APPENDIX C10e

COMMENTS AND RESPONSES REPORT

WIND GARDEN WIND FARM, EASTERN CAPE PROVINCE
(DFFE Reference No.: 14/12/16/3/3/1/2314)

COMMENTS AND RESPONSES REPORT

TABLE OF CONTENTS

In their decision on the complaint lodged against the Basic Assessment process for the Wind Garden Wind Farm (DFFE Ref. No.: 14/12/16/3/3/1/2314) and associated infrastructure, Eastern Cape Province, the Department of Forestry, Fisheries and the Environment (DFFE) directed the Environmental Assessment Practitioner (EAP) to conduct a 30-day Public Participation Process to consult on any outstanding issues identified in the process for this project after which the Department will continue with decision making.

As agreed with the Department, the final BA Report, as submitted to the DFFE in July 2021, was made available to registered Interested and Affected Parties (I&APs) to conclude any outstanding issues from **Tuesday, 11 January 2022** until **Thursday, 10 February 2022**. This Comments and Responses Report (C&RR) includes all the written comments received during this 30-day review and comment period as well as responses. The written comments received are included in **Appendix C10** of the re-submission of the Final BA Report to the DFFE. The C&RR is included as a separate appendix to the Final BA Report as **Appendix C11**.

NOTE:
All comments captured in the C&RR are **verbatim** and have not been summarised.

LIST OF ABBREVIATIONS / ACRONYMS

AIA	Avifauna Impact Assessment	NBES	National Biodiversity Economy Strategy
BAR	Basic Assessment Report	NPAES	National Protected Area Expansion Strategy
BFD	Bird Flight Diverters	BFD	Bird Flight Diverters
BID	Background Information Document	HIA	Heritage Impact Assessment
BLSA	BirdLife South Africa	NHRA	National Heritage Resources Agency
BMP	Biodiversity Management Plan	PPPM	Public Participation Process Meeting
CL	Cultural Landscape	REDZ	Renewable Energy Development Zone
CLA	Cultural Landscape Assessment	SEA	Social Environmental Assessment
C&RR	Comments and Responses Report	SEIA	Socio-economic Impact Assessment
DFFE	Department of Forestry, Fisheries and the Environment	SIA	Social Impact Assessment
EWT	Endangered Wildlife Trust	VERA	Verreaux's Eagle Risk Assessment
KSIAP	Key Stakeholders and Interested & Affected Parties	VIA	Visual Impact Assessment

1. COMMENTS RECEIVED DURING THE REVIEW AND COMMENT PERIOD OF THE FINAL BASIC ASSESSMENT REPORT

1.1. Organs of State

No.	Comment	Raised by	Previously Raised	New Comment	Response
No comments were received from any of the Organs of State on the project database.					

1.2. Key Stakeholders and Interested & Affected Parties

No.	Comment	Raised by	Previously Addressed	New Comment	Response
1.	The Endangered Wildlife Trust (EWT) is a non-governmental, non-profit, conservation organisation, founded in 1973 and operating throughout southern Africa. The EWT conserves threatened species and ecosystems in southern Africa by implementing research and conservation action towards mitigating threats facing species diversity and supporting sustainable natural resource management. The EWT furthermore communicates the principles of sustainable living through awareness programmes to the broadest possible constituency for the benefit of the region. The EWT is driven by a team of passionate and dedicated conservationists working through 13 specialised programmes across southern and East Africa, each falling under one of our three key strategic pillars: Saving species, conserving habitats, and benefitting people. While the EWT supports the just transition to renewable energy, these proposed developments	Dr Ian Little EWT Letter: 15 December 2021		**X**	The background information provided by the EWT is appreciated and acknowledged, including the support of the just transition to renewable energy. No additional response is required.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	are only considered feasible if they follow the mitigation hierarchy and the species environmental assessment guideline to avoid unnecessary and unsustainable environmental impacts.				
	The Endangered Wildlife Trust has closely examined the current proposed development envelopes for both the Wind Garden and Fronteer Wind Farms. Although they can be considered to be within lower sensitivity/collision risk areas (i.e. fall outside of the 18-50km high-risk zones around Cape Vulture colonies and roost sites, see appendix 1 below), GPS tracking data and observational data indicate that Cape Vultures do frequent the landscape in and around the proposed sites, particularly in the non-breeding season summer months. This, compounded by the fact that nearby operational wind farms (within 32km from the proposed sites) have indeed had several Cape Vulture collisions and fatalities over the last two years, indicates that the Wind Garden and Fronteer Wind Farms have a reasonable likelihood of killing additional vultures. It is the cumulative impact of wind farms that is of great concern, as additional threats added to the landscape have potential to drive declines in a slow breeding, long-lived and globally threatened species such as the Cape Vulture. We therefore recommend that all feasible measures to reduce the risk of collision are put in place. These include but are not limited to turbine curtailment when vultures or other large birds approach the wind farm, blade painting (if and			**X**	***Response provided by the Avifaunal Specialist*** We note that while a very low level of use of the wind farm site by Cape Vultures cannot be ruled out, the complete lack of records during the baseline surveys and the distance from regularly-used roost sites (greater than their usual range) both support the conclusion that this site is not important for this species, and that collision risk would be negligible. Notwithstanding this, the developer has committed to an avifaunal management programme (as set out in Section 11 and Appendix B of the AIA). Though this will focus on eagles (as they did occur in the survey area during the baseline surveys), the post-construction monitoring would pick up any vulture collisions if they did occur and inform any remedial action in the unlikely event it would be needed). In addition, as per the requirements of the DFFE, the Wind Garden Wind Farm has been assessed cumulatively against developments of similar nature within a 30km radius. The AIA area of consideration was expanded to 50km in order to ensure that all potential cumulative impacts were identified and assessed. This exceeds the DFFE's requirement.

