



ARCUS

VOLUME I
Final Revised Amendment Report

**THE PROPOSED AMENDMENT OF THE AUTHORISED SAN
KRAAL WIND ENERGY FACILITY, NORTHERN AND
EASTERN CAPE PROVINCES
(SAN KRAAL SPLIT 1 WEF)**

On behalf of

SAN KRAAL WIND POWER (PTY) LTD

JULY 2021

**DFFE Reference: 14/12/16/3/3/2/1029,
14/12/16/3/3/2/1029/AM1, and
14/12/16/3/3/2/1029/1/AM1**

FINAL FOR AUTHORITY DECISION



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PROJECT DETAILS

DFFE Reference:	14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1 and 14/12/16/3/3/2/1029/1/AM1
Arcus Reference:	3329 San Kraal Split 1 WEF
Title:	Final Revised Amendment Report for the Proposed San Kraal Split 1 Wind Energy Facility, Northern and Eastern Cape Provinces
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Project Applicant:	San Kraal Wind Power (Pty) Ltd
Report Status:	Final Revised Amendment Report – FINAL FOR AUTHORITY DECISION

Changes made from Draft to Final version of this Report	Section
Date changed from June 2021 to July 2021	Volume I: Section 1 to 11
Report was changed from Revised Amendment Report to <u>Final Revised Amendment Report</u>	Volume I: Section 1 to 11 and Appendices
Public Participation was updated to reflect processes only conducted during this phase (as per DFFE comments).	Volume I: Section 9 Volume II: Appendix C
Typographical and grammatical errors were corrected and minor clarifications were made throughout the document.	Volume I: Section 1 to 11

Note: No changes were made to Volume II: Specialist Assessment Reports / Letters. Wake Effect Analysis Impact Report added to Volume II.

PUBLIC PARTICIPATION LOCATION DETAILS

Invitation to Comment: Members of the public, local communities, and stakeholders were invited to comment on the Revised Amendment Report which was made available for public review and comment from **Friday, 11 June 2021 to Monday, 12 July 2021** at the following locations.

Location	Physical Address	Contact person	Availability
Electronic Copy Location			
Arcus Website	https://arcusconsulting.co.za/projects/	Aneesah Alwie 021 412 1529	From Friday, 11 June 2021 to Monday, 12 July 2021
Hard Copy Location			
The Don Guesthouse	34 Murray St, Noupoort, 5950	Lizl de Swardt 049 843 1075	From Saturday, 12 June 2021 to Sunday, 13 June 2021
Noupoort Library	6 Shaw Street, Noupoort, 5950	Martha Van Eyk 084 243 1609	From Monday, 14 June 2021 to Monday, 12 July 2021
Kindly take note of COVID-19 Protocols No Mask = No Entry Please sanitize before and after use of the reports			
Comment Submission			
Comments can be submitted to: Arcus Consultancy Services South Africa (Pty) Ltd Office 607 Cube Workspace Icon Building Cnr Long Street and Hans Strijdom Avenue, Cape Town, 8001 T +27 (0) 21 412 1529 E projects@arcusconsulting.co.za			

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1 INTRODUCTION

1.1 Previous Applications Background

On 28 June 2018 the Department of Fisheries, Forestry and the Environment (DFFE) issued an Environmental Authorisation (EA) to San Kraal Wind Power (Pty) Ltd ('San Kraal') for the construction of a 390 MW Wind Energy Facility (WEF) with its associated 132 kV grid connection (DFFE Ref.: 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1).

On 26 September 2019, San Kraal lodged an amendment application with the DFFE in respect of the EA issued on 28 June 2018. The proposed amendments sought to amend the authorised wind turbine specifications from 390 MW to 217 MW and split the original EA issued for the San Kraal WEF into two WEFs. The amendments had the following detail:

- **San Kraal WEF (up to 217 MW) consisting of up to 35 turbines with a generating capacity of up to 6.2 MW each (The Proposed Project) (DFFE Reference Number 14/12/16/3/3/2/1029/1/AM1);** and
- Hartebeesthoek East (up to 124 MW) consisting of up to 20 turbines with a generating capacity of up to 6.2 MW each (subject to a separate report, assessment and application, DFFE Reference Number 14/12/16/3/3/2/1029/2/AM1).

The DFFE approved the abovementioned amendments and issued the amended EAs to San Kraal Wind Power (Pty) Ltd and Hartebeesthoek Wind Power (Pty) Ltd, respectively, on the 08 June 2020.

1.2 Appeal Background

South Africa Mainstream Renewables appealed the issuance of the two Environmental Authorisations (EAs) of San Kraal WEF and Phezukmoya WEF (DFFE Reference 14/12/16/3/3/2/1028 and 14/12/16/3/3/2/1029) on the 26th of July 2018 on the basis that the applicant's projects would cause wake effects on Mainstream's operational Noupport Wind Farm. The appeal requested the Department to insert several conditions in the respective applicants EAs, essentially forcing the applicants to negotiate and enter into a compensation agreement with Mainstream for any loss of production experienced by the Noupport Wind Farm as a result of the wake effects caused by the applicant's projects, prior to the start of construction activities.

On the 17th of January 2019, Honourable Minister of Environmental Affairs Ms Mokonyane issued an appeal decision which concluded as per clause 4.23 of the appeal decision that: "I am of the view that the wake impacts have no environmentally associated impacts affecting the appellant in any way and as such I am not responsible to determine the influence bearing of the wake impacts by the two projects on the Noupport WEF." Clause 4.25 further states: "I am of the view that it is outside of my mandate to insert a contractual clause as a condition in the EA. In light of the foregoing, the appeals are accordingly dismissed."

On the 26th of September 2019, the applicants lodged amendment applications to:

- Split the Phezukomoya and San Kraal EA's to create additional projects named Hartebeesthoek East and Hartebeesthoek West; and
- Reduce the number of authorised wind turbines while increasing the authorised wind turbine specs.

The department approved the amendment applications on the 25 March 2020 and 08 June 2020 respectively.

On 30 July 2020, the Appeals Directorate received an appeal from Noupport Wind Farm (RF) (Pty) Ltd ('Noupport') against the approval of the amendment applications authorised

above. The appeal broadly premised on the following grounds: Error of fact, Socio-Economic Impacts and Mitigation Hierarchy. Concerns raised in the appeal have been summarised below:

- Noupoot are concerned that Wake Effect ('WE') within the amendment reports was not adequately addressed in terms of impacts on the Noupoot WEF. Noupoot have stated that the amended turbine layout and specification approved above "alters the wake impacts of the Noupoot WEF" and that "power curves and downstream wake effects have changed" due to the amendment.
- Moreover, Noupoot indicated that the updated Wake Effect impact analysis (compiled July 2020) that was submitted to them during the appeals commenting period, was not subjected to a transparent and fair Public Participation Process.

The ground of appeal mentioned above was upheld by the Minister. The second ground of appeal, which was Need and Desirability, was dismissed by the Minister.

A decision on the appeal against the approval of the amendment applications was reached by Minister Barbara Creecy – Minister of Forestry, Fisheries and the Environment – on 07 June 2021. In terms of the Appeal decision, the San Kraal EA is suspended until the updated wake effect impact assessments are subjected to a 30 days Public Participation Process and the revised EIR submitted back to the Department for decision making. Directions of the ruling given by the Minister read as follows:

2.56 "In the present matter. I have taken note of the wake impact analysis reports, in respect of the amendment applications, albeit outside of the EIA process. In light hereof, the appropriate remedy is to direct, as I hereby do, the applicants to subject the wake impact analysis reports dated 01 July 2020, to a public participation as contemplated in the 2014 EIA Regulations. Any comments received from I&APs, as well as responses thereto by the applicants, must be incorporated into the final Amendment Reports, for submission to the Department for reconsideration of the amendment applications. In this regard, the timeframes prescribed by the 2014 EIA Regulations must be adhered to."

1.2.1 Responses to the Appeal Decision

As instructed by the Minister Barbara Creecy – Minister of Forestry, Fisheries and the Environment in the Appeal decision, the applicant subjected the updated wake effect reports to a 30 days Public Participation Process (PPP) in line with Chapter 6 of the 2014 EIA Regulations (see Appendix C) from 11 June 2021 to the 12 July 2021 (both days inclusive). The comments received from I&APs during the PPP has been captured and responded to in the Final Revised Amendment Report which will be resubmitted to the Department for reconsideration.

It is understood by the applicant that no additional work is required on the appeal against the Need and Desirability (see Section 5 of this report) as this appeal was dismissed by the Minister Barbara Creecy – Minister of Forestry, Fisheries and the Environment in the Appeal decision.

1.3 Revised and Updated Final Amendment Report

As the proposed amendments require authorisation from the DFFE, San Kraal Wind Power (Pty) Ltd, appointed Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus'), as the Environmental Assessment Practitioner (EAP).

The proposed development site is located south east of the town of Noupoot in the Umsobomvu Local Municipality (ULM) which forms part of the Pixley ka Seme District in the Northern Cape Province. A small portion of the development site falls within the Inxuba Yethemba Local Municipality, within the Chris Hani District of the Eastern Cape Province.

The town of Middelburg and Colesberg are located approximately 25 km and 58 km to the south and north-east of the site, respectively (Figure 1.2).

Two amendment applications for Environmental Authorisation (EA) have been submitted to the DFFE as each WEF will be required to have its own environmental authorisation.

The number of turbines and the generation capacity which are being applied for with each application is defined below:

- **San Kraal WEF (up to 217 MW) consisting of up to 35 turbines with a generating capacity of up to 6.2 MW each (The Proposed Project) (DFFE Reference Number 14/12/16/3/3/2/1029/1/AM1);** and
- Hartebeesthoek East (up to 124 MW) consisting of up to 20 turbines with a generating capacity of up to 6.2 MW each (subject to a separate report, assessment and application, DFFE Reference Number 14/12/16/3/3/2/1029/2/AM1).

The focus of this amendment report is on the San Kraal WEF consisting of up to 35 turbines.

1.4 The Authorised San Kraal WEF

On 28 June 2018, the DFFE approved the following infrastructure as part of the San Kraal WEF.

Table 1.1: Co-ordinates, as per the EA, of the Authorised WEF Site and Associated Infrastructure

	Authorised Latitude	Authorised Longitude
Alternative (preferred site)		
North-West Corner	-31.2063	24.9859
North-East Corner	-31.2071	25.1307
South-West Corner	-31.3137	24.9994
South-East Corner	-31.2463	25.11517
Substation location (centre point)	-31.2485	25.0171
Construction camp laydown area	-31.22331	24.04544
Construction camp laydown area	-31.20918	25.05522
Preferred powerline route (Preferred Alternative)		
Start	-31.24968	25.015103
Middle	-31.28241	24.908770
End	-31.3550	24.825598

	Authorised Latitude	Authorised Longitude
Access to Site	-31.20165	25.043173
Access to Site Point 2	-31.195366	24.961452

For the authorised 390 MW San Kraal WEF and associated infrastructure including electrical grid connection located south east of the town of Noupoort, the following project descriptions apply:

- A maximum generating capacity of 390MW in total;
- 78 turbines with a generation capacity between 3 - 5 MW and a rotor diameter of 150 m, a hub height of 150 m and blade length of 75 m (all maximums);
- Foundations (25 m x 25 m) and hardstands associated with the wind turbines;
- Internal access roads of between 8 m (during operation) and 14 m (during construction) wide to each turbine;
- Medium voltage cabling between turbines and the on-site switching station (10000 m²), to be laid underground where technically feasible;
- Overhead medium voltage cables between the on-site switching station and on-site substation (approximately 4 km in length) and between turbine rows where necessary;
- An on-site substation & OMS complex (180000 m²) to facilitate stepping up the voltage from medium to high voltage (132 kV) to enable the connection of the WEF to the national grid;
- A 25 km 132 kV high voltage overhead powerline from the on-site substation to the proposed Umsobomvu Substation to the national grid;
- Temporary infrastructure including a construction camp with batching plant (40000 m²); and
- A laydown area approximately 7500 m² in extent, per turbine.

