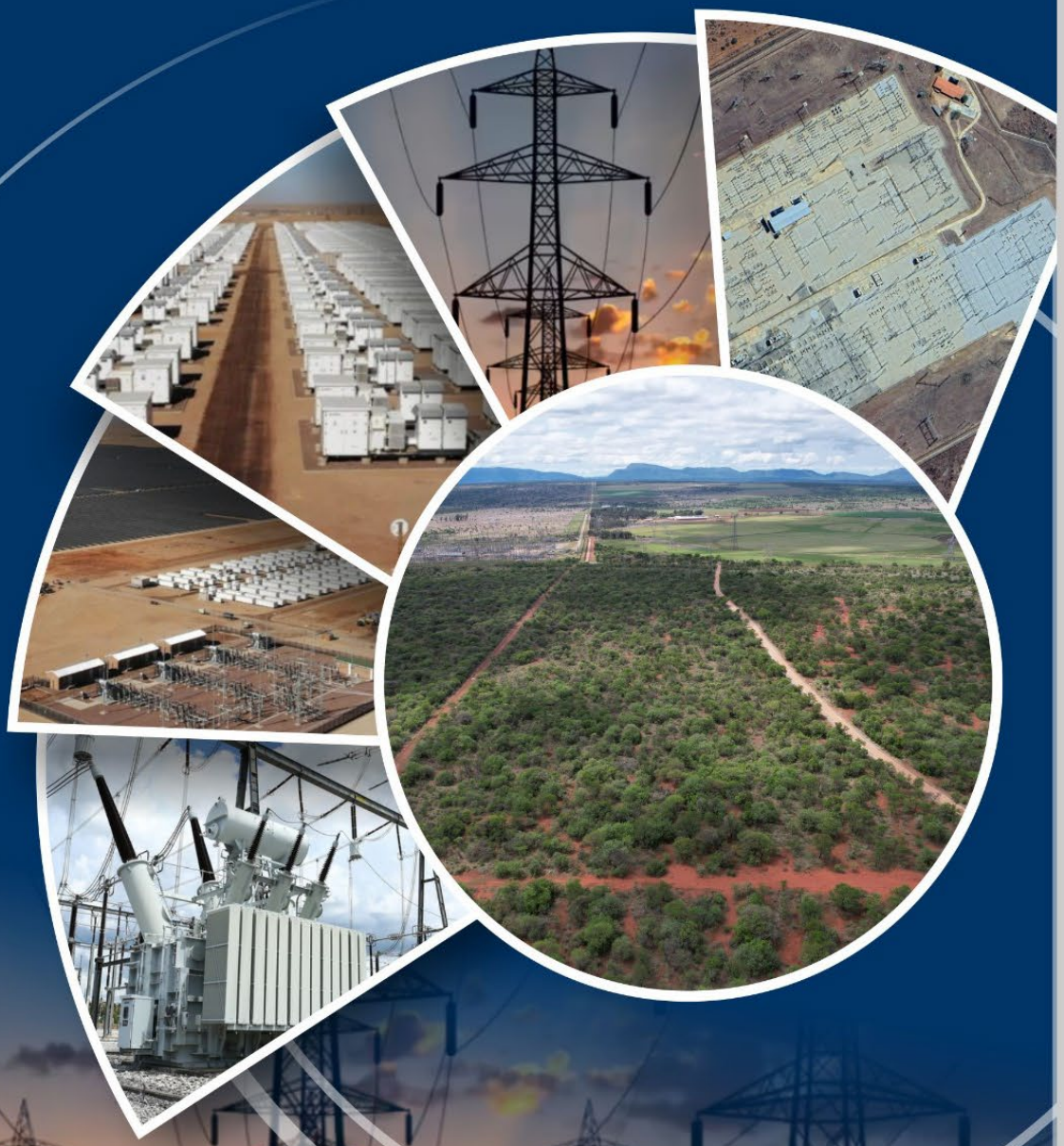
- The assessment must include identification, analysis and evaluation of risks associated with Lithium Ion Battery technology. It must cover the construction, operation and decommissioning phases, and must be based on a qualitative analysis. The analysis must identify hazards and hazardous events, and be structured and presented according to a recognised risk assessment methodology. The analysis must identify vulnerable receptors (e.g. who is exposed to the risks), and identify applicable national and international standards that should be applied (where relevant) in order to mitigate risks.
- Provide review input on the preferred infrastructure layout following the sensitivity analysis and layout identification.
- Describe the risk-related context of the study area, focusing on aspects that are potentially affected by battery storage as part of the proposed project.
- Identify and assess the potential direct, indirect and cumulative impacts of the proposed development on the receiving environment from a risk perspective associated with battery storage.
- Identify any protocols, legal and permit requirements that are relevant to this project and the implications thereof.
- Provide recommendations with regards to potential monitoring programmes.
- Determine mitigation and/or management measures for inclusion in the EMPrs, which could be implemented to as far as possible reduce the effect of negative impacts and enhance the effect of positive impacts. Incorporate and address relevant comments and concerns raised by stakeholders, Competent Authority, I&APs and the public during the PPP (where relevant and applicable).

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 6:

Listed Activities for the BESS Project



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6. LISTED ACTIVITIES FOR THE BESS PROJECT 6-3

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6. LISTED ACTIVITIES FOR THE BESS PROJECT

6.1 Legal Context for this BA

This chapter gives particular attention to the listed activities that apply to this Basic Assessment (BA) for the following proposed project:

- **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS).

The information presented throughout this chapter applies to **Project 1 (Veroniva BESS)** only. Refer to Chapter 7 for corresponding information pertaining to **Project 2 (Veroniva EGI)**.

In terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended), a BA Process is required for the proposed project.

All the listed activities forming part of this proposed development and therefore requiring Environmental Authorisation (EA) have been included in the Application Form for EA, which is being submitted to the Department of Forestry, Fisheries and the Environment (DFFE) with the Draft BA Report.

The list of listed activities triggered by the proposed project is indicated in Table 6.1.

Table 6.1: Listed Activities in GN R327 and GN R324 that will be triggered by the proposed Veroniva BESS and associated infrastructure (Project 1).

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
Listing Notice 1, GN R327		
Activity 11 (i)	The development of facilities or infrastructure for the transmission and distribution of electricity: (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is: (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.	The proposed project will entail the construction of an Independent Power Producer (IPP) Substation at the Battery Energy Storage System (BESS) facility, which will be maintained by the IPP. This will include all the high voltage infrastructure leading up to the Point of Connection (i.e. the Project Applicant's section of the proposed on-site substation, which is referred to the BESS IPP Substation). The BESS IPP Substation will have a capacity stepping up from 33 kV to 132 kV. This constitutes facilities for the distribution and transmission of electricity. The proposed project will take place outside of an urban area. It will be constructed on farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province.
Activity 19	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; but excluding where such infilling, depositing, dredging, excavation, removal or moving- a) will occur behind a development setback; b) is for maintenance purposes undertaken in accordance with a maintenance management plan; c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.	The proposed project site can be accessed via various existing main roads and gravel roads. Specifically, two external access road options have been considered, specifically Option A and Option B. Specifically, Option A is a gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation. The existing road will be used and widened as needed. The existing road currently extends 3 – 4 m wide and will be widened to about 4 – 8 m. This road widening will entail the excavation, removal and moving of more than 10 m^3 of soil, sand, pebbles or rock from a wetland, which the road traverses. The road upgrading will also entail the infilling of more than 10 m^3 of material into the wetland. The aquatic features have been delineated by the aquatic specialist.

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
Activity 24 (ii)	The development of a road - (ii) with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres; but excluding a road- (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	New access roads will be developed for the proposed project, where they do not align with existing roads, or existing roads will be used as far as practically achievable. New access roads are required for the proposed project within Portion 5 of Farm Snymansdrift 738 LS, and these will be 4 - 8 m wide, with some sections extending up to 14 m wide. In addition, the bell mouth at the access road leading to the Independent Power Producer (IPP) Substation will extend up to approximately 19 m wide to accommodate turning vehicles.
Activity 27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The proposed BESS facility, which will contain various sub-components and associated infrastructure, will have a footprint in excess of 1 ha but less than 20 ha (i.e. total footprint of approximately 15 ha). As a result, approximately 15 ha of indigenous vegetation will be removed for the construction of the proposed BESS facility and associated infrastructure. The development footprint falls within the Polokwane Plateau Bushveld (SVcb23).
Activity 28 (ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	The proposed project will take place outside of an urban area. It will be constructed on farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province. The property on which the proposed BESS will be developed (i.e. Portion 5 of Farm Snymansdrift 738 LS) forms part of Dream Hills Game Farm based on adjacent Portion 35 of Farm Snymansdrift 738 LS. These two properties are currently used as a private game reserve by the landowner. The proposed BESS facility, which is considered a commercial/industrial development, will have a footprint in excess of 1 ha (total footprint of approximately 15 ha). The proposed project will also entail the construction of various infrastructure and structures (such as the BESS facility; units; laydown area; IPP Substation; O&M Office, including Ablutions; access roads; internal roads; various MV cables; fencing and security; and parking area etc.), as well as widening of existing roads. This will constitute infrastructure with a physical footprint of more than 1 ha.

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
Activity 48 (i) [(a) and (c)]	The expansion of: (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; where such expansion occurs - (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; excluding- (aa) the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such expansion activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 23 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such expansion occurs within an urban area; or (ee) where such expansion occurs within existing roads, road reserves or railway line reserves.	The proposed project site can be accessed via various existing main roads and gravel roads. Specifically, two external access road options have been considered, specifically Option A and Option B. Specifically, Option A is a gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation. The existing road will be used and widened as needed. The existing road currently extends 3 – 4 m wide and will be widened to about 4 – 8 m. The road widening is regarded as expansion of infrastructure by more than 100 m^2. This road widening will occur within a wetland, and within 32 m of this aquatic feature, which has been delineated by the aquatic specialist.
Listing Notice 3, GN R324		
Activity 4 (e) (i) (ee) (gg)	The development of a road wider than 4 metres with a reserve less than 13.5 metres. (e) Limpopo (i) Outside urban areas:	New access roads will be developed for the proposed project, where they do not align with existing roads, or existing roads will be used as far as practically achievable. New access roads are required for the proposed project within Portion 5 of Farm Snymansdrift 738 LS, and these will be 4 - 8 m wide, with some sections extending up to 14 m wide. In addition, the bell mouth at the access road leading to the IPP substation will extend up to approximately 19 m wide to accommodate turning vehicles.

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
	(ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas.	The proposed project will take place outside of an urban area. It will be constructed on farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province. Based on the Critical Biodiversity Area (CBA) maps developed in the Limpopo Conservation Plan Version 2 (LCPV2) (2013), later updated in 2018 based on five district regional plans, specifically the Capricorn District Bioregional Plan, the proposed project site, including the proposed road to the IPP substation, falls within CBA 1. The Terrestrial Biodiversity and Avifauna specialists, following site surveys, determined that the proposed project site does not meet the requirements for CBA 1 classification, but is still an important ecological corridor, provides important ecosystem services and support areas important for climate refugia, and accordingly should be treated as Ecological Support Area 1 (ESA 1) instead of a CBA 1. The proposed project occurs within 5 km of the Kuschke Private Nature Reserve and Nawilger Private Nature Reserve, which are categorised as protected areas in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003, as amended).
Activity 10 (e) (i)	The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. (e) Limpopo (i) All areas	The construction and operational phases of the proposed BESS facility will require dangerous goods such as chemicals, fuels, oils, lubricants and solvents for general activities. This does not apply to the actual BESS facility, as a solid state BESS is proposed. Therefore, infrastructure for the storage and handling of dangerous goods of 30 m^3 or more but not exceeding 80 m^3 is proposed. Dangerous goods will be stored on site within designated areas such as laydown areas. The proposed project will be constructed on farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province. This constitutes all areas.

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
Activity 12 (e) (ii)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (e) Limpopo (ii) Within critical biodiversity areas identified in bioregional plans	The proposed BESS facility, which will contain various sub-components and associated infrastructure, will have a total footprint of approximately 15 ha. As a result, approximately 15 ha of indigenous vegetation will be removed for the construction of the proposed BESS facility and associated infrastructure. The development footprint falls within the Polokwane Plateau Bushveld (SVcb23). The proposed project site can be accessed via various existing main roads and gravel roads. Specifically, two external access road options have been considered, specifically Option A and Option B. Option A is a gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation. Option B is a tarred road off the R519 (which leads directly to the Eskom Witkop Substation), and a paved road just before the Eskom Witkop Substation gate (slight left), up until the access gate to Farm 738/5. In both options, the existing road will be used and widened as needed. Such widening will require more than 300 m^2 of indigenous vegetation to be cleared for Access Road Option A and Access Road Option B. Based on the Critical Biodiversity Area (CBA) maps developed in the Limpopo Conservation Plan Version 2 (LCPV2) (2013), later updated in 2018 based on five district regional plans, specifically the Capricorn District Bioregional Plan, the proposed project site falls within CBA 1. Widening of the existing road for Access Road Option A intersects largely with CBA 1. Widening of the existing road for Access Road Option B also mainly intersects with CBA 1 and Ecological Support Area (ESA) 2. The Terrestrial Biodiversity and Avifauna specialists, following site surveys, determined that the proposed project site does not meet the requirements for CBA 1 classification, but is still an important ecological corridor, provides important ecosystem services and support areas important for climate refugia, and accordingly should be treated as ESA 1 instead of a CBA 1.

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
		As a result, more than 300 m^2 of indigenous vegetation will be removed from these areas for the construction of the proposed BESS facility and associated infrastructure, including access road widening.
Activity 18 (e) (i) [(ee) (gg) (hh)]	The widening of a road by more than four meters, or the lengthening of a road by more than one kilometre: (e) Limpopo (i) Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; or (hh) Areas within a watercourse; or within 100 metres from the edge of a watercourse.	The proposed project site can be accessed via various existing main roads and gravel roads. Specifically, two external access road options have been considered, specifically Option A and Option B. Specifically, Option A is a gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation. The existing road will be used and widened as needed. The existing road currently extends 3 – 4 m wide and will be widened to about 4 – 8 m. The road will be widened by approximately 5 m (i.e. more than 4 m). The proposed project will take place outside of an urban area. It will be constructed on farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province. Based on the Critical Biodiversity Area (CBA) maps developed in the Limpopo Conservation Plan Version 2 (LCPV2) (2013), later updated in 2018 based on five district regional plans, specifically the Capricorn District Bioregional Plan, the proposed project site falls within CBA 1. Widening of the existing road for Access Road Option A intersects largely with CBA 1. The Terrestrial Biodiversity and Avifauna specialists, following site surveys, determined that the proposed project site, including external access roads, do not meet the requirements for CBA 1 classification, but is still an important ecological corridor, provides important ecosystem services and support areas important for climate refugia, and accordingly should be treated as Ecological Support Area 1 (ESA 1) instead of a CBA 1. The proposed project occurs within 5 km of the Kuschke Private Nature Reserve and Nawilger Private Nature Reserve, which are categorised as protected areas

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
		in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003, as amended). This road widening will occur within a wetland, and within 100 m of this aquatic feature, which has been delineated by the aquatic specialist.
Activity 23 (ii) (a) (c) (e) (i) [(ee) (gg)]	The expansion of- (ii) infrastructure or structures where the physical footprint is expanded by 10 square metres or more; where such expansion occurs - (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse, excluding the expansion of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour. (e) Limpopo (i) Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve.	The proposed project site can be accessed via various existing main roads and gravel roads. Specifically, two external access road options have been considered, specifically Option A and Option B. Specifically, Option A is a gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation. The existing road will be used and widened as needed. The existing road currently extends 3 – 4 m wide and will be widened to about 4 – 8 m. The road widening is regarded as expansion of infrastructure by more than 10 m^2. This road widening will occur within a wetland, and within 32 m of this aquatic feature, which has been delineated by the aquatic specialist. The proposed project will take place outside of an urban area. It will be constructed on farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province. Based on the Critical Biodiversity Area (CBA) maps developed in the Limpopo Conservation Plan Version 2 (LCPV2) (2013), later updated in 2018 based on five district regional plans, specifically the Capricorn District Bioregional Plan, the proposed project site falls within CBA 1. Widening of the existing road for Access Road Option A intersects largely with CBA 1. The Terrestrial Biodiversity and Avifauna specialists, following site surveys, determined that the proposed project site, including external access roads, do not meet the requirements for CBA 1 classification, but is still an important ecological corridor, provides important ecosystem services and support areas important for climate refugia,

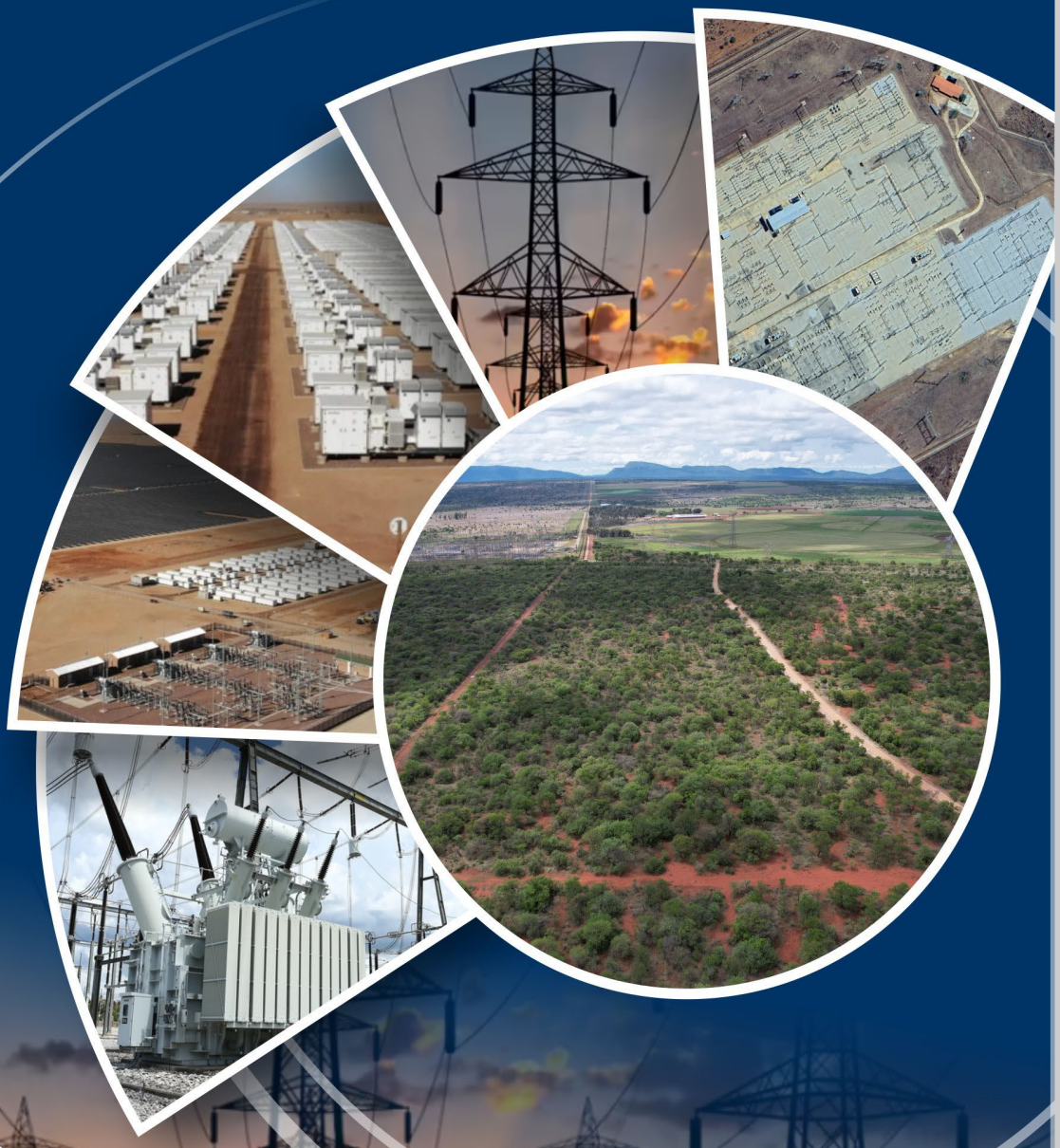
Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
		and accordingly should be treated as Ecological Support Area 1 (ESA 1) instead of a CBA 1. The proposed project occurs within 5 km of the Kuschke Private Nature Reserve and Nawilger Private Nature Reserve, which are categorised as protected areas in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003, as amended).

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 7:

Listed Activities for the EGI Project



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7. LISTED ACTIVITIES FOR THE EGI PROJECT

7.1 Legal Context for this BA

This chapter gives particular attention to the listed activities that apply to this Basic Assessment (BA) for the following proposed project:

- **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

The information presented throughout this chapter applies to **Project 2 (Veroniva EGI)** only. Refer to Chapter 6 for corresponding information pertaining to **Project 1 (Veroniva BESS)**.

In terms of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended), a BA Process is required for the proposed project.

All the listed activities forming part of this proposed development and therefore requiring Environmental Authorisation (EA) have been included in the Application Form for EA, which is being submitted to the Department of Forestry, Fisheries and the Environment (DFFE) with the Draft BA Report.

The list of listed activities triggered by the proposed project is indicated in Table 7.1.

Table 7.1: Listed Activities in GN R327, and GN R324 that will be triggered by the proposed Veroniva EGI and associated infrastructure (Project 2).

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
Listing Notice 1, GN R327		
Activity 11 (i)	The development of facilities or infrastructure for the transmission and distribution of electricity: (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is: (a) temporarily required to allow for maintenance of existing infrastructure; (b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.	The proposed project will entail the construction of a 132 kV switching station. This will include all the high voltage infrastructure extending from the Point of Connection (i.e. Eskom's section of the proposed on-site substation). This section will be transferred from the Independent Power Producer (IPP) to Eskom at the Commercial Operational Date. The switching station will include various connecting bays and yards. At a minimum, it will include a dedicated bay for the connection of the BESS facility. A dedicated overhead 132 kV Loop-In-Loop-Out (LILO) power line will be constructed to connect the proposed BESS facility to the existing Eskom Pietersburg / Witkop 1 Power Line. In addition, in order to accommodate the BESS, a section of the existing Eskom Pietersburg / Witkop 1 Power Line, extending from the proposed LILO to the Eskom Witkop Main Transmission Substation (MTS), may require upgrading. The above constitutes facilities for the distribution and transmission of electricity. The proposed project will take place outside of an urban area. It will be constructed on various affected farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province.
Activity 24 (ii)	The development of a road – (ii) with a reserve wider than 13.5 metres, or where no reserve exists where the road is wider than 8 metres; but excluding a road- (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	A new section of road leading from the main BESS access road to the switching station will be developed. This will be 4 - 8 m wide, however, the bell mouth at the intersection with the main BESS access road will extend up to approximately 19 m wide to accommodate turning vehicles.

Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
Activity 27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The proposed switching station and associated infrastructure will have a footprint of approximately 10 000 m^2. As a result, approximately 1 ha of indigenous vegetation will be removed for the construction of the proposed switching station and associated infrastructure. The development footprint falls within the Polokwane Plateau Bushveld (SVcb23).
Activity 28 (ii)	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	The proposed project will take place outside of an urban area. It will be constructed on various affected farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province. One of the properties on which the proposed project will be developed (i.e. Portion 5 of Farm Snymansdrift 738 LS) forms part of Dream Hills Game Farm based on adjacent Portion 35 of Farm Snymansdrift 738 LS. These two properties are currently used as a private game reserve by the landowner. The proposed electricity grid infrastructure (EGI), which is considered a commercial/industrial development, will have a footprint in excess of 1 ha (switching station footprint, as well as the access road to the switching station, pylon bases and service roads). This will constitute infrastructure with a physical footprint of more than 1 ha.
Listing Notice 3, GN R324		
Activity 4 (e) (i) (ee) (gg)	The development of a road wider than 4 metres with a reserve less than 13.5 metres. (e) Limpopo (i) Outside urban areas: (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;	A new section of road leading from the main BESS access road to the switching station will be developed. This will be 4 - 8 m wide, however, the bell mouth at the intersection with the main BESS access road will extend up to approximately 19 m wide to accommodate turning vehicles. The proposed project will take place outside of an urban area. It will be constructed on various affected farm portions, south-west of the town of Polokwane, in the Polokwane Local Municipality and Capricorn District Municipality, in the Limpopo Province.

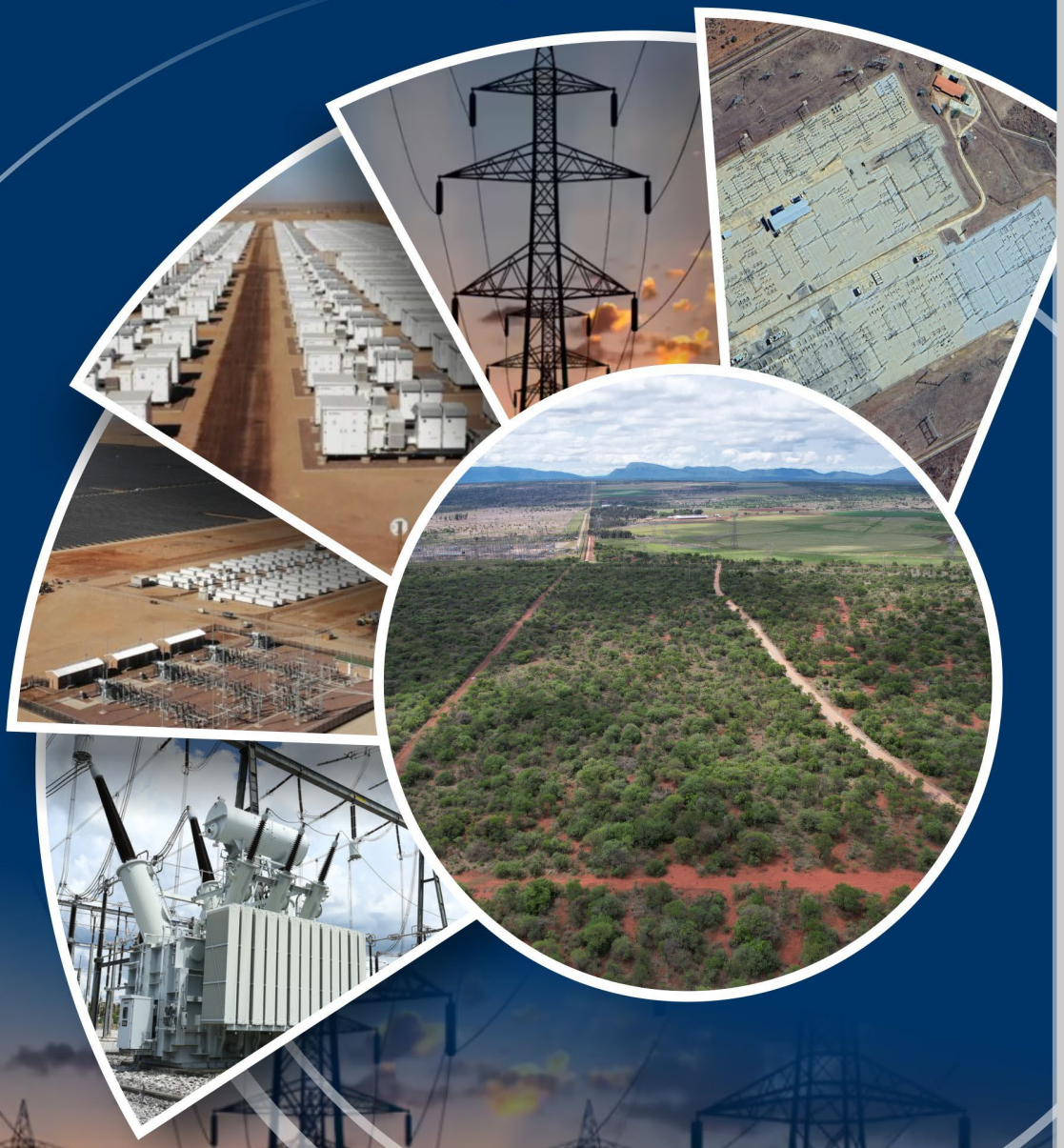
Listed Activity Number	Listed Activity Description	Description of the portion of the proposed project to which the applicable listed activity relates
	(gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core areas of a biosphere reserve, excluding disturbed areas.	Based on the Critical Biodiversity Area (CBA) maps developed in the Limpopo Conservation Plan Version 2 (LCPV2) (2013), later updated in 2018 based on five district regional plans, specifically the Capricorn District Bioregional Plan, the proposed project site (i.e. for the EGI and proposed road to the switching station) falls within CBA 1. The Terrestrial Biodiversity and Avifauna specialists, following site surveys, determined that the proposed project site does not meet the requirements for CBA 1 classification, but is still an important ecological corridor, provides important ecosystem services and support areas important for climate refugia, and accordingly should be treated as Ecological Support Area 1 (ESA 1) instead of a CBA 1. The proposed EGI occurs within 5 km of the Kuschke Private Nature Reserve, which is categorised as a protected area in terms of the National Environmental Management: Protected Areas Act (Act 57 of 2003, as amended).
Activity 12 (e) (ii)	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (e) Limpopo (ii) Within critical biodiversity areas identified in bioregional plans	The proposed project will contain various components and associated infrastructure. The total footprint of the proposed switching station, access road to the switching station, service roads, and pylons, will exceed 300 m^2. The development footprint falls within the Polokwane Plateau Bushveld (SVcb23). Based on the Critical Biodiversity Area (CBA) maps developed in the Limpopo Conservation Plan Version 2 (LCPV2) (2013), later updated in 2018 based on five district regional plans, specifically the Capricorn District Bioregional Plan, the proposed project site (i.e. for the EGI and associated infrastructure) falls within CBA 1. The Terrestrial Biodiversity and Avifauna specialists, following site surveys, determined that the proposed project site does not meet the requirements for CBA 1 classification, but is still an important ecological corridor, provides important ecosystem services and support areas important for climate refugia, and accordingly should be treated as Ecological Support Area 1 (ESA 1) instead of a CBA 1. As a result, more than 300 m^2 of indigenous vegetation will be removed from these areas for the construction of the proposed EGI and associated infrastructure.

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 8:

Screening Tool Specialist Assessment Recommendations for the BESS Project



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8. SCREENING TOOL SPECIALIST ASSESSMENT RECOMMENDATIONS FOR THE BESS PROJECT

8.1 Screening Tool

This section provides a description of the Screening Tool requirements in terms of recommended specialist assessments and assigned sensitivity ratings for the following proposed project:

- **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS).

The information presented throughout this chapter applies to **Project 1 (Veroniva BESS)** only. Refer to Chapter 9 for corresponding information pertaining to **Project 2 (Veroniva EGI)**.

8.1.1 Specialist Assessments Identified by the Screening Tool

Based on the selected classification, the Screening Tool provides a list of specialist assessments that should be undertaken as part of the Basic Assessment (BA) Process, as well as identifies the sensitivities on site that need to be verified by either the Environmental Assessment Practitioner (EAP) or the specialists, where relevant, as noted in the Assessment Protocols of 20 March 2020 (Government Notice (GN) 320) and 30 October 2020 (GN 1150, as amended in GN 3717). The key classifications[1] that apply to the proposed project are listed below in Table 8.1.

Table 8.1: List of Screening Tool Classifications.

Project	Classification on Screening Tool
▪ **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS)	▪ Transformation of land; Indigenous vegetation ▪ Utilities Infrastructure; Electricity; Distribution and Transmission; Substation

Table 8.2 provides the list of Specialist Assessments identified by the Screening Tool for inclusion in the BA Process for Project 1 (Veroniva BESS). The Screening Tool Reports are included in Appendix L of this BA Report.

The Screening Tool Report notes that it is the responsibility of the EAP to confirm this list and to motivate in the BA Report, the reason for not including any of the identified specialist assessments, where relevant.

As discussed at the Pre-Application Meeting held on 6 March 2026, the EAP has recommended that certain studies are not required. Refer to the discussion below.

[1] BESS developments do not have a specific sensitivity methodology on the Screening Tool (such as Wind, Solar, and Gas Pipeline). BESS developments fall under the General methodology on the Screening Tool. Therefore, the same sensitivities on the Screening Tool will apply to all project components per relevant classification. Therefore, Screening Tool Reports for the key classifications that apply to the proposed project are discussed herein. Note that a Screening Tool Report was also run for access roads (private) as a precaution. However, existing roads will be used for the proposed project and widened as needed, hence certain specialist studies recommended therein are not applicable (such as a Noise Impact Assessment).

Table 8.2: List of Specialist Assessments identified by the Screening Tool for the proposed Veroniva BESS (Project 1).

	Specialist Assessment Required by the Screening Tool	Applicable to BESS and/or Substation based on Screening Tool List?	Study undertaken in BA Process?	Sensitivity allocated on the Screening Tool [Study Area]	Verified Sensitivity by the Specialist/EAP [Study Area][2]	Type of Assessment undertaken in BA Process or Motivation/Feedback for not undertaking the recommended study	Appendix of BA Report for Specialist Report (including SSV)
1	Agricultural Impact Assessment	Substation only	Yes	Mainly Very High due to Ranch Protected Agricultural Area (with some High, Medium and Low)	Medium	Protocol GN 320: Part B: Agriculture (Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Agricultural Resources): **Compliance Statement**	Appendix E.1
2	Landscape/Visual Impact Assessment	BESS only	Yes	Not allocated. No theme for this methodology.	Low	Protocol GN 320: Part A: Site Sensitivity Verification; and Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Impact Assessment**	Appendix E.5
3	Archaeological and Cultural Heritage Impact Assessment	BESS and Substation	Yes	Low	Low	Protocol GN 320: Part A: Site Sensitivity Verification; and Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Impact Assessment**	Appendix E.6
4	Palaeontology Impact Assessment	BESS and Substation	Yes (Letter of Exemption)	Medium[3]	Predominantly Very Low	Protocol GN 320: Part A: Site Sensitivity Verification; and Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Letter of Exemption**	Appendix E.7
5	Terrestrial Biodiversity Impact Assessment	BESS and Substation	Yes	Very High	High, Medium, Low, and Very Low	Protocol GN 320: Part B: Biodiversity (Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Terrestrial Biodiversity): **Impact Assessment**	Appendix E.2

[2] The sensitivity is described for the study area. However, the footprints avoid all no-go areas. Refer to Chapter 4, Chapter 13 and Appendix E for information on the project footprint verified sensitivities.

[3] According to SAHRA (April 2025), palaeontology studies must be undertaken as per the PalaeoSensitivity Map provided on SAHRIS, irrespective of the sensitivity shown on the palaeontology theme layer, i.e. the SAHRIS PalaeoSensitivity Map should guide the level of assessment. According to the SAHRIS palaeosensitivity map, the Veroniva BESS and EGI project study area is largely of Insignificant / Zero palaeosensitivity (where no palaeontological studies are needed).

	Specialist Assessment Required by the Screening Tool	Applicable to BESS and/or Substation based on Screening Tool List?	Study undertaken in BA Process?	Sensitivity allocated on the Screening Tool [Study Area]	Verified Sensitivity by the Specialist/EAP [Study Area][2]	Type of Assessment undertaken in BA Process or Motivation/Feedback for not undertaking the recommended study	Appendix of BA Report for Specialist Report (including SSV)
						Note that the reporting for Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species is combined in one report.	
6	Aquatic Biodiversity Impact Assessment	BESS and Substation	Yes	Low	High and Low	Protocol GN 320: Part B: Biodiversity (Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Aquatic Biodiversity): **Impact Assessment** Protocol GN 1150 (amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Plant Species and Animal Species. This applies to Aquatic species in this regard: **Impact Assessment** [Note that no Aquatic Plant or Animal Species of Conservation Concern we found during the surveys]. Note that the reporting for Aquatic Biodiversity and Species is combined in one report.	Appendix E.3
7	Geotechnical Assessment	Substation only	Yes (Letter of Professional Opinion)	Not Applicable	Not Applicable	**Letter of Professional Opinion** Refer to additional information in Section 8.1.3 below. There are no themes on the Screening Tool that currently relate to Geotechnical features that could be verified on site. Hence Part A of GN 320 (Site Sensitivity Verification) is not applicable in this regard.	Appendix E.11
8	Socio-Economic Assessment	BESS only	Yes	Not Applicable	Not Applicable	Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Impact Assessment** There are no themes on the Screening Tool that currently relate to Socio-Economic features that could be verified on site. Hence Part A of GN 320 (Site Sensitivity Verification) is not applicable in this regard.	Appendix E.8

	Specialist Assessment Required by the Screening Tool	Applicable to BESS and/or Substation based on Screening Tool List?	Study undertaken in BA Process?	Sensitivity allocated on the Screening Tool [Study Area]	Verified Sensitivity by the Specialist/EAP [Study Area][2]	Type of Assessment undertaken in BA Process or Motivation/Feedback for not undertaking the recommended study	Appendix of BA Report for Specialist Report (including SSV)
9	Plant Species Assessment	BESS and Substation	Yes	2025 Screening Tool Report: Mainly Medium, with a small section of Low 2026 Screening Tool Report[4]: Mainly Low, with a small section of Medium	Low	Protocol GN 1150 (amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Plant Species. This applies to Terrestrial species in this regard: **Compliance Statement** Note that the reporting for Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species is combined in one report.	Appendix E.2
10	Animal Species Assessment	BESS and Substation	Yes	High (Birds) and Medium (Mammals and Reptiles)	Medium to Low for Mammals and Reptiles[5]	Protocol GN 1150 (amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Animal Species. This applies to Terrestrial species in this regard: **Compliance Statement** Note that the reporting for Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species is combined in one report.	Appendix E.2

[4] Note the plant and animal species layers on the Screening Tool were updated in April 2026.
[5] Birds are assessed separately as discussed below.

8.1.2 Additional Specialist Assessments

It must be noted that the Screening Tool did not identify the need for the following specialist assessments for the respective projects, however these studies have been commissioned as part of the BA Process to ensure that all potential impacts resulting from the proposed projects are considered as best as possible. Refer to Table 8.3 for additional information.

Table 8.3: List of Additional Specialist Assessments undertaken.

Study undertaken in BA Process	Relevant to Specific Project?	Type of Assessment undertaken in BA Process	Appendix of BA Report for the Specialist Assessment (including SSV)
Avifauna Impact Assessment	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI. Note that the Screening Tool does require this study for power line developments. However, this study will also address the substation and associated infrastructure.	Protocol GN 1150 (as amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Animal Species. This applies to Terrestrial species in this regard: **Impact Assessment**	Appendix E.4
Traffic Impact Assessment	▪ Project 1 – Veroniva BESS	Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Impact Assessment** There are no themes on the Screening Tool that currently relate to traffic features that could be verified on site. Hence Part A of GN 320 (Site Sensitivity Verification) is not applicable in this regard.	Appendix E.9
BESS High Level Safety, Health and Environment Risk Assessment	▪ Project 1 – Veroniva BESS	This is a **technical report** and does not need to fulfil the requirements of the 2014 NEMA EIA Regulations (as amended).	Appendix E.12
Geohydrology Impact Assessment	▪ Project 1 – Veroniva BESS	Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Impact Assessment** There are no themes on the Screening Tool that currently relate to geohydrology features that could be verified on site. Hence Part A of GN 320 (Site Sensitivity Verification) is not applicable in this regard.	Appendix E.10

Also note that the Screening Tool does not require Civil Aviation and Defence studies or site sensitivity verifications for transformation of land (indigenous vegetation) or for substation development. However, as a supplementary mechanism, a site sensitivity verification was undertaken and the associated reports drafted for comprehensiveness.

8.1.3 Geotechnical Letter of Opinion

It was agreed with the Department of Forestry, Fisheries and the Environment (DFFE) at the Pre-Application Meeting held on 6 March 2026 that a full Geotechnical Assessment in compliance with Appendix 6 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended) does not need to be undertaken for the proposed project. Instead, it was agreed with the DFFE at the meeting, that a letter of opinion from a relevant geotechnical specialist would suffice. The letter of opinion is aimed at confirming the specialist's opinion towards the development being authorised, as well as confirming that there are no fatal flaws from a geotechnical perspective. Refer to Appendix C.4 of this BA Report for a copy of the Pre-Application Meeting Notes. Refer to Appendix E.11 of this BA Report for a copy of the Geotechnical Letter of Opinion.

8.1.4 Summary of Specialist Assessments being undertaken

Table 8.4 provides an overall summary of all the specialist assessments and inputs that were undertaken for the proposed project, including feedback on the level of assessment based on the site sensitivity verifications undertaken by the specialists or EAP, where relevant.

Table 8.4: Summary of Specialist Assessments undertaken for the Veroniva BESS (Project 1).

	Specialist Assessment undertaken	Required by Screening Tool or Additional?	Relevant to Specific Project?	Level of Assessment during the BA Phase	Appendix of BA Report for Specialist Assessment (including SSV)	Reporting Structure for the BA Phase
1	Agriculture	▪ Screening Tool for Power Line and Substation ▪ Additional for BESS	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Compliance Statement	Appendix E.1	1 * Report to address Projects 1 and 2
2	Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species	▪ Screening Tool	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Terrestrial Biodiversity: Impact Assessment ▪ Terrestrial Plant Species: Compliance Statement ▪ Terrestrial Animal Species: Compliance Statement	Appendix E.2	1 * Report to address Projects 1 and 2
3	Aquatic Biodiversity and Species	▪ Screening Tool	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Aquatic Biodiversity and Species: Impact Assessment	Appendix E.3	1 * Report to address Projects 1 and 2
4	Avifauna	▪ Screening Tool for Power Line ▪ Additional for BESS and Substation	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Impact Assessment	Appendix E.4	1 * Report to address Projects 1 and 2
5	Visual	▪ Screening Tool for Power Line and BESS ▪ Additional for Substation	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Impact Assessment	Appendix E.5	1 * Report to address Projects 1 and 2
6	Heritage (Archaeology and Cultural Heritage)	▪ Screening Tool	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Impact Assessment	Appendix E.6	1 * Report to address Projects 1 and 2
7	Palaeontology	▪ Screening Tool	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Letter of Exemption	Appendix E.7	1 * Report to address Projects 1 and 2
8	Socio-Economic	▪ Screening Tool for BESS ▪ Not applicable to EGI	▪ Project 1 – Veroniva BESS	▪ Impact Assessment	Appendix E.8	1 * Report to address Project 1
9	Traffic	▪ Additional for BESS ▪ Not applicable to EGI	▪ Project 1 – Veroniva BESS	▪ Impact Assessment	Appendix E.9	1 * Report to address Project 1
10	Geohydrology	▪ Additional for BESS ▪ Not applicable to EGI	▪ Project 1 – Veroniva BESS	▪ Impact Assessment	Appendix E.10	1 * Report to address Project 1
11	Geotechnical Letter of Opinion	▪ Screening Tool for Power Line and Substation	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Letter of Opinion	Appendix E.11	1 * Report to address Projects 1 and 2

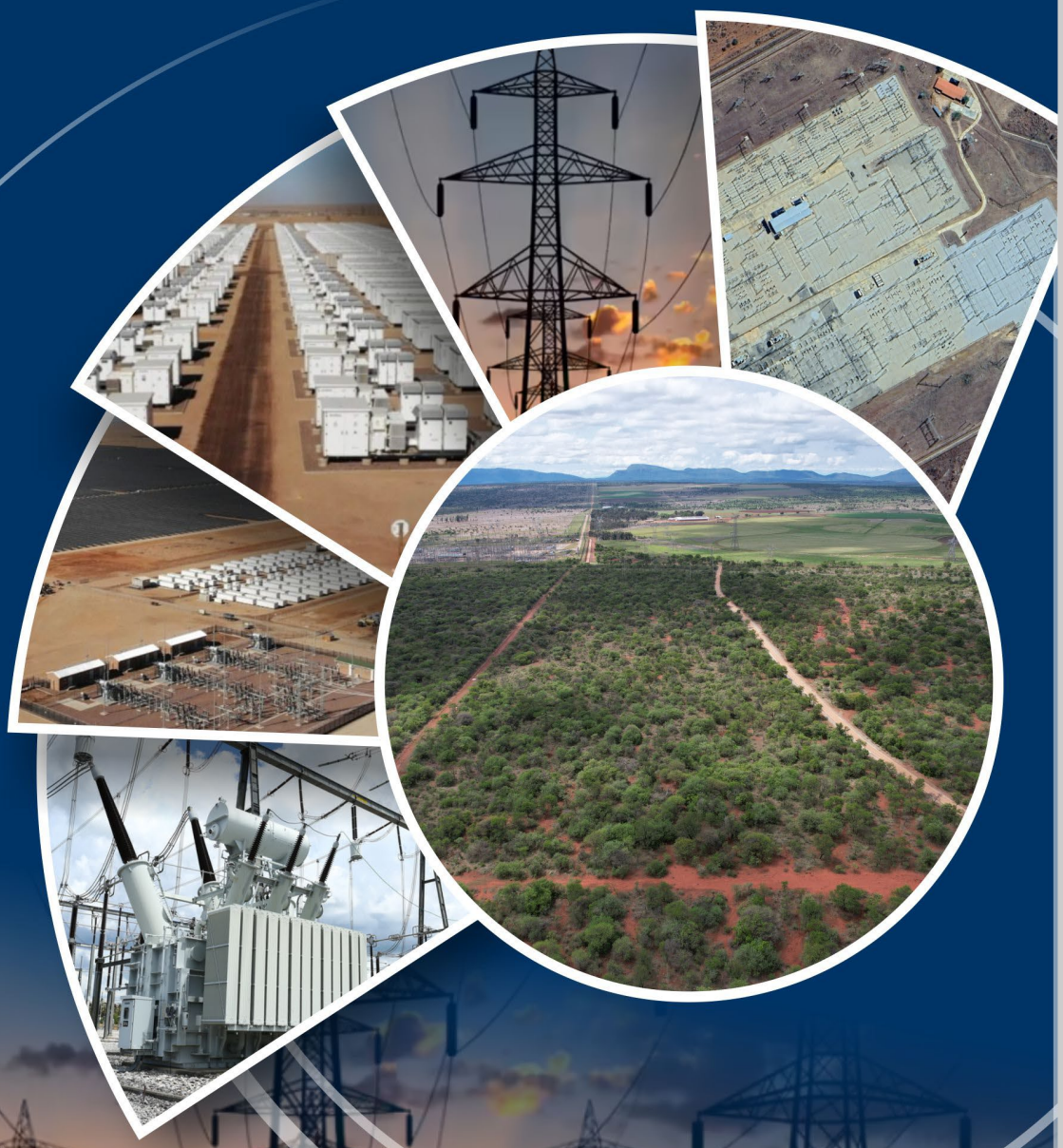
Specialist Assessment undertaken		Required by Screening Tool or Additional?	Relevant to Specific Project?	Level of Assessment during the BA Phase	Appendix of BA Report for Specialist Assessment (including SSV)	Reporting Structure for the BA Phase
		▪ Additional for BESS				
12	BESS High Level Risk Assessment	▪ Additional for BESS ▪ Not applicable to EGI	▪ Project 1 – Veroniva BESS	▪ Technical Study	Appendix E.12	1 * Report to address Project 1
13	Civil Aviation	▪ Screening Tool for Power Line ▪ Additional for BESS and Substation	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Site Sensitivity Verification	Appendix E.13	1 * Report to address Projects 1 and 2
14	Defence	▪ Additional for BESS, Substation and Power Line	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Site Sensitivity Verification	Appendix E.14	1 * Report to address Projects 1 and 2

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 9:

Screening Tool Specialist Assessment Recommendations for the EGI Project



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9. SCREENING TOOL SPECIALIST ASSESSMENT RECOMMENDATIONS FOR THE EGI PROJECT

9.1 Screening Tool

This section provides a description of the Screening Tool requirements in terms of recommended specialist assessments and assigned sensitivity ratings for the following proposed project:

- **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

The information presented throughout this chapter applies to **Project 2 (Veroniva EGI)** only. Refer to Chapter 8 for corresponding information pertaining to **Project 1 (Veroniva BESS)**.

9.1.1 Specialist Assessments Identified by the Screening Tool

Based on the selected classification, the Screening Tool provides a list of specialist assessments that should be undertaken as part of the Basic Assessment (BA) Process, as well as identifies the sensitivities on site that need to be verified by either the Environmental Assessment Practitioner (EAP) or the specialists, where relevant, as noted in the Assessment Protocols of 20 March 2020 (Government Notice (GN) 320) and 30 October 2020 (GN 1150, as amended in GN 3717). The key classifications that apply to the proposed project are listed below in Table 9.1.

Table 9.1: List of Screening Tool Classifications.

Project	Classification on Screening Tool
▪ **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).	▪ Utilities Infrastructure; Electricity; Distribution and Transmission; Substation ▪ Utilities Infrastructure; Electricity; Distribution and Transmission; Power Line

Table 9.2 provides the list of Specialist Assessments identified by the Screening Tool for inclusion in the BA Process for Project 2 (Veroniva EGI). The Screening Tool Reports are included in Appendix L of this BA Report.

The Screening Tool Report notes that it is the responsibility of the EAP to confirm this list and to motivate in the BA Report, the reason for not including any of the identified specialist assessments, where relevant.

As discussed at the Pre-Application Meeting held on 6 March 2026, the EAP has recommended that certain studies are not required. Refer to the discussion below.

Table 9.2: List of Specialist Assessments identified by the Screening Tool for the proposed Veroniva EGI (Project 2).

	Specialist Assessment Required by the Screening Tool	Applicable to Power Line and/or Substation based on Screening Tool List?	Study undertaken in BA Process?	Sensitivity allocated on the Screening Tool [Study Area]	Verified Sensitivity by the Specialist/EAP [Study Area][1]	Type of Assessment undertaken in BA Process or Motivation/Feedback for not undertaking the recommended study	Appendix of BA Report for Specialist Report (including SSV)
1	Agricultural Impact Assessment	Power Line and Substation	Yes	Mainly Very High due to Ranch Protected Agricultural Area (with some High, Medium and Low)	Medium	Protocol GN 320: Part B: Agriculture (Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Agricultural Resources): **Compliance Statement**	Appendix E.1
2	Landscape/Visual Impact Assessment	Power Line only	Yes	Not allocated. No theme for this methodology.	Low	Protocol GN 320: Part A: Site Sensitivity Verification; and Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Impact Assessment**	Appendix E.5
3	Archaeological and Cultural Heritage Impact Assessment	Power Line and Substation	Yes	Low	Low	Protocol GN 320: Part A: Site Sensitivity Verification; and Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Impact Assessment**	Appendix E.6
4	Palaeontology Impact Assessment	Power Line and Substation	Yes (Letter of Exemption)	Medium[2]	Predominantly Very Low	Protocol GN 320: Part A: Site Sensitivity Verification; and Appendix 6 of the 2014 NEMA EIA Regulations (as amended): **Letter of Exemption**	Appendix E.7
5	Terrestrial Biodiversity Impact Assessment	Power Line and Substation	Yes	Very High	High, Medium, Low, and Very Low	Protocol GN 320: Part B: Biodiversity (Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Terrestrial Biodiversity): **Impact Assessment** Note that the reporting for Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species is combined in one report.	Appendix E.2

[1] The sensitivity is described for the study area. However, the footprints avoid all no-go areas. Refer to Chapter 4, Chapter 13 and Appendix E for information on the project footprint verified sensitivities.
[2] According to SAHRA (April 2025), palaeontology studies must be undertaken as per the PalaeoSensitivity Map provided on SAHRIS, irrespective of the sensitivity shown on the palaeontology theme layer, i.e. the SAHRIS PalaeoSensitivity Map should guide the level of assessment. According to the SAHRIS palaeosensitivity map, the Veroniva BESS and EGI project study area is largely of Insignificant / Zero palaeosensitivity (where no palaeontological studies are needed).

	Specialist Assessment Required by the Screening Tool	Applicable to Power Line and/or Substation based on Screening Tool List?	Study undertaken in BA Process?	Sensitivity allocated on the Screening Tool [Study Area]	Verified Sensitivity by the Specialist/EAP [Study Area][1]	Type of Assessment undertaken in BA Process or Motivation/Feedback for not undertaking the recommended study	Appendix of BA Report for Specialist Report (including SSV)
6	Aquatic Biodiversity Impact Assessment	Power Line and Substation	Yes	Low	High and Low	Protocol GN 320: Part B: Biodiversity (Protocol for the Specialist Assessment and Minimum Report Content Requirements of Environmental Impacts on Aquatic Biodiversity): **Impact Assessment** Protocol GN 1150 (amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Plant Species and Animal Species. This applies to Aquatic species in this regard: **Impact Assessment** [Note that no Aquatic Plant or Animal Species of Conservation Concern we found during the surveys]. Note that the reporting for Aquatic Biodiversity and Species is combined in one report.	Appendix E.3
7	Avian Impact Assessment	Power Line only	Yes	Not allocated. No theme for this methodology.	High	Protocol GN 1150 (amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Animal Species: **Impact Assessment**	Appendix E.4
8	Civil Aviation Assessment	Power Line only	Yes (Site Sensitivity Verification only)	Medium and High	Low	Protocol GN 320: Part B: Civil Aviation (Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Civil Aviation Installations): **Site Sensitivity Verification**	Appendix E.13
9	Radio Frequency Interference (RFI) Assessment	Power Line only	No	Not allocated. No theme for this methodology.	Low	The proposed projects are located outside of the KCAAA and thus not expected to impact significantly on the SKA. Therefore, it is proposed not to undertake an RFI Assessment. Refer to additional information in Section 9.1.4 below.	Not applicable
10	Geotechnical Assessment	Power Line and Substation	Yes (Letter of Professional Opinion)	Not Applicable	Not Applicable	**Letter of Professional Opinion** Refer to additional information in Section 9.1.3 below.	Appendix E.11

Specialist Assessment Required by the Screening Tool		Applicable to Power Line and/or Substation based on Screening Tool List?	Study undertaken in BA Process?	Sensitivity allocated on the Screening Tool [Study Area]	Verified Sensitivity by the Specialist/EAP [Study Area][1]	Type of Assessment undertaken in BA Process or Motivation/Feedback for not undertaking the recommended study	Appendix of BA Report for Specialist Report (including SSV)
						There are no themes on the Screening Tool that currently relate to Geotechnical features that could be verified on site. Hence Part A of GN 320 (Site Sensitivity Verification) is not applicable in this regard.	
11	Plant Species Assessment	Power Line and Substation	Yes	2025 Screening Tool Report: Mainly Medium, with a small section of Low 2026 Screening Tool Report[3]: Mainly Low, with a small section of Medium	Low	Protocol GN 1150 (amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Plant Species. This applies to Terrestrial species in this regard: **Compliance Statement** Note that the reporting for Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species is combined in one report.	Appendix E.2
12	Animal Species Assessment	Power Line and Substation	Yes	High (Birds) and Medium (Mammals and Reptiles)	Medium to Low for Mammals and Reptiles[4]	Protocol GN 1150 (amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Animal Species. This applies to Terrestrial species in this regard: **Compliance Statement** Note that the reporting for Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species is combined in one report.	Appendix E.2

[3] Note the plant and animal species layers on the Screening Tool were updated in April 2026.
[4] Birds are assessed separately as discussed below.

9.1.2 Additional Specialist Assessments

It must be noted that the Screening Tool did not identify the need for the following specialist assessments for the respective projects, however these studies have been commissioned as part of the BA Process to ensure that all potential impacts resulting from the proposed projects are considered as best as possible. Refer to Table 9.3 for additional information.

Table 9.3: List of Additional Specialist Assessments undertaken.

Study undertaken in BA Process	Relevant to Specific Project?	Type of Assessment undertaken in BA Process	Appendix of BA Report for the Specialist Assessment (including SSV)
Avifauna Impact Assessment	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI. Note that the Screening Tool does require this study for power line developments. However, this study will also address the substation and associated infrastructure.	Protocol GN 1150 (as amended in GN 3717): Protocol for the Specialist Assessment and Minimum Report Content Requirements for Environmental Impacts on Animal Species. This applies to Terrestrial species in this regard: **Impact Assessment**	Appendix E.4

Also note that the Screening Tool does not recommend Civil Aviation studies or site sensitivity verifications for substation development. Furthermore, the Screening Tool does not recommend Defence studies or site sensitivity verifications for power line and substation development. However, as a supplementary mechanism, a site sensitivity verification was undertaken and the associated reports drafted for comprehensiveness.

9.1.3 Geotechnical Letter of Opinion

It was agreed with the Department of Forestry, Fisheries and the Environment (DFFE) at the Pre-Application Meeting held on 6 March 2026 that a full Geotechnical Assessment in compliance with Appendix 6 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended) does not need to be undertaken for the proposed project. Instead, it was agreed with the DFFE at the meeting, that a letter of opinion from a relevant geotechnical specialist would suffice. The letter of opinion is aimed at confirming the specialist's opinion towards the development being authorised, as well as confirming that there are no fatal flaws from a geotechnical perspective. Refer to Appendix C.4 of this BA Report for a copy of the Pre-Application Meeting Notes. Refer to Appendix E.11 of this BA Report for a copy of the Geotechnical Letter of Opinion.

9.1.4 Radio Frequency Interference Assessment

The Screening Tool identified the need for a Radio Frequency Interference (RFI) Assessment for the power line project (i.e. Project 2). However, an RFI Assessment is not being undertaken as part of the BA Process because the proposed project does not fall within the Karoo Central Astronomy Advantage Area (KCAAA) and Square Kilometre Array (SKA) regions, nor is it located within the Northern Cape or Western Cape, and thus it is not expected to have a significant impact on the SKA. It is expected to have a low risk of interference to the nearest SKA receptor. Refer to the locality map provided in Chapter 1 of this BA Report for additional information. Based on this, the EAP is of the opinion that an RFI Assessment is not warranted.

This motivation for exclusion was acknowledged and agreed to by the DFFE during the Pre-Application Meeting on 6 March 2026. Refer to Appendix C.4 of this BA Report for a copy of the Pre-Application Meeting Notes. The DFFE recommended that the South African Weather Services (SAWS) and telecommunication service providers be approached for comment during the BA Process, should there be any weather radar or telecommunication facilities in the vicinity of the proposed project.

With regards to the telecommunication infrastructure, the Sentech Potgietersrus Tower (Sentech High Power Terrestrial Broadcasting Facility) lies more than ~17 km to the south-west of the proposed project. Sentech was contacted during the pre-application phase, and they confirmed that the site is operational. According to the Screening Tool, there is a Weather Radar Installation more than 22 km to the north-east of the proposed project, and some telecommunication facilities in the wider region. In this regard, there are many existing power lines, and other EGI within the wider landscape, including the operational Eskom Witkop Main Transmission Substation on Portion 47 of Farm Wildebeestfontein 20 KS, as well as the operational Witkop Solar Facility on the Remaining Extent of Portion 9 of the Farm Wildebeestfontein 20 KS. Furthermore, there are several other proposed, authorised or in process renewable energy, BESS and EGI projects within a 30 km radius of the proposed Veroniva BESS and EGI project. Furthermore, the Veroniva BESS and EGI project has a comparatively smaller footprint of 15 ha and minor grid connection in relation to the other existing and proposed renewable energy, BESS and EGI projects within the 30 km radius. From grid connection perspective, the proposed LILO spans a total of less than 220 m in length, routed from the proposed switching station to the Eskom Pietersburg / Witkop 1 Power Line. This is considered to be very minor. Therefore, the proposed Veroniva EGI (Project 2) is not expected to significantly increase the interference risk to the Weather Radar Installation or telecommunication facilities.