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	when legislatively feasible) and other suggestions as detailed below.				
	The Endangered Wildlife Trust (EWT) would like to submit the following comments in respect of the abovementioned development: 1. The EWT supports the development of renewable energy supply as an alternative to generation of electricity through burning of fossil fuels.		-	-	The support for renewable energy is acknowledged and no additional response required.
	2. Renewable energy developments however, like any other development, may have serious impacts on species, habitat and society and as such need to be properly avoided, minimized and mitigated in accordance with the mitigation hierarchy. With avoidance being the first and most important step in the process.		**X**		As detailed in Chapter 3 of the BAR "*Following the confirmation of the Wind Garden Wind Farm preferred project site as being technically feasible for the development of a wind farm, the developer commenced with the environmental screening of the site, and assessed the main constraints and opportunities to determine whether or not there were any potential fatal flaws or significant no-go areas that might compromise or limit the development of the Wind Garden Wind Farm and the potential for generating 264MW. The screening exercise took place prior to the commencement of the BA process and included specialist investigations of a broader area which considered the development of 128 wind turbines within the eastern section of the cluster (Figure 3.2). This included field investigations by the specialist team appointed to undertake the BA studies, as well as desk-top consideration of environmental constraints. The purpose of this phase of the process was to identify sensitive and no go areas, as well as determination of appropriate buffers to be considered within the development of the project layout. The sensitivity spatial data compiled by the specialist team for this larger site was*

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					provided to the applicant prior to the lodging of the application for environmental authorisation. This is a common approach in the development of renewable energy projects in order to inform the placement of infrastructure for further investigation in the BA process. Through the integration of the specialist sensitivity data obtained, based on field-survey, the developer optimised the development footprint to consider areas and features of high environmental sensitivity through avoidance and reduction of wind farm infrastructure (Figure 3.3). Where avoidance was not possible, the developer provided details of technical mitigation planned to reduce the significance of the potential environmental impacts associated with the project. This has resulted in the consideration of a development footprint as part of the BA process which is designed to be environmentally appropriate as far as possible." Further, as stated in Chapter 12 of the BAR "*The development footprint was designed by the project developer in order to respond to and avoid the sensitive environmental and social features located within the development envelope. This approach ensured the application of the mitigation hierarchy (i.e. avoid, minimise, mitigate and offset) to the Wind Garden Wind Farm project, which ultimately ensures that the development is appropriate from an environmental perspective and is suitable for development within the development envelope (located within the project site)*." An optimised layout for the project was presented in the BAR (Chapter 12) and the following was concluded on the basis of the findings of the specialist studies undertaken "*With the*

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<tr><th>No.</th><th>Comment</th><th>Raised by</th><th>Previously Addressed</th><th>New Comment</th><th>Response</th></tr>
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implementation of the optimised layout, the development footprint is considered to be suitable and appropriate from an environmental perspective for the wind farm, as it ensures the avoidance, reduction and/or mitigation of all identified detrimental or adverse impacts on sensitive features as far as possible. The optimised layout is recommended as the preferred layout for implementation (Figure 12.2 and Figure 12.3)."

The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, as detailed in the table below (refer to Chapter 12 for a map showing the changes). First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly, the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE.

Table 1: Proposed changes to the layout
<table>
<tr><th>Technical Aspects to be Amended</th><th>Previous Report</th><th>Proposed Amendment</th></tr>
<tr><td>Total number of turbines</td><td>47 turbines</td><td>23 turbines</td></tr>
<tr><td>Technical specifications of individual turbines</td><td>Hub height of 120m, rotor diameter at 150m</td><td>Hub height of 115m, rotor diameter will remain at 150m</td></tr>
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					This reduced optimised layout overlain on environmental sensitivities identified through the EIA process is presented in **Figure 12.4** of the BAR. The reduced optimised layout as presented in Figure 3 was provided to the specialists responsible for undertaking the assessment of the impacts associated with the Wind Garden Wind Farm in order for them to assess the acceptability of this revised layout. Detailed specialist addendum reports are provided in **Appendix S** of the Revised Final BAR. From the specialist inputs provided regarding the reduced optimised layout, it can be concluded that the proposed reduced layout will not result in a change in the potential impacts identified. No impacts of higher significance are expected and a number of impacts are expected to reduce in impact significance, specifically those relating to ecology, aquatics, avifauna and socio-economic impacts. The proposed reduction in the number of turbines is ultimately not expected to significantly influence the anticipated visual impact, as stated in the original VIA report (i.e. the visual impact is expected to occur regardless of the amendment). This statement relates specifically to the assessment of the visual impact within a 5km radius of the wind turbine structures (potentially high significance), but also generally apply to potentially moderate to low visual impacts at distances of up to 20km from the structures. For Kwandwe specifically, the revision of the layout means that very few portions of their property falling within a 0-10km radius will be exposed whatsoever. It is only on high-lying land further than

