

# Holland & Associates



Environmental Consultants

*Impact Assessments - Environmental Management Programs - Compliance Monitoring - Process Review*

## **ESTABLISHMENT OF A WIND ENERGY FACILITY SITUATED ON THE EASTERN PLATEAU (SOUTH) NEAR DE AAR, NORTHERN CAPE PROVINCE**

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**APPLICATION FOR AMENDMENT OF THE ENVIRONMENTAL  
AUTHORISATION (EA), INCLUDING EXTENSION OF THE EA  
VALIDITY PERIOD**

### **PART 1 EA AMENDMENT APPLICATION: FINAL AMENDMENT MOTIVATION REPORT**

**DFFE Reference number: 12/12/20/2463/1/AM9**

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## PROJECT DETAILS

**DFFE Ref No:** 12/12/20/2463/1/AM9

**TITLE:** Establishment of a Wind Energy Facility situated on the Eastern Plateau (South) near De Aar, Northern Cape: Part 1 Application for Amendment of the Environmental Authorisation, including Extension of the Validity Period: Final Amendment Motivation Report

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**ABBREVIATIONS**

<b>(-)</b>	Negative
<b>(+)</b>	Positive
<b>BAR</b>	Basic Assessment Report
<b>C&amp;R</b>	Comments and Response Trail Report
<b>CBA</b>	Critical Biodiversity Area
<b>CEMP</b>	Construction Phase Environmental Management Programme
<b>DAERL</b>	Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform
<b>DEA</b>	Department of Environmental Affairs
<b>DEFF</b>	Department of Environment Forestry and Fisheries
<b>DFFE</b>	Department of Forestry, Fisheries and the Environment
<b>EA</b>	Environmental Authorisation
<b>EAP</b>	Environmental Assessment Practitioner
<b>EIA</b>	Environmental Impact Assessment
<b>EIA Report</b>	Environmental Impact Assessment Report
<b>EMPr</b>	Environmental Management Programme Report
<b>FC</b>	Financial Close
<b>GN</b>	Government Notice
<b>Ha</b>	Hectare
<b>HIA</b>	Heritage Impact Assessment
<b>I&amp;APs</b>	Interested and Affected Parties
<b>NEMA</b>	National Environmental Management Act, 1998 (Act 107 of 1998)
<b>NPAES</b>	National Protected Areas Expansion Strategy
<b>NHRA</b>	National Heritage Resources Act, 1999 (Act 25 of 1999)
<b>NSD</b>	Noise Sensitive Development
<b>NSR</b>	Noise sensitive developments/ receptors/ communities
<b>OEMP</b>	Operational Phase Environmental Management Programme

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<b>PPP</b>	Public Participation Process
<b>REEA</b>	SA Renewable Energy EIA Application Database
<b>REDZs</b>	Renewable Energy Development Zones
<b>RSA</b>	Rotor Swept Area
<b>SAHRA</b>	South African Heritage Resources Agency
<b>SIA</b>	Social Impact Assessment
<b>SCC</b>	Species of Conservation Concern
<b>SPV</b>	Special Purpose Vehicle
<b>VERA</b>	Verreux's Eagle Risk Assessment
<b>VIA</b>	Visual Impact Assessment
<b>VP</b>	Vantage Point
<b>WEF</b>	Wind Energy Facility
<b>WTG</b>	Wind Turbine Generator

# 1 INTRODUCTION

## 1.1 BACKGROUND

The original Environmental Authorisation (EA) for the establishment of a Wind Energy Facility situated on the Eastern Plateau (South) near De Aar (referred to as the “De Aar 2 South Wind Energy Facility” (WEF)) was issued on 1 May 2013 in terms of the National Environmental Management Act (NEMA) (No. 107 of 1998), Environmental Impact Assessment (EIA) Regulations (2010), and is valid until 1 March 2023 (as per EA amendment decision dated 21 June 2021, DFFE Ref No.: 12/12/20/2463/1/AM8).

The original EA (dated 1 March 2013) authorised the construction of approximately 103 wind turbines, with an overall potential generation capacity of 155 – 258 MW, and associated infrastructure. Amendments to the EA have been applied for by the Applicant and granted by the Department of Forestry, Fisheries and the Environment (DFFE)<sup>1</sup> in 2013, 2014, 2016, 2018, 2019, 2020 and 2021 respectively, including a change in the name of the holder of the EA, extensions of the EA validity period, amendments to Conditions of the EA, amendments to the project description and amendments to the turbine specifications.

A Part 2 EA amendment process was undertaken in 2015, which included a reduction in the number of turbines at the WEF (i.e. reduced from 103 turbines to a maximum of 61 turbines), as well as amendments to the turbine specifications.

A Part 1 EA Amendment Application<sup>2</sup> for various amendments to the EA including the updating of the project description (including a reduction in the number of turbines to a maximum of 26 turbines), inclusion of an erroneously omitted listed activity and farm portion, and an extension of the EA validity period, was submitted to the Department of Forestry, Fisheries & Environment (DFFE) (i.e. the Competent Authority for this project) on 2 November 2022.

The DFFE responded to the Applicant on 14 November 2022, requesting additional information in terms of Regulation 30(1)(a) of the EIA Regulations, 2014 as amended. This Amendment Motivation Report contains the requested information. The draft Amendment Motivation Report (December 2022) was made available for a 30 day public participation process, as requested by DFFE.

Table 1 below provides the requested additional information in table format, along with the applicable sections of this Amendment Motivation Report where such requested information has been supplied/addressed.

**Table 1.** Additional information requested by DFFE in terms of Regulation 30(1)(a) of the EIA Regulations, 2014 as amended and applicable section

Additional information requested by DFFE	Applicable sections
Please provide any evidence which demonstrates that indeed the proposed new positions will remain within the assessed and authorised project footprint, and were assessed as alternatives as part of the EIA during the EA process. For instance, provide the map which depicts both	Section 2.2.10 Figure 6

<sup>1</sup> Previously known as the Department of Environmental Affairs (DEA)

<sup>2</sup> in terms of Regulation 29 and 30 of the NEMA EIA Regulations, 2014, as amended.

the old versus the new coordinates as well as part of the alternatives assessed during the EA process.	
A detailed motivation as to why the Department should extend the commencement period of the authorised development, including the advantages and disadvantages associated with the approval or refusal to the request for extension;	Chapter 2, Section 2.1
The status (baseline) of the environment (social and biophysical) that was assessed during the initial assessment (by the relative specialist, if applicable);	Chapter 4, Annexure J
The current status of the assessed environment (social and biophysical) (by the relative specialist, if applicable);	Chapter 4
A review of all specialist studies undertaken, and a detailed assessment, including a site verification report providing an indication of the status of the receiving environment (by the relative specialist, if applicable);	Chapter 3 & Chapter 4 Annexure E
The terms of reference for the specialist reports and declaration of interest of each specialist must be provided;	Chapter 4, Section 4.1  Annexure H1 (for Specialist Declarations)
The report mentioned above, must indicate if the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA, should the request to extend the commencement period be granted by the Department;	Chapter 4, Section 4.2;  Chapter 6  Table 13
An indication if there are any new assessments/guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration, and addressed in the report;	Chapter 4, Section 4.2  Annexure E
A description and an assessment of any changes to the environment (social and biophysical) that has occurred since the initial EA was issued;	Chapter 4, Section 4.2
A description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following: <ul style="list-style-type: none"> <li>• similar developments within a 30km radius;</li> <li>• Identified cumulative impacts must be clearly defined, and where possible the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.</li> <li>• Detailed process flow and proof must be provided, to indicate how the specialist’s recommendations, mitigation measures and conclusions from the various similar developments in the area were taken into consideration in the assessment of cumulative</li> </ul>	Chapter 4, Section 4.2, Chapter 6  Annexure K

<p>impacts and when the conclusion and mitigation measures were drafted for this project.</p> <ul style="list-style-type: none"> <li>• The cumulative impacts significance rating must also inform the need and desirability of the proposed development.</li> <li>• A cumulative impact environmental statement on whether the proposed development must proceed.</li> </ul>	
Consent from all affected landowners (where applicable);	Refer to Appendix 4 of the updated Application Form (Annexure A)
The Public Participation Process must be conducted in terms of Chapter 6 of the EIA Regulations, 2014 as amended.	Refer to Chapter 5, and Annexure G.
A comments and response report.	Refer to Annexure G6
Certified copies of the EA and its subsequent EA amendments	Refer to Appendix 2 of the updated Application Form (Annexure A)

## 1.2 LOCALITY

The proposed Mulilo De Aar 2 South WEF is situated within the Emthanjeni Local Municipality and Renosterberg Local Municipality, approximately 20km east of De Aar, in the Northern Cape Province on the following properties:

- Slingers Hoek (Farm No. 2 Remainder of Portion 2 and Remainder);
- Slingers Hoek (Farm No. 2 Portion 4); Knapdaar (Farm No. 8 Portion 1);
- Maatjes Fountain (Farm No. 1 Portion 5);
- Vendussie Kuil (Farm No. 165 Remainder of Portion 2);
- Vendussie Kuil (Farm No. 165 Portion 11 and Remainder), and
- Vendussie Kuil (Farm No. 165 Portion 7)<sup>3</sup>

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<sup>3</sup> Note: Whilst Portion 7 of Farm Vendussie Kuil No 165 was included in the combined EIA process and Final EIA Report (April 2012) for the De Aar 2 South WEF and De Aar 2 North WEF projects, and assessed by the then EAP and specialists, it is currently not included in the EA. The addition of the erroneously omitted farm portion (7/165) into the EA is one of the amendments being applied for in this EA amendment application.



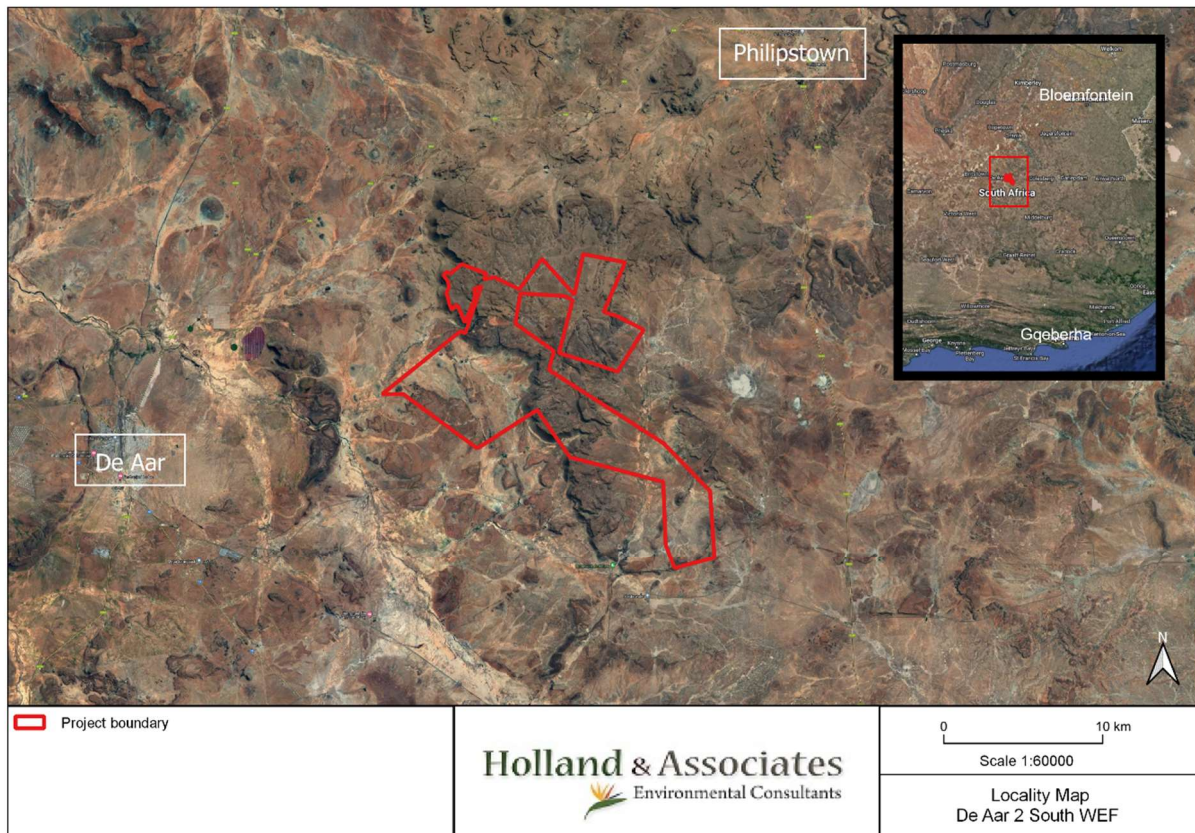


Figure 1: Mulilo De Aar 2 South WEF Locality Map

### 1.3 EXISTING ENVIRONMENTAL AUTHORISATION AND AMENDMENTS

Table 2: Existing Environmental Authorisation and Amendments

DFFE Document, Date & Reference Number	Document Description
<u>Environmental Authorisation (EA)</u> Date issued: 01 May 2013 Reference Number: 12/12/20/2463/1	Authorisation of relevant listed activities in terms of the 2010 EIA Regulations in terms of NEMA
<u>EA Amendment</u> Date issued: 21 May 2013 Reference Number: 12/12/20/2463/1	Applicant name change from <i>Mulilo Renewable Energy (Pty) Ltd</i> , to <i>Longyuan Mulilo De Aar 2 South (Pty) Ltd</i>
<u>EA Amendment</u> Date issued: 14 August 2014	Extension of validity period to 14 August 2016 Amendment to the property description

Reference Number: 12/12/20/2463/1	Amendment to Condition 43 Amendment to Condition 44 Amendment to Condition 45
<u>EA Amendment</u> Date issued: 25 January 2016 Reference Number: 12/12/20/2463/1/AM3	Amendment of the description in EA Amendment of turbine specifications in the EA
<u>EA Amendment</u> Date issued: 07 April 2016 Reference Number: 12/12/20/2463/AM4	Amendment to the contact details of the holder of the EA
<u>EA Amendment</u> Date issued: 05 July 2018 Reference Number: 12/12/20/2463/AM5	Extension of validity period to 14 August 2021
<u>EA Amendment</u> Date issued: 06 September 2019 Reference Number: 12/12/20/2499/AM6	Amendment of project description
<u>EA Amendment</u> Date issued: 24 August 2020 Reference Number: 12/12/20/2499/AM7	Amendment of project description
<u>EA Amendment</u> Date issued: 21 June 2021 Reference Number: 12/12/20/2499/AM8	Extension of validity period to 01 March 2023

#### **1.4 CURRENT PART 1 EA AMENDMENT APPLICATION: PROPOSED AMENDMENTS TO THE ENVIRONMENTAL AUTHORISATION**

Proposed amendments to the Environmental Authorisation (EA) that form the subject of the current Part 1 EA amendment process include the following:

- Amendment to Condition 7 of the EA, as amended (i.e. proposed extension of the commencement of the construction period (extension of the validity period of the EA));
- Amendments to the project description in the EA;

- Amendment to include an erroneously omitted Listed Activity into the EA (i.e. request for correction in terms of National Environmental Management Act (NEMA) Section 47A(1)(b) and EIA Regulation (27(4));
- Amendment to the property description in the EA, to include an erroneously omitted property into the property description (i.e. request for correction in terms of NEMA Section 47A(1)(b) and EIA Regulation (27(4)).

The abovementioned amendments are outlined further below:

1. Proposed **extension of the EA validity period by 2 years**, i.e. from the current expiry date of 01 March 2023, to 01 March 2025.
2. **Proposed amendments to the project description in the EA:**
  - 2.1 **Reducing the number of turbines** from the authorised “25 – 61” to “up to 26”.
  - 2.2 **Internal roads (widths):**  
New roads: 6m width (i.e. change from the authorised 4m wide roads to 6m wide roads). (The total length of the new roads would be approximately 38.7km);  
Upgrading sections of existing roads: 6m width (i.e. upgrading from 4m width to 6m width). (The length of the section of road to be upgraded is less than 1km).
  - 2.3 **Foundations:** Change from the authorised “*18.4m in diameter that narrows up to 10.6m at the surface (the visible portion) with a depth of 3.5 once completed*”, to foundations up to maximum 24m diameter at lowest point and up to 12m diameter at surface.
  - 2.4 **Hardstands:** Change from the authorised “*A permanent hard standing made of compacted gravel and approximately 50 m x 40 m would be constructed adjacent to each turbine location for the crane*”, to hardstands with approximate footprint up to 0.47 ha per WTG adjacent to and surrounding each WTG.
  - 2.5 **Co-ordinates of IPP Substation Control and O&M building:** No changes to the development footprint are proposed, however amendment to the co-ordinates of the substation in the EA are proposed. Centre co-ordinate of the onsite IPP substation (on page 5 of the EA) to be amended to 30°35'25.02"S; 24°16'52.93"E, and removal of co-ordinates that are no longer applicable. Removal of references in EA to multiple substations (as only one substation is authorised in Condition 2 of the EA).
  - 2.6 **Temporary Laydown Areas:** No changes to the development footprint are proposed, but further detail to be included in the EA (i.e. WTG component laydown, concrete batching plant, office yard).
  - 2.7 **Internal reticulation:** Change from the authorised “22 kV” to 33 kV.
  - 2.8 **Removing the specified MW generation capacity per turbine** (currently stipulated as “2.3MW – 6.0MW”) to facilitate selection of the optimum wind turbine available at design phase.
  - 2.9 **Inclusion of the words “up to” in front of the currently authorised turbine specifications for hub height and rotor diameter**

Refer to Table 3 outlining the proposed amendments (as listed above) to the description of the specific project components.

**Table 3: Summary of proposed amendments to the description of the specific project components**

<b>Amendment #</b>	<b>Component</b>	<b>Currently Authorised (Approved)</b>	<b>Proposed Amendment</b>
2.1	<b>Number of Turbines</b>	25 - 61	<u>Up to 26</u>
2.2	<b>Internal Roads</b>	4m wide	<p>New roads: <u>6m wide</u> (i.e. 10m working width during construction, rehabilitated to 6m width during operations). The length of the new roads would be approximately 39 km) (V-drains will run on either side of the road)</p> <p>Upgrade sections of an existing private farm road from estimated 4m to <u>6m</u> final width during operations. The length of road to be upgraded would be less than 1 km in length</p>
2.3	<b>Foundations</b>	<i>"The foundation size would be 18.4m in diameter that narrows up to 10.6m at the surface (the visible portion) with a depth of 3.5 once completed"</i> .	Foundations up to <u>maximum 24m diameter at lowest point and up to 12m diameter at surface</u> .
2.4	<b>Hardstands</b>	<i>"A permanent hard standing made of compacted gravel and approximately 50 m x 40 m would be constructed adjacent to each turbine location for the crane". (i.e. 0.2 Ha per WTG)</i>	<p>A permanent hard standing made of compacted gravel <u>with approximate footprint up to 0.47 Ha per WTG</u>, adjacent to and surrounding each WTG.</p> <p>(Total hardstand footprint for WEF up to maximum 12.2 ha).</p>
2.5	<b>IPP Substation, Control and O&amp;M buildings</b>	<p>Substation: Currently authorised: 2ha.</p> <p>The EA states <i>"the proposed substations and associated control buildings would have a footprint of approx. 200 x 100m"</i>.</p> <p>Co-ordinates for "substation options" are included on page 5 of the EA dated 1 March 2013.</p>	<p>No change to footprint (i.e. 2 ha).</p> <p><u>Amendment to co-ordinates in EA</u> (to align with location of substation in proposed Final Layout Plan).</p> <p>Centre co-ordinates of the onsite IPP substation (on page 5 of the EA) to be amended to <u>30°35'25.02"S; 24°16'52.93"E</u>, and removal of co-ordinates that are no longer applicable.</p> <p><u>Removal of references in EA to multiple substations</u> (as only one</p>

			substation is authorised in Condition 2 of the EA).
2.6	<b>Temporary Laydown Areas</b>	<p><i>“A total of three construction laydowns in the south would be required with each having a footprint of approximately 200 x400m”.</i></p> <p>(Total footprint of approximately 24ha for the three construction laydown areas).</p>	<p>No change to footprint. Proposed addition of further description, i.e.:</p> <p><u>“A total of three construction laydowns (including construction office / yard, WTG component laydown area, and on-site concrete batching plant) in the south would be required, each having a footprint of approximately 200 x 400m.</u></p> <p>(Total footprint of approximately 24ha for the three construction laydown areas).</p>
2.7	<b>Internal Reticulation</b>	22kV	<u>33kV</u>
2.8	<b>Generation capacity per turbine</b>	2.3MW – 6.0MW	Remove specified generation capacity per turbine. <u>2.3MW – 6.0MW</u>
2.9	<b>Turbine hub height from ground level</b>	120m	<u>Up to 120m</u>
	<b>Rotor diameter</b>	165m	<u>Up to 165m</u>

The proposed amendments to the project description, as outlined above, will not result in an increase in the size of the approved development footprint for the project. The footprint would remain the same (as authorised) or be reduced. The proposed amendments do not trigger any new listed activities.

**3. Proposed inclusion of an erroneously omitted Listed Activity** (Activity 15 of GN R. 545 (Listing Notice 2) into the EA (i.e. request for correction in terms of NEMA Section 47A(1)(b) and EIA Regulation (27(4)):

The Applicant requests the inclusion of one 2010 EIA Regulations listed activity, i.e. Activity 15 of GN R. 545 (Listing Notice 2), into the EA, which was assessed in the EIA process for the project, however was erroneously omitted from the Application Form and EIA Report. Activity 15 of GN R. 545 states: *“Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more; except where such physical alteration takes place for:*

- (i) linear development activities; or*
- (ii) agriculture or afforestation where activity 16 in this Schedule will apply*

The similarly listed activity in terms of the 2014 EIA Regulations, as amended, is Activity 15 of GN 984, as amended (Listing Notice 2) which states “*The clearance of an area of 20 hectares or more of indigenous vegetation, excluding 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*”).

4. **Amendment to the property description in the EA**, to include an erroneously omitted property into the property description (i.e. request for correction in terms of NEMA Section 47A(1)(b) and EIA Regulation (27(4))
- Addition of Portion 7 of Farm Vendussie Kuil No. 165 into the EA (given that a section of a proposed road would cross the corner of Portion 7 of Farm No. 165, which is currently not included in the EA, but was included in the combined EIA process and reporting for the De Aar 2 South WEF and De Aar 2 North WEF projects).

Refer to Section 2 for the motivation for the proposed amendments, and to Appendix 8 of the updated Application Form (included in Annexure A) for the proposed amendments to the text of the EA.

## 1.5 MULILO DE AAR 2 SOUTH WEF

The Mulilo De Aar 2 South WEF would consist of up to 26 possible Wind Turbine Generators (WTG)<sup>4</sup>, including the following:

Component	Description/ Dimensions
Maximum number of turbines	Up to 26
Hub height from ground level	Up to 120m
Rotor diameter	Up to 165m
Permanent affected areas (foundation size)	Foundations up to maximum 24 m diameter at lowest point and up to 12 m diameter at surface.
Maximum Output of the Wind Energy Facility	140MW

<sup>4</sup> Note: Based on DFFE’s comment, the Applicant decided to refine the proposed Final Layout Plan to a 26-turbine layout to avoid confusion, i.e. to include only the 26 turbines in the final layout that will be constructed if the amendments sought to the current EA are approved. In this regard, WTG numbers 9 and 13 have been removed from the 28-turbine position layout that was included in the Draft Motivation Report (and draft amended EMPr (November 2022)). The proposed 26-turbine Final Layout is included in Figure 2 of this final Amendment Motivation Report. Note that no other changes to turbine positions have been undertaken, only the removal of 2 turbine positions and very minor micro-siting of Turbines 11 and 25 to ensure that the turbines are not within the jackal buzzard buffer areas. Furthermore, note that the numbering of the turbines has remained the same as the draft Final Layout Plan included in the draft Amendment Motivation Report (and draft Amended EMPr). Accordingly, whilst there are turbines numbered 27 and 28 in the updated Final Layout Plan included in Figure 2, there are only 26 turbines in the layout, as turbine positions 9 and 13 have been removed and the numbering of the remaining turbines has been left unchanged.

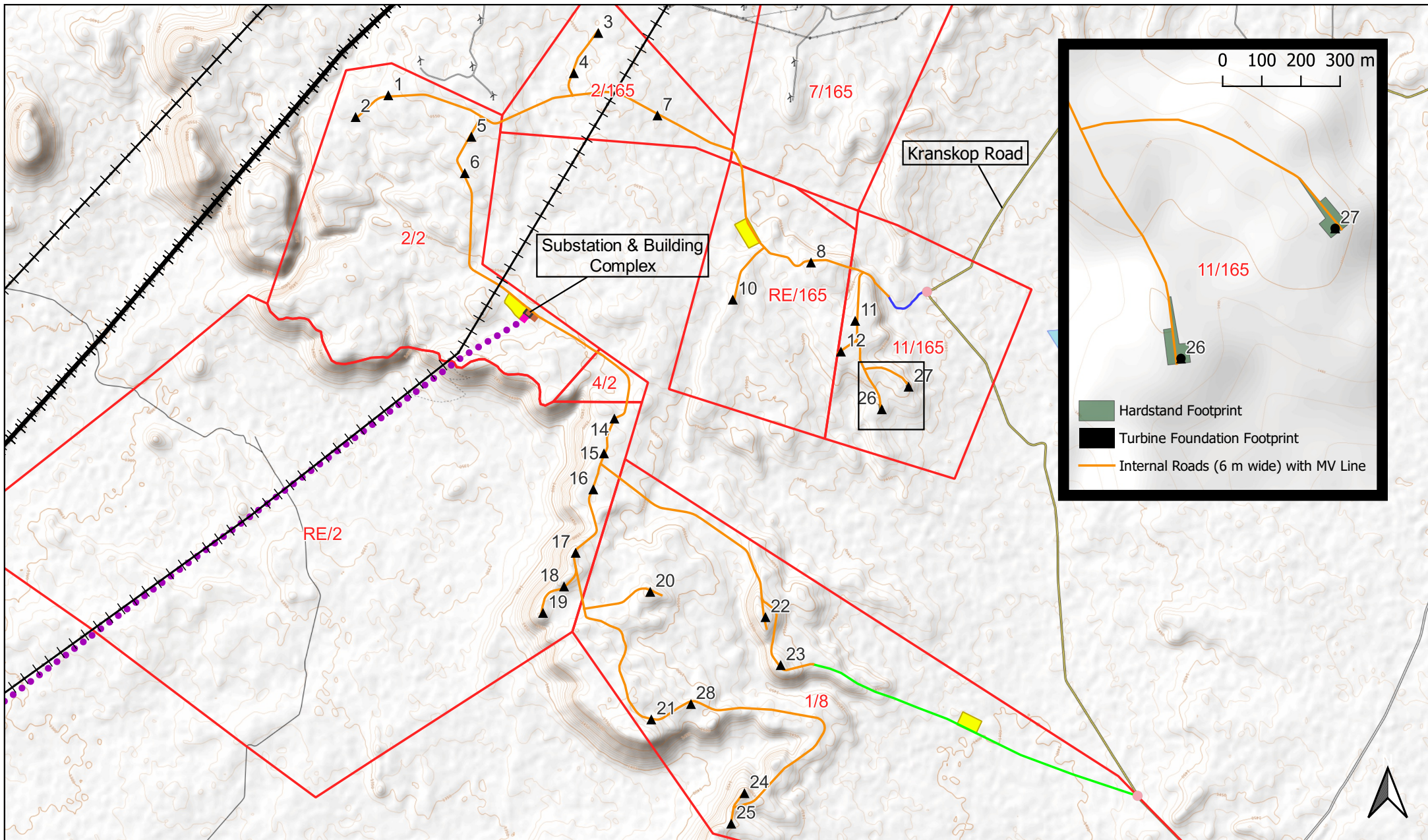
In addition, the associated infrastructure includes:

- A permanent hard standing made of compacted gravel with approximate footprint up to 0.47 ha per WTG, adjacent to and surrounding each turbine. Total hard stand footprint for WEF would be up to maximum of 12.2 ha.
- A total of three construction laydowns (including construction office/ yard, WTG component laydown area, and on-site concrete batching plant), each having a footprint of approximately 200m x 400m.
- Gravel surface access roads of approximately 6m wide (i.e. 10m working width during construction, rehabilitated to 6m width during operations) between each turbine. (V drains will run on either side of the road as required).
- Upgrade sections of an existing private farm road from estimated 4m to 6m final width during operations.
- Cables connecting each turbine would interconnect with 33kV overhead powerlines that will follow straight line routes adjacent to internal roads. Each turbine would have a transformer that steps up the voltage from 690V to 33kV. This transformer is housed within each turbine tower or immediately outside the turbine.
- The cabling and overhead powerlines from the turbines would traverse the site back to the substation, where the power from all the turbines would be metered.
- The proposed substation and associated control buildings would have a footprint of approximately 200 x 100m (2ha).