The South African Radio Astronomy Observatory (SARAO) / SKA Office, SAWS and relevant telecommunication facilities within the vicinity, have been pre-identified as stakeholders and therefore included on the project database of I&APs since inception of this BA Process (as shown in Appendix F of this BA Report). These stakeholders will be given an opportunity to comment on the proposed project during the 30-day comment period on the Draft BA Report.

9.1.5 Summary of Specialist Assessments being undertaken

Table 9.4 provides an overall summary of all the specialist assessments and inputs that were undertaken for the proposed project, including feedback on the level of assessment based on the site sensitivity verifications undertaken by the specialists or EAP, where relevant.

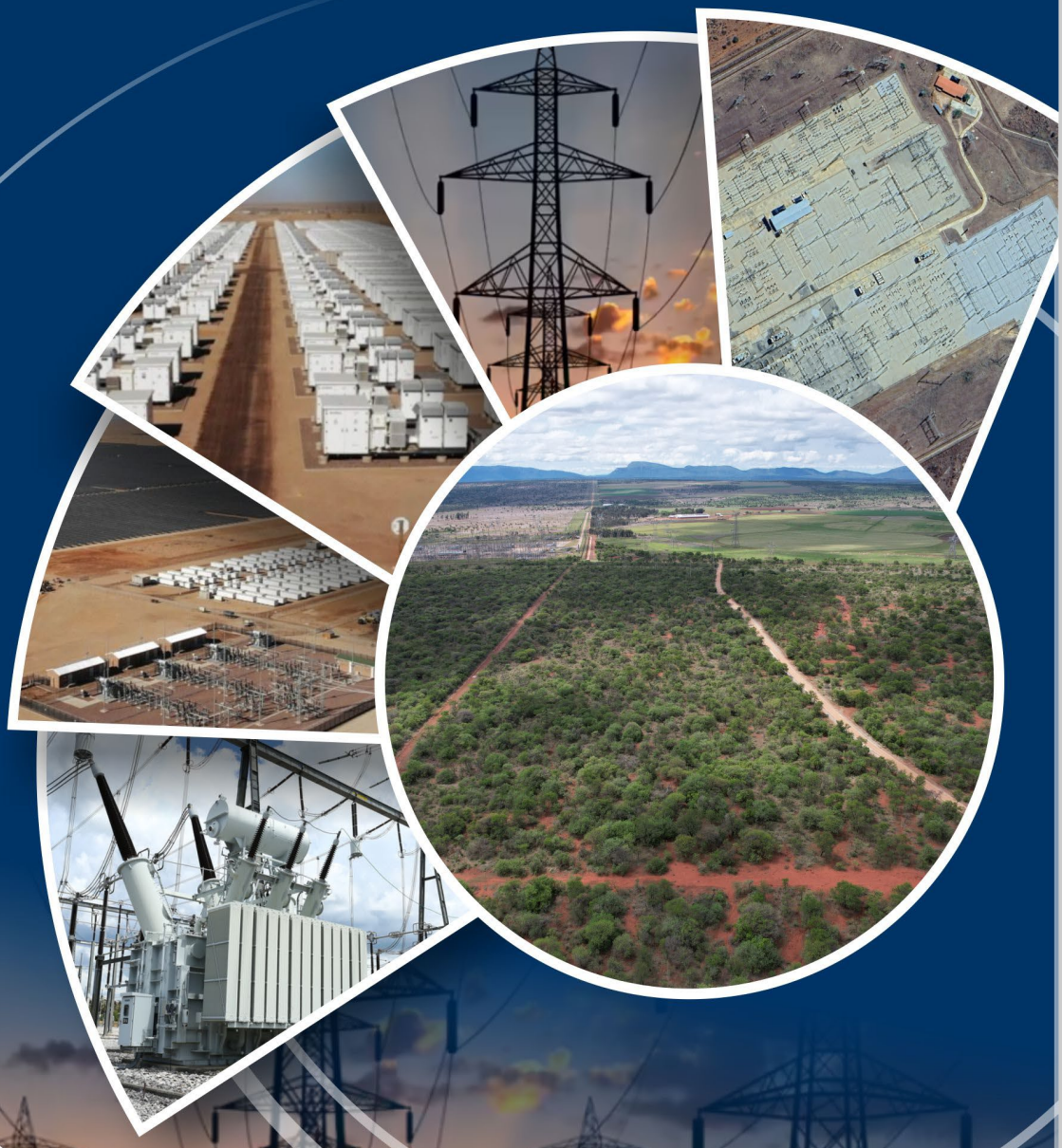
Table 9.4: Summary of Specialist Assessments undertaken for the Veroniva EGI (Project 2).

	Specialist Assessment undertaken	Required by Screening Tool or Additional?	Relevant to Specific Project?	Level of Assessment during the BA Phase	Appendix of BA Report for Specialist Assessment (including SSV)	Reporting Structure for the BA Phase
1	Agriculture	▪ Screening Tool for Power Line and Substation ▪ Additional for BESS	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Compliance Statement	Appendix E.1	1 * Report to address Projects 1 and 2
2	Terrestrial Biodiversity, Terrestrial Plant Species and Terrestrial Animal Species	▪ Screening Tool	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Terrestrial Biodiversity: Impact Assessment ▪ Terrestrial Plant Species: Compliance Statement ▪ Terrestrial Animal Species: Compliance Statement	Appendix E.2	1 * Report to address Projects 1 and 2
3	Aquatic Biodiversity and Species	▪ Screening Tool	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Aquatic Biodiversity and Species: Impact Assessment	Appendix E.3	1 * Report to address Projects 1 and 2
4	Avifauna	▪ Screening Tool for Power Line ▪ Additional for BESS and Substation	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Impact Assessment	Appendix E.4	1 * Report to address Projects 1 and 2
5	Visual	▪ Screening Tool for Power Line and BESS ▪ Additional for Substation	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Impact Assessment	Appendix E.5	1 * Report to address Projects 1 and 2
6	Heritage (Archaeology and Cultural Heritage)	▪ Screening Tool	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Impact Assessment	Appendix E.6	1 * Report to address Projects 1 and 2
7	Palaeontology	▪ Screening Tool	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Letter of Exemption	Appendix E.7	1 * Report to address Projects 1 and 2
8	Geotechnical Letter of Opinion	▪ Screening Tool for Power Line and Substation ▪ Additional for BESS	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Letter of Opinion	Appendix E.11	1 * Report to address Projects 1 and 2
9	Civil Aviation	▪ Screening Tool for Power Line ▪ Additional for BESS and Substation	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Site Sensitivity Verification	Appendix E.13	1 * Report to address Projects 1 and 2
10	Defence	▪ Additional for BESS, Substation and Power Line	▪ Project 1 – Veroniva BESS ▪ Project 2 – Veroniva EGI	▪ Site Sensitivity Verification	Appendix E.14	1 * Report to address Projects 1 and 2

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 10:
Description of Alternatives



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10. APPROACH TO THE ASSESSMENT OF ALTERNATIVES

This chapter discusses the alternatives that have been considered as part of the Basic Assessment (BA) Process, as well as the selection process of the preferred alternatives that have been assessed for the following proposed projects that are addressed in this report:

- **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS).
- **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

Note: The information throughout this chapter applies to each of the projects addressed in this report (i.e. Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)), unless where mentioned otherwise.

Sections 24(4) (b) (i) and 24(4A) of the National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) require an Environmental Assessment to include investigation and assessment of impacts associated with alternatives to the proposed project. In addition, Section 24O (1)(b)(iv) also requires that the Competent Authority, when considering an application for Environmental Authorisation (EA), takes into account "*where appropriate, any feasible and reasonable alternatives to the activity which is the subject of the application and any feasible and reasonable modifications or changes to the activity that may minimise harm to the environment*".

The 2014 NEMA Environmental Impact Assessment (EIA) Regulations (as amended) define "alternatives", in relation to a proposed activity, "*as different means of meeting the general purpose and requirements of the activity, which may include alternatives to the:*

- *property on which or location where the activity is proposed to be undertaken;*
- *type of activity to be undertaken;*
- *design or layout of the activity;*
- *technology to be used in the activity;*
- *operational aspects of the activity; and*
- *includes the option of not implementing the activity*".

Regulation 2 of Appendix 1 of the 2014 NEMA EIA Regulations (as amended) states the objectives of the BA Process. Some of the objectives that relate to alternatives are, through a consultative process, to:

- Identify the alternatives considered, including the activity, location, and technology alternatives.
- Through a ranking of the site sensitivities and possible impacts the activity and technology alternatives will impose on the sites and location identified through the life of the activity to (i) identify and motivate a preferred site, activity and technology alternative; (ii) identify suitable

measures to avoid, manage or mitigate identified impacts; and (iii) identify residual risks that need to be managed and monitored.

The BA Report is therefore required to provide a description of the process followed to reach the proposed preferred activity, technology, site and location of the development footprint within the site, including details of all the alternatives considered and the outcome of the site selection matrix.

10.1 Assessment of Alternatives

10.1.1 No-go Alternative

The no-go alternative assumes that the proposed projects will not go ahead i.e. it is the option of not developing the proposed projects and associated infrastructure. This alternative would result in no environmental impacts on the site or surrounding local area as a result of the proposed projects. It provides the baseline against which other alternatives are compared.

The following implications will occur if the “no-go” alternative is implemented (i.e. the proposed projects do not proceed):

- No benefits will be derived from the implementation of an additional land-use;
- No additional energy will be stored and transmitted through means of a BESS by the proposed project at this location;
- The “no-go” alternative will not contribute to and assist the government in achieving its energy storage target of 3 724 MW by 2030 (Integrated Resource Plan (IRP), 2025);
- The local economy in terms of surrounding communities and towns within the local municipality will not be diversified, while existing electricity generation, transmission and storage sources nationally will age and degrade over time, with maintenance requirements potentially leading to outages;
- There will be lost opportunity for skills transfer and education/training of local communities;
- The positive socio-economic impacts likely to result from the proposed projects, such as increased local spending and the creation of local employment opportunities, will not be realised;
- There will be no opportunity for additional employment in an area where job creation is identified as a key priority;
- The local economic benefits associated with the Battery Energy Storage Independent Power Producer Procurement Programme (BESIPPPP) will not be realised, and socio-economic contribution payments into the local community trust will not be realised;
- The development of large-scale energy storage facilities, coupled with renewable energy, instead of coal fired power stations can directly contribute to South Africa’s response to climate mitigation; and
- The development of the proposed projects can contribute to the competitive nature of the BESIPPPP to drive electricity prices down further to ensure that South Africans have access to affordable yet clean electricity.

A standalone BESS such as the proposed Veroniva BESS will provide ancillary support to ensure reduced losses in the system via voltage and frequency support; and the BESS will charge in times of excess supply and low demand, and discharge in times of high demand and low supply. This is particularly beneficial in the proposed project area, due to the large concentration of planned solar photovoltaic (PV) facilities within the 30 km radius, as well as the existing Witkop Solar PV facility. The proposed Veroniva BESS and EGI will provide support to the existing Eskom Witkop Main Transmission Substation (MTS) ensuring power supply in the area is more regular. In addition, according to Scatec (no date[1]) "*renewable generation alone is not enough. To achieve net zero and build resilient energy systems, renewables, alongside modern and responsive grid and transmission infrastructure, must be coupled with large-scale storage that ensures reliability, flexibility and stability"*. These benefits will not realise if the "no-go" alternative is implemented (i.e. the proposed projects do not proceed).

Converse to the above, the following benefits could occur if the "no-go" alternative is implemented:

- Only game farming (with potential prospecting) will remain;
- No vegetation or protected species (flora) will be removed or disturbed during the development of the proposed projects;
- No destruction of habitat will occur;
- No noise impacts associated with construction activities will occur;
- No avifaunal impacts will occur due to the establishment of the proposed projects;
- No additional traffic will be generated; and
- No additional water use will be required.

The no-go alternative has been considered by the specialists. Refer to Appendix E.1 to E.12 of this BA Report for the Specialist Studies and Inputs, that include feedback on the no-go alternative, where relevant. It is important to note that none of the specialists identified any environmental fatal flaws, and no unacceptable impacts (with the implementation of mitigation measures) have been identified.

The no-go alternative means no addition of energy storage and transmission infrastructure, which means further potential reliance on fossil fuels that will continue to have a negative environmental impact. While the no-go alternative i.e. not developing the proposed projects will not result in any negative environmental impacts in the area, it will also not have any positive community development or socio-economic benefits. In addition, it will not assist government in addressing climate change and reaching its set targets for energy storage, nor will it assist in alleviating grid constraints, providing peak-time energy, and supporting renewable integration into the grid. **Hence, the no-go alternative is not the preferred alternative, nor is it a reasonable and feasible alternative to be considered in this BA Process**.

[1] Scatec (no date). Powering the transition – why Battery Storage matters now. https://www.scatec.com/en/powering-the-transition-why-battery-storage-matters-now/ [online]. Accessed April 2026.

10.1.2 Land-Use Alternatives

According to the Agricultural Compliance Statement (Appendix E.1 of this BA Report), the cropping potential of the study area is limited by the combination of climate and soil constraints. The climate is classified as temperate with dry winters and warm summer; and soils are limited by rockiness. Because of these constraints, the site is unsuitable for viable rainfed crop production, and its viable agricultural use is limited to grazing. Cropping in the area is restricted to irrigation on non-rocky soils that occur further down the slope and away from the mountain.

The Agricultural Compliance Statement assigns a medium agricultural sensitivity following the site sensitivity verification due to its limited cropping potential. The study further assesses that the entire development footprint is below the threshold for needing to be conserved as agricultural production land because of the limitations that make it unsuitable as viable cropland. The proposed development on this land will result in negligible loss of future agricultural production potential in terms of national food security.

Therefore cultivation (i.e. agricultural land-use) is not deemed feasible as a land-use alternative for assessment during the BA Phase. The proposed projects will also have wider societal benefits of generating additional income and employment in the local economy. The development of the proposed projects at the preferred site is more favourable than the agricultural land-use alternative. **Hence, the agricultural land use is not a preferred alternative, and is not deemed as feasible for consideration in the BA Phase, based on the motivation provided above.**

10.1.3 Type of Activity Alternatives for Energy Storage and Grid Connection

10.1.3.1 Activity Alternatives – Veroniva BESS – Project 1

Note: The information in this section applies to Project 1 (Veroniva BESS) only.

The type of activity relates to the storage of energy during periods of less demand and dispatching that energy when needed. Electrochemical BESS was the only energy storage option that was identified and considered feasible by the Applicant. Other mechanical, electrical and thermal energy storage systems were not considered. **Therefore, no other activity types were considered or deemed appropriate for this BA Process**.

10.1.3.2 Activity Alternatives – Veroniva EGI – Project 2

Note: The information in this section applies to Project 2 (Veroniva EGI) only.

In terms of the alternatives considered for the Electricity Grid Infrastructure (EGI), this is entirely dependent on the activity associated with the proposed BESS facility. Essentially, the proposed BESS facility governs the type of activity associated with the proposed EGI project. The activity to be undertaken is therefore the transmission of electricity that will be stored by the proposed BESS facility. The only feasible method of transmitting the stored energy is via a power line and on-site substation. **Therefore, no other activity types were considered or deemed appropriate for this BA Process**.

10.1.4 Planning context for Renewable Energy and Battery Storage

This section provides an overview of the national planning context for renewable energy and battery storage, that informs the site selection.

10.1.4.1 National Planning Context for Battery Energy Storage that informs the Site Selection

The 2025 IRP for South Africa specifies that BESS is essential to solve the energy crisis. It mandates the procurement of 6 724 MW of battery storage by 2039 to manage the natural variability of renewable energy (such as wind and solar PV) and stabilize the national grid. Utility-scale battery energy storage systems can absorb surplus power (such as during off-peak hours or times with over-supply such as midday energy from solar PV facilities) and discharge it during peak demand or times when renewable energy is not generating power, thus balancing the energy supply into the grid and improving operational efficiency. The 2025 IRP sets the target of 3 724 MW of battery storage by 2030.

In 2023, the Department of Mineral Resources and Energy (DMRE) announced the first bid window of the BESIPPPP for 513 MW (DMRE, 2024b[2]). Four preferred bidders were announced in late 2023, with a total contract capacity of 360 MW at the Nieuwehoop, Mookodi, Ferrum and Aggeneis substations. In December 2023, the DMRE announced the second bid window of the BESIPPPP which closed on 29 August 2024, focusing on substations in the North-West province, totalling 615 MW. In March 2024, the DMRE announced the third bid window of the BESIPPPP which closed in November 2024, focused on substations in the Free State province, totalling 616 MW (DMRE, 2024b). In May 2025, the Minister of Electricity and Energy, Dr Kgosientsho Ramokgopa, announced the preferred bidders for Bid Window 3, naming five successful bidders across the Free State, representing an investment of R 9.5 billion (Ministry of Electricity and Energy, 2025[3]).

Limpopo province is expected to be included in forthcoming BESIPPPP bid windows, as the Department of Electricity and Energy expands the programme's footprint across South African electrical substations. This informed the selection of this study area in proximity to the Eskom Witkop MTS.

10.1.4.2 Alternative renewable energy sources and suitability for solar PV supply

This section provides a high-level review of potential alternative energy sources in the vicinity of the Eskom Witkop MTS, to indicate the suitability of the area for generating excess energy from solar PV in support of a BESS facility. The potential sources of renewable energy are discussed below with supporting analysis provided in Figure 10-1:

Biomass energy: The study area does not contain an abundant or sustainable supply of biomass. As indicated in Figure 10.1, the study area has less than 5 000 t/a annual forestry residue biomass, which is the lowest for this category. Therefore, the study area does not have any biomass energy potential.

[2] DMRE (2024b). Energy Storage IPP Procurement Programme. https://www.ipp-storage.co.za/ [online]. Accessed July 2024.
[3] Ministry of Electricity and Energy (2025). Media Statement Announcement of Preferred Bidders under the 3rd Bid Window of the Battery Energy Storage in Independent Power Producer Procurement Programme (BESIPPPP), IPPPP Tender No: DMRE/022/2023/24, 30 May 2025. https://www.dbsa.org/sites/default/files/media/documents/2025-06/Media%20Statement%20Preferred%20Bidders%20BESIPPPP%20BW3%2030052025.pdf [online]. Accessed May 2026.

Hydro energy: The study area does not contain any large inland water bodies, which excludes the possibility of renewable energy from small- or large-scale hydro energy generation. In terms of macroscale hydropower potential (Figure 10.1), the study area falls within an area classified as "Not Suitable" (i.e. less than 1 000 kWh/year).

Wind energy: To ensure that a wind energy facility is successful, a reliable wind resource is required. Wind resource is defined in terms of average wind speed and includes Weibull distribution (used to describe wind speed distributions); turbulence, wind direction, and pattern of wind direction (as depicted by a wind rose). These factors are all key considerations used in determining whether a site is suitable for the development of a wind energy facility. A mean wind power density map has been created (CSIR, 2018), which is not related to any specific turbine type and demonstrates the wind resource of the country. The mean wind power density map shows that the study area falls within an area of approximately less than 100 W/m^2 and 101 – 300 W/m^2 (Figure 10.1).

Solar energy: In terms of the suitability of solar energy development at this location, the study area falls within the **second highest** Global Horizontal Irradiation[4] (GHI) category, relevant to PV installations (Figure 10.1). The study area has a GHI of 2 000 kWh/m^2 to 2 200 kWh/m^2 in terms of the long-term yearly total. This area is one of the most suitable for the construction and operation of solar energy facilities as opposed to other areas and provinces within South Africa. For example, coastal regions within the Eastern Cape and KwaZulu-Natal mainly have a lower GHI (shown in the lighter orange shades in Figure 10.1), which is not completely feasible for the proposed projects. Furthermore, the location of the site is closer to the main demand centre for energy in South Africa (i.e. Gauteng) than much of the area in the highest GHI category. The suitability of the area for Solar PV is verified by there being several solar PV projects within 30 km that already have EA or are in the planning phase.

[4] Global Horizontal Irradiance is the total amount of shortwave radiation received from above by a surface horizontal to the ground.

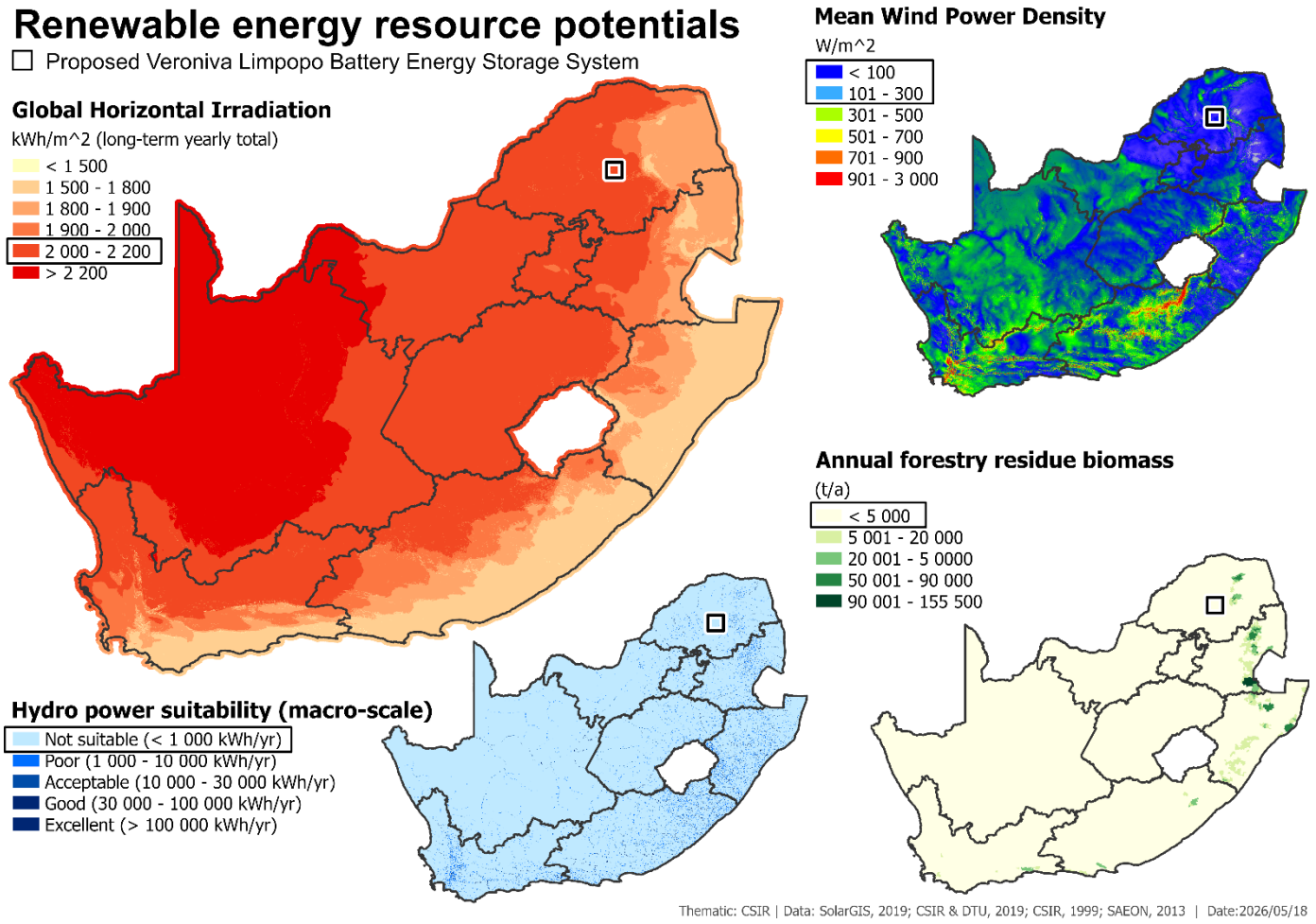


Figure 10.1: Solar Resource Availability / Global Horizontal Irradiation (kWh/m^2); Annual Mean Wind Power Density (W/m^2); Hydropower Potential (kWh/year); and Biomass Potential in terms of Annual Forestry Residue (t/a) for South Africa. The proposed project location is indicated by the black square.

10.1.5 Site Alternatives

The 2014 NEMA EIA Regulations (as amended), requires a site selection matrix to be provided to show how the preferred site was determined through a site selection process. Within this context, the "site" is essentially the study area, as indicated in Chapter 2 and Chapter 3 of this BA Report, which covers an area of approximately 65 ha (18 ha of which was considered for the grid connection). The BA Process also included consideration of the proposed widening / upgrading of the existing External Access Road Option A and Option B.

The preferred site (i.e. study area) was strategically selected by the Project Developer based on various factors and detailed research, as noted below:

- As an initial step, the Project Developer undertook internal research, exploration work, and a desktop feasibility analysis (based on the grid connection options, resource availability, demand for energy storage and the need for grid stability, and land availability) in order to identify the preferred site. When selecting the preferred site, the developer considered the following:

    - Proximity to the national grid: Several existing Eskom power lines run through the study area, and the Eskom Witkop MTS is less than 1 km from the proposed BESS location, which makes a potential connection opportunity available for the proposed BESS. This was a considerable pull factor in selecting the preferred site, as grid connection is an important factor.

    - Potential for excess renewable energy: Given the high solar PV resource in the area and that several solar PV facilities are either already authorised and/or in the planning phase, the site was considered suitable for sourcing electrical energy from grid for storage during times of energy excess and re-distribution during times of peak demand.

    - Avoidance of the Square Kilometre Array (SKA): It was also important for the site to be located outside of the Karoo Central Astronomy Advantage Area (KCAAA) so that there are no unacceptable impacts on the SKA, which could potentially be a fatal flaw or require significant investment in Radio Frequency Interference and Electromagnetic Control studies to be undertaken.

- The Project Developer then consulted the National Department of Forestry, Fisheries and the Environment (DFFE) Screening Tool, other available datasets, and the South African National Biodiversity Institute (SANBI) Biodiversity GIS (BGIS) system, to identify desktop environmental sensitivities and to determine if there are any clear fatal flaws and concerns. The findings indicated that the study area is generally developable. In this way, the avoidance principle in the mitigation hierarchy was applied at the start of the site selection process.

- The Project Developer then consulted with the owner of the farm portion on which the BESS will be developed (i.e. Portion 5 of Farm Snymansdrift 738 LS) to obtain consent to develop the proposed BESS, and to also identify any areas where development must be excluded based on the requirements of the landowner. As indicated in preceding chapters, the Dream Hills Estate / Private Game Farm occurs on Portions 5 and 35 of Farm Snymansdrift 738 LS.

Portions 5 and 35 of Farm Snymansdrift 738 LS have the same landowner. There is also an amendment application to an existing prospecting right on Portion 5 of Farm Snymansdrift 738 LS, and surrounding portions. The Project Applicant and the Prospecting Rights Holder have a co-existence agreement noting that no prospecting will occur within the BESS and EGI area. Overall, the landowner of Portion 5 of Farm Snymansdrift 738 LS has consented to the proposed development and has informed the Applicant of the areas that need to be avoided by the proposed BESS and EGI projects. These landowner exclusion zones were acknowledged and implemented during the site selection process.

During discussions between the Terrestrial Biodiversity Specialist and Dr Philip Desmet (one of the authors of the Limpopo Conservation Plan Version 2), Dr Desmet enquired if certain other nearby sites (previously cultivated lands now secondary grassland) were also considered. Feedback is provided below regarding these potential alternative sites:

- Site on Farm 742/2: This area directly coincides with the proposed and authorised Zandrivier Solar 3 PV Solar Energy Facility and associated infrastructure (DFFE Reference Number: 14/12/16/3/3/2/2630), as well as the proposed and authorised Zandrivier BESS (DFFE Reference Number: 14/12/16/3/3/1/3148). Therefore, it has already been signed up by another developer. Furthermore, based on feedback from the Aquatic Biodiversity Specialist for the Veroniva BESS and EGI project, this potential alternative site is likely in proximity to the seep wetlands identified in the project fieldwork. This would likely encroach into the buffer zones indicated by the Aquatic Biodiversity Specialist for the Veroniva BESS and EGI project. Refer to Chapter 4 and Appendix E.3 for additional information. Encroachment into the buffer zones will require more stringent management actions. The current preferred development footprint of the Veroniva BESS and EGI project, as well as the development footprint for Access Road Option B, do not intersect with any aquatic features and is thus low sensitivity from an aquatic biodiversity perspective. The aquatic baseline for that portion of the project development area (i.e. BESS, EGI and Access Road Option B) is therefore characterised by the absence of wetlands, drainage lines, riparian habitat, hydromorphic soils and other aquatic features. Access Road Option A was the only infrastructural component directly associated with a seep wetland feature which was classified as high sensitivity aquatic habitat.

- Site on Farm 738/5: As indicated above, the Dream Hills Estate / Private Game Farm occurs on Portions 5 and 35 of Farm Snymansdrift 738 LS. There is also an amendment application to an existing prospecting right on Portion 5 of Farm Snymansdrift 738 LS, and surrounding portions. The landowner of Portion 5 of Farm Snymansdrift 738 LS informed Veroniva of areas that need to be avoided by the proposed BESS and EGI projects. Therefore, considering landowner land requirements, the Dream Hills Estate / Private Game Farm, as well as the prospecting right, the potential alternative site on this property is not viable. Furthermore, based on feedback from the Aquatic Biodiversity Specialist for the Veroniva BESS and EGI project, the potential alternative site is directly associated with the impoundment identified in the project fieldwork, and therefore would reduce its suitability from an aquatic biodiversity perspective. Refer to Chapter 4 and Appendix E.3 for additional information.

- Site on Farm 25/1: Based on desktop data, this potential alternative site contains a non-perennial watercourse flowing through it. The Aquatic Biodiversity Specialist for the Veroniva BESS and EGI project notes that this would reduce the suitability of this potential alternative

site from an aquatic biodiversity perspective. There is also an unnamed inhabited farmstead on this property. The High-Level Safety, Health and Environment (SHE) BESS Risk Assessment undertaken for the proposed Veroniva BESS project (Appendix E.12 of this BA Report), recommended a 500 m precautionary separation distance from public facilities and residences. This separation distance would therefore reduce the area available for development.

- Site on Farm RE/9/20: This area directly coincides with the authorised and existing Witkop Solar Park (DFFE Reference Number: 12/12/20/2153). Therefore, it has already been signed up by another developer. In addition, based on feedback from the Aquatic Biodiversity Specialist for the Veroniva BESS and EGI project, this potential alternative site would directly affect the seep wetland identified in the project fieldwork, which likely flows through this property. This will require more stringent management actions. Refer to the feedback above on the aquatic biodiversity sensitivity of the development footprint of the Veroniva BESS and EGI project.

- Site on Farm RE/1/20: Based on the 2024 National Biodiversity Assessment (NBA) National Wetland Map 6 dataset, this potential alternative site is in proximity to desktop delineated wetlands. In addition, based on feedback from the Aquatic Biodiversity Specialist for the Veroniva BESS and EGI project, this potential alternative site would likely affect the seep wetland identified in the project fieldwork. This will require more stringent management actions. Considering the desktop data, the suitability of this potential alternative site from an aquatic biodiversity perspective is reduced. The Socio-Economic Impact Assessment undertaken for the proposed Veroniva BESS project (Appendix E.8 of this BA Report) notes that a small cluster of what appear to be workers houses is located to the immediate south of the R519 opposite the access road to the Wiggill Kudu Ranch. The High-Level SHE BESS Risk Assessment undertaken for the proposed Veroniva BESS project (Appendix E.12 of this BA Report), recommended a 500 m precautionary separation distance from public facilities and residences. This separation distance would therefore reduce the available area for development on this potential alternative site.

Note that the above potential alternative sites are not formally ranked alternatives, as they were not viable alternatives, as explained above. The above provides feedback on the contributing factors leading to the preferred site selection.

Furthermore, from an impact and risk assessment perspective, the implementation of the proposed projects at the **preferred site** will most likely result in fewer risks in comparison to its implementation at alternative sites within the Limpopo province, based on the following points:

- There is no guarantee that the current land use of alternative sites will be flexible in terms of development potential.
- There is no guarantee of the willingness of other landowners to allow the implementation of a BESS and EGI development on their land and if the landowners strongly object, then the project will not be feasible.
- There is no guarantee that other sites will be located close to existing or proposed EGI to enable connection to the national grid. The further away a project is from the grid, the higher the potential for significant environmental and economic impacts.

10.1.5.1 Site Specific Considerations

On a site specific level, the preferred site was deemed suitable due to all the site selection factors (such as land availability, environmental sensitivities, distance to the national grid, potential for excess renewable energy, suitable substations in Limpopo linked to potential bid windows of the BESIPPPP, avoidance of the SKA, site accessibility, topography, current land use and landowner willingness) being favourable. The site selection criteria considered by Veroniva are discussed in detail below in Table 10.1.

Table 10.1: Site selection factors and suitability of the preferred site for the development of the proposed projects.

FACTOR	SUITABILITY OF THE PREFERRED SITE
Land Availability	The land available for the development of the proposed projects is approximately 65 ha in extent. Although this total area was assessed by the specialists (via desktop and/or site visits), the entire area will not be required for the permanent development footprint of the proposed projects and their associated infrastructure. Refer to Chapter 2 and Chapter 3 of this BA Report for project footprint specifications. The BESS will have an overall development footprint of approximately 15 ha, and the 132 kV overhead Loop-In-Loop-Out (LILO) power line will be developed within an approximately 40 m wide servitude (i.e. approximately 20 m on either side of the power line). The LILO power line will be routed from the proposed switching station to the existing Eskom Pietersburg / Witkop 1 Power Line. In order to accommodate the BESS, the existing Eskom Pietersburg / Witkop 1 Power Line, specifically the section from the LILO to the Eskom Witkop Main Transmission Substation, may require upgrading. Such upgrading will take place within the existing and operational servitude of the existing power line. Chapter 2 of this BA Report also includes the specifications regarding the proposed widening / upgrading of the existing external access roads (Options A and B).
Environmental Sensitivity	Although the study area does contain environmental features that need to be avoided due to high environmental sensitivity, as described in Chapter 4, and other relevant chapters of the BA Report, as well as the Specialist Reports in Appendix E of this BA Report, following these exclusions sufficient suitable land is still available to ensure the development feasibility of the proposed projects.
Distance to and availability of the Grid	The proposed BESS is planned to connect to the existing 132 kV Eskom Pietersburg / Witkop 1 overhead power line via a 132 kV LILO. The existing 132 kV Eskom Pietersburg / Witkop 1 overhead power line in turn connects to the existing Eskom Witkop Main Transmission Substation. The proposed project is approximately 90 m from the existing 132 kV Eskom Pietersburg / Witkop 1 overhead power line, and approximately 145 m from the Eskom Witkop Main Transmission Substation. This proximity presents a significant benefit to potential connection to the grid.
Site Accessibility	The proposed project site can be accessed via various existing main roads and gravel roads. Direct access to the proposed project will be taken from the R519. There are two options for external access to the proposed project site i.e. External Access Road Option A and External Access Road Option B. **Option A** is a gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation. **Option B** is a tarred road off the R519 (which leads directly to the Eskom Witkop Substation), and a paved road just before the Eskom Witkop Substation gate (slight left), up until the access gate to Farm 738/5. Thereafter new access roads will be developed within Farm 738/5, where they do not align with existing roads, or existing roads will be used as far as practically achievable.

FACTOR	SUITABILITY OF THE PREFERRED SITE
	Where new access roads are required, these will be 4 - 8 m wide. The bell mouth at the access roads leading to the IPP substation and switching station will extend up to approximately 19 m wide to accommodate turning vehicles. Where existing roads are used, they may need to be upgraded. Specifically, External Access Road Options A and B will require some widening. Refer to Chapter 2 of this BA Report for additional information. The Traffic Impact Assessment (Appendix E.9 of this BA Report) concluded that the proposed access options are supported from a traffic engineering perspective and therefore acceptable, with adherence to the recommendations within the specialist report. Additional information is provided in Chapter 2 and Chapter 3 of this BA Report, as well as the Traffic Impact Assessment which is included in Appendix E.9 of this BA Report.
Topography	The Visual Specialist noted that the study area region includes Polokwane Plateau Bushveld on rolling topography, Mamabolo Mountain Bushveld on natural hills (lower slopes), and Mamabolo Mountain Bushveld on natural hills (ridge lines). The Geotechnical Specialist noted that the topography in the region has been classified in terms of development based on classes suggested by Stiff et al. (1996)[5]. The majority of the region is classified as 'most favourable' followed 'intermediate' by due to the flat nature of the site. It is also noted that the region north of the study area is defined by 'Least Favourable' slopes i.e., slopes exceeding 12°. This preferred development footprint avoids this area. Additional information regarding topography is included in the Visual Impact Assessment (Appendix E.5 of this BA Report) and the Geotechnical Letter of Opinion (Appendix E.11 of this BA Report).
Current Land Use	Game farming
Landowner Willingness	The affected landowner (i.e. landowner of Portion 5 of Farm Snymansdrift 738 LS) has signed a letter of consent for the use of the land for the proposed development (should EA be granted). This is considered an important aspect in terms of the project viability (i.e. this will limit potential appeals during the decision-making process, as the landowner is willing and supportive of the proposed development being undertaken on the affected farm portion). As indicated above, the potential upgrading of the existing Eskom Pietersburg / Witkop 1 Power Line, from the LILO to the Eskom Witkop Main Transmission Substation will take place within the existing and operational servitude of the existing power line. Therefore, no new land rights (or servitude) will be acquired by the Applicant for such upgrading on Remaining Extent of Portion 2 of Farm Zandrivier 742 LS and Portion 47 of Farm Wildebeestfontein 20 KS.

Furthermore, one of the main determining points for the Project Developer was to find suitable, developable land in one contiguous block to (i) optimize design, (ii) minimize construction and operational costs, and (iii) minimize sprawling development and limit the impact footprints. The proximity to the existing Eskom 132 kV power line was also a major determinant for identifying suitable sites for the proposed development, as indicated above.

[5] Stiff, J., S., Croukamp, L., Keyter, G., J., McKnight, C. L., Tromp, B., van Rooy, J. L., Venter, J., P., (1996). Guidelines for Urban Engineering Geological Investigations. South African Association of Engineering Geologists (SAIEG) & South African Institution of Civil Engineers (SAICE): Geotechnical Division, South Africa. Reference extracted from the Geotechnical Letter of Opinion (Appendix E.11 of this BA Report).

Given the site selection requirements and the suitability of the land available on the preferred site, and the fact that no initial fatal flaws are present on the site, as well as the motivating factors listed above, no other site alternatives were considered as part of this BA Process. Therefore, the site is deemed feasible and selected as the preferred site.

10.1.6 Location Alternatives – Development Footprint within the Preferred Site

The strategic process followed to reach the preferred site and to consider various development footprints (or location alternatives) within the preferred site is discussed in this section and illustrated in Figure 10.2. The approach followed was to use environmental and social constraints to avoid sensitive features, thus applying mitigation hierarchy thinking. This approach replaces the need to rank alternative sites and locations, as it leads to the selection of the least sensitive development footprint.

Once the preferred site was identified, the study area was plotted on the DFFE Screening Tool to identify high-level environmental sensitivities. Following this, the Council for Scientific and Industrial Research (CSIR) serving as the independent Environmental Assessment Practitioner (EAP) and Specialists were appointed to undertake the Environmental Sensitivity Analysis (Phase 1) and BA Process (Phase 2).

During Phase 1, the specialists considered the high-level sensitivities identified on the Screening Tool and undertook Site Sensitivity Verifications (SSVs) within the study area (where site access was granted), where required, in order to confirm or dispute the sensitivities identified by the Screening Tool. Where required, the specialists assessed the preferred site (i.e. approximately 65 ha), which serves as the study area for this BA Process. The specialists then formulated environmental feature and sensitivity maps for the study area.

Based on the specialist findings, the Project Developer took such sensitivities, and other considerations, into account and formulated the **Buildable Areas**, which avoid the no-go areas identified by the specialists.

At the end of Phase 1 (Environmental Sensitivity Analysis), the specialists confirmed that there were no fatal flaws and that proposed development can proceed to the BA Process (i.e. Phase 2).

Based on the specialist findings during the Environmental Sensitivity Analysis and the BA (i.e. Phases 1 and 2), the no-go or highly sensitive environmental features found within the preferred site / 65 ha study area were able to be avoided by the location, layout and design of the proposed projects. Following the exclusion of the required areas, sufficient developable area is still available on site which does not compromise the current ecological integrity of the site. The Project Developer then identified the preferred location of the development footprint within the study area and formulated the layouts based on the specialist findings. The BESS will have an overall development footprint of approximately 15 ha, and the 132 kV overhead LILO power line will be developed within an approximately 40 m wide servitude (i.e. approximately 20 m on either side of the power line). The external access roads leading to the site (i.e. Option A and Option B) may require widening or upgrading and also forms part of the development footprint for the Veroniva

BESS (Project 1), and thus the overall study area considered in this BA Process. The current layout is thus a culmination of extensive technical, economic and environmental planning.

The environmental feature and sensitivity maps (where relevant) are included in Chapter 4 and Chapter 13 of this BA Report, as well as in Appendix D (Maps) and Appendix E (Specialist Studies and Inputs) of the BA Report. These maps show the identified environmental features and sensitivities such as terrestrial biodiversity, aquatic features, avifauna, heritage, visual, and geohydrological features present within the study area and/or in the vicinity. Chapter 13 of this BA Report includes the proposed project layout maps, which are also included in Appendix D of this BA Report, as well as the specialist studies (Appendix E) and EMPrs.

It must be re-iterated that a strategic site, location and development footprint identification process has been followed, where the selection is informed by the environmental constraints identified through screening. This is based on the mitigation hierarchy approach of firstly trying to avoid impacts through careful siting. Therefore, it must be noted that different site, location or development footprint alternatives are not ranked, but rather a strategic process was followed (as shown in Figure 10.2) where sensitive features are screened out, in order to reach the preferred location or development footprint within the preferred site.

Furthermore, the location, alignment and need for the proposed LILO are intrinsically linked to the optimal siting of the BESS facility. The LILO constitutes enabling infrastructure required to dispatch electricity to the national grid and, as such, cannot be considered in isolation. The routing and technical specifications of the LILO are therefore dependent on the preferred layout and positioning of the BESS facility, which have been informed by environmental constraints, technical feasibility, and grid connection requirements.

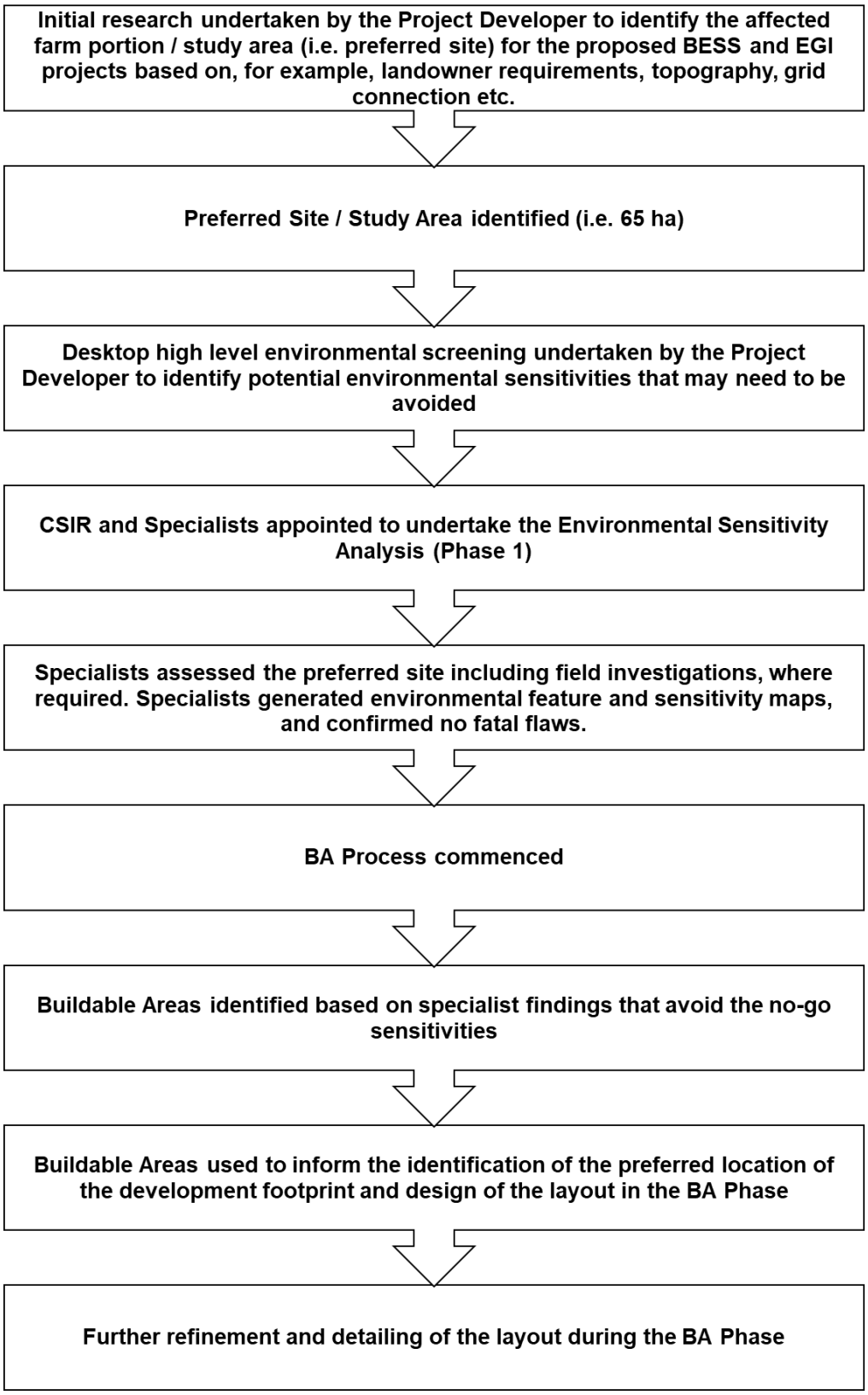


Figure 10.2: Process flow for the identification of the Preferred Site and Development Footprint.

10.1.7 Technology Alternatives

The following technologies were considered as part of this BA Process.

10.1.7.1 Technology Alternatives – Veroniva BESS – Project 1

Note: The information in this section applies to Project 1 (Veroniva BESS) only.

As indicated in Chapter 2 of this BA Report, **Solid State, Lithium-Ion BESS** is being proposed. It must be reiterated that only one technology i.e. Solid State Lithium-Ion BESS was assessed as part of this BA Process since the inception and no other technologies were assessed.

The information described below regarding Redox Flow BESS is intended to serve as background and contextual information (not for formal ranking against each other in order to identify the most preferred alternative). Table 10.2 provides high level advantages and disadvantages of the two technologies.

Table 10.2: Advantages and disadvantages associated with Solid State and Redox Flow BESS technologies (Sources: Parsons, 2017[6]; Zhang *et al*., 2016[7]).

BESS technologies being considered	Advantages	Disadvantages
Solid State Lithium-Ion BESS	▪ Sealed systems i.e. pre-assembled off site and delivered to site for placement (i.e. carries less potential risk to the environment in terms of spillages). Hence, they are easier to install and will not likely need many permanent staff. ▪ Reduced risk of spillage as storage of large quantities of electrolyte is not required.	▪ Explosions and fires can occur as well as the possibility of generating noxious smoke under these circumstances. This can occur as result of electrolytes mixing when a breach occurs due to: - improper maintenance near operating temperature, - thermal expansion, or - freeze thaw cycles. ▪ Over the long term, these BESS may be more difficult to repurpose / dispose of and may present cumulative long term environmental impacts.
Redox Flow Batteries (RFB)	▪ RFBs are self-discharging systems therefore generally require little maintenance. However, RFBs are more difficult to install, i.e. formal brick and mortar structures, and will potentially require many permanent staff. ▪ High economic efficiency, for example, Vanadium has a high economic value and can be recycled.	▪ Risk of spillage tends to be higher for RFB as opposed to sealed solid-state BESS as the storage tanks of RFB, may be subjected to leaks or spills during the replacement or blending of the electrolyte, or during transport of the battery to and from site. ▪ Electrolyte used is generally considered as a dangerous good in terms of the EIA Regulations, which would most likely

[6] Parsons, 2017. US Trade and Development Agency. South Africa Energy Storage Technology and Market Assessment. Order Number: TDA-IE201511210. USTDA Activity Number: 2015-11032A. Parsons Job Number: 640368.

[7] Zhang, X., Tang, Y., Zhang, F., and Lee, C. S., (2016). A novel aluminum–graphite dual-ion battery. Advanced energy materials, 6(11), p.1502588.

BESS technologies being considered	Advantages	Disadvantages
		trigger listed activities and require the need for an EA.

During the initial planning phase (prior to the BA Phase initiation), based on the advantages and disadvantages associated with both BESS technologies, as well as recent technology trends, the Project Developer selected Solid State Lithium-Ion BESS as the preferred option. Redox Flow BESS was thus not assessed or considered in this BA Process. It is important to note that no fatal flaws exist for the Redox Flow BESS, should the Applicant wish to consider it later (via an EA Amendment process, should such authorisation be granted).

A High-Level Safety, Health and Environment (SHE) Risk Assessment was undertaken during the BA Phase which provides high level information on the safety, health and environmental risks of the **Lithium-Ion BESS technology** being proposed. The BESS High-Level SHE Risk Assessment is included in Appendix E.12 of this BA Report.

10.1.7.2 Technology Alternatives – Veroniva EGI – Project 2

Note: The information in this section applies to Project 2 (Veroniva EGI) only.

No technology alternatives exist for the distribution and transmission of electricity to the national grid. Therefore, no EGI technology alternatives have been considered or assessed as part of this BA Process.

10.2 Concluding Statement of Preferred Alternatives

As per Appendix 1, Section 3 (1) (h) (xi) of the 2014 NEMA EIA Regulations (as amended), and based on Section 10.1 above, the following is a concluding statement on the alternatives considered:

- **No-Go Alternative:**
  - The no-go alternative would result in no environmental impacts (positive and negative) on the preferred site or surrounding local area, as a result of the proposed projects. The no-go alternative has been assessed in the BA Phase by all the relevant specialists on the project team. **At the BA Phase, the no-go alternative is not preferred**.

- **Land-Use Alternative:**
  - The site is unsuitable for viable rainfed crop production, and its viable agricultural use is limited to grazing. The development footprint is confirmed as medium agricultural sensitivity. **Cultivation is therefore not deemed feasible as a land-use alternative for assessment during the BA Phase**.

- **Type of Activity Alternative:**

Note: The information in this section applies to Project 1 (Veroniva BESS) only.

  - Electrochemical BESS was the only energy storage option that was identified and considered feasible by the Applicant. Other mechanical, electrical and thermal energy storage systems were not considered. **Therefore, no other activity types were considered or deemed appropriate for this BA Process**.

- **Type of Activity Alternative:**

Note: The information in this section applies to Project 2 (Veroniva EGI) only.

  - The activity to be undertaken for Project 2 (Veroniva EGI) is the transmission of electricity that will be stored by the proposed BESS facility. The only feasible method of transmitting the stored energy is via a power line and on-site substation. It is important to note that the power line and on-site substation constitute enabling infrastructure required to evacuate electricity to the national grid and, as such, cannot be considered in isolation. **Therefore, no other activity types were considered or deemed appropriate for this BA Process**.

- **Preferred Site and Development Footprint within the site:**
  - The preferred site for the proposed Veroniva BESS and EGI (Projects 1 and 2) comprises a 65 ha study area (18 ha of which was considered for the grid connection), as well as external access roads leading to the site that may need to be widened / upgraded.
  - At a specific (local) level, the study area was deemed suitable due to all the site selection factors (such as land availability, distance to the national grid, site accessibility, topography, current land use and landowner willingness) being favourable.
  - Furthermore, a screening and SSV exercise of the study area was undertaken by the specialist team. This led to the identification of the Buildable Areas within the preferred site. The Buildable Areas avoid the no-go sensitivities identified by the specialists. The preferred location of the development footprint and layout were identified based on this.
  - The project layout has been detailed and confirmed during the BA Phase. A layout plan has been included in Chapter 13 of this BA Report, as well as Appendix D and the EMPrs.

- **Technology Alternatives:**

Note: The information in this section applies to Project 1 (Veroniva BESS) only.

  - Only Lithium-Ion BESS was considered and assessed as part of this BA Process. Lithium-Ion BESS is the preferred option.

- **Technology Alternatives:**

Note: The information in this section applies to Project 2 (Veroniva EGI) only.

  - There are no feasible technology alternatives for power lines and switching stations.

10.3 Summary of Legislative Requirements for the Assessment of Alternatives

As noted in Chapter 1 of this BA Report, the 2014 NEMA EIA Regulations (as amended) have certain requirements in terms of the selection of the proposed preferred activity, site and location. Table 10.3 below indicates the requirements of the 2014 NEMA EIA Regulations (as amended) in terms of alternatives, and a corresponding response from the EAP showing how the requirements have been addressed in this report.

Table 10.3: Requirements for the consideration of Alternatives based on the 2014 NEMA EIA Regulations (as amended).

	Section of the EIA Regulations	Requirements for an BA Report in terms of Appendix 1 of the 2014 NEMA EIA Regulations (as amended)	Response from EAP
1	Appendix 1 – 3 – 1 – h – (i)	3. (1) A basic assessment report must contain the information that is necessary for the competent authority to consider and come to a decision on the application, and must include: (h) a full description of the process followed to reach the proposed preferred alternative within the site, including: (i) details of all the alternatives considered;	Refer to Sections 10.1, 10.2, and 10.3 (i.e. this section) of this chapter which provides a description of the process that led to the identification of the alternatives and which alternatives were taken further into the BA Phase for assessment. It also provides a description of the process that led to the identification of the preferred site (i.e. 65 ha study area) and the preferred location of the development footprint within the preferred site. A strategic site, location and development footprint identification process was followed based on the mitigation hierarchy approach of trying to avoid impacts through careful siting. Therefore, different site, location or development footprint alternatives are not ranked, but rather a strategic process was followed.
2	Appendix 1 – 3 – 1 – h – (ii)	(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Refer to Chapter 5 of this BA Report, which details the process followed in terms of Public Participation. Appendix G of this BA Report includes the supporting documentation for the Public Participation Process undertaken thus far during the BA Phase.
3	Appendix 1 – 3 – 1 – h – (iii)	(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues	Issues raised by Stakeholders, Organs of State and Interested and Affected Parties (I&APs) during the 30-day comment period on the Draft BA Report will be captured and responded to in

	Section of the EIA Regulations	Requirements for an BA Report in terms of Appendix 1 of the 2014 NEMA EIA Regulations (as amended)	Response from EAP
		were incorporated, or the reasons for not including them;	a Comments and Responses Trail included as an appendix to the Final BA Report.
4	Appendix 1 – 3 – 1 – h – (iv)	(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Refer to Chapter 4 and Appendix E (Specialist Studies and Inputs) of this BA Report for a description of the environmental sensitivities associated with the preferred site (i.e. the study area) and the development footprint within. This chapter (Chapter 10) also provides information on environmental attributes that were considered in the selection of the preferred site and development footprint for the proposed projects.
5	Appendix 1 – 3 – 1 – h – (v)	(v) the impacts and risks identified for each alternative, including the nature, significance, consequence, extent, duration and probability of the impacts, including the degree to which these impacts: (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Feedback on the impacts and risks that informed the identification of the preferred activity (i.e. storage, dispatching and transmission of electricity) is provided in this chapter. The impacts and risks identified for the proposed projects at the preferred site, including the location of the development footprints within the preferred site, are included in the Specialist Studies and Inputs in Appendix E of this BA Report, where relevant. The impact assessment, where relevant, includes a description and assessment of the nature, significance, consequence, extent, duration and probability of the identified impacts, as well as an assessment of the reversibility and irreplaceability of the potential identified impacts, as well as the degree to which the identified impacts can be avoided, managed or mitigated. The impact assessment has also been summarised in Chapters 11 and 12 of the BA Report, where relevant. In terms of the no-go alternative, this is not considered as the preferred alternative, as discussed in Section 10.1.1 of this chapter. The impacts and risks of both adopting and not adopting the no-go alternative have been discussed in this section. Furthermore, this has been unpacked by the relevant specialists in the BA Phase.