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					10km from the closest turbine that will still have distant views of Wind Garden WEF. As a result, the optimised layout presented in **Figure 12.4** is recommended as the preferred layout for implementation.
	3. There is a strong need for developers in this sector to adhere to and initiate environmental best practices in the development and operation of large-scale renewable energy projects in South Africa's arid interior.		**X**		The comment is noted. As detailed above, the developer has undertaken a precautionary approach in the development of the wind farm.
	4. The EWT reserves the right to revise initial comments presented here if additional information becomes available.		-	-	The comment is noted. No response required.
	In evaluating the above application, we wish to highlight the following impacts and resultant recommendations: Cape Vulture Collision Risk: » Cape Vultures are known to frequent the landscape within the proposed wind farm envelopes, thus it is recommended that a carcass management system is implemented on site to remove food sources that will certainly attract birds to the site, even from extensive distances away. » We also highly recommend a shut down on demand system is implemented, either through on the ground observers, or automated systems, to shut down turbines when collision prone birds enter wind farms and are heading		**X**		***Response provided by the Avifaunal Specialist*** As set out in **Section 11.2 of the AIA** (Appendix E of the BAR), a precautionary approach to avian mitigation measures will be implemented for the wind farm, including measures to ensure that the food resource within the wind farm does not attract birds into the site, and the suggested shutdown on demand system if the number of collisions approaches a level that could be significant.

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	within rotor sweep zones. These species include, but are not limited to, Black Harriers, Cape Vultures, Martial Eagles, Verreaux's Eagles, Ludwig's Bustards, Secretary Birds. These species are known to occur within the region. This has been highly effective on Excelsior Wind Farm in the Western Cape.				
	Other Avifaunal Impacts: » For Verreaux's Eagles and Martial Eagles, space use is dependent on not only the distance from an individual eagle's nest site, but also the local density or distribution of conspecific nest sites, the topographic slope and the elevation. The Verreaux's Eagle Risk Assessment (VERA) tool has been developed to reduce Verreaux's Eagle collisions on wind farms (https://www.birdlife.org.za/wp-content/uploads/2020/03/BLSA-Guidelines-Verreauxs-Eagle-and-Wind.pdf). VERA predicts collision risk for Verreaux's eagles on a 90x90m grid square resolution and it is the best tool available for understanding the likely impacts of wind energy development pre-construction. In comparison to circular buffers, it has been used to correctly predict 11 of the 14 collisions which have occurred. Thus, we recommend that this tool is applied to the development site to determine turbine layout in a way which minimises risk to this species rather than any circular buffers. This demonstrates a 3 km		**X**		***Response provided by the Avifaunal Specialist*** A detailed spatial analysis of the Martial and Verreaux's Eagle range behaviour has been undertaken to inform the wind farm site design, and turbines removed in higher risk areas (see **AIA Appendix 2;** Appendix E of the BAR). The precautionary approach was adopted by the specialist and circular buffers applied as a more bespoke approach to determine buffers was previously proposed and not accepted by BirdLIfe. It must be noted that the buffers recommended by the specialist are based on on-site data collected and spatial flight analyses conducted, which is considered important in informing buffers, as no 2 wind farm sites are the same by virtue of the environment that they are situated within. The specialist supports models such as VERA, but has taken a more refined approach as VERA is limited in the way impacts are assessed and ranked. The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, primarily to consider all comments, issues and concerns

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	circular nest buffer to be inadequate and that a dynamic 5.2 km buffer is more realistically required to reduce fatalities. We also know that raptor space use around a nest site is not even or circular.				raised by I&APs through the numerous PP processes. Secondly, the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and to address outstanding issues as directed by the DFFE. In response to the comment by EWT regarding the preferred use of precautionary buffers, this layout was proposed. Irrespective of the fact that the Birdlife Guidelines clearly states that "*this is a precautionary buffer and may be reduced (or increased) based on the results of rigorous avifaunal surveys*", the Applicant optimised the layout to remove all turbines that were located within these precautionary buffers (i.e. within 3km from Verreaux's Eagle nests and within 5km of Martial Eagle nests). This optimisation also simultaneously addressed other outstanding I&AP concerns regarding avifauna. This resulted in a reduced number of turbines from the 47 originally proposed to 23. A reassessment of the collision risk associated with the project (Appendix S2 of the Revised Final BAR) concluded that **collision risk was reduced for all species**. Collision risk for Verreaux's Eagle is predicted to be 0.053 collisions per annum and that for Martial Eagle is predicted to be 0.002 per annum.
	» We strongly recommend a 5km buffer for Martial eagles based on the core habitat used by the species derived our tracking data of 19 Martial Eagles across the central and eastern Karoo.		**X**		***Response provided by the Avifaunal Specialist*** In relation to the design of the site buffers, the analysis used to inform the 2.5km distance for Martial Eagle, for example, is set out in Appendix 2 of the AIA (Appendix E of the BAR).

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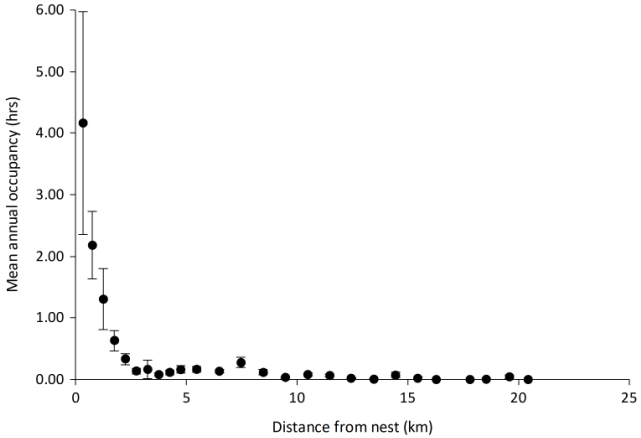
					Figure 1 from that appendix is reproduced here as it illustrates the evidence base for the use of that specific distance. The survey data showed a strong relationship between flight density and distance from the nest, but this relationship flattened out beyond 2.5km. The highest densities were recorded within 500m of nests and there was a steady decline in flight density with distance from the nest, but only up to a distance of 2.5km. Beyond 2.5km flight density was consistently lower. Any exclusion of turbines beyond 2.5km would be of much less benefit in reducing collision risk. A similar result was found for the Choje East Block, though there, higher flight activity was noted within 1.5km of the nest (though with a smaller amount of baseline data available a precautionary approach was adopted and a 2.5km applied in the East and as well as the West).