Table 1.2: Technical Details of the Authorised WEF and Grid Connection

Component	Description / Dimensions
WEF	
Location of the Site	Approximately 6km south-east of the town of Noupoort
Farm and SG Codes	RE 181 Holbrook: C02100000000018100000 1/11 Beskuitfontein: C04800000000001100001 RE/13 Beskuitfontein:C04800000000001300000 15/182 Hartebeeshoek: C02100000000018200000 3/182 Hartebeeshoek:C02100000000018200003 14 Hartebeeshoek: C04800000000001400000 46/182 Hartebeeshoek: C02100000000018200046
Site Access	An existing public gravel road (the Oorlogpoort Road) will be used to access the site. The road is situated off the N9 south of the town of Noupoort, to the north of the site.
Export Capacity	390 MW
Proposed Technology	Wind Turbines

Component	Description / Dimensions
Number of Turbines	78
Hub Height from Ground Level	150 m
Rotor Diameter	150 m
Width and Length of Internal Roads	Internal roads width: Up to 14m during construction and up to 8m during operation Internal roads length: Approximately 53km
Powerline (Grid Connection)	
Location of the Site	Approximately 9km south of Noupoort
Length	Approximately 25km
Farm and SG Codes	15/182 C02100000000018200000 47/182 C02100000000018200047 RE/13 C0480000000001300000 3/1 C0480000000000100003 RE/11/1 C0480000000000100011 18/1 C0480000000000100018 RE/1/1 C0480000000000100001 RE/118 C03000000000011800000 RE/136 C03000000000013600000 RE/135 C03000000000013500000 Farm 2 C0480000000000200000 RE/13/1 C0480000000000100013 8/3 C0480000000000300008 14 C0480000000001400000
Preferred Access	Existing gravel road on Farm Hartebeeshoek (owned by Umsobomvu Municipality) off N9 at - 31.195366°; 24.961452°
Export Capacity	132 kV
Proposed Technology	Eskom specifications (concrete or steel monopole or lattice towers)
Height of Poles	A max of 45m
Width and Length of Servitude	34m in width and 25 in length

1.5 Aim and Purpose of this Report

This report highlights the proposed amendments to the authorised San Kraal WEF and associated Grid Connection. The report aims to comply with the relevant National Environmental Management Act, 1998 (Act 107 of 1998 - NEMA) EIA Regulations, 2014, as amended. The report further aims to provide the updated assessment of the specialist's studies conducted for the authorised San Kraal WEF and provide an opinion of the proposed amendments that should be granted by the DFFE.

2 DETAILS OF THE PROPOSED AMENDMENTS

The amendment being applied for is to split the authorised San Kraal Wind Energy Facility (WEF) into two separate wind energy facilities, namely San Kraal WEF (Split 1) and Hartebeesthoek East WEF (Figure 2.1). Hartebeesthoek East WEF is subject to a separate amendment application process. This report focuses on the amendments relating to the San Kraal WEF (Split 1) application only. The proposed components requiring amendments are detailed below for the San Kraal (Split 1) WEF.

Table 2.1: Co-ordinates of the Amended (San Kraal Split 1) WEF Site

	Proposed Latitude	Proposed Longitude
Alternative (preferred site)		
North-West Corner	31° 12' 01.5575" S	024° 58' 53.8479" E
North-East Corner	31° 12' 08.1754" S	025° 07' 01.2350" E
South-West Corner	31° 14' 35.4874" S	024° 58' 37.9684" E
South-East Corner	31° 14' 21.9632" S	025° 07' 50.3112" E
Substation location (centre point)	31° 14' 55.27" S	25° 1' 1.68" E
Construction camp laydown area	31° 13' 23.95" S	24° 2' 44.04" E
Construction camp laydown area	31° 12' 33.05"S	25° 3' 18.79" E

Table 2.2: Technical Details of the Amended (San Kraal Split 1) WEF

Component	Description / Dimensions
WEF	
Authorisation Holder	San Kraal Wind Power (Pty) Ltd
Location of the Site	Approximately 6km south-east of the town of Noupport
Farm and SG Codes	RE 181 Holbrook: C02100000000018100000 15/182 Hartebeeshoek: C02100000000018200000 3/182 Hartebeeshoek: C02100000000018200003 46/182 Hartebeeshoek: C02100000000018200046
Site Access	An existing public gravel road (the Oorlogpoort Road) will be used to access the site. The road is situated off the N9 south of the town of Noupport, to the north of the site.
Export Capacity	Up to 217 MW

Component	Description / Dimensions
Proposed Technology	Wind Turbines
Number of Turbines	Up to 35
Hub Height from Ground Level	Up to 137 m
Rotor Diameter	Up to 175 m
Width and Length of Internal Roads	Internal roads width: Up to 14m during construction and up to 8m during operation Internal roads length: Approximately 53 km

For the proposed up to 217 MW San Kraal WEF (Split 1) and associated infrastructure located south-east of the town of Noupoort, within the Umsobomvu Local Municipality in the Northern Cape Province, and a small portion within the Inxuba Yethemba Local Municipality in the Eastern Cape Province.

The authorisation holder will remain unchanged and will stay as San Kraal Wind Power (Pty) Ltd.

The facility will comprise the following:

- A maximum generating capacity of up to 217 MW in total (below the authorised 390 MW);
- 35 turbines with a generation capacity of up to 6.2 MW and a rotor diameter of 175 m, a hub height of 137 m and blade length of 87.5 m (all maximums) ***(changing from authorised)***;
- Foundations (25 m x 25 m) and hardstands associated with the wind turbines ***(not changing from authorised)***;
- Internal access roads of between 8 m (during operation) and 14 m (during construction) wide to each turbine ***(not changing from authorised)***;
- Medium voltage cabling between turbines and the on-site switching station (approximately 10000 m²), to be laid underground where technically feasible ***(not changing from authorised)***;
- Overhead medium voltage cables between the on-site switching station and on-site substation (approximately 4 km in length) and between turbine rows where necessary ***(not changing from authorised)***;
- An on-site substation & OMS complex (180000 m²) to facilitate stepping up the voltage from medium to high voltage (132 kV) to enable the connection of the WEF to the national grid ***(not changing from authorised)***;
 - This remains unchanged from authorised, however, it must be noted that the on-site substation will be expanded as part of a separate application process to facilitate the increased number of voltage cables which will be directed to the on-site substation and facilitate stepping up the voltage from medium to high voltage (132 kV) to enable the connection of the WEF to the national grid.
- A 25 km 132 kV high voltage overhead powerline from the on-site substation to the proposed Umsobomvu Substation to the national grid ***(not changing from authorised)***;
- Temporary infrastructure including a construction camp with batching plant (40000 m²) ***(not changing from authorised)***; and
- A laydown area approximately 7500 m² in extent, per turbine ***(not changing from authorised)***.

2.1 Conditions of Authorisation to be Retained or Changed

The below pertains to the environmental authorisation DFFE Reference 14/12/16/3/3/2/1029/1/AM1.

Table 2.3: Conditions of Authorisation Amended, Retained or Changed

No. of Condition in EA	Page No.	Current Condition	Amend / Correct Condition	Motivation / Reason for change request
Substation location (center point)	6	Longitude: 31°15'55.44" S Latitude: 25°2'1" E	Longitude: 31°14'55.27"S Latitude: 25°1'1.68"E	Co-ordinate provided was not as per the approved location.
Construction Camp laydown area	6	Longitude: 31°13'23.92" S Latitude: 24°2'43.58" E	Longitude: 31°13'23.95" S Latitude: 25°2'44.04" E	Co-ordinate provided was not as per the approved location.
Technical details for the proposed powerline: Height of poles	8	"A max of 30 m"	"A max of 45 m"	Maximum height permitted based on SACAA and as approved in the original EA.
Condition 59.	18	All internal powerline/cables must follow internal access roads.	All internal powerline/cables must follow internal access roads where technically feasible.	Allow for scope if following the internal access roads is not technically feasible.
Condition 60.	18	All powerlines linking the turbines to the on-site substation must be buried.	All internal powerline/cables must follow internal access roads where technically feasible.	Allow for scope if following the internal access roads is not technically feasible.

3 LEGISLATIVE REQUIREMENTS

The Amendment Report has been compiled in compliance with the National Environmental Management Act No. 107 of 1998 (NEMA) EIA Regulations 2014, as amended. San Kraal Wind Power (Pty) Ltd are applying for an amendment to the EA issued by the DFFE (DFFE Ref.: 14/12/16/3/3/2/1029 and 14/12/16/3/3/2/1029/AM1) in terms of Regulation 31 and 32 of the NEMA EIA Regulations. Regulation 31 of the NEMA EIA Regulations 2014, as amended states that:

'An environmental authorisation may be amended by following the process prescribed in this Part if the amendment will result in a change to the scope of a valid environmental authorisation where such change will result in an increased level or change in the nature of impact where such level or change in nature of impact was not-

(a) assessed and included in the initial application for environmental authorisation; or

(b) taken into consideration in the initial environmental authorisation;

and the change does not, on its own, constitute a listed or specified activity.'

In compliance with Regulation 32 of the NEMA EIA Regulations 2014, as amended the specialists assessed the proposed changes to the approved project description and

highlighted the advantages and disadvantages of the proposed amendments, and provided further recommendations or mitigation measures if necessary.

Table 3.1: Legislative Requirements of the Amendment Report

Contents of the Amendment Report	Reference
32 (1) The applicant must within 90 days of receipt by the competent authority of the application made in terms of regulation 31, submit to the competent authority –	
(a) A report, reflecting –	
An assessment of all impacts related to the proposed change;	Section 6: Specialist Assessment of the Proposed Amendments Volume II – Specialist Reports
Advantages and disadvantages associated with the proposed change;	Section 8: Advantages and Disadvantages of the Proposed Amendments
Measures to ensure avoidance, management and mitigation of impacts associated with such proposed change; and	Section 11: Conclusion and Recommendations
Any changes to the EMP.	Appendix B: EMPr
aa. Had been subjected to a Public Participation Process (PPP), which had been agreed to by the competent authority, and which was appropriate to bring the proposed change to the attention of potential and registered interested and affected parties, including organs of state, which have jurisdiction in respect of any aspect of the relevant activity, and the competent authority, and	Section 9: Public Participation Appendix C: Public Participation Report
bb. Reflects the incorporation of comments received, including any comments of the competent authority.	Section 9: Public Participation Appendix C: Public Participation Report

3.1 Authorised Listed Activities

The following listed activities were applied for and approved by the DFFE. The listed activities will not change based on the amendments being applied for.

LISTING NOTICE	ACTIVITIES
LN 1 GN R327 ¹	11(i); 14, 19 (i); 24 (ii); 56 (ii)
LN 2 GN R325 ²	1; 6; 9; 15.
LN 3 GN R324 ³	4 (a)(i)(bb) & (g)(bb)(ee); 12(g)(ii); 18 (a)(i)(bb)

3.2 DFFE Comments on the Revised Amendment Report for Public Comment

Table 3.2 below reflects the EAP responses to the comments submitted by the DFFE on the Revised Amendment Report, dated 08 July 2021 and received on 12 July 2021, and also highlights the sections in the report, where these have been addressed.

¹ "Listing Notice 1 of the EIA Regulations, promulgated under Government Notice R983 of 4 December 2014, as amended by Government Notice R327 of 7 April 2017."

² "Listing Notice 2 of the EIA Regulations, promulgated under Government Notice R984 of 4 December 2014, as amended by Government Notice R325 of 7 April 2017."

³ "Listing Notice 3 of the EIA Regulations, promulgated under Government Notice R985 of 4 December 2014, as amended by Government Notice R324 of 7 April 2017."

The Amendment Report was revised and subjected to a 30 day PPP based on the Appeal Decision by the Minister of the DFFE which directed the applicant to subject the updated wake effect impact assessment to a 30 day PPP.