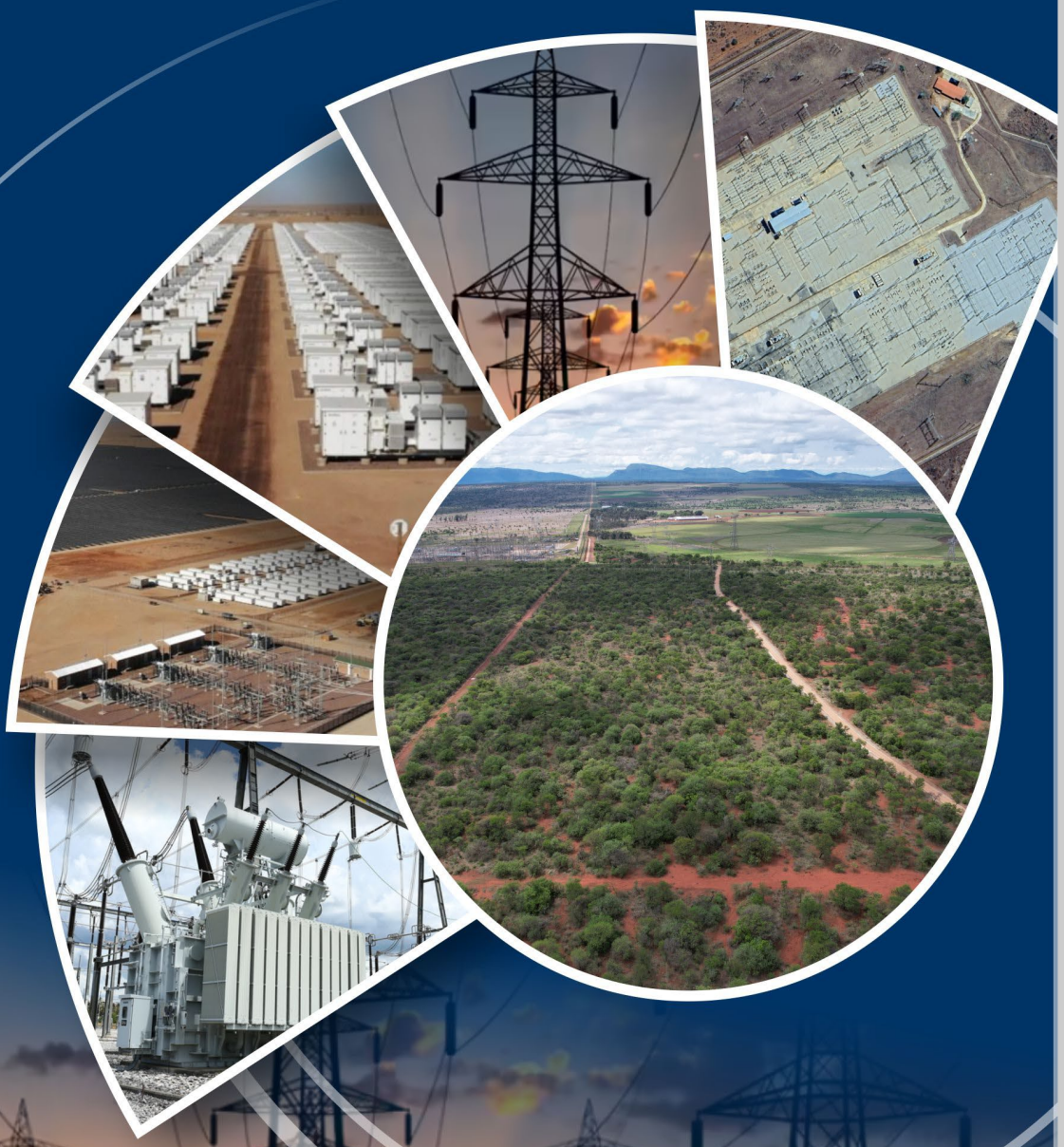
	Section of the EIA Regulations	Requirements for an BA Report in terms of Appendix 1 of the 2014 NEMA EIA Regulations (as amended)	Response from EAP
6	Appendix 1 – 3 – 1 – h – (vi)	(vi) the methodology used in determining and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks;	Refer to Chapter 5 of this BA Report, as well as the Specialist Studies and Inputs (Appendix E of this BA Report) for the impact assessment methodology that was used in the assessment of impacts, where applicable and relevant.
7	Appendix 1 – 3 – 1 – h – (vii)	(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Feedback on the impacts and risks that informed the identification of the preferred activity (i.e. storage, dispatching and transmission of electricity) is provided in this chapter. Such feedback relating to the preferred site and development footprints is captured in the Specialist Studies and Inputs in Appendix E of this BA Report, where relevant. These reports include an assessment of impacts and risks of the proposed projects at the preferred site and the development footprints. The impact assessment has also been summarised in Chapters 11 and 12 of the BA Report, where relevant.
8	Appendix 1 – 3 – 1 – h – (viii)	(viii) the possible mitigation measures that could be applied and level of residual risk;	
9	Appendix 1 – 3 – 1 – h – (ix)	(ix) the outcome of the site selection matrix;	Refer to Sections 10.1.5 and 10.1.6 of this chapter for the process (summarised in Figure 10.2) that led to the identification of the preferred site.
10	Appendix 1 – 3 – 1 – h – (x)	(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such;	Where no further alternatives were considered, a motivation has been provided in this chapter, within the relevant sections. This applies to land-use alternatives, type of activity alternatives, and technology alternatives. However, with regards to alternatives for the preferred site and development footprint within the site, a strategic site, location and development footprint identification process was followed based on the mitigation hierarchy approach of trying to avoid impacts through careful siting. Therefore, different site, location or development footprint alternatives are not ranked, but rather a strategic process was followed.
11	Appendix 1 – 3 – 1 – h – (xi)	(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity.	Refer to Section 10.2 of this chapter for a concluding statement.

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 11:

Impact Assessment for the BESS Project



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11. IMPACT ASSESSMENT FOR THE BESS PROJECT

This chapter presents a synthesis of the key findings, potential impacts (direct, indirect and cumulative, where applicable), and mitigation measures that have been identified by the specialist team as part of the Basic Assessment (BA) Process for the following proposed project:

- **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS).

The information presented throughout this chapter applies to **Project 1 (Veroniva BESS)** only. Refer to Chapter 12 for corresponding information pertaining to **Project 2 (Veroniva EGI)**.

The impact assessment provided in each section within the chapter is based on an evaluation of the status quo of the receiving environment, by the specialists, either through desktop assessments or site investigations, as documented in Chapter 4 of this BA Report.

Refer to Appendix E of this BA Report for the full specialist reports. Refer to Chapter 5 and Appendix E of this BA Report for details on the legislation (i.e. Appendix 6 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended) or 2020 Assessment Protocols (as amended)) applicable to each of the specialist studies, as well as the Terms of Reference adopted. All proposed mitigation measures, as relevant, have been carried over to the Environmental Management Programmes (EMPrs) included in Appendix H and Appendix I of this report.

It should be noted that unless otherwise stated, impacts identified, and their associated significance are deemed to be negative. Where relevant, cumulative impacts are based on consideration of the identified projects within a 30 km radius, as described in Chapter 5 of the BA Report, as well as the proposed Veroniva BESS and EGI development (Projects 1 and 2).

11.1 Agriculture

11.1.1 Introduction and Specialist

The Agriculture Compliance Statement was undertaken by Johann Lanz of SoilZA to inform the outcome of this BA from an agricultural perspective. The complete Agriculture Compliance Statement is included in Appendix E.1 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

It is important to note that the Screening Tool does not require Agriculture specialist input for clearance of vegetation associated with the BESS development; however, to ensure that all potential impacts are addressed, the Agricultural Compliance Statement covers the Veroniva BESS (Project 1).

11.1.2 Study Methodology

The Agricultural Compliance Statement was undertaken in terms of the requirements of the *Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources*, gazetted on 20 March 2020 in Government Notice (GN) 320. Various desktop sources of information were used.

The assessment was based on an on-site investigation conducted in November 2025. It was also informed by existing climate, soil, and agricultural potential data for the site. The aim of the on-site assessment was to verify agricultural land use and agricultural conditions across the site to determine the cropping potential across the site. Soils were assessed based on existing soil exposures and indications of the surface conditions and topography.

11.1.3 Assumptions, Uncertainties and Gaps in Knowledge

There are no specific assumptions, uncertainties or gaps in knowledge or data that affect the findings of the Agricultural Compliance Statement.

11.1.4 Potential Impacts

- **Overall Impact Assessment**

Formally rating potential agricultural impacts by way of impact assessment tables is not required by the Assessment Protocol of GN 320. An agricultural impact is a change to the future agricultural production potential of land. For the proposed Veroniva BESS, the potential for any change is primarily caused by the exclusion of potential future agriculture from the footprint of the development. Soil erosion and degradation may also contribute to loss of agricultural production potential. However, these can be effectively prevented by generic mitigation measures that are all inherent in the project engineering of such a development and are standard, best-practice for construction sites. Soil degradation does not therefore pose a significant impact risk. The significance of any exclusion of agriculture from land is a direct function of the following three factors: 1) the size of the footprint of land from which agriculture will be excluded; 2) the baseline production potential (particularly cropping potential) of that land; and 3) the length of time for which agriculture will be excluded.

The most significant loss of potential, for any development anywhere in the country, is on high yielding cropland, and the least significant possible, is on low carrying capacity grazing land. If land can support viable and sustainable crop production, then it is considered to be above the threshold and is a priority for being conserved as agricultural production land. If land is unable to support viable and sustainable crop production, then it is considered to be below the threshold and of much lower priority for being conserved.

For the proposed Veroniva BESS, the entire development footprint is considered to be below the threshold for needing to be conserved as agricultural production land because of the limitations that make it totally unsuitable as viable cropland. The proposed development on this land will therefore result in negligible loss of future agricultural production potential. The overall negative agricultural impact of the development (loss of future agricultural production potential) is therefore assessed as being of low significance and as acceptable.

- **Cumulative Impact Assessment**

The potential cumulative agricultural impact of importance is a regional loss (including by degradation) of future agricultural production potential. This cumulative impact assessment of the Veroniva BESS and EGI development determines the quantitative loss of agricultural land if all renewable energy and BESS project applications within a 30 km radius become operational. Note that EGI projects do not contribute to a loss of agricultural land and are not therefore included in this calculation of cumulative land loss. In terms of the prospecting right application on Farm 738/5, at prospecting phase, it will also not contribute to land loss and has also not been taken into account. The area of land taken out of agricultural use as a result of all the solar and BESS projects listed in Chapter 5 of this BA Report (and Appendix 5 of the Agriculture Compliance Statement) is within an acceptable limit in terms of loss of low potential agricultural land, which is only suitable for grazing, and of which there is no scarcity in the country.

For South Africa to develop the renewable energy generation that it urgently needs, agriculturally zoned land will need to be used for renewable energy generation, including BESS development for the storage and dispatching of energy. It is preferable to incur a cumulative loss of agricultural land, which has no crop production potential then to lose agricultural land that has a higher potential, and that is much scarcer, to renewable energy and BESS development elsewhere in the country.

All the projects contributing to cumulative impact for this assessment have the same kind of agricultural impact in a very similar agricultural environment, and therefore the same mitigation measures apply to all.

It should also be noted that renewable energy and BESS development can only be located in fairly close proximity to a substation that has available capacity. This creates cumulative impact in such places. However, this is acceptable because it also effectively protects most agricultural land in the country from renewable energy and BESS development because only a small proportion of the country's total land surface is in close enough proximity to an available substation to be viable for renewable energy and BESS development.

Due to the considerations discussed above, the cumulative impact of loss of future agricultural production potential of both the Veroniva BESS and EGI is assessed as low. It will not have an unacceptable negative impact on the agricultural production capability of the area, and it is therefore recommended, from a cumulative agricultural impact perspective, that both the BESS facility and grid be approved.

11.1.5 Findings and Concluding Statement

The overall conclusion of the Agriculture Compliance Statement is that the proposed development is acceptable because it leads to negligible loss of future agricultural production potential. The cropping potential of the site is limited by the combination of climate constraints and soil constraints (rockiness). As a result, the site is unsuitable for viable rainfed crop production, and its viable agricultural use is limited to grazing. The site has never been used for cropping. Cropping in the area is restricted to irrigation on non-rocky soils that occur further down the slope and away from the mountain.

The Agriculture Compliance Statement disputes the very high sensitivity classification of the site by the Screening Tool and verifies the entire site as being of medium agricultural sensitivity because of its assessed cropping potential.

From an agricultural impact point of view, it is recommended that the proposed development be approved.

11.2 Terrestrial Biodiversity and Species

11.2.1 Introduction and Specialist

The Terrestrial Biodiversity and Species study was undertaken by Corné Niemandt of Bios Diversitas Consultants to inform the outcome of this BA from a terrestrial biodiversity and species perspective. The study identifies environmental sensitivities and no-go areas, as well as impacts of the proposed project on terrestrial biodiversity and species. The complete Terrestrial Biodiversity and Species study is included in Appendix E.2 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.2.2 Study Methodology

Based on the outcome of the site sensitivity verification (SSV), the Terrestrial Biodiversity component triggered the need for a full Impact Assessment in terms of GN 320 (March 2020), and the Terrestrial Plant and Animal Species components triggered the need for Compliance Statements in terms of GN 1150 (October 2020) [as amended in GN 3717 (July 2023)].

The study included desktop screening, a SSV in November 2025, including evaluations on foot and by vehicle, as well as recording of GPS track records and a series of georeferenced photographs. During the field survey, various Timed-Meander Searches (TMS) were conducted for vegetation, and for animals the habitat suitability across all project areas was assessed by driving, walking and drone photography. The Site Ecological Importance was determined according to the Species Environmental Assessment Guideline. One combined report was compiled to address the Terrestrial Biodiversity, Plant Species and Animal Species Protocols.

11.2.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Terrestrial Biodiversity and Species Assessment:

- The study is based on a combination of field observations, available spatial datasets, published biodiversity information, the Screening Tool, and specialist experience. It is assumed that the project description and layout information provided at the time of assessment reasonably represent the worst-case development scenario for the purposes of impact assessment.
- The SSV survey was undertaken during November 2025, which falls within the wet season and is considered suitable for detecting a broad range of vegetation features and ecological conditions. Notwithstanding this, no single survey can detect all flora and fauna species potentially occurring within a site, particularly species that are cryptic, seasonal, highly localised, or only identifiable during specific flowering, fruiting, or activity periods.

- The study area is relatively large and, although all accessible habitat types and areas of highest ecological interest were inspected, it remains possible that individual Species of Conservation Concern (SCC) plants or cryptic faunal species were not detected during the site visit. This limitation applies particularly to low-density plant SCC, secretive reptiles, fossorial species, and small mammals. The absence of direct observations during the survey should therefore not be interpreted as definitive absence from the broader landscape.
- The Screening Tool and supporting biodiversity datasets remain an important source of information, but some layers are coarse in scale and may reflect legacy mapping or outdated ecosystem threat classifications. This is particularly relevant to the Critical Biodiversity Area (CBA) 1 classification assigned to the site in the provincial conservation planning, which in part appears to reflect older ecosystem status information and avifaunal triggers (which is the subject of a separate specialist report). The terrestrial biodiversity interpretation in the study therefore relies on field verification and the latest available ecosystem and vegetation information.
- The assessment of cumulative impacts is based on available information on renewable energy, BESS and associated grid infrastructure projects identified within 30 km of the site. As project status, layout, and authorisation conditions may change over time, the cumulative assessment should be regarded as a reasoned professional interpretation based on the best available information at the time of reporting.

11.2.4 Potential Impacts

The potential terrestrial biodiversity and species impacts resulting from the proposed project is listed below for each phase, including cumulative impacts. No indirect impacts have been identified.

- **Overall Impact Assessment**

Construction Phase:
- Fragmentation and loss of natural habitat and sensitive features.
- Impacts on national and provincial protected plant SCC.
- Disturbance, loss or displacement impacts on animal SCC.
- Introduction and spread of alien invasive species.
- Increased erosion and soil compaction.
- Littering and general pollution.

Operational Phase:
- Direct and indirect faunal disturbance and mortality.
- Increase in alien invasive species.
- Loss of species composition and diversity.
- Littering and general pollution.

Decommissioning Phase:
- Loss of habitat.
- Direct and indirect disturbance and mortality of fauna.
- Waste related impacts associated with disposal of used parts.
- Increased alien invasive species.

- **Cumulative Impact Assessment**

- *Construction and Decommissioning Phases*: Loss of CBAs, natural vegetation and sensitive features.
- *Construction, Operational and Decommissioning Phases*: Disturbance, mortality and/or displacement of plant and animal SCC.
- *Construction, Operational and Decommissioning Phases*: Introduction and spread of alien invasive species.

The impacts and mitigation measures are described in Table 11.1. Additional mitigation measures are also captured in Section 11.2.5 below. Cumulative impacts and associated mitigation measures are captured in Table 11.2.

11.2.5 Findings and Concluding Statement

The SSV and terrestrial biodiversity and species study indicates that the broader study area retains ecological value as part of a semi-natural bushveld landscape within the Polokwane Key Biodiversity Area (KBA) and a mapped biodiversity priority area. However, the field assessment did not identify any fatal flaws for the proposed project within the preferred footprint (or within the Access Road Options A and B), provided that the current layout remains confined to the lower-sensitivity portion of the site (as is currently the case) and that the identified higher-sensitivity northern habitat is avoided. This has already been achieved by the layout determined and assessed in the BA Phase.

The disputed CBA 1 classification is not considered to be adequately supported by the current terrestrial biodiversity evidence for the preferred development footprint. The specialist concluded that the site is more appropriately treated as an Ecological Support Area (ESA) 1 that remains important for landscape connectivity and ecosystem functioning.

In terms of the KBA, none of the threatened species that occur within this KBA were recorded within the study area, with a medium to low probability of occurring on site. Accordingly, the site does not threaten the KBA status or have a significant impact on any of the triggered species. Development on this site therefore does not pose a flaw to the KBA.

No plant SCC were recorded within the preferred BESS or Access Road footprint during the field survey. Although several SCC are regionally relevant and some protected trees occur on site, the preferred footprint does not contain confirmed populations of the plant SCC flagged by the Screening Tool. Similarly, no animal SCC were recorded within the preferred footprint. The Lobatse hinged-back tortoise remains a species of concern in the broader landscape, particularly in rocky habitat to the north, but suitable habitat for this species is limited within the preferred development area. The site can be utilised by the species, and care should be taken during the construction phase.

The main BESS footprint does not include confirmed wetland habitat. However, a seep wetland was identified overlapping with External Access Road Option A. This feature is characterised by seasonal wet soils and wetland-associated graminoid vegetation, including *Themeda triandra*, *Imperata cylindrica* and *Juncus* sp. In the context of the latest Red List rationale for *Crocidura maquassiensis*, this seep wetland should be treated as a potentially suitable habitat feature and

as a relevant local moist-habitat refuge for small fauna. Although the species was not recorded during the field survey and its presence remains unconfirmed, the seep and its surrounding natural vegetation increase the local habitat sensitivity of Access Road Option A relative to the remainder of the project area and relative to Access Road Option B. However, both are acceptable, with the implementation of recommended mitigation for Access Road Option A. A precautionary 32 m ecological buffer has been recommended around the seep and associated graminoid vegetation for terrestrial planning purposes. If Access Road Option A is to proceed (if approval for the expansion is approved), the road crossing must be designed as a constrained ecological crossing that maintains both seep hydrology and fauna movement, including the provision and long-term maintenance of a suitably designed fauna underpass / culvert system. The final crossing design and associated disturbance limits must therefore be informed by both the terrestrial and aquatic specialist inputs. The 32 m ecological buffer is not intended to preclude the placement of the actual road crossing structure where such a crossing is unavoidable and appropriately designed.

If Access Road Option A is implemented, the following additional mitigation measures have been identified and recommended by the Terrestrial Biodiversity and Species specialist:

- **Planning and Design Phase:**
  - The final alignment of Access Road Option A through the seep area must be micro-sited by the project engineer in consultation with the aquatic specialist, terrestrial specialist and Environmental Control Officer (ECO), with the aim of minimising direct disturbance to the seep, its vegetated margin and associated seasonal wet soils.
  - The road prism through the seep area must be kept to the minimum technically feasible width. Full-width widening through the sensitive section must be avoided where possible and reduced-footprint engineering solutions must be preferred, where viable and feasible.
  - No side-casting, spoil stockpiling, laydown, batching, refuelling or temporary construction camp activities may occur within the seep area or its demarcated buffer. The 32 m buffer zone is not applicable to the placement of the road watercourse crossing structures.
  - The final road crossing design must include a fauna underpass / culvert system that maintains both hydrological connectivity and fauna movement through the seep area including the precautionary ecological 32 m buffer.

- **Underpass / Culvert Design Requirements:**
  - The seep crossing must include at least two appropriately sized underpass or culvert systems designed to allow movement of small mammals, reptiles, amphibians and other fauna beneath the road.
  - The underpass / culvert must not function only as a stormwater conduit. It must be designed to maintain ecological connectivity by incorporating:
    - a natural soil or sediment base where feasible, rather than a fully concreted invert;
    - dry or semi-dry marginal ledges / benches above the normal seasonal flow line where feasible;
    - sufficient openness, light penetration and continuity to encourage fauna movement;
    - inlet and outlet conditions that do not create steep drops, erosion gullies or perched outlets; and

        - alignment with the natural seep drainage line and associated movement corridor.
    - The structure must be sized to accommodate seasonal flows without concentrating runoff in a manner that degrades the seep downstream or causes erosion at the inlet and outlet.
    - Fencing or low-level guide structures may be used, where appropriate, to direct fauna toward the underpass entrance, provided these do not create entrapment risks.

- **Construction Phase:**
    - The seep crossing area must be clearly demarcated before works commence, and all construction activity must remain within the approved disturbance footprint.
    - Vegetation clearance within and adjacent to the seep must be undertaken under ECO supervision, and disturbance to dense graminoid cover must be minimised as far as possible.
    - Topsoil from the seep margin and adjacent natural vegetation must be stripped separately, stockpiled appropriately, and used during rehabilitation.
    - Construction in the seep area should be scheduled for the driest feasible period to reduce soil disturbance, rutting and sediment mobilisation.
    - Temporary erosion and sediment controls must be installed before any ground disturbance occurs near the seep.
    - A suitably qualified zoological / ecological specialist must undertake search and rescue in the crossing area before vegetation clearing, with specific attention to small fauna using dense grass cover and seasonal wet habitat.
    - No obstruction, diversion or prolonged interruption of seep flow may occur outside the engineered crossing footprint.

- **Rehabilitation and Operational Phase:**
    - All disturbed seep margins and adjacent habitat must be rehabilitated immediately after construction using locally appropriate indigenous wetland / seep and grassland species.
    - Dense vegetative cover must be re-established at the entrances and exits of the underpass to maintain habitat continuity and encourage fauna use.
    - Alien invasive species control must be prioritised within the seep, its buffer and the road verge, with regular follow-up clearing.
    - The underpass / culvert system must be inspected and maintained on a routine basis to ensure that it remains functional for both seep flow and fauna movement. Maintenance must include removal of blockages, repair of erosion, reinstatement of natural substrate where necessary, and repair of any damage to inlet / outlet habitat.
    - The crossing must be included in the operational monitoring programme, with monitoring to assess erosion and sedimentation; integrity of seep hydrology; vegetation recovery; evidence of fauna use of the underpass; and roadkill or barrier effects in the vicinity of the crossing.
    - If monitoring indicates that the underpass is not functioning effectively for fauna movement or that the seep is being degraded, adaptive management measures must be implemented. These may include retrofitting ledges, improving guide fencing, stabilising erosion, reinstating vegetation cover, or modifying drainage controls.

The identified impacts are potentially significant prior to mitigation but can generally be reduced to low residual significance through the recommended mitigation measures through strict footprint control, avoidance of high-sensitivity areas, pre-construction walk-downs, search and rescue where required, permitting for protected plants and trees where applicable, rehabilitation, erosion control, long-term alien invasive species management, and the protection of the seep wetland crossing where relevant for Access Road Option A.

Based on the available desktop information, field verification, and specialist interpretation, the proposed BESS development, including the access road options, are considered acceptable from a terrestrial biodiversity perspective within the preferred development footprint, subject to the implementation of the recommended mitigation measures, adherence to all relevant permit requirements, and the exclusion of the higher-sensitivity northern habitat from non-linear development. From a terrestrial biodiversity and species perspective, it is recommended that the project can be granted Environmental Authorisation.

Table 11.1: Assessment of the potential Terrestrial Biodiversity and Species risks and impacts of the Project 1 (Veroniva BESS)

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Natural habitat loss, loss of sensitive features and fragmentation of vegetation	Status	Negative	High (2)	▪ Within High sensitivity areas including their buffer zones (where applicable), infrastructure must be excluded. Suitable habitat for Sensitive species 1252, Sensitive species 550, Sensitive species 1248, *Prunus africana* and *Kinixys lobatsiana* have been identified as high sensitivity. Note: Avoidance of high sensitivity areas have already been achieved by the layout determined and assessed in the BA Phase for the BESS footprint. Access Road Option A traverses a seep wetland that is assigned high sensitivity and a 32 m buffer; however, this is acceptable provided that the recommended mitigation measures are implemented. Note the 32 m is not a no-go buffer. ▪ No construction related activities, such as the site camp, storage of materials, temporary roads or ablution facilities may be located in the high sensitivity areas including their buffers, where relevant. ▪ Minimise the development footprint as far as possible. ▪ Minimise impacts to surrounding natural areas by demarcating development footprint and clearly indicate no-go areas, where practical. However, caution should be exercised to avoid using material that might entangle fauna. ▪ Not all linear infrastructure can avoid high sensitivities, but measures such as making use of existing roads and where possible prioritising development within areas of medium and low sensitivity can reduce impacts significantly. Note: Avoidance of high sensitivity areas have already been achieved by the layout determined and assessed in the BA Phase for the BESS footprint. Access Road Option A traverses a seep wetland that is assigned high sensitivity and a 32 m buffer; however, this is acceptable provided that the recommended mitigation measures are implemented. Note the 32 m is not a no-go buffer. ▪ A Rehabilitation Management Plan must be developed prior to the commencement of construction activities and implemented during	Low (4)	High
	Spatial Extent	Local				
	Duration	Permanent				
	Consequence	Severe				
	Probability	Very Likely				
	Reversibility	Low				
	Irreplaceability	Moderate				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
				the construction and decommissioning phases of the development. Note that the EMPr compiled for the proposed project includes overall rehabilitation recommendations and measures. ▪ Rehabilitate disturbed areas that are no longer required for the operational phase of the development. ▪ Widening and upgrading of access roads must be confined to the minimum technically feasible footprint. ▪ Reduced-footprint engineering solutions must be preferred, where viable and feasible, where these avoid wider vegetation clearance. ▪ No indiscriminate vegetation grubbing, side-casting, laydown, turning of vehicles, or stockpiling may take place outside the demarcated road prism. ▪ All protected plant individuals and any protected trees along road edges must be avoided where possible. ▪ Refer to the additional mitigation measures captured in Section 8.3 of the Terrestrial Biodiversity Assessment (Appendix E.2 of this BA Report).		
Loss of protected plant species (SCC) including protected trees	Status	Negative	Moderate (3)	▪ A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified botanical / ecological specialist prior to vegetation clearance and disturbance. ▪ Where the approved layout designs impact on provincially protected individuals, permit applications are required for either the relocation or destruction of provincially protected species (Schedule 12 (Protected Plants) of the Limpopo Environmental Management Act, 2003 (Act 7 of 2003)). ▪ Where the approved layout designs impact on protected tree species, including *Prunus africana* and *Sclerocarya birrea ssp. afra,* a licence / permit is required in terms of the National Forests Act (Act No. 84 of 1998).	Low (4)	High
	Spatial Extent	Site specific				
	Duration	Permanent				
	Consequence	Substantial				
	Probability	Very Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
Loss, disturbance, and/or displacement of animal SCC	Status	Negative	Moderate (3)	▪ Avoid rocky areas. Note: This has already been achieved by the layout determined and assessed in the BA Phase. ▪ A comprehensive Animal Search and Rescue must be undertaken for the approved layout by a suitably qualified zoological / ecological specialist prior to vegetation clearance and disturbance.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Permanent				
	Consequence	Substantial				
	Probability	Very Likely				
	Reversibility	Moderate				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
	Irreplaceability	Moderate		▪ Reduce the presence of human activity on the project area as far as possible by only focusing on the areas where construction activities are required. ▪ Persecution of fauna species must be reduced through education and awareness campaigns. No physical harm, collection or hunting to any species may occur. ▪ Speed restrictions (40 km / hour is recommended) should be in place to reduce the amount of dust caused by vehicle movement along the roads, and to reduce possible fauna fatalities with vehicle collisions. ▪ Establish and implement an ongoing roadkill monitoring programme (inclusive of wildlife collisions record keeping) to inspect roads for injured and deceased fauna (including tortoises) due to the movement of vehicles to and from site. ▪ If trends or patterns emerge from the data (e.g., high incidence of tortoise mortality), appoint a suitably qualified specialist to develop and implement corrective actions.		
Spread and establishment of alien invasive species	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Medium term Substantial Likely Moderate Low	Moderate (3)	▪ Implement a site-specific alien and invasive species control and monitoring plan in terms of National Environmental Management: Biodiversity Act (Act 10 of 2004, as amended) (NEMBA) during and after construction. ▪ Alien vegetation, within the development footprints, should be removed from the site and disposed of at a registered waste disposal site. ▪ The development footprints and immediate surroundings should be monitored for the growth/regrowth of alien vegetation throughout the construction phase of the project.	Low (4)	Medium
Increased erosion and soil compaction	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Site specific Medium term Substantial Likely Moderate Low	Moderate (3)	▪ The clearance of vegetation, at any given time, must be kept to a minimum to reduce the possibility of soil erosion. ▪ Utilise existing access routes as far as possible. ▪ Confine the movement of vehicles to the access routes to and from the site and to the construction areas. Ensure that construction staff do not drive in the surrounding natural vegetation. ▪ Rehabilitate new vehicle tracks and areas where the soil has been compacted as soon as possible after use.	Low (4)	Medium

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
				▪ All roads and other hardened surfaces should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk. ▪ Monitor the entire site for signs of erosion throughout the construction phase of the project. ▪ The implementation of an effective Stormwater Management Plan. ▪ All road runoff generated by widening or shoulder hardening must be directed and dissipated in a controlled manner so that it does not discharge into adjacent natural habitat or any wetland-related area. ▪ Temporary drainage controls must be installed where access road works occur on sloping ground or near any drainage feature.		
Littering and general pollution	Status	Negative	Moderate (3)	▪ The site camp must be located outside high sensitivity areas and their buffer zones, if applicable. ▪ Hydrocarbon fuels must be stored in a secure, bunded area. ▪ Sufficient waste disposal bins must be available on site and clearly marked. Skip bins may be required during the construction phase which must be emptied on a regular basis by an approved/licenced waste disposal contractor. Proof of disposal to be kept on file. ▪ All waste must be disposed of properly and not stored or disposed of in open dumps where birds can forage. ▪ Ablution facilities must be located outside sensitive areas and their buffer zones. ▪ Portable ablution facilities must be regularly cleaned and maintained in good working condition. ▪ Any spillage from ablution facilities must be cleaned up immediately and disposed of in an appropriate manner. ▪ Vehicles must be in good working condition, with no oil, water, or fuel leaks. Vehicles must be regularly inspected, and any problems corrected. ▪ Refuelling may only take place in an appropriate, bunded area. ▪ No refuelling, laydown, batching, temporary stockpiling or construction camp activities may occur within or adjacent to any wetland area or wetland buffer. ▪ Hydrocarbon spills must be contained and cleaned up immediately. Spill kits must be available on site in case of accidental spillage.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Short to Medium term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Low				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
OPERATIONAL PHASE						
Direct and indirect faunal disturbance and mortality	Status	Negative	High (2)	▪ Reduce the presence of human activity on the project area as far as possible by only focusing on the areas where operational tasks are required. ▪ Persecution of fauna species must be reduced through education and awareness campaigns. No physical harm, collection or hunting to any species may occur. ▪ Minimise use of infrastructure that could be used for nesting and making structures less suitable by selecting specific designs or using perch deterrents (most effective are long spikes with sloped base, dense spikes facilitate nest-building). ▪ Speed restrictions (40 km / hour is recommended) should be in place to reduce the amount of dust caused by vehicle movement along the roads, and to reduce possible fauna fatalities with vehicle collisions. ▪ Establish and implement an ongoing roadkill monitoring programme (inclusive of wildlife collisions record keeping) to inspect roads for injured and deceased fauna (including tortoises) due to the movement of vehicles to and from site. ▪ If trends or patterns emerge from the data (e.g., high incidence of tortoise mortality), appoint a suitably qualified specialist to develop and implement corrective actions. ▪ Avoid the presence of people and vehicles in high sensitivity areas. ▪ No unauthorised persons should be allowed onto the site. ▪ Any potentially dangerous fauna such snakes or fauna threatened by the maintenance and operational activities should be removed to a safe location. ▪ Lower the levels of noise whenever possible and avoid the destruction or disturbance of identified important features. ▪ The illegal collection, hunting or harvesting of any animals at the site should be strictly forbidden except by individuals with the appropriate permits. ▪ All hazardous materials should be stored in the appropriate manner to prevent contamination of the site. Any accidental chemical, fuel	Low (4)	High
	Spatial Extent	Site specific				
	Duration	Long term				
	Consequence	Severe				
	Probability	Likely				
	Reversibility	Moderate to Low				
	Irreplaceability	Moderate				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
				and oil spills that occur at the site should be cleaned up in the appropriate manner as related to the nature of the spill. ▪ Fences should be maintained in such a way so that burrowing animals can still gain access, which will allow other animals to also utilise the holes dug under fences to increase connectivity in the area. ▪ Electrified fences must not have active wires below 20 cm from ground level and a guard wire set at 20 cm can be used to keep larger tortoises away from the fence. ▪ Equipment with low noise emissions must be used to not disrupt ecological life cycles (breeding, migration, feeding) of animals. Do not unnecessarily disturb faunal species, especially during the breeding season.		
Loss of species composition and diversity	Status	Negative	Moderate (3)	▪ The loss of species composition and diversity cannot be mitigated due to a permanent structure which will change microclimatic conditions for the life of the facility operation. ▪ Implement appropriate rehabilitation measures to return all disturbed habitats to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction.	Low (4)	High
	Spatial Extent	Site specific				
	Duration	Long term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
Increased alien invasive species	Status	Negative	Moderate (3)	▪ The site-specific alien and invasive species (AIS) Management Plan must be implemented for the first year of the operational phase. Thereafter, alien vegetation must continue to be monitored and eradicated annually throughout the life of the project. ▪ Regular alien clearing should be conducted using the best-practice methods for the species concerned. The use of herbicides should be avoided as far as possible. ▪ Alien vegetation, within the development footprints, should be removed from the site and disposed of at a registered waste disposal site.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Medium term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Low				
Littering and general pollution	Status	Negative	Moderate (3)	▪ All waste must be disposed of properly and not stored or disposed of in open dumps where birds can forage. ▪ Vehicles must be in good working condition, with no oil, water or fuel leaks.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Short to Medium term				
	Consequence	Substantial				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
	Probability	Likely		▪ All vehicles must be regularly inspected, and any problems corrected. ▪ Refuelling may only take place in an appropriate, designated bunded area, if relevant. ▪ Any spillages must be reported immediately and dealt with appropriately. ▪ Spill kits must be available on site in case of accidental spillage. ▪ Sufficient waste disposal bins must be available on site and clearly marked.		
	Reversibility	Moderate				
	Irreplaceability	Low				
DECOMMISSIONING PHASE						
Loss of habitat	Status	Negative	Moderate (3)	▪ The loss of vegetation is unavoidable, but sensitive areas must be avoided when dismantling of infrastructure. ▪ Implement appropriate rehabilitation measures to return the habitat to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction. ▪ The vegetation composition must be rehabilitated to promote foraging habitat available for sensitive species. Accordingly, rehabilitation efforts cannot just focus on reseeding grasses but must also include replacement of forb diversity, appropriately.	Low (4)	Medium
	Spatial Extent	Site specific				
	Duration	Short term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Low				
	Irreplaceability	Low				
Direct and Indirect disturbance and mortality of fauna	Status	Negative	Moderate (3)	▪ All disturbed areas and infrastructure must be dismantled and restored to the previous state of habitat structure (both rocks and vegetation) as far as possibly practical. ▪ Decommissioning works should avoid sensitive breeding/migration periods where possible. ▪ Use dust suppression during demolition and earthworks. ▪ Ensure vehicles and equipment are well maintained to reduce emissions, unnecessary hazardous spillage and / or emit lower noises.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Short term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
Disposal of used parts – waste management	Status	Negative	High (2)	▪ Align with South African waste management legislation (NEM: WA, NEM: AQA, NWA) and any relevant provincial/municipal by-laws, where relevant.	Low (4)	Medium
	Spatial Extent	Regional				
	Duration	Long term				
	Consequence	Severe				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
	Probability	Very Likely		▪ Prepare a Waste Inventory during decommissioning to categorise materials into the various categories. ▪ Dismantled parts must be reused, repurposed or recycled where possible. ▪ Recover copper and aluminium wiring for recycling. ▪ Where feasible, foundations should be partially removed (at least cut to 1 m below ground) to allow topsoil cover and vegetation re-establishment. ▪ Reuse or recycle crushed concrete as aggregate for construction where feasible. ▪ Unrecyclable waste must be disposed of in the appropriate manner at a registered facility, especially hazardous waste. ▪ Ensure financial provisioning is in place to cover decommissioning and rehabilitation costs. ▪ Assess whether roads should remain (if benefiting local communities) or be rehabilitated. ▪ If roads are to be removed, scarify compacted soil, recontour, and revegetate with indigenous species.		
	Reversibility	Moderate				
	Irreplaceability	Moderate				
Increased alien invasive species	Status	Negative	Moderate (3)	▪ Follow an alien and invasive species control and monitoring plan in terms of the NEMBA by implementing appropriate control methods during and after decommissioning.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Medium term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Low				

Table 11.2: Assessment of the potential Terrestrial Biodiversity and Species cumulative risks and impacts of the proposed projects[1]

Impact	Impact Criteria		Significance and Ranking Pre-Mitigation	Potential mitigation measures[2]	Significance and Ranking Post-Mitigation	
CUMULATIVE IMPACTS						
CONSTRUCTION AND DECOMMISSIONING PHASES						
Loss of CBAs, natural vegetation and sensitive features (Construction and Decommissioning Phases)	Status	Negative	High (2)	▪ Demarcate sensitive habitats as no-go areas during construction and at decommissioning. ▪ No placement of non-linear infrastructure in confirmed sensitive areas. ▪ Use existing roads through these sensitive areas and avoid construction of new roads as far as possible. ▪ Minimise non-linear development footprint in ecologically significant features. ▪ Implement appropriate rehabilitation measures to return all disturbed habitats to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction. ▪ Ensure that all the operational phase management plans are fully implemented and that the associated monitoring and feedback mechanisms to management are in place.	Moderate (3)	Low (4)
	Spatial Extent	Regional				
	Duration	Permanent				
	Consequence	Severe				
	Probability	Very Likely				
	Reversibility	Low				
	Irreplaceability	High				
CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASES						
Disturbance, mortality and/or displacement of plant and animal species of conservation concern (SCC) (Construction, Operational and Decommissioning Phases)	Status	Negative	High (2)	▪ Adhere to the development restrictions placed on areas of High sensitivities, including any proposed buffers. Note: Avoidance of high sensitivity areas have already been achieved by the layout determined and assessed in the BA Phase for the BESS and EGI footprint. Access Road Option A traverses a seep wetland that is assigned high sensitivity and a 32 m buffer; however, this is acceptable provided that the recommended mitigation measures are implemented. Note the 32 m is not a no-go buffer. ▪ A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified	Low (4)	
	Spatial Extent	Regional				
	Duration	Permanent				
	Consequence	Severe				
	Probability	Very Likely				
	Reversibility	Low				
	Irreplaceability	High				

[1] The specialist notes that the confidence level is not indicated owing to too many variables and lack of information in the public domain regarding listed projects.
[2] The mitigation measures indicated in Table 11.1 for the relevant impact would also be applicable.

Impact	Impact Criteria		Significance and Ranking Pre-Mitigation	Potential mitigation measures[2]	Significance and Ranking Post-Mitigation
CUMULATIVE IMPACTS					
CONSTRUCTION AND DECOMMISSIONING PHASES					
				botanical / ecological specialist prior to vegetation clearance and construction. ▪ Where the approved layout designs impact on provincially protected individuals, permit applications are required for either the relocation or destruction of provincially protected species (Schedule 12 (Protected Plants) of the Limpopo Environmental Management Act, 2003 (Act 7 of 2003)). ▪ Where the approved layout designs impact on protected tree species, including *Prunus africana* and *Sclerocarya birrea ssp. afra,* a licence / permit is required in terms of the National Forests Act (Act No. 84 of 1998). ▪ Plant SCC found within the proposed site should be housed in an onsite nursery for use during rehabilitation or be relocated to suitable areas where vegetation clearance will not occur. ▪ Environmental induction for all staff and contractors on-site. ▪ Ground clearing and the digging of trenches should ideally take place at the end of the dry season, prior to the first rains in order to minimise the impacts of dust. ▪ Key strategies (especially in the dry season) include regular water spraying, using on-tool extraction, covering stockpiles, enforcing site speed limits, and installing physical barriers. ▪ Search and rescue for sensitive animal species before areas of intact vegetation are cleared and ongoing during construction, as required. This should be conducted by relevant experts with experience in search and rescue of the faunal groups concerned. Obtain relevant permits for translocation of fauna species prior to commencement of construction activities, where relevant. ▪ Should any sensitive species be killed by any construction vehicles, then the traffic management to and from the site must be reviewed, and appropriate additional mitigation measures should be implemented to further reduce or avoid	

Impact	Impact Criteria		Significance and Ranking Pre-Mitigation	Potential mitigation measures[2]	Significance and Ranking Post-Mitigation
CUMULATIVE IMPACTS					
CONSTRUCTION AND DECOMMISSIONING PHASES					
				roadkill. Suitably qualified specialist, institution, or organisation should be consulted during the review process. ▪ Fences should be constructed in such a way so that burrowing animals can still gain access. Electrified fences must not have active wires below 20 cm from ground level and a guard wire set at 20 cm can be used to keep larger tortoises away from the fence.	
Introduction and spread of alien invasive species (Construction, Operational and Decommissioning Phases)	Status	Negative	Moderate (3)	▪ Implement an alien and invasive species control and monitoring plan in terms of NEMBA during and after construction. ▪ Alien invasive species establishment and spreading should be monitored on an ongoing basis to ensure that the disturbed areas do not become infested with such plants.	Low (4)
	Spatial Extent	Regional			
	Duration	Long term			
	Consequence	Substantial			
	Probability	Likely			
	Reversibility	Moderate			
	Irreplaceability	Low			

11.3 Aquatic Biodiversity

11.3.1 Introduction and Specialist

The Aquatic Biodiversity and Species study was undertaken by Russell Tate of Tate Environmental Specialist Services to inform the outcome of this BA from an aquatic biodiversity and species perspective. The complete Aquatic Biodiversity and Species study is included in Appendix E.3 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.3.2 Study Methodology

The outcome of the SSV triggered the need for an Aquatic Biodiversity and Species Impact Assessment in terms of GN 320 (March 2020) and GN 1150 (October 2020) [as amended in GN 3717 (July 2023)].

The study included desktop analysis and literature survey, a SSV in January 2026 and a second survey in June 2026, including an aquatic biodiversity field survey and condition assessment as per the 2008 Department of Water and Sanitation (DWS) practical field procedure for identification and delineation of wetlands and riparian areas. This method utilised standard equipment for the identification of watercourses, including a tracked GPS survey of the proposed development areas (PDAs), and investigation of soils within potential wetland areas. In addition, a DWS risk assessment was conducted in accordance with the requirements of the DWS General Authorisation (GA) legislation in terms of Section 39 of the National Water Act (Act 36 of 1998, as amended) (NWA) for water uses as defined in Section 21(c) or Section 21(i) (GN 49833 of 2023). One combined report was compiled to address the Aquatic Biodiversity, Plant Species and Animal Species Protocols.

11.3.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Aquatic Biodiversity and Species Assessment:

- Where wetlands were present outside of the study area, these were delineated using desktop data.
- The study is only applicable to the PDA and a 500 m radius.
- The study assumes the implementation of an effective Storm Water Management Plan.

11.3.4 Potential Impacts

During the field surveys, no aquatic features were identified within the PDA and Project Area for the BESS and EGI, and Access Road Option B specifically. The aquatic baseline for that portion of the PDA is therefore characterised by the absence of wetlands, drainage lines, riparian habitat, hydromorphic soils and other aquatic features. Access Road Option A was the only infrastructural component directly associated with a wetland feature which was classified as high sensitivity aquatic habitat.

The BESS, EGI and External Access Road Option B components of the proposed development are not expected to result in direct impacts on aquatic biodiversity features, and significant indirect impacts are not anticipated, subject to the implementation of the conditions and monitoring requirements set out in the Aquatic Biodiversity and Species Assessment. The construction and operation of External Access Road Option A will however directly impact a seep wetland.

Therefore, the BESS, EGI and External Access Road Option B components of the proposed project will have limited and negligible indirect impacts on aquatic biodiversity and species. The External Access Road Option A will however have direct impacts. These are listed below.

- **Overall Impact Assessment**

Construction Phase:

- Indirect impact: Water and aquatic habitat impacts stemming from site access and clearing of vegetation in working areas.
- Indirect impact: Water and aquatic habitat impacts stemming from the establishment of laydown yards/construction camps.
- Direct impact: Water and aquatic habitat impacts stemming from the excavations and earthworks for the setting of access roads, culverts, BESS and associated structures and stormwater controls (For Access Road Option A).
- Indirect impact: Water and aquatic habitat impacts stemming from the excavations and earthworks for the setting of access roads, BESS structures and stormwater controls (For Access Road Option B).
- Indirect impact: Water and aquatic habitat impacts stemming from the storage and use of chemicals, fuels and oils.
- Indirect impact: Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.

Operational Phase:

- Indirect impact: Water and aquatic habitat impacts stemming from the storage and use of chemicals, fuels and oils.
- Direct impact for Access Road Option A and indirect impact for Access Road Option B: Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes (for Access Road Option A and Option B).

Decommissioning Phase:

- Indirect impact: Water and aquatic habitat impacts stemming from site access and clearing of vegetation in working areas.
- Indirect impact: Water and aquatic habitat impacts stemming from the establishment of laydown yards/camps for decommissioning activities.
- Indirect impact: Water and aquatic habitat impacts stemming from the excavations and earthworks for the removal of BESS and associated structures and stormwater controls.
- Indirect impact: Water and aquatic habitat impacts stemming from the storage and use of chemicals, fuels and oils.
- Indirect impact: Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.

- **Cumulative Impact Assessment**
- *Construction, Operational and Decommissioning Phases*: Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.

- **Mitigation Measures**

The following conditions are recommended for the protection of aquatic biodiversity for all phases of the proposed project:

- Mitigation actions and infrastructure design must ensure compliance in the implementation of the standards and measures stipulated in GN 4167 published in Government Gazette 49833 of 8 December 2023 (GN 4167) as provided below, the developer must ensure that the activities are:
    - Construction, Operational and Decommissioning Phases:
        - Structurally stable.
        - Do not induce sedimentation, erosion or flooding.
        - Do not cause a detrimental change in the quantity, velocity, pattern, timing, water level and assurance of flow in a watercourse.
        - Do not cause a detrimental change in the quality of water in the watercourse.
        - Do not cause detrimental change in the stability or geomorphological structure of the watercourse.
        - Do not create a nuisance condition, or health or safety hazards.
        - Impeding or diverting the flow/ and or altering the bed, banks, course or characteristics of a watercourse do not detrimentally affect the on-site and surrounding environment or other up-stream and down-stream water users, property, health and safety of the general public or resource quality.
        - The existing hydraulic, hydrological, geomorphic and ecological functions of the watercourse in the vicinity of the structure is maintained or improved upon.
        - Ensure that all construction and maintenance activities take place outside the 1 in 100-year flood line or riparian habitat. It is noted that this is not applicable to the watercourse crossing structures for Access Road Option A but is applicable to the ancillary construction activities such as the positioning of laydown yards and the placement of material stockpiles.
    - Construction Phase:
        - The construction activities must ensure that a maximum impact footprint around the works is established, clearly demarcated, that no vegetation is cleared or damaged beyond this demarcation, and that equipment and machinery is only operated within the delineated impact footprint.

The following general mitigation measures are recommended:

- Construction Phase: Where culverts are required, it is recommended that these are spread across the wetland units and not directed through single culverts.
- Construction Phase: Where drifts are utilised, it is recommended that these structures are reinforced with erosion control measures that protect downstream riverine substrates and riparian habitats.
- Construction and Decommissioning Phases: All contractors and staff are to undergo induction / training on the location of sensitive No-Go areas and basic environmental awareness using the mitigation provided the Aquatic Biodiversity and Species Assessment Report (Appendix E.3 of this BA Report).
- Construction Phase: Areas where construction is to take place must be clearly demarcated. Any areas not demarcated must be avoided;
- Construction and Decommissioning Phases: Stormwater generated from roadways must be captured and buffered, where flow velocities are to be significantly reduced before discharge into the environment.
- Construction and Decommissioning Phases: Stormwater verges as well as other denuded areas must be grassed (re-vegetated) with local indigenous grasses to protect against erosion;
- Construction and Decommissioning Phases: Any materials excavated must not be deposited in the wetlands or areas where it is prone to being washed downstream or impeding natural flow;
- Construction and Decommissioning Phases: Stockpiling or storage of materials and/or waste must be placed beyond the defined buffers identified in the Aquatic Biodiversity and Species Assessment Report (Appendix E.3 of this BA Report), for each respective activity;
- Construction Phase: No vehicles shall enter watercourse buffer zones outside of construction footprints;
- Construction and Decommissioning Phases: No vehicles shall be serviced on site; a suitable workshop with appropriate pollution control facilities should be utilised offsite;
- Construction and Decommissioning Phases: Hydrocarbons for refuelling purposes must be stored in a suitable storage device on an impermeable surface outside of the delineated wetland buffer zone;
- Construction and Decommissioning Phases: Disturbed areas must be re-vegetated after completion of the relevant phase;
- A three-month timeframe for the initiation of this action;
- Ripping of the soils should occur in two directions; and
- Removed vegetation and topsoil can be harvested and applied here.
- Construction Phase: Drainage channels constructed for the access roads must be constructed so as not to result in erosion;
- Construction and Decommissioning Phases: An alien vegetation removal and management programme must be implemented along the verges of the roads and crossing points;
- Construction Phase: General stormwater management practices should be included in the design phase and implemented during the construction phase of this project; and
- Construction Phase: Following the completion of the construction phase, all construction materials and debris should be removed and disposed of in a suitable area. An inspection should be completed within a four week period after the construction phase is completed.

The impacts and mitigation measures are described in Table 11.3. Cumulative impacts and associated mitigation measures are captured in Table 11.4.

11.3.5 Findings and Concluding Statement

Field verification confirmed that no wetlands, drainage lines, riparian habitat, hydromorphic soils, or other aquatic features occur within the BESS and EGI PDA and the development footprint for Access Road Option B. No aquatic animals or plant SCC were observed during the SSV surveys. In addition, no defined hydrological or sediment transfer pathways were identified between the BESS, EGI, and Access Road Option B footprint and the mapped aquatic features. A single high sensitivity aquatic feature (i.e. seep wetland HGM 2) is expected to be impacted by the proposed Access Road Option A only.

Runoff from the development is expected to remain diffuse and localised, with no direct discharge route to the wetlands or impoundments. On this basis, no plausible direct or indirect impact pathway exists between the proposed BESS and EGI development, and Access Road Option B, and aquatic features, and the aquatic biodiversity sensitivity of the preferred development footprint for these aspects is confirmed as Low. A consideration of the limited to negligible indirect impacts has been discussed in the study for the proposed BESS, EGI and Access Road Option B development footprints. The proposed Access Road Option A will however have direct impacts. Impacts from the proposed access road Option A were derived to be low significance without and with the implementation of mitigation measures.

The specialist assessment confirmed that there is no plausible routine runoff, sediment transfer, or altered drainage pathways from the BESS and EGI development footprint and the development footprint of Access Road Option B, to the mapped seep wetlands, artificial impoundments or the Unchanneled Valley Bottom wetland. The impacts are primarily associated with proposed Access Road Option A only.

Based on the outcomes of the impact assessment, the proposed development is not expected to result in significant direct or indirect impacts on aquatic features, subject to the conditions and monitoring requirements set out in the study.

Table 11.3: Assessment of the potential Aquatic Biodiversity risks and impacts of the Project 1 (Veroniva BESS)

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
INDIRECT IMPACTS						
CONSTRUCTION PHASE						
Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas	Status	Neutral	Very Low (5)	▪ Implement an effective Stormwater Management Plan. This plan must include: o An analysis on peak flow changes between the pre- and post-development landscapes. o Layouts and design of stormwater infrastructure. o The effective attenuation of the expected increased hydrological conditions. ▪ Regular Environmental Control Officer (ECO) monitoring must incorporate the survey and reporting on Stormwater Management structures. Indications of the following should be reported on, mitigation and rehabilitation actions implemented: o Soil erosion. o Soil compaction. o Visual observations on soil contamination. ▪ Regular ECO monitoring must incorporate the survey and reporting on BESS structures. ▪ Continuous monitoring of BESS operational parameters. ▪ Development of an emergency response plan. ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the establishment of laydown yards/construction camps	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
	Status	Negative	Low (4)		Low (4)	High

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
Water and Aquatic Habitat Impacts stemming from the excavations and earthworks for the setting of Access Road, BESS Structures and stormwater controls (Road Option A)	Spatial Extent	Site Specific		▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.		
	Duration	Medium Term				
	Consequence	Moderate				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the excavations and earthworks for the setting of Access Road, BESS Structures and stormwater controls (Road Option B)	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the storage and use of chemicals, fuels and oils	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
OPERATION PHASE						
Water and Aquatic Habitat Impacts stemming from the storage and use of chemicals, fuels and oils	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
	Reversibility	High		▪ Clean and dirty surface water separation and a stormwater management plan must be put into place via standard best practice methods. ▪ A clear stormwater management plan for hardened surfaces must be implemented. ▪ No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression. ▪ Monitoring of instream structures on an annual basis.		
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes (Road Options A and B)	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ Clean and dirty surface water separation and a stormwater management plan must be put into place via standard best practice methods. ▪ A clear stormwater management plan for hardened surfaces must be implemented. ▪ No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression. ▪ Monitoring of instream structures on an annual basis.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
DECOMMISSIONING PHASE						
Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the utilisation of laydown yards/camps for the decommissioning activities	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
	Reversibility	High		▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.		
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the excavations and earthworks for the removal of BESS Structures and stormwater controls	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the storage and use of chemicals, fuels and oils	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.* ▪ In addition, undertake the relevant mitigation measures stipulated in Section 11.3.4 of this chapter.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				

Table 11.4: Assessment of the potential Aquatic Biodiversity and Species cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
CUMULATIVE IMPACTS						
CUMULATIVE IMPACT – CONSTRUCTION PHASE						
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ Implement an effective Stormwater Management Plan. This plan must include: o An analysis on peak flow changes between the pre- and post-development landscapes. o Layouts and design of stormwater infrastructure. o The effective attenuation of the expected increased hydrological conditions. ▪ Regular Environmental Control Officer (ECO) monitoring must incorporate the survey and reporting on Stormwater Management structures. Indications of the following should be reported on, mitigation and rehabilitation actions implemented: o Soil erosion. o Soil compaction. o Visual observations on soil contamination. ▪ Regular ECO monitoring must incorporate the survey and reporting on BESS structures. ▪ Continuous monitoring of BESS operational parameters. ▪ Development of an emergency response plan. ▪ Clean and dirty surface water separation must be put into place via standard best practice methods. ▪ No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
CUMULATIVE IMPACT – OPERATION PHASE						
Water and Aquatic Habitat Impacts stemming from the alteration of surface	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following cumulative impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from the*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
drainage and hydrological processes	Probability	Unlikely		*alteration of surface drainage and hydrological processes.*		
	Reversibility	High				
	Irreplaceability	Low				
CUMULATIVE IMPACT – DECOMMISSIONING PHASE						
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following cumulative impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				

11.4 Avifaunal Impacts

11.4.1 Introduction and Specialist

The Avifauna Impact Assessment was undertaken by Albert Froneman and Dr Megan Loftie-Eaton of AfriAvian Environmental to inform the outcome of this BA from an avifaunal perspective. The complete Avifaunal Impact Assessment is included in Appendix E.4 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.4.2 Study Methodology

The outcome of the SSV triggered the need for an Avifaunal Impact Assessment in terms of GN 1150 (October 2020) [as amended in GN 3717 (July 2023)].

The study included desktop analysis and a survey in November 2025, using a 4x4 vehicle and on foot. During the survey, all bird sightings were recorded. Various existing databases and reports were used, such as bird distribution data from the Second Southern African Bird Atlas Project (SABAP2), the 2025 Red Data Book of Birds of South Africa, 2025 International Union for the Conservation of Nature (IUCN) Red List of Threatened Species, and KBAs of South Africa. Data collected during previous surveys in the Broader Area (four pentads based on the SABAP2) as far as habitat classes and the occurrence of priority species are concerned was also considered.

11.4.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in Avifauna Impact Assessment:

- This study assumed that the sources of information used in the Avifauna Impact Assessment are reliable. In this respect, the following must be noted:
    - The Broader Area was defined as the area encompassed by the four SABAP2 pentads, for which bird distribution data was obtained, where the BESS and EGI Project is to be located.
    - The study area was delineated as a 65 ha zone within which the proposed BESS, associated infrastructure, and 132 kV EGI will be developed. The study area also includes the external access roads (Option A and Option B) that may need to be widened/upgraded (as needed). Based on the final layout, the BESS and associated infrastructure will occupy a 15 ha footprint and the EGI will have a servitude of 40 m, resulting a 2.6 ha corridor area. In addition, the access roads leading to site may require upgrading or widening and therefore form part of the development footprint.
    - It was assumed that the SABAP2 data is a reasonably accurate representation of the avifauna that is likely to occur in the Broader Area.
    - The focus of the study was on the potential impacts of the proposed BESS on priority species, including all SCC and the potential impacts of the electrical grid infrastructure on EGI sensitive avifauna, including all SCC.
    - The precautionary principle was applied throughout. NEMA also endorses the precautionary principle.

- The assessment of impacts is based on the baseline environment as it currently exists at the study area.
- Conclusions drawn in the avifauna study are based on experience of the specialists in relation to the species found on site and similar species in different parts of South Africa. Bird behaviour can never be entirely reduced to formulas that would be valid under all circumstances.
- The Animal and Plant Species data on the Screening Tool were updated in April 2026, and the Species Environmental Assessment Guideline was updated in March 2026[3]. The updated Species Guideline was considered; however, it does not influence the findings of the Avifauna Assessment. Furthermore, there were no differences in the Animal Species Theme in the Screening Tool Reports generated in November 2025 (for the study area) and April 2026 (for the project footprints), from an avifaunal perspective.

11.4.4 Potential Impacts

The potential avifaunal impacts resulting from the proposed project are listed below for each phase, including cumulative impacts.

- **Overall Impact Assessment**

Construction Phase:
- Displacement of avifauna due to disturbance associated with construction of the BESS and associated infrastructure.
- Displacement of avifauna due to habitat loss associated with the construction (and presence) of the BESS and associated infrastructure.

Operational Phase:
- Mortality of avifauna due to electrocution at the on-site substation complex (Independent Power Producer (IPP) substation) and/or on the medium voltage overhead power lines (if any).
- Mortality of avifauna (power line sensitive species) due to collisions with the overhead sections (if any) of the internal medium voltage reticulation network.

Decommissioning Phase:
- Displacement of avifauna due to disturbance associated with the decommissioning of the BESS and associated infrastructure.

- **Cumulative Impact Assessment**

- *Construction Phase:*
  - Displacement of avifauna due to disturbance associated with construction activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.
  - Displacement of avifauna due to habitat loss associated with the construction activities and presence of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.

[3] South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline. Guidelines for the implementation of the Fauna and Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 4.1 2026.

- *Operational Phase:*
  - Mortality of priority avifauna due to electrocutions in the substations, on the associated internal medium voltage overhead lines (if any), and on the high voltage overhead powerlines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.
  - Mortality of priority avifauna due to collisions on the associated internal medium voltage overhead lines (if any) and on the high voltage overhead powerlines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.

- *Decommissioning Phase:*
  - Displacement of priority species due to disturbance associated with decommissioning activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.

The impacts and mitigation measures are described in Table 11.5. Cumulative impacts and associated mitigation measures are captured in Table 11.6.

11.4.5 Findings and Concluding Statement

The study area contains suitable habitat for avian SCC as defined in the Animal Species Protocol (GN 1150, as amended in GN 3717 (July 2023)), namely species listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered, Vulnerable or Near Threatened. Two SCC were recorded on-site during the site visit undertaken from 24–25 November 2025, namely Black-winged Kite *Elanus caeruleus* (Regionally Near Threatened) and Cape Vulture *Gyps coprotheres* (Globally and Regionally Vulnerable) and according to the SABAP2 data, a total of 26 SCC have been recorded in the Broader Area.

Based on the SSV and the avifaunal sensitivity data generated, the avifauna specialist explained that that there are no fatal flaws relating to the proposed project within the preferred location of the study area from an avifaunal perspective. The development footprint and detailed layout of the project are considered suitable from an avifaunal perspective.