					Appendix 2. Figure 1. Martial Eagle flight density and distance from the nest, Choje West June 2019 - August 2020 (mean ± 95% confidence limits).  The combination of the field survey data and spatial modelling, with the collision risk assessment have shown that the impact risk for this species for the proposed site about would not be significant (which will be further ensured through the mitigation measures). In the absence of any published guidance on Martial Eagle (at the time of the surveys and at present, a detailed and phased programme of design mitigation was followed to inform a wind farm layout that optimised collision risk for this species by dropping all of the higher risk turbines as identified through extensive field surveys. The field data and spatial modelling showed that Martial Eagle flight density (and hence collision risk) was higher within 2.5km of an active nest but not beyond that distance, so that distance was applied as the first phase buffer (and a definite no-go buffer where all

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					turbines were dropped). A second phase design process was then applied, removing further turbines where flight activity was higher (mostly, though not exclusively within a 5km buffer). Given that Martial Eagle is a wide-ranging species, there will always be a small residual risk of collision even with this two-phased design mitigation. This is the reason why an adaptive management plan is recommended that will deliver a range of additional mitigation as required to ensure that significant impacts do not occur. As stated above, the approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015. As with all projects and themes, the use of tools and guidelines requires confirmation by a specialist verified by onsite data. This verification process was followed by the Avifaunal specialists and their knowledge and experience used to determine the best sustainable recommendations and mitigation measures for the development site. The comments made thus contradict the customary verification process and the need for long-term onsite monitoring. The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, primarily to consider all comments, issues and concerns raised by I&APs through the numerous PP processes. Secondly, the revised layout has been proposed in an attempt to further reduce some of the potential negative

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					impacts identified by the various specialist reports and to address outstanding issues as directed by the DFFE. In response to the comment by EWT regarding the preferred use of precautionary buffers, this reduced layout was proposed. Irrespective of the fact that the Birdlife Guidelines clearly states that "*this is a precautionary buffer and may be reduced (or increased) based on the results of rigorous avifaunal surveys*", the Applicant optimised the layout to remove all turbines that were located within these precautionary buffers (i.e. within 3km from Verreaux's Eagle nests and within 5km of Martial Eagle nests). This optimisation also simultaneously addressed other outstanding I&AP concerns regarding avifauna. This resulted in a reduced number of turbines from the 47 originally proposed to 23. A reassessment of the collision risk associated with the project (Appendix S2 of the Revised Final BAR) concluded that **collision risk was reduced for all species**. Collision risk for Verreaux's Eagle is predicted to be 0.053 collisions per annum and that for Martial Eagle is predicted to be 0.002 per annum.
	» The EWT will make the tool available to recalculate buffers and adjust design if required.			**X**	It is important to note that with environmental assessments the scientific tools need to be applied and the results evaluated/refined with ground truthing. Only then can a model / tool which was scientifically designed be considered as a confirmation that the environmental mitigation measures being proposed is achievable.
	» It is critical that no human disturbance occurs within these buffers near active breeding eagle			**X**	***Response provided by the Avifaunal Specialist***

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	nests in the peak breeding period between May and September, i.e. construction vehicles, labourers on foot, etc.				The need for a disturbance-free buffer in proximity to active eagle was recognised – mitigation to avoid disturbance to breeding eagles is set out in **Section 11.1 of the AIA** (Appendix E of the BAR) which includes the recommendation that "*Should priority species nests be discovered, a protective buffer must be applied, within which construction activities may need to be restricted during the breeding season for that identified species*." This requirement is also included in the project EMPr (Appendix N of the BAR).
	» Although the power line design will minimise bird electrocution incidents due to satisfactory phase clearances, collisions with shield wires or conductors are still likely to occur. With regards to the transmission lines fitting Bird Flight Diverters (BFD's) may mitigate collisions involving large raptors but it will not mitigate (at all) collisions by Ludwig's Bustard. Due to the fact that lines are likely to be handed over to Eskom they need to be constructed to specification as determined by Eskom and fitted with approved BDF's at the Eskom recommended intervals.		**X**		***Response provided by the Avifaunal Specialist*** Only 6 flights of the Ludwig's Bustard were observed over the Pre-construction monitoring phase. The bustard species were more frequent in the northern (more open, flatter) part of the site. No notable concentrations of flight activity of any of these species was noted in this area. The need for implementation of BFDs was however identified in the **AIA – section 11.5** (Appendix E of the BAR) sets put how this will be delivered – i.e. "*Attach appropriate marking devices (BFDs – bird friendly devices) on all new overhead power lines to increase visibility. The advice of a specialist should be sought regarding the type, placement and spacing of the BFDs to be used and the type of pylon structure to be used.*" The requirement to implement BFDs in line with the requirements of the specialist and Eskom's specifications is included in the project EMPr within both the design phase specifications and the construction phase specifications (Appendix N of the BAR).