Table 3.2 DFFE comments on the Revised Amendment Report

No.	Comment from DFFE	EAP Response	Section in Final BAR
	<p>The Environmental Authorisation (EA) issued for the above application by this Department on 28 June 2018 (14/12/16/3/3/2/1029); the Application for Environmental Authorisation (EA) and Draft Amendment Report received by the Department on 26 September 2019, the acknowledgement letter from the Department dated 15 October 2019, the split amendment dated 08 June 2020, the appeal decision dated 07 June 2021 and the amended draft amendment reports submitted in response to the appeal decision received by the Department on 11 June 2021, refer.</p> <p>The Department has the following comments on the abovementioned amendment application:</p>		
	<p>Specific Comments</p>		
<p>i.</p>	<p>It is noted that the amended draft motivation report (ADMR) is submitted in response to an appeal decision dated 07 June 2021, which, "<i>The appeal broadly premised on the following grounds: Error of fact, Socio- Economic Impacts and Mitigation Hierarchy</i>".</p>	<p>The amended draft motivation report (ADMR), submitted to the DFFE by the EAP on behalf of the Applicant was produced in response to the appeal decision.</p> <p>As instructed by the Minister in the Appeal decision, the applicant subjected the updated wake effect reports dated 1 July 2020 to a 30 day Public Participation Process in line with Chapter 6 of the 2014 EIA Regulations.</p> <p>Since this matter has history spanning over a 3 year period, we would like to take this opportunity to provide historical background to the issue at hand which can be best summarised as follows:</p> <ul style="list-style-type: none"> Initial Appeal: The DFFE issued EA's for the Phezukomoya and San Kraal wind farm projects on the 28th of June 2018. South Africa Mainstream renewables appealed the issuance of the 2 EA's on the 26th of July 2018 on the basis that the applicant's projects would cause wake effects on Mainstream's operational Noupoot wind farm. The appeal requested the Department to insert several conditions in the applicant's EA, essentially forcing the applicant to negotiate and enter into compensation agreement with Mainstream for any loss of production experienced by the Noupoot wind farm as a result of the wake effects caused by the applicant's projects, prior to the start of construction activities. 	<p>Volume I: Revised Final Amendment Report</p>

No.	Comment from DFFE	EAP Response	Section in Final BAR
		<ul style="list-style-type: none"> • Initial appeal decision: On the 17th of January 2019, Honourable Minister of Environmental Affairs Ms Mokonyane issued an appeal decision which concluded as per clause 4.23 of the appeal decision that: <i>"I am of the view that the wake impacts have no environmentally associated impacts affecting the appellant in any way and as such I am not responsible to determine the influence bearing of the wake impacts by the two projects on the Noupoot WEF."</i> Clause 4.25 further states: <i>"I am of the view that it is outside of my mandate to insert a contractual clause as a condition in the EA. In light of the foregoing, the appeals are accordingly dismissed."</i> • Part 2 amendment application: On the 26th of September 2019, the applicants lodged amendment applications to: <ul style="list-style-type: none"> ○ Split the Phezukomoya and San Kraal EA's to create an additional project named Hartebeesthoek; and ○ Reduce the number of authorised wind turbines while increasing the authorised wind turbine specs. <p>The department approved the amendment application on the 25 March 2020 and 08 June 2020, respectively.</p> • Second Appeal: On the 30th of July 2020, Noupoot wind farm (RF) Ltd lodged an appeal against the issuance of the amended EA, on the basis that the updated wake effect reports which had been submitted by the applicant to the appellant for comments, was done outside of the 30 days public participation process. • Second Appeal decision: On the 7th of June 2021, almost a year after the second appeal was 	

No.	Comment from DFFE	EAP Response	Section in Final BAR
		<p>lodged, Honourable Minister Creecy issued a decision which instructed the applicant as per clause 2.56 of the appeal decision to: "subject the wake impact analysis reports dated 1 July 2020, to a public participation process as contemplated in the 2014 EIA regulations. Any comments received from I&AP's, as well as responses thereto by the applicants, must be incorporated into the final amendment reports, for submission to the department for reconsideration of the amendment applications."</p> <ul style="list-style-type: none"> Resubmission of Revised Amendment Report for reconsideration by DFFE: It should be noted the appellant Noupport Wind Farm (RF) Pty has elected not to participate in the Public Participation Process of the Revised Amendment Report which closed on the 12th of July 2021. The Applicant has now complied with Minister's Creecy's instruction to subject the updated wake effect reports dated 1 July 2020 to a public participation process as contemplated in the 2014 EIA regulations. 	
ii.	Please note, that should there be any other similar projects within a 30 km radius of the proposed development site, a Cumulative Impact Assessment (to be included in the amended final motivation report (FAMR)) for all identified projects must be assessed.	Cumulative impacts were assessed by specialists during the Amendment Application Process. No new similar projects within 30 km of the proposed development site exists post receipt of authorisation on 25 March 2020.	Volume I: Revised Final Amendment Report

No.	Comment from DFFE	EAP Response	Section in Final BAR
iii.	Should there be any other similar projects adjacent of the proposed development site, a Wake Impact Analysis (to be included in the FAMR) for all identified projects must be assessed.	<p>Reference is made to the background summary provided and the Appeal Decision (see Section 1 of the Final Revised Report and response to DFFE comment i above), which advised the Applicant to subject the Wake Effect Reports (dated 01 July 2020) to a 30 day public comment as contemplated in the 2014 EIA regulations, as amended.</p> <p>Aside from the operational Noupport Wind Farm there are no other similar developments adjacent to the site (within a 30km radius), that the applicant is <u>not involved with</u> from a development perspective.</p> <p>There are two other wind energy projects in the 30km radius, which have been authorised by the Department namely the Umsobomvu wind farm (DFFE Ref: 14/12/16/3/3/2/730) and the Coleskop wind farm (DFFE Ref: 14/12/16/3/3/2/730/1/AM2). The Coleskop and Umsobomvu wind farms are projects being developed by the holding company EDF Renewables which is the owner of the SPVs for the San Kraal, Phezukomoya and Hartebeesthoek wind energy projects. Letters of no objections issued by Coleskop Wind power and Umsobomvu Wind Power regarding the FAMR's of the San Kraal wind energy project is attached.</p>	<p>Volume I: Revised Final Amendment Report (see Section 1 and 6.11 Wake Effect)</p> <p>Volume II: Specialist Studies (see 11. Wake Effect Report)</p>
iv.	Please ensure that the FAMR include detailed amendments that are being applied for and respond adequately to the appeal decision.	The amendments being applied for are detailed in Section 2 of the Revised Final Amendment Report. The appeal decision has been adequately responded to by adhering to the instruction to subject the updated wake effect reports to a 30 day Public Participation Process in line with Chapter 6 of the 2014 EIA Regulations. All the other specialists' reports remain unchanged. These were deemed adequate by the Department when it issued the EA in March 2020.	<p>Volume I: Revised Final Amendment Report (see Section 2 Details of the Proposed Amendments)</p> <p>Volume I: Revised Final Amendment Report (see Section 1.2 Appeal Background)</p>
v.	Please ensure that the Environmental Management Programme (EMPr) must be amended to be in line with and to respond to the appeal decision. All	The updated wake effect reports were produced to calculate the loss of revenue that would be caused as a result of the wake losses generated by	Volume I: Revised Final Amendment Report (see Appendix B:

No.	Comment from DFFE	EAP Response	Section in Final BAR
	<p>recommendations and mitigation measures recorded in the AFMR and the Wake Impact Analysis must be considered and addressed in the EMPr.</p>	<p>the San Kraal wind farm project, based on a specific wind turbine layout.</p> <p>The Environmental Management Programme (EMPr) does not require an amendment as the report itself does not trigger any recommendations and no new mitigation measures were presented following receipt of the appeal decision and / or in the Wake Effect Reports.</p> <p>The wake effect reports will be updated again when the applicant submits the final layout approval application, which will be once again subjected to a 30 day Public Participation, as per the EIA Regulations, as amended.</p>	<p>Environmental Management Programme)</p>
<p>vi.</p>	<p>The conclusions in the Wake Impact Analysis dated 01 July 2020 that "<i>the additional wake impact is quite small</i>" is noted, however the Wake Impact Analysis is required to provide concluding recommendations and/or to indicate as such if there are no further recommendations required.</p>	<p>The decision instructed the applicant to "<i>subject the wake impact analysis reports dated 01 July 2020, to a public participation process as contemplated in the 2014 EIA regulations</i>". Which has been done (see Volume I Appendix C Public Participation). The independent technical consultant who prepared the wake effect report was instructed to calculate the wake losses that Noupport wind farm would experience based on the amended wind turbine layout as per the Part II EA amendment application, which was appealed. The results of a wake effect analysis are provided based on a calculation made using data over a certain period of time. As the influence is wind, the consultant cannot recommend any measures which will reduce or enhance the results and therefore no further recommendations are required.</p> <p>A recommendation has been included in the Revised Amendment Report by the EAP which states that "Before construction can commence, San Kraal Wind Power will be required to secure final layout approval from DFFE. Prior to submitting its application for final layout approval to the Department, San Kraal Wind Power will re-update the wake effect impact assessment report based on the final wind turbine layout and model, in order to revise the anticipated loss of production that will be experienced by the Noupport Wind farm. The updated wake effect</p>	<p>Volume I: Revised Final Amendment Report (see Section 6.11)</p>

No.	Comment from DFFE	EAP Response	Section in Final BAR
		report will once again be subjected to a 30 days Public Participation Process, before a decision can be made by the Department on the final layout approval application".	
vii.	An amended application form must be submitted together with the AFMR to reflect any changes from the initial application form.	There has been no change from the initial application.	n/a
viii.	The Environmental Assessment Practitioner (EAP) is to ensure that all the amendments applied for do not trigger any listed or specified activity as outlined in Regulation 31 of the NEMA EIA Regulations, 2014 as amended. Please ensure that there is clear motivation to the proposed amendments occurring within the approved footprint of the existing authorisation (can be supported with a layout map).	All the amendments applied for do not trigger any listed or specified activity as outlined in Regulation 31 of the NEMA EIA Regulations, 2014 as amended. The EAP has provided clear motivation to the proposed amendments occurring within the approved footprint of the existing authorisation.	Volume I: Revised Final Amendment Report (see Section 2 Details of the Proposed Amendments, Section 3 Legislative Requirements, Section 5 Motivation for the Proposed Amendments and Figure 5.1 Site Development Plan)
ix.	Please ensure that the Wake Impact Analysis to be submitted with the AFMR must provide a detailed description of the study's methodology; an indication of the locations and descriptions of the development footprint, and all other associated infrastructures that they have assessed and are recommending for authorisation.	The Wake Effect Report submitted with the AFMR provides a detailed description of the study's methodology which is covered in details in the first 4 sections of the report, while the 5 th section is the wake loss calculation itself. The wake effect reports also provide an indication of the locations and descriptions of the development footprint, and all other associated infrastructures that they have assessed.	Volume II: Specialist Studies (see 11. Wake Effect Report)
x.	The Wake Impact Analysis must also provide a detailed description of all limitations to their studies. All specialist studies must be conducted in the right season and providing that as a limitation, will not be accepted.	Limitations to the Wake Impact Study is provided throughout section 3 and 4 of the Wake Effect Reports and can best be summarized as follow: <ul style="list-style-type: none"> • Final layout and final turbine model to be implemented on Site is not known at this stage – some conservative assumptions have been taken • Section 3.1.1 and 3.1.2: "Considering the terrain characteristics, the measurements may not be representative for the full extent of site" <ul style="list-style-type: none"> o Note that data from existing Noupport wind farm not provided as input for the study, which would have reduced modelling uncertainty but was not provided by Noupport wind farm despite requests. • Section 3.1.1 and 3.1.2: "Details of the measured short-term wind regime were removed from this 	Volume II: Specialist Studies (see 11. Wake Effect Report)

No.	Comment from DFFE	EAP Response	Section in Final BAR
		<p>report at the request by the client due to the confidential nature of such information"</p> <ul style="list-style-type: none"> • Section 3.2.2: "It should be noted that details of long-term extrapolated wind regime were removed from this report at the request by the client due to the confidential nature of such information" • Section 4.1: "The terrain model used in this study represents the current conditions, which are assumed to remain the same over the wind farm lifetime" • Section 4.1.1: "It should be noted that the SRTM is a digital surface model (DSM), which includes features such as forests and buildings" • Section 4.2: "The delta RIX values varies at the wind turbine locations between -4.8 and 8.0. These Values are above the allowed values for the use of WASP. However, it should be noted that the purpose of this study is to estimate wake impact between wind farms. In this context, 3E's professional opinion is such that the wind speeds calculated by WASP will be in the right order of magnitude leading to reliable wake results" 	
xi.	<p>Please note that the Competent Authority (CA) - considers a 'no-go' area, as an area where no development of any infrastructure is allowed; therefore, no development of associated infrastructure including access roads is allowed in the 'no-go' areas. Should the specialist definition of 'no-go' area differ from the CA's definition, this must be clearly indicated. The specialist must also indicate the 'no-go' area's buffer if applicable.</p>	<p>The EAP acknowledges that the departments definition of a 'no-go' area is only for infrastructure and not for the associated infrastructure such as access roads.</p> <p>The specialist definition of 'no-go' is the same as that of the department. Buffers for any 'no-go' area provided by the specialist is indicated.</p> <p>The avifauna specialist has identified areas of no-go for turbines and OHPLs, and permits for associated infrastructure such as access roads and underground cabling within these buffers. This is clearly indicated in the report and in the maps provided.</p>	<p>Volume I: Revised Final Amendment Report (see Figure 10.1 Environmental Sensitivity Map)</p>
xii.	<p>Should the appointed specialists specify contradicting recommendations, the EAP must, in the Environmental Impact Assessment phase, clearly indicate the most reasonable recommendation and substantiate this with defensible reasons; and where necessary, include further expert advice.</p>	<p>No contradicting recommendations were provided by specialists. The EAP has, if no recommendations were provided, included recommendations for consideration during the decision phase by the DFFE.</p>	<p>Volume I: Revised Final Amendment Report</p>
xiii.	<p>It is further brought to your attention that procedures for the assessment and minimum criteria for reporting on</p>	<p>The specialist assessments for the original application (2016/2017) and their amendment reports (2018/2019)</p>	<p>See Volume II: Specialist Studies</p>