As indicated above, the wind turbine generators would be connected via a 33kV reticulation network to the onsite substation, which is also connected with a new Eskom switching station. This new Eskom switching station will connect to the existing transmission network via a new 132kV overhead line. The new Eskom switching station and 132 kV grid connection line have recently received Environmental Authorisation as part of a separate EA application process (DFFE Ref: 14/12/16/3/3/1/2595).

The proposed final Site Layout Plan (Figure 2) for the Mulilo De Aar 2 South WEF is currently undergoing a separate EMPr and Layout Plan finalisation process (DFFE Ref: 12/12/20/2463/MP1) as required in terms of Conditions 13, 14, 15 and 16 of the EA). The proposed final Site Layout Plan was guided by the Environmental Sensitivity Map which resulted from updated specialist assessments and inputs (September – November 2022). The proposed Final Layout Plan and associated Environmental Sensitivity Map are included in Figure 2 and Figure 10 of this report, respectively, for indicative purposes. **Note, however, that the Final Layout Plan will still be submitted to DFFE together with the amended EMPr, for approval, as required in terms of Conditions 13, 14, 15, and 16 of EA, shortly (as part of the separate EMP and Layout Plan finalization process (DFFE Ref: 12/12/20/2463/MP1).**





- |  |  |
|--|--|
| Affected Farm Portions                   | Substation & Building Complex                      |
| Proposed Turbine                         | Temporary Laydown Areas                            |
| Access Point                             | Access Roads (authorised in separate EA)           |
| Internal Roads (6 m width) with MV Lines | Switching Station (authorised in separate EA)      |
| Access Road (to be upgraded)             | 132 kV Grid Connection (authorised in separate EA) |
| Substation & Building Complex            | Existing Transmission Line                         |

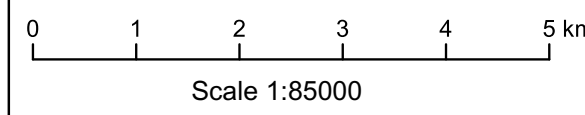


Figure 2: Final Layout Plan  
De Aar 2 South WEF



## 1.6 DETAILS AND EXPERTISE OF THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

Ms Nicole Holland of Holland & Associates Environmental Consultants is the Environmental Assessment Practitioner (EAP) for the Application for Amendment of the Environmental Authorisation process, assisted by Ms Tilly Watermeyer of Holland & Associates Environmental Consultants. The qualifications and expertise of the EAP and project staff are outlined in Table 4 below.

**Table 4: Details of the EAP and project staff**

Name	Academic Qualifications	Registration	Expertise
Nicole Holland	BSc (Hons) Environmental and Geographical Science	Registered with the South African Council for Natural Scientific Professions (Reg No.: 400306\06).  Registered Environmental Assessment Practitioner (EAP) with the Environmental Assessment Practitioners Association of South Africa (Reg No.: 2020/493).  Member of the IAIAAsa (International Association for Impact Assessment (Western Cape branch)).	Nicole Holland has a Bachelor of Science (Hons) in Environmental and Geographical Science from the University of Cape Town, specializing in Environmental Management. She has 20 years of experience in the environmental management field and has compiled and managed numerous environmental investigations including Environmental Impact Assessments (Basic Assessments and Scoping & Environmental Impact Assessment processes), Environmental Management Plans/ Programmes (EMP), waste management license application processes, as well as applications for amendments of Environmental Authorisations.  Nicole has extensive experience in managing environmental impact assessments including, amongst others, agricultural development projects, renewable energy developments, water supply dams, wastewater treatment works, housing and resort developments, cemeteries, road upgrades, pipelines, waste sites, and a cement manufacturing plant. Nicole has also undertaken the independent review of a number of Scoping and Environmental Impact Reports and Basic Assessment Reports, and has been involved in a broad spectrum of other environmental work including Environmental Auditing, the drafting of Environmental Management Programs, and Environmental Control Officer Work.
Tilly Watermeyer	MSc (Botany)	Member of the IAIAAsa (International Association for Impact Assessment)	Tilly Watermeyer has a Master of Science in Botany from Stellenbosch University. She has over 2 years of experience working in environmental management assisting with the compilation of numerous Environmental Impact Assessments, Environmental

Name	Academic Qualifications	Registration	Expertise
			Management Programmes (EMPrs) and applications for, and Amendments of Environmental Authorisations. She has experience in renewable energy projects, agricultural development projects and residential housing. Tilly has also assisted with and undertaken Environmental Audits, independent environmental reviews and Environmental Compliance monitoring.

The *Curriculum Vitae* of the Environmental Assessment Practitioner is included in Annexure C.

## 1.7 DETAILS OF SPECIALISTS

Table 5 below outlines the specialist team involved in assessing the potential environmental impacts associated with the proposed amendments to the EA:

**Table 5: Team of Specialists**

Specialist field	Specialist
Ecology	Dr David Hoare (David Hoare Consulting (Pty) Ltd)
Freshwater	Ms Toni Belcher
Avifauna	Chris Van Rooyen and Albert Froneman (Chris Van Rooyen Consulting)
Bats	Werner Marais (Animalia)
Noise	Morne de Jager (EARES Enviro Acoustic Research)
Visual	Quinton Lawson and Bernard Oberholzer
Agriculture/Soils	Johann Lanz
Transport /Traffic	Christoff Krogscheepers, Pieter Arangie (Innovative Transport Solutions (Pty) Ltd (ITS)
Heritage (Archaeology)	John Gribble and David Halkett (ACO Associates)
Paleontology	Prof Marion Bamford (Marion Bamford Consulting)
RFI	Henk Goosen (Interference Testing and Consultancy Services (Pty) Ltd (ITC) (ITC Services)
Social	Tony Barbour

## 1.8 THE APPLICANT

The details of the Applicant (and holder of the EA) are provided below:

<b>Holder of EA</b>	Mulilo De Aar 2 South (Pty) Ltd
<b>Company Registration</b>	2012/041424/07
<b>Contact Person</b>	Mr John Hamilton Cullum/ Mr Andrew Pearson

<b>Physical Address</b>	Top Floor, Golf Park 4, Raapenberg Rd, Mowbray, Cape Town, 7700
<b>Postal Address</b>	Post Net Suite #53, Private Bag X21, Howard Place 7450
<b>Telephone</b>	(021) 685 3240
<b>Email</b>	johnny@mulilo.com / andrew@mulilo.com

## 1.9 ASSUMPTIONS, UNCERTAINTIES AND GAPS IN KNOWLEDGE

### Assumptions

In undertaking this investigation and compiling the Application for the Amendment of the EA, it has been assumed that:

- The information provided by the Applicant and specialists is accurate, unbiased and valid at the time it was provided.
- The scope of this investigation is limited to the proposed amendments as outlined in Sections 1 and 2 of this report.

### Uncertainties

The proposed amendments to the EA, including the proposed extension of the EA validity period in relation to its environment, were thoroughly investigated by the specialists and professionals and there are therefore no uncertainties with regards to the potential environmental impacts associated with the proposed amendments.

### Gaps in knowledge

No obvious gaps in knowledge are known. All relevant specialist studies have been undertaken to inform the EA amendment application process and associated conclusions and recommendations.

## 2 MOTIVATION FOR THE PROPOSED AMENDMENTS

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### 2.1 PROPOSED AMENDMENT TO CONDITION 7, AS AMENDED (PROPOSED EXTENSION OF THE COMMENCEMENT OF THE CONSTRUCTION PERIOD (I.E. EXTENSION OF THE VALIDITY PERIOD OF THE EA))

Mulilo De Aar 2 South (Pty) Ltd requires an extension of the EA validity period, to ensure the commencement period of the authorised development. As per the DFFE's recommendations, a motivation for the authorisation of this validity extension is provided below, including the advantages and disadvantages associated with the approval or refusal to the request for extension.

#### 2.1.1 Motivation to extend the validity period

The De Aar 2 South Wind Energy Facility (WEF) was originally developed to be tendered, constructed, and operated under the Government's Renewable Energy Independent Power Producer Procurement Programme ("REIPPPP"). The REIPPPP unfortunately experienced numerous and significant delays since 2015 where no new tender windows were announced until 2021. As a result, project developers have been forced to extend Environmental Authorisation (EA) validity periods in anticipation that the REIPPPP programme would recommence due to the dire state of the national electricity supply. This delay was beyond the control of the developers who had already invested significant capital in the project sites but had to maintain the validity of the EA's in order to comply with the tender rules and conditions precedent for financial close, after which they can eventually be constructed. The De Aar 2 South WEF Project has been directly impacted by this impasse but was able to participate in the new growing private power purchase agreement (PPA) market.

The Project was awarded Preferred Bidder in a private procurement process for a private off-taker, but is subject to strict timelines. The result of this award is that the Project's commencement of construction is no longer dependent on the continuation of REIPPPP program but must meet the requirements of the Preferred Bidder Award. The award is conditional on the Project being able to meet the timelines with Financial Close anticipated in May 2023, and construction to commence in approximately August 2023 in order to meet the commercial operation date as one of the conditions of the award. **The project is currently at a very advanced stage of development towards Financial Close, with the following critical milestones achieved in recent months:**

1. The Project was tendered into the private off-taker's bidding process in 2020, was shortlisted in 2021 and subsequently received Preferred Bidder in early 2022;
2. The Project signed a statement of intent with the private off-taker for the purchase of electricity from this project and is in very advanced stages of negotiating the power purchase agreement;
3. The Project has appointed various legal advisors and technical engineering consultants, whom have commenced with the basic design and drafting of the contractual documents;

4. The Project has issued a Request for Proposal for Engineering, Procurement and Construction (EPC) Services in July 2022 for the selection of the construction contractor;
5. The Eskom Cost Estimate Letter for connection to the national grid has been issued and the Project has applied and paid for its Eskom Budget Quote;
6. The Project has made the required application for a NERSA Generation License as well as the relevant Water Use Rights under the National Water Act;
7. The Project has submitted (on 07 October 2022) a final Basic Assessment Report (BAR), in the name of the applicant, for a new grid connection solution to the proposed Wag 'n Bietjie Main Transmission Substation (MTS), DFFE ref: 14/12/16/3/3/1/2595, in order to obtain the required EA to connect to the Eskom Grid in response to the Eskom Cost Estimate Letter and the requirements anticipated in the Eskom Budget Quote and Self Build Agreement. Environmental Authorisation for the Wag 'n Bietjie MTS was issued by DFFE on 22 November 2022 (DFFE Ref: 14/12/16/3/3/1/2577) and Environmental Authorisation for the new grid connection and associated infrastructure was issued by DFFE on 19 January 2023. (DFFE ref: 14/12/16/3/3/1/2595);
8. The Project has appointed its sponsor legal advisors as well as the financial advisors whom have begun engaging with Senior Lenders;
9. The Project has invested significant resources in diligently updating the EMPr by engaging experienced specialist to assess the required amendments and final layout according to the legislated approval process. The draft amended EMPr and Final Layout Plan have recently (January 2023) completed a 30 day I&AP comment period, and will be submitted to DFFE shortly thereafter for approval, as required in terms of the conditions of the EA dated 1 March 2013; and
10. The project is in the final stages of the pre-construction's financial close and contracting finalisation process, with construction planned for approximately Q3 or Q4 2023 (however, EA extension beyond this is applied for due to possible future, but unlikely, delays beyond the Applicant's control, for example any possible short-term Eskom delays).

The Applicant requests an extension of 2 years to the validity period, to allow the Project to undertake the required studies, achieve Financial Close and commence construction in line with the private off-taker's timelines stipulated in the conditional Preferred Bidder Award. The extension of the EA validity period is required to allow the project to complete the Financial Close (FC) process (including appointment of all contractors etc.) and to comply with certain EA pre-construction conditions, in particular to update the projects' EMPr and final layout plan. To this end, the applicant has held a pre-application meeting with DFFE to discuss this project and its required EMPr update process, which is well underway and advanced (and has recently concluded (January 2023) a 30 day I&AP comment period). A significant amount of work has been done in this regard, including additional site work and specialist "walk through" surveys and micro siting. Specialists have already completed all of the required site visits to confirm that the proposed amendments to the EA will not result in any new impact or an increased level or change in the nature of impacts, all of which required time and effective planning. The conclusions reached by the specialist team, following the July to September 2022 site assessments, confirmed that **no significant changes to the receiving environment have occurred since the original EIA.**

The request to extend the validity of the EA is therefore specifically to align with the private off-taker's conditional Preferred Bidder award timelines and complete certain tasks required before construction can commence.

Approval of this amendment will ensure that the Project realises its potential to deliver much needed generation capacity from clean renewable energy into the South African national grid.

### **2.1.2 Advantages of granting/refusal of the extension of the validity period**

Should the requested extension of the commencement of the construction period (i.e. extension of the validity period) be granted, then the project can be prepared for construction, and the implementation of the Mulilo De Aar 2 South WEF Project can take place. 140MW of power will be taken up by the private off-taker, meaning 140MW would not need to be supplied by Eskom, therefore taking pressure off the grid and reducing the need for loadshedding. The positive impacts on energy production, local economy (including employment and increased demand for local goods and services) and climate change would be realized, and would expedite the provision of clean energy into the national grid to address the severe power shortages currently experienced in the country, simultaneously assisting South Africa in meeting our climate change commitments.

### **2.1.3 Disadvantages of granting/refusal of the extension of the validity period**

If the extension is not granted, a new application for Environmental Authorisation of the Mulilo De Aar 2 South WEF will have to be undertaken. This will lead to extensive additional expenses and delay in reaching its private off-taker commitments. This delay would result in the Project losing preferred bidder status with the private off-taker. This will also result in forfeit, or at the very least significant delay, of the construction-ready renewable energy projects comprising of 140 MW of clean renewable energy.

## **2.2 PROPOSED AMENDMENTS TO THE PROJECT DESCRIPTION**

### **2.2.1 Reduction in the number of turbines**

In terms of the proposed reduction in the number of turbines at the Mulilo De Aar 2 South WEF from the authorised maximum of 61 turbines (EA Amendment Decision 12/12/20/2463/1/AM7 dated 24 August 2020) to a maximum of 26, turbine technology advancements (and competition amongst suppliers) now allow for turbines of the same size to produce more MW than previous models. The Applicant therefore proposes to reduce the maximum number of turbines at the WEF, to minimise the footprint of the WEF, whilst achieving the same overall generation capacity of the WEF.

Note: The proposed final layout turbine positions will remain within the assessed and authorised project footprint (refer to Section 2.2.10 below). Furthermore, all of the proposed 26 turbine positions have been assessed and recently checked (either through desk top analysis, and/or additional site visit work, where required) in the specialist "walk through"/EMPr update reports as part of the layout finalisation process and micro-siting that is currently underway and has undergone a separate public participation process, in which all specialists confirmed that the proposed Final Layout is acceptable.

### 2.2.2 Width of proposed roads

In terms of the proposed increase to the width of the proposed roads (specified as 4m wide in the Environmental Authorisation dated 1 March 2013), to 6m wide (i.e. 10m working width during construction, rehabilitated to 6m width during operations), due to the continuous development in wind turbine technology, wider roads would assist with the transportation of turbine components and associated infrastructure to each WTG position and reduce the total construction period length.

### 2.2.3 Foundation dimensions

The Applicant proposes the amendment of the foundation dimensions (specified as *“the foundation size would be 18.4m in diameter that narrows up to 10.6m at the surface (the visible portion) with a depth of 3.5 once completed”* in the EA Amendment 12/12/20/2463/1/AM7 dated 24 August 2020) to foundations up to maximum 24m diameter at lowest point and up to 12m diameter at surface, to align with the current wind turbine technology available in the market for turbines with rotor diameter and hub height specifications as specified in the environmental authorisation, as amended.

### 2.2.4 Hardstand dimensions

The applicant proposes to amend the individual hardstand dimensions at the Mulilo De Aar 2 South WEF to align with the current wind turbine technology available in the market for turbines with rotor diameter and hub height specifications as specified in the EA. The proposed amendment would allow for a more complex geometry of the hardstands to what is currently authorised. The total overall hardstand footprint for the WEF would remain the same as currently authorised, i.e. maximum 12.2 ha.

### 2.2.5 Co-ordinates of IPP Substation, Control & O&M Building

The Applicant wishes to remove the substation co-ordinates of four substations options currently included on page 5 of the EA, as they were likely erroneously included and are not related to the Mulilo De Aar 2 South WEF project, but rather to the already operational De Aar 2 North WEF that was assessed in conjunction with the De Aar 2 South WEF during the same original EIA process for the aforementioned two projects. The Applicant wishes to include the correct centre point co-ordinates of the IPP substation to align with the substation location included in the proposed Final Layout (as assessed by all relevant specialists) to be submitted for approval (as part of the EMPr and Layout Plan finalisation process that is currently underway) in due course.

### 2.2.6 Temporary Laydown Areas

No changes to the footprint for the three laydown areas are proposed. The Applicant wishes to add the detail that the laydown areas would consist of WTG component laydown, concrete batching plant and office yard (within the laydown area footprint).

### 2.2.7 Internal reticulation

The Applicant proposes to change the voltage level of the internal reticulation network for the Mulilo De Aar 2 South WEF (from 22kV to 33kV) to align with the current industry standards.

### 2.2.8 Removal of specified generation capacity per turbine

In terms of the proposed removal of the specified generation capacity per turbine from the project description (specified 2.3MW – 6.0MW in EA Amendment Decision 12/12/20/2463/1/AM7 dated 24 August 2020), the individual turbine capacity has no bearing

on environmental impact. There are no proposed changes to the maximum turbine specifications (size) and the overall facility footprint would be the same (as authorised) or be reduced. Turbine technology advancements (and competition amongst suppliers) now allow for turbines of the same size to produce more MW than previous models. In line with South Africa's urgent need for power and the emphasis on renewable energy to meet Renewable Energy targets and the requirements of the IRP, there is a need to maximise the efficiency of the project to produce as much renewable energy from the same, or smaller footprint.

#### **2.2.9 Inclusion of the words “up to” in front of the currently authorised turbine specifications for hub height and rotor diameter**

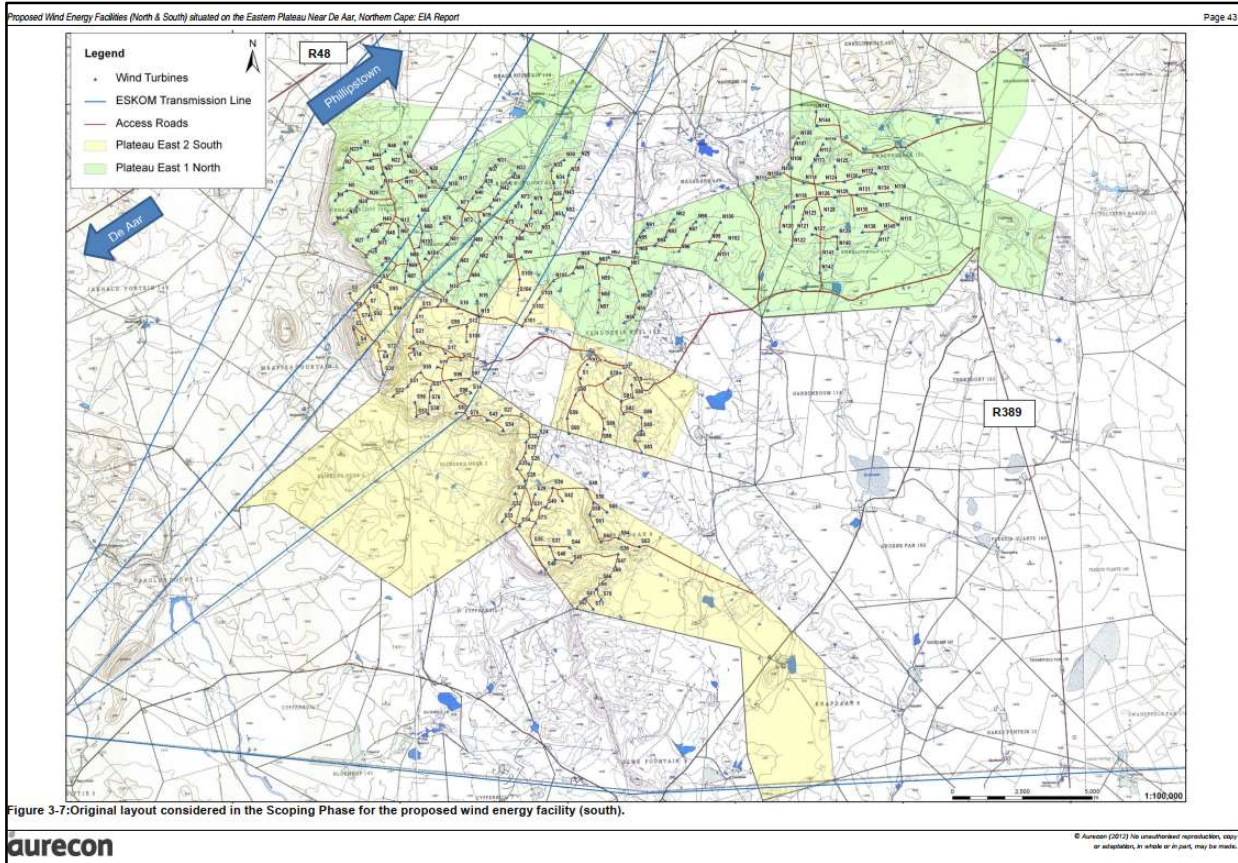
The Applicant proposes the inclusion of the words “up to” in front of the currently authorised turbine specifications for hub height and rotor diameter, to allow for the possibility of smaller turbines needing to be installed, if required, due to suppliers.

Note: The proposed amendments will not trigger any new EIA listed activities not already authorised for the project.

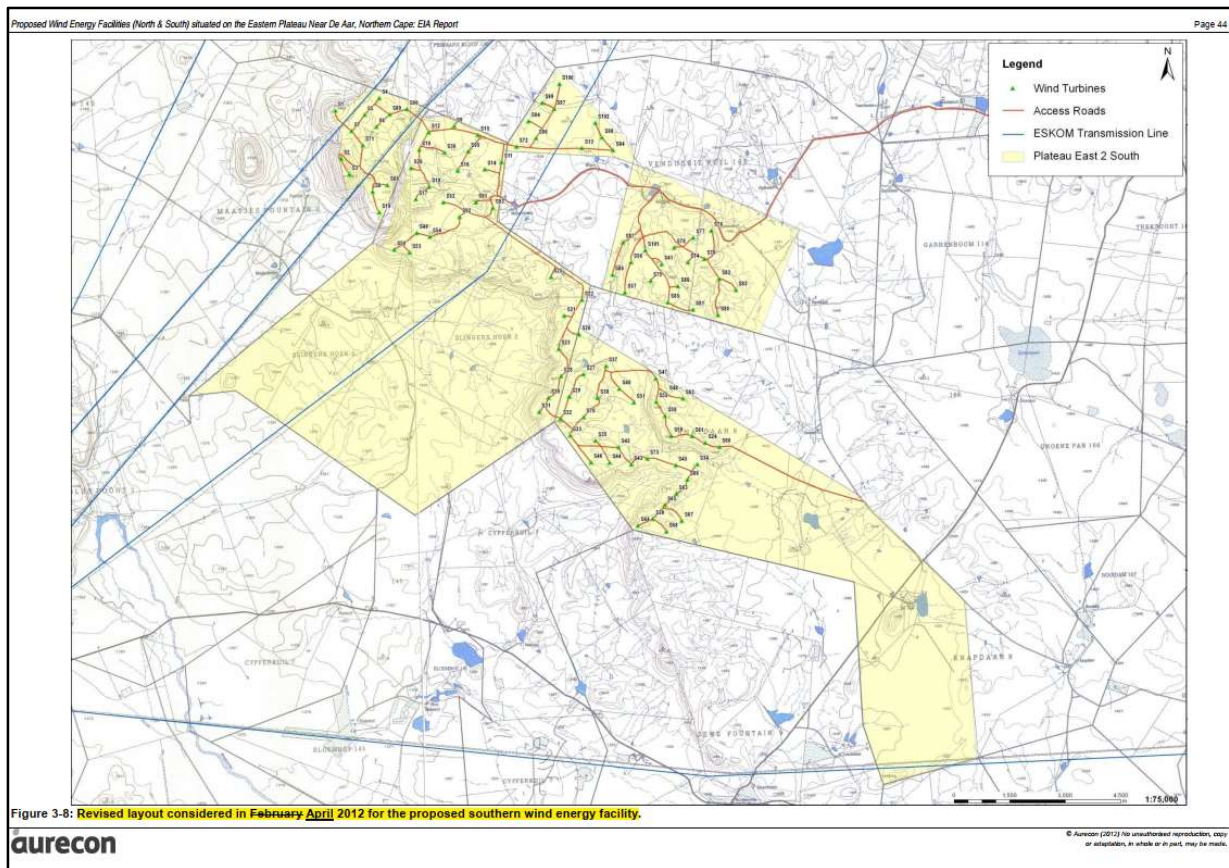
#### **2.2.10 Evidence that demonstrates that the proposed new positions will remain within the assessed and authorised project footprint and were assessed as part of the EIA during the EA process**

The authorised Wind Energy Facility (WEF) situated on the Eastern Plateau (South) (also referred to as the “Mulilo De Aar 2 South Wind Energy Facility” or “De Aar 2 South WEF”) near De Aar, in the Northern Cape Province, was granted an Environmental Authorisation (EA) from the Department of Environmental Affairs (DEA) (now known as the Department of Forestry, Fisheries and Environment (DFFE) on 1 March 2013. This original EA authorised the construction of approximately 103 wind turbines, with an overall potential generation capacity of 155 –258 MW, and associated infrastructure. This was a result of an EIA process (“The Original EIA”) which assessed both the De Aar 2 North WEF and the De Aar 2 South WEF projects, as per the footprint depicted in Figures 3 and 4 below (source: Page 43, Final EIA Report, 2012, Aurecon) (Note: Enlarged versions of Figures 3 - 6 are included in Annexure I):





**Figure 3: Original layout considered in the EIA process for the proposed WEF (South): Source Final EIA Report dated April 2012 (Aurecon, 2012)**



**Figure 4: Revised layout considered in April 2012 during the EIA process for the proposed De Aar 2 South WEF (Source: Final EIA Report dated April 2012 (Aurecon, 2012))**

A Part 2 EA amendment process was undertaken in 2015, which included a reduction in the number of turbines at the WEF (i.e. reduced from 103 turbines to a maximum of 61 turbines), as well as amendments to the turbine specifications. The updated layout of 61 turbines is shown in the figure below:



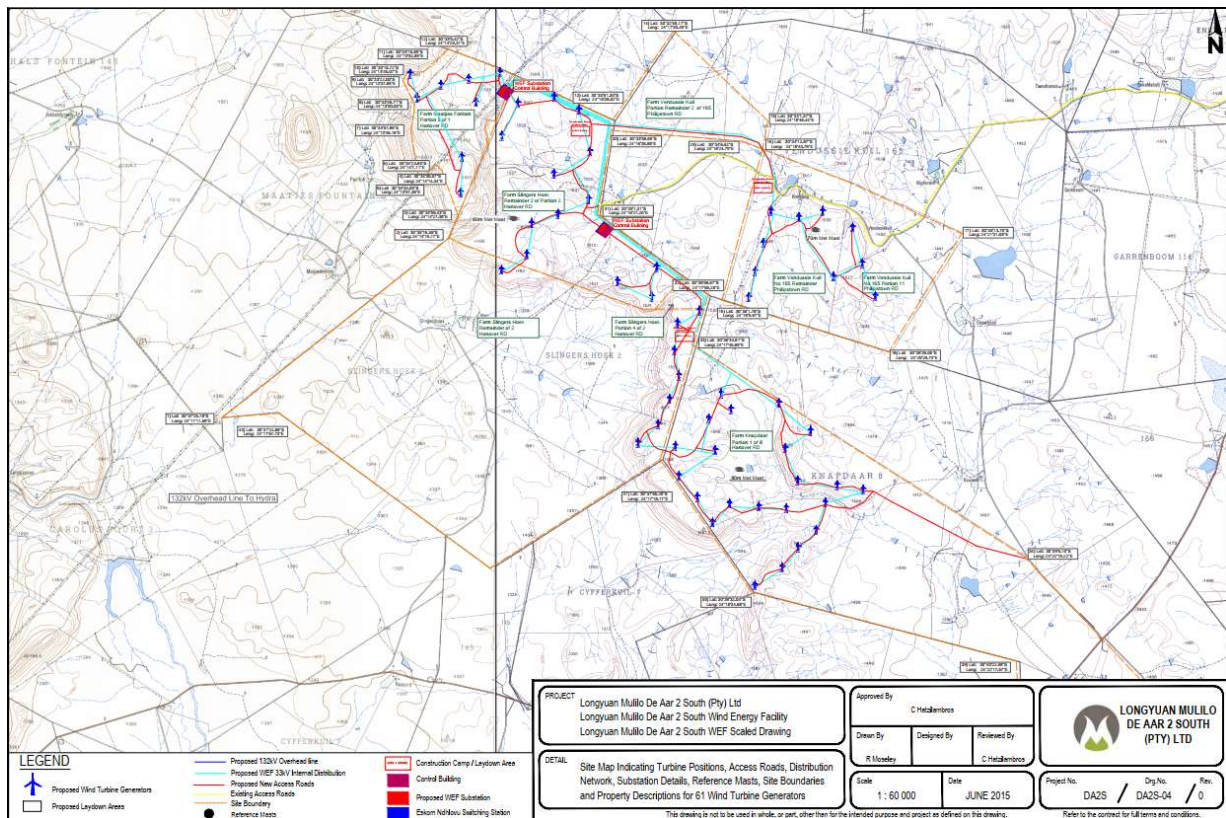
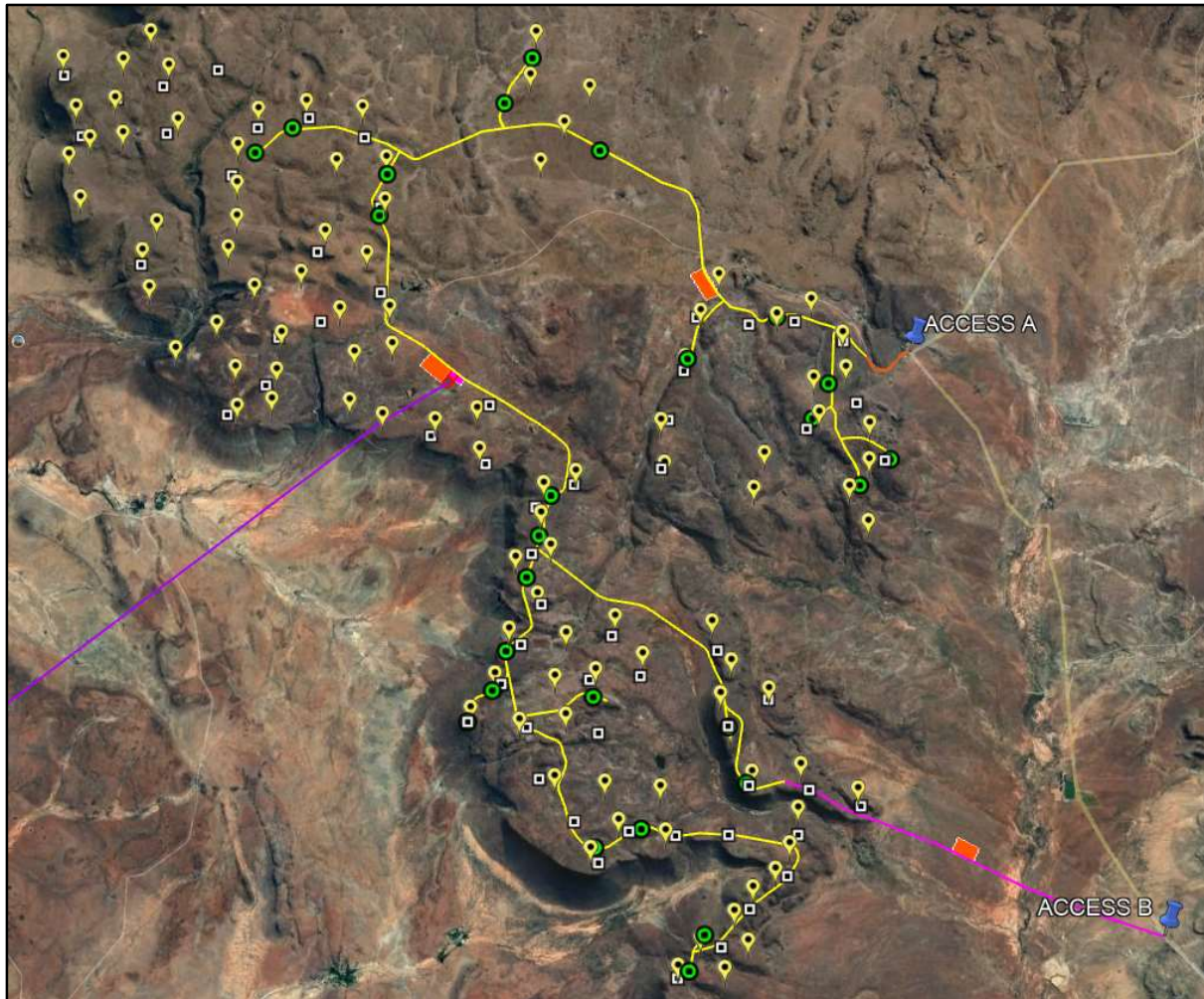


Figure 5: Layout included in the Part 2 EA amendment process in 2015.

Current proposed EA Amendment (AM9)

The current EA amendment application includes a reduction in the authorised number of turbines to be constructed to a maximum of 26 (down from a maximum of 61). The image below shows the latest proposed layout (green icons), set against the originally assessed 103 turbines (yellow balloons) and 61 turbine layout included in the authorized Part 2 EA amendment process in 2015 - 2016 (white squares). It can be seen that **the turbines are located in the same farms as originally assessed and within the same footprint area of the facility**. This provides evidence that the new (turbine) positions will remain within the assessed and authorised project footprint. Furthermore, all of the new proposed 26 positions have been assessed and recently checked (either through desktop analysis, but with additional site visit work by the majority of specialists) in the specialist “walk through”/EMP update reports as part of the layout finalisation process and micrositing.



**Figure 6: Latest proposed layout (proposed Final Layout Plan (January 2023)) (green icons), set against the originally assessed 103 turbines (yellow balloons) and assessed 61 turbine layout (white squares) included in the authorised Part 2 EA amendment in 2015 – 2016.**

### **2.3 PROPOSED AMENDMENT TO INCLUDE AN ERRONEOUSLY OMITTED LISTED ACTIVITY INTO THE EA (I.E. REQUEST FOR CORRECTION IN TERMS OF NEMA SECTION 47A(1)(B) AND EIA REGULATION (27(4))**

The Applicant requests the inclusion of a 2010 EIA Regulations listed activity, i.e. Activity 15 of GN R. 545 (Listing Notice 2), into the EA, which was assessed in the EIA process for the project, however erroneously omitted from the Application Form and EIA Report. The similarly listed activity in terms of the 2014 EIA Regulations, as amended, is Activity 15 of GN 984, as amended (Listing Notice 2) which states “*The clearance of an area of 20 hectares or more of indigenous vegetation, excluding 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 amendment to the authorised listed activities (i.e. request for correction, to add the one listed activity to the EA, in terms of NEMA Section 47A(1)(b) and Regulation 27(4) of



the 2014 EIA Regulations, as amended), will require an amendment to the text of the Table of authorised listed activities on pages 3 and 4 of the EA dated 1 March 2013, via the addition of the following text to the authorised listed activities table:

<b>Listed activities</b>	<b>Activity/Project description</b>
<p><u>GN R.545 Item 15:</u>  <b><u>Physical alteration of undeveloped, vacant or derelict land for residential, retail, commercial, recreational, industrial or institutional use where the total area to be transformed is 20 hectares or more;</u></b>  <u>except where such physical alteration takes place for:</u>  <u>(i) linear development activities; or</u>  <u>(ii) agriculture or afforestation where activity 16 in this Schedule will apply.</u></p>	<p><i>More than 20 hectares of land (used for low intensity grazing of livestock) will be transformed for the development of the WEF.</i></p>

**Evidence that the Area was Assessed:**

The assessed project description (Final EIA Report dated April 2012) included the clearance of more than 20ha of vegetation for the development of the WEF, and this was assessed by the EAP and all specialists at the time. For example, refer to the extract from page 35 of the Final EIA Report (April 2012) below, outlining the development footprints of some of the associated infrastructure, i.e. the footprint of the permanent hardstands was indicated to be approximately 20.6ha (i.e. 50m x 40m (0.2ha) per turbine), and the three laydown areas for the De Aar 2 South WEF project was indicated to be 24ha.

*Proposed Wind Energy Facilities (North & South) situated on the Eastern Plateau Near De Aar, Northern Cape: EIA Report* Page 35

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A permanent hard standing made of compacted gravel and approximately ~~20~~ 50 m x 40 m would be constructed adjacent to each turbine location for the crane. Figure 3-4 shows turbines in the process of being erected. A total of seven construction laydowns, four in the north and three in the south would be required with each having a footprint of approximately 200 x 400m.

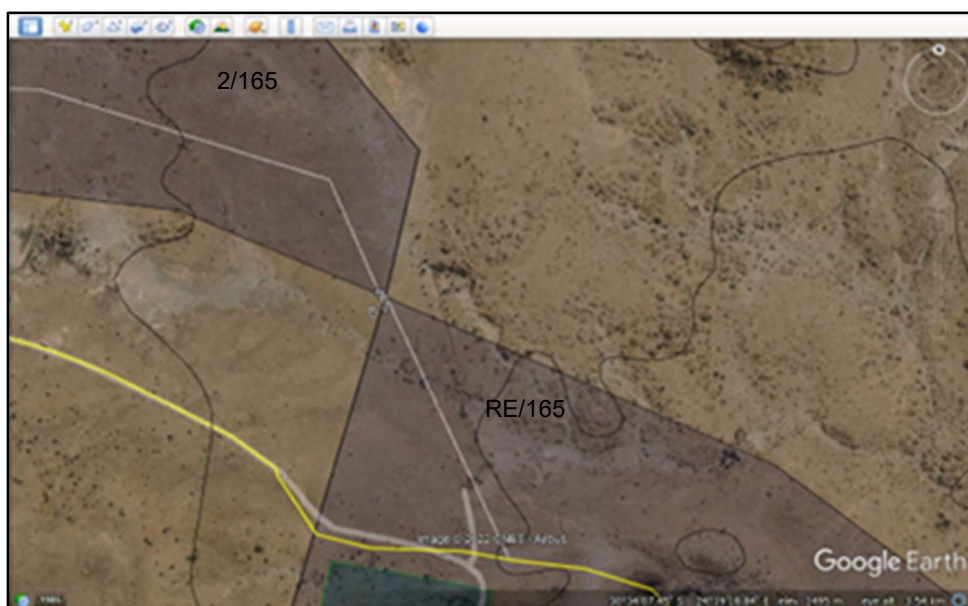
Furthermore, below is an extract from page 12 of the Part 2 EA Amendment Report (September 2015) relating to approximate development footprints:

The proposed amendments would result in a reduction in the development footprint of the WEF, due to the reduction in the number of turbines proposed as part of this amendment application. As indicated in the Final EIA report (April 2012), the development footprint of the authorised WEF includes approximately 20ha for the proposed access roads, a total footprint of approximately 24ha for the three construction laydown areas, approximately 2ha for the substation, and approximately 20.6ha for the hard-standings adjacent to each turbine. The footprint of the laydown areas, substation and roads would stay the same for the proposed amended project as the authorised WEF (albeit that it is likely that the internal access roads will be marginally less than the authorised WEF, as there will be some sections of road that are no longer necessary to construct due to the reduced number of WTGs). The total footprint associated with the hard standings will however reduce from approximately 20.6ha to approximately 12.2ha.

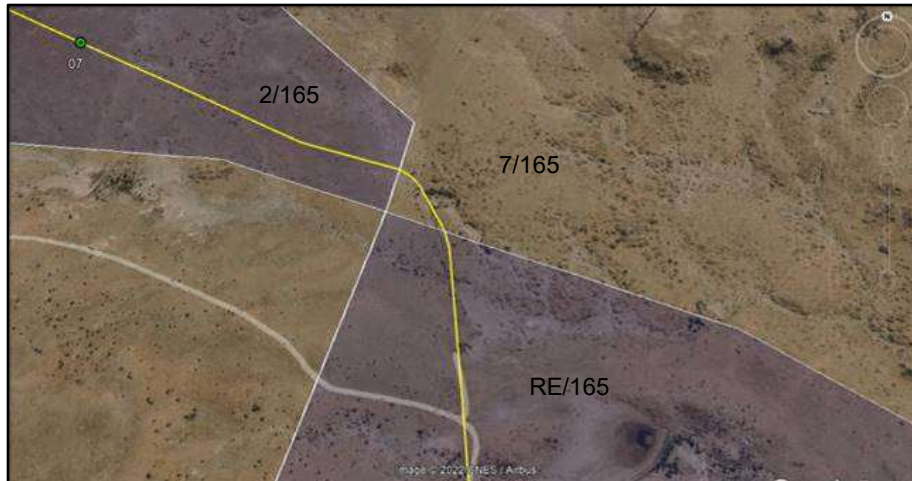
The original EAP was possibly of the opinion that, given that the site is zoned as agricultural, and is used for low intensity grazing of livestock, that the site is not *'undeveloped, vacant or derelict land'* and/or that the WEF facility would not fall within any of the categories of *'residential, retail, commercial, recreational, industrial or institutional'* use. Nonetheless the Applicant would prefer to include Activity 15 of GN R545 in the EA, as the physical alteration of more than 20ha of the land **was indeed assessed in detail as part of the 2012 EIA process and subsequent Part 2 EA amendment process in 2015 for the project.**

## 2.4 PROPOSED AMENDMENT TO ADD PORTION 7 OF FARM VENDUSSIE KUIL NO. 165 INTO THE PROPERTY DESCRIPTION IN THE ENVIRONMENTAL AUTHORISATION

It became apparent to the Applicant during the finalisation of the Layout Plan for the project that there is a short section (approximately 260m) of a proposed internal access road that would cross a property (Portion 7 of Farm Vendussie Kuil No. 165) that was included in the combined Final EIA report (April 2012) for the De Aar 2 South WEF and De Aar 2 North WEF projects, and has been assessed by the specialists, however was erroneously not included in the Application Form and Environmental Authorisation (EA) for the De Aar 2 South WEF project. In this regard, as the holder of the EA progressed with the final design, they discovered that it is not technically feasible for the subject section of road to cross on a corner where four properties meet (refer to Figure 7 below which shows two properties shaded that are included in the EA). Therefore, the road needs to extend into the property to the north east (i.e. on Portion 7 of Farm No. 165) (as illustrated in Figure 8 below). Portion 7 of Farm No. 165 was included in the original EIA for the project (which was a combined EIA process and combined EIA report for the De Aar 2 North WEF and De Aar 2 South WEF), and whilst Portion 7 of Farm No 165 was included in the EA for the De Aar 2 North WEF project (which is now constructed and operational), it should also have been included in the EA for the De Aar 2 South WEF.



**Figure 7: Section of road layout (white line) submitted with Part 2 EA Amendment in 2015 (showing the road crossing at corner where 4 properties meet, on 2/165 and Re/165). The shaded properties (2/165 and RE/165) are included in the EA for the project.**



**Figure 8: Section of proposed final road layout (yellow line) (showing a short section (approximately 260m) of access road, on Portion 7 of Farm 165).**

The following is submitted as proof that Portion 7 of Farm Vendussie Kuil No. 165 was indeed assessed in the initial application and included in the EIA report (2012) (as requested by Mr M Shubane of DFFE (email correspondence dated 14 November 2022):

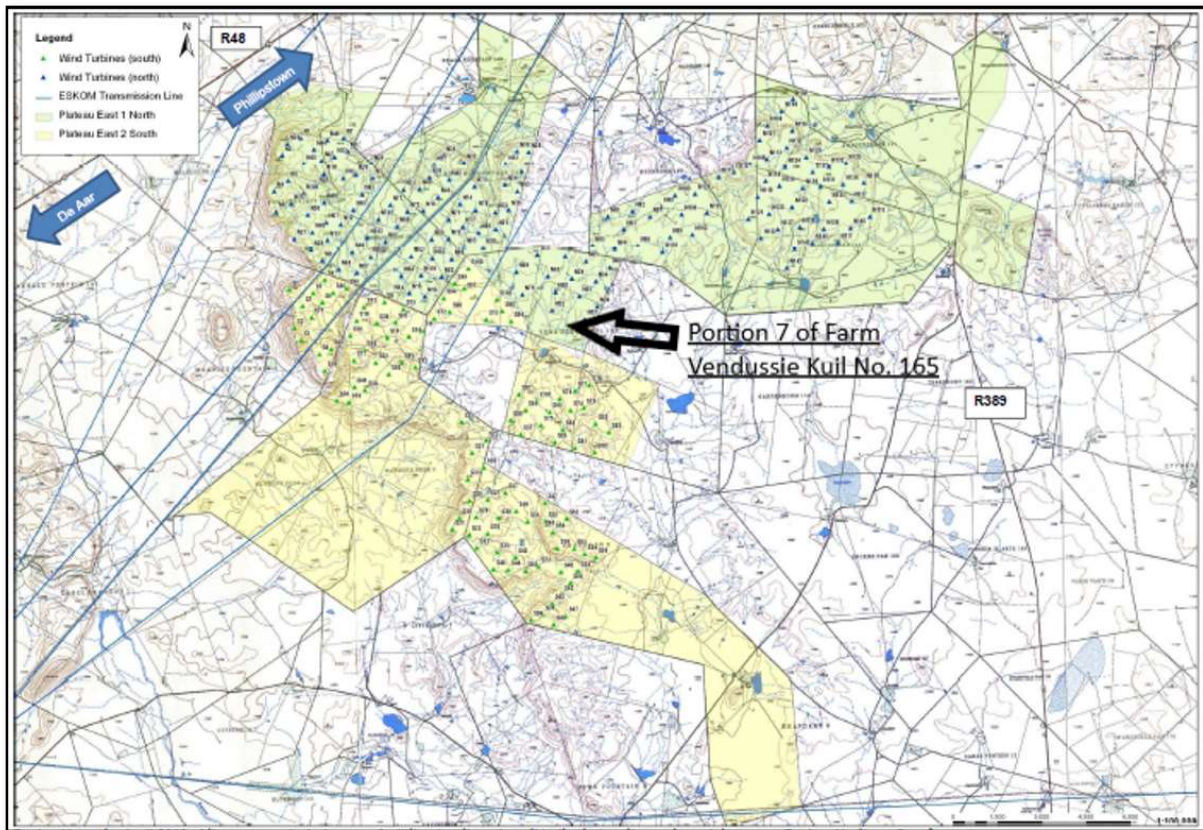
The original Environmental Impact Assessment (EIA) conducted by Aurecon in 2012, was for the proposed Wind Energy Facility (North) (DFFE Ref: 12/12/20/2463/2), and the proposed Wind Energy Facility (South) (DFFE Ref: 12/12/20/2463/1) on the eastern plateau near De Aar, Northern Cape. The latter is now known as the “De Aar 2 South WEF” and is the subject of this Amendment application. Please see attached as Annexure D the Final Environmental Impact Assessment Report update Page dated April 2012, for proof of the combined process.

The introduction on Page 1 of the Final EIA Report (Aurecon, 2012) states: *“This Environmental Impact Assessment (EIA) is for the proposed wind energy facility (north) on the eastern plateau near De Aar, Northern Cape and the proposed wind energy facility (south) on the eastern plateau near De Aar, Northern Cape. The two proposed projects are adjacent to each other but are considered to be two separate projects. However, in order to avoid duplication of information, the two projects **will be assessed in one EIA**. This has the added advantage of considering cumulative impacts of the two projects in one report.”*

As such, the property in question, Portion 7 of Farm Vendussie Kuil No. 165, was indeed assessed as part of the combined EIA, but was originally only included in the EA for De Aar 2 North WEF (which is now an operational project). The farm portion in question was erroneously excluded, and should have been included in the Mulilo De Aar 2 South WEF EA as a small portion of access road is required to cross the south western corner of this farm.

The figure below (Figure 9) is extracted from the Final EIA report for the Project (extracted from Aurecon, 2012, Page 3, Figure 1-1). This figure shows all the farms (shaded green and yellow) that were included in the combined process and assessed by the same EIA team and specialists. Portion 7 of Farm Vendussie Kuil No. 165, is indicated and was one of the properties assessed.





**Figure 9:** Figure extracted from the Final EIA Report dated April 2012 (Aurecon, 2012), Page 3, Figure 1-1), showing all the farms (shaded green and yellow) that were included in the combined EIA and assessed by the same EIA team and specialists.

In light of the above, the Applicant would like to request for Portion 7 of Farm Vendussie Kuil No. 165 to be added into the EA for the project, given that it was included in the EIA process for the project **(and has been assessed again by the specialists during the recent EMPr and Layout Plan finalisation process in 2022)**, but was erroneously not included in the EA for the project.

Note that the landowner of Portion 7 of Farm Vendussie Kuil No. 165 has been consulted and the applicant will enter into a servitude agreement with the landowner in due course. The landowner has consented to the property being added to the De Aar 2 South WEF project's EA, and is aware of the current EA amendment application (please see landowner consent form attached in Appendix 4 of Annexure A).



### 3 DFFE Screening Tool and Site Sensitivity Verification

The EIA process for the De Aar 2 South WEF project in 2011 – 2013, and Part 2 EA amendment process in 2015, pre-date Government Notice (GN) No. 320 of 20 March 2020 which prescribes general requirements for undertaking site sensitivity verification and for protocols for the assessment and minimum report content requirements of environmental impacts for environmental themes for activities requiring environmental authorisation, as well as the compulsory requirement for utilisation of the national web based (DFFE) Screening Tool, which became effective from 4 October 2019.

The National Web-based Environmental Screening Tool for the authorised De Aar 2 South WEF project was however run in November 2022, to inform this Part 1 EA amendment process. Refer to Annexure B for the National Web Based Screening Tool Report and site sensitivity relating to the proposed project.

#### 3.1 ENVIRONMENTAL SENSITIVITIES IDENTIFIED IN SCREENING TOOL REPORT

The results of the Screening Tool Report indicate the following environmental sensitivities at the site of the Mulilo De Aar 2 South WEF (refer to Table 6):

**Table 6: Sensitivities identified in the Screening Tool**

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme			X	
Animal Species Theme		X		
Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Avian (Wind) Theme				X
Bats (Wind) Theme		X		
Civil Aviation (Wind) Theme			X	
Defence (Wind) Theme				X
Flicker Theme	X			
Landscape (Wind) Theme	X			
Palaeontology Theme	X			
Noise Theme	X			
Plant Species Theme				X
RFI Theme		X		
Terrestrial Biodiversity Theme	X			

### 3.2 SPECIALIST ASSESSMENTS IDENTIFIED IN SCREENING TOOL REPORT

Based on the selected classification and environmental sensitivities of the proposed development footprint indicated in the Screening Tool Report, the Screening Tool Report provided a list of “specialist assessments identified” for inclusion in the assessment report. These are listed in the table below (Table 7). As indicated in the Screening Tool Report, it is the responsibility of the EAP to confirm this list and to motivate the reason for not including any of the identified specialist studies, where applicable.

Seventeen (17) Impact Assessments (Table 7) were identified in the Screening Tool Report. A motivation is provided below, where applicable, next to each study as to how such studies have been addressed in the EA amendment process.

**Table 7: Recommended specialist assessments identified in the Screening Tool**

Impact Assessment	Motivation
Agricultural Impact Assessment	An <i>Agricultural Statement</i> was compiled and is summarised in Chapter 4 and included under Annexure E1.
Animal Species Assessment	This component is addressed under the <i>Ecological Statement</i> and included under Annexure E2.
Aquatic Biodiversity Impact Assessment	An <i>Aquatic Statement</i> was compiled and is summarised in Chapter 4 and included under Annexure E3.
Archaeological and Cultural Heritage Impact Assessment	An <i>Archaeological Statement</i> was compiled and is summarised in Chapter 4 and included under Annexure E4.
Avian Impact Assessment	An <i>Avifaunal Statement</i> was compiled and is summarised in Chapter 4 and included under Annexure E5.
Civil Aviation Assessment	The SA Civil Aviation Authority has been invited to comment and further actions will be based on their instructions.
Defense Assessment	The Defence Theme was rated as having a Low sensitivity, which indicates that further studies are not required. The SA Department of Defence has been invited to comment as part of the public participation process and further actions will be based on their comment.
Flicker Assessment	A Visual Assessment Amendment report was compiled, and addresses potential flicker impacts. Refer to Chapter 4 and Annexure E6.
Landscape / Visual Impact Assessment	A <i>Visual Assessment Amendment</i> report was compiled and is summarised in Chapter 4 and included under Annexure E6.
Palaeontology Impact Assessment	A <i>Palaeontological Statement</i> was compiled and is summarised in Chapter 4 and included under Annexure E7.

Noise Impact Assessment	A <i>Noise Impact Statement</i> and assessment was compiled and is summarised in Chapter 4 and included under Annexure E8.
Plant Species Impact Assessment	This component is addressed under the <i>Ecological Statement</i> and included under Annexure E2.
RFI Assessment	An RFI Assessment was compiled and is summarized in Chapter 5 and included under Annexure F1.
Terrestrial Biodiversity Impact Assessment	A <i>Terrestrial Ecological Statement</i> was compiled and is summarised in Chapter 4 and included under Annexure E2.
Socio-Economic Impact Assessment	A <i>Socio-Economic Statement</i> was compiled and is summarised in Chapter 4 and included under Annexure E9.
Traffic Impact Assessment	A <i>Traffic Statement</i> was compiled and is summarised in Chapter 4 and included under Annexure E10.
Geotechnical Assessment	The geotechnical investigation undertaken in 2012 is attached in Annexure F2.

A bat impact assessment was not recommended in the Screening Tool Report. Note, however, that Animalia Consultants (Pty) Ltd completed the 12 months pre-construction bat monitoring for the De Aar 2 South WEF in 2014, and was also involved in subsequent amendments, including the update of the EMPr and Layout Plan finalization process in 2022. The bat specialist's statement for the EA amendment is summarized in Chapter 4 and is included under Annexure E11.

### 3.3 SITE SENSITIVITY VERIFICATION

#### 3.3.1 Agriculture

Johann Lanz compiled a specialist comment to confirm the implications if any, of the proposed amendments in terms potential impacts on agricultural/soil resources. (An Agricultural/Soils Assessment was undertaken by Sivest for the original EIA process in 2012 and Sivest also undertook an agricultural/soils study for the Part 2 EA Amendment process in 2015. Sivest were unable to assist with the required study on the proposed amendments because they did not have the in-house specialists to assist).

The DFFE Screening Tool allocated a medium sensitivity to the project area for potential impacts on agricultural/soil resources, however, the specialist verified the project site as of low sensitivity. Refer to Section 4.2.1 and to the specialists' statement in Annexure E1.