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	» Lines need to be placed as far as possible in areas where linear infrastructure already exists.		X		The AIA (Appendix E of the BAR) includes the following recommendation as a mitigation measure for impacts associated with overhead lines "*Placement of electrical infrastructure should consider avifaunal sensitivity zones and avoid areas of higher sensitivities where possible - If some spans are to be above ground, where possible place new overhead power lines adjacent to existing power line or linear infrastructure (e.g. roads and fence lines)*." This requirement is also included in the project EMPr (Appendix N of the BAR).
	» Should new more effective BDFs come available the developer needs to be ready to procure and fit these. The EWT are in the process of expanding our current long term line marking experiment near De Aar where a further 4 BFD designs will be tested, specifically to reduce Ludwig`s Bustard collisions. If this development proceeds, we urge the developer to contact the EWT Wildlife and Energy programme directly and participate in this research. If an effective BFD is identified in the near future, this should immediately be applied to the line.			X	The AIA (Appendix E of the BAR) includes the following recommendation as a mitigation measure for impacts associated with overhead power lines "*Attach appropriate marking devices (BFDs – bird friendly devices) on all new overhead power lines to increase visibility. The advice of a specialist should be sought regarding the type, placement and spacing of the BFDs to be used and the type of pylon structure to be used.*" This requirement is also included in the project EMPr (Appendix N of the BAR). The BFDs to be used will be those available at the time of development. If new more effective BDFs come available, the developer will be ready to procure and fit these.
	» Lines need to be seasonally monitored for fatalities and these should be reported to the Eskom/EWT Strategic partnership		X		The AIA (Appendix E of the BAR) includes the following recommendation as a mitigation measure for impacts associated with overhead power lines: "*Develop and implement a carcass search programme for birds during the first two years of operation, in line with the South African*

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					monitoring guidelines (Jenkins et al. 2015). This program must include monitoring of overhead power lines."
	» While the turbine design has not yet been finalised, we recommend that minimum blade tip height be set as high as is possible (even more than the 25m recommended).		X		The Bat Impact Assessment (Appendix F of the BAR) includes the following mitigation measure: "*The height of the lower blade swept area must be maximised, and should not be lower than 36m.*" This is also included in the project EMPr and is higher than the 25m recommended height.
	<u>General recommendations</u> - We further recommend a comprehensive, long term avifaunal and terrestrial monitoring programme be implemented by an independent qualified service provider. Little is known on terrestrial impacts of large wind developments and as such this project, if approve, will provide an ideal opportunity to measure baselines and changes over time for terrestrial species.		X		***<u>Response provided by the Avifaunal Specialist</u>*** A comprehensive monitoring programme will be implemented – see **AIA Section 11.4** (Appendix E of the BAR) and project EMPr, which include the following recommendations: » *"Develop and implement a carcass search programme for birds as a minimum during the first three years of operation followed by year 5, 10, 15, 20 and 25, in line with the applicable South African monitoring guidelines.* » *Develop and implement a minimum 12-month post-construction bird activity monitoring program that mirrors the pre-construction monitoring surveys completed by Ecology Consulting/ECDC and is in line with the applicable South African post-construction monitoring guidelines. This program must include thorough and ongoing nest searches and nest monitoring. The results of this monitoring and the relevant specialist (including carcass searchers) should advise the need for any additional ongoing activity monitoring or nest surveys beyond the 12-month period.* » *Conduct frequent and regular review of the operation phase monitoring data (activity and carcass) and results*

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					by an avifaunal specialist. This review should also establish the requirement for continued monitoring studies (activity and carcass) throughout the operational and decommissioning phases of the development. » *The above reviews should strive to identify sensitive locations at the development including turbines and areas of increased collisions with power lines that may require additional mitigation. If unacceptable impacts are observed (in the opinion of the bird specialist after consultation with BLSA, relevant stakeholders and an independent review), the specialist should conduct a literature review specific to the impact (e.g. collision and/or electrocution) and provide updated and relevant mitigation options to be implemented.*"
	- Avifaunal impacts need to be closely monitored with seasonal line surveys and surveys in the vicinity of turbines.		**X**		As detailed above, a comprehensive monitoring programme will be implemented – see **AIA Section 11.4** (Appendix E of the BAR) and project EMPr.
	- The developments will constitute an additional pressure on biodiversity in the area. This runs against the purpose of the conservancies in the area that have taken many years of conservation investment to get off the ground. Therefore, the EWT would like to see a commitment to conservation from the developer. A variety of options are available and the developer is welcome to contact the EWT in the future to discuss some of these.		**X**		The developer is committed to community enrichment and upliftment through their SED/ED spending and has developed a conservation framework detailing the support planned for the conservation industry in the area (refer to Appendix R(4) of the BAR). In addition, a draft conservation framework which was developed as part of the SED/ED commitments of the developer, was circulated to EWT for comment and input in July 2021.
	- Significant adverse impacts can be expected during the construction phase including vehicular collisions with wildlife, collection and cutting of shrubs for firewood, potential snaring,		**X**		Detailed mitigation measures to address such impacts have been recommended within the BAR (Chapter 10) and included within the EMPr for the project (Chapter 7 of Appendix N(1))