No.	Comment from DFFE	EAP Response	Section in Final BAR
	<p>identified environmental themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation, which were promulgated in Government Notice No. 320 of 20 March 2020 (i.e. "the Protocols"), and in Government Notice No. 1150 of 30 October 2020 (i.e. protocols for terrestrial plant and animal species), have come into effect. Please note that specialist assessments must be conducted in accordance with these protocols, except where the applicant provides proof to the competent authority that the specialist assessment affected by these protocols had been commissioned before the date on which the protocols came into effect, in which case Appendix 6 of the NEMA EIA Regulations, 2014, as amended, will apply.</p>	<p>were conducted according to Appendix 6 of the NEMA EIA Regulations, 2014, as amended, and therefore these reports are and were not subjected to these protocols, as they were commissioned and completed prior to the protocols coming into effect. As per the appeal decisions only the wake affect analysis report was required to be subjected to public participation, as this was determined to be new information. All other specialist reports produced in 2016/2017 and the respective amendment reports produced in 2018/2019 have not changed. The wake effect reports produced 01 July 2020 are not subject to the requirements of the procedures for the assessment and minimum criteria for reporting on identified environmental themes in terms of Sections 24(5)(a) and (h) and 44 of the National Environmental Management Act, 1998, when applying for Environmental Authorisation.</p>	
xiv.	<p>The Public Participation Process (PPP) must be conducted in terms of Regulation 39, 40, 41, 42, 43 & 44 of the NEMA EIA Regulations 2014, as amended.</p>	<p>Regulation 39, 40, 41, 42, 43 & 44 of the NEMA EIA Regulations 2014, as amended was considered and followed during this application process.</p>	<p>Volume I: Revised Final Amendment Report (see Section 9 Public Participation Process and Appendix C Public Participation Report)</p>
xv.	<p>The AFMR must only include PPP information for this current phase.</p>	<p>The AFMR includes PPP information for this current phase. The Public Participation Report (Appendix C) of the Final Revised Amendment Report, gives a summary of the public participation processes undertaken prior to the appeal decision for the Proposed Amendment Application, but only includes comments and responses from this current phase.</p>	<p>Volume I: Revised Final Amendment Report (see Section 9 Public Participation Process and Appendix C Public Participation Report)</p>
xvi.	<p>Please ensure that all issues raised, and comments received during the circulation of the amended draft amendment reports from registered interested and affected parties (I&APs) and organs of state which have jurisdiction (including this Department's Biodiversity Section: BCAdmin@environment.gov.za for attention Mr Seoka Lekota) in respect of the proposed activity are adequately addressed in the amended final amendment reports. Proof of</p>	<p>All issues raised and comments received during the availability of the Revised Amendment Report has been addressed in the Public Participation Report (Appendix C) of the Final Revised Amendment Report. Proof of Correspondence has been provided for in the Public Participation Report (Appendix C) of the Final Revised Amendment Report. Any correspondence with relevant organs of state and stakeholders has been</p>	<p>Volume I: Revised Final Amendment Report (see Appendix C6 and C7 Public Participation Report)</p>

No.	Comment from DFFE	EAP Response	Section in Final BAR
	correspondence with the various stakeholders must be included in the final report. Should you be unable to obtain comments, proof should be submitted to the CA of the attempts that were made to obtain comments.	included in the comments and response table. Where no correspondence has been received, the proof of attempts to retrieve a comment has been provided for to the DFFE.	
xvii.	A comments and response (C&R) trail report must be submitted with the final reports. The C&R report must incorporate all comments received (only for this phase) for this development.	A comments and response trail report, which will only include comments received for this phase of the development has been produced.	Volume I: Revised Final Amendment Report (see Appendix C7 Public Participation Report)
General			
	Please ensure that all mitigation recommendations are in line with applicable and most recent guidelines.	All mitigation recommendations advised that the mitigations should be aligned to the latest guidelines available at the time of implementation.	Volume I: Revised Final Amendment Report Volume II: Specialist Studies
	Should you fail to meet any of the timeframes stipulated in Regulation 32 of the NEMA EIA Regulations, 2014, as amended, your application will lapse.	Timeframes stipulated are being adhered to in this application.	n/a
	You are hereby reminded of Section 24F of the National Environmental Management Act, Act No 107 of 1998, as amended, that no activity may commence prior to an environmental authorisation being granted by the Department.	The Applicant / EAP takes note of this and confirms that no activity has / will commence without a positive environmental authorisation.	n/a

4 PROJECT TEAM

The coordination and management of this amendment application process is being conducted by Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus') with the lead EAP being Ashlin Bodasing. Ashlin Bodasing is the Project Director. Refer to Appendix A for the EAP's Declaration of Interest and Curriculum Vitae.

Ashlin Bodasing

Qualifications Bachelor of Social Science (Geography and Environmental Management)

Experience 16
in Years

Experience Ashlin Bodasing is the Technical Director at Arcus, located in Cape Town. Having obtained her Bachelor of Social Science Degree from the University of Kwa-Zulu Natal; she has over 16 years' experience in the environmental consulting industry in southern Africa. She has gained extensive experience in the field of Integrated Environmental Management, environmental impact assessments and public participation. She has also been actively involved in a number of industrial and infrastructural projects, including electricity power lines and substations; road and water infrastructure upgrades and the installation of telecommunication equipment, green field coal mines, as well as renewable energy facilities, both wind and solar. Ashlin has major project experience in the development of Environmental Impact Assessments, Environmental Management Plans and the monitoring of construction activities. Her areas of expertise include project management, environmental scoping and impact assessments, environmental management plans, environmental compliance monitoring and environmental feasibility studies. Experience also includes International Finance Corporation Performance

Standards and World Bank Environmental Guidelines environmental reviews. She has worked in Mozambique, Botswana, Lesotho and Zimbabwe.

Aneesah Alwie

Qualifications Bachelor of Science (Environmental and Water Science)

Experience 8
in Years

Experience Aneesah Alwie is an Environmental Consultant at Arcus. Having obtained her Bachelor of Science Degree (Environment and Water Science) from the University of the Western Cape; she has over 10 years public relations experience in conjunction with 6 years' experience as support to a technical team and 2 years' experience as a professional. She has also attended certified training courses in Environmental Law and Compliance. Aneesah assists in report writing and public participation processes and manages the EIA processes for projects across South Africa. She has a proven track record in producing work of quality standards, within timeframes and budgets. Her excellent organisational and project management skills development enables smooth flow of the assigned project duties and client relations. Starting off as administrator at Arcus she still provides on-going administrative and technical support to colleagues to ensure that their projects are completed in time and within budget.

Arcus is a specialist environmental consultancy providing environmental services to the renewable energy market. Arcus has advised on over 150 renewable energy projects with in-house specialist services and environmental management, in South Africa and the United Kingdom.

4.1 Specialist Input

The team of specialists to support the project team are the same as the original specialists (see Table 4.1 below). The only new specialist is the bat specialist⁴. Each specialist reviewed the amendments to the authorised development and provided an opinion and assessment of the changes. Where necessary, additional site work was conducted in order to assess the potential impacts of the proposed amendments.

Table 4.1: Specialist Team

Technical Discipline	Specialist Organisation	Lead Specialist
Aquatic / Freshwater	Enviro Sci	Brian Colloty ⁵
Bats	Arcus	Jonathan Aronson
Bats External Review	Private Consultant	Monika Moir
Avifauna	Chris van Rooyen Consulting	Chris van Rooyen
Ecology (Fauna and Flora)	3foxes	Simon Todd
Cultural Heritage	ACO Associates cc	Tim Hart
Noise	Enviro Acoustic Research cc	Morné de Jager
Social	Tony Barbour	Tony Barbour
Agriculture and Soils	Agricultural Research Council – Soil, Climate and Water	Garry Paterson
Traffic	SMEC South Africa (Pty) Ltd	Charlotte Xhobiso
Visual Impact	SiVest	Andrea Gibb
Wake Effect	3E	David Schillebeeckx

⁴ The original specialist, Animalia (Werner Marais) no longer conducts bat assessments and therefore a new specialist was appointed.

⁵ Brian Colloty was the original specialist, but this was under another company, he no longer works for that company.

5 MOTIVATION FOR THE PROPOSED AMENDMENT

The authorised turbine model with specifications of 150 m hub height and 150 m rotor diameter is no longer the preferred wind turbine technology. The applicant, therefore, wants to amend the authorised turbine specifications to reduce the number of turbines and to change the hub height to up to 137 m and the rotor diameter to up to 175 m to facilitate the most efficient turbine model and to further future proof the project amidst rapid technology developments.

From the authorised application, San Kraal Wind Power (Pty) Ltd intended to bid and develop the San Kraal WEF under the Department of Energy's REIPPPP. For San Kraal to meet the bidding requirements, the applicant proposed to split the authorised San Kraal WEF into two smaller wind farms (namely San Kraal Split 1 WEF and Hartebeesthoek East WEF). The anticipation is that the 140 MW cap for bidding requirements will be increased in the future rounds.

The split of the authorised San Kraal WEF will see fewer turbines being erected and the maximum authorised capacity (390 MW) will not be exceeded. The MW per WTG of the authorised San Kraal WEF would be increased, and fewer turbines will be built (fewer turbines with increased MW would be less than or equal to the overall authorised 390 MW).

The authorised layout has been updated due to the project split and reduction in the number of proposed wind turbines, from 78 to 35 turbines, for the San Kraal WEF (Figure 5.1).

The findings and assessment of the authorised San Kraal WEF (Arcus, 2018) indicated that renewable energy is strongly supported at a national, provincial and local level. Therefore, the need and desirability of the authorised San Kraal WEF (Arcus, 2018) remain valid.

The development of and investment in renewable energy is supported by the National Development Plan (NDP), New Growth Path Framework and National Infrastructure Plan, which all make reference to renewable energy. At a provincial level, the development of renewable energy is supported by the Northern Cape Provincial Growth and Development Strategy and Northern Cape Provincial Spatial Development Framework, as well as the Eastern Cape Provincial Development Plan (2014) and the Eastern Cape Climate Change Response Strategy.

The establishment of the proposed WEF and the other renewable energy facilities in the Umsobomvu Local Municipality (ULM) and Inxuba Yethemba Local Municipality (IYLM) may place pressure on local services, specifically medical, education and accommodation. This pressure will be associated with the potential influx of workers to the area associated with the construction and operational phases of renewable energy projects proposed in the area, including the proposed WEF. The potential impact on local services can be mitigated by employing local community members.

In addition, as indicated below, this impact should also be viewed within the context of the potential positive cumulative impacts for the local economy associated with the establishment of renewable energy as an economic driver in the area.

The establishment of the proposed WEF and other renewable energy projects in the area also has the potential to create a number of socio-economic opportunities for the ULM and IYLM, which, in turn, will result in a positive social benefit. Figure 5.2 shows the WEF site and a 35km radius and reflect any renewable energy projects within this radius. The positive cumulative impacts include the creation of employment, skills development and training opportunities, creation of downstream business opportunities. The Community Trusts associated with each project will also create significant socio-economic benefits.

The appeal decision by the Minister Barbara Creecy – Minister of Forestry, Fisheries and the Environment has dismissed the appeal against the Need and

Desirability assessment of the proposed amendments and therefore this section remains unchanged.