The potential impacts during the construction and operational phases are rated with a low to moderate significance with the implementation of mitigation measures, whereas the impacts identified for the decommissioning phase are rated with a low significance with the implementation of mitigation measures.

Overall, the specialist concluded that from an avifaunal perspective, the proposed project is supported and can be granted Environmental Authorisation, provided that the proposed recommended mitigation measures are strictly implemented.

Table 11.5: Assessment of the potential Avifauna risks and impacts of the Project 1 (Veroniva BESS)

Impact	Impact Criteria		Significance / Ranking (Pre-Mitigation)	Potential mitigation measures	Significance / Ranking (Post-Mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Displacement of avifauna due to disturbance associated with construction of the BESS and associated infrastructure	Status	Negative	Moderate (3)	▪ The All-Infrastructure Exclusion Zones must be strictly adhered to. ▪ Measures to control noise and dust must be applied according to current best practice in the industry. ▪ Maximum use must be made of existing access roads, and the construction of new roads must be avoided as far as practical/only developed where absolutely needed. ▪ Access to the rest of the property must be restricted, to avoid unnecessary displacement of avifauna due to disturbance. ▪ The recommendations of the Aquatic Biodiversity and Terrestrial Biodiversity and Species Specialist Studies must be strictly implemented, especially as far as the limitation of the construction footprint is concerned.	Low (4)	High
	Spatial Extent	Site-specific				
	Duration	Short term				
	Consequence	Substantial				
	Probability	Very likely				
	Reversibility	High				
	Irreplaceability	Low				
Total or partial displacement of avifauna due to habitat loss associated with the construction and presence of the BESS and associated infrastructure.	Status	Negative	High (2)	▪ Construction activity must be restricted to the immediate footprint of the infrastructure. ▪ Vehicle and pedestrian access to the site must be controlled and restricted to the construction footprint to prevent unnecessary destruction of vegetation. ▪ Temporary laydown areas must be clearly demarcated and any sections of temporary laydown that are no longer required for the operational phase must be rehabilitated with indigenous vegetation. ▪ Vegetation clearance must be limited to what is absolutely necessary and in adherence to rehabilitation measures. ▪ The recommendations of the Aquatic Biodiversity and Terrestrial Biodiversity and Species Specialist Studies must be strictly implemented, especially as far as the limitation of the construction footprint is concerned. ▪ To reduce the risk of birds (especially owls) becoming entangled in fences, it is recommended that for any new fences being	Moderate (3)[4]	Medium
	Spatial Extent	Site specific				
	Duration	Long term				
	Consequence	Severe				
	Probability	Very likely				
	Reversibility	Moderate				
	Irreplaceability	Low				

[4] The moderate impact significance rating is deemed acceptable if all mitigation measures are strictly implemented, therefore a biodiversity off-set is not required.

Impact	Impact Criteria		Significance / Ranking (Pre-Mitigation)	Potential mitigation measures	Significance / Ranking (Post-Mitigation)	Confidence Level
				constructed, at least the top two strands should be smooth wire (not barbed) and the spacing between at least the top two wires should be increased to a minimum of 300 mm. Ensuring that the wires are correctly tensioned, the entanglement risk will also be reduced.		
OPERATIONAL PHASE						
Electrocution of avifauna in the onsite substation complex (IPP Substation) and/or on the medium voltage internal overhead power lines (if any).	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Long term Severe Likely High Low	High (2)	▪ Monitor the electrocution mortality in the IPP substation monthly. Apply mitigation (insulation of live components) if electrocution of Species of Conservation Concern (SCC) happens more than once per annum. ▪ In instances where the medium voltage cables cannot be buried due to technical constraints or for example, to accommodate other environmental sensitivities (specifically aquatic ecology), a bird-friendly pylon design must be used, and appropriate mitigation must be implemented pro-actively for pylon structures e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers. A registered South African Council for Natural and Scientific Professions (SACNASP) Avifaunal Specialist must sign off on the design for the pylons and overhead lines. ▪ In instances where the medium voltage cables cannot be buried anti-perching devices to be installed on all overhead medium voltage pylons to deter birds. ▪ VulPro must be notified immediately if any vulture is negatively impacted by collision or electrocution.	Low (4)	High
Collision mortality of power line sensitive species due to collisions with the overhead (if any) 33 kV or more than 33 kV cables / lines.	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Long term Severe Likely High Low	High (2)	In instances where the medium voltage cables cannot be buried: ▪ Bird Flight Diverters (BFDs) must be fitted in a staggered configuration (on the earth wire and conductor) to all overhead lines for the full length according to the applicable Eskom Engineering Instruction (5 m apart for medium voltage power lines). Light and dark coloured devices must be alternated to provide contrast against both dark and light backgrounds,	Moderate (3).[5]	Medium

[5] The moderate impact significance rating is deemed acceptable if all mitigation measures are strictly implemented, therefore a biodiversity off-set is not required.

Impact	Impact Criteria		Significance / Ranking (Pre-Mitigation)	Potential mitigation measures	Significance / Ranking (Post-Mitigation)	Confidence Level
				respectively. These devices must be installed as soon as the conductors are strung. ▪ Conduct quarterly inspections of all overhead sections of the medium voltage power lines to look for bird carcasses and to ensure that BFDs are still intact and functioning correctly. ▪ Any bird fatalities must be recorded as part of the post-construction avifaunal monitoring reports. ▪ VulPro must be notified immediately if any vulture is negatively impacted by collision or electrocution.		
DECOMMISSIONING PHASE						
The noise and movement associated with the dismantling activities of the BESS will be a source of disturbance which would lead to the displacement of avifauna from the area.	Status	Negative	Moderate (3)	▪ Decommissioning activity should as far as possible be restricted to the immediate footprint of the infrastructure. ▪ Measures to control noise and dust must be applied according to current best practice in the industry. ▪ Maximum use must be made of existing access roads, and the construction of new roads must be avoided as far as practical/only developed where absolutely needed. ▪ The recommendations of the Aquatic Biodiversity and Terrestrial Biodiversity and Species specialist studies must be strictly implemented, especially as far as limitation of the activity footprint is concerned.	Low (4)	High
	Spatial Extent	Site specific				
	Duration	Short term				
	Consequence	Substantial				
	Probability	Very likely				
	Reversibility	High				
	Irreplaceability	Low				

Table 11.6: Assessment of the potential Avifauna cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
CUMULATIVE IMPACTS – ALL PHASES						
▪ Displacement of avifauna due to disturbance associated with construction activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Displacement of avifauna due to habitat loss associated with the construction activities and presence of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Mortality of priority avifauna due to electrocutions in the substations, on the associated internal medium voltage overhead lines (if any), and on the high	Status	Negative	High (2)	It is assumed that all the mitigation measures included in the various bird impact assessment reports for all the relevant renewable energy, EGI and BESS projects within the 30 km radius will be applied by the relevant Applicants for the relevant projects. These include, but are not limited to, the following: ▪ Construction activity must be restricted to the immediate footprint of the infrastructure as far as possible. ▪ Burying of internal medium voltage cables. ▪ Using bird-friendly structures for the above ground sections of medium voltage pylons. ▪ Rehabilitation of disturbed vegetation. ▪ Maximum use of existing roads. ▪ Implementation of operational monitoring to assess avifaunal mortality levels. ▪ Avoidance of no-go buffers around sensitive areas, recommendations of the Freshwater and Botanical Specialists must be strictly implemented. ▪ Marking of overhead power lines with Bird Flight Diverters.	Moderate (3)[6]	Medium
	Spatial Extent	Regional				
	Duration	Long term				
	Consequence	Severe				
	Probability	Very Likely				
	Reversibility	Low				
	Irreplaceability	Moderate				

[6] The moderate impact significance rating is deemed acceptable if all mitigation measures are strictly implemented, therefore a biodiversity off-set is not required.

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
voltage overhead powerlines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Mortality of priority avifauna due to collisions on the associated internal medium voltage overhead lines (if any) and on the high voltage overhead powerlines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Displacement of priority species due to disturbance associated with decommissioning activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.						

11.5 Visual Impacts

11.5.1 Introduction and Specialist

The Visual Impact Assessment was undertaken by Graham Young of Graham A Young Landscape Architect (GYLA) to inform the outcome of this BA from a visual impact perspective. The complete Visual Impact Assessment is included in Appendix E.5 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.5.2 Study Methodology

The Visual Impact Assessment documents the baseline and ensures that the visual/aesthetic risks of the proposed project are understood. There is no dedicated assessment protocol prescribed for Visual Impact Assessments, and as such, the study was undertaken in terms of Appendix 6 of the 2014 NEMA EIA Regulations (as amended).

The study included desktop analysis and a site survey in November 2025. The field survey involved travelling along public roads surrounding and crossing the study area, as well as visiting the proposed project site and nearby properties to assess the nature and character of the landscape. The character of the landscape was described and rated in terms of its aesthetic appeal using recognised contemporary research in perceptual psychology as the basis, and its sensitivity as a landscape receptor, along with the relevant buffer zones. The sense of place of the study area was described in terms of its uniqueness and distinctiveness. The visibility of the proposed project was determined using on-site observations and a viewshed assessment and sensitive receptor locations identified. Illustrations, in basic simulations, of the proposed infrastructure were overlaid onto panoramas to give an idea of the scale and location of the proposed project within its landscape context. Visual intrusion (contrast) of the proposed project was determined by simulating its physical appearance from these sensitive viewing areas.

11.5.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Visual Impact Assessment:

- The description of project components is limited to what was supplied prior to the completion of the Visual Impact Assessment.
- No baseline monitoring was undertaken as part of the study.
- The accuracy of the viewshed analysis depends on the quality of the input digital surface model (DSM). Readily available digital contours for the area are limited to 20 m contours. The specialist interpolated these to 1 m intervals to improve accuracy. However, these types of viewshed investigations (using only readily available GIS software and terrain contours) are limited in accuracy because they cannot incorporate vegetation information. To be more accurate in predicting absolute visibility, the analysis would require “a 3D model of a tree/plant and a layer indicating the spatial distribution and density of vegetation on the landscape” (Llobera 2007:799) and the buffering of all existing buildings, structures, and infrastructure. The possibility of indicating both the spatial and density distributions of trees/plants and the

three-dimensional model representing vegetation and all structures is currently unavailable to the author. Therefore, on-site observations are critical.
- Site photos taken in winter (when the site visit was conducted) do not necessarily reflect the complete landscape character of the area as experienced through all seasons, i.e. the density of the bush in the summer would partially restrict visual access to the site when compared to the winter months. The weather was sunny with some clouds and haze.
- Cumulative impacts are assessed by adding expected impacts from the proposed development to existing and proposed developments with similar visual impacts within a 30 km radius of the site. The projects listed in Chapter 5 of this BA Report were considered in the assessment of cumulative impacts.
- No consultation with landowners or the public was required for the Visual Impact Assessment.

11.5.4 Potential Impacts

Potential visual impacts arising from the proposed project are listed below for each phase, including cumulative impacts. No indirect impacts have been identified.

- **Overall Impact Assessment**

Construction Phase:
- Potential visual effect of construction activities.

Operational Phase:
- Effect of the operational activities and infrastructure on the landscape character and sense of place.

Decommissioning Phase:
- Potential visual effect of decommissioning activities, and any remaining structures, platforms and disused roads on the landscape.

- **Cumulative Impact Assessment**

- *Construction Phase*: Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during construction phase.

- *Operational Phase:* Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during operational phase.

- *Decommissioning Phase*: Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during decommissioning phase.

The impacts and mitigation measures are described in Table 11.7. Cumulative impacts and associated mitigation measures are captured in Table 11.8.

11.5.5 Findings and Concluding Statement

The scenic quality of the study area has been rated from low to very high within the sub-region. The development zone is situated in a moderately rated landscape type. Sensitive viewing sites and landscape types have been identified and mapped, indicating potential sensitivity to the project, primarily for residents and visitors to farmsteads located to the south and south-west of the development zones.

Based on the SSV undertaken, the study area has a low visual and landscape sensitivity risk. Regarding the placement of the BESS on the 15 ha site, visually, the infrastructure can be situated anywhere within the area due to low overall visual and landscape sensitivity. However, it is preferable to position it lower down the slope and closer to the existing power infrastructure, if feasible. The latter has been achieved in the final layout.

The potential impacts identified during the construction phase have been rated with a low significance, after mitigation, while the impacts identified for the operational and decommissioning phases have been rated with a very low significance after mitigation.

The specialist concluded that there are no fatal flaws in the proposed project from a visual perspective. Visual impacts are of a nature, scale, and duration that will require good housekeeping mitigation to minimise potential impacts throughout all phases of the proposed project. The specialist considers that from a visual standpoint, the proposed project is acceptable and is recommended to receive Environmental Authorisation.

Table 11.7: Assessment of the potential Visual risks and impacts of the Project 1 (Veroniva BESS)

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Potential visual effect of construction activities	Status	Negative	Low (4)	▪ With the preparation of the land within the full extent of the project site onto which activities will take place, the minimum amount of existing vegetation and topsoil should be removed. ▪ All topsoil must be collected and retained for re-use later to rehabilitate disturbed areas. Should topsoil stockpiles be created, they must not exceed 2 m in height. ▪ The placement of construction camps (if required), as well as a site plan of the construction camp should be specified. ▪ When possible, construction activities should be limited to between 08:00 and 17:00 or within a timeframe determined in conjunction with the Environmental Control Officer (ECO) and neighbours of the project site. ▪ Adopt responsible construction practices that strictly contain the construction/establishment activities to demarcated areas. ▪ Building or waste material discarded should be undertaken at an authorised location, which should not be within any sensitive areas. ▪ Earthworks should be executed so that only the footprint and a small 'construction buffer zone' around the proposed activities are exposed. In all other areas, the naturally occurring vegetation should be retained, especially along the periphery of the site adjacent to the local district road. ▪ All cut and fill slopes (if any) and areas affected by construction work should be progressively top soiled and re-vegetated as soon as possible. ▪ Disturbed soil must be exposed for the minimum time possible once cleared of vegetation to avoid prolonged exposure to wind and water erosion and to minimise dust generation. ▪ Maintain a screen buffer of existing trees / vegetation around the BESS project site..	Low (4)	High
	Spatial Extent	Local				
	Duration	Medium Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
				▪ Paint all structures (structural support for the BESS containers etc.) with colours that reflect and complement the colours of the surrounding landscape – avoid shiny materials. ▪ "Housekeeping" procedures should be developed for the Project to ensure that the project site and lands adjacent to it are kept clean of debris, garbage, graffiti, fugitive trash, or waste generated on-site; procedures should extend to control of "track out" of dirt on vehicles leaving the active construction site and controlling sediment in stormwater runoff. ▪ During construction, temporary fences surrounding the material storage yards and laydown areas should be covered with 'sack' cloth (a khaki coloured hessian cloth) or shade cloth.		
OPERATIONAL PHASE						
Effect of the operational activities and infrastructure on the landscape character and sense of place	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Long Term Moderate Likely Highly Replaceable	Low (4)	▪ "Housekeeping" procedures should be developed for the Project to ensure that the project site and lands adjacent to it are kept clean of debris, garbage, graffiti, fugitive trash, or waste generated on-site; procedures should extend to control of "track out" of dirt on vehicles leaving the operational project site and controlling sediment in stormwater runoff. ▪ Operating facilities should be actively maintained during operation. ▪ Install light fixtures that provide precisely directed illumination to reduce light "spillage" beyond the immediate surrounds of the site i.e. lights are to be aimed away from the nearby residences immediately south and south-west of the project site and the R519 access road. ▪ Minimise the number of light fixtures to the bare minimum, including security lighting. ▪ Avoid high pole top security lighting along the periphery of the site at the BESS areas and use only lights activated on illegal entry to the site.	Very Low (5)	High
DECOMMISSIONING PHASE						
Potential visual effect of decommissioning activities, and any	Status Spatial Extent Duration	Neutral Local Permanent	Very Low (5)	▪ All equipment and structures to be dismantled and removed from the site.	Very Low (5)	Medium

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
remaining structures, platforms and disused roads on the landscape.	Consequence	Slight		▪ All cut and fill slopes and areas affected by disassembly work should be progressively topsoiled and re-vegetated as soon as possible. ▪ Disturbed soil must be vegetated to avoid prolonged exposure to wind and water erosion and to minimise dust generation. ▪ The entire site is to be replanted with natural vegetation indigenous to the study area. ▪ The final product must not cause an ecological imbalance in the area.		
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				

Table 11.8: Assessment of the potential Visual cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
CUMULATIVE IMPACTS						
CONSTRUCTION PHASE						
Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during construction phase.	Status	Negative	Low (4)	▪ The mitigation measures recommended are as per those for the construction phase in Table 11.7. ▪ Earthworks should be executed so that only the footprint and a small 'construction buffer zone' around the proposed activities and development sites for the pylons are exposed. In all other areas, the naturally occurring vegetation should be retained, especially along the periphery of the site adjacent to the local district road. ▪ "Housekeeping" procedures should be developed for the Project to ensure that the corridor and lands adjacent to it are kept clean of debris, garbage, graffiti, fugitive trash, or waste generated on-site. ▪ Re-vegetation, including hydroseeding, should be enhanced using a seed mixture to ensure the following: o Annual and perennial plants are chosen. o Pioneer species are included. o Species must be indigenous to the area, with seeds coming from the area. o Root systems must have a binding effect on the soil.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Medium Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
OPERATIONAL PHASE						
Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during operational phase.	Status	Negative	Low (4)	▪ The mitigation measures recommended are as per those for the operational phase in Table 11.7. ▪ Ensure the EGI is properly maintained and kept free of alien vegetation.	Very Low (5)	Medium
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				
DECOMMISSIONING PHASE						
Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during decommissioning phase.	Status	Neutral	Very Low (5)	▪ The mitigation measures recommended are as per those for the decommissioning phase in Table 11.7.	Very Low (5)	Medium
	Spatial Extent	Local				
	Duration	Permanent				
	Consequence	Slight				
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				

11.6 Heritage (including Archaeology and Cultural Landscape)

11.6.1 Introduction and Specialist

The Heritage Impact Assessment was undertaken by Dr Jayson Orton of ASHA Consulting to inform the outcome of this BA from heritage (archaeology and cultural landscape) perspective. The complete Heritage Impact Assessment is included in Appendix E.6 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.6.2 Study Methodology

There is no dedicated assessment protocol prescribed for Heritage Impact Assessments, and as such, the study was undertaken in terms of Appendix 6 of the 2014 NEMA EIA Regulations (as amended), as well as the relevant provisions of the National Heritage Resources Act (Act 25 of 1999, as amended).

The study included desktop analysis and a field survey in November 2025. During the survey the positions of finds and survey tracks were recorded on a hand-held Garmin GPS receiver. Photographs were taken at times to capture representative samples of both the affected heritage and the landscape setting of the proposed development. The Heritage Impact Assessment was then compiled with the aim of fulfilling the requirements of the South African Heritage Resources Agency (SAHRA) such that a comment can be issued by them for consideration by the Department of Forestry, Fisheries and the Environment (DFFE).

11.6.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Heritage Impact Assessment:

- The field study was carried out at the surface only and hence any completely buried archaeological sites would not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface but reasonable assumptions can often be made based on the substrate present. The survey attempted to (1) identify all obvious heritage resources, (2) cover transects in various areas to enable a good understanding of the types and density of heritage resources present, and (3) determine the relationship between heritage resources and landscape features. It is assumed that the findings would be indicative of the overall pattern on the landscape.

- Cumulative impacts are difficult to assess due to the variable site conditions that would have been experienced in different areas and in different seasons. Survey quality is thus likely to be variable. As such, some assumptions need to be made in terms of what and how much heritage might be impacted by other developments in the broader area. It is also not known what heritage was destroyed by agriculture and urban development in the wider area, since these aspects predate the advent of modern impact assessment studies.

11.6.4 Potential Impacts

Potential impacts on heritage resources arising from the proposed project are listed below for each phase, including cumulative impacts. No indirect impacts have been identified.

- **Overall Impact Assessment**

Construction Phase:
- Potential impact on archaeology.
- Potential impact on graves.
- Potential impact on the cultural landscape.

Operational Phase:
- Potential impact on the cultural landscape.

Decommissioning Phase:
- Potential impact on the cultural landscape.

- **Cumulative Impact Assessment**

Construction, Operational and Decommissioning Phases:

- Potential impact on archaeology.
- Potential impact on graves.
- Potential impact on the cultural landscape.

The impacts and mitigation measures are described in Table 11.9. Cumulative impacts and associated mitigation measures are captured in Table 11.10.

11.6.5 Findings and Concluding Statement

The project site is fairly flat and covered in grass, bushes and small trees. No heritage resources were found in the study area. A large cluster of stones was seen to the north of the BESS footprint, but the specialist concluded that it is almost certainly the weathered remains of a natural rock outcrop. No isolated artefacts were seen during the survey. Fort Louis Campbell, a Provincial Heritage Site (PHS), lies approximately 5 km north-east of the study area (the nearest project component is Access Road Option A which lies within 4.1 km of this PHS). The Makapans Valley National Heritage Site (and World Heritage Site), and the Eersteling Chimney Stack PHS are other significant heritage resources in the wider area. However, due to distance, none of these sites would be impacted in any way. The only potential heritage concern is impacts to the cultural landscape. The landscape is rural with the high-lying hills to the north of the study area being the main significant feature. However, given the existence of other electrical infrastructure in the area, the high-lying landscape north of the study area will not be further impacted by the proposed project.

Because of the presence of the existing and operational Witkop Solar Facility, existing and operational Eskom Witkop Main Transmission Substation and multiple existing powerlines, the

proposed project is considered to be in an appropriate location clustered with other electrical facilities and their development can be supported from a heritage point of view.

The potential impacts identified during the construction, operational and decommissioning phases have been rated with a very low impact significance, after mitigation.

The specialist concluded that there are no significant concerns for this project and that from a heritage perspective, the project can be authorised in full.

Table 11.9: Assessment of the potential Heritage risks and impacts of the Project 1 (Veroniva BESS)

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Damage or destruction of archaeological materials	Status	Negative	Very Low (5)	▪ Report any chance finds to the South African Heritage Resources Agency (SAHRA) and/or an archaeologist.	Very Low (5)	High
	Spatial extent	Local				
	Duration	Permanent				
	Consequence	Slight				
	Probability	Very unlikely				
	Reversibility	Non-reversible				
	Irreplaceability	High				
Damage or destruction of graves	Status	Negative	Very Low (5)	▪ Report any chance finds to the SAHRA and/or an archaeologist. ▪ Protect chance finds *in situ* and appoint an archaeologist to exhume under an approved permit.	Very Low (5)	High
	Spatial extent	Site specific				
	Duration	Permanent				
	Consequence	Extreme				
	Probability	Extremely unlikely				
	Reversibility	Non-reversible				
	Irreplaceability	High				
Intrusion of facility into the cultural landscape	Status	Negative	Low (4)	▪ Take measures to reduce night-time light pollution from security lighting. ▪ Keep construction duration as short as possible. ▪ Use moderate sized signage on public roads.	Very Low (5)	High
	Spatial Extent	Site specific				
	Duration	Permanent				
	Consequence	Moderate				
	Probability	Very likely				
	Reversibility	Non-reversible				
	Irreplaceability	High				
OPERATIONAL PHASE						
Intrusion of facility into the cultural landscape	Status	Negative	Low (4)	▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.	Very Low (5)	High
	Spatial extent	Local				
	Duration	Long term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
DECOMMISSIONING PHASE						
Intrusion of facility into the landscape	Status	Negative	Very Low (5)	▪ Minimise duration of decommissioning period. ▪ Ensure effective rehabilitation of all affected areas. ▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.	Very Low (5)	High
	Spatial extent	Regional				
	Duration	Short term				
	Consequence	Slight				
	Probability	Very likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Table 11.10: Assessment of the potential Heritage cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
CUMULATIVE IMPACTS						
CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASES						
Impacts to archaeology and graves due to other developments in the 30 km radius, as well as the proposed Veroniva BESS and EGI	Status	Negative	Very Low (5)	▪ Report any chance finds to the SAHRA and/or an archaeologist. ▪ Protect chance finds *in situ* and appoint an archaeologist to exhume under an approved permit.	Very Low (5)	High
	Spatial extent	Regional				
	Duration	Permanent				
	Consequence	Slight				
	Probability	Very unlikely				
	Reversibility	Non-reversible				
	Irreplaceability	High				
Intrusion of facilities into the landscape due to other developments in the 30 km radius, as well as the proposed Veroniva BESS	Status	Negative	Low (4)	▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.	Low (4)	High
	Spatial extent	Regional				
	Duration	Permanent				
	Consequence	Moderate				
	Probability	Very Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
Intrusion of EGI into the landscape due to other developments in the 30	Status	Negative	Very Low (5)	▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.	Very Low (5)	High
	Spatial Extent	Regional				
	Duration	Permanent				
	Consequence	Slight				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
km radius, as well as the proposed Veroniva EGI	Probability	Very likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

11.7 Palaeontology

11.7.1 Introduction and Specialist

The Palaeontology Letter of Exemption study was undertaken by Dr John Almond of Natura Viva to inform the outcome of this BA from a palaeontology perspective. The complete Palaeontology Letter of Exemption study is included in Appendix E.7 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.7.2 Study Methodology

There is no dedicated assessment protocol prescribed for Palaeontology Impact Assessments, and as such, the study was undertaken in accordance with the relevant provisions of the National Heritage Resources Act (Act 25 of 1999, as amended), as well as NEMA, where relevant.

According to SAHRA (April 2025), the sensitivities identified on the Palaeontology theme layer of the DFFE Screening Tool represents a limited number of known palaeontology resources. SAHRA further explains in a guidance note that palaeontology resources are widely dispersed and can occur on any development site in South Africa. Therefore, SAHRA recommends that Palaeontology Impact Assessments must be undertaken as per the PalaeoSensitivity Map provided on the South African Heritage Resources Information System (SAHRIS), irrespective of the sensitivity shown on the palaeontology theme layer, i.e. the SAHRIS PalaeoSensitivity Map should guide the level of assessment.

The study included desktop analysis using various existing literature, such as the relevant topographical map sheet, relevant geological map sheet, other Palaeontology Impact Assessments compiled for other developments in the surrounding region, as well as the specialist's palaeontological database for the Limpopo Province.

11.7.3 Findings and Concluding Statement

According to the SAHRIS PalaeoSensitivity Map, the study area for the BESS and EGI, including the External Access Roads (i.e. Options A and B) is of Insignificant / Zero palaeosensitivity (where no palaeontological studies are needed). The specialist supports this finding, which also aligns with other Palaeontology Impact Assessment reports for closely comparable solar projects in the vicinity. A minor section of the study area intersects with the low palaeosensitivity of the SAHRIS palaeosensitivity map (which is indicative of no palaeontological studies being required however a protocol for finds is required). However, the actual development footprint of the proposed project falls within the Insignificant / Zero palaeosensitivity areas. Therefore, a Letter of Exemption was compiled for the proposed project from a palaeontology perspective.

The study area is underlain by unfossiliferous Archaean (early Precambrian) granitoid intrusions and mantled by residual / alluvial soils of very low palaeosensitivity. No recorded fossil sites or high palaeosensitivity / No-Go areas were identified within the project study area. Significant impacts on local palaeontological heritage resources are accordingly not anticipated. Similar conclusions have been reached in several Palaeontology Impact Assessments reports for other solar project areas in the vicinity with a very similar geological / palaeontological context.

Pending the unlikely discovery of substantial new fossil remains within the project area during the Pre-Construction or Construction Phases, no further specialist palaeontological studies, reporting or mitigation have been recommended or considered necessary for the proposed project. The Palaeontology Letter of Exemption suffices in this regard.

The specialist has provided a Chance Fossil Finds Protocol to be implemented by the responsible ECO during the Construction Phase. The recommendations and Chance Fossil Finds Protocol have been included in the EMPrs.

The specialist concluded that there are no objections on palaeontological heritage grounds to authorisation of the proposed project, and that there are no fatal flaws.

11.8 Socio-Economic

11.8.1 Introduction and Specialist

The Socio-Economic Impact Assessment was undertaken by Tony Barbour of Tony Barbour Environmental Consulting to inform the outcome of this BA from a socio-economic perspective. The complete Socio-Economic Impact Assessment is included in Appendix E.8 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.8.2 Study Methodology

There is no dedicated assessment protocol prescribed for Socio-Economic Impact Assessments, and as such, the study was undertaken in terms of Appendix 6 of the 2014 NEMA EIA Regulations (as amended).

The approach to the study was based on the Western Cape Department of Environmental Affairs and Development Planning Guidelines for Social Impact Assessment (February 2007) and International Association for Impact Assessors (IAIA) Guidance for Assessing and Managing Social Impacts (2015). The study included a review of socio-economic data for the study area, relevant planning and policy frameworks for the area, and information from similar studies, including Socio-Economic Impact Assessments undertaken for other renewable energy projects. A site visit was undertaken in March 2026, and interviews with key stakeholders were also undertaken. Thereafter, the key potential social issues associated with the proposed project were identified, followed by assessing the significance of the potential socio-economic impacts and identification of enhancement and mitigation measures aimed at maximizing opportunities, and avoiding and/or reducing negative impacts.

11.8.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Socio-Economic Impact Assessment:

- Technical suitability: It is assumed that the development site represents a technically suitable site for the establishment of the proposed BESS and associated infrastructure. The detailed layout does not have any bearing on the study. Changes to the detailed layouts are deemed acceptable if the changes remain within the area assessed during the BA Process with relevant no-go sensitive areas avoided.
- Strategic importance of the project: The strategic importance of promoting renewable and associated support infrastructure is supported by the national and provincial energy policies.
- Fit with planning and policy requirements: Legislation and policies reflect societal norms and values. The legislative and policy context therefore plays an important role in identifying and assessing the potential social and socio-economic impacts associated with a proposed development. In this regard, a key component of the Socio-Economic Impact Assessment process is to assess the proposed development in terms of its fit with key planning and policy documents. As such, if the findings of the study indicate that the proposed development in its current format does not conform to the spatial principles and guidelines contained in the relevant legislation and planning documents, and there are no significant or unique opportunities created by the development, the development cannot be supported. However, the study concluded that the development of the proposed BESS and associated infrastructure is supported by key policy and planning documents.
- Limitations in terms of demographic data: Ward level data from the 2022 Census was not available at the time of preparing the report. This limitation does not have a material bearing on the findings of the Socio-Economic Impact Assessment.

11.8.4 Potential Impacts

Potential socio-economic impacts associated with the development of the proposed project are listed below for each phase, including cumulative impacts.

- **Overall Impact Assessment**

Construction Phase:

- Potential positive impacts:
  - Creation of employment and business opportunities.
- Potential negative impacts:
  - Increased safety and security risks and impact on farming operations associated with the construction related activities and presence of construction workers on the site.
  - Increased risk of grass fires associated with construction related activities.
  - Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles.
  - Loss of productive land.

Operational Phase:

- Potential positive impacts:

  - The establishment of infrastructure to improve energy security and support renewable sector.
  - Creation of employment and business opportunities.
  - Creation of socio-economic development opportunities.
  - Benefits to the affected landowner.
- Potential negative impacts:
  - Noise, health and safety risks.
  - Visual impacts and associated impacts on sense of place.
  - Impact on property values.
  - Potential fire risk to irrigated crop areas and other operations.

Decommissioning Phase:

- Potential negative impacts:
  - Socio-economic impacts associated with retrenchment including loss of jobs, and source of income.

- **Cumulative Impact Assessment**

- Potential positive impacts:
  - *Construction and Operational Phases*: Cumulative impacts on the local economy.
- Potential negative impacts:
  - *Operational Phase*: Cumulative impacts on sense of place and the landscape.

The impacts and mitigation measures are described in Table 11.11. Cumulative impacts and associated mitigation measures are captured in Table 11.12.

11.8.5 Findings and Concluding Statement

The findings of the Socio-Economic Impact Assessment indicate that the proposed Veroniva BESS and associated infrastructure will create social and socio-economic benefits for the Polokwane Local Municipality, including creation of employment and business opportunities during both the construction and operational phases. Given the high unemployment levels in the area the creation of employment opportunities will represent a significant localised social benefit. The proposed project will also create socio-economic development opportunities for the Polokwane Local Municipality and local community.

The proposed development is also aligned with the Battery Energy Storage Independent Power Producer Procurement Programme (BESIPPPP) which aims to enhance grid reliability, support renewable energy integration, and improve overall system resilience.

The findings also indicate that the potential impacts associated with both the construction and operational phase are likely to be Very Low to Low (Negative) with mitigation, and Low to Moderate (Positive) with enhancement. The potential negative impacts can therefore be effectively mitigated if the recommended mitigation measures are implemented, and positive impacts can be strengthened with enhancement measures. From a socio-economic perspective, it is therefore recommended that authorisation of the proposed project is supported.

Table 11.11: Assessment of the potential Socio-Economic risks and impacts of the Project 1 (Veroniva BESS)

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation and Pre-Enhancement)	Potential mitigation measures	Significance Ranking (Post-mitigation and Post-Enhancement)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Creation of employment and business opportunities during the construction phase	Status	Positive	Low (4)	Employment: ▪ Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to the commencement of the construction phase. ▪ Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. ▪ Where feasible, efforts should be made to employ local contactors that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. ▪ Before the construction phase commences the proponent should meet with representatives from the Polokwane Local Municipality (PLM) to establish the existence of a skills database for the area. If such a database exists, it should be made available to the contractors appointed for the construction phase. ▪ The recruitment selection process should seek to promote gender equality and the employment of women wherever possible. Business: ▪ The proponent should liaise with the PLM with regards to the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction service providers. These companies should be notified of the tender process and invited to bid for project-related work.	Moderate (3)	High
	Spatial Extent	Regional				
	Duration	Medium Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	N/A				
	Irreplaceability	N/A				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation and Pre-Enhancement)	Potential mitigation measures	Significance Ranking (Post-mitigation and Post-Enhancement)	Confidence Level
				Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the construction phase.		
Potential safety and security risks associated with construction related activities and the presence and movement of construction workers on site	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Medium Term Moderate Unlikely High Replaceable	Low (4)	▪ Investigate option of installing CCTV cameras at key access points and along the boundary of the BESS site. ▪ Fence off the BESS site prior to the start of the construction phase. ▪ Ensure that farm and other access gates are closed after passing through. ▪ Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site. ▪ Develop a Code of Conduct for construction workers. The Code of Conduct should be signed by the proponent and the contractors before construction activities commence. ▪ Contractors appointed by the proponent must ensure that all workers are informed at the outset of the construction phase of the conditions contained in the Code of Conduct, specifically consequences of stock theft and trespassing on adjacent farms. ▪ No personnel except for security staff should be permitted to stay over-night on the site during the construction phase.	Low (4)	High
Potential loss of livestock, wildlife, crops and houses, damage to farm infrastructure and threat to human life associated with increased incidence of grass fires	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Medium Term Moderate Unlikely High Replaceable	Low (4)	▪ Contractor should ensure that open fires on the site for cooking or heating are not allowed except in designated areas. ▪ Smoking on site should be confined to designated areas. ▪ Contractor should ensure that construction related activities that pose a potential fire risk, such as welding, are properly managed and are confined to areas where the risk of fires has been reduced. Measures to reduce the risk of fires include avoiding working in high wind conditions when the risk of fires is greater. In this regard special care should be taken during the high-risk dry, windy winter months. ▪ Contractor should provide adequate fire-fighting equipment on-site, including a fire fighting vehicle. ▪ Contractor should provide fire-fighting training to selected construction staff.	Low (4)	High

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation and Pre-Enhancement)	Potential mitigation measures	Significance Ranking (Post-mitigation and Post-Enhancement)	Confidence Level
				▪ In the event of a fire being started by construction related activities, the appointed contractors should compensate affected landowners for damage. The contractor should also compensate the fire-fighting costs borne by farmers.		
Potential noise, dust and safety impacts associated with construction related activities	Status	Negative	Low (4)	▪ The potential impact of heavy construction vehicles on the R519 should be discussed with the Limpopo Provincial Roads Department prior to construction (post EA, should such authorisation be granted). ▪ Where possible the movement of heavy vehicles on the R519 during the construction phase should be timed to avoid times and days of the week, such as weekends, when the volume of traffic travelling along the road may be higher. ▪ Site clearing activities should be limited to the area required for the establishment of the BESS and associated infrastructure. ▪ Dust suppression measures should be implemented, such as ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. ▪ All vehicles must be road worthy, and drivers must be qualified and made aware of the potential road safety issues and need for strict speed limits.	Low (4)	High
	Spatial Extent	Local				
	Duration	Medium Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	High				
	Irreplaceability	Replaceable				
The activities associated with the construction phase, such as establishment of access roads, laydown areas, construction camp, movement of heavy vehicles and preparation of foundations for the project etc. will damage the natural veld and result in a loss of land for game farming.	Status	Negative	Low (4)	▪ The loss of natural veld should be minimised by careful planning of the final layout of the proposed BESS and associated infrastructure. The recommendations of the Terrestrial Biodiversity and Species Assessment undertaken as part of the BA Process should be implemented. ▪ The footprint associated with the construction related activities (access roads, construction platforms, workshop etc.) should be minimised. ▪ An Environmental Control Officer (ECO) should be appointed to monitor the establishment phase of the construction phase. ▪ All areas disturbed by construction related activities, such as access roads on the site (that are no longer needed for the operational	Low (4)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	High				
	Irreplaceability	Low				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation and Pre-Enhancement)	Potential mitigation measures	Significance Ranking (Post-mitigation and Post-Enhancement)	Confidence Level
				phase), construction platforms, workshop area etc., should be rehabilitated at the end of the construction phase. ▪ The implementation of a rehabilitation programme should be included in the terms of reference for the contractor/s appointed. ▪ The implementation of the Rehabilitation Programme should be monitored by the ECO.		
OPERATIONAL PHASE						
Development of infrastructure to improve energy security and support renewable energy sector	Status	Positive	Moderate (3)	▪ Maximise the number of employment opportunities for local community members. ▪ Implement training and skills development programs for members from the local community. ▪ Maximise opportunities for local content and procurement.	Moderate (3)	High
	Spatial Extent	National				
	Duration	Long Term				
	Consequence	Substantial				
	Probability	Very Likely				
	Reversibility	N/A				
	Irreplaceability	N/A				
Creation of employment and business opportunities associated with the operational phase	Status	Positive	Very Low (5)	Employment: ▪ Where reasonable and practical, the proponent should appoint local service providers and implement a 'locals first' policy, especially for semi and low-skilled job categories. ▪ Where feasible, efforts should be made to employ local service providers that are compliant with Broad Based Black Economic Empowerment (BBBEE) criteria. ▪ Before the operational phase commences the proponent should meet with representatives from the Polokwane Local Municipality (PLM) to establish the existence of a skills database for the area and list of service providers. ▪ Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the operational phase. ▪ The recruitment selection process should seek to promote gender equality and the employment of women wherever possible.	Low (4)	High
	Spatial Extent	Regional				
	Duration	Long Term				
	Consequence	Slight				
	Probability	Very Likely				
	Reversibility	N/A				
	Irreplaceability	N/A				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation and Pre-Enhancement)	Potential mitigation measures	Significance Ranking (Post-mitigation and Post-Enhancement)	Confidence Level
				Business ▪ The proponent should liaise with the PLM with regards the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers. Note that while preference to local employees and companies is recommended, it is recognised that a competitive tender process may not guarantee the employment of local labour for the operational phase.		
The generation of additional income would benefit the project affected landowner and reduce the risk to livelihoods posed by droughts and fluctuating market prices for game and farming inputs, such as fuel, feed etc.	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Positive Site specific Long Term Moderate Very Likely N/A N/A	Low (4)	▪ Implement the rental agreement with the affected landowner for the BESS project (i.e. landowner of Farm Snymansdrift 738/5).	Moderate (3)	High
Benefits associated with support for local communities from socio-economic development (SED) contributions	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Positive Local Long Term Moderate Very Likely N/A N/A	Low (4)	▪ The proponents should liaise with the Polokwane Local Municipality (PLM) to identify projects that can be supported by SED contributions. ▪ Clear criteria for identifying and funding community projects and initiatives in the area should be identified. The criteria should be aimed at maximising the benefits for the community as a whole and not individuals within the community. ▪ Strict financial management controls, including annual audits, should be instituted to manage the SED contributions.	Moderate (3)	High
Potential noise, health and safety related risks on adjacent landowners associated with the operation of the BESS facility.	Status Spatial Extent Duration Consequence Probability Reversibility	Negative Local Long Term Moderate Likely High	Low (4)	▪ Implement the recommendations of the BESS High-Level Safety, Health and Environment (SHE) Risk Assessment (RA) undertaken for the proposed project. ▪ Ensure that the BESS and associated infrastructure are maintained regularly during the operational phase to ensure optimal operation.	Very Low (5)	High

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation and Pre-Enhancement)	Potential mitigation measures	Significance Ranking (Post-mitigation and Post-Enhancement)	Confidence Level
	Irreplaceability	Low				
Visual impact associated with the proposed BESS and associated infrastructure and the potential impact on the areas rural sense of place.	Status	Negative	Low (4)	▪ Implement recommendations of the Visual Impact Assessment undertaken for the proposed project. ▪ Implement measures to reduce night-time impacts associated with lighting, including downward facing lights etc.	Low (4)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	High				
	Irreplaceability	Low				
Potential impact on property values	Status	Negative	Very Low (5)	▪ Implement recommendations of the Visual Impact Assessment undertaken for the proposed project. ▪ Ensure that the BESS and associated infrastructure are maintained regularly during the operational phase to ensure optimal operation.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Slight				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Potential fire risk associated with incidents at the BESS and the risk posed to irrigated cropping areas and other operations in the vicinity of the BESS site.	Status	Negative	Low (4)	▪ Implement recommendations of the BESS High-Level Safety, Health and Environment (SHE) Risk Assessment (RA) undertaken for the proposed project. ▪ Provide fire-fighting training for selected operational personnel. ▪ Provide fire-fighting equipment on the site. ▪ Establish and maintain a firebreak around the perimeter of the BESS site.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Moderate				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
DECOMMISSIONING PHASE						
Socio-economic impacts associated with retrenchment including loss of jobs, and source of income.	Status	Negative	Low (4)	▪ The proponent should ensure that retrenchment packages are provided for all staff retrenched when the BESS is decommissioned.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Short Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	High				
	Irreplaceability	Low				

Table 11.12: Assessment of the potential Socio-Economic cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation and Pre-Enhancement)	Potential mitigation measures	Significance Ranking (Post-mitigation and Post-Enhancement)		Confidence Level
DIRECT IMPACTS							
CONSTRUCTION AND OPERATIONAL PHASES							
The establishment of the proposed BESS and other renewable energy facilities in the Polokwane Local Municipality will create employment, skills development and training opportunities, and creation of downstream business opportunities.	Status	Positive	Moderate (3)	▪ The proponent should liaise with the Polokwane Local Municipality (PLM) to identify potential opportunities for the local economy and businesses.	Moderate (3)	High (2)	High
	Spatial Extent	Regional					
	Duration	Long Term					
	Consequence	Substantial					
	Probability	Likely					
	Reversibility	N/A					
	Irreplaceability	N/A					
OPERATIONAL PHASE							
Cumulative visual impacts associated with renewable energy, BESS and EGI within the 30 km radius on the area's rural sense of place and character of the landscape.	Status	Negative	Low (4)	▪ Implement recommendations of the Visual Impact Assessment (VIA) undertaken for the proposed project.	Low (4)		High
	Spatial Extent	Local					
	Duration	Long Term					
	Consequence	Moderate					
	Probability	Likely					
	Reversibility	High					
	Irreplaceability	Low					

11.9 Traffic

11.9.1 Introduction and Specialist

The Traffic Impact Assessment was undertaken by Iris Wink of iWink Consulting to inform the outcome of this BA from traffic impact perspective. The complete Traffic Impact Assessment is included in Appendix E.9 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.9.2 Study Methodology

The Traffic Impact Assessment is aimed at determining the traffic impact of the proposed development and whether such development can be accommodated by the external transportation system. There is no dedicated assessment protocol prescribed for Traffic Impact Assessments, and as such, the study was undertaken in terms of Appendix 6 of the 2014 NEMA EIA Regulations (as amended).

The study included desktop analysis, including a review of available project information, assessment of the proposed access points (including feasible location, sight distance, stacking distance), haulage routes and estimation of vehicle trips. The findings were documented in a report.

11.9.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Traffic Impact Assessment:

- The assessment is based on the project information provided by the Project Developer.
- According to the Eskom Specifications for Power Transformers (Eskom Power Series, Volume 5: Theory, Design, Maintenance and Life Management of Power Transformers), the following dimensional limitations need to be kept when transporting the transformer – total maximum height 5 000 mm, total maximum width 4 300 mm and total maximum length 10 500 mm. It is envisaged that for this project the transport of the transformer for the substation and a mobile crane may be an abnormal load. The crane will be utilised for offloading equipment.
- Maximum vertical height clearances along the haulage route are 5.2 m for abnormal loads.
- If any elements are manufactured within South Africa, these will be transported from their respective manufacturing centres, which would be either in the greater Cape Town area, Johannesburg, Gqeberha or possibly in Pinetown/Durban.
- All haulage trips will occur on either surfaced national and provincial roads or existing gravel roads.
- Material for the construction of access and internal roads will be sourced locally as far as possible.
- The final access layout is to be determined during the detailed design stage.
- Projects in the vicinity of the site are to be considered as part of the cumulative impacts.
- An up to 12-24 months construction period is assumed with some of the construction period dedicated to site preparation and civil works.

11.9.4 Potential Impacts

The potential transport and traffic related impacts associated with the development of the proposed project are listed below for each phase, including cumulative impacts.

- **Overall Impact Assessment**

Construction and Decommissioning Phases:

- Increase in trips on external roads due to transport of components, material and labour, possibly leading to delays and road safety issues.
- Noise and dust pollution during transport and construction and decommissioning activities on site.
- Possible damage to road surfaces along the haulage routes (specifically near the site) caused by construction and decommissioning vehicles.

Operational Phase:

- Slight increase of traffic due to permanent staff travelling to site, and irregular trips for water delivery and maintenance (i.e., exchange of batteries). The traffic generated during this phase is expected to have a nominal impact on the surrounding road network.

- **Cumulative Impact Assessment**

- *Construction Phase*:

    - Further increase in trips on external roads due to transport of components, material and labour to site for several renewable energy, EGI, BESS and other projects within the 30 km radius.
    - Additional dust pollution during transport and construction activities on site.
    - Possible further damage to road surfaces along the haulage routes (specifically near the site) caused by construction vehicles.

The impacts and mitigation measures are described in Table 11.13. Cumulative impacts and associated mitigation measures are captured in Table 11.14.

11.9.5 Findings and Concluding Statement

The potential impacts identified during the construction and decommissioning phases have been rated with a low significance (with mitigation); and the operational phase impacts have been rated with a very low significance (with mitigation). Cumulative impacts have been rated moderate significance with mitigation.

The main impact on the external road network will be during the construction phase. The estimated development trips can be accommodated by the road network (with the recommended mitigation measures). The traffic generated during the construction phase will be temporary. During operation, it is expected that the trips will be negligible. The traffic generated during the decommissioning phase will be similar to or even less than the construction phase traffic.

No fatal flaws were identified in the Traffic Impact Assessment. The proposed access to the project site (i.e. both External Access Road Options A and B) is supported from a traffic engineering perspective and therefore acceptable, provided that the recommendations included in the Traffic Impact Assessment are adhered to. For example, the bell mouths of the turn off from the R519 onto either of the access roads to the project site are expected to require some widening and resurfacing to safely accommodate abnormal loads vehicles. The exact dimensions for the bell mouth / intersection widening can only be confirmed during the detailed design stage. Such widening must be undertaken with relevant approvals in place, including an Application for EA if relevant listed activities are triggered by the specified intersection widening. Furthermore, the site access roads (Options A and B) need to be maintained if damaged by construction vehicles associated with the proposed development.

Overall, from a traffic engineering perspective, the proposed project is supported and can be granted Environmental Authorisation, provided that the recommended mitigation measures are adhered to.

Table 11.13: Assessment of the potential Traffic risks and impacts of the Project 1 (Veroniva BESS)

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION AND DECOMMISSIONING PHASES						
Increase in trips on external roads due to transport of components, material and labour, possibly leading to delays and road safety issues. Noise and dust pollution during transport and construction and decommissioning activities on site. Possible damage to road surfaces along the haulage routes (specifically near the site) caused by construction and decommissioning vehicles.	Status	Negative	Moderate (3)	▪ The delivery of components to the site can be staggered and trips can be scheduled to occur spread over the day, as much as possible. ▪ All required widening and resurfacing of the bell mouth(s) on R519 onto the access road (Options A and B) to site needs to be finalised before the start of actual project (based on required approvals). ▪ Dust suppression of gravel roads located within the site boundary, including internal roads, during the construction phase with spraying water regularly on gravel/sand road surfaces. ▪ Align the Access Road Option A as close as possible to a 90-degree approach with the R519 to improve visibility for construction vehicles. This must be undertaken in line with requirements of the relevant road authority. ▪ For Access Road Option B, specifically the tarred section of the access road (towards the Eskom Witkop Substation gate), it is recommended that the grassed shoulders of this section be converted to a hardened gravel surface (~1 m each side). The grass shoulders can be re-instated once the construction phase is concluded. This section of the access road needs to be monitored regularly for any damage. This must be achieved under the guidance and approval of the road owner, i.e. Eskom. ▪ For Access Road Option B, due to its limited width, the paved section of the road parallel to the Eskom Witkop Substation may either require widening, passing embayments or	Low (4)	High
	Spatial Extent	Regional				
	Duration	Medium Term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate.[7]				
	Irreplaceability	Moderate.[8]				

[7] Note that in the case of fatal accidents involving vehicles or animals, the reversibility would be non-reversible.
[8] Note that in the case of fatal accidents involving vehicles or animals, the irreplaceability would be high.

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
				installing gravel shoulders on each side of the road, which then needs to be monitored and repaired for the duration of the construction, and re-instated at the end of construction. This must be achieved under the guidance and approval of the road owner, i.e. Eskom. ▪ Regular maintenance of private gravel roads located within the site boundary (i.e. existing internal farm roads on Farm 738/5) that are used by and impacted on by the proposed development, by the Contractor during the construction phase and decommissioning phase, and by the Owner/Facility Manager during the operational phase, if required. ▪ Regular maintenance of the access roads to the site (i.e. **External Access Road Option A**: The gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation), by the Contractor during the construction phase and decommissioning phase, and by the Owner/Facility Manager during the operational phase, if required. For Option A, this must be maintained and repaired in accordance with the original pre-construction condition or a left in a better condition. ▪ Regular maintenance of the access roads to the site (i.e. **External Access Road Option B**: The paved and tarred sections of the access road to the Eskom Witkop Substation off the R519, and towards the western edge of the substation), by the Contractor during the construction phase and decommissioning phase, and by the Owner/Facility Manager during the operational phase, if required. For Option B, this must be achieved under the guidance and approval of the road owner, i.e. Eskom. ▪ The use of existing licensed quarries near the site to decrease the traffic impact on the surrounding road network, if available and feasible. ▪ If required, low hanging overhead lines (lower than 5.1m) e.g., Eskom and Telkom lines, along the proposed routes, will have to be moved (to be arranged by the haulage company and		

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
				communicated beforehand with the service provider of the overhead lines) to accommodate the abnormal load vehicles. The Contractor and the Developer are to ensure that the haulage company is aware of this requirement. The haulage company is to provide evidence to the Contractor and the Developer that any affected overhead lines have been moved or raised. ▪ The Contractor needs to ensure that any gravel sections of the haulage routes (i.e., the site access roads) that are used by and impacted on by the proposed projects remain in good condition and are maintained during the additional loading of the construction phase and reinstated after construction is completed. This must be achieved under the guidance and approval of the road owner and/or relevant authorities, where applicable.		
OPERATIONAL PHASE						
Slight increase of traffic due to permanent staff travelling to site. Irregular trips for water delivery and maintenance (i.e., exchange of batteries).	Status	Negative	Very Low (5)	▪ Permanent staff trips and irregular trips for maintenance are deemed very low, and no mitigation measures are required.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Slight				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				

Table 11.14: Assessment of the potential Traffic cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
CUMULATIVE IMPACTS[9]						
CONSTRUCTION PHASE						
Further increase in trips on external roads due to transport of components, material and labour to site for several renewable energy, EGI, BESS and other projects within the 30 km radius. Additional dust pollution during transport and construction activities on site. Possible further damage to road surfaces along the haulage routes (specifically near the site) caused by construction vehicles.	Status	Negative	High (2)	▪ The same mitigation measures recommended for the construction and decommissioning phases are recommended for the cumulative impacts. ▪ If at all possible, agree on delivery schedules between projects at construction.	Moderate (3)	High
	Spatial Extent	Regional				
	Duration	Medium Term				
	Consequence	Severe				
	Probability	Very likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

[9] The cumulative impact is if all projects in the 30 km radius from the project site have similar construction schedules.

11.10 Geohydrology

11.10.1 Introduction and Specialist

The Geohydrology Impact Assessment was undertaken by Kaylin Erasmus and Zita Saal of GEOSS South Africa to inform the outcome of this BA from a geohydrology perspective. The complete Geohydrology Impact Assessment study is included in Appendix E.10 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.10.2 Study Methodology

The study was undertaken in terms of Appendix 6 of the 2014 NEMA EIA Regulations (as amended).

The study was undertaken by obtaining desktop data for the area from the National Groundwater Archive (NGA), Water Authorisation and Registration Management System (WARMS) and the internal GEOSS database (which includes information relevant to the site). A database search was conducted using a 2 km radius around the site boundary. Furthermore, groundwater yield, groundwater chemistry and geological maps of the area were also gathered and reviewed. A project GIS was then compiled. The data was then analysed using hydrogeological methods. The findings were then documented in a specialist report.

11.10.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Geohydrology Impact Assessment:

- The assessment is primarily based on a desktop-level study using available literature and regional-scale GIS datasets (1:500 000 scale). As such, no site-specific historical groundwater chemistry or long-term water level data (e.g., from the WARMS or NGA databases) was available at the time of the study. The lack of a multi-year baseline means that seasonal fluctuations and pre-existing chemical trends remain unquantified.
- There is currently no site-specific "real-time" data available regarding groundwater levels, flow directions, or ambient water chemistry. Due to this data gap, the pre-mitigation impact ratings are assigned using a conservative, precautionary approach, assuming a high sensitivity for nearby potential receptors.
- It is highly likely that unregistered or recently drilled boreholes exist within the 30 km cumulative impact radius, specifically within a 1 km radius, that are not captured in national databases. The NGA is known to contain spatial inaccuracies and outdated information; therefore, the exact number and proximity of active groundwater users remain an identified uncertainty.
- Detailed geological characteristics of the site, including the presence of specific outcrops, faulting, or localised weathering profiles, have not been verified on site. The characterisation of the unsaturated zone and the depth to the fractured aquifer is based on regional stratigraphic models. Subsurface conditions, such as the exact thickness of the silty sand horizon, may vary across the study area and development footprint.

- The information obtained from regional datasets is deemed sufficient to provide a representative hydrogeological characterisation and to conduct a high-confidence impact assessment. While site-specific primary data is currently absent, the desktop evaluation provides a robust overview of the fractured aquifer's vulnerability and potential risks.

11.10.4 Potential Impacts

Potential impacts on groundwater arising from the proposed project are listed below for each phase, including cumulative impacts. No indirect impacts have been identified.

- **Overall Impact Assessment**

Construction Phase:
- Potential lowering of the local groundwater table due to construction water requirements.
- Potential groundwater contamination from accidental construction spillages (hydrocarbons, concrete wash, untreated sanitation waste from onsite ablution facilities), direct contact with wet concrete during sub-surface foundation works and BESS-related firewater runoff (electrolytes/suppressants) during installation and commissioning.

Operational Phase:
- Potential lowering of the local groundwater table due to operational water requirements.
- Potential groundwater contamination from localised accidental spillages associated with the BESS infrastructure (liquid electrolytes or glycol-based coolants).

Decommissioning Phase:
- Potential lowering of the local groundwater table due to decommissioning water requirements.
- Potential groundwater contamination from accidental spillages of hydrocarbons (oils and fuels) from heavy machinery, alongside the improper handling, storage or leakage of decommissioned waste materials.

- **Cumulative Impact Assessment**

- *Construction, Operational and Decommissioning Phases*: Potential lowering of the groundwater levels because of combined abstraction during the construction, operational and decommissioning phases for the Veroniva BESS and EGI facility and surrounding proposed or existing renewable energy, BESS and EGI projects.
- *Construction and Decommissioning Phases*: Potential impact on groundwater quality because of accidental oil, fuel or sewage spillages and/or concrete wash during the construction and decommissioning phases. This includes risks associated with the improper handling, storage or leakage of decommissioned waste materials.
- *Construction Phase*: Potential impact on groundwater quality because of foundation construction occurring below the water table during the construction phase.
- *Operational Phase*: Potential impact on groundwater quality due to the cumulative use of dust suppressants and cleaning agents within the region. While the Veroniva BESS will not have solar panels, the cumulative use of cleaning agents across 16 nearby solar facilities may contribute to this regional impact.
- *Operational Phase*: Potential impact on groundwater quality because of accidental leaks or spillages of hazardous electrolytes (Lithium) and cooling fluids (Glycols) associated with the

operational BESS units. Additionally, the combined potential for contaminated fire-water runoff from multiple sites during installation or emergencies may lead to large-scale infiltration of the regional aquifer.

The impacts and mitigation measures are described in Table 11.15. Cumulative impacts and associated mitigation measures are captured in Table 11.16.

11.10.5 Findings and Concluding Statement

A desktop data search confirmed several existing boreholes within a 1 km radius of the project perimeter (but outside of the 65 ha study area for the BESS and EGI, and outside of the footprint of the External Access Road Options A and B). These boreholes represent viable water sources but also act as sensitive receptors. Their use is subject to landowner negotiations, technical yield testing (SANS 10299-4:2003) and strict adherence to the volume limits specified in the future Water Use Licence (WUL).

The regional study area of the proposed Veroniva BESS is underlain by a fractured aquifer with potential average borehole yields of 0.50 L/s to 2.00 L/s. The maximum anticipated water demand of the facility is approximately 450 m^3 per annum. While this demand is low relative to the regional supply and expected yields, the project is located within a quaternary catchment with a zero (0) m3/ha/annum GA allocation. Consequently, even with the availability of boreholes within the 2 km search area, a formal WUL is a mandatory legal requirement prior to any groundwater abstraction. Therefore, should groundwater from boreholes be used as a water source for the proposed project, a WUL is required.

From a desktop perspective, groundwater is physically available, but is suitable for use only with treatment, as regional data indicates high alkalinity, significant hardness and potential microbial contamination that may not meet potable standards or SANS 51008 requirements for concrete mixing.

The potential individual and cumulative impacts from the construction, operation and decommissioning phases are rated as low to very low significance with the implementation of mitigation measures.