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	pollution etc. and as such strict controls and protocols are required during this phase.				
	- We strongly advise the appointment of an independent consultant to monitor activities during the construction phase and to report issues and non-compliance to the authorities and developer.		**X**		The requirement for an independent Environmental Control Officer (ECO) to be appointed during construction, and for independent specialists to be appointed during construction and operation (where relevant) is included in the BAR (Chapter 10, 11 and 12) and the project EMPr (Appendix N). This is included as a recommendation for inclusion on the EA for the project within Section 12.6 of the BAR.
	- The type and placement of powerline infrastructure and potential impact of these are not sufficiently considered or mitigated for.		**X**		*The development footprint was designed by the project developer in order to respond to and avoid the sensitive environmental and social features located within the development envelope. This approach ensured the application of the mitigation hierarchy (i.e. avoid, minimise, mitigate and offset) to the Wind Garden Wind Farm project, which ultimately ensures that the development is appropriate from an environmental perspective and is suitable for development within the development envelope (located within the project site).*" An optimised layout for the project was presented in the BAR (Chapter 12) and the following was concluded on the basis of the findings of the specialist studies undertaken "*With the implementation of the optimised layout, the development footprint is considered to be suitable and appropriate from an environmental perspective for the wind farm, as it ensures the avoidance, reduction and/or mitigation of all identified detrimental or adverse impacts on sensitive features as far as possible. The optimised layout is recommended as the preferred layout for implementation (Figure 12.2 and Figure 12.3).*"

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					The placement of the power line (internal and 132kV power line to the grid connection point) has been illustrated on several maps within the BAR. Detailed mitigation measures to manage impacts on avifauna and other features such as vegetation, as a result of the power line are include in the respective Specialist Assessments and the project EMPr (Appendix N(1) and N(2)) of the BAR.
	- There is no evidence of the sufficiently robust implementation of the mitigation hierarchy in the process of site selection. Avoidance, which is the first and most important step, has not been duly considered and therefore none of the other steps are relevant for consideration.		**X**		As detailed in Chapter 3 of the BAR "*Following the confirmation of the Wind Garden Wind Farm preferred project site as being technically feasible for the development of a wind farm, the developer commenced with the environmental screening of the site, and assessed the main constraints and opportunities to determine whether or not there were any potential fatal flaws or significant no-go areas that might compromise or limit the development of the Wind Garden Wind Farm and the potential for generating 264MW. The screening exercise took place prior to the commencement of the BA process and included specialist investigations of a broader area which considered the development of 128 wind turbines within the eastern section of the cluster (Figure 3.2). This included field investigations by the specialist team appointed to undertake the BA studies, as well as desk-top consideration of environmental constraints. The purpose of this phase of the process was to identify sensitive and no go areas, as well as determination of appropriate buffers to be considered within the development of the project layout. The sensitivity spatial data compiled by the specialist team for this larger site was provided to the applicant prior to the lodging of the application for environmental authorisation. This is a*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					common approach in the development of renewable energy projects in order to inform the placement of infrastructure for further investigation in the BA process. Through the integration of the specialist sensitivity data obtained, based on field-survey, the developer optimised the development footprint to consider areas and features of high environmental sensitivity through avoidance and reduction of wind farm infrastructure (Figure 3.3). Where avoidance was not possible, the developer provided details of technical mitigation planned to reduce the significance of the potential environmental impacts associated with the project. This has resulted in the consideration of a development footprint as part of the BA process which is designed to be environmentally appropriate as far as possible." Further, as stated in Chapter 12 of the BAR "*The development footprint was designed by the project developer in order to respond to and avoid the sensitive environmental and social features located within the development envelope. This approach ensured the application of the mitigation hierarchy (i.e. avoid, minimise, mitigate and offset) to the Wind Garden Wind Farm project, which ultimately ensures that the development is appropriate from an environmental perspective and is suitable for development within the development envelope (located within the project site)*." An optimised layout for the project was presented in the BAR (Chapter 12) and the following was concluded on the basis of the findings of the specialist studies undertaken "*With the implementation of the optimised layout, the development footprint is considered to be suitable and appropriate from*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					an environmental perspective for the wind farm, as it ensures the avoidance, reduction and/or mitigation of all identified detrimental or adverse impacts on sensitive features as far as possible. The optimised layout is recommended as the preferred layout for implementation (Figure 12.2 and Figure 12.3)."
	In summary, based on the information provided, we are, in principle, not opposed to the placement of the wind farm as proposed, contingent on the implementation of the mitigation recommendations detailed above.		**X**		Comment noted. As detailed in the responses above, mitigation measures as well as ongoing monitoring have been recommended to minimise and manage impacts on avifauna and other environmental features.
	The EWT appreciates the opportunity provided by the developer to comment and we look forward to participate in this process of informing the responsible placement of turbines or alternatively avoidance if no environmentally responsible options are available. We would value the opportunity to provide our detailed landscape planning data and to assist through negotiation to inform decision making. We further request that the relevant competent authority and Department of Forestry, Fisheries and the Environment (DFFE) need to take these concerns into consideration, including the associated powerlines and other infrastructures that will be required as a result of the proposed wind energy development.		-	-	The EWT has been part of the consultation process throughout the Basic Assessment process. All comments received have been included within the final report submitted to the DFFE for review and decision-making.
2.	Below find listed comments that were not adequately addressed by the EAP. I request that these comments be responded to in a meaningful manner.	Chris Pike Director: Lukhanyo Reserve	**X**		Consultation with I&APs (including occupiers) was undertaken in accordance with the approved Public Participation Plan for the project. In addition to the approved means of consultation, the following additional mechanisms were used:

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Comment ref: App C9: Email 21 July 21 23h39 Questions with regards how the EAP only spoke with occupiers on the day before the final BAR submission. Response: #The response given skirts the question at hand, and the fact that the EAP suggests that handing out a brochure of information including a picture of a wind turbine construction was enough to include an entire community adequately in the PP process is derogatory.	E-mail: 10 February 2022 @ 15h19			» Face-to-face consultation meetings were held in March 2021 in Makhanda at the request for registered parties. Four (4) meetings were held across 2 days to provide sufficient opportunity for I&APs to attend while still ensuring compliance with the COVID-19 Regulations (specifically the requirement relating to 50% capacity not being exceeded at the venue in Makhanda). All registered parties were invited to these meetings and were requested to register their attendance. They were also requested to extend the invitation to any other person that they believe should attend the meetings, and request that they also register their attendance. Where I&APs are unable to attend in person, provision was made for them to attend virtually via MS Teams. » A Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc, as well as a summary of the findings of the BAR in isiXhosa was distributed on 29 April 2021 to community members on the project database, including to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the BA Report). » Savannah Environmental arranged information sessions with landowners who welcomed the social facilitator on their farm. The social facilitator then presented the SIA findings in the local language and engaged on the

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					socio-economic impacts and mitigation measures of the project. The approach taken is in line with the Guideline for Public Participation published by the Department of Environmental Affairs in 2017, which allows for announcing the PPP on a local radio station, and specific approaches to existing community structures, committees and leaders. A response to the comment regarding consultation with occupiers was provided in the C&RR included as **Appendix C9** of the final BAR in numerous instances, including *inter alia* the following: <u>Page 15:</u> *At the public participation process meetings held during March 2021, attendees were requested to inform Savannah Environmental how they would prefer their workers and/or occupiers to be contacted to present the project to them. Savannah Environmental had not received any guidance or protocol in this regard since that date.* *A consultation process of contacting the affected and adjacent landowners to obtain the best way to contact their workers and/or occupiers on their properties to present and discuss the proposed project and respond to concerns raised by workers / occupiers, whether it would be via whatsapp video call or the method of communication as suggested by landowners was undertaken (refer to Appendix C6 of the final BA Report).*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					An e-mail to all landowners / occupiers and/or occupants and community members on the project database was sent in April 2021 to which the summary of the BID and a summary of the BA Report, translated into Xhosa, was attached to the e-mail correspondence. Recipients of this e-mail correspondence was requested to share the information with the occupiers. *In subsequent follow up discussions with landowners, only one landowner agreed to send a contact number of a representative of the occupiers on their properties. The remainder required the EIA team to work through them directly.* *Face-to-face meetings have been conducted with occupiers with whom not only a date and time could be secured but also access to the properties of the occupiers through the landowner.* <u>Page 33:</u> *Savannah Environmental from inception of the project engaged with landowners to ensure that land occupiers were informed. Consultation has also been ongoing with the relevant Ward Councillor to ensure that the relevant information is available to community members and land occupiers in the area. A summary of the BID was translated into isiXhosa and distributed on 29 April 2021 to community members on the project database but also to the Ward Councillor and her Ward Committee Members (refer to Appendix C6 of the final BA Report). Further, a Community Brochure/Question & Answer document which provided*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc was distributed on 29 April 2021 to community members on the project database, include to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the final BA Report). *During consultations undertaken since March 2021, Savannah Environmental requested that landowners please provide a way in which land occupiers could be informed. No information was received, on how consultations can be undertaken.* *In subsequent follow up discussions with landowners, only one landowner agreed to send a contact numbers of a representative of the occupiers on their properties. The remainder required the EIA team to work through them directly.* *As part of the environmental legal process, consultations should be undertaken as far as possible. Savannah Environmental complies with legal process and did make contact to get clarification on how and when consultations could take place. At no point is this a tick-box exercise, but rather we explore all methods to ensure consultation is undertaken as per the legal requirements.* <u>Page 35:</u>