6 SPECIALIST ASSESSMENT OF THE PROPOSED AMENDMENTS

The previous EIA conducted by Arcus in 2018 assessed the potential impacts of developing the original San Kraal WEF using specialist input. The same methodology was utilised during this EA Amendment process.

Specialists were commissioned to:

- Assess the changes proposed in relation to the amendment application,
- Determine the impacts as a result of the proposed amendment,
- Assess whether or not the mitigation measures proposed in the EIA are valid for the proposed amendment or not,
- Discuss the advantages and the disadvantages in respect of the amendments for the specialist environmental feature, and
- Provide a reasoned opinion as to whether or not the proposed amendment should be authorised.

The San Kraal WEF Final EIA Report (Arcus, March 2018) concluded that there are no negative high residual impacts, including potential cumulative impacts associated with the proposed development.

Extracts and summaries from specialist letters and reports provided during this EA Amendment application process are provided below. Specialist EA Amendment letters and reports are provided in Volume II.

6.1 Agricultural Potential and Soils

The original soil specialist study was completed in 2016, and for that study, a single larger study area was assessed.

The proposed amendments to the turbine specifications, layout, and the proposed San Kraal Split 1 study area, falls within the area originally assessed area. Therefore, the findings of the original report on soils and agricultural potential will remain **unchanged**, specifically:

- The impacts that were identified and the significance ratings assessed as Medium to Low; and
- The impact management and/or mitigation measures.

The likelihood of cumulative impacts is small. Only if other developments (whether wind farms or not) were to occur, using the same access roads and thereby increasing potential soil erosion aspects, would cumulative impacts need to be considered.

Table 6.1: Agricultural Potential and Soils Impact Assessment (Unchanged from Original Assessment)

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Loss of Agricultural land	Low	Low	Low	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Neutral	Medium	High	High
Increased soil erosion hazard	Low	Medium	Medium	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Neutral	Medium	High	High
Operation Phase							

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Loss of Agricultural land	Low	Low	Low	Negative	Low	Low	High
With Mitigation	Low	Low	Low	Neutral	Low	Low	High
Increased soil erosion hazard	Low	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Low	Low	Neutral	Low	Low	High

No further recommendations were provided regarding soil impacts of the proposed development.

6.2 Aquatic

When considering the authorised development and the proposed amendment, the amendment will make use of an existing track/road network, and any new watercourse crossings will be subject to a separate basic assessment process. The original aquatic impact assessment for the San Kraal project was submitted in 2016 and will remain **unchanged**, although the amendment review was conducted with the following requirement updates, post-2016.

- Macfarlane *et al.*, (2017) Wetland and Rivers Buffers model was utilised in this assessment/review of the proposed amendments. Using this new buffer model, a buffer of 18m was determined for all the watercourses, but the 32m indicated in the 2016 report was retained; and
- Cumulative impact assessment.

With these in mind, the findings of the aquatic assessment can be upheld, especially considering that the modelled buffers are less than those originally prescribed. The final impact of the proposed layout on the aquatic environment with suitable stormwater management and improvement of current water courses crossings will remain low for all impacts assessed.

Table 6.2: Aquatic Impact Assessment (Unchanged from Original Assessment)

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Loss of riparian systems and watercourses during	Low	Medium	Low	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Increase in sedimentation and erosion within the development footprint during the construction phase and to a lesser degree the operational phase	Low	Medium	Low	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Impact on localised surface water quality	Low	Low	Low	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Operation Phase							
Impact on riparian systems through the possible increase in	Low	Low	Low	Negative	Medium	High	High

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
surface water runoff from hard surfaces and or new road crossings on riparian form and function							
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Increase in sedimentation and erosion within the development footprint during the construction phase and to a lesser degree the operational phase	Low	Medium	Low	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Cumulative Phase							
Overall cumulative impact during the construction and operational phases	Low	Medium	Low	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High

In the updated assessment of potential cumulative impacts, no additional impacts or changes to the previously assessed impacts would be required due to the proposed amendment. This is also based on the consideration that the number of roads has been consolidated in this application while keeping the new watercourse crossings away from wide/main stem watercourses, and well away from any known wetlands within the region (closest 1.1 km away). Lastly, there are no changes to the original mitigations or EMPR considerations required.

6.3 Ecology

In terms of a comparative assessment of the approved layout and the current amended layout, there are no differences in impact associated with the proposed change. The original extent of new access roads is estimated at 52.7 km, and the combined length of the access roads required on the new amended layout, of San Kraal Split 1 and Hartebeesthoek East WEF, is 57.6 km. The total extent of the roads required for the combined layouts is estimated to increase by less than 10%. Furthermore, the larger turbines are expected to require somewhat larger hardstands and laydown areas, with the result that the footprint of each turbine could potentially increase. However, the total number of turbines would decrease from 78 to 35, with the result that this is likely to offset any increase in the required footprint and the total extent of habitat loss. Therefore, impacts resulting from the turbines would remain similar. The assessed impacts are considered robust and conservatively assessed, with the result that the increase is not substantive and would not increase any of the assessed impacts to a higher significance. As such, there are no changes in the assessed impacts associated with the split of the San Kraal project into the two projects as proposed.

In terms of impact on CBAs, the original layout had a total of 8 turbines within CBAs, whereas under the amended layout, only 5 turbines are within the CBA. The impact of the amendment on CBAs would be similar or lower than the original approved layout. The lower number of turbines in the CBA is seen as a positive, albeit minor improvement of the amendment over the original layout with regards to the potential impact on CBAs. As such, no increase in impacts on CBAs associated with the amendment can be expected (Figure 6.1)

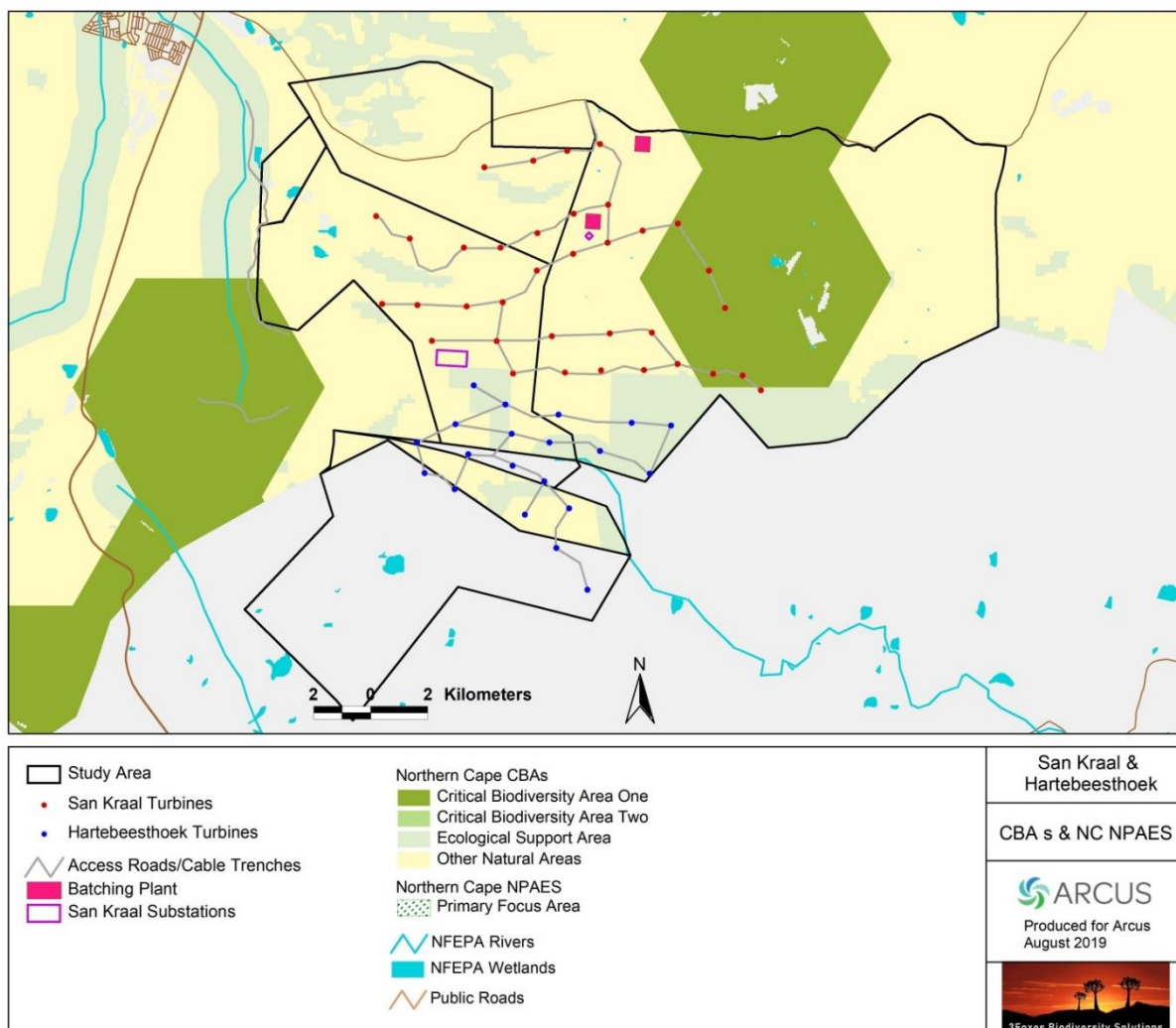


Figure 6.1 San Kraal Split 1 and Hartebeesthoek East Ecological Sensitivity

The assessed impacts following the split of San Kraal WEF are similar, and there are no significant differences in impact between the authorised 78 turbine facility and the proposed amendment. The assessment for the San Kraal Wind Energy Facility, before and after mitigation, and the amended turbine layout **remains the same** before and after mitigation (Table 6.3).

Table 6.3: Ecological Impact Assessment (Unchanged from the Original Assessment)

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Impacts on vegetation and listed or protected plant species resulting from construction activities	Low	High	High	Negative	High	High	High
With Mitigation	Low	Medium	Low	Negative	Medium	High	High
Faunal impacts due to construction-phase noise and physical disturbance	Low	Medium	High	Negative	Medium	High	High

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
With Mitigation	Low	Medium	Low	Negative	Medium	High	Medium
Operation Phase							
Faunal impacts due to operational activities	Low	Medium	Medium	Negative	Medium	High	High
With Mitigation	Low	Medium	Low	Negative	Low	Low	Medium
Soil Erosion Risk	Low	High	High	Negative	High	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Alien Plant Invasion	Low	High	Medium	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Impact on Critical Biodiversity Areas and Broad-Scale Ecological Processes	Medium	High	Medium	Negative	High	High	High
With Mitigation	Low	High	Medium	Negative	Medium	High	High
Decommission Phase							
Faunal impacts due to decommissioning phase activities	Medium	Low	High	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Medium	High
Following decommissioning, the site will be highly vulnerable to soil erosion	Medium	High	Medium	Negative	High	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Faunal impacts due to decommissioning phase activities	Medium	Low	High	Negative	Medium	High	High
With Mitigation	Low	Low	Low	Negative	Low	Medium	High
Alien Plant Invasion following decommissioning	Medium	High	Medium	Negative	High	High	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High

From an ecological perspective, the changes associated with the amendment are not seen as increasing the impact associated with the development. In addition, cumulative impacts associated with the amendment would be similar to the assessed impacts and are considered acceptable.

The original conclusions regarding the positive acceptability of the development are therefore also upheld for the amendment, and no additional mitigation or avoidance measures are required for the amended layout.

6.4 Bats

The newly appointed bat specialist for the amendment assessment conducted a literature review on bats and wind energy impacts with a focus on the relationship between turbine size and bat fatality. In addition, the pre-construction bat monitoring report for the original

San Kraal WEF was reviewed, along with the current bat sensitivity buffers. The original monitoring was conducted between July 2015 and September 2016.

During the pre-construction bat monitoring at the San Kraal WEF, bat activity was recorded at 10 m and 80 m. Relatively high bat activity was recorded overall, but the majority of this was at 10 m. These results suggest that on average, bat activity is greater at lower heights but that there are important differences across species - those species adapted to using open-air spaces are at greater risk. The core issue relevant to this assessment is the impact to bats of increasing the size of the turbines at the San Kraal Split 1 WEF. The proposed amendment to the turbines at the wind farm would result in a greater rotor swept area per turbine and hence a potentially greater likelihood that bats would collide with turbine blades or experience barotrauma.