Based on the above, from a hydrogeological perspective, it is recommended that the proposed project be authorised to proceed. Should groundwater be utilised, all necessary Water Use Authorisations under the NWA must be secured prior to abstraction. All BESS-specific pollution prevention and contaminant mitigation protocols must be strictly implemented to protect the regional aquifer. Additionally, the recommended groundwater monitoring programme must be fully implemented should groundwater abstraction be utilised for the proposed project.

Table 11.15: Assessment of the potential Geohydrology risks and impacts of the Project 1 (Veroniva BESS)

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Potential lowering of the groundwater table as a result of over-abstraction	Status	Negative	Low (4)	NOTE: The following mitigation only applies if groundwater is abstracted: ▪ Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a step test, constant discharge test and recovery monitoring. ▪ Distribute abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume). ▪ Implement a groundwater monitoring programme prior to construction to establish a baseline, continue monitoring throughout the construction phase to identify and respond to variances in groundwater levels or quality accordingly (refer to Section 6 of the Geohydrology Impact Assessment (Appendix E.10 of this BA Report)). ▪ Implement and enforce water-saving techniques. ▪ Obtain a Water Use Licence (WUL) for any abstraction. ▪ Explore additional water sources and use it to supplement groundwater resources.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Medium Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	High				
	Irreplaceability	Replaceable				
Potential groundwater contamination	Status	Negative	Moderate (3)	▪ Vehicles must be regularly serviced and maintained to check and ensure there are no leakages. ▪ Any engines that stand in one place for an excessive length of time must have drip trays. ▪ Diesel fuel storage tanks, if required, should be above ground on an impermeable surface in a bunded area. ▪ Vehicles and equipment should also be refuelled on an impermeable surface and a designated area should be established at the construction site camp for this purpose, if off-site refuelling is not possible.	Low (4)	High
	Spatial Extent	Local				
	Duration	Medium Term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
				▪ If spillages occur, they should be contained and removed as rapidly as possible, with correct disposal procedures of the spilled material, as reported. Proof of disposal (waste disposal slips or waybills) should be obtained and retained on file for auditing purposes. ▪ Concrete batching plants to be located away from springs and shallow water tables. ▪ Should waste water from batching activities be used its quality must not degrade the current groundwater quality. ▪ Barriers and/or liners to be implemented where foundation casting will happen below the groundwater table. ▪ Implement and adhere to a comprehensive monitoring programme to record water quality prior to construction and during construction to pick up potential water quality degradation as soon as possible. ▪ BESS units must be stored and installed on impermeable, concrete, level surfaces immediately upon arrival. ▪ Chemical toilets must be placed at least 50 m away from any borehole or drainage line, secured to the ground to prevent tipping and serviced by a certified contractor with disposal certificates kept on file.		
OPERATIONAL PHASE						
Potential lowering of the groundwater table as a result of over-abstraction	Status	Negative	Moderate (3)	NOTE: The following mitigation only applies if groundwater is abstracted: ▪ Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a step test, constant discharge test and recovery monitoring. ▪ Implement distributed abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume). ▪ Implement and continue to monitor groundwater throughout operations according to the groundwater monitoring programme, using baseline data to identify significant	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	High				
	Irreplaceability	Replaceable				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
				▪ variances in groundwater levels or quality accordingly (refer to Section 6 of the Geohydrology Impact Assessment (Appendix E.10 of this BA Report)). ▪ Implement and enforce water-saving techniques.		
Potential groundwater contamination	Status	Negative	Moderate (3)	▪ Ensure that all chemicals stored or used on site have secondary containment systems in place with reliable leak detection. ▪ Chemicals to be handled on concrete bunded surfaces and not on bare soil. ▪ Hazardous waste products from the BESS, substations, maintenance buildings and ablution facilities must be appropriately removed and disposed of at licensed facilities. ▪ Proposed BESS and substation to be positioned at least 50 m away from any existing boreholes. No boreholes were found within the 65 ha study area, and the footprint of the External Access Road Options A and B, based on the Desktop Hydrogeological Assessment. ▪ Manage general wastewater using low-flow faucets, water-efficient toilets and approved treatment systems or wastewater plants. ▪ Ensure that all cleaning agents used for general facility maintenance are environmentally safe and biodegradable to prevent adverse effects on the soil and groundwater. ▪ Adhere to the monitoring programme to detect potential degradation at the earliest possible stage. ▪ BESS units must be installed on impermeable, concrete, level surfaces throughout the operational phase. The area should be designed using specific contouring to direct potential runoff away from sensitive zones and toward a designated collection area where temporary containments can be deployed during an emergency. ▪ Conduct annual physical integrity inspections of all foundation slabs and impermeable surfaces. Repair any cracks immediately to prevent sub-surface infiltration.	Low (4)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
				▪ Any collection sumps or drainage points must be managed via manual inspection. Stormwater may only be released from the site after confirming the absence of oily sheens or chemical odours. Contaminated water must be extracted and disposed of as hazardous waste. ▪ During battery replacements or maintenance, all new and spent lithium-ion cells must be stored in dedicated, weather-proof and secure containers. These must be kept on an impermeable surface to prevent over exposure to rainwater and avoid any potential leaching into the soil.		
DECOMMISSIONING PHASE						
Potential lowering of the groundwater table as a result of over-abstraction	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Medium Term Substantial Likely High Replaceable	Moderate (3)	NOTE: The following mitigation only applies if groundwater is abstracted: ▪ Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a step test, constant discharge test and recovery monitoring. ▪ Distribute abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume). ▪ Implement and enforce water-saving techniques. ▪ Implement the groundwater monitoring programme throughout the decommissioning phase and continue to monitor groundwater according to the plan and respond to significant variances in groundwater levels or quality accordingly (refer to Section 6 of the Geohydrology Impact Assessment (Appendix E.10 of this BA Report)). ▪ Obtain a WUL for any abstraction during the decommissioning phase based on relevant legislation at the time of decommissioning. ▪ Explore additional water sources and use it to supplement groundwater resources.	Very Low (5)	High
Potential groundwater contamination	Status Spatial Extent	Negative Site Specific	Moderate (3)	▪ Vehicles must undergo regular servicing and maintenance to prevent leakages.	Low (4)	High

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
	Duration	Medium Term		▪ Engines that remain stationary for extended periods must be equipped with drip trays. ▪ Diesel fuel storage tanks, if necessary, should be placed above ground on an impermeable surface within a bunded area. ▪ Refuelling of vehicles and equipment should occur on an impermeable surface, ideally at a designated area within the construction site camp if off-site refuelling is not feasible. ▪ In the event of spillages, they should be promptly contained, removed and disposed of according to proper procedures. Proof of disposal (waste disposal slips or waybills) should be obtained and retained for auditing purposes. ▪ All decommissioned BESS units must be inspected for physical damage or leakage prior to removal. Damaged cells must be placed in specialised, chemical-resistant drums or leak-proof containers immediately to prevent electrolyte spills during transport. ▪ Decommissioned batteries must be stored in a covered, bunded and well-ventilated area to prevent exposure to rainwater. ▪ During the removal of concrete bunds and foundations, the underlying soil must be screened for staining or odours. If contamination is detected, the affected soil must be excavated and treated as hazardous waste to prevent long-term leaching into the fractured-rock aquifer. ▪ Any project-specific boreholes that will not be handed over to the landowner or the Department of Water and Sanitation (DWS) must be preserved as monitoring boreholes. ▪ A specialised fire-response kit and containment plan must remain active until the last battery module is removed from the site, as the risk of "stranded energy" fires is significant during the disconnection process.		
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Table 11.16: Assessment of the potential Geohydrology cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
CUMULATIVE IMPACTS						
CONSTRUCTION PHASE						
Potential lowering of the groundwater table	Status	Negative	Moderate (3)	NOTE: The following mitigation only applies if groundwater is abstracted: ▪ Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a step test, constant discharge test and recovery monitoring. ▪ Obtain a Water Use Licence (WUL) for any abstraction. ▪ Distribute abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume). ▪ Implement and enforce water-saving techniques. ▪ Implement a groundwater monitoring programme prior to construction to establish a baseline, and continue to monitor groundwater according to the plan throughout construction and respond to significant variances in groundwater levels or quality accordingly (refer to Section 6 of the Geohydrology Impact Assessment (Appendix E.10 of this BA Report)). ▪ Explore additional water sources and use it to supplement groundwater resources.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Substantial				
	Probability	Very likely				
	Reversibility	High				
	Irreplaceability	Replaceable				
Potential groundwater contamination	Status	Negative	High (2)	▪ Vehicles must be regularly serviced and maintained to check and ensure there are no leakages. ▪ Any engines that stand in one place for an excessive length of time must have drip trays. ▪ Diesel fuel storage tanks, if required, should be above ground on an impermeable surface in a bunded area. ▪ Vehicles and equipment should also be refuelled on an impermeable surface and a designated area should be established at the construction site camp for this purpose, if off-site refuelling is not possible.	Low (4)	High
	Spatial Extent	Site Specific				
	Duration	Long Term				
	Consequence	Severe				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
				▪ If spillages occur, they should be contained and removed as rapidly as possible, with correct disposal procedures of the spilled material, as reported. Proof of disposal (waste disposal slips or waybills) should be obtained and retained on file for auditing purposes. ▪ Concrete batching plants to be located away from springs and shallow water tables. ▪ Should waste water from batching activities be used its quality must not degrade the current groundwater quality. ▪ Barriers and/or liners to be implemented where foundation casting will happen below the groundwater table. ▪ Implement and adhere to a comprehensive monitoring programme to record water quality prior to construction and during construction to pick up potential water quality degradation as soon as possible. ▪ BESS units must be stored and installed on impermeable, concrete, level surfaces immediately upon arrival. ▪ Chemical toilets must be placed at least 50 m away from any borehole or drainage line, secured to the ground to prevent tipping and serviced by a certified contractor with disposal certificates kept on file.		
OPERATIONAL PHASE						
Potential lowering of the groundwater table	Status	Negative	Moderate (3)	NOTE: The following mitigation only applies if groundwater is abstracted: ▪ Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a step test, constant discharge test and recovery monitoring. ▪ Distribute abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume). ▪ Implement and enforce water-saving techniques. ▪ Implement and continue to monitor groundwater throughout operations according to the groundwater monitoring	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Substantial				
	Probability	Very likely				
	Reversibility	High				
	Irreplaceability	Replaceable				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
				programme, using baseline data to identify and respond to significant variances in groundwater levels or quality accordingly (refer to Section 6 of the Geohydrology Impact Assessment (Appendix E.10 of this BA Report)).		
Potential groundwater contamination	Status	Negative	High (2)	▪ Ensure that all chemicals stored or used on site have secondary containment systems in place with reliable leak detection. ▪ Chemicals to be handled on concrete bunded surfaces and not on bare soil. ▪ Hazardous waste products from the BESS, substations, maintenance buildings, and ablution to be appropriately removed and disposed of at licensed facilities. ▪ Proposed BESS units and substation to be positioned at least 50 m away from any existing borehole. No boreholes were found within the 65 ha study area, and the footprint of the External Access Road Options A and B, based on the Desktop Hydrogeological Assessment. ▪ General wastewater to be appropriately managed e.g. by using low-flow faucets and water-efficient toilets, approved treatment systems and/or wastewater plants. ▪ Utilise only environmentally safe, biodegradable cleaning agents that break down naturally and do not cause adverse effects on the soil or water. ▪ Adhere to the comprehensive monitoring programme to record water quality prior to construction and during operation to detect potential degradation at the earliest possible stage.	Low (4)	High
	Spatial Extent	Site Specific				
	Duration	Long Term				
	Consequence	Severe				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
DECOMMISSIONING PHASE						
Potential lowering of the groundwater level	Status	Negative	Moderate (3)	NOTE: The following mitigation only applies if groundwater is abstracted: ▪ Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a step test, constant discharge test and recovery monitoring.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Substantial				
	Probability	Very likely				
	Reversibility	High				
	Irreplaceability	Replaceable				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
				▪ Distribute abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume). ▪ Implement the groundwater monitoring programme throughout the decommissioning phase and continue to monitor groundwater according to the plan and respond to significant variances in groundwater levels or quality accordingly (refer to Section 6 of the Geohydrology Impact Assessment (Appendix E.10 of this BA Report)). ▪ Implement and enforce water-saving techniques. ▪ Obtain a Water Use Licence (WUL) for any abstraction during the decommissioning phase based on relevant legislation at the time of decommissioning. ▪ Explore additional water sources and use it to supplement groundwater resources.		
Potential groundwater contamination	Status	Negative	High (2)	▪ Vehicles must undergo regular servicing and maintenance to prevent leakages. ▪ Engines that remain stationary for extended periods must be equipped with drip trays. ▪ Diesel fuel storage tanks, if necessary, should be placed above ground on an impermeable surface within a bunded area. ▪ Refuelling of vehicles and equipment should occur on an impermeable surface, ideally at a designated area within the construction site camp if off-site refuelling is not feasible. ▪ In the event of spillages, they should be promptly contained, removed, and disposed of according to proper procedures. Proof of disposal (waste disposal slips or waybills) should be obtained and retained for auditing purposes. ▪ All decommissioned BESS units must be inspected for physical damage or leakage prior to removal. Damaged cells must be placed in specialised, chemical-resistant drums or leak-proof containers immediately to prevent electrolyte spills during transport.	Low (4)	High
	Spatial Extent	Site Specific				
	Duration	Long Term				
	Consequence	Severe				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
				▪ Decommissioned batteries must be stored in a covered, bunded and well-ventilated area to prevent exposure to rainwater. ▪ During the removal of concrete bunds and foundations, the underlying soil must be screened for staining or odours. If contamination is detected, the affected soil must be excavated and treated as hazardous waste to prevent long-term leaching into the fractured-rock aquifer. ▪ Any project-specific boreholes that will not be handed over to the landowner or the Department of Water and Sanitation (DWS) must be preserved as monitoring boreholes. ▪ A specialised fire-response kit and containment plan must remain active until the last battery module is removed from the site, as the risk of "stranded energy" fires is significant during the disconnection process.		

11.11 Geotechnical

11.11.1 Introduction and Specialist

The Geotechnical Letter of Opinion was undertaken by Hardy Luttig and Jaco Pretorius of GEOSS South Africa to inform the outcome of this BA from a geotechnical perspective. The complete Geotechnical Letter of Opinion is included in Appendix E.11 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.11.2 Study Methodology

As discussed during the Pre-Application Meeting held with the DFFE on 6 March 2026, DFFE confirmed that a full Geotechnical Assessment in compliance with Appendix 6 of the 2014 NEMA EIA Regulations (as amended) is not required for the proposed project, however a letter of opinion from a relevant geotechnical specialist would instead suffice.

The Geotechnical Letter of Opinion was undertaken to confirm the specialist opinion towards the proposed development, to confirm whether the study area is suitable from a geotechnical perspective, and to provide a statement on whether there are any fatal flaws associated with the proposed project.

The study included a literature review, gathering all data relevant to the proposed project, such as previous geotechnical reports and conducting a search of the internal GEOSS database (including relevant information pertinent to the site). The study also included a review of geological and geotechnical maps for the area, followed by compiling existing information on the geotechnical properties of the region, and reviewing any reports that have been compiled for the study area. The findings were documented in a desktop based geotechnical appraisal letter of opinion, which provides information guiding future geotechnical investigations, and provides potential impacts required for the proposed development as well as anticipated mitigation measures.

11.11.3 Assumptions, Uncertainties and Gaps in Knowledge

The Geotechnical Letter of Opinion excludes a site reconnaissance of the study area and intrusive investigations. The information, results and recommendations in the letter are solely based on a thorough review of existing literature and a desktop assessment. Nevertheless, the services rendered by GEOSS South Africa align with the standard level of care and expertise typically demonstrated by geotechnical professionals operating under similar circumstances within the vicinity of the proposed project. Hence, the Letter of Opinion is deemed sufficient for the current investigation scope, with third-party information incorporated in good faith during its compilation. It is highly recommended that an intrusive geotechnical study be conducted prior to the construction to inform design and to confirm and characterise the subsurface soil conditions. However, an intrusive geotechnical investigation is not required to fulfil the requirements of the BA Process. This approach is suitable and is not flawed.

11.11.4 Potential Impacts

A formal impact assessment is not required as a Letter of Opinion approach was followed. However, a description of the potential impacts on the geotechnical conditions due to the proposed project have been identified for comprehensiveness and is listed below. The potential impacts are generally considered to have a moderate impact significance without the implementation of mitigation measures and anticipated to have a low to very low impact significance (following the implementation of mitigation measures) on the local soil conditions and geology.

- **Overall Impact Assessment**

Construction Phase:
- Displacement of geologic material resulting in soil erosion.
- Contamination of subsoils and loss of topsoil.

Operational Phase:
- Contamination of subsoils and loss of topsoil.
- Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.

Decommissioning Phase:
- Contamination of subsoils and loss of topsoil.
- Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.

The impacts are described in Table 11.17.

Table 11.17: Summary table of potential impacts from a geotechnical perspective for Project 1 (Veroniva BESS)

Phase	Potential Impact	Description
▪ Construction	▪ Displacement of geologic material resulting in soil erosion	▪ During site preparation for construction, activities like rock removal and grading are undertaken, leading to the depletion of geological materials such as topsoil. This process can potentially harm the habitats of unique/endangered species. ▪ Initial construction stages often involve actions like topsoil removal, site grading, and rock extraction. These actions lead to the depletion of geological resources, disruption of natural soil integrity, and removal of vegetation, all contributing to soil erosion.
▪ Construction ▪ Operational ▪ Decommissioning	▪ Contamination of subsoils and loss of topsoil	▪ Construction activities necessitate the use of heavy machinery, notably during earthwork tasks. This machinery includes graders, bulldozers, rollers, excavators, water trucks, and concrete mixers. Such equipment requires regular maintenance, involving greasing, and operates using hydraulic fluid and diesel, posing a potential risk of contaminating geological materials. ▪ Throughout the operational phase, maintenance activities or accidental spillages may lead to potential contamination of geological materials. Additionally, spillages from the Battery Energy Storage Systems (BESS) can also contribute to chemical contamination especially during the operational phase.

Phase	Potential Impact	Description
		▪ During the decommissioning phase, dismantling the infrastructure may also require heavy machinery. Similar to the construction phase, the maintenance and refuelling of this machinery increase the likelihood of spillages, posing a potential risk of contaminating geological materials.
▪ Operational ▪ Decommissioning	▪ Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.	▪ Throughout the operational phase as well as phases of the decommissioning phase, access points and internal roads will be established, characterized by newly constructed road layers that create artificial hardened surfaces. This construction may also involve the installation of earth or concrete drains designed to redirect water away from access points and roads. However, these measures could lead to heightened runoff, consequently amplifying erosion. ▪ In the decommissioning phase, the presence of access points, internal roads, and adequate drainage will persist. The enduring existence of artificial hard surfaces will likely perpetuate increased runoff, contributing to ongoing erosion.

11.11.5 Recommended Mitigation Measures

Notable EMPr inputs and management actions are noted below:

Construction Phase:

- Development of a stormwater management plan by a qualified professional before construction is highly recommended.
- Installation of suitable systems to redirect water away from areas designated for the infrastructure.
- Ongoing monitoring of these systems during the initial construction phase to address erosion or sedimentation promptly.
- Immediate rehabilitation post-construction, optimizing the conditions for vegetation regrowth.
- Implementation of safeguards during refuelling to protect soil from spillages, ensuring swift and proper disposal if incidents occur.

Operational Phase:

- Similar to the construction phase, stormwater management planning by a qualified professional will be required.
- Diversion of water away from road layers and erected structures, akin to the construction phase.
- Replication of mitigation measures for spillages/leakages from the construction phase.
- Proper designed structures and suitable containment to be implemented at the BESS to mitigate potential contamination of the surrounding environment, as recommended by the specialist undertaking the High-Level Safety, Health, and Environment (SHE) Risk Assessment for the BESS.

Decommissioning Phase:

- Restoration of natural topography and land rehabilitation to near-natural state, including removal of foundations and hard surfaces, followed by proper backfilling.

- Use of locally sourced materials for reinstating and backfilling to ensure uniformity.
- Implementation of standard environmental management procedures for infrastructure.
- Stringent measures to prevent pollution and contamination of the riparian zone, including well-maintained equipment and safeguards during refuelling operations.

11.11.6 Findings and Concluding Statement

Due to the nature of the geology across the study area and the climatic conditions, the geotechnical properties across the site will likely be variable. These variations might influence foundation conditions, foundation designs, drainage properties, excavatability of soil and rock mass, and the potential occurrence of problem soils. It is, therefore, vital that an intrusive geotechnical study be undertaken prior to the development of the proposed project to confirm the anticipated geotechnical conditions identified in the Geotechnical Letter of Opinion. Such investigations would not be required to fulfil the requirements of the BA Process. However, it would be necessary prior to construction.

The proposed project may impact the environment through increased soil erosion and the contamination of geological material throughout the different project phases. No fatal flaws were found during the desktop assessment. Overall, based on the geotechnical analysis conducted, the specialists have recommended that the proposed project be authorised.

11.12 High-Level SHE BESS Risk Assessment

11.12.1 Introduction and Specialist

The High-Level Safety, Health and Environment (SHE) Risk Assessment was undertaken by Debra Mitchell of ISHECON to inform the outcome of this BA from a SHE risk perspective. The complete Risk Assessment is included in Appendix E.12 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

11.12.2 Study Methodology

The High-Level SHE Risk Assessment is a technical study, and does not need to comply with Appendix 6 of the 2014 NEMA EIA Regulations (as amended).

The study focused on hazards arising from the construction, operation and decommissioning of the BESS facility and the impact on humans, either employees or members of the public outside the site. A desktop study of the available information, the proposed layout of the facility, reports of related incidents and various literature sources was undertaken. The facility and the project were divided into phases and the hazards in each phase were identified using a checklist approach. Each identified hazard was then analysed in terms of causes, consequences, and expected and suggested preventive and mitigative measures. Each hazard was qualitatively assessed using a qualitative risk ranking system.

11.12.3 Assumptions, Uncertainties and Gaps in Knowledge

The following uncertainties were identified in the High-Level SHE BESS Risk Assessment:

- Decommissioning will ultimately need to be informed by the regulatory requirements at the time, which may be different to present requirements. What is known is that most of the hazards and mitigation for both the construction and operation phases would apply during decommissioning. Impact ratings for all potential impacts are not possible to determine now given the uncertainties in mitigation measures applicable at that time; hence they have been left as neutral (where relevant).

11.12.4 Potential Impacts

Potential impacts arising from the proposed project, from a SHE risk perspective, are listed below for each phase, including cumulative impacts.

- **Overall Impact Assessment**

Construction Phase:

- Impact 1: Human Health – chronic exposure to toxic chemical or biological agents.
- Impact 2: Human Health – exposure to noise.
- Impact 3: Human Health – exposure to temperature extremes and/or humidity.
- Impact 4: Human Health – exposure to psychological stress.
- Impact 5: Human Health – exposure to ergonomic stress.
- Impact 6a: Human and Equipment Safety – exposure to fire radiation.
- Impact 6b: Human and Equipment Safety – exposure to fire radiation.
- Impact 7: Human and Equipment Safety – exposure to explosion over pressures.
- Impact 8a: Human and Equipment Safety – exposure to acute toxic chemical and biological agents.
- Impact 8b: Human and Equipment Safety - exposure to acute toxic chemical and biological agents.
- Impact 9: Human and Equipment Safety – exposure to violent release of kinetic or potential energy.
- Impact 10: Human and Equipment Safety – exposure to electromagnetic waves.
- Impact 11: Environment – emissions to air.
- Impact 12: Environment – emissions to water.
- Impact 13: Environment – emissions to earth.
- Impact 14: Environment – waste of resources, e.g., water, power, etc.
- Impact 15: Public – Aesthetics.
- Impact 16: Investors – Financial.
- Impact 17: Employees and investors – Security.
- Impact 18: Emergencies.
- Impact 19: Investors – Legal.

Operational Phase:

- Impact 1a: Human Health – chronic exposure to toxic chemical or biological agents.
- Impact 1b: Human Health – chronic exposure to toxic chemical or biological agents.
- Impact 2: Human Health – exposure to noise.

- Impact 3: Human Health – exposure to temperature extremes and/or humidity.
- Impact 4: Human Health – exposure to psychological stress.
- Impact 5: Human Health – exposure to ergonomic stress.
- Impact 6a: Human and Equipment Safety – exposure to fire radiation.
- Impact 6b: Human and Equipment Safety – exposure to fire radiation.
- Impact 7: Human and Equipment Safety – exposure to explosion over pressures.
- Impact 8a: Human and Equipment Safety – exposure to acute toxic chemical and biological agents.
- Impact 8b: Human and Equipment Safety - exposure to acute toxic chemical and biological agents.
- Impact 9: Human and Equipment Safety – exposure to violent release of kinetic or potential energy.
- Impact 10: Human and Equipment Safety – exposure to electromagnetic waves.
- Impact 11: Environment – emissions to air.
- Impact 12: Environment – emissions to water.
- Impact 13: Environment – emissions to earth.
- Impact 14: Environment – waste of resources, e.g., water, power, etc.
- Impact 15: Public – Aesthetics.
- Impact 16: Investors – Financial.
- Impact 17a: Employees and investors – Security.
- Impact 17b: Employees and investors – Security.
- Impact 18: Emergencies.
- Impact 19: Investors – Legal.

Decommissioning Phase:

- Impact 1: Human Health – chronic exposure to toxic chemical or biological agents.
- Impact 2: Human Health – exposure to noise.
- Impact 3: Human Health – exposure to temperature extremes and/or humidity.
- Impact 4: Human Health – exposure to psychological stress.
- Impact 5: Human Health – exposure to ergonomic stress.
- Impact 6: Human and Equipment Safety – exposure to fire radiation.
- Impact 7: Human and Equipment Safety – exposure to explosion over pressures.
- Impact 8: Human and Equipment Safety – exposure to acute toxic chemical and biological agents.
- Impact 9: Human and Equipment Safety – exposure to violent release of kinetic or potential energy.
- Impact 10: Human and Equipment Safety – exposure to electromagnetic waves.
- Impact 11: Environment – emissions to air.
- Impact 12: Environment – emissions to water.
- Impact 13: Environment – emissions to earth.
- Impact 14: Environment – waste of resources, e.g., water, power, etc.
- Impact 15: Public – Aesthetics.
- Impact 16: Investors – Financial.
- Impact 17: Employees and investors – Security.
- Impact 18: Emergencies.
- Impact 19: Investors – Legal.

- **Cumulative Impacts**

Unless another BESS is installed within 500 m of the proposed Veroniva BESS location, cumulative impacts of other developments in the greater area do not affect the safety and health of employees, contractors or members of the public within the BESS impact zone. The same can be said for the BESS electrical infrastructure. There is no other BESS planned within 500 m of the Veroniva BESS.

Refer to the Risk Assessment which is included in Appendix E.12 of this BA Report for the potential impacts/risks associated with the proposed BESS and for the recommended preventative and mitigative measures for the construction, operational and decommissioning phases of the proposed project.

11.12.5 Findings and Concluding Statement

It was found that for the construction and operational phases of the proposed project, the average raw risk significance was rated as moderate, and the average residual risk was rated as low. There will always be residual risks but with the recommended preventative and mitigative measures, these could be considered suitably low and therefore broadly acceptable.

In terms of a worst conceivable case container fires, the significant impact zone is likely to be limited to within 10 m of the container and mild impacts to 20 m. Based on the current proposed layouts, radiation impacts at the closest houses are not expected. In terms of a worst conceivable case explosion, the significant impact zone is likely to be limited to with 10 m of the container and minor impacts such as debris within 50 m. Based on the current proposed layout, explosion impacts at the closest houses are not expected.

In terms of a worst reasonably conceivable toxic smoke scenario, provided the units are placed suitably far apart to prevent propagation from one unit to another and large external fires are prevented, the amount of material burning should be limited to one container at any one time. In this case, beyond the immediate vicinity of the fire, the concentrations of harmful gases within the smoke should be low. Beyond 500 m the likelihood of harmful effects is negligible. Based on the current layout, there are no occupied farmhouses located within 500 m of the proposed BESS and toxic smoke risks are therefore not a concern.

Based on the outcomes of the SHE Risk Assessment, the specialist concluded that the construction, operational and decommissioning phases of the proposed project does not present any excessively high risks provided the preventative and mitigative measures are incorporated. Furthermore, from a SHE risk perspective, no fatal flaws were identified. Therefore, it is the opinion of the specialist that there is no reason to prohibit the proposed development from a SHE risk perspective.

11.13 Conclusion

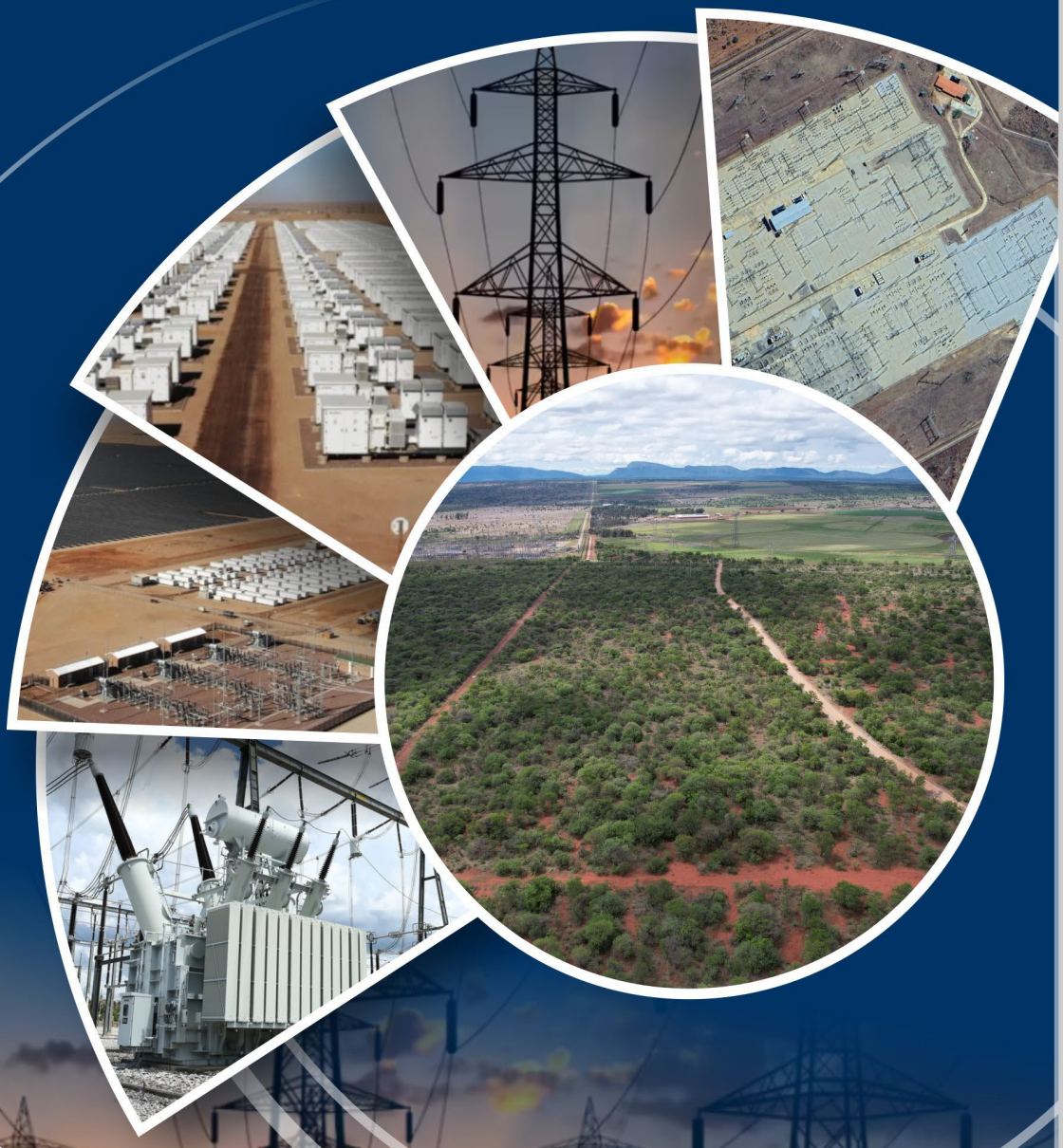
Based on the potential impacts described above, there are no negative impacts that are rated as Very High significance before or after mitigation. Overall, it can be concluded that the effect of potential negative impacts can be limited or reduced to acceptable levels through avoidance, minimisation and the implementation of appropriate mitigation measures and management actions during the construction, operational and decommissioning phases. The specialists support the project proceeding, provided the specified mitigation actions are implemented effectively.

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 12:

Impact Assessment for the EGI Project



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12. IMPACT ASSESSMENT FOR THE EGI PROJECT

This chapter presents a synthesis of the key findings, potential impacts (direct, indirect and cumulative, where applicable), and mitigation measures that have been identified by the specialist team as part of the Basic Assessment (BA) Process for the following proposed project:

- **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the Battery Energy Storage System (BESS) to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

The information presented throughout this chapter applies to **Project 2 (Veroniva EGI)** only. Refer to Chapter 11 for corresponding information pertaining to **Project 1 (Veroniva BESS)**.

The impact assessment provided in each section within the chapter is based on an evaluation of the status quo of the receiving environment, by the specialists, either through desktop assessments or site investigations, as documented in Chapter 4 of this BA Report.

Refer to Appendix E of this BA Report for the full specialist reports. Refer to Chapter 5 and Appendix E of this BA Report for details on the legislation (i.e. Appendix 6 of the 2014 National Environmental Management Act (Act 107 of 1998, as amended) (NEMA) Environmental Impact Assessment (EIA) Regulations (as amended) or 2020 Assessment Protocols (as amended)) applicable to each of the specialist studies, as well as the Terms of Reference adopted. All proposed mitigation measures, as relevant, have been carried over to the Environmental Management Programmes (EMPrs) included in Appendix J and Appendix K of this report.

It should be noted that unless otherwise stated, impacts identified, and their associated significance are deemed to be negative. Where relevant, cumulative impacts are based on consideration of the identified projects within a 30 km radius, as described in Chapter 5 of the BA Report, as well as the proposed Veroniva BESS and EGI development (Projects 1 and 2).

12.1 Agriculture

12.1.1 Introduction and Specialist

The Agriculture Compliance Statement was undertaken by Johann Lanz of SoilZA to inform the outcome of this BA from an agricultural perspective. The complete Agriculture Compliance Statement is included in Appendix E.1 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

12.1.2 Study Methodology

The Agricultural Compliance Statement was undertaken in terms of the requirements of the *Protocol for the specialist assessment and minimum report content requirements of environmental impacts on agricultural resources*, gazetted on 20 March 2020 in Government Notice (GN) 320. Various desktop sources of information were used.

The assessment was based on an on-site investigation conducted in November 2025. It was also informed by existing climate, soil, and agricultural potential data for the site. The aim of the on-site assessment was to verify agricultural land use and agricultural conditions across the site to determine the cropping potential across the site. Soils were assessed based on existing soil exposures and indications of the surface conditions and topography.

12.1.3 Assumptions, Uncertainties and Gaps in Knowledge

There are no specific assumptions, uncertainties or gaps in knowledge or data that affect the findings of the Agricultural Compliance Statement.

12.1.4 Potential Impacts

- **Overall Impact Assessment**

Formally rating potential agricultural impacts by way of impact assessment tables is not required by the Assessment Protocol of GN 320.

The proposed overhead LILO and power line upgrade has negligible agricultural impact, regardless of the route and design, and the agricultural potential and sensitivity of the land it crosses. The agricultural impact of a power line is negligible in almost all environments but is even more so where the power line is proposed within an existing operational Eskom servitude, and includes upgrading of an existing power line. The direct, permanent, physical footprint that has any potential to interfere with agriculture (pylon bases and servitude track, where it is needed) is insignificantly small.

The only potential source of impact of the power line is minimal disturbance to the land (erosion and topsoil loss) during construction (and decommissioning). This impact can be completely prevented with standard, generic mitigation measures that are all inherent in the project engineering and/or are standard, best-practice for construction sites, and are included in the EMPrs. The power line development will result in negligible loss of future agricultural production potential, and its agricultural impact is therefore assessed as being of very low significance and as acceptable.

- **Cumulative Impact Assessment**

The potential cumulative agricultural impact of importance is a regional loss (including by degradation) of future agricultural production potential. This cumulative impact assessment of the Veroniva BESS and EGI development determines the quantitative loss of agricultural land if all renewable energy and BESS project applications within a 30 km radius become operational. Note that EGI projects do not contribute to a loss of agricultural land and are not therefore included in this calculation of cumulative land loss. In terms of the prospecting right application on Farm 738/5, at prospecting phase, it will also not contribute to land loss and has also not been taken into account. The area of land taken out of agricultural use as a result of all the solar and BESS projects listed in Chapter 5 of this BA Report (and Appendix 5 of the Agriculture Compliance Statement) is within an acceptable limit in terms of loss of low potential agricultural land, which is only suitable for grazing, and of which there is no scarcity in the country.

For South Africa to develop the renewable energy generation that it urgently needs, agriculturally zoned land will need to be used for renewable energy generation, including BESS development for the storage and dispatching of energy. It is preferable to incur a cumulative loss of agricultural land, which has no crop production potential then to lose agricultural land that has a higher potential, and that is much scarcer, to renewable energy and BESS development elsewhere in the country.

All the projects contributing to cumulative impact for this assessment have the same kind of agricultural impact in a very similar agricultural environment, and therefore the same mitigation measures apply to all.

It should also be noted that renewable energy and BESS development can only be in fairly close proximity to a substation that has available capacity. This creates cumulative impact in such places. However, this is acceptable because it also effectively protects most agricultural land in the country from renewable energy and BESS development because only a small proportion of the country's total land surface is in close enough proximity to an available substation to be viable for renewable energy and BESS development.

Due to the considerations discussed above, the cumulative impact of loss of future agricultural production potential of both the Veroniva BESS and EGI is assessed as low. It will not have an unacceptable negative impact on the agricultural production capability of the area, and it is therefore recommended, from a cumulative agricultural impact perspective, that both the BESS facility and grid be approved.

12.1.5 Findings and Concluding Statement

The overall conclusion of the Agriculture Compliance Statement is that the proposed development is acceptable because it leads to negligible loss of future agricultural production potential. The cropping potential of the site is limited by the combination of climate constraints and soil constraints (rockiness). As a result, the site is unsuitable for viable rainfed crop production, and its viable agricultural use is limited to grazing. The site has never been used for cropping. Cropping in the area is restricted to irrigation on non-rocky soils that occur further down the slope and away from the mountain.

The Agriculture Compliance Statement disputes the very high sensitivity classification of the site by the Screening Tool and verifies the entire site as being of medium agricultural sensitivity because of its assessed cropping potential.

From an agricultural impact point of view, it is recommended that the proposed development be approved.

12.2 Terrestrial Biodiversity and Species

12.2.1 Introduction and Specialist

The Terrestrial Biodiversity and Species study was undertaken by Corné Niemandt of Bios Diversitas Consultants to inform the outcome of this BA from a terrestrial biodiversity and species perspective. The study identifies environmental sensitivities and no-go areas, as well as impacts of the proposed project on terrestrial biodiversity and species. The complete Terrestrial Biodiversity and Species study is included in Appendix E.2 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

12.2.2 Study Methodology

Based on the outcome of the site sensitivity verification (SSV), the Terrestrial Biodiversity component triggered the need for a full Impact Assessment in terms of GN 320 (March 2020), and the Terrestrial Plant and Animal Species components triggered the need for Compliance Statements in terms of GN 1150 (October 2020) [as amended in GN 3717 (July 2023)].

The study included desktop screening, a SSV in November 2025, including evaluations on foot and by vehicle, as well as recording of GPS track records and a series of georeferenced photographs. During the field survey, various Timed-Meander Searches (TMS) were conducted for vegetation, and for animals the habitat suitability across all project areas was assessed by driving, walking and drone photography. The Site Ecological Importance was determined according to the Species Environmental Assessment Guideline. One combined report was compiled to address the Terrestrial Biodiversity, Plant Species and Animal Species Protocols.

12.2.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Terrestrial Biodiversity and Species Assessment:

- The study is based on a combination of field observations, available spatial datasets, published biodiversity information, the Screening Tool, and specialist experience. It is assumed that the project description and layout information provided at the time of assessment reasonably represent the worst-case development scenario for the purposes of impact assessment.
- The SSV survey was undertaken during November 2025, which falls within the wet season and is considered suitable for detecting a broad range of vegetation features and ecological conditions. Notwithstanding this, no single survey can detect all flora and fauna species potentially occurring within a site, particularly species that are cryptic, seasonal, highly localised, or only identifiable during specific flowering, fruiting, or activity periods.
- The study area is relatively large and, although all accessible habitat types and areas of highest ecological interest were inspected, it remains possible that individual Species of Conservation Concern (SCC) plants or cryptic faunal species were not detected during the site visit. This limitation applies particularly to low-density plant SCC, secretive reptiles, fossorial species, and small mammals. The absence of direct observations during the survey should therefore not be interpreted as definitive absence from the broader landscape.
- The Screening Tool and supporting biodiversity datasets remain an important source of information, but some layers are coarse in scale and may reflect legacy mapping or outdated ecosystem threat classifications. This is particularly relevant to the Critical Biodiversity Area

(CBA) 1 classification assigned to the site in the provincial conservation planning, which in part appears to reflect older ecosystem status information and avifaunal triggers (which is the subject of a separate specialist report). The terrestrial biodiversity interpretation in the study therefore relies on field verification and the latest available ecosystem and vegetation information.

- The assessment of cumulative impacts is based on available information on renewable energy, BESS and associated grid infrastructure projects identified within 30 km of the site. As project status, layout, and authorisation conditions may change over time, the cumulative assessment should be regarded as a reasoned professional interpretation based on the best available information at the time of reporting.

12.2.4 Potential Impacts

The potential terrestrial biodiversity and species impacts resulting from the proposed project is listed below for each phase, including cumulative impacts. No indirect impacts have been identified.

- **Overall Impact Assessment**

Construction Phase:

- Fragmentation and loss of natural habitat and sensitive features.
- Impacts on national and provincial protected plant SCC.
- Disturbance, loss or displacement impacts on animal SCC.
- Introduction and spread of alien invasive species.
- Increased erosion and soil compaction.
- Littering and general pollution.

Operational Phase:

- Increase in alien invasive species.
- Loss of species composition and diversity.
- Littering and general pollution.

Decommissioning Phase:

- Loss of habitat.
- Increased alien invasive species.

- **Cumulative Impact Assessment**

- *Construction and Decommissioning Phases*: Loss of CBAs, natural vegetation and sensitive features.
- *Construction, Operational and Decommissioning Phases*: Disturbance, mortality and/or displacement of plant and animal SCC.
- *Construction, Operational and Decommissioning Phases*: Introduction and spread of alien invasive species.

The impacts and mitigation measures are described in Table 12.1. Cumulative impacts and associated mitigation measures are captured in Table 12.2.

12.2.5 Findings and Concluding Statement

The SSV and terrestrial biodiversity and species study indicates that the broader study area retains ecological value as part of a semi-natural bushveld landscape within the Polokwane Key Biodiversity Area (KBA) and a mapped biodiversity priority area. However, the field assessment did not identify any fatal flaws for the proposed project within the preferred footprint, provided that the current layout remains confined to the lower-sensitivity portion of the site (as is currently the case) and that the identified higher-sensitivity northern habitat is avoided. This has already been achieved by the layout determined and assessed in the BA Phase.

The disputed CBA 1 classification is not considered to be adequately supported by the current terrestrial biodiversity evidence for the preferred development footprint. The specialist concluded that the site is more appropriately treated as an Ecological Support Area (ESA) 1 that remains important for landscape connectivity and ecosystem functioning.

In terms of the KBA, none of the threatened species that occur within this KBA were recorded within the study area, with a medium to low probability of occurring on site. Accordingly, the site does not threaten the KBA status or have a significant impact on any of the triggered species. Development on this site therefore does not pose a flaw to the KBA.

No plant SCC were recorded within the preferred footprint during the field survey. Although several SCC are regionally relevant and some protected trees occur on site, the preferred footprint does not contain confirmed populations of the plant SCC flagged by the Screening Tool. Similarly, no animal SCC were recorded within the preferred footprint. The Lobatse hinged-back tortoise remains a species of concern in the broader landscape, particularly in rocky habitat to the north, but suitable habitat for this species is limited within the preferred development area. The site can be utilised by the species, and care should be taken during the construction phase.

The identified impacts are potentially significant prior to mitigation but can generally be reduced to low residual significance through the recommended mitigation measures. Based on the available desktop information, field verification, and specialist interpretation, the proposed EGI development is considered acceptable from a terrestrial biodiversity perspective within the preferred development footprint, subject to the implementation of the recommended mitigation measures, adherence to all relevant permit requirements, and the exclusion of the higher-sensitivity northern habitat from non-linear development. In addition, the proposed LILO and existing power line section upgrade fall within an existing operational servitude. From a terrestrial biodiversity and species perspective, it is recommended that the project can be granted Environmental Authorisation.

Table 12.1: Assessment of the potential Terrestrial Biodiversity and Species risks and impacts of the Project 2 (Veroniva EGI)

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Natural habitat loss, loss of sensitive features and fragmentation of vegetation	Status	Negative	Moderate (3)	▪ No switching station should be placed within High sensitivity areas including their buffer zones (where applicable). Suitable habitat for Sensitive species 1252, Sensitive species 550, Sensitive species 1248, *Prunus africana* and *Kinixys lobatsiana* have been identified as high sensitivity. Note: Avoidance of high sensitivity areas has already been achieved by the layout determined and assessed in the BA Phase. ▪ Minimise impacts to surrounding natural areas by demarcating the approved footprints and clearly indicating no-go areas, where practical. ▪ No construction related activities, such as the site camp, storage of materials, temporary roads or ablution facilities, may be located in the high sensitivity areas including their buffers, where relevant. ▪ Vegetation and topsoil removal outside of areas planned for the switching station, pylon positions, conductor stringing areas and approved service road must be avoided. ▪ Rehabilitate disturbed areas that are no longer required for the operational phase immediately after construction activities.	Low (4)	Medium
	Spatial Extent	Site specific				
	Duration	Long term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Low				
Loss, disturbance, and/or displacement of protected animal species of conservation concern (SCC)	Status	Negative	Moderate (3)	▪ Avoid rocky areas. Note: This has already been achieved by the layout determined and assessed in the BA Phase. ▪ A comprehensive Animal Search and Rescue must be undertaken for the approved layout by a suitably qualified zoological / ecological specialist prior to vegetation clearance and disturbance. ▪ Reduce the presence of human activity on the project area as far as possible by only focusing on the areas where construction activities are required. ▪ Persecution of fauna species must be reduced through education and awareness campaigns. No physical harm, collection or hunting to any species may occur.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Permanent				
	Consequence	Substantial				
	Probability	Very Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
				▪ Speed restrictions (40 km / hour is recommended) should be in place to reduce the amount of dust caused by vehicle movement along the roads, and to reduce possible fauna fatalities with vehicle collisions. ▪ Establish and implement an ongoing roadkill monitoring programme (inclusive of wildlife collisions record keeping) to inspect roads for injured and deceased fauna (including tortoises) due to the movement of vehicles to and from site. ▪ If trends or patterns emerge from the data (e.g., high incidence of tortoise mortality), appoint a suitably qualified specialist to develop and implement corrective actions.		
Loss of protected plant species (SCC) including protected trees	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Site specific Long term Substantial Likely Moderate Low	Moderate (3)	▪ A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified botanical / ecological specialist prior to vegetation clearance and disturbance. ▪ Where the approved layout designs impact on provincially protected individuals, permit applications are required for either the relocation or destruction of provincially protected species (Schedule 12 (Protected Plants) of the Limpopo Environmental Management Act, 2003 (Act 7 of 2003)). ▪ Where the approved layout designs impact on protected tree species, including *Prunus africana* and *Sclerocarya birrea ssp. afra*, a licence / permit is required in terms of the National Forests Act (Act No. 84 of 1998).	Low (4)	High
Increased alien invasive species	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Long term Substantial Likely Moderate Low	Moderate (3)	▪ Implement a site-specific alien and invasive species control and monitoring plan in terms of the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA) during and after construction. ▪ Alien vegetation, within the development footprints, should be removed from the site and disposed of at a registered waste disposal site. ▪ Alien invasive species establishment and spreading within the development footprints and immediate surroundings should be monitored throughout the construction phase of the project, on an ongoing basis, to ensure that the disturbed areas do not become infested with such plants.	Low (4)	Medium

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
Increased erosion and soil compaction	Status	Negative	Low (4)	▪ The clearance of vegetation, at any given time, must be kept to a minimum to reduce the possibility of soil erosion. ▪ Utilise existing access routes as far as possible. ▪ Confine the movement of vehicles to the access routes to and from the site and to the construction areas. Ensure that construction staff do not drive in the surrounding natural veld / vegetation. ▪ Rehabilitate new vehicle tracks and areas where the soil has been compacted (especially where pylons are constructed) as soon as possible. ▪ Monitor the entire site for signs of erosion throughout the construction phase of the project. ▪ Hardened surfaces associated with the switching station should have runoff control features which redirect water flow and dissipate any energy in the water which may pose an erosion risk. ▪ The implementation of an effective Stormwater Management Plan.	Very Low (5)	Medium
	Spatial Extent	Site specific				
	Duration	Medium term				
	Consequence	Moderate				
	Probability	Unlikely				
	Reversibility	Moderate				
	Irreplaceability	Low				
Littering and general pollution	Status	Negative	Low (4)	▪ The site camp must not be located in high sensitivity areas and their buffer zones (if applicable). ▪ Hydrocarbon fuels must be stored in a secure, bunded area. ▪ Sufficient waste disposal bins must be available on site and clearly marked. Skip bins may be required during the construction phase which must be emptied on a regular basis by an approved/licenced waste disposal contractor. Proof of disposal to be kept on file. ▪ Ablution facilities must be located outside sensitive areas and their buffer zones. ▪ Portable ablution facilities must be regularly cleaned and maintained in good working condition. ▪ Any spillage from ablution facilities must be cleaned up immediately and disposed of in an appropriate manner. ▪ Vehicles must be in good working condition, with no oil, water, or fuel leaks. Vehicles must be regularly inspected, and any problems corrected. ▪ Refuelling may only take place in an appropriate, bunded area. Refuelling may not take place in sensitive areas. ▪ Hydrocarbon spills must be contained and cleaned up immediately. Spill kits must be available on site in case of accidental spillage.	Very Low (5)	Medium
	Spatial Extent	Local				
	Duration	Short to Medium term				
	Consequence	Moderate				
	Probability	Unlikely				
	Reversibility	Moderate				
	Irreplaceability	Low				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
OPERATIONAL PHASE						
Loss of species composition and diversity	Status	Negative	Moderate (3)	▪ Manage plants below overhead power line based on continuous maintenance as per the approved management plan. ▪ Implement appropriate rehabilitation measures to return the vegetation to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction.	Low (4)	Medium
	Spatial Extent	Site specific				
	Duration	Medium term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
Increased alien invasive species	Status	Negative	Moderate (3)	▪ Follow a site specific alien and invasive species control and monitoring plan in terms of NEMBA by implementing appropriate control methods. ▪ Alien vegetation, within the development footprints, should be removed from the site and disposed of at a registered waste disposal site.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Medium term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Low				
Littering and general pollution	Status	Negative	Moderate (3)	▪ All waste must be disposed of properly and not stored or disposed of in open dumps. ▪ Vehicles must be in good working condition, with no oil, water or fuel leaks. ▪ Vehicles must be regularly inspected, and any problems corrected. ▪ Refuelling may only take place in an appropriate, designated bunded area, if relevant. ▪ Any spillages must be reported immediately and dealt with appropriately. ▪ Spill kits must be available on site in case of accidental spillage. ▪ Sufficient waste disposal bins must be available on site and clearly marked.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Short to Medium term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Low				
DECOMMISSIONING PHASE						
Loss of habitat	Status	Negative	Low (4)	▪ The loss of vegetation is unavoidable within the approved layout development footprint. ▪ Implement appropriate rehabilitation measures to return the vegetation to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction.	Very Low (5)	Medium
	Spatial Extent	Site specific				
	Duration	Short term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	Low				

Impact	Impact Criteria		Significance Ranking (Pre-Mitigation)	Potential mitigation measures	Significance Ranking (Post-Mitigation)	Confidence Level
	Irreplaceability	Moderate				
Increased alien invasive species	Status	Negative	Moderate (3)	▪ Follow an alien and invasive species control and monitoring plan in terms of NEMBA by implementing appropriate control methods during and after decommissioning.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Medium term				
	Consequence	Substantial				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Low				

Table 12.2: Assessment of the potential Terrestrial Biodiversity and Species cumulative risks and impacts of the proposed projects[1]

Impact	Impact Criteria		Significance and Ranking Pre-Mitigation	Potential mitigation measures[2]	Significance and Ranking Post-Mitigation	
CUMULATIVE IMPACTS						
CONSTRUCTION AND DECOMMISSIONING PHASES						
Loss of CBAs, natural vegetation and sensitive features (Construction and Decommissioning Phases)	Status	Negative	High (2)	▪ Demarcate sensitive habitats as no-go areas during construction and at decommissioning. ▪ No placement of non-linear infrastructure in confirmed sensitive areas. ▪ Use existing roads through these sensitive areas and avoid construction of new roads as far as possible. ▪ Minimise non-linear development footprint in ecologically significant features. ▪ Implement appropriate rehabilitation measures to return all disturbed habitats to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction. ▪ Ensure that all the operational phase management plans are fully implemented and that the associated monitoring and feedback mechanisms to management are in place.	Moderate (3)	Low (4)
	Spatial Extent	Regional				
	Duration	Permanent				
	Consequence	Severe				
	Probability	Very Likely				
	Reversibility	Low				
	Irreplaceability	High				
CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASES						
Disturbance, mortality and/or displacement of plant and animal species of conservation concern (SCC) (Construction, Operational and Decommissioning Phases)	Status	Negative	High (2)	▪ Adhere to the development restrictions placed on areas of High sensitivities, including any proposed buffers. Note: Avoidance of high sensitivity areas have already been achieved by the layout determined and assessed in the BA Phase for the BESS and EGI footprint. Access Road Option A traverses a seep wetland that is assigned high sensitivity and a 32 m buffer; however, this is acceptable provided that the recommended mitigation measures are implemented. Note the 32 m is not a no-go buffer. ▪ A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified	Low (4)	
	Spatial Extent	Regional				
	Duration	Permanent				
	Consequence	Severe				
	Probability	Very Likely				
	Reversibility	Low				
	Irreplaceability	High				

[1] The specialist notes that the confidence level is not indicated owing to too many variables and lack of information in the public domain regarding listed projects.
[2] The mitigation measures indicated in Table 12.1 for the relevant impact would also be applicable.

Impact	Impact Criteria		Significance and Ranking Pre-Mitigation	Potential mitigation measures[2]	Significance and Ranking Post-Mitigation
				botanical / ecological specialist prior to vegetation clearance and construction. ▪ Where the approved layout designs impact on provincially protected individuals, permit applications are required for either the relocation or destruction of provincially protected species (Schedule 12 (Protected Plants) of the Limpopo Environmental Management Act, 2003 (Act 7 of 2003)). ▪ Where the approved layout designs impact on protected tree species, including *Prunus africana* and *Sclerocarya birrea ssp. afra,* a licence / permit is required in terms of the National Forests Act (Act No. 84 of 1998). ▪ Plant SCC found within the proposed site should be housed in an onsite nursery for use during rehabilitation or be relocated to suitable areas where vegetation clearance will not occur. ▪ Environmental induction for all staff and contractors on-site. ▪ Ground clearing and the digging of trenches should ideally take place at the end of the dry season, prior to the first rains in order to minimise the impacts of dust. ▪ Key strategies (especially in the dry season) include regular water spraying, using on-tool extraction, covering stockpiles, enforcing site speed limits, and installing physical barriers. ▪ Search and rescue for sensitive animal species before areas of intact vegetation are cleared and ongoing during construction, as required. This should be conducted by relevant experts with experience in search and rescue of the faunal groups concerned. Obtain relevant permits for translocation of fauna species prior to commencement of construction activities, where relevant. ▪ Should any sensitive species be killed by any construction vehicles, then the traffic management to and from the site must be reviewed, and appropriate additional mitigation measures should be implemented to further reduce or avoid roadkill. Suitably qualified specialist, institution, or organisation should be consulted during the review process.	

Impact	Impact Criteria		Significance and Ranking Pre-Mitigation	Potential mitigation measures[2]	Significance and Ranking Post-Mitigation
				▪ Fences should be constructed in such a way so that burrowing animals can still gain access. Electrified fences must not have active wires below 20 cm from ground level and a guard wire set at 20 cm can be used to keep larger tortoises away from the fence.	
Introduction and spread of alien invasive species (Construction, Operational and Decommissioning Phases)	Status	Negative	Moderate (3)	▪ Implement an alien and invasive species control and monitoring plan in terms of NEMBA during and after construction. ▪ Alien invasive species establishment and spreading should be monitored on an ongoing basis to ensure that the disturbed areas do not become infested with such plants.	Low (4)
	Spatial Extent	Regional			
	Duration	Long term			
	Consequence	Substantial			
	Probability	Likely			
	Reversibility	Moderate			
	Irreplaceability	Low			

12.3 Aquatic Biodiversity

12.3.1 Introduction and Specialist

The Aquatic Biodiversity and Species study was undertaken by Russell Tate of Tate Environmental Specialist Services to inform the outcome of this BA from an aquatic biodiversity and species perspective. The complete Aquatic Biodiversity and Species study is included in Appendix E.3 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

12.3.2 Study Methodology

The outcome of the SSV triggered the need for an Aquatic Biodiversity and Species Impact Assessment in terms of GN 320 (March 2020) and GN 1150 (October 2020) [as amended in GN 3717 (July 2023)].

The study included desktop analysis and literature survey, a SSV in January 2026 and a second survey in June 2026, including an aquatic biodiversity field survey and condition assessment as per the 2008 Department of Water and Sanitation (DWS) practical field procedure for identification and delineation of wetlands and riparian areas. This method utilised standard equipment for the identification of watercourses, including a tracked GPS survey of the proposed development areas (PDAs), and investigation of soils within potential wetland areas. In addition, a DWS risk assessment was conducted in accordance with the requirements of the DWS General Authorisation (GA) legislation in terms of Section 39 of the National Water Act (Act 36 of 1998, as amended) (NWA) for water uses as defined in Section 21(c) or Section 21(i) (GN 49833 of 2023). One combined report was compiled to address the Aquatic Biodiversity, Plant Species and Animal Species Protocols.

12.3.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Aquatic Biodiversity and Species Assessment:

- Where wetlands were present outside of the study area, these were delineated using desktop data.
- The study is only applicable to the PDA and a 500 m radius.
- The study assumes the implementation of an effective Storm Water Management Plan.