#### 3.3.2 Animal Species, Plant Species and Terrestrial Biodiversity

Ecological specialist, Dr David Hoare, undertook the original ecological impact assessment for the project in 2012, as well as the ecological inputs for the Part 2 EA Amendment process in 2015. He was appointed and has compiled the ecological specialist comment for the proposed amendments, considering their potential impacts on animal species, plant species and terrestrial biodiversity at the project site. Dr Hoare recently undertook a detailed Ecological Walk through survey of the proposed Final Layout Plan for the project in 16 – 19 August 2022.

As indicated in the Ecological Statement letter for the EA amendment application (refer to Annexure E), the DFFE Screening Tool indicates the following sensitivities:

Animal Species Theme (HIGH): The animal species flagged for the site are all birds, which are covered by a separate specialist assessment. For remaining (terrestrial) animal species, no sensitivities are flagged. For terrestrial animal species (excluding birds and bats), the site sensitivity is therefore confirmed to have LOW sensitivity.

Plant Species Theme (LOW): There are no plant species flagged for the site. This is confirmed from the recent detailed walk-through survey of the site. It is therefore confirmed that the site has LOW sensitivity with respect to the plant species theme.

Terrestrial Biodiversity Theme (VERY HIGH): Features flagged for this theme are Ecological Support Areas (confirmed to occur on site) and FEPA Sub-catchments (assessed by a separate specialist). On the basis that the majority of the site is in a natural state and occurs within an ESA, it is confirmed that the site has VERY HIGH sensitivity with respect to this theme. (Hoare, 2022)

Refer to Section 4.2.2, and to the specialist's statement letter in Annexure E2.

### 3.3.3 Aquatic Biodiversity

Antonia Belcher undertook the original freshwater impact assessment for the project in 2012 and undertook a re-assessment of potential freshwater impacts for the Part 2 EA amendment process in 2015. Ms Belcher has compiled a specialist aquatic comment on the potential impacts of the proposed amendments on aquatic biodiversity within the site (refer to **Annexure E3**).

The DFFE Screening Tool allocated a very high sensitivity to the project area for potential impacts on aquatic biodiversity. However, the aquatic specialist stated the following:

*"The Screening Tool has indicated that the wider area surrounding the site is mapped as being of very high Aquatic Biodiversity Combined Sensitivity. The very high sensitivity is linked to the Strategic Water Source Area for groundwater that has been identified in the wider area as well as the larger Brak River FEPA Sub-catchment. The pans within the study area at Slingershoek have been identified as FEPA wetlands".*

*"The proposed project is unlikely to impact the Strategic Water Source Area (SWSA) and the ecological integrity of the FEPA River. It is thus felt that the very high Aquatic Biodiversity Combined Sensitivity does not apply to the wider area for [the] proposed activities. As stated in the original freshwater assessment, the Upper Brak River system is considered to be of a moderate to low Ecological Importance and Sensitivity, while the Upper Honderblaf River is scored as high due to the presence of juvenile Vaal-Orange Largemouth Yellowfish *Labeobarbus kimbeleyensis* in the lower reaches of the river. The very high Aquatic Biodiversity Combined Sensitivity should thus only apply to the upper Honderblaf River and to its associated wetland areas. These aquatic features in the study area have been buffered and are avoided or the impact on these features mitigated to being of low significance"* (Belcher, 2022).

Refer to the specialist's statement in Annexure E3 for further information.

### 3.3.4 Archaeological and Cultural Heritage

ACO Associates undertook the original heritage impact assessment in 2012, and provided the Heritage inputs for the EA Amendment process in 2015. ACO Associates were appointed and compiled the comment on the potential impacts of the proposed amendments on the archaeological and cultural heritage resources at the project site.

The heritage specialist noted that: *“The Screening Tool report for the De Aar 2 South WEF, generated on 18 November 2022, ascribes a low sensitivity to the Archaeological and Cultural Heritage Theme. The heritage assessments and field surveys conducted for this project (Webley & Orton, 2011; Webley & Halkett, 2015; Gribble, 2022a), however, indicate that the low archaeological and cultural heritage sensitivity rating is not an accurate reflection of the sensitivity of the development site, and that the sensitivity rating would be more appropriately pegged at moderate, with some areas of high sensitivity. As is often the case with the Screening Tool, the results it provides reflect the fact that relatively small areas of South Africa have been subject to comprehensive archaeological survey, and that primary site data to populate the Screening Tool is generally very limited. In other words, areas are indicated to be of low sensitivity, not because there is no archaeology there, but because they have not been surveyed and there is thus no data available about their archaeological potential”* (Gribble, 2022).

Refer to Section 4.2.4 and to the specialists statement in Annexure E4 for further information.

### 3.3.5 Avifauna

Doug Harebottle undertook the original avifaunal impact assessment in 2012, and provided inputs into the Part 2 EA Amendment process in 2015. He is no longer working as a consultant however, and thus Chris van Rooyen of Chris van Rooyen Consulting (who undertook the avifaunal pre-construction monitoring for the project) was appointed as the avifaunal specialist to comment on the potential impacts of the proposed amendments on the avifaunal community within the project area.

The avifaunal specialist stated the following in terms of site sensitivity verification:

*“The project site and immediate environment is classified as a mixture of **Medium** and **High** sensitivity for avifauna by the DFFE National Screening Tool. The High sensitivity is linked to Ludwig’s Bustard *Neotis ludwigii* (Globally and Regionally Endangered), Lanner Falcon *Afrotis afra* (Globally and Regionally Vulnerable), Tawny Eagle *Aquila rapax* (Regionally Endangered) and Verreaux’s Eagle *Aquila verreauxii* (Regionally Vulnerable). The medium sensitivity is linked to Ludwig’s Bustard and Black Stork (*Ciconia nigra*).*

*The project site contains confirmed habitat for species of conservation concern (SCC), as defined in the Protocol for the specialist assessment and minimum report content requirements for environmental impacts on terrestrial animal species (Government Gazette No 43855, 30 October 2020), namely listed on the IUCN Red List of Threatened Species or South Africa’s National Red List website as Critically Endangered, Endangered, Vulnerable, Near Threatened or Data Deficient. The occurrence of SCC was confirmed during the original 12 months pre-construction monitoring in 2013 – 2014, subsequent nests searches in October 2019, and the second year of pre-construction monitoring that was completed in July 2022. SCC recorded included Verreaux’s Eagle, Tawny Eagle, Black Stork, Lanner Falcon, Karoo Korhaan *Eupodotis vigorsii* (Regionally Near threatened), Martial Eagle *Polemaetus bellicosus* (Globally and Regionally Endangered), and Ludwig’s Bustard.*

*The classification of High sensitivity for the whole is suggested, based on the presence of SCC recorded on the ground during the site surveys implemented between 2012 and 2022". (Van Rooyen, 2022)*

Refer to Section 4.2.5 and the specialists statement in Annexure E5 for further information.

### **3.3.6 Bats**

The DFFE Screening Tool report assigned a High sensitivity rating for bats to the site. The bat sensitivity map produced by the bat specialist (refer to Figure 3 of Annexure E11), share similarities to the Screening Tool sensitives (refer to Figure 2 of Annexure E11) with regards to the identification of several water courses and open water sources as high sensitivity areas. However, additional watercourses and exposed rocky cliff faces have been identified as additional high sensitivities by the bat specialist. Refer to Section 4.2 of the specialist bat statement included in Annexure E11.

### **3.3.7 Civil Aviation**

The DFFE Screening Tool allocated a medium sensitivity to the Civil Aviation (Wind) Theme (indicating that the site is within 15 – 35km from a civil aviation radar). A letter from the South African Civil Aviation Association (SACAA) was obtained in February 2013, as part of the EIA process for the project, containing their comments on the proposed De Aar 2 South WEF. The aforementioned letter included the outcome of their provisional assessment of the proposed project, as well as their non-objection to the proposed project. Refer to Annexure G for the letter.

The CAA were invited to comment on the proposed EA amendment Application, as well as the proposed Final Layout and updated EMPr (which is part of a separate public participation process that is currently in progress).

### **3.3.8 Defence**

The Defence Theme was rated as having a Low sensitivity in the DFFE Screening Tool Report.

Comment was provided by the South African Air Force (SAAF) in October 2012 on the proposed project. SAAF provided conditional approval for the proposed project (see Annexure G). Comment was also provided to the Applicant by the Air Traffic and Navigation Services Company (ATNS) in July 2012 on the proposed project. ATNS confirmed their conditional support for the project (see Annexure G).

The SA Department of Defence were invited to comment on the EA amendment application as part of the public participation process.

### **3.3.9 Landscape/Visual (including flicker)**

Karen Hansen undertook the original visual impact assessment in 2012 for the proposed project, and provided visual specialist input into the Part 2 EA Amendment process in 2015. Ms Hansen has since retired and thus Quinton Lawson and Bernard Oberholzer were appointed as the visual specialists to conduct a study into the potential impacts of the proposed amendments.

The DFFE Screening Tool allocated a very high sensitivity to the landscape/visual theme. With this said, the visual specialists indicated that the Landscape / Visual Theme map in the

Screening Report is based on regional scale mapping, and is disputed by the visual specialists on a more detailed mapping at the local project scale. The visual specialists' have verified the sensitivity through the production of their own sensitivity map (please refer to Maps 7 and 8 of the Visual Assessment Amendment report in Annexure E6, which illustrates areas of very high, high sensitivity, and medium sensitivity on the site).

The appointed visual specialists investigated the potential shadow flicker impact of the wind energy facility and incorporated this into their study (refer to Map 9 in Annexure E6). The DFFE Screening Tool allocated a very high sensitivity to the flicker theme. The specialists concluded that *"Shadow flicker effect tends to be limited to a 2-kilometre radius, and depends on a wide range of local conditions being aligned. Only the farmhouse at Vendusiekuil, which is inside the project site, could potentially be affected by shadow flicker, and therefore this is not considered to be a significant issue."*

### 3.3.10 Palaeontology

John Almond undertook the original palaeontological impact assessment in 2012 and provided palaeontological inputs into the Part 2 Amendment Application process in 2015. He did not have capacity to undertake the study for the current EA amendment process, thus Professor Marion Bamford was appointed as the palaeontology specialist. Professor Bamford undertook a study on the potential impacts of the proposed amendments on the palaeontology resources at the project site.

The DFFE Screening Tool allocated a very high sensitivity to the palaeontology theme. The specialist provided the following feedback on this sensitivity: *"The site sensitivity has not changed since Dr Almond completed his site visit because fossils do not move or change. They are inert. The DFFE Screening Tool shows then and now that there has been no change (Figure 1). It should be noted that only some marginal areas in the east and southeast are sensitive (dark red on the DFFE map and red on the SAHRIS Palaeosensitivity map. Dr Almond's site visit is STILL VALID, and no new site visit is required (Bamford. M, 2022). Refer to the specialists statement in Annexure E7 for further information.*

### 3.3.11 Noise

Morne De Jager undertook the original noise impact assessment for the project in 2012. Mr De Jager undertook a re-assessment of noise impacts for the Part 2 EA Amendment Application process in 2015, and most recently in 2022, for the EMPr update and Layout Plan finalisation process, which included Site Sensitivity Verification (refer to Appendix C in Annexure E8).

The DFFE Screening Tool allocated a very high sensitivity to the noise theme. The Site Sensitivity Verification by the specialist however states that: *"There are a number of potential noise-sensitive areas in the vicinity of the proposed development, with a number of areas identified to have a "very high" sensitivity to noise, though there were either no structures or the structures at these locations used for residential activities (De Jager, M (2022))".* Potential noise-sensitive activities were identified by the noise specialist considering the findings of the December 2011 site visit as well as the available aerial images (and marked as green dots on Figure C.1 in the specialists Site Sensitivity Verification – refer to Annexure E8), and these areas are considered to be noise-sensitive and the potential impact from noise from the project was assessed in the Noise Specialist Study. Refer to the specialists statement and assessment report in Annexure E8 for further information.

### 3.3.12 Radio Frequency Interference (RFI)

Interference Testing and Consultancy Services (Pty) Ltd (ITC Services) was appointed to undertake an assessment on the potential RFI impacts of the proposed amendments (and project) within the project area.

In terms of site sensitivity verification, ITC indicated the following: *“For this project, the DFFE Screening Report indicated three high and one medium sensitivity area. The medium sensitivity area will be incorporated in the high sensitivity evaluation. The high sensitivity areas are due to:*

- *A telecommunications facility located 1km away from the proposed WEF location.*
- *A weather radar installation located between 18 and 30km away from the proposed WEF location.*
- *A weather radar installation located between 30 and 60km away from the proposed WEF location”.*

The ITC report concluded the following in terms of site sensitivity verification: *“A further detailed assessment will not be required based on the findings from the Radio Mobile data as no RFI risk was identified to classify the site as a High sensitivity site. The site can be classified as a Low sensitivity site”.* (ITC, 2022)

Refer to the RFI Assessment for the project in Annexure F1 for further information.

### 3.3.13 Socio economic

A specialist Socio-economic impact assessment was not undertaken as part of the original EIA process for the project, however potential socio-economic impacts were addressed by the then EAP in the EIA Report (April 2012).

Tony Barbour was appointed to undertake a study and provide a specialist comment on the potential socio-economic impacts associated with the proposed EA amendments. The DFFE Screening Tool did not allocate a sensitivity rating to this theme. Please refer to the specialists statement in Annexure E9 for further information.

### 3.3.14 Traffic

A specialist traffic impact assessment was not undertaken as part of the original EIA process for the project, however potential transportation impacts were addressed and assessed in the EIA Report (April 2012).

Innovative Transport Solutions (ITS) was appointed to undertake a study and provide a Traffic Impact Statement addressing the potential impacts of the proposed EA amendments. (Note that ITS also recently compiled the Transportation and Traffic Management Plan for the updated EMPr and Layout Plan Finalisation process that is currently in progress).

The DFFE Screening Tool did not allocate a sensitivity rating to this theme. Please refer to the Traffic Impact Statement for the proposed amendments in Annexure E10, for further information.

### 3.3.15 Geotechnical

Geotechnics Africa Western Cape were appointed to undertake a detailed geotechnical study on all the De Aar 2 South WEF land portions, and the study was concluded in August 2012.

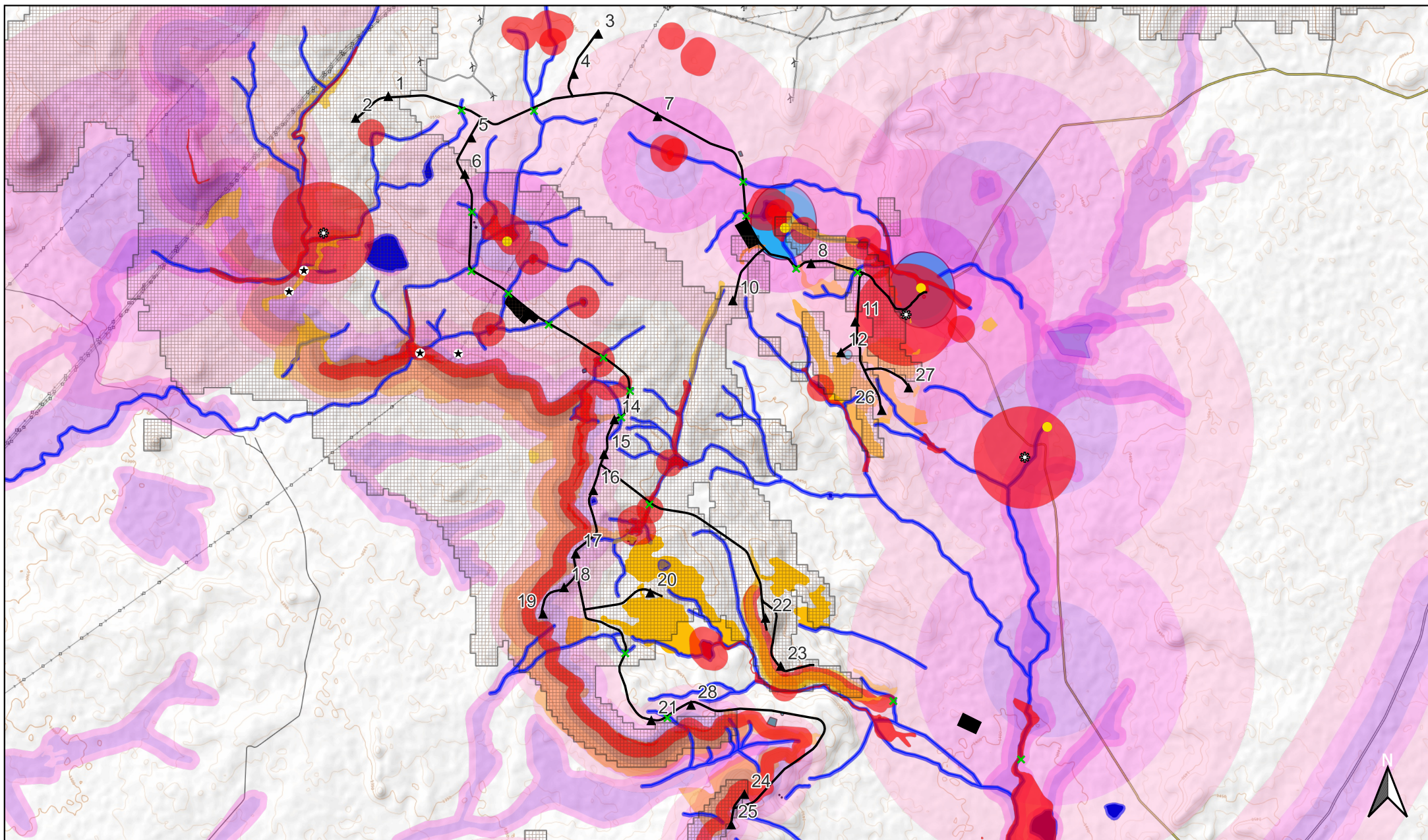


Since then, the layout has been amended to cater for a reduced number of larger capacity turbines, as well as buffers that were introduced by subsequent specialist walk throughs and studies. However, the geotechnical studies (and test results) have been recently reviewed by the Applicant's in-house engineers and proved to contain more than sufficient detail to allow for accurate contractor selection which is now underway. Furthermore, it is noted that the underlying geology of an area will not have changed since 2012. After the preferred Balance of Plant contractors are appointed (which is expected to happen by April 2023) the geotechnical studies will be updated if required (and to be determined by the yet to be appointed contractor) prior to construction. Refer to Annexure F2 for the geotechnical study.

### **3.4 ENVIRONMENTAL SENSITIVITY MAP**

The proposed final layout plan for the Mulilo De Aar 2 South WEF underwent a 30 day public participation process as part of the EMPr and Layout Plan finalization process (which is a separate process to this EA amendment process). The finalization of the layout was guided by the Environmental Sensitivity Map which resulted from the specialist input obtained and which was again updated and confirmed in September 2022, as well as the public participation process.

Refer to Figure 10 for the updated Environmental Sensitivity Map for the proposed Final Layout Plan.



- ▲ Proposed Turbine Location
- Proposed Infrastructure
- Proposed Infrastructure
- ✕ Proposed Watercourse Crossings
- Aquatic Buffer
- High Sensitivity (Fauna & Flora)

- Medium Sensitivity (Fauna & Flora)
- VERA Model (High)
- Visual Sensitivity
- Very High
- High
- Medium

- Heritage Site
- Heritage Buffer
- ❄ Jackal Buzzard Nest
- ★ Verreaux's Eagle Nest
- Noise Sensitive Receptor

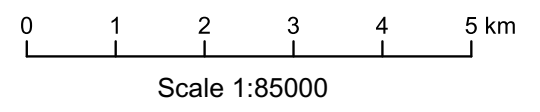
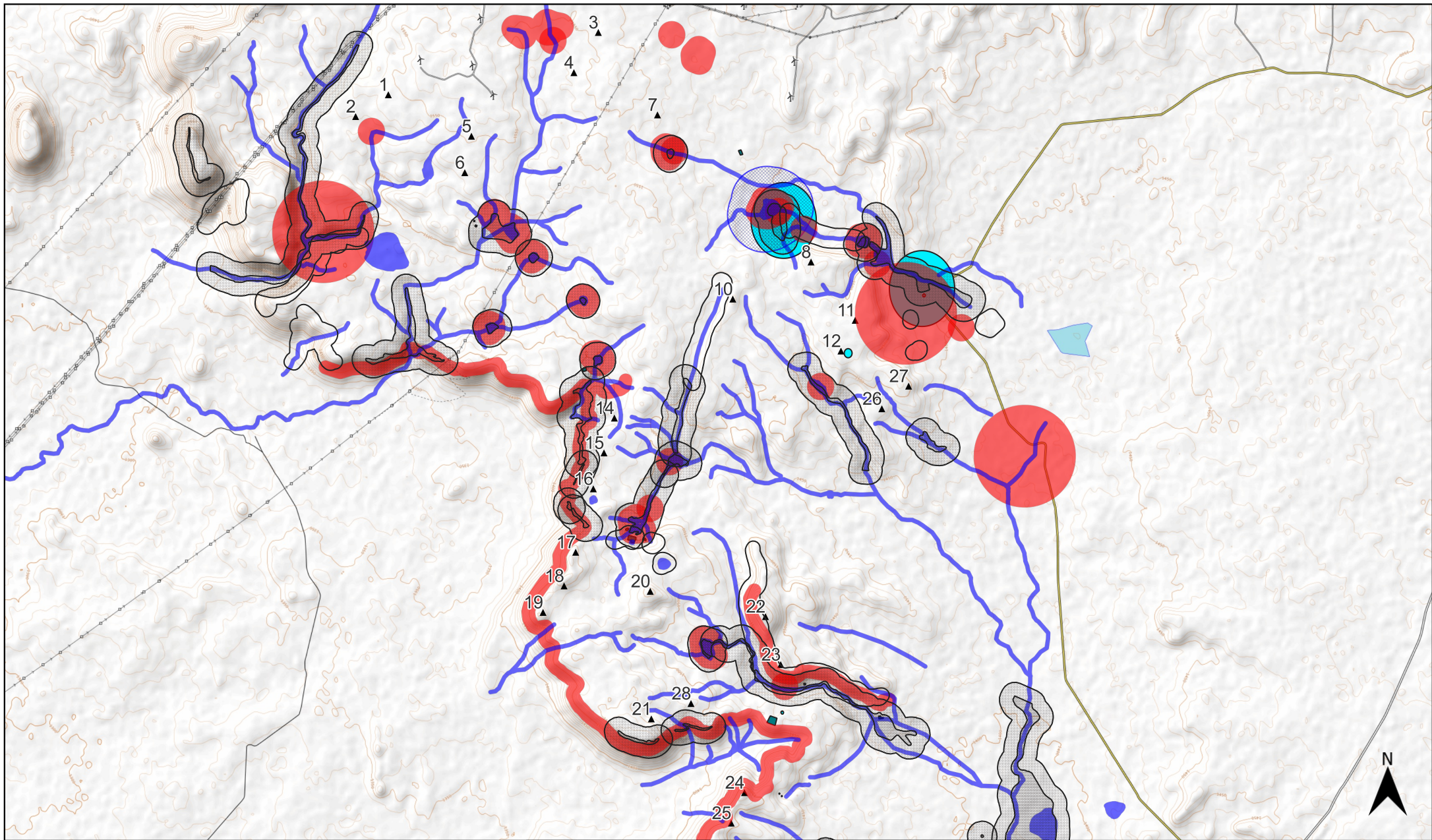


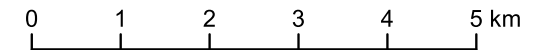
Figure 10a: Environmental Sensitivity De Aar 2 South Wind Energy Facility





- ▲ Proposed Turbine Location
- Avifaunal No Turbine Area
- Bat No Turbine Buffer
- Vendussiekuil Dam 500m Buffer
- 32 m Aquatic Feature Buffer
- Heritage No Go Area
- Heritage Buffer

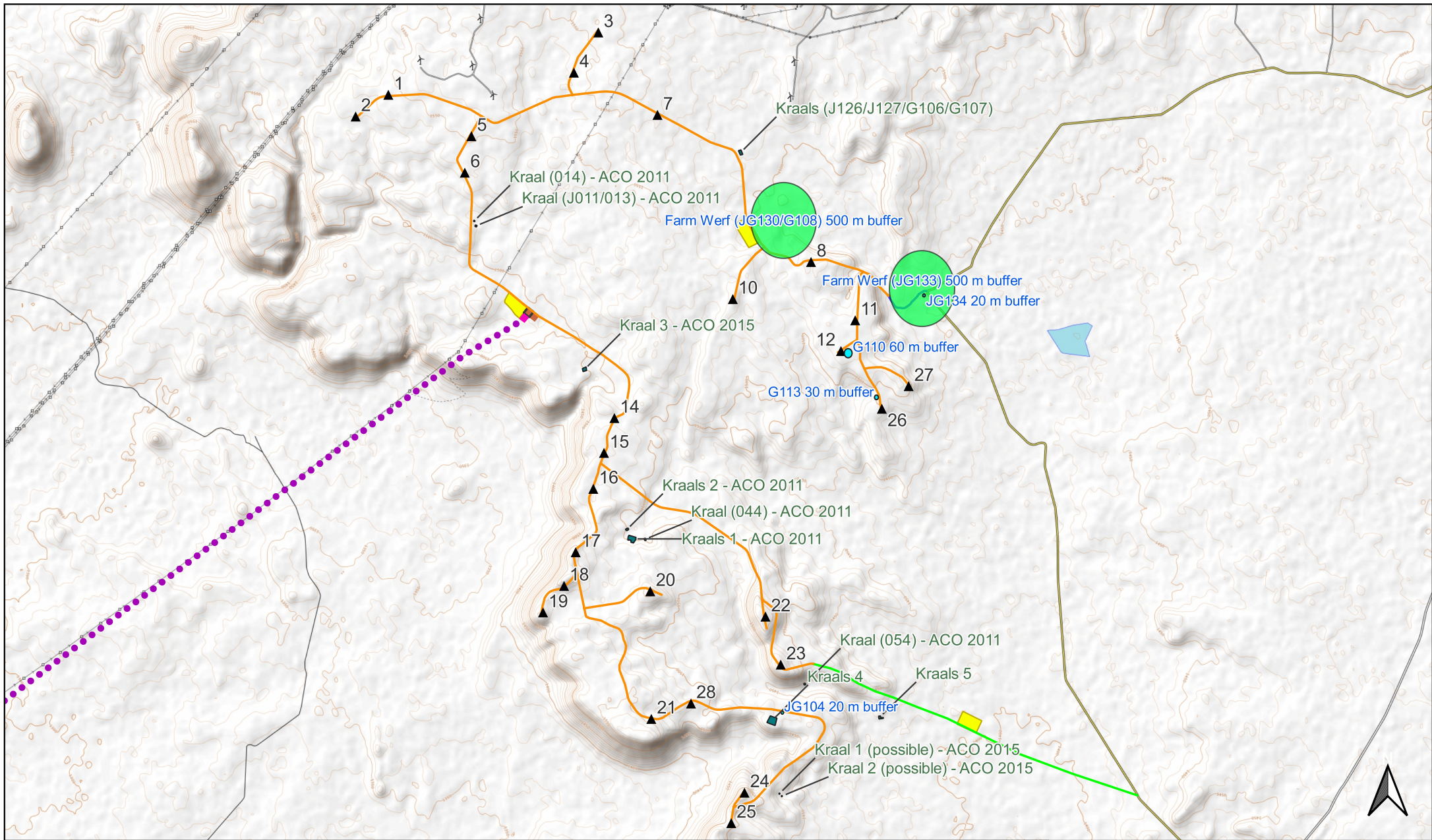
(Note: All turbine positions are out side of no-go areas. Any perceived overlap is due to symbology and mapping scale)













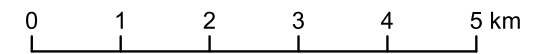
Scale 1:85000

Figure 10b: No Turbine Area Map  
De Aar 2 South Wind Energy Facility





- |  |   |
|--|---|
|  Internal Roads (6 m width) with MV Lines      |  Access Road (authorised in separate EA)         |
|  Access Road (to be upgraded)                  |  Temporary Laydown Area                          |
|  Substation & Building Complex                 |  Heritage Sites (Kraals are 'No-Go' Areas)       |
|  Substation & Building Complex                 |  Heritage Buffers                                |
|  Switching Station (authorised in separate EA) |  Farm Buffer (proposed infrastructure permitted) |



Scale 1:85000

Figure 10c: Heritage Sensitivity Map  
De Aar 2 South WEF

## 4 SPECIALIST STUDIES

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### 4.1 TERMS OF REFERENCE FOR THE SPECIALISTS

The specialists received the following Terms of Reference:

- Compile a specialist comment/ statement/ report addressing the following:
  - The implications of the proposed amendments, if any, in terms of the potential impacts within your area of expertise;
  - A statement as to whether or not the proposed amendments will result in an increased level or change in the nature of the impact, which was initially assessed and considered when application was made for the environmental authorisation and subsequent Part 2 EA amendment process (in 2015).
  - Describe the status (baseline) of the environment that was assessed during the initial assessment.
  - Confirm the current status of the assessed environment
  - A description and assessment of any changes to the environment that has occurred since the initial EA was issued, if any;
  - Site sensitivity verification – Undertake and report on site sensitivity verification (see DFFE Screening Tool Report), and refer to your recent site visits and/or assessments undertaken within the project area/ knowledge of the area if a site investigation is not required (or has recently been undertaken).
  - Indicate if the impact rating as provided in the initial assessment remains valid; if the mitigation measures provided in the initial assessment are still applicable; or if there are any new mitigation measures which need to be included into the EA, should the request to extend the commencement period be granted by the Department;
  - An indication if there are any new assessments and/or guidelines which are now relevant to the authorised development which were not undertaken as part of the initial assessment, must be taken into consideration and addressed in the report (or indicate if such new assessments/ guidelines were already addressed during your recent studies for the EMPr and Layout Plan finalisation process in 2022);
  - A description and an assessment of the surrounding environment, in relation to new developments or changes in land use which might impact on the authorised project, the assessment must consider the following:
    - Similar developments within a 30km radius;
    - Identified cumulative impacts must be clearly defined, and where possible the size of the identified impact must be quantified and indicated, i.e., hectares of cumulatively transformed land.
    - Detailed process flow and proof must be provided, to indicate how the specialist's recommendations, mitigation measures and conclusions from the various similar developments in the area were taken into consideration in the assessment of cumulative impacts and when the conclusion and mitigation measures were drafted for this project.
    - The cumulative impacts significance rating must also inform the need and desirability of the proposed development.
    - A cumulative impact environmental statement on whether the proposed development must proceed.