Of the impacts identified in the original bat assessment report, only mortality of species due to collision with turbine blades or due to barotrauma, and cumulative impacts are relevant to this amendment. The significance of all other identified impacts on bats associated with the development will remain the same as per the original bat assessment report. The potential collision impact to bats, as well as the potential cumulative impacts, are currently rated as high before, and medium after mitigation. The primary mitigation measures are avoiding sensitive areas for bats and curtailment. However, even though changes to the turbine dimensions are proposed, which may impact bats, the impact ratings **will not change** from high before mitigation and medium after mitigation. The only change required is to update the sensitivity map, which has been done. Sensitive areas were defined as either high (with a 200 m buffer) or moderate (with a 100 m buffer). The current turbine layout adheres to these buffers, with no turbines located within them.

No bat activity data are available in the area between the heights of 10 m and 80 m or over 80 m, because activity at these heights was not monitored. Despite the available pre-construction monitoring data showing that bat activity at 80 m is low, it would be preferential to maximise the distance between the ground and blade tips by using turbines with the shortest possible blades and the highest possible hub height. This would reduce the number of species potentially impacted by turbine blades during the operation phase. It would also be preferential to use shorter blades so that they don't intrude into higher airspaces and in doing so reduces the potential impact to high flying species such as free-tailed bats. Despite the low activity at height, increasing evidence suggests that bats actively forage around wind turbines (Cryan et al. 2014; Foo et al. 2017), so the installation of turbines in the landscape may alter bat activity patterns, either by increasing activity at height and/or increasing the diversity of species making use of higher airspaces.

No additional mitigation measures are required, and as such, no changes to the EMPr are required either.

Table 6.4: Bat Impact Assessment (Unchanged from the Original Assessment)

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Destruction of bat roosts due to earthworks and blasting	Medium	Low	High	Negative	Medium	Medium	High
With Mitigation	Low	Low	Medium	Negative	Low	Low	High
Loss of foraging habitat	Low	High	Low	Negative	Medium	Medium	High
With Mitigation	Low	Medium	Low	Negative	Low	Low	High
Operation Phase							

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Bat mortalities due to direct blade impact or barotrauma during foraging activities (not migration)	Low	High	High	Negative	High	High	High
With Mitigation	Low	High	Low	Negative	Medium	Medium	High
Artificial Lighting	Low	High	Medium	Negative	Medium	High	High
With Mitigation	Low	High	Low	Negative	Low	Low	High

6.5 Avifauna

A re-assessment of the potential turbine collision impact was carried out given the potential changes to the turbine specifications, in light of the proposed amendment and in order to establish if the original pre-mitigation assessment and the original mitigation measures, by Van Rooyen *et al.* (2017), need to be revised.

While the increase of 36.11 % in rotor swept area per turbine (from ~17 671 m² to ~24 052 m²) was considered significant, it was also recognised that the 29 % reduction in the planned maximum number of turbines (from 75 to 55) for the combined area reduces the potential impact of the larger turbines significantly, given the fact that fewer, larger turbines are preferable to more, smaller turbines. It is therefore concluded that the original pre-mitigation impact significance ratings are not affected by the proposed changes in the turbine numbers and dimensions and will remain **unchanged**.

The mitigation measures originally proposed for the San Kraal WEF by Van Rooyen *et al.* (2017) needed to be revisited, based on the "Best Practice Guidelines for Avian Monitoring and Impact Mitigation at Proposed Wind Energy Development Sites in Southern Africa", (Jenkins *et al.* 2011 as revised in 2015). This re-assessment was necessary in order to take cognisance of any changes in the environment, which may affect the risk to avifauna and to incorporate the latest available knowledge into the assessment of the risks. In order to give effect to this requirement, nest searches were repeated in June 2019 to ensure up to date information on the breeding status of priority species at the proposed San Kraal Split 1 WEF. A Verreaux's Eagle nest located west of the San Kraal Split 1 development area was monitored as a focal point, as part of the pre-construction monitoring. The nest was occupied with a pair of eagles recorded at the nest during the initial site visit in April 2015. Breeding activity was recorded in June 2015, but for an unknown reason, the pair did not breed successfully and was not recorded at the nest again that year. The nest was subsequently inspected several times after the 12-months monitoring had come to an end, but no activity was observed⁶. It was assumed that the reason for that might be human disturbance, as the nest is accessible and human activity has been observed at the nest previously by the field monitors, and that the territory has been abandoned. However, during the nest searches conducted in June 2019, it was observed that the nest had become active again for the first time since June 2015. An additional nest was also discovered which presumably belongs to the same pair. Following the siting of the VE pair, a 3 km turbine-free buffer zone has been created around the Verreaux's Eagle nests located at -31.216572° 24.957244° and -31.219075° 24.970194°.

Table 6.5: Avifaunal Impact Assessment (Unchanged from the Original Assessment)

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
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⁶ The nest was checked during the breeding season in 2017 (June, August and October) and in 2018 (May and July), but no activity was observed.

Construction Phase							
Displacement of priority species due to construction activities at the wind development area	Low	Low	Medium	Negative	Medium	High	Medium
With Mitigation	Low	Low	Low	Negative	Medium	Medium	Medium
Operation Phase							
Direct mortality of priority species due to electrocution associated with the internal medium voltage MV powerline at the wind development area	Low	Medium	Medium	Negative	Medium	High	High
With Mitigation	Low	Medium	Medium	Negative	Low	Low	High
Displacement of priority species due to habitat destruction at the wind development site	Low	High	Low	Negative	Medium	Medium	Medium
With Mitigation	Low	High	Low	Negative	Low	Low	Medium
Direct mortality of priority species due to collisions with the turbines at the wind development area	Low	Medium	Medium	Negative	Medium	High	Medium
With Mitigation	Low	Medium	Low	Negative	Low	Low	Low
Decommission Phase							
Displacement of priority species due to dismantling activities at the wind development area	Low	Low	Medium	Negative	Medium	High	Medium
With Mitigation	Low	Low	Low	Negative	Medium	Medium	Medium
Cumulative Phase							
Overall Impacts	Medium	Medium	Medium	Negative	Medium	High	High
With Mitigation	Medium	Medium	Low	Negative	Low	Low	Medium

6.6 Noise

The environmental noise impact assessment (ENIA) indicated that the noise impact would remain of medium significance on one potential noise-sensitive development (NSD) in the area during the construction phase, mainly due to night-time construction of the Option 1 overhead line (in the original assessment), and of low significance on all the potential noise-sensitive developments (NSDs) in the area during the operational phase, using the Acciona AW125/3000 wind turbine for all operational wind speeds (generating 108.4 dBA) – maximum noise level less than 38.1 dBA at all NSDs.

The applicant is proposing the split of the San Kraal WEF into two smaller wind farms, namely the San Kraal Split 1 and Hartebeesthoek East wind farms (separate amendment application process). The noise assessment for the split specifically addressed the following proposed changes in the wind turbine details, including:

- A hub height of 137 m with a rotor diameter of 175 m; and
- Increasing the turbine output to 6.2 MW per turbine.

The change, however, does not move any wind turbines closer than 1,000 m to any identified NSDs and will reduce the number of wind turbines. Considering the proposed changes to the layout, wind turbine specifications and the turbine output, it is the specialists' opinion that the change will not increase or change the significance of the noise impact.

A full noise impact assessment with new modelling was not required, and the recommendations as contained in the previous document are valid. This recommendation is based on the outcome of the report, which indicated that the extent of the potential impact is limited to 1, 000 m from the closest wind turbines.

The impacts, significance, findings and the recommendations of the ENIA report, 2017 will **remain the same**, i.e. medium significance during the construction phase, with mitigation measures to minimise impact and low during the operation phase. While this project will have a very slight noise impact at a number of the closest noise-sensitive receptors, these impacts are of low significance (including the construction of OHL with mitigation) and can be considered insignificant. Similarly, there is no risk of a cumulative noise impact. Furthermore, it was not required to do any additional, or other acoustic studies for the proposed changes and no mitigation measures are recommended for inclusion in the EMPR and conditions to be included in the EA remains as per the 2017 report.

Table 6.6: Noise Impact Assessment (Unchanged from the Original Assessment)

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Daytime construction of the Access Roads	Low	Low	Low	Negative	Low	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Night-time construction of the Access Roads	Low	Low	Low	Negative	Low	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Noise from daytime construction traffic	Low	Low	Low	Negative	Low	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Noise from night-time construction traffic	Low	Low	Low	Negative	Low	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Daytime construction of Wind Turbines	Low	Low	Low	Negative	Low	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Night-time construction of Wind Turbines	Low	Low	Low	Negative	Low	Low	High
With Mitigation	Low	Low	Low	Negative	Low	Low	High
Operation Phase							
Daytime operation of Wind Turbines	Low	Medium	Low	Negative	Low	Low	High
With Mitigation	Low	Medium	Low	Negative	Low	Low	High

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Night-time operation of Wind Turbines	Medium	Medium	Low	Negative	Low	Low	High
With Mitigation	Medium	Medium	Low	Negative	Low	Low	High
Cumulative Phase							
Daytime operation of Wind Turbines	Low	Medium	Low	Negative	Low	Low	High
With Mitigation	Low	Medium	Low	Negative	Low	Low	High
Night-time operation of Wind Turbines	Medium	Medium	Low	Negative	Low	Low	High
With Mitigation	Medium	Medium	Low	Negative	Low	Low	High

6.7 Heritage

A site visit was conducted by ACO from the 8 - 11 April 2019 to assess the new WTG layout and cable / road alignment for heritage impacts. While it was not possible to survey all project components within the study area, the combined overall coverage of the 2017 and 2019 surveys was good, and the majority of proposed WTG positions and a good portion of infrastructure alignments for the San Kraal WEF have been archaeologically surveyed. The confidence in the findings is thus high.

The proposed WEF amendments relevant to archaeological resources are a reduction in the number of wind turbine generators (WTG) from the authorised 78 to 35 for this proposed development; and the adjustment of turbine, network cable and road layout within the WEF.

The 2017 survey of the San Kraal WEF indicated that there were very few archaeological sites on the Kikvorsberge. This tends to confirm what has proved to be the case across the Karoo: that high ridges, which are dry, windswept and very cold in winter, seldom attracted more than passing prehistoric human occupation. Unless there is a rock shelter, a source of water or of stone raw material, these areas are not likely to be archaeologically sensitive.

The 2017 archaeological field survey identified nine archaeological occurrences and sites and eight historical period buildings, kraals and ruins within the proposed 2019 footprint of the San Kraal WEF. The majority of these archaeological sites are ephemeral surface scatters of stone artefacts dating from the MSA. A possible ceramic period Khoi stone kraal was identified close to the Hartebeesthoek farm complex. No rock engravings or San rock paintings were identified. Four of these sites would potentially be impacted by the construction of the San Kraal WEF and mitigation was recommended.

After consultation with the South African Heritage Resources Agency (SAHRA) case officer, the intention of the 2019 field survey for the San Kraal WEF was to concentrate on visiting new WTG locations that were more than 150 m from any position covered by the 2017 survey. The 2019 archaeological field survey identified one additional archaeological occurrence and two further historical structures within the footprint of the San Kraal WEF. Table 6.7 shows, only a single site (JG036) is likely to be impacted by the current WEF layout, in comparison to four definite and three possible impacts by the previous, 2017 layout.

An assessment of the impact of the proposed amendments to palaeontological resources was not conducted as part of the EA Amendment applications as the existing study, done by Dr. John Almond, October 2017, for the authorised San Kraal WEF is still considered to be valid. Dr. John Almond ('Almond') has taken impact assessments in the area for the Noupport Wind Farm to the East and bordering directly on the San Kraal parcel. The

specialist also undertook the San Kraal and Phezukomoya assessment, all of which involved broad field work components prospecting any likely areas outside and within the land parcels involved. This is undertaken to find locales where the underlying palaeontology may be exposed and visible which is not always the case in the actual project areas themselves. Almonds conclusions were therefore based on a solid desktop knowledge of the local geology and palaeontology, reinforced by field observation. The palaeontological finds on the three large land parcels that was surveyed are minimal due to the depleted nature of the mountain-top Katberg deposits, and all the finds made have been on the sides of slopes and gullies where mud strata are exposed. It is based on the general geology of the area that Almonds recommendations and conclusions are derived. The geology throughout the original and amended project areas are similar – the same formations are involved. The land parcels have been well-covered and considered in the original project areas and therefore the original conclusions and recommendations for the authorised San Kraal WEF should continue to stand and be adhered to for the amendment process.