12.3.4 Potential Impacts

During the field surveys, no aquatic features were identified within the PDA and Project Area for the EGI specifically. The aquatic baseline for that portion of the PDA is therefore characterised by the absence of wetlands, drainage lines, riparian habitat, hydromorphic soils and other aquatic features. The EGI component of the proposed development is not expected to result in direct impacts on aquatic biodiversity features, and significant indirect impacts are not anticipated, subject to the implementation of the conditions and monitoring requirements set out in the Aquatic Biodiversity and Species Assessment. The proposed project will have limited to negligible indirect impacts. These are listed below.

- **Overall Impact Assessment**

Construction Phase:

- Water and aquatic habitat impacts stemming from site access and clearing of vegetation in working areas.
- Water and aquatic habitat impacts stemming from the establishment of laydown yards/construction camps.
- Water and aquatic habitat impacts stemming from the excavations and earthworks for the setting of EGI structures and associated structures and stormwater controls.
- Water and aquatic habitat impacts stemming from the storage and use of chemicals, fuels and oils.
- Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.

Operational Phase:

- Water and aquatic habitat impacts stemming from the storage and use of chemicals, fuels and oils during maintenance activities at the switching station and LILO.
- Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.

Decommissioning Phase:

- Water and aquatic habitat impacts stemming from site access and clearing of vegetation in working areas.
- Water and aquatic habitat impacts stemming from the establishment of laydown yards/camps for decommissioning activities.
- Water and aquatic habitat impacts stemming from the excavations and earthworks for the removal of EGI structures and associated structures and stormwater controls.
- Water and aquatic habitat impacts stemming from the storage and use of chemicals, fuels and oils.
- Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.

- **Cumulative Impact Assessment**

- *Construction, Operational and Decommissioning Phases*: Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.

The impacts and mitigation measures are described in Table 12.3. Cumulative impacts and associated mitigation measures are captured in Table 12.4.

12.3.5 Findings and Concluding Statement

Field verification confirmed that no wetlands, drainage lines, riparian habitat, hydromorphic soils, or other aquatic features occur within the EGI PDA. No aquatic animals or plant SCC were observed during the SSV surveys. In addition, no defined hydrological or sediment transfer pathways were identified between the EGI footprint and the mapped aquatic features.

Runoff from the development is expected to remain diffuse and localised, with no direct discharge route to the wetlands or impoundments. On this basis, no plausible direct or indirect impact pathway exists between the proposed EGI development and aquatic features, and the aquatic biodiversity sensitivity of the preferred development footprint is confirmed as Low. A consideration of the limited to negligible indirect impacts has been discussed in the study for the EGI component of the proposed development.

The specialist assessment confirmed that there is no plausible routine runoff, sediment transfer, or altered drainage pathways from the EGI development footprint to the mapped seep wetlands, artificial impoundments or the Unchanneled Valley Bottom wetland. The impacts are primarily associated with proposed Access Road Option A only (which forms part of Project 1 (Veroniva BESS) and discussed in Chapter 11 of this BA Report.

Based on the outcomes of the impact assessment, the proposed development is not expected to result in direct impacts on aquatic features, and significant indirect impacts are not anticipated, subject to the conditions and monitoring requirements set out in the study. In the case of the associated linear infrastructure, it is the opinion of the aquatic biodiversity specialist that, based on the mitigation and remedial measures proposed, disturbed areas can be returned to their current state within two years of completion of the construction phase.

Table 12.3: Assessment of the potential Aquatic Biodiversity risks and impacts of the Project 2 (Veroniva EGI)

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
INDIRECT IMPACTS						
CONSTRUCTION PHASE						
Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas	Status	Neutral	Very Low (5)	▪ Implement an effective Stormwater Management Plan. This plan must include: o An analysis on peak flow changes between the pre- and post-development landscapes. o Layouts and design of stormwater infrastructure. o The effective attenuation of the expected increased hydrological conditions. ▪ Regular Environmental Control Officer (ECO) monitoring must incorporate the survey and reporting on Stormwater Management structures. Indications of the following should be reported on, mitigation and rehabilitation actions implemented: o Soil erosion. o Soil compaction. o Visual observations on soil contamination. ▪ Clean and dirty surface water separation must be put into place via standard best practice methods. ▪ No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the establishment of laydown yards/construction camps	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the excavations and	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
earthworks for the setting of EGI Structures and stormwater controls	Consequence	Slight		*Impacts stemming from site access and clearing of vegetation in working areas.*		
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the storage and use of chemicals, fuels and oils	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
OPERATION PHASE						
Water and Aquatic Habitat Impacts stemming from the storage and use of chemicals, fuels and oils	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
DECOMMISSIONING PHASE						

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the utilisation of laydown yards/camps for decommissioning activities	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the excavations and earthworks for the removal of EGI Structures and stormwater controls	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the storage and use of chemicals, fuels and oils	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from site access and clearing of vegetation in working areas.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Extremely Unlikely				
	Reversibility	High				

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
	Irreplaceability	Low				

Table 12.4: Assessment of the potential Aquatic Biodiversity and Species cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
CUMULATIVE IMPACTS						
CUMULATIVE IMPACT – CONSTRUCTION PHASE						
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ Implement an effective Stormwater Management Plan. This plan must include: o An analysis on peak flow changes between the pre- and post-development landscapes. o Layouts and design of stormwater infrastructure. o The effective attenuation of the expected increased hydrological conditions. ▪ Regular ECO monitoring must incorporate the survey and reporting on Stormwater Management structures. Indications of the following should be reported on, mitigation and rehabilitation actions implemented: o Soil erosion. o Soil compaction. o Visual observations on soil contamination. ▪ Regular Environmental Control Officer monitoring must incorporate the survey and reporting on BESS structures. ▪ Continuous monitoring of BESS operational parameters. ▪ Development of an emergency response plan. ▪ Clean and dirty surface water separation must be put into place via standard best practice methods.	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				

Impact	Impact Criteria		Significance and Ranking (Pre-Mitigation)	Potential mitigation measures	Significance and Ranking (Post-Mitigation)	Confidence Level
				▪ No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression.		
CUMULATIVE IMPACT – OPERATION PHASE						
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following cumulative impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				
CUMULATIVE IMPACT – DECOMMISSIONING PHASE						
Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes	Status	Neutral	Very Low (5)	▪ As per the mitigation above for the following cumulative impact in the construction phase: *Water and Aquatic Habitat Impacts stemming from the alteration of surface drainage and hydrological processes.*	Very Low (5)	High
	Spatial Extent	Site Specific				
	Duration	Medium Term				
	Consequence	Slight				
	Probability	Unlikely				
	Reversibility	High				
	Irreplaceability	Low				

12.4 Avifaunal Impacts

12.4.1 Introduction and Specialist

The Avifauna Impact Assessment was undertaken by Albert Froneman and Dr Megan Loftie-Eaton of AfriAvian Environmental to inform the outcome of this BA from an avifaunal perspective. The complete Avifaunal Impact Assessment is included in Appendix E.4 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

12.4.2 Study Methodology

The outcome of the SSV triggered the need for an Avifaunal Impact Assessment in terms of GN 1150 (October 2020) [as amended in GN 3717 (July 2023)].

The study included desktop analysis and a survey in November 2025, using a 4x4 vehicle and on foot. During the survey, all bird sightings were recorded. Various existing databases and reports were used, such as bird distribution data from the Second Southern African Bird Atlas Project (SABAP2), the 2025 Red Data Book of Birds of South Africa, 2025 International Union for the Conservation of Nature (IUCN) Red List of Threatened Species, and KBAs of South Africa. Data collected during previous surveys in the Broader Area (four pentads based on the SABAP2) as far as habitat classes and the occurrence of priority species are concerned was also considered.

12.4.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in Avifauna Impact Assessment:

- This study assumed that the sources of information used in the Avifauna Impact Assessment are reliable. In this respect, the following must be noted:
    - The Broader Area was defined as the area encompassed by the four SABAP2 pentads, for which bird distribution data was obtained, where the BESS and EGI Project is to be located.
    - The study area was delineated as a 65 ha zone within which the proposed BESS, associated infrastructure, and 132 kV EGI will be developed, including external access roads that may need to be widened/upgraded (as needed). Based on the final layout, the BESS and associated infrastructure will occupy a 15 ha footprint and the EGI will have a servitude of 40 m, resulting a 2.6 ha corridor area. In addition, the access roads leading to site may require upgrading or widening and therefore form part of the development footprint for Project 1 (Veroniva BESS), and discussed in Chapter 11 of this BA Report.
    - It was assumed that the SABAP2 data is a reasonably accurate representation of the avifauna that is likely to occur in the Broader Area.
    - The focus of the study was on the potential impacts of the proposed BESS on priority species, including all SCC and the potential impacts of the electrical grid infrastructure on EGI sensitive avifauna, including all SCC.
    - The precautionary principle was applied throughout. NEMA also endorses the precautionary principle.
    - The assessment of impacts is based on the baseline environment as it currently exists at the study area.

- Conclusions drawn in the avifauna study are based on experience of the specialists in relation to the species found on site and similar species in different parts of South Africa. Bird behaviour can never be entirely reduced to formulas that would be valid under all circumstances.
- The Animal and Plant Species data on the Screening Tool were updated in April 2026, and the Species Environmental Assessment Guideline was updated in March 2026[3]. The updated Species Guideline was considered; however, it does not influence the findings of the Avifauna Assessment. Furthermore, there were no differences in the Animal Species Theme in the Screening Tool Reports generated in November 2025 (for the study area) and April 2026 (for the project footprints), from an avifaunal perspective.

12.4.4 Potential Impacts

The potential avifaunal impacts resulting from the proposed project are listed below for each phase, including cumulative impacts.

- **Overall Impact Assessment**

Construction Phase:
- Displacement of avifauna due to disturbance associated with the construction of the EGI.
- Displacement of avifauna due to habitat loss associated with the construction (and presence) of the EGI.

Operational Phase:
- Mortality of EGI sensitive avifauna due to electrocutions in the switching station and/or on the 132 kV overhead LILO and upgraded power line.
- Mortality of EGI sensitive avifauna due to collisions with the 132 kV overhead LILO and upgraded power line.

Decommissioning Phase:
- Displacement of avifauna due to disturbance associated with the decommissioning of the EGI.

- **Cumulative Impact Assessment**

- *Construction Phase:*
  - Displacement of avifauna due to disturbance associated with construction activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.
  - Displacement of avifauna due to habitat loss associated with the construction activities and presence of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.

- *Operational Phase:*
  - Mortality of priority avifauna due to electrocutions in the substations, on the associated internal medium voltage overhead lines (if any), and on the high voltage overhead

[3] South African National Biodiversity Institute (SANBI). 2020. Species Environmental Assessment Guideline. Guidelines for the implementation of the Fauna and Flora Species Protocols for environmental impact assessments in South Africa. South African National Biodiversity Institute, Pretoria. Version 4.1 2026.

powerlines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.
    - Mortality of priority avifauna due to collisions on the associated internal medium voltage overhead lines (if any) and on the high voltage overhead powerlines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.

- *Decommissioning Phase:*
    - Displacement of priority species due to disturbance associated with decommissioning activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.

The impacts and mitigation measures are described in Table 12.5. Cumulative impacts and associated mitigation measures are captured in Table 12.6.

12.4.5 Findings and Concluding Statement

The study area contains suitable habitat for avian SCC as defined in the Animal Species Protocol (GN 1150, as amended in GN 3717 (July 2023)), namely species listed on the IUCN Red List of Threatened Species or South Africa's National Red List website as Critically Endangered, Endangered, Vulnerable or Near Threatened. Two SCC were recorded on-site during the site visit undertaken from 24–25 November 2025, namely Black-winged Kite *Elanus caeruleus* (Regionally Near Threatened) and Cape Vulture *Gyps coprotheres* (Globally and Regionally Vulnerable) and according to the SABAP2 data, a total of 24 SCC have been recorded in the Broader Area.

Based on the SSV and the avifaunal sensitivity data generated, the avifauna specialist explained that that there are no fatal flaws relating to the proposed project within the preferred location of the study area from an avifaunal perspective. The development footprint and detailed layout of the project are considered suitable from an avifaunal perspective.

The potential impacts during the construction and decommissioning phases are rated with a low significance with the implementation of mitigation measures, whereas the impacts identified for the operational phase are rated with a low to moderate significance with the implementation of mitigation measures.

Overall, the specialist concluded that from an avifaunal perspective, the proposed project is supported and can be granted Environmental Authorisation, provided that the proposed recommended mitigation measures are strictly implemented.

Table 12.5: Assessment of the potential Avifauna risks and impacts of the Project 2 (Veroniva EGI)

Impact	Impact Criteria		Significance / Ranking (Pre-Mitigation)	Potential mitigation measures	Significance / Ranking (Post-Mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
The noise and movement associated with the construction activities of the 132 kV overhead LILO power line, power line upgrading, and associated infrastructure will be a source of disturbance which would lead to the displacement of avifauna from the area.	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Site-specific Short term Substantial Very likely High Low	Moderate (3)	▪ Vegetation clearance must be limited to what is absolutely necessary and in adherence to rehabilitation measures. ▪ The mitigation measures proposed by the Aquatic, and Terrestrial Biodiversity and Species Specialists must be strictly implemented, particularly regarding minimising the footprint of the activities. ▪ Construction activity must be restricted to the immediate footprint of the infrastructure, and in particular to the proposed service road network. ▪ Access (vehicle and pedestrian) to the remainder of the development site must be strictly controlled to prevent unnecessary disturbance of sensitive species. ▪ Measures to control noise and dust must be applied according to current best practice in the industry. ▪ Maximum use must be made of existing access roads, and the construction of new roads must be avoided as far as practical/only developed where absolutely needed. ▪ The All-Infrastructure Exclusion Zones must be strictly adhered to.	Low (4)	High
Total or partial displacement of avifauna due to habitat loss associated with the construction and presence of the 132 kV LILO and upgrading of the power line.	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Site specific Short term Substantial Very likely Moderate Low	Moderate (3)	▪ Vehicle and pedestrian access to the site must be controlled and restricted to the construction footprint to prevent unnecessary destruction of vegetation. ▪ Vegetation clearance must be limited to what is absolutely necessary and in adherence to rehabilitation measures. ▪ The mitigation measures put forward by the Aquatic, and Terrestrial Biodiversity and Species Specialists must be strictly implemented, especially as far as limitation of the activity footprint is concerned. ▪ To reduce the risk of birds (especially owls) becoming entangled in fences, it is recommended that for any new fences being constructed (switching station), at least the top two strands should be smooth wire (not barbed) and the spacing between at least the top two wires should be increased to a minimum of 300 mm.	Low (4)	Medium

Impact	Impact Criteria		Significance / Ranking (Pre-Mitigation)	Potential mitigation measures	Significance / Ranking (Post-Mitigation)	Confidence Level
				Ensuring that the wires are correctly tensioned, the entanglement risk will also be reduced.		
OPERATIONAL PHASE						
Mortality of EGI sensitive avifauna due to electrocution on the EGI (132 kV LILO and upgraded power line and/or switching station)	Status	Negative	High (2)	▪ A bird-friendly pylon design must be used for the 132 kV LILO and power line upgrade (i.e. for the new proposed LILO and the section of the existing Eskom Witkop-Pietersburg 1 Line that will be upgraded from the LILO to the Eskom Witkop Main Transmission Substation), with appropriate mitigation measures for complicated pole structures (e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers), as recommended by the Avifaunal Specialist. ▪ Single Circuit Configuration: Construct the LILO and power line upgrade using an Eskom approved vulture friendly pole/tower design in accordance with the Distribution Technical Bulletin or with a minimum clearance of 1.8 m between the jumpers and/or insulators and the horizontal earthed component on the lattice structure. ▪ Double Circuit Configuration: Construct the LILO and power line upgrade with a minimum clearance of 1.8 m between the jumpers and/or insulators and the horizontal earthed component on the lattice structure. ▪ Additional mitigation in the form of insulating sleeves on jumpers present on strain towers and terminal towers is also recommended (if suitable insulation material is readily available), alternatively all jumpers must be suspended below the crossarms. ▪ Monitor the electrocution mortality at the switching station monthly. Apply mitigation (insulation of live components) if electrocution of Species of Conservation Concern (SCC) happens more than once per annum. ▪ VulPro must be notified immediately if any vulture is negatively impacted by collisions or electrocutions.	Low (4)	Medium
	Spatial Extent	Site-specific				
	Duration	Long term				
	Consequence	Severe				
	Probability	Likely				
	Reversibility	High				
	Irreplaceability	Low				
Collision mortality of EGI sensitive avifauna due to	Status	Negative	High (2)	▪ Bird Flight Diverters (BFDs) must be fitted in a staggered configuration (on the earth wire and conductor) for the full length	Moderate (3)[4]	Medium
	Spatial Extent	Local				

[4] The moderate impact significance rating is deemed acceptable if all mitigation measures are strictly implemented, therefore a biodiversity off-set is not required.

Impact	Impact Criteria		Significance / Ranking (Pre-Mitigation)	Potential mitigation measures	Significance / Ranking (Post-Mitigation)	Confidence Level
collisions with the 132 kV overhead LILO and upgraded power line.	Duration	Long term		of the 132 kV LILO and power line upgrade (i.e. for length of the new proposed LILO and the section of the existing Eskom Witkop-Pietersburg 1 Line that will be upgraded from the LILO to the Eskom Witkop Main Transmission Substation) according to the applicable Eskom Engineering Instruction (15 m apart for high voltage power lines). These devices must be installed as soon as the conductors are strung. ▪ Conduct quarterly inspections of all overhead sections of the proposed 132 kV overhead LILO and power line upgrade to look for bird carcasses and to ensure that BFDs are still intact and functioning correctly. ▪ Any bird fatalities must be recorded as part of the post-construction avifaunal monitoring reports. ▪ VulPro must be notified immediately if any vulture is negatively impacted by collisions or electrocutions.		
	Consequence	Severe				
	Probability	Likely				
	Reversibility	High				
	Irreplaceability	Low				
DECOMMISSIONING PHASE						
The noise and movement associated with the dismantling activities will be a source of disturbance which would lead to the displacement of avifauna from the area.	Status	Negative	Moderate (3)	▪ Restrict dismantling to the immediate infrastructural footprint where possible. ▪ Access to the remainder of the 132 kV LILO and upgraded OHL Corridor must be strictly controlled to prevent unnecessary disturbance of sensitive avifauna. ▪ Measures to control noise and dust must be applied according to current best practice in the industry. ▪ Prioritise the use of existing access roads during the decommissioning phase and avoid construction of new roads where feasible. ▪ The recommendations of the Aquatic and Terrestrial Biodiversity and Species specialist studies must be strictly implemented, especially as far as limitation of the activity footprint is concerned.	Low (4)	High
	Spatial Extent	Site specific				
	Duration	Short term				
	Consequence	Substantial				
	Probability	Very likely				
	Reversibility	High				
	Irreplaceability	Low				

Table 12.6: Assessment of the potential Avifauna cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
CUMULATIVE IMPACTS – ALL PHASES						
▪ Displacement of avifauna due to disturbance associated with construction activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Displacement of avifauna due to habitat loss associated with the construction activities and presence of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Mortality of priority avifauna due to electrocutions in the substations, on the associated internal medium voltage overhead lines (if any), and on the high	Status	Negative	High (2)	It is assumed that all the mitigation measures included in the various bird impact assessment reports for all the relevant renewable energy, EGI and BESS projects within the 30 km radius will be applied by the relevant Applicants for the relevant projects. These include, but are not limited to, the following: ▪ Construction activity must be restricted to the immediate footprint of the infrastructure as far as possible. ▪ Burying of internal medium voltage cables. ▪ Using bird-friendly structures for the above ground sections of medium voltage pylons. ▪ Rehabilitation of disturbed vegetation. ▪ Maximum use of existing roads. ▪ Implementation of operational monitoring to assess avifaunal mortality levels. ▪ Avoidance of no-go buffers around sensitive areas, recommendations of the Freshwater and Botanical Specialists must be strictly implemented. ▪ Marking of overhead power lines with Bird Flight Diverters.	Moderate (3)[5]	Medium
	Spatial Extent	Regional				
	Duration	Long term				
	Consequence	Severe				
	Probability	Very Likely				
	Reversibility	Low				
	Irreplaceability	Moderate				

[5] The moderate impact significance rating is deemed acceptable if all mitigation measures are strictly implemented, therefore a biodiversity off-set is not required.

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
voltage overhead powerlines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Mortality of priority avifauna due to collisions on the associated internal medium voltage overhead lines (if any) and on the high voltage overhead powerlines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Displacement of priority species due to disturbance associated with decommissioning activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.						

12.5 Visual Impacts

12.5.1 Introduction and Specialist

The Visual Impact Assessment was undertaken by Graham Young of Graham A Young Landscape Architect (GYLA) to inform the outcome of this BA from a visual impact perspective. The complete Visual Impact Assessment is included in Appendix E.5 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

12.5.2 Study Methodology

The Visual Impact Assessment documents the baseline and ensures that the visual/aesthetic risks of the proposed project are understood. There is no dedicated assessment protocol prescribed for Visual Impact Assessments, and as such, the study was undertaken in terms of Appendix 6 of the 2014 NEMA EIA Regulations (as amended).

The study included desktop analysis and a site survey in November 2025. The field survey involved travelling along public roads surrounding and crossing the study area, as well as visiting the proposed project site and nearby properties to assess the nature and character of the landscape. The character of the landscape was described and rated in terms of its aesthetic appeal using recognised contemporary research in perceptual psychology as the basis, and its sensitivity as a landscape receptor, along with the relevant buffer zones. The sense of place of the study area was described in terms of its uniqueness and distinctiveness. The visibility of the proposed project was determined using on-site observations and a viewshed assessment and sensitive receptor locations identified. Illustrations, in basic simulations, of the proposed infrastructure were overlaid onto panoramas to give an idea of the scale and location of the proposed project within its landscape context. Visual intrusion (contrast) of the proposed project was determined by simulating its physical appearance from these sensitive viewing areas.

12.5.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Visual Impact Assessment:

- The description of project components is limited to what was supplied prior to the completion of the Visual Impact Assessment.
- No baseline monitoring was undertaken as part of the study.
- The accuracy of the viewshed analysis depends on the quality of the input digital surface model (DSM). Readily available digital contours for the area are limited to 20 m contours. The specialist interpolated these to 1 m intervals to improve accuracy. However, these types of viewshed investigations (using only readily available GIS software and terrain contours) are limited in accuracy because they cannot incorporate vegetation information. To be more accurate in predicting absolute visibility, the analysis would require “a 3D model of a tree/plant and a layer indicating the spatial distribution and density of vegetation on the landscape” (Llobera 2007:799) and the buffering of all existing buildings, structures, and infrastructure. The possibility of indicating both the spatial and density distributions of trees/plants and the three-dimensional model representing vegetation and all structures is currently unavailable to the author. Therefore, on-site observations are critical.

- Site photos taken in winter (when the site visit was conducted) do not necessarily reflect the complete landscape character of the area as experienced through all seasons, i.e. the density of the bush in the summer would partially restrict visual access to the site when compared to the winter months. The weather was sunny with some clouds and haze.
- Cumulative impacts are assessed by adding expected impacts from the proposed development to existing and proposed developments with similar visual impacts within a 30 km radius of the site. The projects listed in Chapter 5 of this BA Report were considered in the assessment of cumulative impacts.
- No consultation with landowners or the public was required for the Visual Impact Assessment.

12.5.4 Potential Impacts

Potential visual impacts arising from the proposed project are listed below for each phase, including cumulative impacts. No indirect impacts have been identified.

- **Overall Impact Assessment**

Construction Phase:
- Potential visual effect of construction activities.

Operational Phase:
- Effect of the operational activities and infrastructure on the landscape character and sense of place.

Decommissioning Phase:
- Potential visual effect of decommissioning activities, and any remaining structures, platforms and disused roads on the landscape.

- **Cumulative Impact Assessment**

- *Construction Phase*: Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during construction phase.

- *Operational Phase:* Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during operational phase.

- *Decommissioning Phase*: Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during decommissioning phase.

The impacts and mitigation measures are described in Table 12.7. Cumulative impacts and associated mitigation measures are captured in Table 12.8.

12.5.5 Findings and Concluding Statement

The scenic quality of the study area has been rated from low to very high within the sub-region. The development zone is situated in a low rated landscape type. Sensitive viewing sites and landscape types have been identified and mapped, indicating potential sensitivity to the project, primarily for residents and visitors to farmsteads located to the south and south-west of the development zones.

Based on the SSV undertaken, the study area has a low visual and landscape sensitivity risk. Regarding the placement of the EGI and associated infrastructure, visually, the infrastructure can be situated anywhere within the proposed corridor (i.e. which initially formed 18 ha of the total 65 ha study area) due to low overall visual and landscape sensitivity.

The potential impacts identified during the construction, operational and decommissioning phases have been rated with a very low significance after mitigation.

The specialist concluded that there are no fatal flaws in the proposed project from a visual perspective. Visual impacts are of a nature, scale, and duration that will require good housekeeping mitigation to minimise potential impacts throughout all phases of the proposed project. The specialist considers that from a visual standpoint, the proposed project is acceptable and is recommended to receive Environmental Authorisation.

Table 12.7: Assessment of the potential Visual risks and impacts of the Project 2 (Veroniva EGI)

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Potential visual effect of construction activities	Status	Neutral	Very Low (5)	▪ With the preparation of the land within the full extent of the project site onto which activities will take place, the minimum amount of existing indigenous vegetation and topsoil should be removed. ▪ The placement of construction camps (if required) and a site plan for the construction camp should be specified. ▪ Where possible, construction activities should be limited to between 08:00 and 17:00 or within a timeframe determined in conjunction with the ECO and neighbours of the project site. ▪ Adopt responsible construction practices that strictly contain construction/ establishment activities in demarcated areas. ▪ Building or waste material should be disposed of at an authorised location, which should not be within sensitive areas. ▪ Earthworks should be executed to expose only the footprint and a small 'construction buffer zone' around the proposed development sites for each of the pylons. Naturally occurring (indigenous) vegetation should be retained in all other areas. ▪ Disturbed soil must be exposed for the minimum time possible once vegetation is cleared to avoid prolonged exposure to wind and water erosion and to minimise dust generation. ▪ "Housekeeping" procedures should be developed for the Project to ensure that the corridor and lands adjacent to it are kept clean of debris, garbage, graffiti, fugitive trash, or waste generated on-site. ▪ Re-vegetation, including hydroseeding, should be enhanced using a seed mixture to ensure the following: o Annual and perennial plants are chosen. o Pioneer species are included. o Species must be indigenous to the area, with seeds coming from the area. o Root systems must have a binding effect on the soil.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Short Term				
	Consequence	Slight				
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
OPERATIONAL PHASE						
Effect of the operational activities and infrastructure on the landscape character and sense of place	Status	Neutral	Very Low (5)	▪ Ensure that the EGI is properly maintained and kept free of alien vegetation.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Long Term				
	Consequence	Slight				
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				
DECOMMISSIONING PHASE						
Potential visual effect of decommissioning activities, and any remaining structures, platforms and disused roads on the landscape.	Status	Neutral	Very Low (5)	▪ All structures to be dismantled and removed from the site. ▪ Disturbed soil must be vegetated to avoid prolonged exposure to wind and water erosion and to minimise dust generation. ▪ The entire site is to be replanted with natural vegetation indigenous to the study area. ▪ The final product must not cause an ecological imbalance in the area.	Very Low (5)	High
	Spatial Extent	Local				
	Duration	Permanent				
	Consequence	Slight				
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				

Table 12.8: Assessment of the potential Visual cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
CUMULATIVE IMPACTS						
CONSTRUCTION PHASE						
Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other	Status	Negative	Low (4)	▪ With the preparation of the land within the full extent of the project site(s) onto which activities will take place, the minimum amount of existing vegetation and topsoil should be removed. ▪ All topsoil must be collected and retained for re-use later to rehabilitate disturbed areas. Should topsoil stockpiles be created, they must not exceed 2m in height. ▪ The placement of construction camps (if required), as well as a site plan of the construction camp should be specified.	Low (4)	Medium
	Spatial Extent	Local				
	Duration	Medium Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	Highly				
	Irreplaceability	Replaceable				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during construction phase.				▪ When possible, construction activities should be limited to between 08:00 and 17:00 or within a timeframe determined in conjunction with the ECO and neighbours of the project site. ▪ Adopt responsible construction practices that strictly contain the construction/establishment activities to demarcated areas. ▪ Discarding of building or waste material should be undertaken at an authorised location, which should not be within any sensitive areas. ▪ Earthworks should be executed so that only the footprint and a small 'construction buffer zone' around the proposed activities and development sites for the pylons are exposed. In all other areas, the naturally occurring vegetation should be retained, especially along the periphery of the site adjacent to the local district road. ▪ All cut and fill slopes (if any) and areas affected by construction work should be progressively top soiled and re-vegetated as soon as possible. ▪ Disturbed soil must be exposed for the minimum time possible once cleared of vegetation to avoid prolonged exposure to wind and water erosion and to minimise dust generation. ▪ Maintain a screen buffer of existing trees / vegetation around the BESS project site. ▪ Paint all structures (structural support for the BESS containers etc.) with colours that reflect and complement the colours of the surrounding landscape – avoid shiny materials. ▪ "Housekeeping" procedures should be developed for the Project to ensure that the project site and lands adjacent to it are kept clean of debris, garbage, graffiti, fugitive trash, or waste generated on-site; procedures should extend to control of "track out" of dirt on vehicles leaving the active construction site and controlling sediment in stormwater runoff. ▪ "Housekeeping" procedures should be developed for the Project to ensure that the corridor and lands adjacent to it are kept clean of debris, garbage, graffiti, fugitive trash, or waste generated on-site. ▪ During construction, temporary fences surrounding the material storage yards and laydown areas should be covered with 'sack' cloth (a khaki coloured hessian) or shade cloth.		

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
				▪ Re-vegetation, including hydroseeding, should be enhanced using a seed mixture to ensure the following: o Annual and perennial plants are chosen. o Pioneer species are included. o Species must be indigenous to the area, with seeds coming from the area. o Root systems must have a binding effect on the soil.		
OPERATIONAL PHASE						
Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during operational phase.	Status Spatial Extent Duration Consequence Probability Reversibility Irreplaceability	Negative Local Long Term Moderate Likely Highly Replaceable	Low (4)	▪ "Housekeeping" procedures should be developed for the Project to ensure that the project site and lands adjacent to it are kept clean of debris, garbage, graffiti, fugitive trash, or waste generated on-site; procedures should extend to control of "track out" of dirt on vehicles leaving the operational project site and controlling sediment in stormwater runoff. ▪ Operating facilities should be actively maintained during operation. ▪ Install light fixtures that provide precisely directed illumination to reduce light "spillage" beyond the immediate surrounds of the site, i.e. lights are to be aimed away from the nearby residences immediately south and south-west of the project site and the R519 access road. ▪ Minimise the number of light fixtures to the bare minimum, including security lighting. ▪ Avoid high-pole top security lighting along the periphery of the site at the BESS areas, and use only lights activated by illegal entry to the site. ▪ Ensure the EGI is properly maintained and kept free of alien vegetation	Very Low (5)	Medium
DECOMMISSIONING PHASE						
Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing	Status Spatial Extent Duration Consequence Probability Reversibility	Neutral Local Permanent Slight Likely Highly	Very Low (5)	▪ All equipment and structures to be dismantled and removed from the site. ▪ All cut and fill slopes and areas affected by disassembly work should be progressively topsoiled and re-vegetated as soon as possible. ▪ Disturbed soil must be vegetated to avoid prolonged exposure to wind and water erosion and to minimise dust generation.	Very Low (5)	Medium

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance Ranking (Post-mitigation)	Confidence Level
and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during decommissioning phase.	Irreplaceability	Replaceable		▪ The entire site is to be replanted with natural vegetation indigenous to the study area. ▪ The final product must not cause an ecological imbalance in the area.		

12.6 Heritage (including Archaeology and Cultural Landscape)

12.6.1 Introduction and Specialist

The Heritage Impact Assessment was undertaken by Dr Jayson Orton of ASHA Consulting to inform the outcome of this BA from heritage (archaeology and cultural landscape) perspective. The complete Heritage Impact Assessment is included in Appendix E.6 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

12.6.2 Study Methodology

There is no dedicated assessment protocol prescribed for Heritage Impact Assessments, and as such, the study was undertaken in terms of Appendix 6 of the 2014 NEMA EIA Regulations (as amended), as well as the relevant provisions of the National Heritage Resources Act (Act 25 of 1999, as amended).

The study included desktop analysis and a field survey in November 2025. During the survey the positions of finds and survey tracks were recorded on a hand-held Garmin GPS receiver. Photographs were taken at times to capture representative samples of both the affected heritage and the landscape setting of the proposed development. The Heritage Impact Assessment was then compiled with the aim of fulfilling the requirements of the South African Heritage Resources Agency (SAHRA) such that a comment can be issued by them for consideration by the Department of Forestry, Fisheries and the Environment (DFFE).

12.6.3 Assumptions, Uncertainties and Gaps in Knowledge

The following assumptions, limitations or gaps in knowledge were identified in the Heritage Impact Assessment:

- The field study was carried out at the surface only and hence any completely buried archaeological sites would not be readily located. Similarly, it is not always possible to determine the depth of archaeological material visible at the surface but reasonable assumptions can often be made based on the substrate present. The survey attempted to (1) identify all obvious heritage resources, (2) cover transects in various areas to enable a good understanding of the types and density of heritage resources present, and (3) determine the relationship between heritage resources and landscape features. It is assumed that the findings would be indicative of the overall pattern on the landscape.

- The farm portions on which the eastern section of the EGI would be developed (i.e. the upgrade section on Farm 742/2 and Farm 20/47) were not accessible at the time of the survey and could only be examined from a distance. Given the results of the field survey and the fact that the project would be upgrading an existing power line within an operational servitude managed by Eskom, this limitation is not deemed significant. It is assumed that the information provided for the assessment is an accurate reflection of the development proposal.

- Cumulative impacts are difficult to assess due to the variable site conditions that would have been experienced in different areas and in different seasons. Survey quality is thus likely to be variable. As such, some assumptions need to be made in terms of what and how much heritage

might be impacted by other developments in the broader area. It is also not known what heritage was destroyed by agriculture and urban development in the wider area, since these aspects predate the advent of modern impact assessment studies.

12.6.4 Potential Impacts

Potential impacts on heritage resources arising from the proposed project are listed below for each phase, including cumulative impacts. No indirect impacts have been identified.

- **Overall Impact Assessment**

Construction Phase:
- Potential impact on archaeology.
- Potential impact on graves.
- Potential impact on the cultural landscape.

Operational Phase:
- Potential impact on the cultural landscape.

Decommissioning Phase:
- Potential impact on the cultural landscape.

- **Cumulative Impact Assessment**

Construction, Operational and Decommissioning Phases:

- Potential impact on archaeology.
- Potential impact on graves.
- Potential impact on the cultural landscape.

The impacts and mitigation measures are described in Table 12.9. Cumulative impacts and associated mitigation measures are captured in Table 12.10.

12.6.5 Findings and Concluding Statement

The project site is fairly flat and covered in grass, bushes and small trees. No heritage resources were found in the study area. A large cluster of stones was seen to the north of the BESS footprint, but the specialist concluded that it is almost certainly the weathered remains of a natural rock outcrop. No isolated artefacts were seen during the survey. Fort Louis Campbell, a Provincial Heritage Site (PHS), lies approximately 5 km north-east of the study area. The Makapans Valley National Heritage Site (and World Heritage Site), and the Eersteling Chimney Stack PHS are other significant heritage resources in the wider area. However, due to distance, none of these sites would be impacted in any way. The only potential heritage concern is impacts to the cultural landscape. The landscape is rural with the high-lying hills to the north of the study area being the main significant feature. However, given the existence of other electrical infrastructure in the area, the high-lying landscape north of the study area will not be further impacted by the proposed project.

Because of the presence of the existing and operational Witkop Solar Facility, existing and operational Eskom Witkop Main Transmission Substation and multiple existing powerlines, the proposed project is considered to be in an appropriate location clustered with other electrical facilities and their development can be supported from a heritage point of view.

The potential impacts identified during the construction, operational and decommissioning phases have been rated with a very low impact significance, after mitigation.

The specialist concluded that there are no significant concerns for this project and that from a heritage perspective, the project can be authorised in full.

Table 12.9: Assessment of the potential Heritage risks and impacts of the Project 2 (Veroniva EGI)

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
DIRECT IMPACTS						
CONSTRUCTION PHASE						
Damage or destruction of archaeological materials	Status	Negative	Very Low (5)	▪ Report any chance finds to the South African Heritage Resources Agency (SAHRA) and/or an archaeologist.	Very Low (5)	High
	Spatial extent	Local				
	Duration	Permanent				
	Consequence	Slight				
	Probability	Very unlikely				
	Reversibility	Non-reversible				
	Irreplaceability	High				
Damage or destruction of graves	Status	Negative	Very Low (5)	▪ Report any chance finds to the SAHRA and/or an archaeologist. ▪ Protect chance finds *in situ* and appoint an archaeologist to exhume under an approved permit.	Very Low (5)	High
	Spatial extent	Site specific				
	Duration	Permanent				
	Consequence	Extreme				
	Probability	Extremely unlikely				
	Reversibility	Non-reversible				
	Irreplaceability	High				
Intrusion of EGI into the cultural landscape	Status	Negative	Very Low (5)	▪ Take measures to reduce night-time light pollution from security lighting. ▪ Keep construction duration as short as possible. ▪ Use moderate sized signage on public roads.	Very Low (5)	High
	Spatial Extent	Regional				
	Duration	Short Term				
	Consequence	Slight				
	Probability	Very likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
OPERATIONAL PHASE						
Intrusion of EGI into the cultural landscape	Status	Negative	Low (4)	▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.	Very Low (5)	High
	Spatial extent	Local				
	Duration	Long Term				
	Consequence	Moderate				
	Probability	Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
DECOMMISSIONING PHASE						

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
Intrusion of EGI into the landscape	Status	Negative	Very Low (5)	▪ Minimise duration of decommissioning period. ▪ Ensure effective rehabilitation of all affected areas. ▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.	Very Low (5)	High
	Spatial extent	Regional				
	Duration	Short Term				
	Consequence	Slight				
	Probability	Very likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				

Table 12.10: Assessment of the potential Heritage cumulative risks and impacts of the proposed projects

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
CUMULATIVE IMPACTS						
CONSTRUCTION, OPERATIONAL AND DECOMMISSIONING PHASES						
Impacts to archaeology and graves due to other developments in the 30 km radius, as well as the proposed Veroniva BESS and EGI	Status	Negative	Very Low (5)	▪ Report any chance finds to the SAHRA and/or an archaeologist. ▪ Protect chance finds *in situ* and appoint an archaeologist to exhume under an approved permit.	Very Low (5)	High
	Spatial extent	Regional				
	Duration	Permanent				
	Consequence	Slight				
	Probability	Very unlikely				
	Reversibility	Non-reversible				
	Irreplaceability	High				
Intrusion of facilities into the landscape due to other developments in the 30 km radius, as well as the proposed Veroniva BESS	Status	Negative	Low (4)	▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.	Low (4)	High
	Spatial extent	Regional				
	Duration	Permanent				
	Consequence	Moderate				
	Probability	Very Likely				
	Reversibility	Moderate				
	Irreplaceability	Moderate				
Intrusion of EGI into the landscape due to other developments in the 30 km radius, as well as the proposed Veroniva EGI	Status	Negative	Very Low (5)	▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads.	Very Low (5)	High
	Spatial Extent	Regional				
	Duration	Permanent				
	Consequence	Slight				
	Probability	Very likely				

Impact	Impact Criteria		Significance / Ranking (Pre-mitigation)	Potential mitigation measures	Significance / Ranking (Post-mitigation)	Confidence Level
	Reversibility	Moderate				
	Irreplaceability	Moderate				

12.7 Palaeontology

12.7.1 Introduction and Specialist

The Palaeontology Letter of Exemption study was undertaken by Dr John Almond of Natura Viva to inform the outcome of this BA from a palaeontology perspective. The complete Palaeontology Letter of Exemption study is included in Appendix E.7 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

12.7.2 Study Methodology

There is no dedicated assessment protocol prescribed for Palaeontology Impact Assessments, and as such, the study was undertaken in accordance with the relevant provisions of the National Heritage Resources Act (Act 25 of 1999, as amended), as well as NEMA, where relevant.

According to SAHRA (April 2025), the sensitivities identified on the Palaeontology theme layer of the DFFE Screening Tool represents a limited number of known palaeontology resources. SAHRA further explains in a guidance note that palaeontology resources are widely dispersed and can occur on any development site in South Africa. Therefore, SAHRA recommends that Palaeontology Impact Assessments must be undertaken as per the PalaeoSensitivity Map provided on the South African Heritage Resources Information System (SAHRIS), irrespective of the sensitivity shown on the palaeontology theme layer, i.e. the SAHRIS PalaeoSensitivity Map should guide the level of assessment.

The study included desktop analysis using various existing literature, such as the relevant topographical map sheet, relevant geological map sheet, other Palaeontology Impact Assessments compiled for other developments in the surrounding region, as well as the specialist's palaeontological database for the Limpopo Province.

12.7.3 Findings and Concluding Statement

According to the SAHRIS PalaeoSensitivity Map, the study area is of Insignificant / Zero palaeosensitivity (where no palaeontological studies are needed). The specialist supports this finding, which also aligns with other Palaeontology Impact Assessment reports for closely comparable solar projects in the vicinity. A minor section of the study area intersects with the low palaeosensitivity of the SAHRIS palaeosensitivity map (which is indicative of no palaeontological studies being required however a protocol for finds is required). However, the actual development footprint of the proposed project falls within the Insignificant / Zero palaeosensitivity areas. Therefore, a Letter of Exemption was compiled for the proposed project from a palaeontology perspective.

The study area is underlain by unfossiliferous Archaean (early Precambrian) granitoid intrusions and mantled by residual / alluvial soils of very low palaeosensitivity. No recorded fossil sites or high palaeosensitivity / No-Go areas were identified within the project study area. Significant impacts on local palaeontological heritage resources are accordingly not anticipated. Similar conclusions have been reached in several Palaeontology Impact Assessments reports for other solar project areas in the vicinity with a very similar geological / palaeontological context.

Pending the unlikely discovery of substantial new fossil remains within the project area during the Pre-Construction or Construction Phases, no further specialist palaeontological studies, reporting or mitigation have been recommended or considered necessary for the proposed project. The Palaeontology Letter of Exemption suffices in this regard.

The specialist has provided a Chance Fossil Finds Protocol to be implemented by the responsible ECO during the Construction Phase. The recommendations and Chance Fossil Finds Protocol have been included in the EMPrs.

The specialist concluded that there are no objections on palaeontological heritage grounds to authorisation of the proposed project, and that there are no fatal flaws.

12.8 Geotechnical

12.8.1 Introduction and Specialist

The Geotechnical Letter of Opinion was undertaken by Hardy Luttig and Jaco Pretorius of GEOSS South Africa to inform the outcome of this BA from a geotechnical perspective. The complete Geotechnical Letter of Opinion is included in Appendix E.11 of this BA Report. The information presented within this section has been obtained and adapted from this specialist report.

12.8.2 Study Methodology

As discussed during the Pre-Application Meeting held with the DFFE on 6 March 2026, DFFE confirmed that a full Geotechnical Assessment in compliance with Appendix 6 of the 2014 NEMA EIA Regulations (as amended) is not required for the proposed project, however a letter of opinion from a relevant geotechnical specialist would instead suffice.

The Geotechnical Letter of Opinion was undertaken to confirm the specialist opinion towards the proposed development, to confirm whether the study area is suitable from a geotechnical perspective, and to provide a statement on whether there are any fatal flaws associated with the proposed project.

The study included a literature review, gathering all data relevant to the proposed project, such as previous geotechnical reports and conducting a search of the internal GEOSS database (including relevant information pertinent to the site). The study also included a review of geological and geotechnical maps for the area, followed by compiling existing information on the geotechnical properties of the region, and reviewing any reports that have been compiled for the study area. The findings were documented in a desktop based geotechnical appraisal letter of opinion, which provides information guiding future geotechnical investigations, and provides potential impacts required for the proposed development as well as anticipated mitigation measures.

12.8.3 Assumptions, Uncertainties and Gaps in Knowledge

The Geotechnical Letter of Opinion excludes a site reconnaissance of the study area and intrusive investigations. The information, results and recommendations in the letter are solely based on a thorough review of existing literature and a desktop assessment. Nevertheless, the services rendered by GEOSS South Africa align with the standard level of care and expertise typically demonstrated by geotechnical professionals operating under similar circumstances within the vicinity of the proposed project. Hence, the Letter of Opinion is deemed sufficient for the current investigation scope, with third-party information incorporated in good faith during its compilation. It is highly recommended that an intrusive geotechnical study be conducted prior to the construction to inform design and to confirm and characterise the subsurface soil conditions. However, an intrusive geotechnical investigation is not required to fulfil the requirements of the BA Process. This approach is suitable and is not flawed.

12.8.4 Potential Impacts

A formal impact assessment is not required as a Letter of Opinion approach was followed. However, a description of the potential impacts on the geotechnical conditions due to the proposed project have been identified for comprehensiveness and is listed below. The potential impacts are generally considered to have a moderate impact significance without the implementation of mitigation measures and anticipated to have a low to very low impact significance (following the implementation of mitigation measures) on the local soil conditions and geology.

- **Overall Impact Assessment**

Construction Phase:
- Displacement of geologic material resulting in soil erosion.
- Contamination of subsoils and loss of topsoil.

Operational Phase:
- Contamination of subsoils and loss of topsoil.
- Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.

Decommissioning Phase:
- Contamination of subsoils and loss of topsoil.
- Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.

The impacts are described in Table 12.11.

Table 12.11: Summary table of potential impacts from a geotechnical perspective for Project 2 (Veroniva EGI)

Phase	Potential Impact	Description
▪ Construction	▪ Displacement of geologic material resulting in soil erosion	▪ During site preparation for construction, activities like rock removal and grading are undertaken, leading to the depletion of geological materials such as topsoil. This process can potentially harm the habitats of unique/endangered species. ▪ Initial construction stages often involve actions like topsoil removal, site grading, and rock extraction. These actions lead to the depletion of geological resources, disruption of natural soil integrity, and removal of vegetation, all contributing to soil erosion.
▪ Construction ▪ Operational ▪ Decommissioning	▪ Contamination of subsoils and loss of topsoil	▪ Construction activities necessitate the use of heavy machinery, notably during earthwork tasks. This machinery includes graders, bulldozers, rollers, excavators, water trucks, and concrete mixers. Such equipment requires regular maintenance, involving greasing, and operates using hydraulic fluid and diesel, posing a potential risk of contaminating geological materials. ▪ Throughout the operational phase, maintenance activities or accidental spillages may lead to potential contamination of geological materials. ▪ During the decommissioning phase, dismantling the infrastructure may also require heavy machinery. Similar to the construction phase, the maintenance and refuelling

Phase	Potential Impact	Description
		of this machinery increase the likelihood of spillages, posing a potential risk of contaminating geological materials.
▪ Operational ▪ Decommissioning	▪ Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.	▪ Throughout the operational phase as well as phases of the decommissioning phase, access points and internal roads will be established, characterized by newly constructed road layers that create artificial hardened surfaces. This construction may also involve the installation of earth or concrete drains designed to redirect water away from access points and roads. However, these measures could lead to heightened runoff, consequently amplifying erosion. ▪ In the decommissioning phase, the presence of access points, internal roads, and adequate drainage will persist. The enduring existence of artificial hard surfaces will likely perpetuate increased runoff, contributing to ongoing erosion.

12.8.5 Recommended Mitigation Measures

Notable EMPr inputs and management actions are noted below:

Construction Phase:

- Development of a stormwater management plan by a qualified professional before construction is highly recommended.
- Installation of suitable systems to redirect water away from areas designated for the infrastructure.
- Ongoing monitoring of these systems during the initial construction phase to address erosion or sedimentation promptly.
- Immediate rehabilitation post-construction, optimizing the conditions for vegetation regrowth.
- Implementation of safeguards during refuelling to protect soil from spillages, ensuring swift and proper disposal if incidents occur.

Operational Phase:

- Similar to the construction phase, stormwater management planning by a qualified professional will be required.
- Diversion of water away from road layers and erected structures, akin to the construction phase.
- Replication of mitigation measures for spillages/leakages from the construction phase.

Decommissioning Phase:

- Restoration of natural topography and land rehabilitation to near-natural state, including removal of foundations and hard surfaces, followed by proper backfilling.
- Use of locally sourced materials for reinstating and backfilling to ensure uniformity.
- Implementation of standard environmental management procedures for infrastructure.
- Stringent measures to prevent pollution and contamination of the riparian zone, including well-maintained equipment and safeguards during refuelling operations.

12.8.6 Findings and Concluding Statement

Due to the nature of the geology across the study area and the climatic conditions, the geotechnical properties across the site will likely be variable. These variations might influence foundation conditions, foundation designs, drainage properties, excavatability of soil and rock mass, and the potential occurrence of problem soils. It is, therefore, vital that an intrusive geotechnical study be undertaken prior to the development of the proposed project to confirm the anticipated geotechnical conditions identified in the Geotechnical Letter of Opinion. Such investigations would not be required to fulfil the requirements of the BA Process. However, it would be necessary prior to construction.

The proposed project may impact the environment through increased soil erosion and the contamination of geological material throughout the different project phases. No fatal flaws were found during the desktop assessment. Overall, based on the geotechnical analysis conducted, the specialists have recommended that the proposed project be authorised.

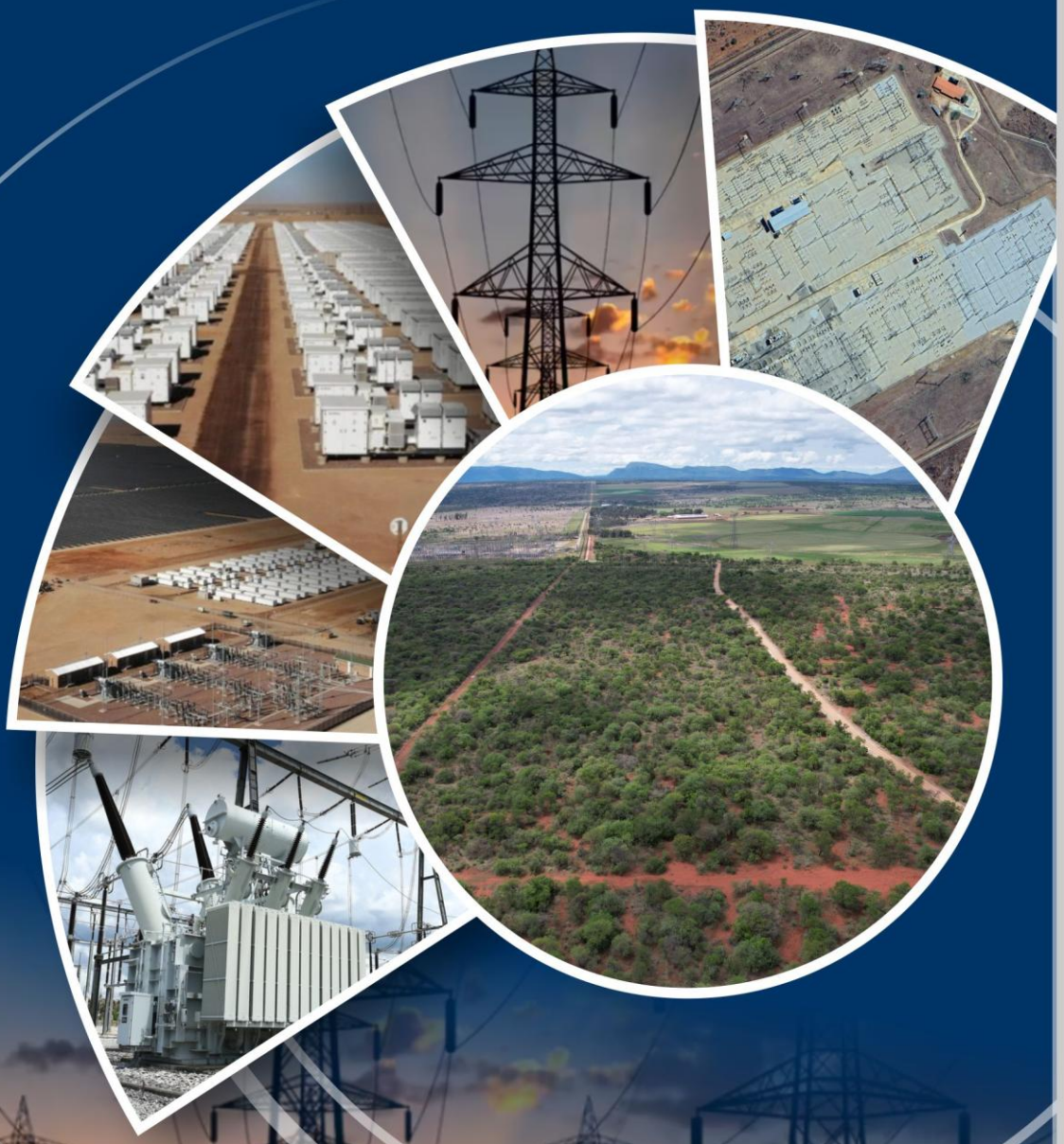
12.9 Conclusion

Based on the potential impacts described above, there are no negative impacts that are rated as Very High significance before or after mitigation. Overall, it can be concluded that the effect of potential negative impacts can be limited or reduced to acceptable levels through avoidance, minimisation and the implementation of appropriate mitigation measures and management actions during the construction, operational and decommissioning phases. The specialists support the project proceeding, provided the specified mitigation actions are implemented effectively.

BASIC ASSESSMENT REPORT

Basic Assessment for the Proposed Development of a Battery Energy Storage System (BESS), 132 kV Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure, near Polokwane, within the Polokwane Local Municipality, Capricorn District Municipality, Limpopo

CHAPTER 13: Conclusions and Recommendations



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13. CONCLUSIONS AND RECOMMENDATIONS

This chapter contains the main conclusions and recommendations from the Basic Assessment (BA) Process, provides the key findings of the specialist assessments (i.e., outlines the most significant key impacts identified, together with the key mitigation and enhancement measures required to respectively avoid or mitigate the negative impacts, or enhance positive benefits), and an integrated summary of factors that will inform decision-making by the Competent Authority (i.e., the Department of Forestry, Fisheries and the Environment (DFFE)). In addition, the chapter also includes the recommendation of the Environmental Assessment Practitioner (EAP) on the environmental suitability of the projects and whether the projects should receive Environmental Authorisation (EA).

This chapter deals with the following proposed projects that are addressed in this report:

- **PROJECT 1**: The proposed development of a Battery Energy Storage System (BESS) and associated infrastructure (Veroniva BESS).
- **PROJECT 2**: The proposed development of a 132 kV Overhead Loop-In-Loop-Out (LILO) Power Line from the BESS to existing Eskom infrastructure, and associated infrastructure (Veroniva EGI).

Note: The information throughout this chapter applies to both of the projects addressed in this report (i.e. Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI)), unless where mentioned otherwise.

This BA Report has investigated and assessed the significance of potential positive and negative direct, indirect and cumulative impacts associated with the proposed projects. Detailed assessments of the potential impacts identified and assessed by the specialists during the BA Phase are included in Appendix E of this BA Report, as well as summarised and integrated into Chapter 11 (for Veroniva BESS – Project 1) and Chapter 12 (for Veroniva EGI – Project 2) of this BA Report.

This chapter constitutes an **Environmental Impact Statement**, as required in terms of Appendix 1 of the 2014 NEMA Environmental Impact Assessment (EIA) Regulations (as amended), which includes the following:

- a map at an appropriate scale which superimposes the proposed activity and its associated structures and infrastructure on the environmental sensitivities of the preferred site indicating any areas that should be avoided, including buffers (Section 13.1);
- a summary of the identified project alternatives (Section 13.2);
- a summary of the key findings of the impact assessment (Section 13.5, Section 13.6, and Section 13.8); and
- a summary of the positive and negative impacts and risks of the proposed activity and identified alternatives (Section 13.6, Section 13.7, and Section 13.8).

13.1 Development Footprint for Approval based on Environmental Sensitivity Mapping

Detailed specialist studies were conducted for the 65 ha study area, including desktop analysis and/or field surveys, where relevant. The study area also included the external access roads leading to the site that may be upgraded or widened (i.e. External Access Road Option A and Option B). The assessment of the study area led to the identification of environmental features (Figure 13.5 and Figure 13.6), which were assigned relevant sensitivities by the specialists, as described in Chapter 4 of this BA Report. The sensitivities identified were taken into consideration and the Buildable Areas were formulated, which avoided all no-go areas.

The development footprints and layout plans (Figures 13.1 to 13.4) were developed based on the acceptable buildable areas. The combined layout and sensitivity maps compiled during the BA Phase (Figure 13.7 and Figure 13.8) indicate that the environmental sensitivity of the assessed study area is predominantly low to medium sensitivity, with some terrestrial biodiversity and species high sensitivity areas towards the northern extent. Furthermore, the entire study area has been rated high sensitivity from an avifauna electrocution and collision risk perspective, however this is not a fatal flaw, nor is it a no-go zone identified by the avifauna specialists. Although regarded as high sensitivity from an avifaunal perspective, the study area does not contain any specific avifaunal environmental sensitivities, however vultures frequent the broader area, and as a result there is an electrocution and collision risk related to the proposed overhead power lines, particularly for Cape Vultures and White-backed Vultures. In terms of the access roads, External Access Road Option A traverses a seep wetland. The seep wetland was identified as high sensitivity in terms of aquatic habitat sensitivity and terrestrial biodiversity sensitivity. The Aquatic Biodiversity and Species specialist explained that this is not a no-go area, and the road can be upgraded / widened within the seep area and its associated buffer, with the implementation of recommended mitigation measures. The Terrestrial Biodiversity and Species specialist also explained that the seep wetland area is not a no-go area since it contains an existing road; however, the recommended 32 m buffer is the area where additional mitigation measures must be implemented.

Apart from the high sensitivity due to the avifauna electrocution and collision risk and the seep wetland in the vicinity of the External Access Road Option A, the development footprints are rated as medium to low sensitivity (Figure 13.7 and Figure 13.8), and all no-go areas identified by the specialists have been avoided by the proposed projects. It is acceptable for some linear infrastructure such as access roads, the LILO and proposed power line upgrade to traverse the high sensitivity area identified by the Avifauna specialists, and it is acceptable for the External Access Road Option A to be widened / upgraded within the high sensitivity seep wetland area identified by the Aquatic Biodiversity specialist and Terrestrial Biodiversity specialist, as the relevant specialists have provided adequate mitigation measures and recommendations, which have been incorporated into the Environmental Management Programmes (EMPrs) for the proposed projects. The EMPrs are included in Appendix H to Appendix K of this BA Report.

Overall, the study area is suited for the proposed development given that measures have been taken to avoid the sensitive features, and all aspects to manage or mitigate potential impacts have been identified in the BA and included in the EMPrs.

Following the exclusion of all no-go areas as identified in the relevant specialist studies and discussed in Chapter 4 of this BA Report, no negative impacts (after mitigation) have been identified within this BA that, in the opinion of the EAP who has conducted this BA Process, should be considered “fatal flaws” from an environmental perspective, and thereby necessitate substantial re-design or termination of the proposed projects. Furthermore, as presented in this chapter, the conclusions from the specialist studies do not identify any reason why the proposed projects should not receive EA, provided the recommended mitigation measures are applied effectively.