- The study must conclude the following:
  - Has the baseline status of the receiving environment changed since the original EIA in 2012?
  - Is the initial impact rating undertaken during the initial assessment still valid?
  - Are the mitigation measures provided in the initial assessment (or subsequent updated assessments) still applicable?
  - Are there any new mitigation measures that should be added to the EA/ EMPr if the DFFE decides to approve the amendments?
  - Describe any update/new mitigations (or refer to them in the appropriate walkthrough/EMPr update report), where relevant.
  - Are the proposed amendments, including proposed extension of the validity period, acceptable (relative to your area of expertise)?

## 4.2 SUMMARY OF FINDINGS OF THE SPECIALIST STUDIES

NOTE: Where relevant, the specialists below have commented and described the original baseline as it was in 2012. However, for details regarding the status (baseline) of the environment that was assessed during the initial assessment, please refer to **Annexure J**, extracted from the original Final EIA Report (Aurecon, 2012), which gives sub-headings titled “Description of the Environment” for each applicable specialist at the time of the original assessment.

Note, furthermore, that the specialists assessed 28 potential turbine positions and associated infrastructure (with the understanding that only 26 of the 28 potential turbine positions would be constructed). Accordingly, the maps included in the specialist statements, some of which have been included in this report, show all assessed potential 28 turbine positions. The Final Layout Plan was however updated after the public participation process to show only the 26 turbines that would be constructed (as recommended by DFFE), and associated infrastructure. Accordingly, please note that turbine numbers 9 and 13 will not be constructed and have therefore been removed from the updated Final Layout Plan included in Figure 2.

### 4.2.1 Agriculture/ Soils Specialist Input

Soil scientist, Johann Lanz, assessed the potential impacts of the proposed amendments on agricultural resources within the project site. Refer to **Annexure E1** for the full specialist’s statement, the findings of which are summarised below.

#### Status of the environment:

The relevant, baseline agricultural environment has not changed since the original assessments and is still limited primarily by aridity. The footprint of the development is entirely on land of very low agricultural potential. It is rated predominantly as low agricultural sensitivity by the National Environmental Screening Tool. There are small parts that are rated as medium, but in reality the agricultural production potential of these medium areas is the same as the low areas. The agricultural sensitivity of the site is verified as low because the climate data (low rainfall of approximately 290 mm per annum and high evaporation of approximately 1,450 mm per annum (Schulze, 2009)) proves the area to be arid, and therefore of very limited land capability.



### Potential impacts:

Agricultural impacts were found by the previous assessments to be inconsequential because of the very low agricultural production potential of the receiving environment and the fact that wind energy facilities only impact a very small proportion of the land. This has not changed. The proposed amendments will in no way change the nature or significance of the agricultural impact as previously assessed (i.e. Low (negative) with and without mitigation). There are no agricultural advantages or disadvantages related to the amendments. No changes or additions to the mitigation measures for agricultural impacts that were recommended in the original assessment are required, and there are therefore no required changes to the EMP inputs. The agricultural impact of the amended project will therefore remain unchanged and be identical to the impact that was assessed in the original specialist assessment report. The impact was assessed as inconsequential (Lanz, 2022).

### Cumulative impacts:

From a cumulative impact perspective, Mr Lanz stated the following:

*There are a total of 20 renewable energy project applications within 30km of the proposed site. All of these projects have the same agricultural impacts in an almost identical agricultural environment, and therefore the same mitigation measures apply to all.*

*In quantifying the cumulative impact, the area of land taken out of grazing as a result of the 20 developments (total generation capacity of 2,244 MW) will amount to a total of approximately 4,514 hectares. This is calculated using the industry standards of 2.5 and 0.3 hectares per megawatt for solar and wind energy generation respectively, as per the Department of Environmental Affairs (DEA) Phase 1 Wind and Solar Strategic Environmental Assessment (SEA) (2015). As a proportion of the total area within a 30 km radius (approximately 282,700 ha), this amounts to 1.60% of the surface area. That is within an acceptable limit in terms of loss of low potential agricultural land which is only suitable for grazing, of which there is no scarcity in the country. This is particularly so when considered within the context of the following point:*

*In order 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. It is far more preferable to incur a cumulative loss of agricultural land in a region such as the one being assessed, which has no crop production potential, and low grazing capacity, than to lose agricultural land that has a higher potential, and that is much scarcer, to renewable energy development elsewhere in the country (Lanz, 2022).*

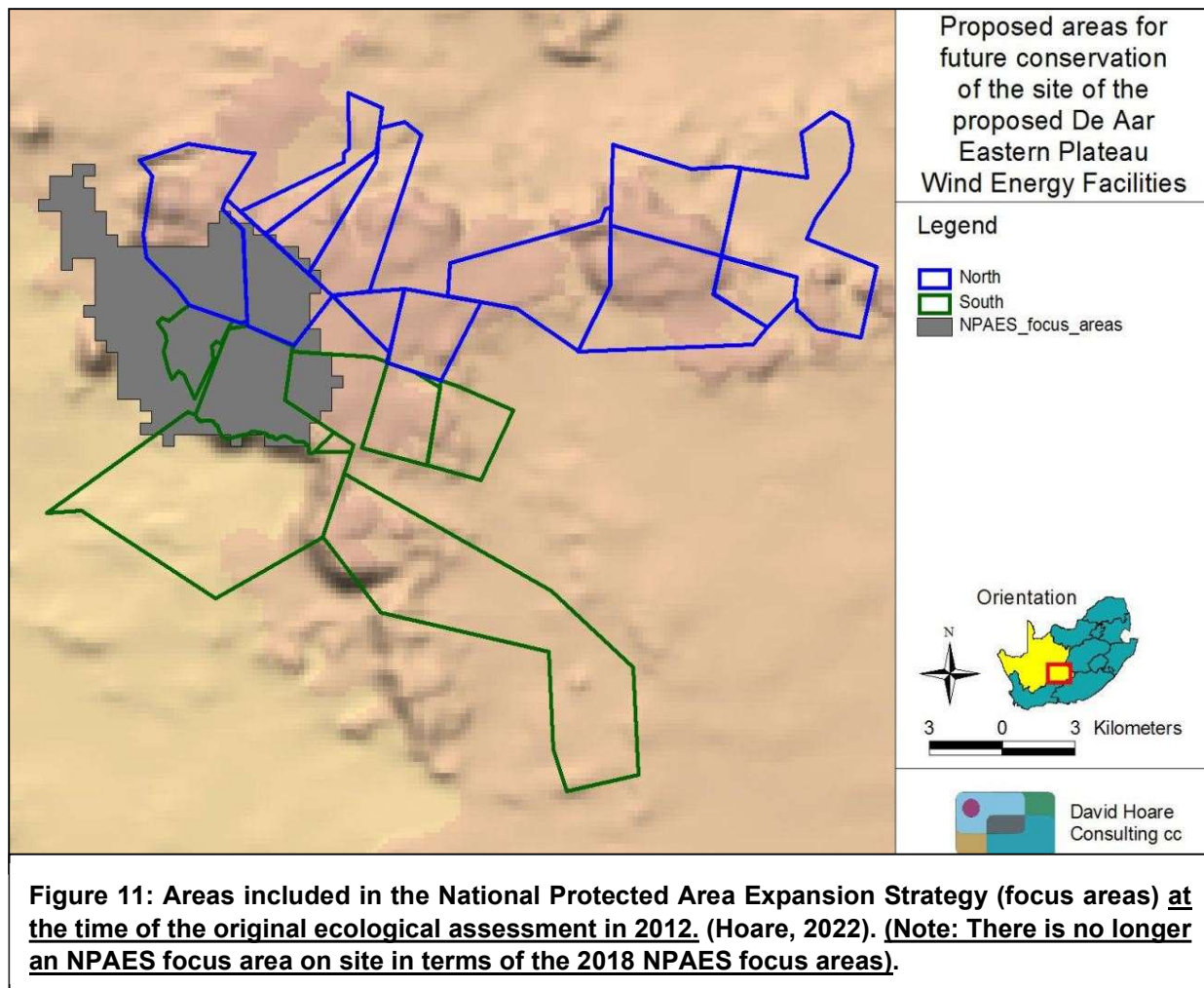
### Conclusion:

*“Due to all of the factors discussed above, it is recommended that the amendments be approved from an agricultural impact point of view (Lanz, 2022).”*

## 4.2.2 Ecological Specialist Input

An Ecological Statement Letter on the potential impacts of the proposed amendments on the plant species, animal species and terrestrial biodiversity was compiled by ecological specialist, Dr David Hoare. The findings are summarized below (refer to **Annexure E2** for the full specialist statement).

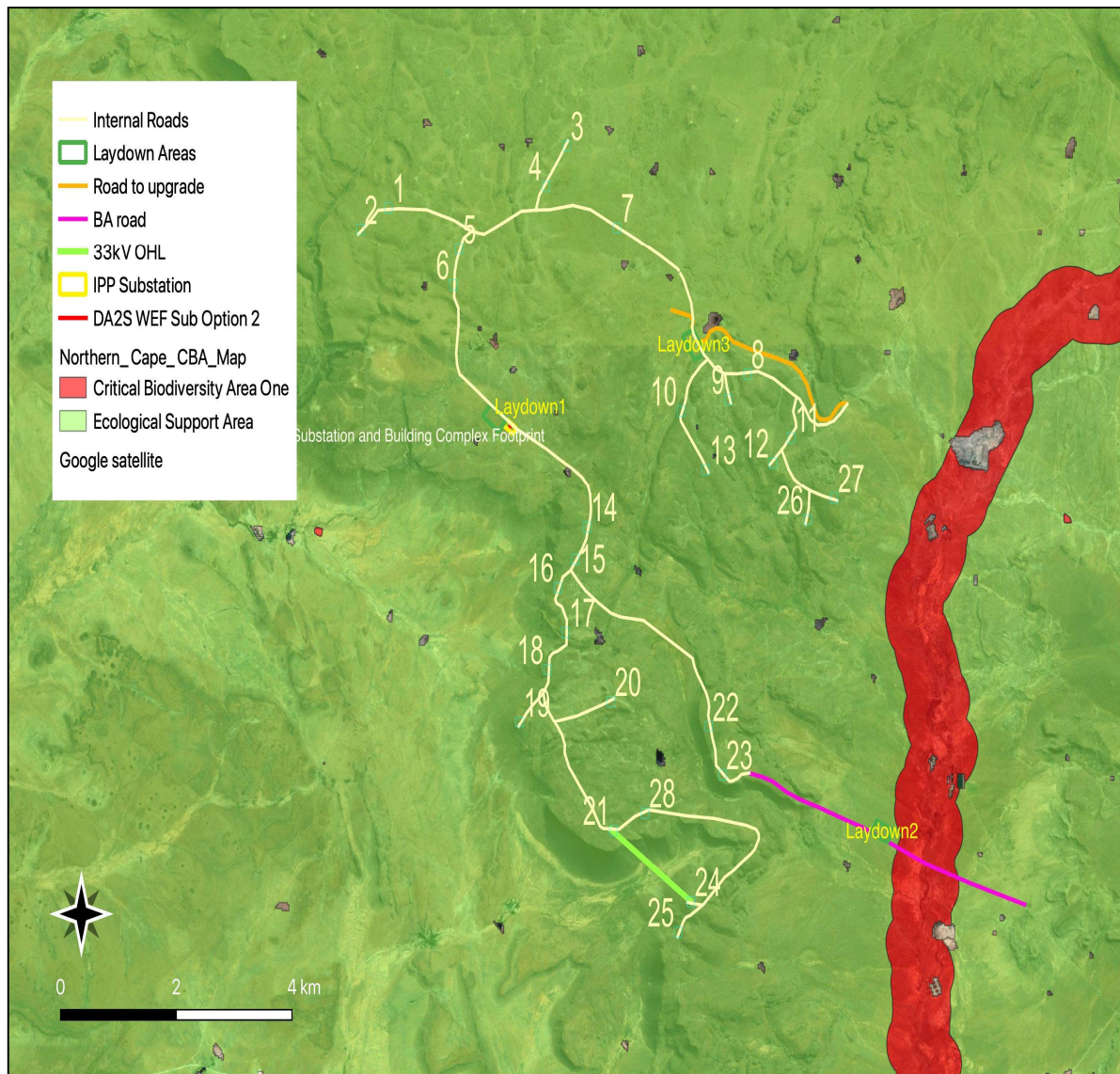
### Status of the biophysical environment originally assessed:



The original ecological assessment is dated 7 February 2012. In the original study (Hoare 2012), the vegetation on site is described as being typical of the regional vegetation types, namely Northern Upper Karee and Besemkaree Koppies Shrubland. Areas of higher sensitivity on site, as identified by Hoare (2012) are all watercourses and drainage areas, as well as natural vegetation which have been included in the National Protected Area Expansion Strategy, although none of these were defined as "No-go" areas. Areas included in the National Protected Area Expansion Strategy are shown in [Figure 11] below (as extracted from the original report). **Note that there is no longer an NPAES focus area on site in terms of the 2018 NPAES focus areas - this sensitivity therefore no longer currently applies.**

Similarly, there were previously no CBAs on the site at the time of the original assessment. The Northern Cape CBA map was compiled after the original (2012) assessment. There is now a CBA1 area in proximity to the site (associated with the drainage valley running from north to south along the eastern side of the study area), but no infrastructure is proposed in the Final Layout Plan that would be located within this CBA area. The entire project area is within an Ecological Support Area (Hoare, 2022).





**Figure 12: Areas currently included within CBAs and ESAs relative to the proposed infrastructure. Note that these zones did not exist at the time of the original ecological assessment in 2012. (Hoare, 2022) (Note: Turbines 9 and 13, and the 33kV OHL line between turbines 21 and 24 have subsequently been removed from the Final Layout)**

The conclusion by Hoare (2012) was that the overall impacts of this proposed project would be of low or moderate significance.

Current status of the biophysical environment:

Habitat conditions, as observed on 16 - 19 August 2022 during a recent detailed walk-through survey, match those described in the original study. Refer to the Ecological Statement in Annexure E2 for the broad habitats found on site, as documented in August 2022, including Karroid shrubland, rocky outcrops, drainage and wetland areas, and steep scarp slopes.

The vegetation pattern as originally described (Hoare 2012) has remained stable. A field survey of the site on 16 - 19 August 2022 shows that the original survey is valid and that the on-site conditions have not changed.

Potential Impacts: (Review of initial assessment and mitigation measures):

The original assessment (Hoare, 2012) identified two impacts for the proposed project, as follows:

- Loss or fragmentation of indigenous natural vegetation (Low or Very Low significance after mitigation, except for roads, which are medium significance after mitigation)
- Establishment and spread of declared weeds and alien invader plants (Low significance after mitigation)

Several mitigation measures were proposed in the original assessment (Hoare 2012), as follows:

- Unnecessary impacts on surrounding natural vegetation must be avoided. The construction impacts must be contained to the footprint of the turbines and laydown area, or the tower structures and/or the servitude of the power line
- Existing access roads must be used, where possible.
- Service roads in the servitude must be properly maintained to avoid erosion impacts.
- Disturbed areas must be rehabilitated as soon as possible after construction, using site-appropriate indigenous species.
- Disturbance of indigenous vegetation outside of the footprint of construction must be kept to a minimum.
- Where disturbance is unavoidable, disturbed areas should be rehabilitated as quickly as possible.
- Any alien plants within the control zone of the company must be immediately controlled to avoid establishment of a soil seed bank. Control measures must follow established norms and legal limitations in terms of the method to be used and the chemical substances used.
- An on-going monitoring programme should be implemented to detect and quantify any aliens that may become established and provide information for the management of aliens.
- For roads, steep slopes must be avoided, if possible.

No plant species of concern were detected by Hoare (2012). During the current survey, a long list of provincially protected plant species was found within the footprint of the proposed infrastructure. The purpose of the current survey was to detect such species, as well as to confirm on-site sensitivities.

New proposed mitigation measures:

The original mitigation measures are valid, but additional measures have been included in the Ecological Walkthrough Survey Report (dated November 2022) for inclusion in the EMPr and Layout Plan finalisation process that is currently underway, to align with current best practice.

The following mitigation measures are proposed to supplement those in the original assessment (note that all mitigations outlined below have already been undertaken and/or actioned by David Hoare Consulting (Pty) Ltd., and the plans outlined have been included in the draft Amended EMPr that has undergone a public participation process):

1. Compile and implement the following management plans, which should be included in the updated EMPr, each of which should include appropriate monitoring guidelines:

- a. Rehabilitation Management Plan.
  - b. Alien Invasive Management Plan.
  - c. Open Space Management Plan.
  - d. Plant Rescue/Protection Management Plan.
2. Obtain all required protected flora permits from the relevant authorities. This is primarily a legal compliance measure and is not necessarily to mitigate any specific impacts.

Cumulative impacts:

The original ecological assessment (Hoare 2012) indicates that possible issues of concern for cumulative impacts are as follows:

- Loss or fragmentation of indigenous natural vegetation,
- Establishment and spread of declared weeds and alien invader plants.

The spatial extent of cumulative impacts can be calculated by determining the loss of habitat within the footprint area of the project relative to the extent of similar habitat within an assessed area. The 2018 National Land Cover dataset has land cover data in 73 natural, degraded and transformed categories. Statistics can be extracted using a GIS algorithm that provides proportions of different land cover classes within 30 km of the current site (Figure 5 of Annexure E2). Only those classes that occur within the footprint area are of interest to the analysis since it is these classes that are affected by the proposed project.

The total number of hectares within 30 km of a point is 282743 ha.

Other renewable energy projects within 30 km of the current site are shown in Figure 6 of Annexure E2. The projects were identified using the latest (2022) Renewable Energy EIA Application Database for SA from the Department of Fisheries, Forestry and Environment (DFFE).

The exact areas for each of these projects is now known, but an estimate of 3500 ha is made for the total footprint of the combined projects. It is also assumed that similar land cover classes are affected as for the current project. The outcomes of the analysis of possible impacts on spatial extent are as follows:

1. Within 30 km of the current project, 96.2% of the landscape (271993 ha) is still in a natural state.
2. The loss of habitat predicted to occur due to the current project is 0.21% of the remaining natural habitat within 30 km of the current site. This is negligible.
3. A maximum of 1.21% of the remaining natural habitat within 30 km of the current site is potentially affected by all combined projects on the renewable energy database. This total cumulative spatial effect is small.

In the original assessment (Hoare 2012), two cumulative impacts were assessed, as follows:

1. Loss or fragmentation of indigenous natural vegetation,

## 2. Establishment and spread of declared weeds and alien invader plants.

The significance of the cumulative impacts for the combined projects was originally assessed as being Medium (negative). The proposed amendments do not affect the level of the cumulative impacts originally assessed. The cumulative impacts are considered to be acceptable (Hoare, 2022).

### Assessment guidelines applicable since original assessment:

The original ecological assessment was undertaken in 2012 (final report dated 7 February 2012) according to the Environmental Impact Assessment Regulations, 2006. At that time specialist studies were required to comply with Appendix 6 of the EIA Regulations. These have now been superseded by Protocols that have been gazetted in terms of sections 24(5)(a) and 24(5)(h) of NEMA. For Biodiversity-related themes, protocols have been gazetted for the specialist assessment and minimum report content requirements for environmental impacts on the following:

1. terrestrial biodiversity
2. aquatic biodiversity
3. terrestrial animal species
4. terrestrial plant species

These gazetted protocols do not apply to applications for amendments to environmental authorisation that were issued under the earlier Regulations (Hoare, 2022).

### Conclusion:

Dr Hoare concluded the following:

*“Based on the re-visit to the site and a review of the original report and Addendum Report (July 2015) for the Part 2 EA amendment in 2015, these assessments remain valid. The proposed amendments do not affect the significance level of the assessed impacts.*

*The baseline environment has not changed significantly since the original assessments. The proposed amendments will not result in an increased level or change in the nature of the impact, which was initially assessed and considered when application was made for the environmental authorisation and subsequent Part 2 EA amendment in 2015 - 2016.*

*The inclusion of Activity 15 of GN R. 545 (Listing Notice 2) into the EA (which relates to the physical alteration and transformation 20ha or more) will not result in any change to the assessment. The physical alteration of more than 20ha of the land was assessed in detail as part of the 2012 EIA process and subsequent Part 2 EA amendment process in 2015 for the project therefore the inclusion of the item has no effect on the assessed impacts.*

*The cumulative impact due to the proposed current project is negligible and therefore the same mitigation measures apply to all.*

*In conclusion, the proposed amendments of the Environmental Authorisation for the project will not change the nature or significance of the assessed potential impacts. No additional impacts will occur. The baseline conditions have also not changed; therefore, the original*

*assessment is valid. The proposed amendments are therefore acceptable from an ecological impact perspective. It is the opinion of the specialist that the proposed amendments can be approved (Hoare, 2022).*

#### 4.2.3 Aquatic Biodiversity Specialist Input

Aquatic specialist, Ms Antonia Belcher, compiled a specialist statement on the potential impacts of the proposed amendments on aquatic biodiversity. Ms Belcher's findings are summarized below (refer to **Annexure E3** for the full specialist statement).

##### Status of the environment: (Comment on any changes to the aquatic ecosystems within the site):

The proposed project is located on the eastern plateau near De Aar. Land use on the plateau is relatively undeveloped and only utilised for grazing of sheep, cattle, goats, ostriches or game such as springbok. This land use has not changed since the initial assessment, apart from the development of the Mulilo De Aar 2 North WEF that initially was considered together with the De Aar 2 South WEF project and has since been approved. This project area lies to the north of the proposed project and has not altered any of the freshwater features associated with the project. It can thus be said that no change in the ecological condition (largely natural to moderately modified) or the ecological importance and sensitivity (Upper Brak River: moderate/low; Upper Hondeblaf River: high; minor streams: low) of these aquatic features has taken place since the initial assessment (Belcher, 2022).

The only significant series of pans within the study area is located at Slingshoek and have been identified as FEPA wetlands. The layout plan for the WEF has been altered within this area to ensure that no turbines will be placed in close proximity to the pans.

**The ecological integrity of the river and wetland habitat at the site appears to be essentially unchanged from the 2012 and 2015 assessments (Belcher, 2022).**

##### Potential impacts: (General comment on impact significance):

The proposed amendments will result in a change from a maximum of up to 61 WTG to a maximum of 26 WTG being applied for. The proposed turbine foundation amendments would result in an increase of the turbine tower-base diameter from 20m to 24m. The construction hardstand pad would also need to increase. Refinements to the WEF layout have been made that take the freshwater constraints mapping (delineated features and the recommended buffers) into account. No WTG is located in close proximity to any of the delineated freshwater features. The proposed increase to the footprints is offset by the reduced number of WTG but is also of little significance in terms of aquatic ecosystem impacts, given that the locations are away from any aquatic feature.

The road widths will increase from 4m to 6m. There are approximately 15 road crossings over minor watercourses within the site. The proposed road width increase would be of low significance and is properly mitigated as recommended.

The proposed change to the internal reticulation from 22kV to 33kV will not have any potential impact on the aquatic ecosystems, nor will the request to remove the MW designation per turbine.

No significant changes to the baseline environment have occurred since the previous assessments, and the potential aquatic impacts are well understood (particularly given the

recent specialist aquatic inputs for the finalisation of the EMPr and Layout Plan process for the project in 2022). The proposed extension of the validity period of the EA will not result in an increased level or change in the nature of aquatic impacts, and is acceptable.

**The assessed impact ratings (Low to very low with mitigation) are thus not likely to alter as a result of any of the proposed amendments.**

Cumulative impacts:

Land use in the area currently consists of cultivation and livestock farming, with most of the natural vegetation having already been significantly transformed. Current land and water use impacts on the watercourses and wetlands are thus also significant such that the aquatic features are all mostly in a largely to seriously modified ecological condition (Belcher, 2022).

There are several renewable energy projects within a 30km radius of the proposed WEF. Figure 1 of Annexure E3 shows the renewable energy projects within a 30 km radius of the site. The projects primarily occur in the Brak River Catchment. Cumulative impacts on this river system, given that they are the same catchment, are possible if they are not adequately mitigated.

Most of the projects to the west of the site are solar PV projects while the projected to the east are WEF projects. The nature of the proposed WEF projects and their associated infrastructure however allows them to have minimal impact on the surface water features since the turbines can be placed far enough away from the freshwater features to not impact them. This is already the case with the approved Mulilo De Aar 2 South WEF.

The largest potential impact of WEF projects is a result of the associated infrastructure, which can be mitigated such that its impact on the aquatic ecosystems will be of a low significance. For the project concerned, the road layout makes use of existing roads, where possible, which further reduces the impacts on the aquatic ecosystems and provides an opportunity to improve the current road crossings by providing better erosion protection measures and through the construction of low water crossings or properly sized box culverts instead of pipe culverts that are prone to blocking. The impact significance rating for cumulative impacts was assessed as Low (negative) prior to mitigation, and Very Low (negative) post mitigation, in the original freshwater impact assessment (2012). The significance rating for cumulative impacts would remain unchanged with the proposed amendments. ***One could thus expect that the cumulative impact of the proposed project would not be significant provided mitigation measures are implemented.***

General comment on additional mitigation measures:

The mitigation measures stated in the freshwater impact study dated January 2012 and repeated in the assessment of July 2015 (and listed in this letter) remain the same, with no additional mitigation measures being required (Belcher, 2022).