Table 6.7: Comparison of graded sites potentially impacted by 2017 and 2019 WEF layouts

Archaeological Site/ Occurrence	Proximity to WEF feature		Potential Impact		Grading
	2017	2019	2017	2019	
JG003/ JR001 - Possible Khoi kraal	Falls within San Kraal 132kV OHL option 2.	Not affected by the proposed WEF layout	Possible	No	IIIC
JG001 - Old barn	Falls within San Kraal 132kV OHL option 2.	Not affected by the proposed WEF layout	Possible	No	IIIC
JG002 - Farmhouse	Falls within San Kraal 132kV OHL option 2.	Not affected by the proposed WEF layout	Possible	No	IIIC
JG017 – MSA artefact scatter	In close proximity to WTG78	Approx. 290 m from WTG607. Not affected by WEF.	Yes		IIIC
JG018 - MSA artefact scatter	In close proximity to WTG78	Approx. 280 m from WTG607. Not affected by WEF.	Yes		IIIC
JG019 - MSA artefact scatter	In close proximity to WTG78	Approx. 270 m from WTG607. Not affected by WEF.	Yes		IIIC
JG020 - MSA artefact scatter	In close proximity to WTG78	Approx. 180 m from WTG607. Not affected by WEF.	Yes		IIIC
GEB007 – Packed stone structure	N/A	Not in proximity to any WEF elements. Will not be affected by the project.	N/A	No	IIIC
JG036 - Packed stone 'wolwehok'	N/A	50 m from WTG409	N/A	Yes (Some form of mitigation required)	IIIC

Table 6.8: Heritage Impact Assessment (Unchanged from the Original Assessment)

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Impacts to Archaeological Heritage	Low	High	Low	Negative – Neutral	Low	Low	High
With Mitigation	Low	High	Low	Negative – Neutral	Low	Low	High
Impacts to Colonial Period Heritage	Low	Low	Low	Negative – Neutral	Low	Low	High
With Mitigation	Low	Low	Low	Negative – Neutral	Low	Low	High
Impacts to cultural landscape and setting	Low	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Medium	Medium	Negative	Medium	Medium	High
Palaeontological Heritage Impact							
Impacts to Palaeontology	Low	High	Medium	Negative	Medium	Medium	High
With Mitigation	Low	High	Low	Neutral – Pos	Low	Low	High
Operation Phase							
Impacts to cultural landscape and setting	Low	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Low	Medium	Medium	Negative	Medium	Medium	High

In terms of the information that has been collected, indications are that impacts arising from the San Kraal WEF on archaeological sites and material very limited and of extremely low significance. Based on the comparative assessment of impacts, the cumulative impact assessment made in the 2017 HIA (Hart *et al*, 2017a) remains valid for the revised San Kraal WEF: cumulative impacts will be of low consequence for WEFs and tolerable for solar PV facilities with their more intensive impacts on the land within their footprints. The only mitigation measure added is that the packed stone 'wolwehok' (JG036) must be avoided during the installation of WTG409 and associated infrastructure. The structure must be cordoned off during construction activities and treated as a no-go area by WEF staff and contractors.

The overall impact of the construction of the San Kraal WEF is tolerable and generally of low significance and, from a heritage perspective, the proposed amendments are considered acceptable.

6.8 Visual

Baseline information for this amendment report is largely drawn from the original VIA which was based on a desktop-level assessment supported by field-based observation.

Given that the proposed San Kraal Split 1 WEF is located within the project area already assessed for the original San Kraal WEF, it was not considered necessary to undertake any additional fieldwork. Fieldwork undertaken for the San Kraal WEF VIA has therefore been used to inform this new VIA. This fieldwork involved a four (4) day site visit in September 2017 which served to verify the landscape characteristics identified via desktop means; conduct a photographic survey of the study area; verify, where possible, the sensitivity of visual receptor locations identified via desktop means; eliminate receptor locations that are unlikely to be influenced by the proposed development; identify any additional visually

sensitive receptor locations within the study area; and inform the impact rating assessment of visually sensitive receptor locations.

During the site visit, it was observed that a few of the farmsteads / residential dwellings identified via desktop means (i.e. Google Earth) had been abandoned. As such, these were eliminated from the list of potentially sensitive receptor locations for the purpose of the original EIA phase study. None of the thirty-five (35) turbines proposed for the San Kraal Split 1 WEF is located within the zone of 'medium-high sensitivity', and as such the proposed layout is considered to be acceptable from a visual perspective.

Table 6.9: Visual Impact Assessment of the Original Application

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Impact on access roads	Medium	Low	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Low	Medium	Negative	Medium	Medium	Medium
Impact on cabling	Medium	Low	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Low	Medium	Negative	Medium	Medium	Medium
Operation Phase							
Impact on access roads	Medium	Medium	High	Negative	Medium	High	Medium
With Mitigation	Medium	Medium	Medium	Negative	Medium	High	Medium
Impact on cabling	Medium	Medium	Medium	Negative	Medium	High	Medium
With Mitigation	Medium	Medium	Medium	Negative	Medium	High	Medium
Cumulative Phase							
Construction Phase	Medium	Medium	High	Negative	Medium	High	Medium
With Mitigation	Medium	Medium	Medium	Negative	Medium	Medium	Medium
Operation Phase	Medium	Medium	Medium	Negative	Medium	High	Medium
With Mitigation	Medium	Medium	Medium	Negative	Medium	High	Medium

Table 6.10: Updated Visual Impact Assessment based on the Amendments

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Impact on access roads	Medium	Low	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Low	Low	Negative	Low	Medium	Medium
Impact on cabling	Medium	Low	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Low	Low	Negative	Low	Medium	Medium
Operation Phase							
Impact on cabling	Low	Medium	Low	Negative	Low	Low	Medium
With Mitigation	Low	Medium	Low	Negative	Low	Low	Medium

The assessment revealed that impacts associated with the proposed San Kraal Split 1 WEF will be of moderate significance during both construction and decommissioning phases. This could, however, be reduced to low with the implementation of mitigation measures. During operation, visual impacts from the WEF would be of moderate significance with relatively few mitigation measures available to reduce the visual impact. Visual impacts

associated with the WEF on-site infrastructure during operation would be of low significance, and cumulative impacts have been rated as medium.

Visual impacts associated with the proposed San Kraal Split 1 WEF is of moderate significance. Proposed changes to the authorised WEF development do not give rise to additional visual impacts or exacerbate the impacts previously identified in respect of the original San Kraal WEF.

6.9 Social

From a social perspective, the only material change to the previous project design is the reduction in the number of wind turbines from 78 to 35 and the changes in the technical specifications of the wind turbines. The relocation of some wind turbines to ensure that they fall outside of the constraints areas **will not impact** on the findings of the SIA undertaken in 2017-2018.

The wind turbines are located on properties owned by two landowners, namely:

- Umsobomvu Local Municipality - 16 wind turbines; and
- Mr Gerhard Taljaard - 19 wind turbines.

The findings of the 2018 SIA indicated that the development of the proposed San Kraal WEF would create employment and business opportunities for locals during both the construction and operational phase of the project. The establishment of a Community Trust will also benefit the local community. The potential negative social impacts could also be effectively mitigated. The proposed development also represented an investment in clean, renewable energy infrastructure, which, given the negative environmental and socio-economic impacts associated with a coal-based energy economy and the challenges created by climate change, represents a significant positive social benefit for the society as a whole. The findings of the SIA also indicated that the Renewable Energy Independent Power Producers Procurement Programme (REIPPPP) has resulted in significant socio-economic benefits, both at a national level and a local, community level. These benefits are linked to Foreign Direct Investment, local employment and procurement and investment in local community initiatives.

The significance ratings for the cumulative impacts associated with the Part 2 Amendment San Kraal Split 1 are the same as those for the original San Kraal WEF (SIA January 2018), namely:

- Cumulative impact on sense of place - Medium Negative;
- Cumulative impact on services - Low Negative; and
- Cumulative impact on local economies - High Positive.

The project will create significant socio-economic opportunities for the area and have limited potential negative social impacts. The San Kraal WEF is located in a proven high wind resource area. The project is needed and desirable for the following reasons:

- Positive impact on climate change;
- Overcoming the country's energy constraints;
- Diversification and decentralisation of supply;
- Reduced costs of energy; and
- Positive economic development, including job creation.

Based on the findings of the SIA, the establishment of the proposed San Kraal WEF is supported.

Table 6.11: Social Impact Assessment (Unchanged from the Original Assessment)

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction Phase							
Creation of local employment, training and business opportunities	Medium	Low	Medium	Positive	Medium	Medium	High
With Enhancement	High	Low	High	Positive	High	High	High
Impact of construction workers on local communities	Medium	Low	Medium	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High
Influx of job seekers	Medium	Low	Low	Negative	Low	Medium	Medium
With Mitigation	Medium	Low	Low	Negative	Low	Medium	Medium
Risk to safety, livestock, farm infrastructure and farming operations	Medium	Low	Medium	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High
Increased fire risk	Medium	Low	Medium	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High
Impacts associated with construction vehicles	Medium	Low	Medium	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High
Impact associated with loss of farmland	Medium	Low	Low	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Medium	Medium	High
Operation Phase							
Development of renewable energy infrastructure	Medium	High	Medium	Positive	Medium	Medium	High
With Enhancement	Medium	High	High	Positive	High	High	High
Creation of employment and business opportunities and support for local economic development	Medium	Medium	Low	Positive	Low	Medium	High
With Enhancement	Medium	Medium	Medium	Positive	Medium	High	High
Benefits associated with the establishment of a Community Trust	Medium	High	Medium	Positive	Medium	Medium	High
With Enhancement	Medium	High	High	Positive	High	High	High
Generate income for affected landowners	Medium	Medium	Low	Positive	Low	Medium	High
With Enhancement	Medium	Medium	Medium	Positive	Medium	High	High
Impact on sense of place and rural	Medium	Medium	Medium	Negative	Medium	Medium	Medium

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
character of the landscape based on findings of VIA							
With Mitigation	Medium	Medium	Medium – Low	Negative	Medium – Low	Medium	Medium
Potential impact on property values	Medium	Medium	Medium	Negative	Medium	Medium	Medium
With Mitigation	Medium	Medium	Low	Negative	Low	Medium	Medium
Potential impact on tourism	Medium	Medium	Low	Negative	Low	Medium	High
With Mitigation	Medium	Medium	Low	Negative	Low	Medium	High
Decommission Phase							
Loss of jobs and associated income	Medium	Medium	Medium	Negative	Medium	Medium	High
With Mitigation	Medium	Low	Low	Negative	Low	Medium	High

6.10 Traffic

The amendment report was produced to assess the proposed amendments and their potential to have a significant change in impact on the traffic and surrounding transportation network. The proposed changes that have the most impact on traffic generated are the number of wind turbines. This will decrease and increase trips generated to the site, respectively. The extent of impact caused by this amendment will be quantified in the capacity and safety analysis.

Two site access point options and 3 intersections have been identified to provide access to the San Kraal WEF. Through site visits and desktop studies, each access point was evaluated for its suitability to serve the WEF, taking into consideration site distance lines, intersection/access spacing requirements, speed limits and road surface conditions. Based on the assessment, both Access F and G have the potential to be an acceptable access point. Access F will provide access to the portion north of Murray Street, and Access G will provide access to the portion south of Murray Street.