Project specific maps have been included in this chapter, whereby the development footprints are overlain onto the sensitivity maps to show how they relate to the environmental features and sensitivities, and how the no-go areas have been avoided. Refer to the following maps in this regard:

- Figure 13.1 illustrates a **final** project layout map (zoomed in) detailing the development footprint for Project 1 (Veroniva BESS).
- Figure 13.2 illustrates a **final** project layout map (zoomed out to also illustrate the External Access Roads [Option A and Option B]) detailing the development footprint for Project 1 (Veroniva BESS).
- Figure 13.3 illustrates a **final** project layout map detailing the development footprint for Project 2 (Veroniva EGI).
- Figure 13.4 provides, for context, a **final** project layout map indicating the development footprints of all two projects in relation to each other (i.e. Project 1 (Veroniva BESS), and Project 2 (Veroniva EGI)).
- Figure 13.5 illustrates a combined **final** project layout and feature map for Project 1 (Veroniva BESS).
- Figure 13.6 illustrates a combined **final** project layout and feature map for Project 2 (Veroniva EGI).
- Figure 13.7 illustrates a combined **final** project layout and sensitivity map for Project 1 (Veroniva BESS).
- Figure 13.8 illustrates a combined **final** project layout and sensitivity map for Project 2 (Veroniva EGI).

In summary, the final layout maps adhere to all the specialist recommendations regarding placement of infrastructure. None of the proposed development footprints intersect with any of the no-go areas identified by the specialists. The final project layouts shown in Figure 13.1, Figure 13.2, Figure 13.3 and Figure 13.4 were assessed during the BA Phase and are recommended by the EAP for approval.

Key maps are also included in Appendix D of this BA Report.

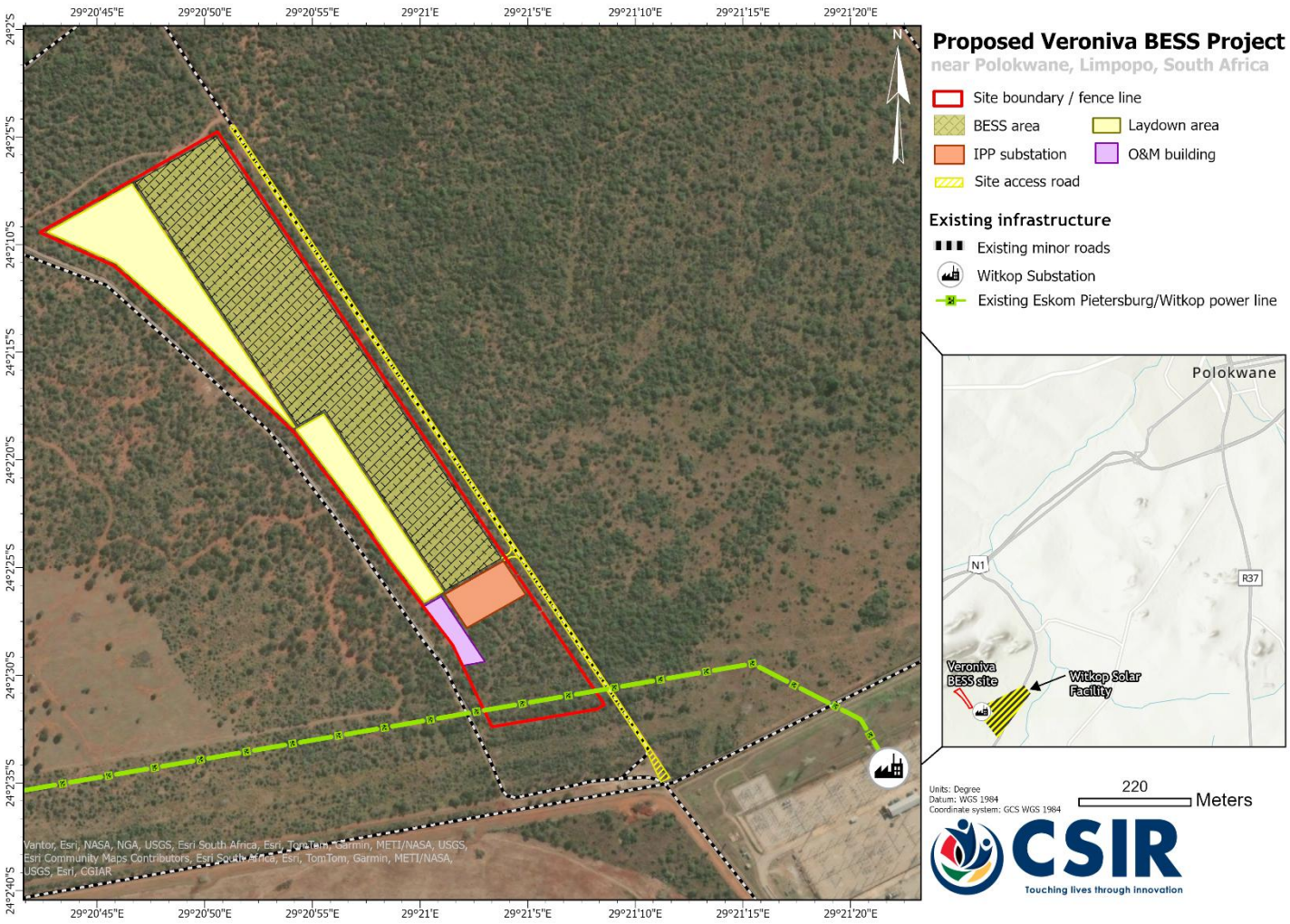


Figure 13.1: Final Zoomed-In Project Layout Map showing the detailed infrastructure and development footprint for the Veroniva BESS (Project 1).

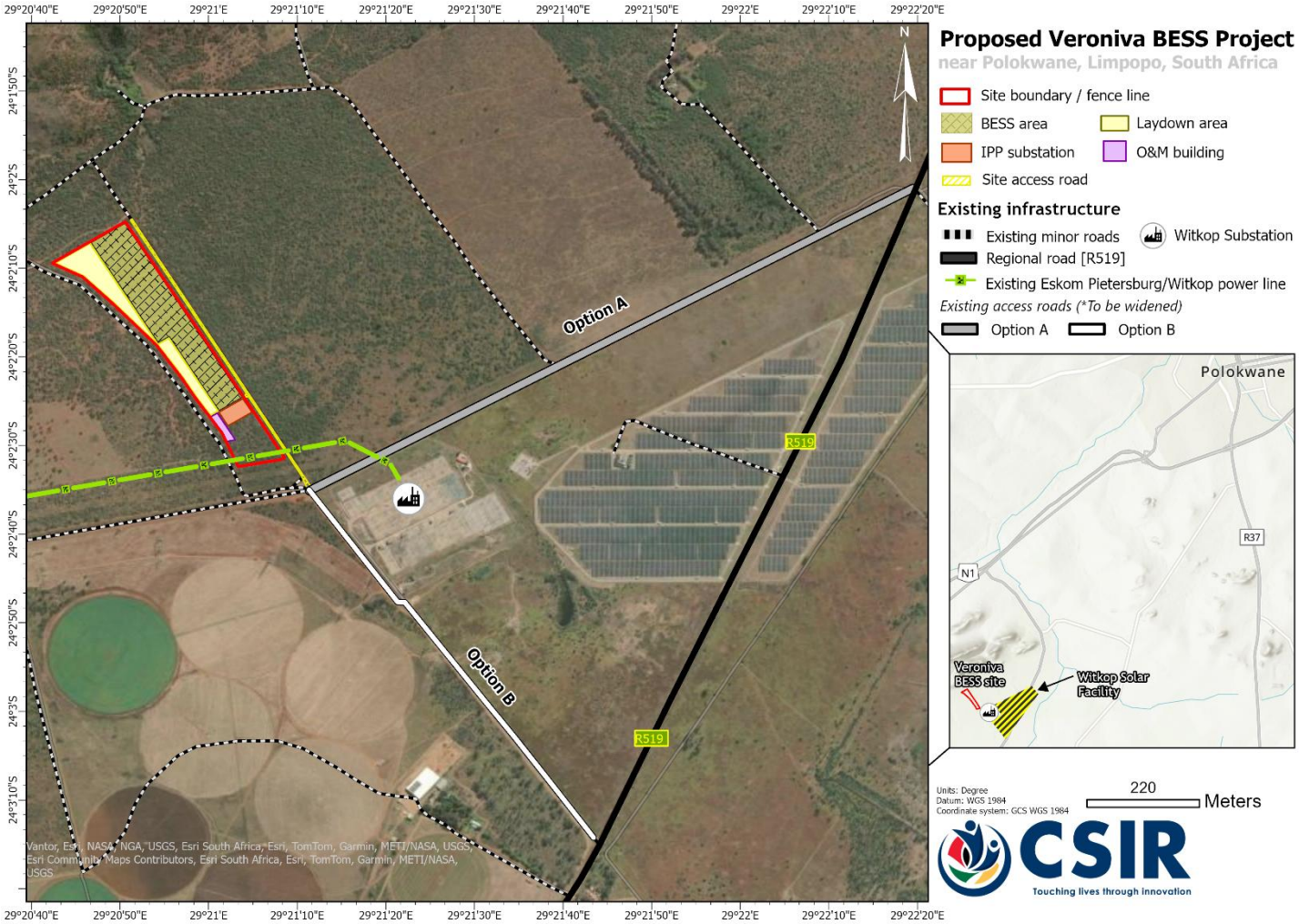


Figure 13.2: Final Project Layout Map showing the detailed infrastructure and development footprint for the Veroniva BESS (Project 1), including External Access Roads (Option A and Option B).

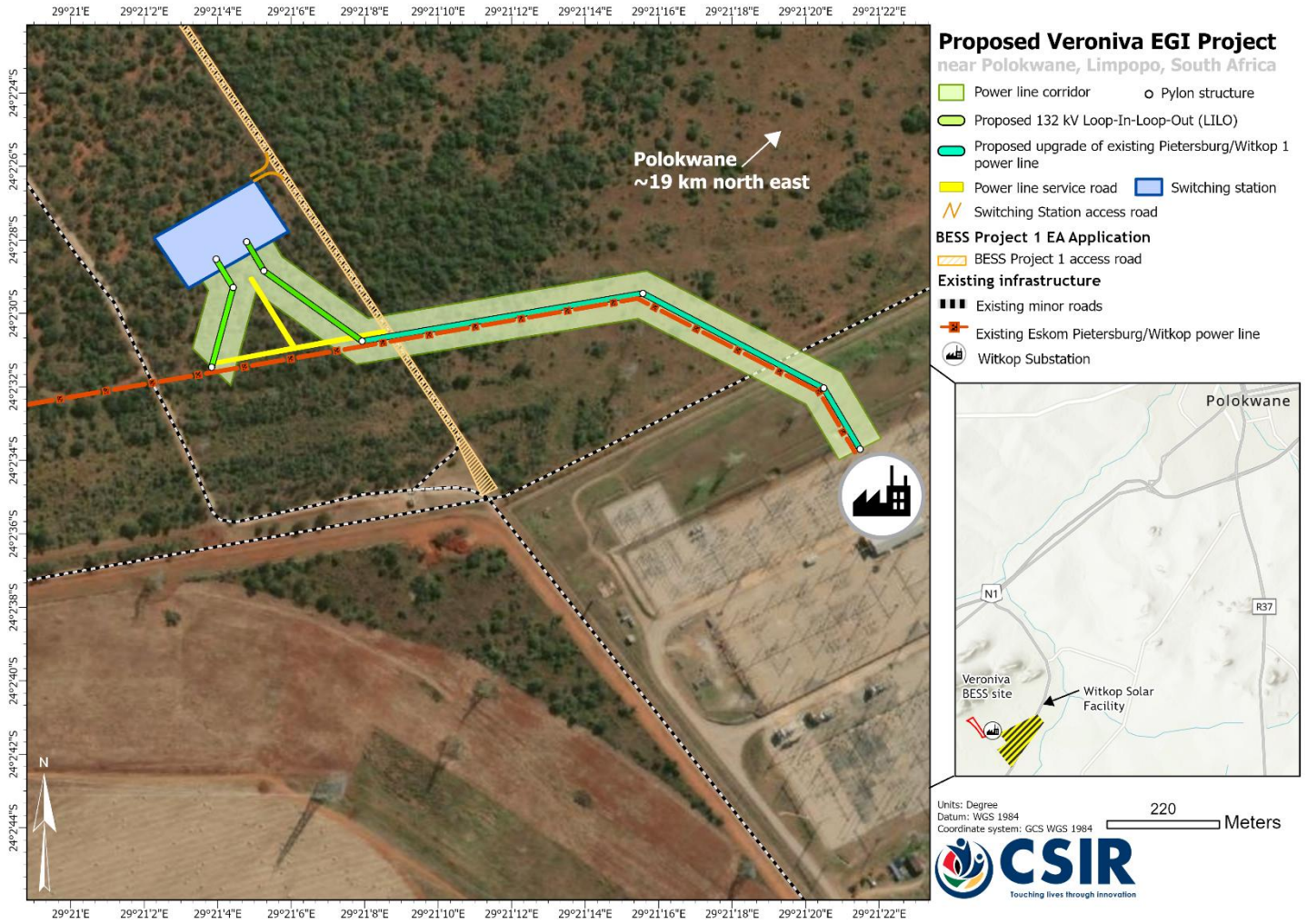


Figure 13.3: Final Project Layout Map showing the detailed infrastructure and development footprint for the Veroniva EGI (Project 2).

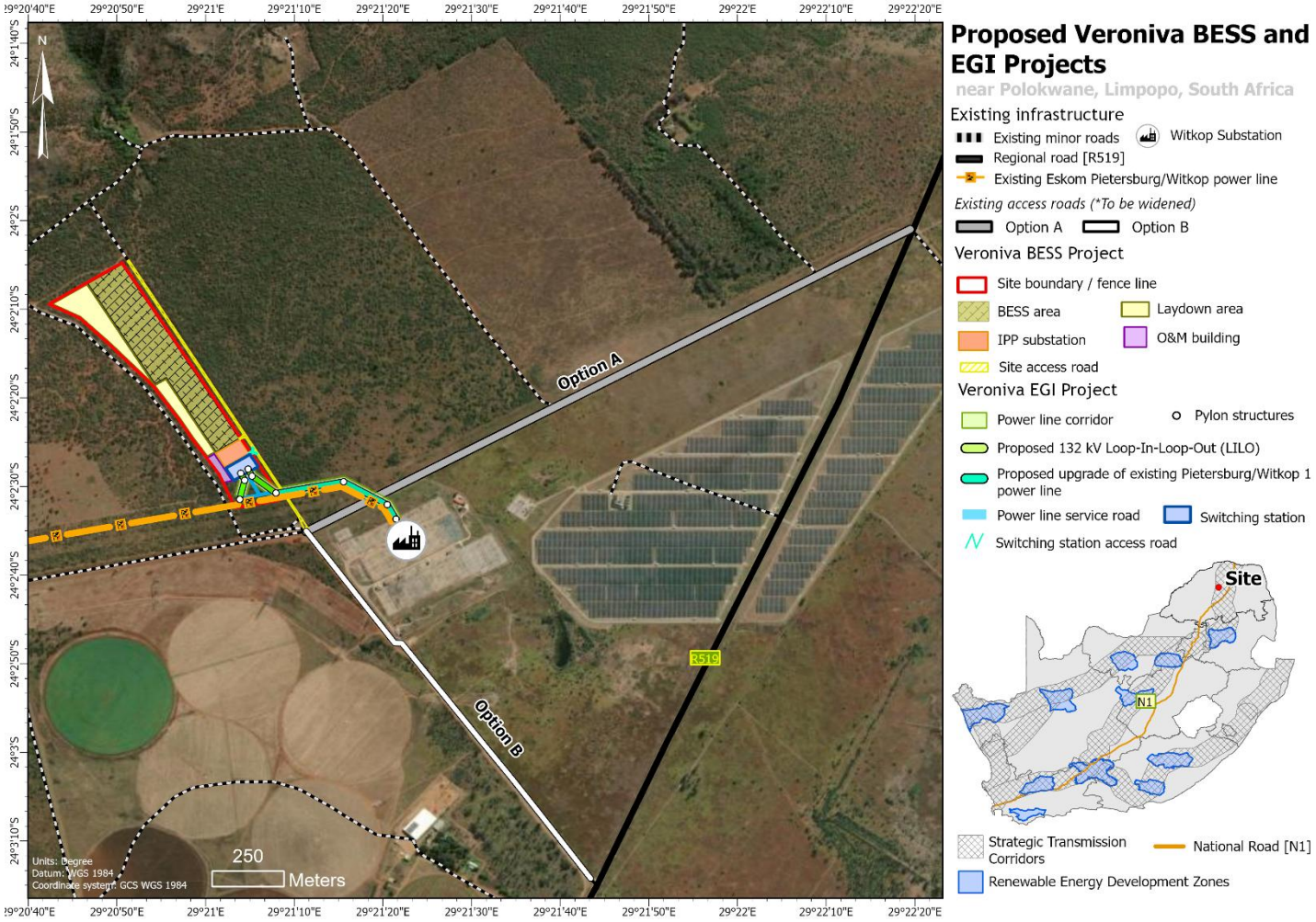


Figure 13.4: Final Project Layout for Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI) [Combined Layout Map].

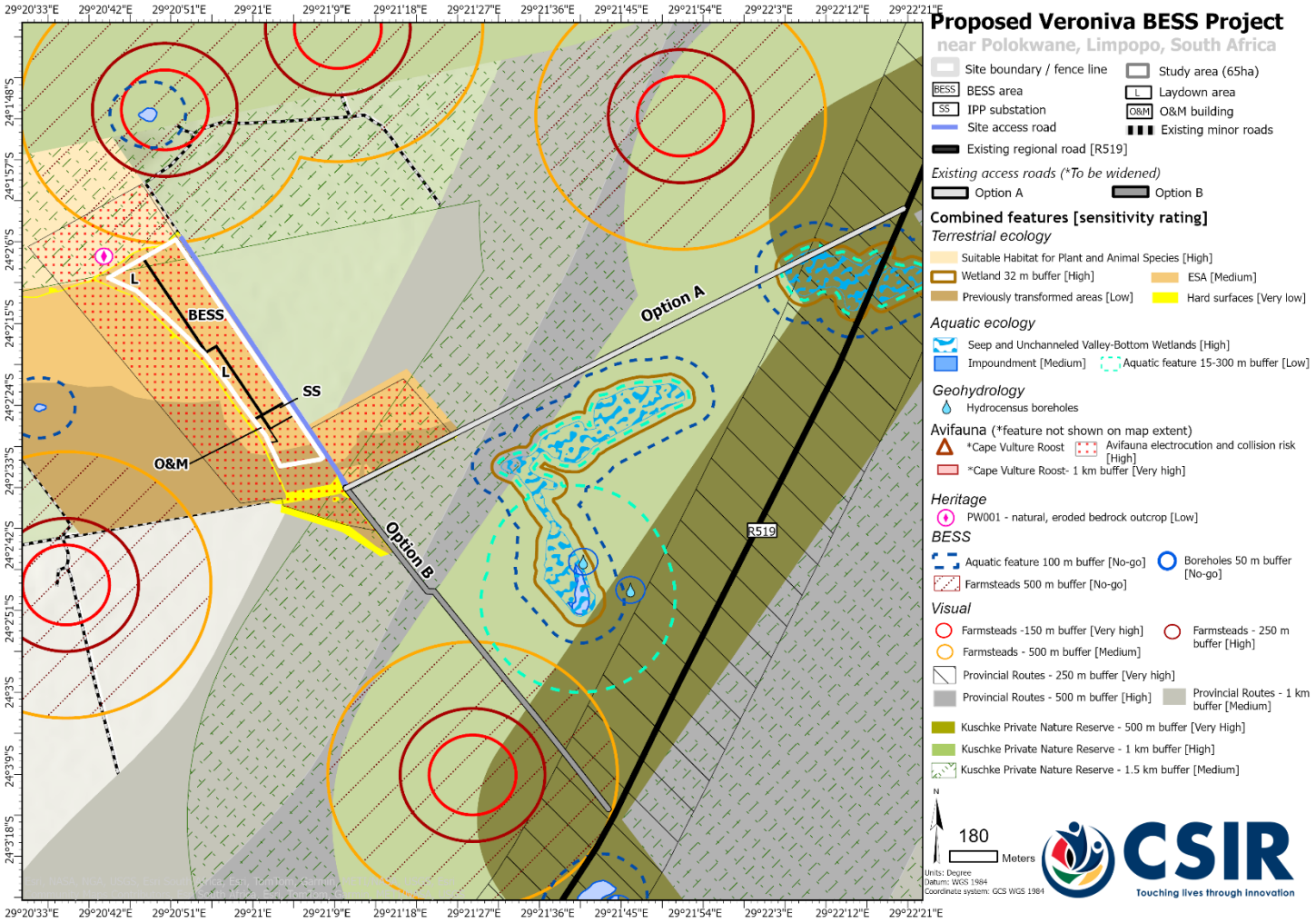


Figure 13.5: Combined Final Project Layout and Feature Map for the Veroniva BESS (Project 1).

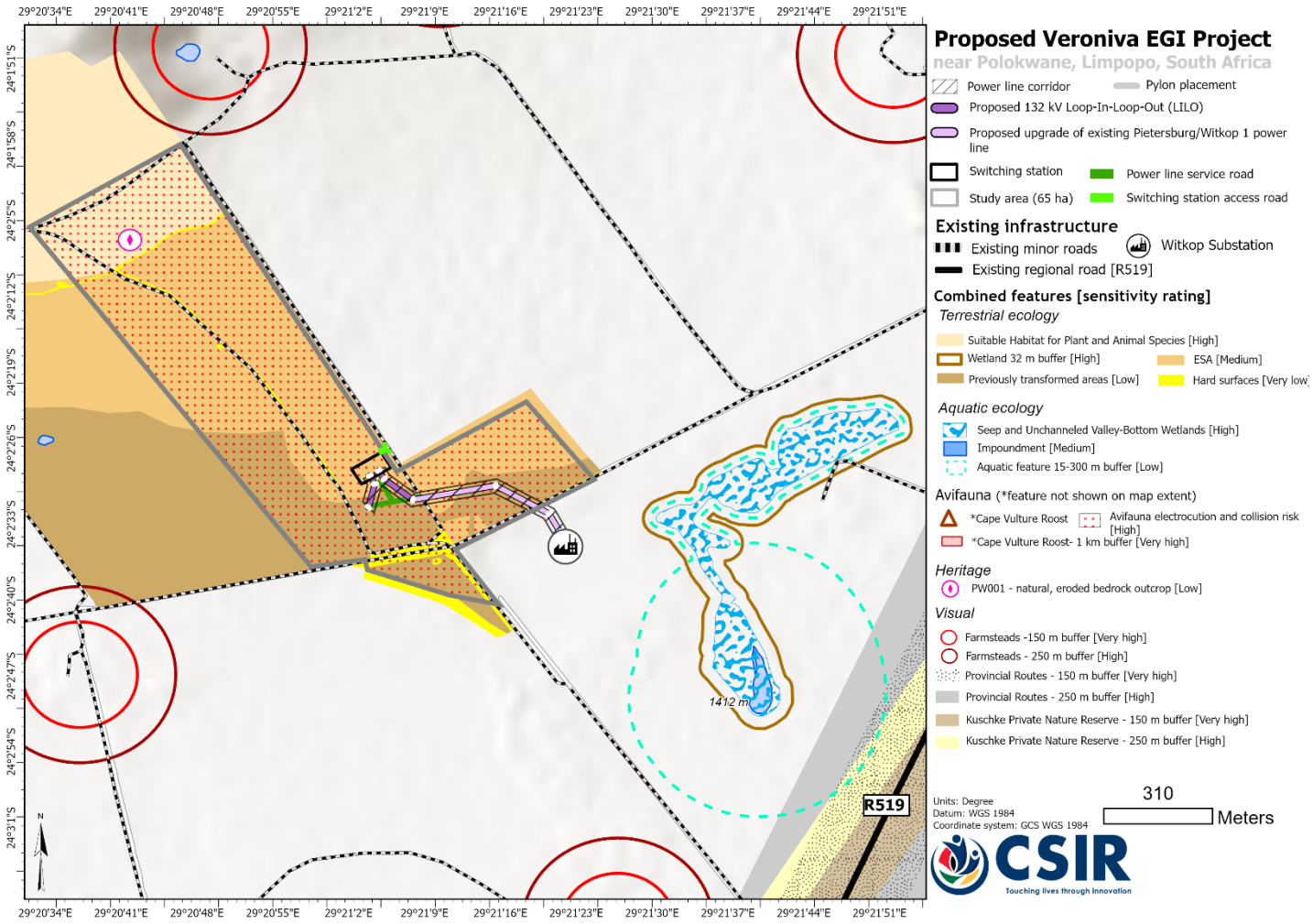


Figure 13.6: Combined Final Project Layout and Feature Map for the Veroniva EGI (Project 2).

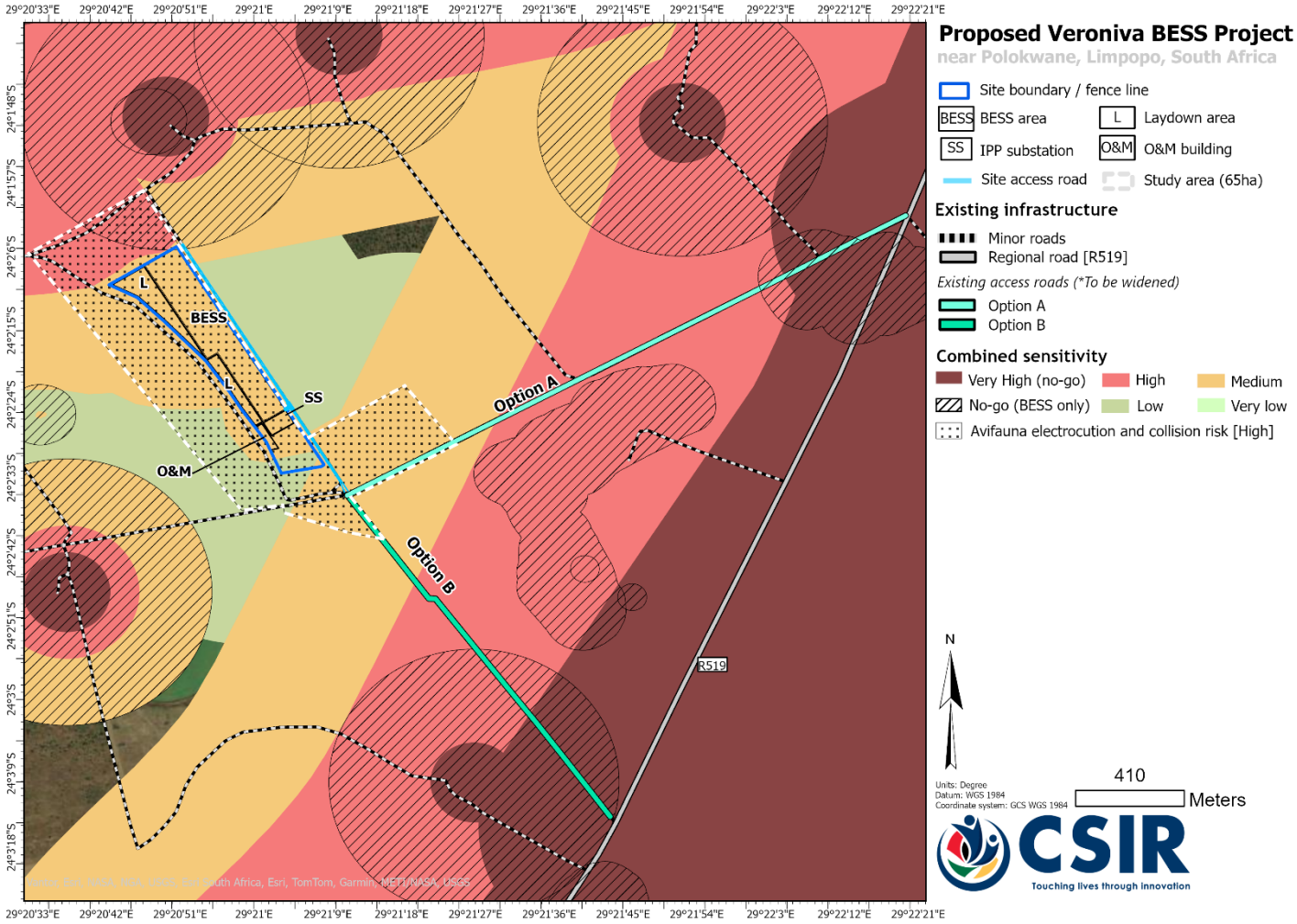


Figure 13.7:Combined Final Project Layout and Sensitivity Map for the Veroniva BESS (Project 1).

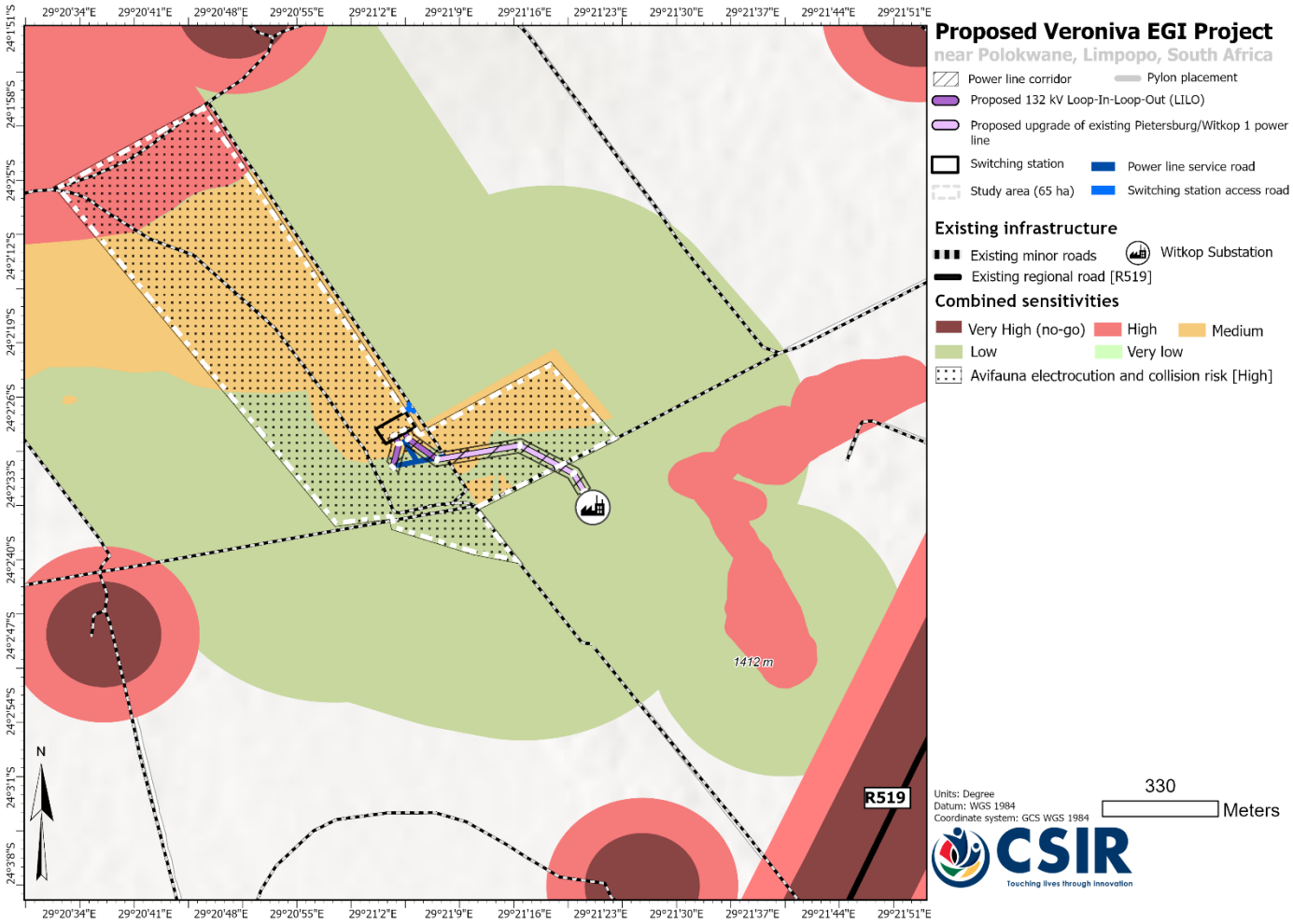


Figure 13.8: Combined Final Project Layout and Sensitivity Map for the Veroniva EGI (Project 2).

13.2 Summary of Project Alternatives

As discussed in Chapter 10 of this BA Report, various alternatives have been considered as part of the BA Phase. Table 13.1 provides a summary of the various alternatives.

Table 13.1: Summary of the Project Alternatives

Alternative	Feedback
Land-Use Alternative	▪ The development footprints are regarded as medium agricultural sensitivity. The site is unsuitable for viable rainfed crop production. The development of the proposed projects at the preferred site is regarded as the preferred land-use.
Type of Activity Alternative	**Note: The information below applies to Project 1 (Veroniva BESS) only.** ▪ Electrochemical BESS was the only energy storage option that was identified and considered feasible by the Applicant. Therefore, no other activity types were considered or deemed appropriate for this BA Process.
	Note: The information below applies to Project 2 (Veroniva EGI) only. ▪ The only feasible method of transmitting / dispatching the stored energy is via a power line and on-site substation. Therefore, no other activity types were considered or deemed appropriate for this BA Process.
Technology Alternatives	**Note: The information below applies to Project 1 (Veroniva BESS) only.** ▪ Only solid state, Lithium-Ion BESS was considered and assessed in this BA Process. Lithium-Ion BESS is the preferred option.
	Note: The information below applies to Project 2 (Veroniva EGI) only. ▪ There are no feasible technology alternatives for power lines and switching stations.
Preferred Site and Development Footprint within the Preferred Site	▪ The preferred site for proposed Veroniva BESS and EGI (Projects 1 and 2) comprises a 65 ha study area (18 ha of which was considered for the grid connection), as well as external access roads (Option A and Option B) leading from the R519 to the site that may need to be widened / upgraded. ▪ A screening and Site Sensitivity Verification (SSV) exercise of the study area was undertaken by the specialist team (where relevant). This led to the identification of the Buildable Areas and development footprints within the preferred site. ▪ The Buildable Areas and development footprints avoid the no-go environmental sensitivities identified by the specialists. ▪ The layout, and combined layout and environmental sensitivity maps are shown in Section 13.1 of this chapter. ▪ The approach followed was to use environmental and social constraints to avoid sensitive features, thus applying mitigation hierarchy thinking. This

Alternative	Feedback
	approach replaces the need to rank alternative sites and locations, as it leads to the selection of the least sensitive development footprint.
No-Go Alternative	▪ The no-go alternative assumes that the proposed projects will not go ahead i.e. it is the option of not constructing the proposed Veroniva BESS and EGI projects. ▪ This alternative would result in no environmental impacts (positive and negative) on the preferred site or surrounding local area, as a result of the proposed projects. ▪ The no-go alternative has been assessed in the BA by all relevant specialists on the project team. Refer to Table 13.2 for a summary of the findings of the no-go alternative consideration. ▪ As outlined in Section 13.6 of this chapter, the majority of the negative impacts identified as part of this assessment can be reduced to very low or low significance with the implementation of mitigation measures. ▪ None of the specialists found that the proposed projects should not go ahead i.e. no fatal flaws were identified. The Socio-Economic Impact Assessment also identified positive impacts from a social upliftment perspective. ▪ Therefore, while the no-go alternative will not result in any negative environmental impacts; it will also not result in any positive community development or socio-economic benefits. It will not assist in grid stabilisation and contributing the energy storage targets that are specified in the energy planning for the country. ▪ Hence the no-go alternative is not a preferred, reasonable or feasible alternative.

Table 13.2 is a summary of the findings of the no-go alternative consideration.

Table 13.2: Summary of the No-Go Alternative based on Specialist Assessments

Specialist Study Undertaken	No-Go Alternative
Appendix E.1: Agriculture Compliance Statement	▪ There are no agricultural impacts of the no-go alternative. Even though the impacted land has insufficient agricultural production potential for cropping, and the impact of the proposed development is low significance for the BESS and very low significance for the EGI, its negative agricultural impact is marginally more significant than that of the no-go alternative, and so if assessed purely from an agricultural impact perspective, the no-go alternative is the preferred alternative. ▪ However, the no-go option would prevent the proposed development from contributing to the environmental, social, and economic benefits associated with the development of BESS in South Africa.
Appendix E.2: Terrestrial Biodiversity, and Terrestrial Plant Species, and Terrestrial Animal Species	▪ The no-go alternative means the projects are not developed and no transformation or disturbance of topsoil and vegetation takes place, and no removal of provincially protected species and protected trees are required. ▪ Should the development not proceed, the landowner will continue to utilise the land for wildlife management and tourism purposes. In addition, applications for prospecting and potential mining activities can be made if sufficient resources are available. Any development considered for this

Specialist Study Undertaken	No-Go Alternative
	site, should result in a net benefit to society and should avoid undesirable negative impacts. ▪ It must be noted however, that not approving these projects does not exclude other renewable energy projects from being developed in this area. This is already the case, as is evidenced by the large number of proposed renewable energy and EGI projects within the 30 km radius considered in the cumulative impact assessment, together with numerous existing power lines and an operational solar facility in the wider area. ▪ Accordingly, since this area is not considered an exclusion zone for development, multiple applications for renewable energy are likely to be submitted to the competent authority for approval considering the location of the site. ▪ Therefore, the no-go alternative cannot be looked at in isolation and must take into account the regional land use and other developments to determine the sense of place and whether this development will significantly impact the baseline conditions in a regional context.
Appendix E.3: Aquatic Biodiversity and Species Impact Assessment	▪ Existing activities within the project area include game farm activities, animal feeding areas, internal gravel and paved roads, and electricity infrastructure (pylons and overhead power lines). These activities have had a moderate to large impact on the status of the watercourses. ▪ The no-go situation for the project area indicates the long-term maintenance of the assessed watercourses within their existing PES categories. Should the provided mitigation actions be provided it is however expected that the existing PES categories can be maintained where no fatal flaws in the proposed project design were identified from an aquatic biodiversity perspective, therefore maintaining the current condition of watercourses under the no-go scenario.
Appendix E.4: Avifauna Impact Assessment	▪ The no-go alternative assumes that the respective sites for the proposed BESS and EGI remain in its current state, i.e., there is no construction of the BESS (including associated infrastructure) and supporting grid infrastructure in the proposed study area and the status quo would remain. ▪ The no-go option will result in no additional impacts on avifauna, which will be to the advantage of avifauna. ▪ However, no fatal flaws were discovered during the investigations for the proposed project.
Appendix E.5: Visual Impact Assessment	▪ The no-go alternative would mean the proposed development does not proceed, and the current land uses and status quo remain. ▪ The disadvantage would be that no BESS would be developed to improve renewable energy integration into the grid, and to store surplus power when available and dispatch it when needed. The existing uses, such as natural bush and power infrastructure, would stay unchanged.
Appendix E.6: Heritage Impact Assessment (Archaeology and Cultural Landscape)	▪ If the projects were not implemented, then the site would stay as it currently is (impact significance of neutral). ▪ Although the heritage impacts with implementation would be greater than the existing impacts, the loss of socio-economic benefits is more significant and suggests that the no-go option is less desirable in heritage terms.
Appendix E.7: Palaeontology Letter of Exemption	▪ Not applicable as the study did not require an impact assessment due to the very low palaeo-sensitivity.
Appendix E.8: Socio-Economic Impact Assessment	▪ The no-development option would represent a lost opportunity for South Africa to enhance grid reliability, support renewable energy integration, and improve overall system resilience.

Specialist Study Undertaken	No-Go Alternative
Note: This study applies to Project 1 (Veroniva BESS) only.	▪ Given South Africa's current energy security challenges and its position as one of the highest per capita producers of carbon emissions in the world, this would represent a significant negative social cost. ▪ The no-go option is not supported by the findings of the Socio-Economic Impact Assessment.
Appendix E.9: Traffic Impact Assessment **Note: This study applies to Project 1 (Veroniva BESS) only.**	▪ The no-go alternative implies that the proposed Veroniva BESS project as well as the associated infrastructure does not proceed. This would mean that there will be no negative environmental impacts and no traffic impact on the surrounding network during the construction and decommissioning phases. ▪ However, no fatal flaws were discovered in the Traffic Impact Assessment for the proposed project, and with mitigation the potential impact significance is rated as mainly low to very low.
Appendix E.10: Geohydrology Impact Assessment **Note: This study applies to Project 1 (Veroniva BESS) only.**	▪ Currently, the site proposed for development is utilised for game farming. In this region, groundwater is heavily utilised for irrigation and livestock watering. If the Veroniva BESS is not developed, these existing game farming activities are expected to continue in their current capacity. ▪ Under the no-go alternative, there is no additional demand placed on the water table and the risk of chemical contamination from BESS electrolytes or hazardous construction materials is eliminated. Therefore, the no-go alternative does not pose a risk to groundwater quality or aquifer depletion. ▪ However, it is noted that the projected water demand for the Veroniva BESS is relatively low. While the site has a zero (0) m^3 General Authorisation (GA) allocation, necessitating a Water Use Licence (WUL) for any abstraction, the required volumes are still within the regional theoretical average borehole yields. ▪ As a result, while the no-go alternative maintains the status quo, the proposed development is not expected to significantly alter the regional groundwater baseline, provided that all legal requirements and mitigation measures are strictly implemented.
Appendix E.11: Geotechnical Letter of Professional Opinion	▪ The no-go alternative is not required to be assessed based on the professional opinion approach of the study (i.e. does not need to comply with Appendix 6 of the 2014 NEMA EIA Regulations (as amended)).
Appendix E.12: Battery Energy Storage System (BESS) High Level Safety, Health and Environment (SHE) Risk Assessment **Note: This study applies to Project 1 (Veroniva BESS) only.**	▪ The no-go alternative is not required to be assessed based on technical nature of the study. However, the specialist noted that for most projects, from an acute health and safety perspective, the no-go option will usually be a preferred option since there are no immediate health and safety risks associated with not undertaking a project. ▪ However, some projects aim to reduce adverse effects elsewhere and can be viewed at offsetting either current or future risks. In this case, the proposed project should help towards mitigating possible adverse impacts of climate change, creating jobs and contributing to sustainable energy, i.e. the project risks are offset against future social risk reduction.

13.3 Access Road Options – Veroniva BESS (Project 1)

Note: The information in this section applies to Project 1 (Veroniva BESS) only.

As indicated in Chapter 2 of the BA Report, the potential main access roads to the proposed project site are indicated below:

- Access Road Option A: This is a gravel road off the R519, which leads to the proposed project site via Farm 742/24 and Farm 742/2, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation.
- Access Road Option B: A tarred road off the R519 (which leads directly to the Eskom Witkop Substation), and a paved road just before the Eskom Witkop Substation gate (slight left), up until the access gate to Farm 738/5.

Access Road Options A and B have different access points off the R519. Direct access to the proposed projects will be taken from the R519 along existing roads, and thereafter new access roads will be developed, where they do not align with existing roads, or existing roads will be used where possible. Access Road Options A and B need to be upgraded or widened.

Both Access Road Options have been considered in this BA Process. However, these are not alternatives for comparison and selection of the most preferred. The Applicant is seeking authorisation (should such authorisation be granted) of both route options so that any of the routes can be used at the time of construction based on feasibility studies. The specialists have all considered the routes and adequate and relevant mitigation measures have been included in the EMPrs for the proposed projects. None of the proposed routes were deemed a fatal flaw by the specialists. Therefore, both access route options have been included in the Application for EA for the BESS project.

The Aquatic Biodiversity specialist identified a seep wetland in the vicinity of Access Road Option A and identified the wetland as high sensitivity. A 15 m buffer around the wetland was also recommended by the Aquatic Biodiversity specialist. The Terrestrial Biodiversity specialist also assigned this seep wetland as high sensitivity and recommended a 32 m buffer. Overall, the recommended buffers are not no-go areas, and the specialists have explained that both access road options are acceptable with the implementation of recommended mitigation measures (especially for Access Road Option A).

13.4 Need and Desirability

For development to be sustainable, it is important that the BA Process ascertain whether the proposed development will meet the needs of people, and whether it will be socially, economically, and ecologically desirable. This BA considered the nature, scale and location of the proposed development, as well as the wise use of land (i.e., is this the right time and place for the development of these proposed projects).

The need for the development of energy storage is strongly supported at a national, provincial, and local level. The proposed projects are linked to the national planning vision for utility scale BESS development in South Africa. Large-scale storage ensures reliability, flexibility and stability within the

grid. Utility-scale BESS can absorb surplus power when it is available, or during periods of low demand, and discharge it during peak demand or times when renewable energy is not generating power, thus balancing the energy supply into the grid and improving operational efficiency.

Moreover, high unemployment is a key challenge facing the Polokwane Local Municipality. In line with this, the development of the proposed BESS and EGI will contribute to the vision of creating employment opportunities and for supporting sustainable economic growth, particularly during the construction and operational phases (if EA is granted by the DFFE).

Therefore, the proposed projects are consistent with national, provincial, and local planning priorities, particularly regarding the dual imperative of securing new energy storage sources and driving job creation within the transition to a low-carbon economy.

13.5 Specialist Impact Assessment – Veroniva BESS (Project 1) and Veroniva EGI (Project 2)

Note: The information in this section applies equally to Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI), unless where stated otherwise.

Based on the detailed specialist assessments, various potential impacts have been identified for the Veroniva BESS (Project 1) and Veroniva EGI (Project 2). A summary of the **main impacts** identified is provided in Table 13.3. Note that several mitigation and enhancement measures have been provided by the specialists, however only selected key measures are noted in the table below for direct and indirect impacts only. In general, some of the mitigation and enhancement measures of the most significant impacts (post-mitigation and post-enhancement) have been included in Table 13.3. In Table 13.3, enhancement measures are specified, and all other measures are mitigation.

The specialist studies included in Appendix E of this BA Report, and the summary with Impact Assessment tables included in Chapter 11 (for Project 1 – Veroniva BESS) and Chapter 12 (for Project 2 – Veroniva EGI), contain all the detailed mitigation and enhancement measures. The recommended mitigation and enhancement measures have also been included in the EMPrs in Appendix H to Appendix K of this BA Report.

Table 13.3: Summary of Key Impacts that were identified and assessed during the BA Phase, including key recommended mitigation and enhancement measures

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
Appendix E.1 – Agriculture Compliance Statement	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Direct Impact:** **Construction, Operation and Decommissioning Phases:** ▪ Loss of future agricultural production potential	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Construction, Operation and Decommissioning Phases:** ▪ No mitigation measures are required for the protection of agricultural production potential on the site because the development poses negligible degradation risk to agricultural resources. ▪ Erosion to surrounding farmland poses minimal threat but should nevertheless always be managed by standard erosion control measures where necessary. ▪ For the proposed Independent Power Producer (IPP) substation, there are no additional mitigation measures required, over and above what has already been included in the Generic Environmental Management Programme (EMPr) for substations (Government Notice (GN) 435). **Note: The information presented below applies to Project 2 – Veroniva EGI only.** **Construction, Operation and Decommissioning Phases:** ▪ For the proposed Loop-In-Loop-Out (LILO) and switching station, there are no additional mitigation measures required, over and above what has already been included in the Generic EMPrs for power lines and substations (GN 435).
Appendix E.2: Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Fragmentation and loss of natural habitat and sensitive features. ▪ Impacts on national and provincial protected plant Species of Conservation Concern (SCC). ▪ Disturbance, loss or displacement impacts on animal SCC. ▪ Introduction and spread of alien invasive species. ▪ Increased erosion and soil compaction. ▪ Littering and general pollution.	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2), except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction Phase:** ▪ Infrastructure must be excluded within High sensitivity areas including their buffer zones (where applicable). Suitable habitat for Sensitive species 1252, Sensitive species 550, Sensitive species 1248, *Prunus africana* and *Kinixys lobatsiana* have been identified as high sensitivity. Note: Avoidance of high sensitivity areas have already been achieved by the layout determined and assessed in the BA Phase for the BESS and EGI footprint. Access Road Option A traverses a seep wetland that is assigned high sensitivity and a 32 m buffer; however, this is acceptable provided that the recommended mitigation measures are implemented. Note the 32 m buffer is not a no-go buffer.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Operational Phase: ▪ Direct and indirect faunal disturbance and mortality. ▪ Increase in alien invasive species. ▪ Loss of species composition and diversity. ▪ Littering and general pollution. **Decommissioning Phase:** ▪ Loss of habitat. ▪ Direct and indirect disturbance and mortality of fauna. ▪ Waste related impacts associated with disposal of used parts. ▪ Increased alien invasive species. **Note: The information presented below applies to Project 2 – Veroniva EGI only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Fragmentation and loss of natural habitat and sensitive features. ▪ Impacts on national and provincial protected plant SCC. ▪ Disturbance, loss or displacement impacts on animal SCC. ▪ Introduction and spread of alien invasive species. ▪ Increased erosion and soil compaction. ▪ Littering and general pollution. **Operational Phase:** ▪ Increase in alien invasive species. ▪ Loss of species composition and diversity. ▪ Littering and general pollution. **Decommissioning Phase:** ▪ Loss of habitat. ▪ Increased alien invasive species.	▪ Avoid rocky areas. Note: This has already been achieved by the layout determined and assessed in the BA Phase. ▪ A comprehensive Animal Search and Rescue must be undertaken for the approved layout by a suitably qualified zoological / ecological specialist prior to vegetation clearance and disturbance. ▪ A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified botanical / ecological specialist prior to vegetation clearance and disturbance. ▪ Where the approved layout designs impact on provincially protected individuals, permit applications are required for either the relocation or destruction of provincially protected species (Schedule 12 (Protected Plants) of the Limpopo Environmental Management Act, 2003 (Act 7 of 2003)). ▪ Where the approved layout designs impact on protected tree species, including *Prunus africana* and *Sclerocarya birrea ssp. afra,* a licence / permit is required in terms of the National Forests Act (Act 84 of 1998). ▪ Speed restrictions (40 km / hour is recommended) should be in place to reduce the amount of dust caused by vehicle movement along the roads, and to reduce possible fauna fatalities with vehicle collisions. ▪ Establish and implement an ongoing roadkill monitoring programme (inclusive of wildlife collisions record keeping) to inspect roads for injured and deceased fauna (including tortoises) due to the movement of vehicles to and from site. ▪ If trends or patterns emerge from the data (e.g., high incidence of tortoise mortality), appoint a suitably qualified specialist to develop and implement corrective actions. ▪ **Veroniva BESS**: Widening and upgrading of access roads must be confined to the minimum technically feasible footprint. ▪ **Veroniva BESS**: No indiscriminate vegetation grubbing, side-casting, laydown, turning of vehicles, or stockpiling may take place outside the demarcated road prism (for the upgrading of Access Road Option A). ▪ **Veroniva BESS**: All protected plant individuals and any protected trees along road edges must be avoided where possible. **Operational Phase:** ▪ **Veroniva BESS**: Persecution of fauna species must be reduced through education and awareness campaigns. No physical harm, collection or hunting to any species may occur.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI. **Negative Cumulative Impacts:** **Construction and Decommissioning Phases**: ▪ Loss of CBAs, natural vegetation and sensitive features. **Construction, Operational and Decommissioning Phases:** ▪ Disturbance, mortality and/or displacement of plant and animal SCC. ▪ Introduction and spread of alien invasive species.	▪ **Veroniva BESS**: Minimise use of infrastructure that could be used for nesting and making structures less suitable by selecting specific designs or using perch deterrents (most effective are long spikes with sloped base, dense spikes facilitate nest-building). ▪ Alien vegetation, within the development footprints, should be removed from the site and disposed of at a registered waste disposal site. ▪ Refuelling may only take place in an appropriate, designated bunded area, if relevant. ▪ Any spillages must be reported immediately and dealt with appropriately. ▪ Spill kits must be available on site in case of accidental spillage. **Decommissioning Phase:** ▪ **Veroniva BESS**: All disturbed areas and infrastructure must be dismantled and restored to the previous state of habitat structure (both rocks and vegetation) as far as possibly practical. ▪ **Veroniva BESS**: Decommissioning works should avoid sensitive breeding/migration periods where possible. ▪ **Veroniva EGI**: Implement appropriate rehabilitation measures to return the vegetation to sustainable, productive use that was representative of the respective vegetation type prior to the commencement of construction. ▪ Follow an alien and invasive species control and monitoring plan in terms of the NEMBA by implementing appropriate control methods during and after decommissioning.
Appendix E.3: Aquatic Biodiversity and Species Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Impacts:** **Construction Phase:** ▪ Water and aquatic habitat impacts stemming from: o site access and clearing of vegetation in working areas (indirect impact). o the establishment of laydown yards/construction camps (indirect impact). o the excavations and earthworks for the setting of the access roads, culverts, BESS and associated structures and stormwater controls (For Access Road Option A) (direct impact). o the excavations and earthworks for the setting of access roads, BESS structures and stormwater controls (For Access Road Option B) (indirect impact). o the storage and use of chemicals, fuels and oils (indirect impact). o the alteration of surface drainage and hydrological processes (indirect impact).	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2), except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction, Operational and Decommissioning Phases:** ▪ The implementation of an effective Stormwater Management Plan, which includes: o An analysis on peak flow changes between the pre- and post-development landscapes. o Layouts and design of stormwater infrastructure. o The effective attenuation of the expected increased hydrological conditions. ▪ **Veroniva EGI:** Clean and dirty surface water separation must be put into place via standard best practice methods. ▪ **Veroniva EGI:** No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Operational Phase: ▪ Water and aquatic habitat impacts stemming from: o the storage and use of chemicals, fuels and oils (indirect impact). o the alteration of surface drainage and hydrological processes (for Access Road Option A and Option B) [Direct impact for Option A and indirect impact for Option B]. **Decommissioning Phase:** ▪ Water and aquatic habitat impacts stemming from: o site access and clearing of vegetation in working areas (indirect impact). o the establishment of laydown yards/camps for decommissioning activities (indirect impact). o the excavations and earthworks for the removal of BESS, associated structures and stormwater controls (indirect impact). o the storage and use of chemicals, fuels and oils (indirect impact). o the alteration of surface drainage and hydrological processes (indirect impact). **Note: The information presented below applies to Project 2 – Veroniva EGI only.** **Negative Indirect Impacts:** **Construction Phase:** ▪ Water and aquatic habitat impacts stemming from: o site access and clearing of vegetation in working areas. o the establishment of laydown yards/construction camps. o excavations and earthworks for the setting of EGI structures, associated structures and stormwater controls. o the storage and use of chemicals, fuels and oils. o the alteration of surface drainage and hydrological processes. **Operational Phase:** ▪ Water and aquatic habitat impacts stemming from: o the storage and use of chemicals, fuels and oils during maintenance activities at the switching station and LILO. o the alteration of surface drainage and hydrological processes.	**Note: The mitigation measures below apply to Project 1 – Veroniva BESS only.** **Construction, Operational and Decommissioning Phases:** ▪ Mitigation actions and infrastructure design must ensure compliance in the implementation of the standards and measures stipulated in GN 4167 (published in Government Gazette 49833 of 8 December 2023) as specified in the Aquatic Biodiversity and Species Assessment. **Construction Phase:** ▪ Where culverts are required, it is recommended that these are spread across the wetland units and not directed through single culverts. ▪ Where drifts are utilised, it is recommended that these structures are reinforced with erosion control measures that protect downstream riverine substrates and riparian habitats. ▪ Areas where construction is to take place must be clearly demarcated. Any areas not demarcated must be avoided. ▪ No vehicles shall enter watercourse buffer zones outside of construction footprints. ▪ Drainage channels constructed for the access roads must be constructed so as not to result in erosion. ▪ General stormwater management practices should be included in the design phase and implemented during the construction phase of this project. ▪ Following the completion of the construction phase, all construction materials and debris should be removed and disposed of in a suitable area. An inspection should be completed within a four week period after the construction phase is completed. **Operational Phase:** ▪ A clear stormwater management plan for hardened surfaces must be implemented. ▪ Monitoring of instream structures should be undertaken on an annual basis.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Decommissioning Phase: ▪ Water and aquatic habitat impacts stemming from: o site access and clearing of vegetation in working areas. o the establishment of laydown yards/camps for decommissioning activities. o the excavations and earthworks for the removal of EGI structures and associated structures and stormwater controls. o the storage and use of chemicals, fuels and oils. o the alteration of surface drainage and hydrological processes. **Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ Water and aquatic habitat impacts stemming from the alteration of surface drainage and hydrological processes.	
Appendix E.4: Avifauna Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Displacement of avifauna due to disturbance associated with construction of the BESS and associated infrastructure. ▪ Displacement of avifauna due to habitat loss associated with the construction (and presence) of the BESS and associated infrastructure. **Operational Phase:** ▪ Mortality of avifauna due to electrocution at the on-site substation complex (IPP substation) and/or on the medium voltage overhead power lines (if any). ▪ Mortality of avifauna (power line sensitive species) due to collisions with the overhead sections (if any) of the internal medium voltage reticulation network. **Decommissioning Phase:** ▪ Displacement of avifauna due to disturbance associated with the decommissioning of the BESS and associated infrastructure.	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2), except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction Phase:** ▪ The All-Infrastructure Exclusion Zones must be strictly adhered to. Note: This has been achieved in the layout assessed in the BA. ▪ Measures to control noise and dust must be applied according to current best practice in the industry. ▪ Construction activity must be restricted to the immediate footprint of the infrastructure. ▪ To reduce the risk of birds (especially owls) becoming entangled in fences, it is recommended that for any new fences being constructed, at least the top two strands should be smooth wire (not barbed) and the spacing between at least the top two wires should be increased to a minimum of 300 mm. The entanglement risk will also be reduced by ensuring that the wires are correctly tensioned. **Operational Phase:** ▪ **Veroniva BESS:** In instances where the medium voltage cables cannot be buried due to technical constraints or for example, to accommodate other environmental sensitivities, a