Conclusion:

In conclusion, Ms Belcher stated the following:

*“The ecological integrity of the river and wetland habitat at the site appears to be essentially unchanged from the 2012 and 2015 assessments, i.e. the baseline status of the aquatic environment has not changed since the original assessment.*



*The proposed amendments thus do not affect the significance of any of the impacts identified in the freshwater impact assessment dated February 2012, nor the addendum letter of July 2015. Accordingly, the proposed amendments will not increase the level or change the nature of the impacts. **There are no reasons from an aquatic ecosystem perspective that the amendments should not be authorised according to the requested amendments**" (Belcher, 2022).*

#### 4.2.4 Archaeological and Cultural Heritage Specialist Input

A specialist Heritage Statement Letter was compiled by heritage specialist, ACO Associates, to address the potential heritage (archaeological and cultural heritage) impacts associated with the proposed amendments. ACO Associates findings are summarized below (refer to **Annexure E4** for the full specialist statement).

##### Status of the environment:

With respect to the proposed extension of the EA validity period, the heritage baseline environment has not changed significantly since the original assessment and the proposed amendment will not result in an increased level or change in the nature of the impact which was initially assessed and considered when application was made for the environmental authorisation and subsequent Part 2 EA amendment in 2015 - 2016. The 2022 walkdown survey noted no obvious changes to the heritage environment since the site assessment undertaken for the 2011 HIA (Gribble, 2022).

The Screening Tool report for the De Aar 2 South WEF, generated on 18 November 2022, ascribes a low sensitivity to the Archaeological and Cultural Heritage Theme. The heritage assessments and field surveys conducted for this project (Webley & Orton, 2011; Webley & Halkett, 2015; Gribble, 2022a), however, indicate that the low archaeological and cultural heritage sensitivity rating is not an accurate reflection of the sensitivity of the development site, and that the sensitivity rating would be more appropriately pegged at moderate, with some areas of high sensitivity. As is often the case with the Screening Tool, the results it provides reflect the fact that relatively small areas of South Africa have been subject to comprehensive archaeological survey, and that primary site data to populate the Screening Tool is generally very limited. In other words, areas are indicated to be of low sensitivity, not because there is no archaeology there, but because they have not been surveyed and there is thus no data available about their archaeological potential.

Refer to the Heritage Walkdown Survey Report in Appendix A of the Heritage Statement (**Annexure E4**) for a detailed description of the status of the environment in terms of heritage resources (archaeology and built environment).

##### Potential impacts:

The proposed amendments to the EA in the current amendment application which may affect heritage resources are those that manifest themselves physically on the ground, i.e. the increase in the footprint of the WTG hardstands and in the access road widths. Larger hardstands and wider access roads increase the potential for impacts to heritage resources, particularly archaeological sites and materials, simply because of their larger footprints. However, although the proposed hardstands are larger than those currently authorized, the reduction in the number of WTGs from 61 to a maximum of 26 means that the hardstand land-take remains approximately 12,2 hectares in total. Similarly, although wider access roads than what is currently authorized are proposed, the reduction in the total length of roads within the

WEF resulting from the reduction in the number of WTGs will result in a reduction in the amount of land affected. Overall, the proposed EA amendments will result in a reduction in the physical WEF footprint and, therefore, in the potential for impacts to heritage resources (Gribble, 2022).

Larger hardstands and wider roads may, in places, result in limited and minor impacts to archaeological resources in their proximity. Provided these impacts are mitigated according to the measures recommended by Gribble (2022a) (see Appendix A in Annexure E4), which replace those in the HIA (2011) and Addendum report (2015) and are included in the amended EMPr for the project (that is currently undergoing a public participation process), it is the heritage specialists reasoned opinion that the proposed amendments will not result in an increased level, or change in the nature of the impacts, to those previously assessed in 2011 and 2015 (Gribble, 2022), (i.e. which was rated as Medium (negative) and Low (negative) significance, without and with mitigation respectively, for potential archaeological and built environment impacts, and High negative (without mitigation) and Medium/ neutral significance with mitigation for potential impacts on cemeteries and graves).

The heritage specialist noted that the heritage assessments for the De Aar 2 South WEF comply with SAHRA's minimum standards for such assessments. In the absence of published Environmental Theme Protocols applicable to cultural heritage resources in the Procedures for the Assessment and Minimum Criteria for Reporting on Identified Environmental Themes published by the Minister of Environment, Forestry and Fisheries on 20 March 2020, these assessments also comply with the requirements of Appendix 6 of the EIA Regulations. There are no new guidelines which are now relevant to the authorised development which were not considered or addressed in the existing reports (Gribble, 2022).

#### Cumulative impacts:

The specialists' input on potential cumulative impacts on heritage resources is as follows:

*With respect to the cumulative impacts of this project and other similar projects in the area on heritage resources, the HIA stated that, the construction of a number of wind energy facilities on the same plateau as the De Aar 2 South WEF could result in the cumulative loss of heritage resources, which could have a moderate to high significance if no mitigation occurs. With mitigation, the cumulative impacts are likely to be low.*

*There is currently a mix of 30 approved wind and solar energy projects within a 30 km radius of the De Aar 2 South WEF (according to the DFFE Screening Tool Report (November 2022)). Together, these projects, should they all proceed to construction (which is unlikely), will have a cumulative impact on the heritage resources of the area.*

*However, in assessing the significance of this cumulative impact, it is important to consider that although the combined cadastral footprint of these projects is substantial, the real physical footprints of the wind and solar facilities are relatively small. It must also be assumed that each of these projects has been subject to an EIA or BA process, as part of which a heritage assessment has been conducted. As part of those processes, the results of archaeological surveys and heritage assessments will have informed project layouts, and recommendations for measures to mitigate any remaining impacts on heritage resources will have been made.*

*Archaeological and heritage best practice demands the in situ preservation of significant heritage resources as the first option. Recommended mitigation thus always strives to ensure that significant sites or materials are avoided, and thus preserved, as part of the development*

process. Where avoidance is not possible, the recording, collection, and/or excavation of sites or material ensures that although the site may be damaged or destroyed by the development, the information it contains is saved and safely curated and can contribute to our understanding and knowledge of the heritage of an area.

Therefore, provided the heritage mitigation measures recommended for each project are fully and properly implemented as part of individual project EMPs, it is our opinion that the cumulative impacts on archaeological and other heritage resources arising from the construction of the De Aar 2 South WEF and the other facilities in the area is likely to be low (Gribble, 2022).

#### Conclusion:

Provided the mitigation measures recommended in the Walkdown Report (Gribble, 2022a) (see Appendix A in Annexure E4 attached) are implemented, the overall impact of the construction of the Mulilo De Aar 2 South WEF according to the layout proposed in this EA amendment application is acceptable and generally of low significance.

“...it is our reasoned opinion that the proposed amendments will not result in an increased level, or change in the nature of the impacts, to those previously assessed in 2011 and 2015.”

“With respect to the proposed extension of the EA validity period, the heritage baseline environment has not changed significantly since the original assessment and the proposed amendment will not result in an increased level or change in the nature of the impact which was initially assessed and considered when application was made for the environmental authorisation and subsequent Part 2 EA amendment in 2015 - 2016. The 2022 walkdown survey noted no obvious changes to the heritage environment since the site assessment undertaken for the 2011 HIA”.

From a heritage perspective, therefore, the proposed amendments are considered acceptable (Gribble, 2022).

#### 4.2.5 Avifaunal Specialist Input

A specialist Avifaunal Statement was compiled by avifaunal specialist, Chris van Rooyen and Albert Froneman of Chris van Rooyen Consulting, to address the potential impacts on birds associated with the proposed amendments. The findings are summarized below (refer to **Annexure E5** for the full specialist statement).

#### Status of the environment:

Due to monitoring data from 2014 being over 3 years old, nest searches were repeated in October 2019 and an additional six avifaunal surveys were conducted between October 2020 and July 2022 for the project, involving 288 hours of vantage point watches (i.e. 72 hours per VP at 4 VPs selected to cover the new and reduced turbine layout), to inform the finalisation of the Layout Plan and EMP for the project. **It is evident from the additional monitoring that the baseline environment has not changed in any significant way since the original pre-construction avifaunal assessments were undertaken in 2012 and 2014** (Van Rooyen and Froneman, 2022).

The project site falls within the Platberg-Karoo Conservancy Important Bird Area (IBA) SA037. This IBA contributes significantly to the conservation of large terrestrial birds and raptors. These include Blue Crane *Anthropoides paradiseus*, Ludwig's Bustard, Kori Bustard *Ardeotis*

*kori*, Blue Korhaan *Eupodotis caerulescens*, Black Stork, Secretarybird *Sagittarius serpentarius*, Martial Eagle, Verreaux’s Eagle and Tawny Eagle (Marnewick et al. 2015).

The turbine site is located primarily in Besemkaree Koppies Shrubland, which consists of a mixture of dwarf, small-leaved shrubs and tall shrubs, with an abundance of grasses, especially after good rains, and forms part of the Grassland Biome ((Mucina & Rutherford 2006, SANBI 2018). From an avifaunal perspective, the habitat is classified as Grassy Karoo (Harrison et al. 1997). The site itself is located on a plateau. The plateau is one of a handful of high-lying areas in the region. Altitude on the plateau ranges from about 1400 – 1670m above sea level. The most important avifaunal habitat feature on the site is the extensive cliffs, rocky slopes and wooded kloofs which are found on the western edge of the plateau, which constitute suitable habitat for a range of cliff-nesting raptors, but especially for Verreaux’s Eagle, Booted Eagle *Aquila pennatus* and Jackal Buzzard *Buteo rufofuscus*. Temperatures at De Aar range between a mean daily maximum of 31°C in January (summer) and 15.1°C in July (winter), and rainfall happens mostly between October and April and averages about 211mm per year, which makes for a fairly arid climate (meteoblue.com). The principal land-use at the site is live-stock farming (Van Rooyen and Froneman, 2022).

Potential impacts:

➤ Key findings of the original bird impact assessment reports

The original bird impact assessment specialist report (Harebottle 2012) concluded as follows as far the risk of bird mortality due to collisions with the wind turbines and electrocutions on the associated powerlines are concerned. These conclusions were acceptable and resulted in EA being granted:

“(c) Mortality

Nature: Operational activities would result in a negative direct impact on the avifauna of the WEF site
Impact magnitude – Low-Medium
Extent: The extent of this impact would be regional if Martial Eagles or Verreaux’s Eagles are killed, or local should only other priority species be affected, such as Ludwig’s Bustard and Blue Crane.
Duration: The duration would be long-term as the ecology of the area will remain affected for as long as the facility is operational.
Intensity: Numbers of individuals of threatened species may be killed in collision or electrocution incidents so the magnitude of the change will be medium-high.
Probability – There is a probable likelihood that birds will be impacted.
IMPACT SIGNIFICANCE (PRE-MITIGATION) – MEDIUM-HIGH

The key species which Harebottle (2012) identified as being susceptible to this impact are Verreaux’s Eagle *Aquila verreauxi*, Martial Eagle *Polemaetus bellicosus*, Southern Pale-chanting Goshawk *Melierax canorus*, Lesser Kestrel *Falco naumanni* and waterbirds as a class.

Harebottle summarised his findings as follows in table format (Table 4 on page 17 of Harebottle, 2012):

Phase	Pre-mitigation significance	Residual impact significance
<i>Construction</i>		
Habitat loss	LOW-MEDIUM	LOW

Disturbance	HIGH	MEDIUM
<i>Operation</i>		
Displacement	HIGH	MEDIUM
Mortality	MEDIUM-HIGH	MEDIUM

➤ *Key findings of Original Pre-Construction Monitoring*

Following the impact assessment by Harebottle, Chris van Rooyen Consulting (Van Rooyen *et al.* 2014) conducted a year's monitoring, in line with applicable guidelines, at the site to record the avifauna and to assess the potential impact of the wind farm. They concluded that Booted Eagle *Aquila pennatus*, Verreaux's Eagle, Jackal Buzzard *Buteo rufofuscus* and Black-chested Snake Eagle *Circaetus pectoralis* were most likely at risk of collisions with the turbines.

➤ *Key findings of Additional Monitoring:*

In line with more recent updated monitoring guidelines, and because monitoring data from 2014 was over 3 years old, nest searches were conducted in October 2019, and another six surveys were conducted between October 2020 and July 2022, involving 288 hours of vantage point (VP) watches (i.e. 72 hours per VP at 4 VPs selected to cover the new and reduced turbine layout). As mentioned previously, **it was confirmed during the additional year of monitoring that the baseline environment had not changed in any significant way since the original pre-construction assessments were performed in 2012 and 2014**, with the same suite of species being at risk of collision mortality as before. The results of the additional monitoring indicated that Verreaux's Eagle and Jackal Buzzard are most at risk of collision with the proposed 26 turbines, and interestingly that Booted Eagle were now seen as the fourth most at risk species, based on flight activity.

The results of the second year of monitoring are presented in the avifaunal walkthrough report compiled for the above-mentioned EMP update and layout finalisation process in 2022 (refer to Appendix 1 of Annexure E5).

➤ *The Implications of the Proposed Amendments:*

***Reduced number of turbines***

The number of turbines is proposed to change from a maximum of 61 turbines to a maximum of 26. The turbine dimensions will remain unchanged at the maximum authorised hub height of 120m and maximum rotor diameter of 165m.

The avifaunal specialist stated that by reducing the number of turbines from 61 to 26, the predicted average annual collision impact at the De Aar 2 South wind farm **is expected to reduce by 57.3%** (Simmons *et al.* (2022)). It should be noted that these estimates are not species-specific and apply to birds generally, and also do not necessarily take into account spatial location of turbines and site-specific variation. Furthermore, these are pre-mitigation figures, and extensive mitigations to reduce collisions are being proposed for the wind farm (as detailed in the abovementioned Avifaunal Walkthrough Report (attached as Appendix 1 in Annexure E5). However, it can definitively be concluded that this large reduction in turbine numbers, from the authorised maximum of 61 turbines, will have a very positive impact on birds on this authorised wind farm (van Rooyen and Froneman, 2022) (emphasis added).

**Re-assessment of turbine collision impact:**

Given the potential changes to the number of turbines, a re-assessment of the potential collision impact was carried out by Chris van Rooyen and Albert Froneman for the proposed amendment, in order to establish if the original pre-mitigation assessment by Harebottle (2012) should be revised.

Van Rooyen and Froneman (2022) indicated the following: *“It is concluded that the original accepted pre-mitigation impact significance rating of “medium to high” for potential mortality (Harebottle 2012) should remain unchanged, despite the reduction in the number of turbines, and thus the collision mortality risk remains unchanged. The reason for this is that it is now clear, with the benefit of a decade of experience since the original assessment was done, that the initial rating of “medium to high” for the mortality risk was in fact too conservative. The reduction in the number of turbines does in fact have a significant positive effect, in that it reduces the rating to “medium to high”, from what should have been an initial rating of “high”. Furthermore, extensive mitigations now proposed for the 26-turbine layout (and detailed in the final layout and walkthrough report), are expected to bring the residual impacts to medium (i.e. to acceptable levels).*

**Change in reticulation from 22kV to 33kV lines**

The proposed change from 22kV to 33kV for the internal reticulation lines will not result in additional impacts, therefore the original rating of **“medium to high”** remains unchanged for potential electrocution (Van Rooyen and Froneman, 2022).

**Extension of validity period of Environmental Authorisation**

*“As indicated previously, due to monitoring data from 2014 being over 3 years old, nest searches were repeated in October 2019 and an additional six avifaunal surveys were conducted between October 2020 and July 2022 for the project, involving 288 hours of vantage point watches (i.e. 72 hours per VP at 4 VPs selected to cover the new and reduced turbine layout), to inform the finalisation of the Layout Plan and EMPr for the project. **It is evident from the additional monitoring that the baseline environment has not changed in any significant way since the original pre-construction avifaunal assessments were undertaken in 2012 and 2014.** Furthermore, no changes to avifauna in the project area are anticipated over the next two years. The proposed extension of the validity would therefore not result in an increased level or change in the nature of avifaunal impacts and is considered to be acceptable”* (Van Rooyen and Froneman, 2022).

**Revised mitigation measures**

The avifaunal specialist stated the following: *“No additional mitigation measures are proposed relating specifically to the proposed amendment of the EA. As mentioned above, there are significant proposed revised mitigation measures which are detailed in the avifaunal walkthrough survey report for the updated EMPr and final layout plan.*

*Since the original bird impact study and pre-construction monitoring were completed in 2012, 2014 and 2022 respectively, the “Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in southern Africa”, (Jenkins et al. 2011) had been revised in 2015, and new guidelines have been produced specifically for Verreaux’s Eagles (Ralston-Paton 2017, updated 2021). The need for Verreaux’s Eagle guidelines*



became apparent through operational monitoring at several wind farms, which showed that the species is highly susceptible to wind turbine collisions.

In view of new guidelines, and the experience gained since the original studies were completed, the original mitigation measures as formulated by Harebottle (2012) need to be revised to reduce the post-mitigation mortality impact to **medium**. The proposed revised mitigation measures are detailed in the avifaunal walkthrough report for the updated EMPr [refer to Appendix 1 of Annexure E5] and final layout plan and are not further discussed here".

#### Cumulative impacts:

The avifaunal specialist reported the following in terms of potential cumulative impacts: "The estimated number of wind turbines which are currently proposed or have been constructed within a 30km radius around the proposed De Aar 2 South WEF, comes to 127 (excluding De Aar 2 South WEF). Of these, 96 have been constructed to date. The De Aar 2 South WEF will consist of 26 turbines, which brings the total number of potential and actual turbines within the 30km radius to 153. The 26 turbines of the De Aar 2 South WEF thus constitute 17% of the total number of planned and existing turbines. As such, its contribution to the total number of turbines, and by implication the cumulative impact of all the planned turbines, is relatively **Moderate**, which can be reduced to **Low** with the mitigation proposed in the updated EMPr. All the proposed and existing turbines within the 30km radius around the De Aar 2 South WEF are located in suitable Verreaux's Eagle foraging and/or breeding habitat, which habitat comprises approximately 325km<sup>2</sup> of rocky and mountainous terrain, containing 15 recorded nests. This translates into approximately one turbine for every 2.2km<sup>2</sup> of suitable habitat, which is a high density of turbines. The cumulative impact of all the proposed and existing wind developments in the 30km radius would therefore be **High** as far as potential collision mortality of Verreaux's Eagles is concerned, but it could be reduced to **Moderate** with appropriate mitigation.

The total area of the land parcels with registered renewable energy projects (both wind and solar) equates to approximately 725km<sup>2</sup>. The proposed De Aar 2 South WEF land parcels equates to about 16% of the total amount of land parcel area designated for renewable energy developments, and about 4.3% of the total untransformed habitat available in the 30km radius. The contribution of the De Aar 2 South WEF to the cumulative impact of all the renewable energy facilities is therefore **Moderate** as far as potential displacement of priority species due to habitat transformation is concerned. The combined land parcel area of all the planned renewable energy land parcels (both wind and solar) equates to just over 25% of the available habitat in a 30km radius around the project site, which is a **Moderate to High** impact, and will remain as such even with mitigation. However, it should be borne in mind that many of the planned projects must still be subject to a competitive bidding process where only the most competitive projects will obtain a power purchase agreement required for the project to proceed to construction, therefore the actual number of projects that get constructed may be less than what is currently planned (Van Rooyen and Froneman, 2022).

#### Conclusion:

In conclusion, the specialist stated the following:

In summary, it is concluded that the **proposed amendments will not result in an increased level or change in the nature of impacts on birds**. The original pre-mitigation significance rating for the potential impact of mortality remains unchanged at medium – high for reasons explained above. The post-mitigation significance rating also remains unchanged at **medium**,

*but the proposed mitigation has been revised, and such mitigation has been included in the updated EMPr and final Layout Plan that is currently undergoing a public participation process, and that will be submitted to DFFE for approval in due course. **There is no objection to the granting of the proposed amendments** (Van Rooyen, 2022).*

#### 4.2.6 Bat Specialist Input

Werner Marais of Animalia Consultants compiled a specialist statement to address the potential impacts of the proposed amendments on bats. The findings are summarized below (refer to **Annexure E11** for the full specialist statement).

##### Status of the environment:

Animalia Consultants (Pty) Ltd completed the 12 months pre-construction bat monitoring for the Mulilo De Aar 2 South WEF in 2014, and was also involved in subsequent amendments. It included the assessments of impacts as required for the EIA phase. The receiving environment is described in the original preconstruction bat monitoring EIA by Animalia Consultants in 2014. The only change in the broader area since 2014, is the addition of the De Aar 2 North WEF and other wind farms. This is discussed in the cumulative impact section of the EMPr and Layout Update report (dated 10 November 2022), and the site sensitivity has been verified against the screening tool in Appendix A of Annexure E11. However there has been no significant change to the ecological environment, from a bat fauna perspective.

The bat specialist added that, in terms of the proposed extension of the validity period of the EA, there have been no significant changes to the receiving environment since the previous assessments, and the potential impacts of the proposed project on bats is well understood (particularly given the recent specialist inputs provided by Animalia Consultants (Pty) Ltd for the update of the EMPr and Layout Plan finalisation process for the project in 2022).

##### Potential impacts:

*The Applicant is currently applying for an amendment to the current EA, to **reduce** the number of turbines to a maximum of 26 turbines, utilising 28 possible positions<sup>5</sup> within an updated layout (that is currently being subjected to a separate layout update and EMPr approval process). The proposed amendments include adding the words “up to” in front of the authorised turbine specifications for hub height and rotor diameter to allow for smaller turbines to be installed, if required, due to suppliers. Associated infrastructure that are also proposed to be amended includes hardstands, internal roads, foundations, IPP substation, control and O&M buildings, temporary laydown areas and internal reticulation, and removal of the MW designation per turbine. These amendments to the associated infrastructure do not have a significant bearing on the predicted impacts on bats. The current EA expires 01 March 2023 and the Applicant wishes to extend this by 2 years, to 01 March 2025. Additionally, the Applicant wishes to include an erroneously omitted Listed Activity, i.e. activity 15 of GN R. 545 (Listing Notice 2) (which relates to the physical alteration and transformation 20ha or more), and farm portion (Portion 7 of Farm Vendussie Kuil No. 165) into the EA. The physical alteration of more than 20ha of the land was assessed in detail as part of the 2012 EIA process and subsequent Part 2 EA amendment process in 2015 for the project. Portion 7 of Farm*

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<sup>5</sup> Note: The specialists assessed 28 possible turbine positions for the Layout Plan finalisation process. The Final Layout to be included with the final Amended EMPr, however, comprises only 26 turbine positions (i.e. two turbine positions have been removed, so that only those to be constructed are included in the Final Layout Plan to be submitted with the final Amended EMPr to DFFE for decision making).

*Vendussie Kuil No. 165 was included and assessed in the combined EIA process and reporting for the De Aar 2 South WEF and De Aar 2 North WEF in 2012- 2013, and was included in the Final Layout that was recently assessed (2022) for the update of the EMP and Final Layout Plan process that is currently in progress (Marais, 2022).*

The impacts on bats as assessed during the EIA and previous amendment phases, remains unchanged (i.e. High (-) without mitigation, and Low (-) with mitigation during the operational phase), and the proposed amendments to the EA will not result in an increased level or change in the nature of cumulative and non-cumulative impacts on bats, and Animalia has no objection to the proposed amendments from a bat sensitivity perspective.

#### Cumulative impacts:

Only three wind energy facilities (WEF's) are applicable to the cumulative impacts on bats for the De Aar 2 South WEF, namely the Castle WEF, De Aar 2 North WEF and another WEF approved near De Aar. The solar renewable energy developments are not expected to have significant cumulative impacts on bats within the area (Animalia, 2022).

The proposed amendment will not result in an increased level of cumulative impact to what was previously assessed, considering the original assessment had proposed (and authorised) 103 turbines, then reduced to a maximum of 61 turbines in 2016, and currently a maximum of 26 turbines are being proposed. The predicted cumulative impacts are therefore acceptable. During operation the following cumulative impacts are applicable:

- Impact 1: Bat mortalities during foraging

Bat mortalities over long periods of time can negatively impact species genetic diversity in a population. If this occurs over a larger area of several wind farms, it decreases the chances of bat populations recovering to a prior state. Bats play an important role in controlling insect numbers, certain species of insects may increase in numbers over a larger area if bats are negatively impacted (Animalia, 2022).

- Impact 2: Bat mortalities during migration

Bat mortalities over long periods of time can negatively impact species genetic diversity in a population. If this occurs over a larger area of several wind farms, it decreases the chances of bat populations recovering to a prior state. Bats play an important role in controlling insect numbers, certain species of insects may increase in numbers over a larger area if bats are negatively impacted. For migrating bats the area of influence are dependent on the migration routes, and may therefore involve WEF's not in the immediate larger area (Animalia, 2022).

- Impact 3: Increased bat mortalities due to light attraction and habitat creation

Floodlights and other lights at turbine bases or nearby buildings, will attract insect eating bats and therefore significantly increase the likelihood of these bats being impacted on by moving turbine blades. Habitat creation in the roofs of nearby buildings can cause a similar increased risk factor. Considering several WEF's, the overall mortality rate will be significantly higher with an increased likelihood of impact (Animalia, 2022).

#### Conclusion:

To conclude, the specialist stated the following:

*In conclusion, the impacts on bats as assessed during the EIA and previous amendment phases, remains unchanged, and the proposed amendments to the EA (described above) will not result in an increased level or change in the nature of cumulative and non-cumulative impacts on bats, and Animalia has no objection to the proposed amendments from a bat sensitivity perspective (Animalia, 2022).*

#### 4.2.7 Visual Specialist Input

Quinton Lawson and Bernard Oberholzer compiled a visual assessment statement for the proposed amendments. The findings are summarized below (refer to **Annexure E6** for the full specialist statement).

##### Status of the environment:

There are no visual impact implications for extending the validity period of the EA for 2 years as the visual baseline environment has not changed since the original visual assessment and subsequent amendments (Lawson and Oberholzer, 2022).

##### Potential impacts:

Regarding the original Visual Impact Assessment (VIA) Lawson and Oberholzer had the following comment: *“The visual impact significance rating in the original VIA at that time was recorded as high [-] given the relative visibility of wind turbines to surrounding farmsteads. It was further recommended that from a visual perspective the development could proceed and that the agreed mitigation measures be undertaken. It was considered that the various amendments at the time would not result in any change to the visual impact significance ratings, (Hansen, 2019)”* (Lawson & Oberholzer, 2022).

The specialists re-assessed the visual impacts in light of the proposed amendments and indicated the following:

##### **Spatial layout:**

*The changes to the layout of the currently proposed project with fewer turbines results in an overall improvement in terms of potential visual impacts as can be seen in the comparison of wind turbine generator (WTG) positions (see Map 7 of Annexure E6).*

*Besides having fewer turbines, most of these have been moved back slightly from the steep escarpment edge, which is a visually sensitive landscape feature. In addition, the proposed turbines are now located further from surrounding farmsteads.*

*The only exceptions are WTG 19 and 24, close to the scarp edge, which is a visually prominent landform. If possible, taking engineering and other considerations into account, these WTGs should be micro-sited to minimise visual intrusion on the surrounding landscape, although they are acceptable in the current locations if micro-siting is not possible.*

*Changes to the internal road layout and internal overhead powerline (OHPL) layouts tend to not have any major visual implications. However, the internal OHPL between WTGs 21 and 24 crosses steep scarp slopes and a small kloof, and therefore consideration should be given to re-routing this powerline if possible. (Note: The overhead powerline (OHPL) between WTGs 21 and 24 has subsequently been removed from the proposed Final Layout Plan – refer to Figure 2).*

*There are no visual impact implications for extending the validity period of the EA for 2 years as the visual baseline environment has not changed since the original visual assessment and subsequent amendments.*

*There are also no visual impact implications for including the listed activity, being the physical alteration of more than 20ha of land, as this was previously assessed in detail as part of the 2012 EIA process, and subsequent Part 2 amendment processes.*

*Potential shadow flicker resulting from the proposed layout is indicated on Map 9 [of Annexure E6]. Shadow flicker effect tends to be limited to a 2-kilometre radius, and depends on a wide*

range of local conditions being aligned. Only the farmhouse at Vendusiekuil, which is inside the project site, could potentially be affected by shadow flicker, and therefore this is not considered to be a significant issue.