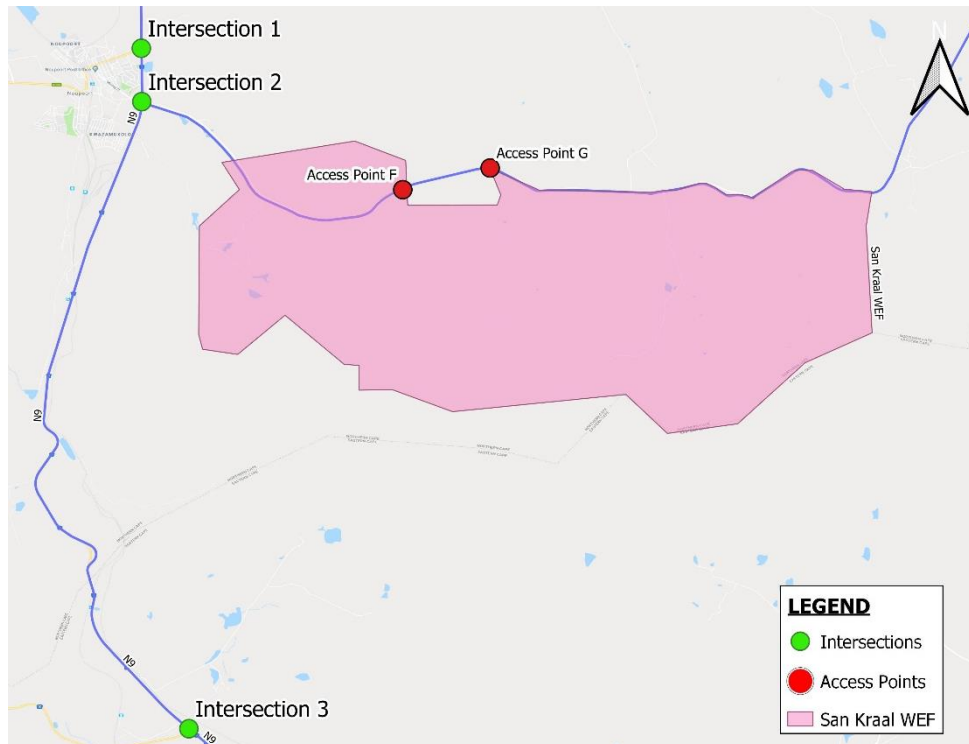


Figure 6.2 Site Access Points and Intersections

Table 6.12: Traffic Impact Assessment based on the Amendments

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction / Decommissioning Phase							
Impact on increased traffic on the route and access points to the site	Low	Low	Medium	Negative	Low	High	High
With Mitigation	Low	Low	Low	Negative	Very Low	High	High

Based on the information detailed in the TIA report, the base year and forecast year road capacity has indicated that the proposed development and proposed amendments will have no significant change in impact on the existing road network capacity and the project will maintain acceptable levels of service. Further, the safety assessment has indicated that the proposed development will have some impact at proposed access points. Providing access from national roads will impact mobility of the road. Therefore adequate traffic control and clear road markings and warnings signs must be provided.

6.11 Wake Effect

As part of its EIA application San Kraal Wind Power commissioned 3E to compile a wake effect impact assessment in 2018, to determine, what effect, if any, the proposed San Kraal development will have on the operational Noupoort Wind Farm. The study concluded that the operation of the San Kraal WEF would result in a 0.96 % loss of production for the Noupoort Wind Farm.

An updated Wake Effect Impact Assessment was undertaken independently by 3E on 01 July 2020, in order to assess and quantify the potential loss of production the Amended San Kraal and Hartebeesthoek East wind farms would cause to the operational Noupoort wind farm. The updated Wake Effect Impact Analysis has been appended to this amendment report in Volume II.

The updated wake effect report concluded that:

- The combined impact of the amended San Kraal and Hartbeesthoek East projects on the Noupport wind farm is a 1.14% loss of production; and
- The impact the amended San Kraal project would have on Noupport without including Hartbeesthoek East in the assessment. Under this scenario San kraal would cause a 1.10% loss of production to Noupport.

As indicated by 3E, the study used 29.8 months of data from a 120 m measurement mast installed at the site. The configuration of this measurement device complies with best practices. The terrain at the site was modelled and a wind flow model was used to extrapolate the wind regime to the location and hub height of each wind turbine proposed for this amendment.

The updated Wake Effect report (3E, 2020) concluded that due to the distance between the existing Noupport wind farm and the San Kraal WEF, the frequency of the wind being rather limited from the sectors of south-south-west and west-south-west, the additional wake impact is quite small – in other words, very low. It is thus determined that the wake effect would not result in adverse socio-economic impacts on the Noupport wind farm

As the wake effect impacts are insignificant, no mitigation measures are proposed which relate to the sustainable operation of the Noupport Wind Farm.

The EAP recommends that before construction can commence, San Kraal Wind Power will be required to secure final layout approval from DFFE. Prior to submitting its application for final layout approval to the Department, San Kraal Wind Power will re-update the wake effect impact assessment report based on the final wind turbine layout and model, in order to revise the anticipated loss of production that the Noupport Wind farm will experience. The updated wake effect report will once again be subjected to a 30 days Public Participation Process, before a decision can be made by the Department on the final layout approval application.

Below is an assessment table produced by the EAP based on the Wake Effect Reports.

Table 6.13: Wake Effect Impact Assessment based on the Amendments

	Extent	Duration	Intensity	Status	Significance	Probability	Confidence
Construction / Decommissioning Phase							
Wake Effect Impacts on the Noupport Wind Farm	Low	Low	Medium	Negative	Very Low	High	High
With Mitigation	Low	Low	Low	Negative	Very Low	High	High

7 TURBINE LAYOUT DESIGN EVOLUTION

Following additional mitigation measures provided by the Avifaunal specialist, including the 3 km turbine-free buffer zone around the Verreaux's Eagle nests, the below table reflects the turbine relocation.

Table 7.1 Turbine Layout Design Evolution

Authorised San Kraal WTG Locations			Amendment San Kraal WTG Locations		
WTG No.	Latitude	Longitude	WTG No.	Latitude	Longitude
WTG01	31° 13' 32.875" S	25° 0' 9.628" E	WTG301	31° 13' 25.4105" S	25° 00' 02.1475" E

8 ADVANTAGES AND DISADVANTAGES OF THE PROPOSED AMENDMENT

Specialists were requested to provide an opinion on the advantages and disadvantages of the proposed amendment application. Table 8.1 below provides a comparative assessment of the advantages and disadvantages of the proposed amendment to the authorised San Kraal WEF.

Table 8.1 Advantages and Disadvantages of the Amendment

Advantages	Disadvantages
A reduction in the number of turbines means a smaller footprint is required and therefore less vegetation clearance and habitat loss.	It is possible that some bat species, particularly those not adapted to use open-air spaces, are being killed at the lower sweep of the turbine blades so increasing the blade length and having a shorter distance between the ground and the lowest rotor point may have a negative impact and potentially place a greater diversity of species at risk.
The original layout had a total of 8 turbines within CBAs, whereas under the amended layout, only 5 turbines are within the CBA.	A marginal disadvantage could possibly arise from the split of the authorised San Kraal WEF if the two projects are not constructed concurrently as prolonged construction periods would exacerbate visual impacts associated with construction.
It is likely that splitting the authorised San Kraal WEF into two WEFs, will lead to long term job opportunities, especially if the construction of the WEFs are phased.	The reduced number of turbines and the associated implications in terms of capital expenditure, employment (construction and operational phase), and the impact of construction workers.
All turbines are located away from highly sensitive areas, and no turbines are located in no-go areas or buffers.	In terms of the Community Trust, the potential changes would be linked to the reduced revenue associated with the lower generation capacity (MWs).
Bat activity and species diversity are greater at ground level than at height. Therefore, even though bats are recorded at heights that would put them at risk from taller turbines, the proportion of bats that would be at risk might be less.	Although quite small (1.10%), the proposed amendment could result in potential operational losses for the Noupoot Wind Farm in terms of a cumulative and direct Wake Effect.
The number of bat species that might be impacted would decrease because not all bat species use the airspace congruent with the rotor swept area of modern turbines owing to morphological adaptations related to flight and echolocation.	
The reduction in the number of WTGs from that proposed for this portion of the authorised San Kraal WEF is an advantage as it reduces the potential for impacts on archaeological sites and material.	
The revised layout of the WEF has the advantage of generally increasing the distance between the identified heritage sites and WEF infrastructure, thereby ensuring that no impacts will occur.	
Fewer larger turbines are preferable from an avifaunal perspective.	
A reduction in the number of turbines will reduce the overall visual impact on identified sensitive receptors.	
A reduction in the number of trips to site, therefore decrease in the impacts to traffic.	

9 PUBLIC PARTICIPATION

The I&AP database of the authorised San Kraal WEF EIA (Arcus, 2018) process was used as a baseline for this amendment application and the updated 2020 database was used for this Revised Amendment Report. The Socio-economic specialist study for this amendment included consultation and interviews with Interested and Affected Parties (I&APs) and other key informants and stakeholders as necessary in order to assess social impacts.

All I&APs were notified of the intention to submit the Amendment Report via the placement of adverts in the same newspapers utilised during the previous EIA, i.e. The Herald and Graaff Reinet Advertiser in 2019. Site notices were placed along the boundary of the site to inform I&APs of the amendment application (Appendix C).

Notification letters via email and registered mail was sent to all I&APs informing them of the availability of the amendment report for review and comment, from 11 June 2021 to 12 July 2021. The report was made available at the Noupoot Library as a hard copy and digitally on the Arcus website (www.arcusconsulting.co.za/projects).

All comments received for the comment period of the Revised Amendment Report has been included in the Comments and Responses Table, and responded to and addressed by the project team, i.e. EAP, Applicant and Specialists as applicable (Volume I: Appendix C).

Summary of Comments Received

During the 30 day public participation period comment was received from the DFFE on 12 July 2020, which was dated 08 July 2021; the DFFE: BDC Directorate and SAHRA.

It should be noted that the appellant, Noupoot Wind Farm (RF) Pty, were invited to comment on the Revised Amendment Report as they are on the I&AP database during this Public Participation Process which closed on the 12th of July 2021. No comments were received by Noupoot Wind Farm. The applicant has now complied with Minister's Creecy's instruction to subject the updated wake effect reports dated 1 July 2020 to a public participation process as contemplated in the 2014 EIA regulations, as amended.

10 CHANGES TO THE DRAFT EMPR

The EMPr for the original San Kraal WEF prepared by Arcus in 2018 was updated to reflect the revised mitigation measures recommended by the Heritage and Avifauna specialist.

No update was made to the EMPr following inclusion of the Wake Effect Assessment to this Revised Amendment Report.

11 RECOMMENDATIONS AND CONCLUSION

San Kraal Wind Power (Pty) Ltd are proposing the amendment to the already authorised San Kraal Wind Energy Facility (WEF). The proposed amendments to the turbine specifications and layout, and the proposed San Kraal Split 1 study area, falls within the originally assessed area. The split enables a similar amount of energy yield with fewer turbines. Corresponding to this reduction in the number of turbines was a decrease in hub height - from 150 m to up to 137 m, and an increase in rotor diameter - from 150 m to up to 175 m.

The use of renewable energy to provide power to South Africa is supported at International, National, Provincial and Local Government Levels. Further, given South Africa's need for additional electricity generation and the need to decrease the country's dependency on coal-based power, renewable energy has been identified as a national priority, with wind energy identified as one of the most readily available, technically viable and commercially cost-effective sources of renewable energy.

Taking into consideration the findings of this amendment process for the proposed development and the fact that recommended mitigation measures have been used to inform the project design, it is the opinion of the Environmental Assessment Practitioner (EAP) that the negative impacts associated with the implementation of the proposed project have been mitigated to acceptable levels, within this amendment process. Figure 10.1 reflects the updated environmental sensitivity of the proposed development.

While the residual impacts of the project will have an impact on the local environment, the extent of the benefits associated with the implementation of the projects will benefit a much larger group of people, in terms of renewable energy supply and positive local and regional economic impact.

The study has concluded that there are no negative high residual impacts, including potential cumulative impacts associated with the proposed amendment application and the amendment can be authorised.

It is further recommended that before construction can commence, San Kraal Wind Power will be required to secure final layout approval from DFFE. Prior to submitting its application for final layout approval to the Department, San Kraal Wind Power will re-update the wake effect impact assessment report based on the final wind turbine layout and model, in order to revise the anticipated loss of production that the Noupoot Wind Farm will experience. The updated wake effect report will once again be subjected to a 30 days Public Participation Process, before a decision is made by the Department on the final layout approval application.

FIGURES

Figure List:

- Figure 1.1** **Authorised San Kraal WEF**
- Figure 1.2** **Site Location**
- Figure 2.1** **Proposed Amendment Layout**
- Figure 5.1** **Proposed Site Development Plan**
- Figure 5.2** **Renewable Energy Projects**
- Figure 6.1** **Hartebeesthoek East and San Kraal Split 1 Ecological Sensitivity**
- Figure 6.2** **Site Access Points and Intersections**
- Figure 10.1** **Environmental Sensitivity Map**

APPENDIX A: EAP CV AND DECLARATION OF INDEPENDENCE

APPENDIX B: ENVIRONMENTAL MANAGEMENT PROGRAMME

APPENDIX C: PUBLIC PARTICIPATION REPORT