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Note: The information presented below applies to Project 2 – Veroniva EGI only. **Negative Direct Impacts:** **Construction Phase:** ▪ Displacement of avifauna due to disturbance associated with the construction of the EGI. ▪ Displacement of avifauna due to habitat loss associated with the construction (and presence) of the EGI. **Operational Phase:** ▪ Mortality of EGI sensitive avifauna due to electrocutions in the switching station and/or on the 132 kV overhead LILO and upgraded power line. ▪ Mortality of EGI sensitive avifauna due to collisions with the 132 kV overhead LILO and upgraded power line. **Decommissioning Phase:** ▪ Displacement of avifauna due to disturbance associated with the decommissioning of the EGI. **Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Cumulative Impacts:** **Construction Phase:** ▪ Displacement of avifauna due to disturbance associated with construction activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. ▪ Displacement of avifauna due to habitat loss associated with the construction activities and presence of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. **Operational Phase:** ▪ Mortality of priority avifauna due to electrocutions in the substations, on the associated internal medium voltage overhead lines (if any), and on the high voltage overhead power lines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.	bird-friendly pylon design must be used, and appropriate mitigation must be implemented pro-actively for pylon structures e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers. A registered South African Council for Natural Scientific Professions (SACNASP) Avifaunal Specialist must sign off on the design for the pylons and overhead lines. ▪ **Veroniva BESS:** In instances where the medium voltage cables cannot be buried, Bird Flight Diverters (BFDs) must be fitted in a staggered configuration (on the earth wire and conductor) to all overhead lines for the full length according to the applicable Eskom Engineering Instruction (5 m apart for medium voltage power lines). Light and dark coloured devices must be alternated to provide contrast against both dark and light backgrounds, respectively. These devices must be installed as soon as the conductors are strung. ▪ **Veroniva EGI:** A bird-friendly pylon design must be used for the 132 kV LILO and power line upgrade (i.e. for the new proposed LILO and the section of the existing Eskom Witkop-Pietersburg 1 Line that will be upgraded from the LILO to the Eskom Witkop Main Transmission Substation), with appropriate mitigation measures for complicated pole structures (e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers), as recommended by the Avifaunal Specialist. ▪ **Veroniva EGI:** Monitor the electrocution mortality at the switching station monthly. Apply mitigation (insulation of live components) if electrocution of SCC happens more than once per annum. ▪ **Veroniva EGI:** BFDs must be fitted in a staggered configuration (on the earth wire and conductor) for the full length of the 132 kV LILO and power line upgrade (i.e. for length of the new proposed LILO and the section of the existing Eskom Witkop-Pietersburg 1 Line that will be upgraded from the LILO to the Eskom Witkop Main Transmission Substation) according to the applicable Eskom Engineering Instruction (15 m apart for high voltage power lines). These devices must be installed as soon as the conductors are strung. ▪ VulPro must be notified immediately if any vulture is negatively impacted by collisions or electrocutions. **Decommissioning Phase:** ▪ **Veroniva BESS:** Decommissioning activity should as far as possible be restricted to the immediate footprint of the infrastructure. ▪ **Veroniva BESS:** Maximum use must be made of existing access roads, and the construction of new roads must be avoided as far as practical/only developed where absolutely needed.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	▪ Mortality of priority avifauna due to collisions on the associated internal medium voltage overhead lines (if any) and on the high voltage overhead power lines of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. **Decommissioning Phase:** ▪ Displacement of priority species due to disturbance associated with decommissioning activities of all the renewable energy, EGI, BESS and other key projects in the 30 km radius.	▪ Measures to control noise and dust must be applied according to current best practice in the industry.
Appendix E.5: Visual Impact Assessment	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Direct Impacts:** **Construction Phase:** ▪ Potential visual effect of construction activities. **Operational Phase:** ▪ Effect of the operational activities and infrastructure on the landscape character and sense of place. **Decommissioning Phase:** ▪ Potential visual effect of decommissioning activities, and any remaining structures, platforms and disused roads on the landscape. **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ Potential combined visual effect of proposed Veroniva BESS, Veroniva EGI, and other developments in the 30 km radius (i.e. existing and proposed Eskom power lines and substations, and other approved, existing or proposed renewable energy facilities, BESS and EGI) seen together during construction, operational and decommissioning phases.	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2), except where a mitigation measure is specifically indicated as applying to a specific project only.** **Construction Phase:** ▪ With the preparation of the land within the full extent of the project site onto which activities will take place, the minimum amount of existing vegetation and topsoil should be removed. ▪ Adopt responsible construction practices that strictly contain the construction / establishment activities to demarcated areas. **Operational Phase:** ▪ **Veroniva BESS:** Install light fixtures that provide precisely directed illumination to reduce light "spillage" beyond the immediate surrounds of the site, i.e. lights are to be aimed away from the nearby residences immediately south and south-west of the project site and the R519 access road. ▪ **Veroniva BESS:** Minimise the number of light fixtures to the bare minimum, including security lighting. ▪ **Veroniva BESS:** Avoid high pole top security lighting along the periphery of the site at the BESS area and use only lights activated on illegal entry to the site. ▪ **Veroniva EGI:** Ensure the EGI is properly maintained and kept free of alien vegetation. **Decommissioning Phase:** ▪ All equipment and structures to be dismantled and removed from the site. ▪ Disturbed soil must be vegetated to avoid prolonged exposure to wind and water erosion and to minimise dust generation. ▪ The entire site is to be replanted with natural vegetation indigenous to the study area.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
Appendix E.6: Heritage Impact Assessment (Archaeology and Cultural Landscape)	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Direct Impacts:** **Construction Phase:** ▪ Potential impact on archaeology. ▪ Potential impact on graves. ▪ Potential impact on the cultural landscape. **Operational Phase:** ▪ Potential impact on the cultural landscape. **Decommissioning Phase:** ▪ Potential impact on the cultural landscape. **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ Potential impact on archaeology. ▪ Potential impact on graves. ▪ Potential impact on the cultural landscape.	**Note: The mitigation measures below apply equally to Veroniva BESS (Project 1) and Veroniva EGI (Project 2).** **Construction Phase:** ▪ Report any chance finds to the South African Heritage Resources Agency (SAHRA) and/or an archaeologist. In the case of graves, protect chance finds *in situ* and appoint an archaeologist to exhume under an approved permit. ▪ Keep the construction duration as short as possible. **Operational Phase:** ▪ Take measures to reduce night-time light pollution from security lighting. ▪ Use moderate sized signage on public roads. **Decommissioning Phase:** ▪ Minimise the duration of the decommissioning period. ▪ Ensure effective rehabilitation of all affected areas.
Appendix E.7: Palaeontology Letter of Exemption	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** ▪ The study area has been confirmed as very low palaeo-sensitivity. Pending the unlikely discovery of substantial new fossil remains within the project area during the Pre-Construction or Construction Phases, no further specialist palaeontological studies, reporting or mitigation have been recommended or considered necessary for the proposed project. ▪ A Chance Fossil Finds Protocol has been included in the Letter of Exemption, which needs to be implemented by the responsible Environmental Control Officer (ECO) during the Construction Phase. ▪ The recommendations and Chance Fossil Finds Protocol have been included in the EMPrs.	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Construction Phase:** ▪ The Chance Fossil Finds Protocol should be implemented by the ECO during the construction phase.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
Appendix E.8: Socio-Economic Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Positive Direct Impacts:** **Construction Phase:** ▪ Creation of employment and business opportunities. **Operational Phase:** ▪ The establishment of infrastructure to improve energy security and support renewable sector. ▪ Creation of employment and business opportunities. ▪ Creation of socio-economic development opportunities. ▪ Benefits to the affected landowner. **Negative Direct Impacts:** **Construction Phase:** ▪ Increased safety and security risks and impact on farming operations associated with the construction related activities and presence of construction workers on the site. ▪ Increased risk of grass fires associated with construction related activities. ▪ Nuisance impacts, such as noise, dust, and safety, associated with construction related activities and vehicles. ▪ Loss of productive land. **Operational Phase:** ▪ Noise, health and safety risks. ▪ Visual impacts and associated impacts on sense of place. ▪ Impact on property values. ▪ Potential fire risk to irrigated crop areas and other operations. **Decommissioning Phase:** ▪ Socio-economic impacts associated with retrenchment, including loss of jobs, and source of income.	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Enhancement Measures:** **Construction Phase:** ▪ Preparation and implementation of a Stakeholder Engagement Plan (SEP) prior to the commencement of the construction phase. ▪ Where reasonable and practical, the proponent should appoint local contractors and implement a 'locals first' policy, especially for semi and low-skilled job categories. ▪ Before the construction phase commences the proponent should meet with representatives from the Polokwane Local Municipality (PLM) to establish the existence of a skills database for the area. If such a database exists, it should be made available to the contractors appointed for the construction phase. ▪ The proponent should liaise with the PLM with regards to the establishment of a database of local companies, specifically BBBEE companies, which qualify as potential service providers (e.g., construction companies, catering companies, waste collection companies, security companies etc.) prior to the commencement of the tender process for construction service providers. These companies should be notified of the tender process and invited to bid for project-related work. **Operational Phase:** ▪ Maximise the number of employment opportunities for local community members. ▪ Where feasible, training and skills development programmes for locals should be initiated prior to the initiation of the operational phase. ▪ Implement the rental agreement with the affected landowner for the BESS project (i.e. landowner of Farm Snymansdrift 738/5). ▪ The proponents should liaise with the PLM to identify projects that can be supported by Socio-Economic Development (SED) contributions. **Mitigation Measures:** **Construction Phase:** ▪ Investigate the option of installing CCTV cameras at key access points and along the boundary of the BESS site. ▪ Fence off the BESS site prior to the start of the construction phase. ▪ Contractors appointed by the proponent should provide daily transport for low and semi-skilled workers to and from the site.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI. **Positive Cumulative Impacts:** **Construction and Operational Phases:** ▪ Cumulative impacts on the local economy. **Negative Cumulative Impacts:** **Operational Phase:** ▪ Cumulative impacts on sense of place and the landscape.	▪ Develop a Code of Conduct for construction workers. The Code of Conduct should be signed by the proponent and the contractors before construction activities commence. ▪ Contractor should provide fire-fighting training to selected construction staff. ▪ Dust suppression measures should be implemented, such as ensuring that vehicles used to transport sand and building materials are fitted with tarpaulins or covers. **Operational Phase:** ▪ Ensure that the BESS and associated infrastructure are maintained regularly during the operational phase to ensure optimal operation. ▪ Implement recommendations of the Visual Impact Assessment undertaken for the proposed project. ▪ Provide fire-fighting training for selected operational personnel. ▪ Provide fire-fighting equipment on the site. ▪ Establish and maintain a firebreak around the perimeter of the BESS site. **Decommissioning Phase:** ▪ The proponent should ensure that retrenchment packages are provided for all staff retrenched when the BESS is decommissioned.
Appendix E.9: Traffic Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Direct Impacts:** **Construction and Decommissioning Phases:** ▪ Increase in trips on external roads due to transport of components, material and labour, possibly leading to delays and road safety issues. ▪ Noise and dust pollution during transport and construction and decommissioning activities on site. ▪ Possible damage to road surfaces along the haulage routes (specifically near the site) caused by construction and decommissioning vehicles. **Operational Phase:** ▪ Slight increase in traffic due to permanent staff travelling to site, and irregular trips for water delivery and maintenance (i.e., exchange of batteries). The traffic generated during this phase is expected to have a nominal impact on the surrounding road network.	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Construction and Decommissioning Phases:** ▪ The delivery of components to the site should be staggered and trips spread across the day, as much as possible. ▪ All required widening and resurfacing of the bellmouth(s) on the R519 onto the access road (Option A and Option B) to site needs to be finalised before the start of actual project (based on required approvals). The exact dimensions for the widening can only be confirmed at the detailed design stage. The widening and re-surfacing will need to be in line with the relevant Authority's geometric guidelines, and will require necessary permits and approvals, as relevant. ▪ Regular maintenance of private gravel roads located within the site boundary (i.e. existing internal farm roads on Farm 738/5) that are used by and impacted on by the proposed development, by the Contractor during the construction phase and decommissioning phase, and by the Owner/Facility Manager during the operational phase, if required. ▪ Regular maintenance of the access roads to the site (i.e. **External Access Road Option A**: The gravel road off the R519, which leads to the proposed project site via Farm 742/2 and Farm 742/24, along the northern edge of the Witkop Solar Facility and Eskom Witkop Substation), by the Contractor during the construction phase and decommissioning phase,

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI. **Negative Cumulative Impacts:** **Construction Phase:** ▪ Further increase in trips on external roads due to transport of components, material and labour to site for several renewable energy, EGI, BESS and other projects within the 30 km radius. ▪ Additional dust pollution during transport and construction activities on site. ▪ Possible further damage to road surfaces along the haulage routes (specifically near the site) caused by construction vehicles.	and by the Owner/Facility Manager during the operational phase, if required. For Option A, this must be maintained and repaired in accordance with the original pre-construction condition or a left in a better condition. ▪ Regular maintenance of the access roads to the site (i.e. **External Access Road Option B**: The paved and tarred sections of the access road to the Eskom Witkop Substation off the R519, and towards the western edge of the substation), by the Contractor during the construction phase and decommissioning phase, and by the Owner/Facility Manager during the operational phase, if required. For Option B, this must be achieved under the guidance and approval of the road owner, i.e. Eskom.
Appendix E.10: Geohydrology Impact Assessment	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Negative Direct Impacts:** **Construction Phase:** ▪ Potential lowering of the local groundwater table due to construction water requirements. ▪ Potential groundwater contamination from accidental construction spillages (hydrocarbons, concrete wash, untreated sanitation waste from onsite ablution facilities), direct contact with wet concrete during sub-surface foundation works and BESS-related firewater runoff (electrolytes/suppressants) during installation and commissioning. **Operational Phase:** ▪ Potential lowering of the local groundwater table due to operational water requirements. ▪ Potential groundwater contamination from localised accidental spillages associated with the BESS infrastructure (liquid electrolytes or glycol-based coolants). **Decommissioning Phase:** ▪ Potential lowering of the local groundwater table due to decommissioning water requirements. ▪ Potential groundwater contamination from accidental spillages of hydrocarbons (oils and fuels) from heavy machinery, alongside the improper handling, storage or leakage of decommissioned waste materials.	**Note: The information presented below applies to Project 1 – Veroniva BESS only.** **Construction Phase:** ▪ The following mitigation measures only apply if groundwater is abstracted for the proposed project: o Boreholes must be correctly yield tested according to the National Standard (SANS 10299-4:2003, Part 4 – Test pumping of water boreholes). This includes a step test, constant discharge test and recovery monitoring. o Distribute abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume). o Implement a groundwater monitoring programme prior to construction to establish a baseline, and continue monitoring throughout the construction phase to identify and respond to variances in groundwater levels or quality accordingly. ▪ Vehicles must be regularly serviced and maintained to check and ensure there are no leakages. ▪ Diesel fuel storage tanks, if required, should be above ground on an impermeable surface in a bunded area. **Operational Phase:** ▪ The following mitigation measures only apply if groundwater is abstracted for the proposed project: o Implement distributed abstraction across multiple boreholes to spread the hydraulic load and minimise drawdown (without increasing the volume).

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI. **Negative Cumulative Impacts:** **Construction, Operational and Decommissioning Phases:** ▪ Potential lowering of the groundwater levels because of combined abstraction during the construction, operational and decommissioning phases for the Veroniva BESS and EGI facility and surrounding proposed or existing renewable energy, BESS and EGI projects. **Construction and Decommissioning Phases:** ▪ Potential impact on groundwater quality because of accidental oil, fuel or sewage spillages and/or concrete wash during the construction and decommissioning phases. This includes risks associated with the improper handling, storage or leakage of decommissioned waste materials. **Construction Phase:** ▪ Potential impact on groundwater quality because of foundation construction occurring below the water table during the construction phase. **Operational Phase:** ▪ Potential impact on groundwater quality due to the cumulative use of dust suppressants and cleaning agents within the region. While the Veroniva BESS will not have solar panels, the cumulative use of cleaning agents across 16 nearby solar facilities may contribute to this regional impact. ▪ Potential impact on groundwater quality because of accidental leaks or spillages of hazardous electrolytes (Lithium) and cooling fluids (Glycols) associated with the operational BESS units. Additionally, the combined potential for contaminated fire-water runoff from multiple sites during installation or emergencies may lead to large-scale infiltration of the regional aquifer.	○ Implement and continue to monitor groundwater throughout operations according to the groundwater monitoring programme, using baseline data to identify significant variances in groundwater levels or quality accordingly. ○ Implement and enforce water-saving techniques. ▪ Ensure that all chemicals stored or used on site have secondary containment systems in place with reliable leak detection. ▪ Hazardous waste products from the BESS, substations, maintenance buildings and ablution facilities must be appropriately removed and disposed of at licensed facilities. ▪ The BESS and substation to be positioned at least 50 m away from any existing boreholes. No boreholes were found within the 65 ha study area, or within the footprint of the External Access Road Options A and B, based on the Desktop Hydrogeological Assessment. ▪ BESS units must be installed on impermeable, concrete, level surfaces throughout the operational phase. The area should be designed using specific contouring to direct potential runoff away from sensitive zones and toward a designated collection area where temporary containments can be deployed during an emergency. ▪ Conduct annual physical integrity inspections of all foundation slabs and impermeable surfaces. Repair any cracks immediately to prevent sub-surface infiltration. **Decommissioning Phases:** ▪ Implement similar mitigation measures recommended for the construction phase, if groundwater is abstracted for the decommissioning phase. ▪ All decommissioned BESS units must be inspected for physical damage or leakage prior to removal. Damaged cells must be placed in specialised, chemical-resistant drums or leak-proof containers immediately to prevent electrolyte spills during transport. ▪ Decommissioned batteries must be stored in a covered, bunded and well-ventilated area to prevent exposure to rainwater.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
Appendix E.11: Geotechnical Letter of Professional Opinion	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Negative Direct Impacts:** **Construction Phase:** ▪ Displacement of geologic material resulting in soil erosion. **Construction, Operational and Decommissioning Phases**: ▪ Contamination of subsoils and loss of topsoil. **Operational and Decommissioning Phases**: ▪ Increased unnatural hard surfaces yielding increased runoff, potentially increasing erosion.	**Note: The information presented below applies equally to Project 1 – Veroniva BESS and Project 2 – Veroniva EGI.** **Construction Phase:** ▪ Development of a stormwater management plan by a qualified professional before construction is highly recommended. ▪ Installation of suitable systems to redirect water away from areas designated for the infrastructure. ▪ Implementation of safeguards during refuelling to protect soil from spillages, ensuring swift and proper disposal if incidents occur. **Operational Phase:** ▪ Similar to the construction phase, stormwater management planning by a qualified professional will be required. ▪ Diversion of water away from road layers and erected structures, similar to the construction phase. ▪ Replication of mitigation measures for spillages/leakages from the construction phase. **Decommissioning Phase:** ▪ Restoration of natural topography and land rehabilitation to near-natural state, including removal of foundations and hard surfaces, followed by proper backfilling. ▪ Use of locally sourced materials for reinstating and backfilling to ensure uniformity. ▪ Implementation of standard environmental management procedures for infrastructure.
Appendix E.12: Battery Energy Storage System (BESS) High Level Safety, Health and Environment (SHE) Risk Assessment	**Note: The information presented below only applies to Project 1 – Veroniva BESS.** Various risks were identified in terms of safety, health and the environment due to the proposed BESS. The BESS High Level SHE Risk Assessment identified risks, hazards, and consequences, such as, but not limited to: **Construction Phase:** ▪ Human Health - chronic exposure to toxic chemical or biological agents. Causes: Construction materials such as cement, paints, solvents, welding fumes, truck fumes etc. Consequences - Employee / contractor illness. ▪ Human Health - exposure to noise. Causes: Drilling, piling, generators, air compressors. Consequences - Adverse impact on hearing of workers. Possible nuisance factor in nearby areas.	**Note: The information presented below only applies to Project 1 – Veroniva BESS.** ▪ There are numerous different battery technologies but using one consistent battery technology system for the BESS installation would allow for ease of training, maintenance, emergency response and could significantly reduce risks. ▪ Where reasonably practicable, “state-of-the-art” battery technology should be used with all the necessary protective features, e.g., draining of cells during shutdown and standby-mode, full Battery Management System (BMS) with deviation monitoring and trips, leak detection systems. ▪ Ensure that the technical and system suggestions for managing and reducing risks, as specified in the assessment, specifically in terms of preventative and mitigative measures are included in the design. ▪ The overall design should be subject to a full Hazard and Operability Study (HAZOP) prior to finalisation of the design.

Specialist Study	Key Impacts Identified	Recommended Mitigation Measures (and Enhancement Measures, where specified)
	▪ Human and Equipment Safety - exposure to fire radiation. Causes: Involvement in an external fire. Fire involving fuels used in construction vehicles or vehicles themselves (e.g., tyre fire). Fire due to uncontrolled welding or other hot-work. Consequences - Injuries due to radiation especially amongst first responders and bystanders. Fatalities unlikely from the heat radiation as not highly flammable nor massive fire. ▪ Human and Equipment Safety - exposure to explosion over pressures. With solid state lithium containers, flammable gases generated by thermal run away reach explosive limits. Ignition on hot surfaces, static. Consequences - Potential fatalities amongst first responders. Damage to container, transport truck or other nearby items, e.g., other containers in the port. **Operational Phase:** ▪ Human and Equipment Safety - exposure to fire radiation. Causes: Power Conversion System (PCS) – direct current to alternative current cooling failure electrical fire. Consequences - Fire starts in PCS or another section or room and spreads to battery area. ▪ Human and Equipment Safety - exposure to explosion over pressures. Cause 1 - Transformer shorting / overheating / explosion. Cause 2 - Flammable gases generated by thermal run away reach explosive limits. Ignition on hot surfaces, static. Lithium Cobalt Oxide generates oxygen during decomposition – escalation. Consequences - Potential fatalities amongst first responders. Damage to container or other nearby items, e.g., other container.	▪ Prior to importing any solid-state battery modules / containers into the country, the contractor should ensure that: o An Emergency Response Plan is in place that would be applicable for the full route from the ship to the site. This plan would include details of the most appropriate emergency response to fires both while the units are in transit and once, they are installed and operating. o An End-of-Life plan is in place for the handling, repurposing or disposal of dysfunctional, severely damaged batteries, modules and containers. ▪ The site layout and spacing between lithium solid-state containers should be such that it mitigates the risk of a fire or explosion event spreading from one container to another. ▪ In order to limit the possibility of domino failures from the BESS onto transformers and to limit direct impacts of any fire or explosion on the substation, the BESS should be separated from the substation by at least 20 m, or greater if specified in local or International Standards. ▪ Suitable separation must be ensured between the BESS containers and other on-site facilities such as transformers, any high voltage overhead power lines etc. In this regard there are National Fire Protection Agency (NFPA - USA) and Eskom guidelines. Separation from offices areas (i.e. the O&M building) should be at least 25 m to avoid direct damage from possible explosions and fires, and possibly be 50 m to avoid minor impacts explosion debris. ▪ Under certain weather conditions, the noxious smoke from a potential fire in a lithium BESS container could travel some distance from the unit. Close to the source of the smoke, the concentration of toxic gases may be high enough to cause irreversible harmful effects. The location of the BESS needs to ensure sufficient separation distance from public facilities and residences (500 m) / main public roads (150 m). The proposed location of the Veroniva BESS is suitable in this regard. ▪ In terms of aquatic risks, lithium ion BESS fires produce toxic smoke, and fire fighting may result in contaminated of firewater runoff. Linked to this, the proposed location for the BESS should be more than 50 m from existing boreholes and more than 100 m from aquatic features. The current chosen location of the BESS meets these separation requirements. There are no boreholes and aquatic features within the BESS and EGI development footprints. ▪ The proposed location of the BESS is acceptable from both a toxic smoke risk and aquatic pollution perspective. ▪ Finally, it is suggested once the BESS technology has been chosen and more details of the final design are available, the necessary updated Risk Assessments should be in place (prior to commencement, after Environmental Authorisation and other necessary approvals are granted (should such be granted)).

13.6 Summary of Key Impact Assessment Findings

13.6.1 Veroniva BESS (Project 1)

Note: The information in this section applies to Project 1 (Veroniva BESS) only.

Table 13.4 below provides a summary of the post-mitigation and post-enhancement impact assessment (direct and indirect impacts) for the proposed Veroniva BESS (Project 1). Some impacts were not identified, or are considered insignificant, or could not be measured empirically at the time of assessment.

Table 13.4: Overall Impact Significance with the Implementation of Mitigation / Enhancement Measures for Direct and Indirect Negative and Positive Impacts for Veroniva BESS (Project 1)

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
DIRECT NEGATIVE IMPACTS						
Agriculture	Low		Low		Low	
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Low		Low		Low	
Aquatic Biodiversity and Species	Low		Very Low		Not identified and/or not applicable	
Avifauna	Low	Moderate	Low	Moderate	Low	
Visual	Low		Very Low		Very Low	
Heritage (Archaeology and Cultural Landscape)	Very Low		Very Low		Very Low	
Palaeontology	Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable	
Socio-Economic	Low		Very Low	Low	Very Low	
Traffic	Low		Very Low		Low	
Geohydrology	Very Low	Low	Very Low	Low	Very Low	Low
Geotechnical	Very Low	Low	Very Low	Low	Very Low	Low
INDIRECT NEGATIVE IMPACTS						
Aquatic Biodiversity and Species	Very Low		Very Low		Very Low	
DIRECT POSITIVE IMPACTS						
Socio-Economic	Moderate		Low	Moderate	Insignificant and/or not identified and/or not applicable	

Based on the findings of the detailed specialist studies, which are included in Appendix E of this BA Report, the following is concluded for the proposed Veroniva BESS (Project 1), as per the summary in Table 13.4:

- With the implementation of mitigation measures, this project is considered to have an **overall Low to Very Low direct negative environmental impact, with only a few moderate negative environmental impacts for Avifauna during the construction and operational phases.**

- With the implementation of mitigation measures, this project is considered to have an **overall Very Low indirect negative environmental impact in terms of Aquatic Biodiversity and Species during all phases.**

- With the implementation of enhancement measures, this project is considered to have an **overall Moderate to Low positive socio-economic impact for construction and operations**.

13.6.2 Veroniva EGI (Project 2)

Note: The information in this section applies to Project 2 (Veroniva EGI) only.

Table 13.5 below provides a summary of the post-mitigation and post-enhancement impact assessment (direct and indirect impacts) for the proposed Veroniva EGI (Project 2). Some impacts were not identified, or are considered insignificant, or could not be measured empirically at the time of assessment.

Table 13.5: Overall Impact Significance with the Implementation of Mitigation / Enhancement Measures for Direct and Indirect Negative and Positive Impacts for Veroniva EGI (Project 2)

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
DIRECT NEGATIVE IMPACTS						
Agriculture	Very Low		Very Low		Very Low	
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Low	Very Low	Low		Low	Very Low
Avifauna	Low		Low	Moderate	Low	
Visual	Very Low		Very Low		Very Low	
Heritage (Archaeology and Cultural Landscape)	Very Low		Very Low		Very Low	
Palaeontology	Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable	
Geotechnical	Very Low	Low	Very Low	Low	Very Low	Low

Specialist Assessment	Construction Phase	Operational Phase	Decommissioning Phase
INDIRECT NEGATIVE IMPACTS			
Aquatic Biodiversity	Very Low	Very Low	Very Low

Based on the findings of the detailed specialist studies, which are included in Appendix E of this BA Report, the following is concluded for the proposed Veroniva EGI (Project 2), as per the summary in Table 13.5:

- With the implementation of mitigation measures, this project is considered to have an **overall Low to Very Low direct negative environmental impact, with only a few moderate negative environmental impacts for Avifauna during the operational phase.**

- With the implementation of mitigation measures, this project is considered to have an **overall Very Low indirect negative environmental impact in terms of Aquatic Biodiversity and Species during the construction, operational and decommissioning phases.**

13.6.3 Cumulative Impacts

Note: The information in this section applies equally to Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI).

Based on Table 13.6, the majority of the cumulative negative impacts were rated with a **Low or Very Low** post-mitigation impact significance for all phases, with the exception of Terrestrial Biodiversity, Avifauna, and Traffic impacts.

In terms of Terrestrial Biodiversity, the overall **Moderate** post-mitigation significance is due to loss of natural vegetation and sensitive features (including Critical Biodiversity Areas). The specialist notes that cumulative habitat loss, fragmentation and SCC disturbance remain relevant at a regional scale despite mitigation, however this is not a fatal flaw.

In terms of avifauna, the overall cumulative negative impact across all phases is rated as **Moderate** (with mitigation), due to displacement of avifauna due to habitat loss and disturbance, and potential mortality of priority avifauna due to electrocutions and collisions, during various project phases of all the renewable energy, EGI, BESS and other key projects in the 30 km radius. The specialist noted that the moderate significance is deemed acceptable if all mitigation measures are implemented.

In terms of traffic, the overall cumulative negative impact across the construction and decommissioning phases is rated as **Moderate** (with mitigation), based on the conservative, but highly unlikely, assumption that all relevant projects within the 30 km radius will be constructed simultaneously and have similar construction schedules. The impacts relate to increase in trips due to transport of components, materials and labour, additional dust pollution, and possible further damage to road surfaces. This is not a fatal flaw.

Socio-Economic cumulative impacts are rated as **Moderate to High** positive with the implementation of enhancement measures for the construction and operational phases. In terms of cumulative positive impacts, the Socio-Economic impacts are therefore considered highly significant (with enhancement) for the construction and operational phases, noting that if the timing of construction of different projects within the 30 km radius can smooth the employment levels and provide longer-term continuity of employment, this enhances the positive cumulative benefit.

Table 13.6: Overall Impact Significance with the Implementation of Mitigation / Enhancement Measures for Cumulative Negative and Positive Impacts

Specialist Assessment	Construction Phase		Operational Phase		Decommissioning Phase	
CUMULATIVE NEGATIVE IMPACTS						
Agriculture	Low		Low		Low	
Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	Low	Moderate	Low		Low	
Aquatic Biodiversity *(Note: These are indirect and direct impacts)*	Very Low		Very Low		Very Low	
Avifauna	Moderate		Moderate		Moderate	
Visual	Low		Very Low		Very Low	
Heritage (Archaeology and Cultural Landscape)	Very Low		Low		Very Low	
Palaeontology	Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable		Insignificant and/or not identified and/or not applicable	
Socio-Economic	Not identified		Low		Not identified	
Traffic	Moderate		Insignificant		Moderate	
Geohydrology	Very Low	Low	Very Low	Low	Very Low	Low
CUMULATIVE POSITIVE IMPACTS						
Socio-Economic	Moderate	High	Moderate	High	Not identified	

13.7 Overall Environmental Impact Statement and Reasoned Opinion from the EAP

Note: The information in this section equally applies to Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI), unless where mentioned otherwise.

The information presented above contributes to this overall environmental impact statement and reasoned opinion from the EAP as to whether the proposed projects should or should not be authorised, including any conditions that should be made in respect of the authorisation (should it be granted).

Based on the findings of the detailed specialist assessments and technical studies, which all recommend that the proposed projects can proceed and should be authorised by the DFFE, the proposed projects are considered to have an **overall Low to Very Low negative environmental impact, and an overall Moderate to Low positive socio-economic impact** (with the implementation of respective mitigation and enhancement measures).

The proposed projects will take place within the development footprint on the preferred project site. The development footprint and buildable areas avoid the no-go sensitive features identified and mapped by the respective specialists, where relevant and applicable, as discussed in Section 13.1 of this chapter, and Chapter 4 of this BA Report. As noted above, linear infrastructure traverses the area of high sensitivity due to avifauna electrocution and collision risk (as identified by the Avifauna specialists), and a seep wetland (as identified by the Terrestrial Biodiversity and Aquatic Biodiversity specialists), however the relevant specialists have confirmed that this is acceptable with recommended mitigation measures. The project layouts are final, avoid the no-go sensitivities for key infrastructure placement, and are based on the recommendations of the specialists. The specialists also confirmed that the project layouts are acceptable.

This BA has considered the nature, scale and location of the development as well as the wise use of land. When considering the timing of this project, based on the Proposed Balanced Plan for new generation capacity in the 2025 Integrated Resource Plan (IRP), energy storage (including Eskom BESS allocations) had a current base of 712 MW at the end of 2025 (including Eskom BESS allocations); and approximately 3 724 MW of new energy storage capacity is estimated for the period of 2026 to 2030 (i.e. medium term horizon); and approximately 4 500 MW of new energy storage capacity is estimated for the period of 2031 to 2042 (i.e. transition horizon and long-term period). As discussed in the preceding chapters of this BA Report, it is the Project Applicant's intention to bid this project in the future bidding rounds of the Battery Energy Storage Independent Power Producers Procurement Programme (BESIPPPP). The project would contribute in the order of 350 MW / 1200 MWh energy storage capacity to the national grid, which has direct and indirect benefits for national economic growth, especially when noting that wind and solar energy are the lowest cost options for new electricity generation in South Africa, and that the BESS would potentially support future solar energy projects in the region.

The proposed projects will be in line with and will be supportive of the objectives of the Polokwane Local Municipality Integrated Development Plan (IDP) in terms of creating more job opportunities and promoting economic growth. If approved by the DFFE, the proposed projects will provide skills development opportunities, create contractual and permanent employment in the area during the

construction and operational phases, and consequently provide catalytic opportunities for downstream economic development.

Section 24 of the Constitutional Act states that "*everyone has the right to an environment that is not harmful to their health or well-being and to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures, that prevents pollution and ecological degradation; promotes conservation; and secures ecologically sustainable development and use of natural resources while promoting justifiable economic and social development*". Based on this, this BA was undertaken to ensure that these principles are met through the inclusion of appropriate management and mitigation measures, and monitoring requirements. These measures will be undertaken to promote conservation by avoiding the sensitive environmental features present on site and through appropriate monitoring and management plans (refer to the EMPrs in Appendix H to Appendix K of this BA Report).

The outcomes of these projects therefore succeed in meeting the environmental management objectives of protecting the ecologically sensitive areas and supporting sustainable development and the use of natural resources, whilst promoting justifiable socio-economic development in the towns nearest to the project site. The findings of this BA show that all natural resources will be used in a sustainable manner (i.e., the majority of the negative site specific and cumulative environmental impacts are considered to be of low to very low significance with mitigation measures implemented), while the benefits from the projects will promote justifiable economic and social development. Refer to Table 13.7 (Veroniva BESS – Project 1) and Table 13.8 (Veroniva EGI – Project 2) for a summary of reasoned opinions from the specialists.

Note: Table 13.7 applies to Project 1 (Veroniva BESS) only.

Table 13.7: Summary of the Reasoned Opinions from the Specialists for Veroniva BESS (Project 1)

Specialist Study	Reasoned Opinion on whether the project should be authorised
Appendix E.1: Agriculture Compliance Statement	▪ The entire development footprint is below the threshold for needing to be conserved as agricultural production land because of the limitations that make it unsuitable as viable cropland. ▪ It does not occupy scarce, viable cropland. ▪ The proposed development will result in negligible loss of future agricultural production potential in terms of national food security. ▪ From an agricultural impact perspective, it is recommended that the proposed BESS development be approved. The conclusion of the agriculture study on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.
Appendix E.2: Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	▪ Based on the available desktop information, field verification, and specialist interpretation, the proposed BESS development, including the access road options, is considered acceptable from a terrestrial biodiversity perspective within the preferred development footprint, subject to the implementation of the recommended mitigation

Specialist Study	Reasoned Opinion on whether the project should be authorised
	measures, adherence to all relevant permit requirements, and the exclusion of the higher-sensitivity northern habitat from non-linear development (as is currently the case in the final layout assessed in the BA Process). ▪ No fatal flaws have been identified for the proposed project and its final layout. ▪ From a terrestrial biodiversity and species perspective, it is recommended that the project can be granted environmental authorisation.
Appendix E.3: Aquatic Biodiversity and Species Impact Assessment	▪ The proposed project will result in limited to negligible impacts via direct and indirect hydrological changes. ▪ There will be limited to negligible sedimentation or runoff pathways to affect downslope watercourses due to the proposed project. ▪ The proposed layouts are acceptable from an aquatic perspective. ▪ Based on the available desktop information, field verification, and specialist interpretation, the proposed BESS development, and access roads, are considered acceptable from an aquatic biodiversity perspective within the preferred development footprint, subject to the implementation of the recommended mitigation measures. ▪ No fatal flaws have been identified for the proposed project and its final layout. From an aquatic biodiversity and species perspective, it is recommended that the project can be granted environmental authorisation.
Appendix E.4: Avifauna Impact Assessment	▪ Based on the Site Sensitivity Verification and the avifaunal sensitivity data generated, this specialist is of the opinion that there are no fatal flaws relating to the construction of the proposed Veroniva BESS (Project 1) within the preferred location of the study area from an avifaunal perspective. ▪ The development footprint and detailed layout of the project are considered suitable from an avifaunal perspective. ▪ The proposed BESS and its associated infrastructure (i.e. Project 1) are supported and can be granted environmental authorisation, provided that the proposed mitigation measures and EMPr requirements as detailed in the Avifauna Impact Assessment Report are strictly implemented.
Appendix E.5: Visual Impact Assessment	▪ It is the opinion of the Visual specialist that there are no fatal flaws associated with the proposed Veroniva BESS. ▪ Visual impacts are of a nature, scale, and duration that will require good housekeeping mitigation to minimise potential impacts throughout all phases of the proposed Veroniva BESS. ▪ The specialist considers the proposed project acceptable from a visual standpoint and is recommended to receive environmental authorisation.
Appendix E.6: Heritage Impact Assessment (Archaeology and Cultural Landscape)	▪ Although the BESS facility may be somewhat visible in the landscape, it will be very close to other existing electrical infrastructure and will thus not stand out. ▪ The project location, close to other existing electrical installations, is deemed appropriate.

Specialist Study	Reasoned Opinion on whether the project should be authorised
	▪ The specialist concluded that there are no significant concerns for the proposed Veroniva BESS project, and that it may be authorised in full.
Appendix E.7: Palaeontology Letter of Exemption	▪ There are no fatal flaws and no objections on palaeontological heritage grounds to the authorisation of the proposed project.
Appendix E.8: Socio-Economic Impact Assessment	▪ The findings of the Socio-Economic Impact Assessment indicate that the proposed Veroniva BESS and associated infrastructure will create social and socio-economic benefits for the Polokwane Local Municipality, including creation of employment and business opportunities during both the construction and operational phases. ▪ The establishment of the proposed Veroniva BESS and associated infrastructure are supported by the findings of the Socio-Economic Impact Assessment. Authorisation of the project is therefore supported.
Appendix E.9: Traffic Impact Assessment	▪ The proposed projects will have a range of potential traffic related impacts ranging from moderate significance before mitigation, which is expected to be reduced to low significance with the appropriate mitigation during the construction and decommissioning phases. ▪ The proposed development of the Veroniva BESS and its supporting infrastructure is supported from a traffic engineering perspective, and can therefore receive authorisation, provided that the recommended mitigation measures are adhered to.
Appendix E.10: Geohydrology Impact Assessment	▪ Based on various factors, from a hydrogeological perspective, it is recommended that the Veroniva BESS development be authorised to proceed. ▪ Should groundwater be utilised, all necessary Water Use Authorisations under the National Water Act (Act 36 of 1998, as amended) (NWA) must be secured prior to abstraction. ▪ All BESS-specific pollution prevention and contaminant mitigation protocols must be strictly implemented to protect the regional aquifer. ▪ Additionally, the groundwater monitoring programme outlined in the Geohydrology Impact Assessment must be fully implemented should groundwater abstraction be utilised for the proposed project.
Appendix E.11: Geotechnical Letter of Professional Opinion	▪ Based on the geotechnical analysis conducted, it is recommended that the proposed Veroniva BESS be authorised, as no fatal flaws were found during the desktop assessment. ▪ However, it is crucial to implement appropriate mitigation measures at every phase of the project to minimise the intensity of the identified impacts.
Appendix E.12: Battery Energy Storage System (BESS) High Level Safety, Health and Environment (SHE) Risk Assessment	▪ This Risk Assessment concluded that none of the identified potential risks are excessively high, i.e., from a SHE risk perspective and no fatal flaws were found. ▪ Therefore, from a SHE risk perspective, there is no reason the proposed development should not be approved provided suitable preventative and mitigative measures are in place.

Note: Table 13.8 applies to Project 2 (Veroniva EGI) only.

Table 13.8: Summary of the Reasoned Opinions from the Specialists for Veroniva EGI (Project 2)

Specialist Study	Reasoned Opinion on whether the project should be authorised
Appendix E.1: Agriculture Compliance Statement	▪ The entire development footprint is below the threshold for needing to be conserved as agricultural production land because of the limitations that make it unsuitable as viable cropland. ▪ It does not occupy scarce, viable cropland. ▪ The proposed development will result in negligible loss of future agricultural production potential in terms of national food security. ▪ From an agricultural impact perspective, it is recommended that the proposed EGI development be approved. The conclusion of the agriculture study on the acceptability of the proposed development and the recommendation for its approval is not subject to any conditions.
Appendix E.2: Terrestrial Biodiversity, Terrestrial Plant Species, and Terrestrial Animal Species	▪ Based on the available desktop information, field verification, and specialist interpretation, the proposed EGI development is considered acceptable from a terrestrial biodiversity perspective within the preferred development footprint, subject to the implementation of the recommended mitigation measures, adherence to all relevant permit requirements, and the exclusion of the higher-sensitivity northern habitat from non-linear development (as is currently the case in the final layout assessed in the BA Process). ▪ In addition, the proposed LILO and existing power line section upgrade fall within an existing operational servitude. ▪ No fatal flaws have been identified for the proposed project and its final layout. ▪ From a terrestrial biodiversity and species perspective, it is recommended that the project can be granted environmental authorisation.
Appendix E.3: Aquatic Biodiversity and Species Impact Assessment	▪ The proposed project will result in limited to negligible impacts via indirect hydrological changes. ▪ There will be limited to negligible sedimentation or runoff pathways to affect downslope watercourses due to the proposed project. ▪ The proposed layouts are acceptable from an aquatic perspective. ▪ Based on the available desktop information, field verification, and specialist interpretation, the proposed EGI development is considered acceptable from an aquatic biodiversity perspective within the preferred development footprint, subject to the implementation of the recommended mitigation measures. ▪ No fatal flaws have been identified for the proposed project and its final layout. From an aquatic biodiversity and species perspective, it is recommended that the project can be granted environmental authorisation.

Specialist Study	Reasoned Opinion on whether the project should be authorised
Appendix E.4: Avifauna Impact Assessment	▪ Based on the Site Sensitivity Verification and the avifaunal sensitivity data generated, this specialist is of the opinion that there are no fatal flaws relating to the construction of the proposed Veroniva EGI (Project 2) within the preferred location of the study area from an avifaunal perspective. ▪ The development footprint and detailed layout of the project are considered suitable from an avifaunal perspective. ▪ The proposed EGI and its associated infrastructure (i.e. Project 2) is supported and can be granted environmental authorisation, provided that the proposed mitigation measures and EMPr requirements as detailed in the Avifauna Impact Assessment Report are strictly implemented.
Appendix E.5: Visual Impact Assessment	▪ It is the opinion of the Visual specialist that there are no fatal flaws associated with the proposed Veroniva EGI. ▪ Visual impacts are of a nature, scale, and duration that will require good housekeeping mitigation to minimise potential impacts throughout all phases of the proposed Veroniva EGI. ▪ The specialist considers the proposed project acceptable from a visual standpoint and is recommended to receive environmental authorisation.
Appendix E.6: Heritage Impact Assessment (Archaeology and Cultural Landscape)	▪ The proposed work is largely along an existing high-voltage (HV) power line route and the proposed LILO power line would not be any more visible than the existing power lines in the region, especially considering the amount of visual clutter already present in the landscape from the existing HV power lines, Eskom Witkop Main Transmission Substation and Witkop Solar Facility. ▪ The specialist concluded that there are no significant concerns for the proposed Veroniva EGI project, and that it may be authorised in full.
Appendix E.7: Palaeontology Letter of Exemption	▪ There are no fatal flaws and no objections on palaeontological heritage grounds to the authorisation of the proposed project.
Appendix E.11: Geotechnical Letter of Professional Opinion	▪ Based on the geotechnical analysis conducted, it is recommended that the proposed Veroniva EGI be authorised, as no fatal flaws were found during the desktop assessment. ▪ However, it is crucial to implement appropriate mitigation measures at every phase of the project to minimise the intensity of the identified impacts.

Taking into consideration the findings of the BA Process and given the national and provincial strategic requirements for infrastructure development, particularly from an energy storage perspective, and based on the fact that the environmental sensitivity of the development footprints is largely low to medium (with high sensitivity due to avifauna collision and electrocution risk identified by the Avifauna specialists, and the seep wetland identified by the Aquatic Biodiversity and Terrestrial Biodiversity specialists), it is the opinion of the EAP, that the benefits of the projects outweigh the costs and that the projects will make a positive contribution to sustainable infrastructure development in the Polokwane Local Municipality, as well as the town of Polokwane.

Provided that the specified mitigation measures and management actions are applied effectively throughout, it is recommended that the proposed projects receive EA in terms of the 2014 NEMA EIA Regulations (as amended).

It is understood that the information contained in this BA Report and appendices is sufficient to make a decision in respect of the activities applied for.

In line with the approval of the combination and multiple EA request (as noted in Appendix C.7 of this BA Report), it is proposed that for these projects, separate EAs will be issued (should they be granted), as follows:

- **EA 1 (should it be granted) for the Veroniva BESS (Project 1); and**
- **EA 2 (should it be granted) for the Veroniva EGI (Project 2).**

It is recommended that the EAs (should they be granted) be **valid for a period of 10 years**.

In addition, it is recommended that the EMPrs compiled as part of this BA Process, included in Appendix H to Appendix K of this BA Report, be approved concurrently in the EAs (should they be granted). Detailed **final** layouts of the BESS and EGI were identified during the BA Phase and included in this chapter of the BA Report, as well as Appendix D and the EMPrs.

If any changes are needed to the detailed final layouts post EA (should such authorisations be granted), the specialists have confirmed that such changes would be deemed acceptable if the changes remain within the area assessed during the BA Process with no-go sensitive areas avoided. Any changes can be subjected to an EA amendment process, where warranted.

13.8 Cumulative Environmental Impact Statement

Note: The information in this section applies equally to Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI).

The cumulative impacts have been assessed by all the relevant specialists. The cumulative assessment included other BESS, EGI, Renewable Energy projects (including a prospecting right on Farm 738/5) within a 30 km radius of the proposed projects.

No cumulative impacts have been identified that were considered to be fatal flaws. The overall cumulative impact assessment is described above in Section 13.6 and Table 13.6 of this chapter. Based on the findings of the detailed specialist assessments and technical studies, the proposed projects are considered to have an **overall Low to Very Low negative cumulative environmental impact (with some Moderate negative cumulative impacts), and an overall highly significant positive cumulative socio-economic impact** (with the implementation of respective mitigation and enhancement measures).

According to the Socio-Economic Impact Assessment (Appendix E.8 of this BA Report), the establishment of the proposed Veroniva BESS and EGI, and other renewable energy facilities in the vicinity of the Eskom Witkop Main Transmission Substation will create socio-economic opportunities for the Polokwane Local Municipality. The positive cumulative opportunities include creation of

employment, skills development and training opportunities, and downstream business opportunities. Given the limited economic opportunities in the area this would represent a positive opportunity.

The specialists recommended that the projects receive EA in terms of the 2014 NEMA EIA Regulations (as amended), including consideration of cumulative impacts, provided the mitigation is applied.

13.9 Conditions to be included in the EAs

Note: The information in this section applies equally to Project 1 (Veroniva BESS) and Project 2 (Veroniva EGI), unless where mentioned otherwise.

In order to ensure the effective implementation of the mitigation measures and management actions, EMPrs have been compiled and are included in Appendix H to Appendix K of this BA Report. Separate EMPrs have been compiled as follows:

Project 1 – Veroniva BESS:

- Appendix H includes the EMPr for the proposed BESS facility and associated infrastructure [in compliance with Appendix 4 of the 2014 NEMA EIA Regulations (as amended)];
- Appendix I includes the EMPr for the proposed Independent Power Producer (IPP) substation [Generic EMPr published for substation development (Government Gazette 42323, GN 435, dated 22 March 2019)];

Project 2 – Veroniva EGI:

- Appendix J includes the EMPr for the switching station [Generic EMPr published for substation development (Government Gazette 42323, GN 435, dated 22 March 2019)]; and
- Appendix K includes the EMPr for the 132 kV LILO power line [Generic EMPr published for power lines (Government Gazette 42323, GN 435, dated 22 March 2019)].

The mitigation measures necessary to ensure that the proposed projects are planned and carried out in an environmentally responsible manner are listed in the EMPrs. The EMPrs include the mitigation and enhancement measures noted in this BA Report, inclusive of the specialist assessments and technical studies, as relevant. The EMPr is a dynamic document that should be updated as required and provides clear and implementable measures for the proposed projects.

Listed below are the main recommendations applicable to the proposed projects that should be considered for inclusion in the EAs (should such authorisations be granted by the DFFE). These main recommendations as well as additional recommendations are included in the EMPrs and BA Report. The main recommendations are separated per project below.

13.9.1 Veroniva BESS (Project 1)

Note: The information in this section applies to Project 1 (Veroniva BESS) only.

- Mitigation and enhancement measures detailed within the BA Report, specialist assessments and technical studies are to be implemented, where relevant and applicable. These mitigation and enhancement actions are collated in Chapter 11 and in Appendices H and I.
- No-go areas identified by the specialists, and mapped accordingly, should be avoided by key infrastructure; however linear infrastructure such as access roads and power lines may traverse these areas provided that proper recommended mitigation is implemented as recommended by the relevant specialists and captured in the EMPrs.
- Carry out Environmental Awareness Training throughout the construction period and conduct audits of signed attendance registers to ensure compliance with the EMPrs and EA conditions.
- All mitigation measures and monitoring requirements stipulated in the Terrestrial Biodiversity and Species Specialist Report must be adhered to as relevant.
- A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified botanical / ecological specialist prior to vegetation clearance and disturbance.
- Where the approved layout designs impact on provincially protected individuals, permit applications must be submitted to the relevant authorities, for either the relocation or destruction of provincially protected species (Schedule 12 (Protected Plants) of the Limpopo Environmental Management Act, 2003 (Act 7 of 2003)). Copies of the permits must be kept on site by the Environmental Control Officer (ECO).
- Where the approved layout designs impact on protected tree species, including *Prunus africana* and *Sclerocarya birrea ssp. afra*, a licence / permit is required in terms of the National Forests Act (Act 84 of 1998). Copies of the permits must be kept on site by the ECO.
- A comprehensive Animal Search and Rescue must be undertaken for the approved layout by a suitably qualified zoological / ecological specialist prior to vegetation clearance and disturbance.
- Removal of alien and invasive species, monitoring and follow-up procedures must be in accordance with the National Environmental Management: Biodiversity Act (Act 10 of 2004) (NEMBA).
- The final alignment of Access Road Option A through the wetland seep area must be micro-sited by the project engineer in consultation with the aquatic specialist, terrestrial specialist and ECO, with the aim of minimising direct disturbance to the seep wetland, its vegetated margin and associated seasonal wet soils.
- The road prism (for Access Road Option A) through the wetland seep area must be kept to the minimum technically feasible width.
- The final road crossing design (for Access Road Option A) must include a fauna underpass / culvert system that maintains both hydrological connectivity and fauna movement through the wetland seep area including the precautionary ecological 32 m buffer identified by the Terrestrial Biodiversity specialist.
- Develop and implement an effective Stormwater Management Plan, that includes an analysis on peak flow changes between the pre- and post-development landscapes; layouts and design of

stormwater infrastructure; and the effective attenuation of the expected increased hydrological conditions. The plan should be developed prior to the construction phase by an accredited professional. It should be managed throughout the duration of the project to successfully mitigate potential soil erosion.

- Regular ECO monitoring must incorporate the survey and reporting on stormwater management structures. Indications of soil erosion, soil compaction, and visual observations on soil contamination should be reported on, including the implementation of recommended mitigation and rehabilitation actions.
- Ensure that culverts and crossing points are suitably designed, which allows for the continued distribution of flows across the watercourses.
- Ensure that construction and operational monitoring activities as stated in the Aquatic Biodiversity and Species Assessment are recommended for implementation.
- The proposed mitigation measures, management actions, and EMPr requirements included in the Avifauna Impact Assessment Report are to be strictly implemented.
- The proposed mitigation measures and EMPr requirements included in the Visual Impact Assessment Report are to be strictly implemented.
- Lighting mitigation must be employed to minimise light spillage during all project phases.
- Signage on public roads must be of modest proportions during all project phases.
- If any archaeological material or human burials are uncovered during the course of development during the construction phase, then work in the immediate area must be halted. The find must be reported to the heritage authorities and may require inspection by an archaeologist to confirm significance and propose a way forward. Such heritage is the property of the state and may require excavation and curation in an approved institution.
- Implement the Chance Fossil Finds Protocol identified by the Palaeontology Specialist during the construction phase.
- The removal of vegetation should be kept to a minimum and only removed where necessary.
- Rehabilitation of soil and geological material to commence during the construction phase, if possible, alternatively following the construction phase to allow successful re-vegetation.
- Authorised vehicles to only use proposed access points and roads and keep within the footprint of the proposed project.
- Soil and geological material should be reinstated to natural or near natural conditions following decommissioning.
- Machinery and equipment to be maintained throughout the project.
- Ground protection measures to be implemented during maintenance and refuelling operations.
- Suitably designed and assembled in line with relevant product specifications, with necessary measures for containment and leak detection to be implemented at BESS facility.
- Spillages to be removed and contained as rapidly as possible.
- The proposed mitigation measures and EMPr requirements included in the Socio-Economic Impact Assessment Report are to be implemented.

- The proposed mitigation measures to address potential traffic related impacts in the Traffic Impact Assessment need to be adhered to.
- Should groundwater be utilised as a water source for the proposed project, it is recommended that the water requirements for the construction and decommissioning of the proposed Veroniva BESS must be met by multiple boreholes across the area earmarked for the development including neighbouring farm portions. This is purely to minimise the potential impact water abstraction may have on groundwater resources seeing that this is an important resource for livestock and domestic use in a region that experiences drought on a regular basis.
- Should groundwater be utilised as a water source for the proposed project, the proposed monitoring plan should be followed with a special focus on groundwater level monitoring coupled with more detailed investigations should the groundwater levels vary by more than 0.5 standard deviation from the statistical norm. This is to prevent a worst-case scenario where the aquifer is over abstracted to the point that groundwater levels fall below current borehole pumping depths in the region.
- All proposed impact mitigation measures that relate to BESS-specific pollution prevention and contaminant mitigation protocols are to be implemented during the development of the project to protect the regional aquifer. These include the use of environmentally safe cleaning agents, the construction of BESS facilities 50 m from any boreholes, such as in the current layout, and the implementation of site-specific run-off management. Additionally, the recommended precautionary approaches aimed at preventing oil spills, fuel leaks, uncontrolled wastewater disposal and over abstraction of groundwater.

13.9.2 Veroniva EGI (Project 2)

Note: The information in this section applies to Project 2 (Veroniva EGI) only.

- Mitigation and enhancement measures detailed within the BA Report, specialist assessments and technical studies are to be implemented, where relevant and applicable. These mitigation and enhancement actions are provided in Chapter 12 and in Appendices J and K.
- No-go areas identified by the specialists, and mapped accordingly, should be avoided by key infrastructure; however linear infrastructure such as access roads and power lines may traverse these areas provided that proper recommended mitigation is implemented as recommended by the relevant specialists and captured in the EMPrs.
- Carry out Environmental Awareness Training throughout the construction period and conduct audits of signed attendance registers to ensure compliance with the EMPrs and EA conditions.
- All mitigation measures and monitoring requirements stipulated in the Terrestrial Biodiversity and Species Specialist Report must be adhered to as relevant.
- A comprehensive Plant Search and Rescue must be undertaken for the approved layout by a suitably qualified botanical / ecological specialist prior to vegetation clearance and disturbance.
- Where the approved layout designs impact on provincially protected individuals, permit applications must be submitted to the relevant authorities, for either the relocation or destruction of provincially protected species (Schedule 12 (Protected Plants) of the Limpopo

Environmental Management Act, 2003 (Act 7 of 2003)). Copies of the permits must be kept on site by the ECO.

- Where the approved layout designs impact on protected tree species, including *Prunus africana* and *Sclerocarya birrea ssp. afra*, a licence / permit is required in terms of the National Forests Act (Act 84 of 1998). Copies of the permits must be kept on site by the ECO.
- A comprehensive Animal Search and Rescue must be undertaken for the approved layout by a suitably qualified zoological / ecological specialist prior to vegetation clearance and disturbance.
- Removal of alien and invasive species, monitoring and follow-up procedures must be in accordance with the NEMBA.
- Develop and implement an effective Stormwater Management Plan, that includes an analysis on peak flow changes between the pre- and post-development landscapes; layouts and design of stormwater infrastructure; and the effective attenuation of the expected increased hydrological conditions. The plan should be developed prior to the construction phase by an accredited professional. It should be managed throughout the duration of the project to successfully mitigate potential soil erosion.
- Regular ECO monitoring must incorporate the survey and reporting on stormwater management structures. Indications of soil erosion, soil compaction, and visual observations on soil contamination should be reported on, including the implementation of recommended mitigation and rehabilitation actions.
- Clean and dirty surface water separation must be put into place via standard best practice methods.
- No discharge of domestic water must occur if possible. Domestic water must be reused for dust suppression.
- Construction and operational monitoring activities as stated in the Aquatic Biodiversity and Species Assessment are recommended to take place.
- The proposed mitigation measures, management actions, and EMPr requirements included in the Avifauna Impact Assessment Report are to be strictly implemented.
- A bird-friendly pylon design must be used for the 132 kV LILO and power line upgrade (i.e. for the new proposed LILO and the section of the existing Eskom Witkop-Pietersburg 1 Line that will be upgraded from the LILO to the Eskom Witkop Main Transmission Substation), with appropriate mitigation measures for complicated pole structures (e.g., insulation of live components to prevent electrocutions on terminal structures and pole transformers), as recommended by the Avifaunal Specialist.
- Bird Flight Diverters (BFDs) must be fitted in a staggered configuration (on the earth wire and conductor) for the full length of the 132 kV LILO and power line upgrade (i.e. for length of the new proposed LILO and the section of the existing Eskom Witkop-Pietersburg 1 Line that will be upgraded from the LILO to the Eskom Witkop Main Transmission Substation) according to the applicable Eskom Engineering Instruction (15 m apart for high voltage power lines). These devices must be installed as soon as the conductors are strung.
- The proposed mitigation measures and EMPr requirements included in the Visual Impact Assessment Report are to be strictly implemented.
- Lighting mitigation must be employed to minimise light spillage during all project phases.

- Signage on public roads must be of modest proportions during all project phases.
- If any archaeological material or human burials are uncovered during the course of development during the construction phase, then work in the immediate area must be halted. The find must be reported to the heritage authorities and may require inspection by an archaeologist to confirm significance and propose a way forward. Such heritage is the property of the state and may require excavation and curation in an approved institution.
- Implement the Chance Fossil Finds Protocol identified by the Palaeontology Specialist during the construction phase.
- The removal of vegetation should be kept to a minimum and only removed where necessary.
- Rehabilitation of soil and geological material to commence during the construction phase, if possible, alternatively following the construction phase to allow successful re-vegetation.
- Authorised vehicles to only use proposed access points and roads and keep within the footprint of the proposed project.
- Soil and geological material should be reinstated to natural or near natural conditions following decommissioning.
- Machinery and equipment to be maintained throughout the project.
- Ground protection measures to be implemented during maintenance and refuelling operations.
- Spillages to be removed and contained as rapidly as possible.

Paul Lochner

NAME OF EAP



SIGNATURE OF EAP

26 June 2026

DATE