#### *Advantages and Disadvantages:*

*The reduction in the number of turbines means that the fewer turbines would result in less visual clutter in the landscape. Because there are fewer turbines, the distance between visually sensitive viewpoints and WTGs has slightly increased in most cases.*

*The viewshed analysis indicates that there would be a moderate decrease in the zone of visual exposure as well as extent of the viewshed. No disadvantages relating to the currently proposed layout were noted, in comparison to the previously authorised layout (Lawson & Oberholzer, 2022).*

#### *Cumulative impacts:*

The specialists re-assessed the cumulative visual impacts and found the following:

*The original VIA of 2011 indicated the following:*

*"The local landscape character would be changed and made more industrial, but the scale of the landscape can absorb both of these currently assessed developments, (De Aar 1 and 2 WEFs), and this cumulative impact is assessed as medium for both magnitude and significance".*

*A number of other renewable energy projects have been developed, or are proposed, in the De Aar area, as indicated on Map 1 and as per the Department of Forestry, Fisheries and the Environment's latest Renewable Energy EIA Application Database (REEA 2022, Q2).*

*However, given that De Aar 2 North WEF has been developed, and that De Aar 2 South Mulilo De Aar 2 South Wind Energy Facility: Visual Assessment Amendment, November 2022 WEF has been previously authorised, no change in the cumulative visual impact significance is anticipated.*

*The proposed De Aar 2 South WEF development forms part of an existing renewable energy node, and therefore the project could proceed in terms of cumulative visual impacts (Lawson & Oberholzer, 2022).*

#### *Mitigation:*

The visual specialist provided optional recommended mitigation measures, including the following:

*As indicated in the VIA of the previously authorised project, the layout of the wind farm has already been through a number of iterations based on the specialist studies and engineering considerations.*

*As the screening of wind turbines is not practical, only avoidance measures are possible. Where possible, the micro-siting of turbines could be considered, as in the case of WTG 19 and 24 as previously mentioned. The routing of the internal overhead powerline between WTG 21 and 24 should be re-considered<sup>6</sup>, given the visual sensitivity of the steep slopes and small kloof.*

*The visual mitigations contained in the original VIA of 2011 are still relevant, and no other additional visual mitigations are proposed. (Note: The proposed painting of one of the blades of each turbine, as recommended by the avifaunal specialist during the current EMPr and*

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<sup>6</sup> Note: The internal overhead powerline between WTG 19 and 24 has subsequently been removed from the proposed Final Layout Plan.

layout plan finalisation process, is considered acceptable from a visual impact perspective. Accordingly, amendment of the mitigation measures in the original VIA (2011) that indicated that blades must be white (with no stripes, decals or logos) is considered acceptable, to allow for the proposed blade painting. The update of the visual mitigation measure to allow for the proposed blade painting will be addressed in the update of the Environmental Management Programme (EMPr) process) (Lawson & Oberholzer, 2022).

#### Conclusions:

The visual specialists concluded as follows:

*“Although the currently proposed layout consists of fewer wind turbines, the overall visual impact significance rating for the project is not expected to change from that of the authorised layout and would remain high before and after mitigation, because of the change in character of the site and surrounding area.*

*Amendments to the related infrastructure, such as internal access roads and overhead powerlines, would result in no change in the overall visual impact significance ratings in relation to those of the previously assessed proposals, and would remain low before and after mitigation.*

*The extension of the validity period of the EA, and the inclusion of Activity 15 of GN R. 545 (Listing Notice 2) and Portion 7 of Farm Vendussie Kuil No. 165 into the EA, would not result in any change to the visual impact significance.*

*There are no known new visual assessments and/or guidelines that are relevant to the authorised development.*

*Accordingly, the proposed amendments and proposed final layout will not result in an increased level or change in the nature of impacts, and the final layout is acceptable from a visual impact perspective.*

*Provided that the visual mitigations listed in the original visual impact study (including postconstruction rehabilitation of the site) are adhered to<sup>7</sup>, the findings of the original and subsequent visual assessments for the Mulilo De Aar 2 South Wind Energy Facility project would still be valid for the currently proposed amendments.*

*Our opinion from a visual perspective therefore is that the proposed amendments to the project description and proposed final layout could be authorised. Further consideration could be given to the optional recommended mitigations mentioned above (Lawson & Oberholzer, 2022).*

#### **4.2.8 Palaeontology Specialist Input**

Professor Marion Bamford of Marion Bamford Consulting compiled a specialist statement on the potential palaeontological impacts associated with the proposed amendments. The findings are summarized below (refer to **Annexure E7** for the full specialist statement).

#### Status of the environment:

The comprehensive site visit and walkthrough by Dr John Almond in 2011/2012 and detailed report covered both the De Aar 2 North WEF and De Aar 2 South proposed WEF areas.

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<sup>7</sup> and allowing amendment of the mitigation measures in the original VIA (2011) that indicated that blades must be white (with no stripes, decals or logos), to allow for the proposed blade painting recommended by the avifaunal specialist.

The underlying geology comprises rocks of the Adelaide Subgroup (Beaufort Group, Karoo Supergroup; most likely the Abrahamskraal Formation), intrusive Jurassic dolerite that mostly forms the ridges and plateaux and Quaternary alluvium along the valleys and water courses. This information is still valid (Bamford, 2022).

Almond referred to the biostratigraphic system of Rubidge et al. (1995) which still stands but has now been refined by Day and Rubidge (2020). The area northwest of De Aar is the Abrahamskraal Formation and the Assemblage Zone is the *Tapinocephalus* Assemblage Zone. In this section of the Karoo Basin, however, it is not possible to determine which of the two subzones of the *Tapinocephalus* Assemblage Zones is represented because of the lack of index fossils.

All the original proposed turbine sites and access reads were visited by Almond. Only a few fossils were found in the southern area.

On Farm Vendussieskraal 165 in the borrow pit near the Klipfontein homestead, Almond found fragments of the vertebrate *Diictodon* (Almond, 2012, fig 33, page 39; 2012).

On Farm Die Dam a large piece of fossil wood was reported and collected by the previous landowner; precise locality unknown (Almond, 2012, fig 38, page 41).

In the southeast part of Farm Knapdaar 8 Almond found bone fragments (Almond, 2012).

These fossils were not in any turbine footprint.

Almost all of the proposed turbine sites and access routes are on non-fossiliferous Jurassic dolerite. There are two exceptions:

1. Access route A around the south of Vendussies Kuil homestead is on the Abrahamskraal Formation. Almond visited this site but found no fossils. The nearby turbines 11 and 12 are on dolerite.
  2. Access route B on farm Knapdaar 8, southwest of Rooiwal homestead, is on the Abrahamskraal Formation. Almond visited this route but found no fossils. (Note: The section of access road (from Access B to turbine 23), is part of a separate Basic Assessment process, and therefore falls outside the scope of the EA amendment process).
- Baseline Status of the environment – fossils were formed millions of years ago and do not move or change from their site of deposition. The fossils or their locations have not changed since the initial assessment by Dr Almond (Bamford, 2022).
  - The current status of the assessed environment has not changed since the initial assessment. Since fossils do not move by themselves there has been no change to their presence or absence during this time. Other projects in the area are not applicable because fossils are unique to their location (diversity, abundance, taxa, preservation, etc). (Bamford, 2022)
  - The palaeontological environment (rocks, fossils if any) has not changed since the initial EA was issued (Bamford, 2022).



Potential Impacts:

The impact assessment and recommendation by Almond (2012) and confirmed in the Amendment document (Almond, 2015), remains unchanged and is reproduced below.

The proposed amendments will have no additional impact on the palaeontology, in fact it will be reduced because the number of turbines and access routes is greatly reduced.

<b>Nature of impact:</b> Disturbance, damage, destruction or sealing-in of scientifically valuable fossil remains preserved at or beneath the ground surface within the development area, most notably by surface clearance and bedrock excavations during the construction phase (e.g. WTG foundations)		
	<b>Without mitigation</b>	<b>With mitigation</b>
<b>Extent</b>	Local (restricted to development footprint)	Local (restricted to development footprint)
<b>Duration</b>	Impacts occur only during construction phase but are permanent in effect	Impacts occur only during construction phase but are permanent in effect
<b>Magnitude</b>	Low	Low
<b>Probability</b>	Low	Low
<b>Significance</b>	<b>LOW</b>	<b>LOW</b>
<b>Status</b>	Negative	Negative (loss of fossils) & positive (improved fossil database following mitigation)
<b>Reversibility</b>	Irreversible	Irreversible
<b>Irreplaceable loss of resources</b>	Possible, but the limited fossil resources concerned may well also be represented outside the development area (i.e. not unique)	Possible, but the limited fossil resources concerned may well also be represented outside the development area (i.e. not unique)
<b>Can impacts be mitigated?</b>	Yes	Yes.
<b>Mitigation:</b> Monitoring of all substantial bedrock excavations for fossil remains by ECO, with reporting of substantial new palaeontological finds (notably fossil vertebrate bones & teeth) to SAHRA for possible specialist mitigation.		
<b>Cumulative impacts:</b> Unknown (Insufficient data on local alternative energy and other developments available) but probably LOW given rarity of fossil reports from the region and high levels of dolerite intrusion in the De Aar plateau region.		
<b>Residual impacts:</b> Negative impacts due to loss of local fossil heritage will be partially offset by <i>positive</i> impacts resulting from mitigation (i.e. improved palaeontological database).		

(Almond, 2015).

The impact rating provided by Dr Almond was LOW (-) and this would not change with the proposed amendments because the fossil distribution has not changed. It remains valid (Bamford, 2022).

There are no new guidelines for palaeontology, only a requirement for the cumulative Impact of the project. As stated above, each fossil deposit is unique and one does not impact upon another. The biostratigraphy has been updated since the report by Dr Almond (2012/2013) but this has already been updated in this statement. It makes no difference to the assessment (Bamford, 2022).

Cumulative Impacts:

*The surrounding environment is varied and the fossil deposits, if present, are unique. Similar developments within a 30km radius will only impact their own footprint. There will be no cumulative impact for the palaeontology, i.e. the impact for the De Aar 2 South WEFs remains LOW (Bamford, 2022).*

### Conclusions:

As far as the palaeontology is concerned:

- The baseline status of the receiving environment has not changed significantly since the original EIA in 2012.
- The initial impact rating undertaken during the initial assessment is still valid.
- The mitigation measures provided in the initial assessment (and subsequent updated assessments) are still applicable.
- No new mitigation measures should be added to the EA or EMPr if the DFFE decides to approve the proposed amendments to the EA.
- The proposed amendments are acceptable and will have no additional or different impact on the palaeontology, i.e. the proposed amendments will not result in an increased level or change in the nature of impacts. The original impact assessment and mitigation are still valid.
- No additional walkthrough is required because Almond has already surveyed the sites and routes (Almond, 2012) (Bamford, 2022).

#### 4.2.9 Noise Specialist Input

Noise specialist, Mr Morne de Jager of Enviro Acoustic Research, compiled a specialist statement on the potential noise impacts associated with the proposed amendments. The findings are summarized below (refer to **Annexure E8** for the full specialist statement). (Note: Mr De Jager undertook an Environmental Noise Impact Assessment (“ENIA”) during 2022 for the proposed final layout plan for the WEF, and to inform the update of the EMPr. The ENIA is included in Annexure E8).

#### Status of the environment:

The status (baseline) of the environment was assessed during the initial assessment. This was described in detail in report MRE-DA/NIS/201112-Rev 0 (De Jager, 2022).

The recent Environmental Noise Impact Assessment for the project in 2022 (refer to Annexure 8), reports that most dwellings featuring near the project focus area are scattered in a heterogeneous fashion, typical of a rural area. Most of the area can be considered wilderness, with animal husbandry (stock grazing) and subsistence farming (associated with the few farm dwellings in the area) predominant in the area.

The soundscape within the project focus area (also see report HA-MDA2SWEF/ENIA/202210-Rev 2 - dated October 2022 (refer to Annexure E8) has changed since the initial EA was issued. The change is due to the development of the Longyuan Mulilo De Aar 2 North WEF located directly north of the Mulilo De Aar 2 South WEF. This change however is insignificant at the location of potential NSR as identified, with the potential cumulative impact assessed in the latest report (HA-MDA2SWEF/ENIA/202210-Rev 2 - dated October 2022 (refer to Annexure E8).

The description of the closest potential noise sensitive receptors is described in the Environmental Noise Impact Assessment (2022) as follows:

*Residential areas and potential noise-sensitive developments/receptors/communities (NSR) were identified using aerial images as well as a physical site visit. While there are a few NSR*

within the potential area of influence (within 2,000 m from a wind turbine), the following are highlighted:

- It was reported (site visit during December 2011) that the residence at NSR01 is only used on a temporary basis, with this assessment taking a precautionous approach and consider the structure to be noise-sensitive;
- No residential activities could be confirmed during the 2011 site visit at NSR02. Recent aerial images show significant activity at this location and without written confirmation that the buildings are not used for residential purposes, this assessment will be precautionous and consider the location to be noise-sensitive;
- The status of the buildings located at NSR03 is undefined. Without written confirmation that the buildings are not used for residential purposes, this assessment will be precautionous and consider the location to be noise-sensitive; and
- NSR11 is a number of structures, observed used in 2011. The landowner however confirmed in writing that these structures are currently not used for residential purposes, and will not be used in the future for this purpose.

Refer to the ENIA included in Annexure E8 for further details on the status of the environment, including baseline sound levels, and location of potential noise sensitive receptors.

#### Potential impacts:

The noise specialist stated the following:

*"I conducted Environmental Noise Impact Assessments ("ENIA") during 2022 for the proposed Mulilo De Aar 2 South WEF. The October 2022 ENIA (refer to Annexure 1 [attached in Annexure E8]) assessed the latest proposed final layout considering the worst-cast scenario, using the sound power emissions of the Goldwind GW165-6.0 wind turbine generator ("WTG"). With the input data as used, this assessment indicated that the proposed project will have a noise impact of a low significance on all Noise Sensitive Receptors ("NSR") in the area, subject that the structures located at NSR11 will not be used during the operational phase of the project".*

*A latest layout was assessed in detail in HA-MDA2SWEF/ENIA/202210-Rev 2 (dated October 2022 (refer to Annexure E8). Based on the findings of this review, recommendations were put forward for inclusion in the updated Environmental Management Programme (EMPr) report for the project, and replace all previous noise mitigation and/or noise management measures recommended in previous noise reports (de Jager, 2011; de Jager, 2015) for the project. There were some minor changes to the layout as defined in the wind turbine and access road layout dated 9 November 2022, as available in the KMZ file, titled: "20221109\_Mulilo De Aar 2 South WEF Layout.kmz".*

- *With the information at hand, there is only one location where there are potential receptors, relating to wind turbines 8, 9, 11, 12, 26 and 27. Of these, WTG 11 and 27 may be relocated, with the relocation moving these turbines slightly further away from the potential receptor. This move is insignificant in terms of noise and will not change the potential noise levels, nor the findings of the latest noise report. In terms of acoustics, this change in layout is acceptable.*
- *The proposed changes to that layout will not change the findings of the latest noise report (Report no: HA-MDA2SWEF/ENIA/202210-Rev 2, dated October 2022), require additional, different or changes to the mitigation or the management measures as proposed in the latest ENIA.*

The findings of the noise assessment included in the ENIA are summarised below:

*“Considering the ambient sound levels measured onsite, the proposed noise limits as well as the calculated noise levels, it was determined that the significance of the potential noise impacts would be:*

- *of a **low significance** for the daytime construction of the access roads. This potential noise source was not previously assessed (de Jager, 2015);*
- *of a **low significance** for the daytime construction traffic passing NSR. This potential noise source was not previously assessed (de Jager, 2015);*
- *of a **low significance** for the daytime construction activities (hard standing areas, excavation and concreting of foundations and the erection of the wind turbines and other infrastructure). The significance is the same intensity as previously assessed (de Jager, 2015);*
- *of a **low significance** for the night-time construction activities. This potential noise impact was not assessed for the night-time period (de Jager, 2015);*
- *of a **low significance** for night-time operational activities (noises from wind turbines) when considering the worst-case SPL. The significance is the same intensity as previously assessed (de Jager, 2015).*

The potential for cumulative noise impacts is of a **low risk** for both the construction and operational phases.

The Impact Assessment criteria used in the latest ENIA remains valid, and the recommendations would be valid for the extension of the EA and proposed amendments.

There are no new assessments and/or guidelines (now relevant to the authorised development) that must be taken into consideration, with the latest protocols considered in the latest ENIA (HA-MDA2SWEF/ENIA/202210-Rev 2 - dated October 2022) (refer to Annexure E8).

#### Cumulative impacts:

While there are a number of renewable energy projects proposed within 30 km from the Mulilo De Aar 2 South WEF, the only projects that may cumulatively contribute to noise in the area is the Longyuan Mulilo De Aar 2 North and Castle WEFs. The cumulative noise impact from these WEFs were assessed in detail in the latest ENIA (section 9.3 – report HA-MDA2SWEF/ENIA/202210-Rev 2 - dated October 2022) (please refer to Annexure E8) and found to be of a low significance. Other renewable projects will not contribute to noise levels in the area as motivated in the latest ENIA (De Jager, 2022).

The potential for cumulative noise impacts is of a **low risk** for both the construction and operational phases (de Jager, 2022).

#### Conclusion:

To conclude, the noise specialist stated the following:

*Therefore, the proposed amendments to the EA, including the extension of the validity of the EA, will not change the nature of the noise impact, nor change the significance of the noise*

*impact. As such the proposed amendments are acceptable from a noise impact perspective (De Jager, 2022).*

#### 4.2.10 Social Specialist Input

Tony Barbour compiled a Social Statement to address the potential social-economic impacts associated with the proposed amendments. The findings are summarized below (refer to **Annexure E9** for the full specialist statement).

##### Status of baseline social environment:

##### **Land uses**

There has been negligible change in the land uses and farming activities on the affected farm properties. The baseline has therefore not changed significantly at a site-specific level (Barbour, 2022).

##### **Socio-economic environment**

The socio-economic baseline conditions in De Aar and the Emthanjeni Local Municipality (ELM) have changed since 2012 when the EIA was undertaken. These changes include increase in population, changes in economic activities, specifically the impact of COVID-19 on the local economy (2019-2020/22). These changes do not however have a material bearing on the findings of the EIA undertaken in 2012. Annexure B of the Social Statement (refer to Annexure E9) contains an updated summary of the socio-economic baseline conditions in the ELM.

##### **Policy and planning documents**

A number of the policy and planning documents referred to in the 2012 EIA are outdated, specifically the ELM IDP and SDF. Annexure A of the Social Statement (refer to Annexure E9) contains a summary of the latest key policy and planning documents.

##### Potential impacts:

##### **Impact ratings**

The social specialist indicated that the construction phase impacts that have a bearing on the social environment are:

- Visual impacts.
- Impact on local economy (employment) and social conditions.
- Impact on transport.
- Noise pollution.
- Dust impact.

The significance ratings indicated in the EIA Report (dated April 2012) are summarized in Table 8.

**Table 8: Construction Phase Impacts (Aurecon, 2012)**

Impact	Rating without Enhancement/Mitigation	Rating with Enhancement/Mitigation
Visual impact	Medium (-)	Low (-)
Impact on local economy (employment) and social conditions	Medium (+)	Medium (+)
Impact on transport	Low (-)	Low (-)

Noise pollution	Very Low (-)	Very Low (-)
Dust impact	Low (-)	Very Low (-)

The operational phase impacts that have a bearing on the social environment are:

- Visual impacts.
- Impact on energy production.
- Impact on local economy (employment) and social conditions.
- Impact on agricultural land.
- Impact of noise.

The significance ratings indicated in the EIA Report (dated April 2012) are summarized in Table 9.

**Table 9: Operational Phase Impacts (Aurecon, 2012)**

<b>Impact</b>	<b>Significance without Enhancement/Mitigation</b>	<b>Significance with Enhancement/Mitigation</b>
Visual impact	High (-)	High (-)
Impact on energy production	Low (+)	Low (+)
Impact on local economy (employment) and social conditions	Medium (+)	Medium (+)
Impact on agricultural land	Low (-)	Low (-)
Noise pollution	Very Low (-)	Very Low (-)

The impact ratings of the socio-economic and social impacts identified and assessed in the 2012 EIA remain valid. The associated mitigation measures remain applicable.

However, a number of additional social impacts associated with the construction and operational phase were not assessed in the 2012 EIA, and consideration and assessment of such impacts has been undertaken for the EA amendment application process, as best practice, including:

**Construction phase**

- Impacts associated with the presence of construction workers on local communities (-)
- Impacts related to the potential influx of jobseekers (-).
- Increased risks to livestock and farming infrastructure associated with the construction related activities and presence of construction workers on the site (-).
- Increased risk of grass fires associated with construction related activities (-).

**Operational phase**

- Benefits for local landowners (+).
- Benefits associated with socio-economic contributions to community development (+).
- Potential impact on property values (-).
- Potential impact on tourism (-).

**Note: The above are not new impacts as a result of the proposed amendments, but rather impacts that were applicable to the originally assessed and authorised project, and have been included as best practise.**

The author (of the social statement) has undertaken in the region of 140 SIA for renewable energy projects, including renewable energy projects located in the vicinity of De Aar. Based on the findings of these SIAs, the significance of all the potential negative impacts associated with the construction and operation phase with mitigation is likely to be Low. The negative impacts can therefore be effectively mitigated (Barbour, 2022). Table 10 and Table 11 provides a summary of the potential significance ratings for the social impacts associated with the construction and operational phases based on the author’s experience.

**Table 10: Additional social impacts during construction phase (Barbour, 2022)**

<b>Impact</b>	<b>Significance without Mitigation/Enhancement</b>	<b>Significance with Mitigation/Enhancement</b>
<b>Presence of construction workers and potential impacts on family structures and social networks</b>	Low (Negative)	Low (Negative)
<b>Influx of job seekers</b>	Low (Negative)	Low (Negative)
<b>Safety risk, stock theft and damage to farm infrastructure associated with presence of construction workers</b>	Medium (Negative)	Low (Negative)
<b>Increased risk of grass fires</b>	Medium (Negative)	Low (Negative)

**Table 11: Additional social impacts during operational phase (Barbour, 2022)**

<b>Impact</b>	<b>Significance No Mitigation/Enhancement</b>	<b>Significance With Mitigation/Enhancement</b>
<b>Benefit associated with community trust</b>	Moderate (Positive)	High (Positive)
<b>Benefits for landowners</b>	Low (Positive)	Medium (Positive)
<b>Impact on property values</b>	Low (Negative)	Low (Negative)
<b>Impact on tourism</b>	Low (Negative)	Low (Negative)

**Mitigation:**

The social specialist confirmed that the mitigation measures to address the socio-economic and social impacts identified in the 2012 EIA remain valid. Furthermore, the mitigation and enhancement measures to address the additional socio-economic and social issues identified, as best practise, are listed below:

*The following mitigation measures for the construction phase should be implemented.*

- *Preparation and implementation of a Stakeholder Engagement Plan (SEP) which both include a Grievance Mechanism that enables stakeholders to report resolve incidents.*
- *Before construction enter into an agreement with applicable the local farmers in the area whereby damages to farm property etc., caused by construction will be compensated for.*
- *Implement strict measures (as per the contractors Health and Safety (H&S) plan) to prevent fires on site.*



- *In the advent of a fire being caused by construction activities, the responsible contractor must compensate farmers for any reasonable and related damage caused to their farms, and for applicable fire-fighting costs incurred.*

*The following mitigation measures for the operational phase should be implemented*

- *Clear criteria, aimed at maximizing the benefits for the community as a whole, for identifying and funding community projects and initiatives in the area should be identified.*
- *Strict financial management controls, including annual audits, should be instituted to manage the funds generated for the Community Trust.*
- *Recommendations contained in the VIA should also be implemented. (Barbour, 2022).*

#### Cumulative impacts:

The social specialist assessed potential cumulative impacts and provided a summary of his findings, as follows:

*The potential cumulative impacts associated with the proposed De Aar 2 South WEF include cumulative impact on the areas sense of place, cumulative impact on services, specifically during the construction phase, and cumulative impact on the local economy. These impacts are assessed above [refer to the specialist's full statement, in Annexure E9]. Based on the findings of the assessment of cumulative impacts the project should be supported.*

*The following mitigation measures for the operational phase should be implemented:*

- *The proponent should liaise with the ELM and local business sector to identify strategies aimed at maximising the potential benefits associated with the project.*
- *Local skills development and training program should be developed and implemented in consultation with the ELM (Barbour, 2022).*

#### Conclusion:

Based on the review of the 2012 EIA and associated documentation, the proposed amendments will not result in an increased level of impacts or result in a change in the nature of social impacts. The proposed amendments, including the proposed extension of the validity period, for the De Aar 2 South WEF are acceptable from a social and socio-economic perspective (Barbour, 2022).

#### **4.2.11 Traffic Specialist Input**

Innovative Transport Solutions (ITS) compiled a Transport Impact Statement to address the potential traffic and transportation impacts associated with the proposed. The findings are summarized below. Refer to **Annexure E10** for the full specialist statement.

#### Status of the environment:

In assessing the existing traffic conditions of the roads, the specialist found the following:

- *The current demand on the existing road network in the site vicinity is low and the road network and intersections operate at acceptable levels of service.*
- *The existing traffic conditions has not significantly changed since the original assessment in the year 2012 (Arangie, 2022).*

Potential impacts:

In terms of potential transport impacts, a summary of the specialist’s findings is as follows:

**Construction Phase**

- *It is expected that the construction phase of the proposed development could generate up to 262 vehicular trips during the average weekday of which approximately 10 percent can be heavy truck traffic.*
- *Access to the site is proposed via existing accesses off Kranskop Road.*

**Operational Phase**

- *The operational phase of this project is not expected to generate significant traffic volumes. The typical day-to-day activities will probably only be service vehicles undertaking general maintenance at the site.*

**Decommissioning Phase**

- *If the wind farm is not upgraded at the end of the typical lifespan (20 to 25 years) the site will be decommissioned. The decommissioning of the De Aar 2 South WEF is expected to take between 6 to 12 months. The expected transport impact on the road network during the decommissioning phase will be similar to the transport impact during the construction phase. The surrounding road network has sufficient capacity to accommodate the expected traffic volumes associated with the decommissioning of the wind farm.*

Description of Impact	Overall Significance (with and without mitigation)			
	Approved Description	Project	Amended Description	Project
<b>Increase in traffic volumes on the surrounding road network as a result of construction traffic.</b>	Low		Low	
<b>Gravel loss and possible damage to the road layer works as a result of additional truck traffic and heavy load truck traffic during the construction phase.</b>	Low		Low	
<b>Increase in traffic volumes on the surrounding road network during the operational phase.</b>	Low		Low	
<b>Gravel loss and possible damage to the road layer works as a result of additional truck traffic and heavy load truck traffic during the decommissioning phase</b>	Low		Low	

*The proposed development with the reduced number of turbines will generate less than 20 truck trips per day with less than a 100 vehicular trip per day during the construction period. There will be a significant increase in traffic volumes during the construction period compared to the existing traffic volumes on the road network, but these volumes are low and well within the function and capacity of the surrounding roads. Even if all planned renewable energy projects in the site vicinity are implemented simultaneously, the impact on the surrounding road network will still be acceptable. The transport impact during the construction period is temporary and in our view the overall transport impact of the proposed development will be low.*

*The following mitigation measures were recommended in the Final EIA Report (April 2012):*

- *Ensure that road junctions have good sightlines;*
- *Implement traffic control measures where necessary;*
- *Transport components overnight as far as possible; and*
- *Engage with the roads authorities prior to construction to ensure the necessary road upgrades, permits, traffic escorts etc are scheduled.*

*The mitigation measures mentioned above are still applicable except the recommendation to transport components overnight as far as possible. Based on the South African Department's Guidelines for Abnormal Load Vehicles (TRH11) abnormal loads are typically not allowed on public roads after sunset and before sunrise. Furthermore, the Transport and Traffic Management Plan included in the updated EMPr replaces all previous mitigation measures and now informs the Transport and Traffic Management aspects of the De Aar 2 South WEF. The authorised project description for the De Aar 2 South WEF has more than double the number of wind turbines being proposed for in the Amendment Application i.e. the Applicant is proposing a substantial reduction in the number of turbines as part of the EA amendment application, which means that the trip generation for the approved project description will be higher than that of the project description now proposed with up to 26 turbines. The construction period for the approved project description would also have been longer. Please also refer to the De Aar 2 South WEF Transport and Traffic Management Plan for more detail on the expected trip generation estimate for the proposed amended project description (Arangie, 2022).*

#### Cumulative impacts:

There are numerous planned renewable energy projects within a 30km radius from the De Aar 2 South WEF. Even if all projects are constructed and decommissioned simultaneously, the road authority will evaluate the applications for the abnormal loads associated with these projects and liaise with the developers to ensure that loads on the public roads are staggered to ensure that the traffic impact is acceptable. The cumulative impacts are considered acceptable (Arangie, 2022).

#### Conclusion:

Based on the evaluation, the existing road network has sufficient spare capacity to accommodate the proposed amendments to the EA of the De Aar 2 South WEF without any road upgrades required to the existing road infrastructure. The proposed amendments to the EA would not result in an increased level or change in the nature of transportation impacts. It is recommended that the proposed De Aar 2 South WEF Amendment Application be approved from a transport impact perspective (Arangie, 2022).

#### **4.2.12 Radio Frequency Interference (RFI) Specialist Input**

Mr Henk Goosen of ITC Services undertook a RFI assessment for the proposed project. The findings are summarised below. Please refer to Annexure F1 to review the RFI Assessment in full.

#### Status of the environment and potential impacts:

For this project, the DFFE Screening Report indicated three high and one medium sensitivity area. The medium sensitivity area will be incorporated in the high sensitivity evaluation. The high sensitivity areas are due to:

- A telecommunications facility located 1km away from the proposed WEF location.
- A weather radar installation located between 18 and 30km away from the proposed WEF location.
- A weather radar installation located between 30 and 60km away from the proposed WEF location.

*Mitigation or sufficient clearance distances, between the radio frequency (RF) source (De Aar 2 South WEF) and any RFI sensitive infrastructure (victim), are required to avoid potential degradation of the Weather Radar installation or the telecommunication facility.*

*The Weather Radar Installation is approximately 30km away from the proposed WEF. The closest telecommunications facility is 22.3km away from the proposed WEF. A Telecommunications facility closer than 1km could not be identified as stated in the DFFE report. There is a possibility that the proposed WEF will interfere with existing electrical/electronic equipment or electrical/electronic infrastructure, thus the effects of the WEF must be investigated.*

The specialist included details on good practice RFI mitigation methods, as well as recommended clearance zones, as follows:

*There are some steps that can be considered when designing a new WEF to minimise the amount of RFI or EMI that can be emitted:*

- *Properly ground the WEF Turbines to reduce common mode impedance.*
- *Avoid pigtail connections when installing the grid connections.*
- *Shield the DC cabling to ensure a good connection to ground.*
- *Only use electrical/electronic equipment with CE approval.*
- *Ensure all grid related connections are according to specification. (no gaps between connections)*
- *Use approved grid cable connectors to avoid unwanted corona and/or sparking.*
- *Avoid sharp edges at the end of cable connections.*

*The purpose of electrical bonding is to provide structural homogeneity with respect to the flow of electrical currents, including high frequency currents for proper operation of filters and fault current paths. Bonding also prevents or safely discharges static charges and ensures a good ground connection that will prevent unintentional emissions to occur.*

*The clearance zone around a WEF is the separation distance needed, between the edge of the WEF (source) to a specific EMI sensitive location or infrastructure (victim), for the WEF facility to have no RFI on existing electrical infrastructure. The exact wind turbine equipment that will be used is unknown as no technology partner has been selected yet, thus it is assumed that the inverters and equipment comply to CISPR11 Class A specification [7]<sup>8</sup>. (57 dBµV/m @ 3m which relates to an EIRP of -38.16dBm). The recommended clearance zones are listed in Table 2 (see Table 12, below).*

*It is stated in the Electronic Communications Act [8]<sup>9</sup> that no product used or manufactured in South Africa may cause unwanted RFI or EMI due to intentional or unintentional transmissions*

<sup>8</sup> CISPR 11/SANS 211 Industrial, Scientific and Medical Equipment; Radio Frequency disturbance characteristics – Limits and methods of measurement

<sup>9</sup> Government Gazette vol. 490 Cape Town 18 April 2006. No. 36 of 2005: Electronic Communications act, 2005

on existing electrical equipment. Thus, to prevent the WEFs unintentional RFI to cause unwanted interference on existing electrical equipment a clearance zone is used.

**Table 12: Clearance Zone Distances calculated using [5]<sup>10</sup> (ITC, 2022)**

EMI sensitive location	Distance Between the Edge of a WEF and an EMI sensitive location in meter
Existing Radar equipment ex. Weather radar	400 m
Navigational and communication equipment	300 m
Equipment sensitive to EMI	300 m
Airfield/Airport Radar system	400 m

**Cumulative impacts:**

Non-correlated noise sources such as PV facility inverters or Wind Turbine electric/electronic equipment in close proximity could increase the clearance zone required around a specific renewable energy plant site, as the cumulative level of unintentional radiated emissions will be higher. A standard factor of  $10 \log_{10} N$ , where  $N$  = amount of renewable energy plants in the direct vicinity, is used to account for the increased radiated emission levels [9]<sup>11</sup>. For the De Aar 2 South WEF there are 11 renewable resource locations in a 30km radius.

For this theoretical worst-case scenario, the possible increase in the cumulative radiated emission levels will be 10.4 dB, increasing the transmit power level to -27.8dBm.

The received power levels are less than the receiver sensitivities at the Weather Radar Installation as well as the Telecommunications facility. The cumulative effect increases the received power, but not enough to cause any unwanted RFI or EMI to surrounding electrical equipment (Goosen, 2022).

**Conclusion:**

To conclude on his findings, ITC had the following statement:

*The exact location of the telecommunications facility within 1km from the proposed facility was not identified, thus a 1km radius point around three different wind turbine locations was used to determine the received power at that distance with and without the cumulative effect considered. In both cases, the received power level at 1km is lower than the GSM/LTE/GPRS receiver sensitivities.*

*According to the Radio Mobile data, the proposed WEF will have no RFI on the Weather Radar Installation nor the telecommunications facility, assuming that the sites emit less RFI than the CISPR 11 class A levels. If the exclusion zones are adhered to when the WEF facility is constructed, the proposed facility will have no RFI influence on existing electrical/electronic equipment.*

<sup>10</sup> RADIO MOBILE; RF Propagation simulation program by Roger Coude

<sup>11</sup> Noise and Vibration control TM 5-805-4; United States. Department of the Army.; United States. Department of the Air Force. 1995

*Table 3 (in Annexure F1) contains possible EMI sensitive receivers with their respective sensitivities that can be used in the area. According to the worst-case cumulative coverage data generated in Radio Mobile seen in figures 14 to 22 (refer to these figures in Annexure F1), the receivers at the Weather Radar Installation, the Telecommunications facility and the surrounding area will not be affected by the proposed WEF. There might be slight interference to LoRa applications within 1km from the WEF turbines, thus avoid using LoRa within this area.*

*A further detailed assessment will not be required based on the findings from the Radio Mobile data as **no RFI risk was identified to classify the site as a High sensitivity site. The site can be classified as a Low sensitivity site** (Goosen, 2022).*

## 5 PUBLIC PARTICIPATION PROCESS

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A Public Participation Process (PPP) was undertaken in terms of Chapter 6 of the EIA Regulations, 2014, as amended, to ensure that potential and registered Interested and Affected Parties (I&APs) were given an opportunity to comment on the proposed amendments to the Environmental Authorisation (EA), as requested by DFFE.

The public participation process included the following:

- **Advertisements** in English and Afrikaans, placed in the local De Aar *The Echo* newspaper on 25 November 2022, as well as in the regional *Noordkaap Bulletin* newspaper on 1 December 2022. Refer to Annexure G1.
- **Site Notices** in English and Afrikaans, placed at visible locations within the site and/or at the boundary of the site. Refer to Annexure G2.
- Opening and maintenance of a **register of Interested and Affected Parties (I&AP)**, utilizing the existing registered I&AP database as the basis for the I&AP database for the EA amendment application process. Refer to Annexure G3.
- **Written notifications** (sent via email, post and/or sms) to registered I&APs (in the existing registered I&AP database), and identified potential I&APs, notifying I&APs of the EA Amendment Application and the availability of the associated Draft Amendment Motivation Report for review and comment.
- Potential and registered I&AP's (including relevant Organs of State and State Departments) were given an opportunity to review and comment on the Draft Amendment Motivation Report for a **30 day comment period (excluding the period 15 December – 5 January)<sup>12</sup>, i.e. from 2 December 2022 – 23 January 2023.**
- Copies of the Draft Amendment Motivation Report were available as follows:
  - A hard copy of the Draft Amendment Motivation Report was lodged for viewing at the Hennie Liebenberg Public Library in De Aar.
  - An electronic copy of the Draft Amendment Motivation Report was made available for download on the Holland & Associates Environmental Consultants website ([www.hollandandassociates.net](http://www.hollandandassociates.net)) for the duration of the 30 day I&AP comment period.
  - Upon request, the report would be made available to I&APs via electronic file transfer or Dropbox link. A Dropbox link was also provided in the cover email for notifications sent to I&APs via email.
- Any additional I&APs who registered during the Part 1 EA Amendment Application process were added to the registered I&AP database.
- A stakeholder meeting was held with BirdLife South Africa (BLSA) on 7 February 2023. Refer to Annexure G9 for the notes of the meeting.
- All comments submitted by I&APs have been collated, summarised and responded to in a Comments and Response Trail (C&R) Report, which has been submitted to DFFE, together with the final Amendment Motivation Report, for decision making.
- Registered I&APs will be notified, in writing, of DFFE's decision.

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<sup>12</sup> As per the EIA Regulations, 2014, as amended, Regulation 3(2) of GN R. 982, as amended, states that "For any action contemplated in terms of these Regulations for which a timeframe is prescribed, the period of 15 December to 5 January must be excluded in the reckoning of days".



## 6 CONCLUSIONS AND RECOMMENDATIONS

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### Conclusions:

This Amendment Motivation Report has considered the proposed amendments to the EA for the De Aar 2 South WEF project, as outlined in Section 1.4 and Section 2, including:

- Amendment to Condition 7 of the EA, as amended (i.e. proposed extension of the commencement of the construction period (extension of the validity period of the EA));
- Amendments to the project description in the EA;
- Amendment to include an erroneously omitted Listed Activity (Activity 15 of GN 545 (Listing Notice 2) into the EA (i.e. request for correction in terms of NEMA Section 47A(1)(b) and EIA Regulation (27(4)); and
- Amendment to the property description in the EA, to include an erroneously omitted property (Portion 7 of Farm Vendussie Kuil No. 165) into the property description (i.e. request for correction in terms of NEMA Section 47A(1)(b) and EIA Regulation (27(4)).

A review of all specialist studies undertaken, and an assessment, including site sensitivity verification indicating the status of the receiving environment (by the relative specialist), has been undertaken to determine the implications, if any, of the proposed amendments and associated potential environmental impacts. The conclusions of the specialists' investigations for the proposed amendments to the EA are summarised briefly below (refer to Annexure E for the full specialist statements):

- The ecological specialist states:

*"Based on the re-visit to the site and a review of the original report and Addendum Report (July 2015) for the Part 2 EA amendment in 2015, these assessments remain valid. The proposed amendments do not affect the significance level of the assessed impacts".*

*"The baseline environment has not changed significantly since the original assessments. The proposed amendments will not result in an increased level or change in the nature of the impact, which was initially assessed and considered when application was made for the environmental authorisation and subsequent Part 2 EA amendment in 2015 - 2016".*

*"The inclusion of Activity 15 of GN R. 545 (Listing Notice 2) into the EA (which relates to the physical alteration and transformation 20ha or more) will not result in any change to the assessment. The physical alteration of more than 20ha of the land was assessed in detail as part of the 2012 EIA process and subsequent Part 2 EA amendment process in 2015 for the project therefore the inclusion of the item has no effect on the assessed impacts".*

*"In conclusion, the proposed amendments of the Environmental Authorisation for the project will not change the nature or significance of the assessed potential impacts. No additional impacts will occur. The baseline conditions have also not changed; therefore, the original assessment is valid. The proposed amendments are therefore acceptable from an ecological impact perspective. It is the opinion of the specialist that the proposed amendments can be approved" (Hoare, 2022).*

- The avifaunal specialists state: *“In summary, it is concluded that the **proposed amendments will not result in an increased level or change in the nature of impacts on birds**. The original pre-mitigation significance rating for the potential impact of mortality remains unchanged at medium – high for reasons explained above. The post-mitigation significance rating also remains unchanged at **medium**, but the proposed mitigation is being revised, and such mitigation will be included in the updated EMPr and final Layout Plan that will be submitted to DFFE for approval in due course. **There is no objection to the granting of the proposed amendments**”* (van Rooyen and Froneman, 2022).
- The bat specialist states: *“In conclusion, the impacts on bats as assessed during the EIA and previous amendment phases, remains unchanged, and the proposed changes to the EA will not result in an increased level or change in the nature of impacts on bats, and Animalia has no objection to the proposed amendments from a bat sensitivity perspective.”* (Marais, 2022)
- The noise specialist states: *“The changes will not increase the level or change the nature of the noise impact, nor change the significance of the noise impact and the proposed amendments are acceptable from a noise impact perspective”* (De Jager, 2022).
- The visual specialist states: *“Although the currently proposed layout consists of fewer wind turbines, the overall visual impact significance rating for the project is not expected to change from that of the authorised layout and would remain high before and after mitigation, because of the change in character of the site and surrounding area.*

*Amendments to the related infrastructure, such as internal access roads and overhead powerlines, would result in no change in the overall visual impact significance ratings in relation to those of the previously assessed proposals, and would remain low before and after mitigation.*

*The extension of the validity period of the EA, and the inclusion of Activity 15 of GN R. 545 (Listing Notice 2) and Portion 7 of Farm Vendussie Kuil No. 165 into the EA, would not result in any change to the visual impact significance”.*

*“Accordingly, the proposed amendments and proposed final layout will not result in an increased level or change in the nature of impacts, and the final layout is acceptable from a visual impact perspective.”* (Lawson and Oberholzer, 2022)

- The agricultural / soil specialist states: *“The relevant, baseline agricultural environment has not changed since the original assessments and is still limited primarily by aridity. The footprint of the development is entirely on land of very low agricultural potential”.*

*“Agricultural impacts were found by the previous assessments to be inconsequential because of the very low agricultural production potential of the receiving environment and the fact that wind energy facilities only impact a very small proportion of the land. This has not changed. The proposed amendments will in no way change the nature or significance of the agricultural impact as previously assessed. There are no agricultural advantages or disadvantages related to the amendment. No changes or additions to*

*the mitigation measures for agricultural impacts that were recommended in the original assessment are required, and there are therefore no required changes to the EMP. The agricultural impact of the amended project will therefore remain unchanged and be identical to the impact that was assessed in the original specialist assessment report. The impact was assessed as inconsequential”.*

*“Due to all of the factors discussed..., it is recommended that the amendments be approved from an agricultural impact point of view”. (Lanz, 2022).*

- *The heritage specialist states: “The proposed amendments to the EA in the current amendment application, which may affect heritage resources are those which manifest themselves physically on the ground: i.e. the increase in the footprint of the WTG hardstands and in the access road widths. Larger hardstands and wider access roads increase the potential for impacts to heritage resources, particularly archaeological sites and materials, simply because of their larger footprints”.*

*“However, although the proposed hardstands are larger than those currently authorized, the reduction in the number of WTGs from 61 to a maximum of 26 means that the hardstand land-take remains approximately 12,2 hectares in total. Similarly, although wider access roads than what is currently authorized are proposed, the reduction in the total length of roads within the WEF resulting from the reduction in the number of WTGs will result in a reduction in the amount of land affected. Overall, the proposed EA amendments will result in a reduction in the physical WEF footprint and, therefore, in the potential for impacts to heritage resources”.*

*“Larger hardstands and wider roads may, in places, result in limited and minor impacts to archaeological resources in their proximity. Provided these impacts are mitigated according to the measures recommended by Gribble (2022a) ..., which replace those in the HIA (2011) and Addendum report (2015) and are included in the amended EMP for the project (that is currently undergoing a public participation process), it is our reasoned opinion that the proposed amendments will not result in an increased level, or change in the nature of the impacts, to those previously assessed in 2011 and 2015”.*

*“With respect to the proposed extension of the EA validity period, the heritage baseline environment has not changed significantly since the original assessment and the proposed amendment will not result in an increased level or change in the nature of the impact which was initially assessed and considered when application was made for the environmental authorisation and subsequent Part 2 EA amendment in 2015 - 2016. The 2022 walkdown survey noted no obvious changes to the heritage environment since the site assessment undertaken for the 2011 HIA”.*

*“Provided the mitigation measures recommended in the Walkdown Report (Gribble, 2022a) ...are implemented, the overall impact of the construction of the Mulilo De Aar 2 South WEF according to the layout proposed in this EA amendment application is acceptable and generally of low significance”.*

*“From a heritage perspective, therefore, the proposed amendments are considered acceptable” (ACO Associates, 2022)”.*

- The palaeontology specialist states: *“The impact assessment and recommendation by Almond (2012) and confirmed in the Amendment document (Almond, 2015), remains unchanged ... [i.e. low significance before and after mitigation]. “The proposed amendments will have no additional impact on the palaeontology, in fact it will be reduced because the number of turbines and access routes is greatly reduced”.*

*“As far as the palaeontology is concerned:*

  - *The baseline environment has not changed significantly since the original EIA in 2012.*
  - *The initial impact rating undertaken during the initial assessment is still valid.*
  - *The mitigation measures provided in the initial assessment (and subsequent updated assessments) are still applicable.*
  - *No new mitigation measures should be added to the EA or EMPr if the DFFE decides to approve the proposed amendments to the EA.*
  - *The proposed amendments are acceptable and will have no additional or different impact on the palaeontology, i.e. the proposed amendments will not result in an increased level or change in the nature of impacts. The original impact assessment and mitigation are still valid.*
  - *No additional walkthrough is required because Almond has already surveyed the sites and routes (Almond, 2012)”.*

*(Bamford, 2022)*
- The aquatic specialist states: *“The proposed amendments thus do not affect the significance of any of the impacts identified in the freshwater impact assessment dated February 2012, nor the addendum letter of July 2015. Accordingly, the proposed amendments will not increase the level or change the nature of the impacts. **There are no reasons from an aquatic ecosystem perspective that the amendments should not be authorised according to the requested amendments”** (Belcher, 2022).*
- The social specialist states: *“Based on the review of the 2012 EIA and associated documentation, the proposed amendments will not result in an increased level of impacts or result in a change in the nature of social impacts. The proposed amendments, including the proposed extension of the validity period, for the De Aar 2 South WEF are acceptable from a social and socio-economic perspective”. (Barbour, 2022).*
- The traffic specialist states: *“Based on the evaluation as discussed in this report, the existing road network has sufficient spare capacity to accommodate the proposed amendments to the EA of the De Aar 2 South WEF without any road upgrades required to the existing road infrastructure. The proposed amendments to the EA would not result in an increased level or change in the nature of transportation impacts. It is recommended that the proposed De Aar 2 South WEF Amendment Application be approved from a transport impact perspective”. (ITS, 2022).*
- The RFI specialist states: *“According to the Radio Mobile data, the proposed WEF will have no RFI on the Weather Radar Installation nor the telecommunications facility, assuming that the sites emit less RFI than the CISPR 11 class A levels. If the exclusion zones, listed ..., are adhered to when the WEF facility is constructed, the proposed facility will have no RFI influence on existing electrical/electronic equipment. This*

*statement applies to the entire proposed region seen in Figure 3 [in the RFI Assessment dated November 2022].*

*“According to the worst-case cumulative coverage data generated in Radio Mobile ....., the receivers at the Weather Radar Installation, the Telecommunications facility and the surrounding area will not be affected by the proposed WEF. There might be slight interference to LoRa applications within 1km from the WEF turbines, thus avoid using LoRa within this area”.*

*“A further detailed assessment will not be required based on the findings from the Radio Mobile data as no RFI risk was identified that will prohibit the project from continuing”.* (ITC, 2022).

The cumulative impacts were determined to be acceptable by the specialists, provided the specialists' recommended mitigation measures are implemented, accordingly the proposed development (as per the proposed amendments) could proceed.

In light of the findings of the specialist assessments, it is evident that no significant additional impacts are anticipated due to the proposed amendments. The proposed amendments are not anticipated to change the nature of impacts or result in an increased level of impacts. The impact significance ratings as contained in the specialist reports included in the Final EIA Report (2012) and subsequent Part 2 EA Amendment Report (2015) are accordingly still applicable for all assessed impacts. Furthermore, the specialists have all confirmed that there have been no significant changes to the baseline environment since the original EIA was undertaken in 2011 – 2013, and that the proposed amendments, including the proposed extension of the validity period, are acceptable, provided that the recommended mitigation measures, as outlined in Section 4 (and in the associated specialist reports for the EA amendment process) are implemented. Table 13 provides a summary of the findings.

### **Recommendations:**

Given that no significant additional impacts are associated with the proposed amendments, that the significance of the potential environmental impacts are not expected to be higher than originally determined for the authorised project, and that all of the specialists have confirmed that the proposed amendments are acceptable (provided that the specialists' recommended mitigation measures, as outlined in Section 4 and in Annexure E, are implemented), the EAP is of the opinion that the proposed amendments to the EA, including the proposed extension of the validity period of the EA, be considered for approval.

It is recommended that the mitigation measures, as outlined in the specialist statements for the EA amendment process, be included in the Final Amended EMPr to be submitted to DFFE for approval, shortly (as part of the separate EMPr and Layout Plan finalization process).

Further to the above, in light of comments received from BLSA, it is recommended that the following be included as Conditions of Authorisation in the EA (in addition to being included in the amended EMPr):

- The Holder of the EA must appoint an independent environmental auditor (which can be the ECO appointed as per Condition 19 of the EA) to undertake quarterly audits for the first five years of operation and once yearly thereafter. Each audit is to be based on site visits by the auditor as well as a review of any records of environmental management (including bird and bat monitoring reports), and the outcomes thereof.

The audit must also determine whether the Operational Phase EMP and associated impact management actions are adequately dealing with the range of environmental impacts on site. The results of the audit must be submitted to DFFE, DAERL as well as to BLSA.

- Operational phase avifaunal monitoring (which consists of live bird monitoring and/or carcass searching) must be undertaken for the lifespan of the WEF. As a minimum, operational live-bird monitoring must be undertaken for the first three years of operation, and then repeated again in year five and every five years thereafter for the operational lifetime of the facility. Carcass searching under turbines should be done every year for the life-span of the facility. The exact scope and nature of the post-construction monitoring will be determined on an ongoing basis by the specialist based on the results of the monitoring through a process of adaptive management, and should be sufficient to monitor the impact of the facility and the effectiveness/non-effectiveness of the mitigation measures.
- A programme of observer-based Shutdown on Demand (SDoD) to reduce potential SCC turbine collisions must be implemented for the whole WEF. Trigger species are the following: Verreaux's Eagle, Martial Eagle, Black Stork, Lanner Falcon, Tawny Eagle, Amur Falcon, Lesser Kestrel, Cape Vulture and White-backed Vulture. The details of the SDoD (number of observation points, training of observers and scheduled shifts) must be determined in consultation with the avifaunal specialist. The SDoD must be in place to commence on the first day of commercial operation, and must be in place 365 days a year (unless conditions are unsafe).
- A system of automated curtailment of the highest risk turbines must be implemented. This automated curtailment should be implemented as recommended by the avifaunal specialist and detailed in the project's EMPr.
- Carcass searches and nest monitoring must be implemented every year for the lifetime of the facility.
- All turbines must have one blade painted, as per the recommendations of the avifaunal specialist. The details of the blade painting must be included in the amended EMPr.
- For any sections of overhead 33kV medium voltage cable the proposed pole designs must be approved by the avifaunal specialist, to ensure that the designs are raptor-friendly.

Table 13: Summary of findings

	Agriculture	Ecology	Aquatic	Heritage (Archaeology)	Avifauna	Visual	Palaeontology	Noise	Socio-economic	Traffic	Bats	RFI
Has the environment as assessed in 2012 changed to such an extent that it could influence the viability of the project or impact assessment ?	No	No	No	No	No	No	No	No	No	No	No	N/A
Is the impact rating as provided in the initial assessment valid?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	N/A
Would the proposed amendments result in an increased level or change in	No	No	No	No	No	No	No	No	No	No	No	No

the nature of impacts?												
Are the mitigation measures provided in the initial assessment still applicable	Yes	Yes, but additional measures have been provided by the specialist as part of the EA amendment process & EMPr & Layout Plan finalization process (2022 - 2023) (refer to Section 4.2.2 and Annexure E2)., to align with current best practice, & have been included in the amended EMPr.	Yes	No.  The mitigation measures have been updated by the specialist as part of the EMPr & Layout Plan finalization process (2022 - 2023) (refer to Section 4.2.4 and Annexure E4).  The recommendations included in the heritage walkdown report (2022) replace those included in the HIA (2011) and Addendum report (2015) and are	The mitigation measures have been updated by the specialist as part of the EA amendment process, & EMPr & Layout Plan finalization process (2022 - 2023). Refer to Section 4.2.5 and Annexure E5.  The revised mitigation measures are detailed in the Avifaunal Walkthrough Report for the updated EMPr (refer to Appendix 1 of Annexure E5) and are included in	Yes, however the proposed painting of one of the blades of each turbine, as recommended by the avifaunal specialist during the current EMPr & Layout Plan finalisation process, is considered acceptable (refer to Annexure E6). The update of the visual mitigation measure to allow for the proposed blade painting is being addressed in the update of the EMPr process) (Lawson &	Yes	The mitigation measures have been updated by the specialist as part of the EA amendment process, and EMPr & Layout Plan finalization process (2022 - 2023). See Section 4.2.9 and Annexure E8). The updated mitigation measures are included in the amended EMPr.	Yes (and additional mitigation measures were provided in the specialist's impact assessment report conducted in November 2022). See Section 4.2.10 and Annexure 9).  The updated mitigation measures will be included in the amended EMPr.	Yes, except the mitigation measure that stated: "Transport component s overnight as far as possible". The traffic specialist stated that it is no longer applicable, as abnormal loads are typically not allowed on public roads after sunset and before sunrise.  The Transportati on & Traffic Manageme nt Plan (which is included in the amended EMPr) replaces all previous mitigation	The mitigation measures have been updated by the specialist as part of the EMPr & Layout Plan finalization process (2022 - 2023). See Section 4.2.6 and Annexure E11).  (The updated mitigation measures included in the amended EMPr were provided in the EMPr and Layout Update report compiled by Animalia, dated November 2022, and replace all	N/A  (No mitigations were recommend ed in the initial assessment . The specialist's recommend ed mitigation measures (refer to Section 4.2.12 and Annexure F1) will be included in the amended EMPr.



				included in the amended EMPr.	the amended EMPr.	Oberholzer, 2022).				measures relating to transport and traffic management for the WEF	previously recommended mitigation measures for bats.	
Are there any new mitigation measures to be included into the EA? (i.e. additional to those already included in the draft amended EMPr (2022))	No	No	No	No	No  (The new mitigation measures will be included in the amended EMPr)	No	No	No	No	No	No	No  (The new mitigation measures will be included in the amended EMPr)
Is the cumulative impact acceptable (with mitigation)?	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Should the proposed amendments, including the request to extend the validity period (commence	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

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ment period) be granted by DFFE?												
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