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Savannah Environmental from inception of the project engaged with landowners to ensure that land occupiers were informed. Consultation has also been ongoing with the relevant Ward Councillor (Ward 1) to ensure that the relevant information is available to community members and land occupiers in the area. A summary of the BID was translated into isiXhosa and distributed on 29 April 2021 to community members on the project database but also to the Ward Councillor and her Ward Committee Members (refer to Appendix C6 of the final BA Report). Further, a Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc was distributed on 29 April 2021 to community members on the project database, include to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the final BA Report). *The project was also announced on the local community radio station, Grahamstown 102 FM at various stages of the project including announcing the availability of the BA Reports and Revised BA Reports for review and comment. Since the first announcement in March 2021 no community members have contacted the public participation office requesting to be registered, information regarding the proposed projects or a meeting to present the projects to them.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					During consultations undertaken since March 2021, Savannah Environmental requested that landowners please provide a way in which land occupiers could be informed. No information was received, on how consultations can be undertaken. *An objection letter signed by 25 occupiers on properties affected and/or adjacent to the proposed developments was received as part of the comments on the BA Report, indicating that they are informed regarding the proposed projects. In addition, an affidavit was received from occupiers of one of the affected properties confirming that they are aware of the projects and that their questions had been noted and addressed by the landowner. They also confirmed receipt of the Xhosa summary and community Q&A document distributed by the PP team.* *In subsequent follow up discussions with landowners, only one landowner agreed to send a contact numbers of a representative of the occupiers on their properties. The remainder required the EIA team to work through them directly.* *As part of the environmental legal process, consultations should be undertaken as far as possible. Savannah Environmental complies with legal process and did make contact to get clarification on how and when consultations could take place. At no point is this a tick-box exercise, but rather we explore all methods to ensure consultation is undertaken as per the legal requirements.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	#The EAP's response that the landowners were to engage with the occupiers on their behalf is not understood, as this is the EAP's responsibility. The EAP then contradicts this statement by saying that only one landowner gave them a number of an occupier and the rest needed to work through the landowners. Please also explain what you are insinuating this statement. This response is also seems untrue in stating that the landowners were asked for occupiers details? Please could you forward me this email of request?		**X**		A response was provided in the C&RR included as **Appendix C9** of the final BAR. <u>Page 33:</u> *Savannah Environmental from inception of the project engaged with landowners to ensure that land occupiers were informed. Consultation has also been ongoing with the relevant Ward Councillor to ensure that the relevant information is available to community members and land occupiers in the area. A summary of the BID was translated into isiXhosa and distributed on 29 April 2021 to community members on the project database but also to the Ward Councillor and her Ward Committee Members (refer to Appendix C6 of the final BA Report). Further, a Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc was distributed on 29 April 2021 to community members on the project database, include to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the final BA Report).* *During consultations undertaken since March 2021, Savannah Environmental requested that landowners please provide a way in which land occupiers could be informed. No information was received, on how consultations can be undertaken.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					In subsequent follow up discussions with landowners, only one landowner agreed to send a contact numbers of a representative of the occupiers on their properties. The remainder required the EIA team to work through them directly. *As part of the environmental legal process, consultations should be undertaken as far as possible. Savannah Environmental complies with legal process and did make contact to get clarification on how and when consultations could take place. At no point is this a tick-box exercise, but rather we explore all methods to ensure consultation is undertaken as per the legal requirements.* **Additional response:** Savannah Environmental did not at any time request that landowners must, on behalf of the EAP, engage with the occupiers. As per the response detailed above, it was noted that it is also the landowner's responsibility to inform their workers and/or occupiers of proposed developments either on their property or within the area. This was done by some landowners as detailed on Page 272 of the CRR. There are no insinuations. As per the response provided on **page 16** of the **C&RR**, only one landowner provided Savannah Environmental with the contact details of a representative of occupiers on their property and that the remainder of landowners requested that Savannah Environmental arrange the consultation with their workers / occupiers through them.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					The request for information on mechanisms to engage with occupiers was raised at the face-to-face consultation meeting held in Makhanda on 26 March 2021 (refer to Appendix C8 of the BAR for notes of the meeting). No response was received from the landowners at the meeting or subsequently.
	#The EAP states that they made the SIA available in Mid July to occupiers and that a social facilitator presented the findings to the occupiers. This statement is untrue. The meeting with the Occupiers on Lukhanyo took place for a total of less than 15min (Which included taking role call and questions). Please can the EAP explain how they deem this 15min adequate to explain the complete findings of the SIA?		**X**		A response was provided in the C&RR included as **Appendix C9** of the final BAR. <u>Page 35:</u> *Savannah Environmental has made the SIA available to land occupiers with whom consultations were agreed for mid-July 2021. Savannah Environmental arranged information sessions with landowners who welcomed the social facilitator on the farm. The social facilitator then presented the SIA findings in the local language and engaged on the socio-economic impacts and mitigation measures of the project. These consultations have catered for those illiterate members in the community and has ensured that they are adequately informed. Records of these consultation sessions are included in Appendix C6 of the final BAR.* **<u>Additional response</u>:** The qualified facilitator took into consideration the level of understanding of the participants and engaged with them in the manner acceptable to them. She also ensured that there is an understanding as to what was presented and provided them the opportunity to engage.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	#Also, I would like to know as to why to date their has been no answers to the questions raised by these occupiers. This taking into account that the social facilitator was not able to answer the simplest of questions on the day and stated that they were just hired to communicate the given information to the persons.		**X**		Responses to the comments received at the meetings held with occupiers/workers are included in Appendix C8 and have been distributed to the attendees, where access to these was provided by the landowner.
	Comment ref: App C9: email 14 July 21: 4.3 Request was made as to why the Avifaunal Specialist was not using the most up to date modeling for Eagle buffers. <u>Response</u>: #The response given is nonsensical as it states that the updated modeling came out post date of their report so it was not used but then goes on to extract information out of this new information to answer my response.		**X**		The response provided in the C&RR included as **Appendix C9** of the final BAR was as follows (page 19): *"The avifaunal specialist has indicated that its paper post-dates most of the analytical work that was carried out for the assessment. The approach that it takes is very similar to that which adopted by the specialist (though they have used local survey data rather than data on tagged individuals). Both studies model eagle flight activity spatially on the basis of environmental conditions such as topography and distance from the nest. The site-based spatial modelling used by the avifaunal specialist has been used to inform the site design, based on data from the wind farm site itself. BLSA notes that the paper "suggests that a precautionary buffer of 5.2km would be more appropriate". However, as set out in the Murgatroyd et al. paper, even that enlarged distance of 5.2km only captured 50% of reported collisions. As the paper concludes:* "Our collision risk potential (CRP) model included the variables distance to nest, distance to conspecific nest, slope, distance to slope and elevation. Using our model, rather than a circular buffer, resulted in c. 4%–5% improvement in eagle protection while excluding

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					development from the same amount (but not shape) of area. For an equal level of eagle protection, our model can make c. 20%–21% more area available for wind energy development compared to a circular buffer." *If the Verreaux's Eagle Risk Assessment Model can be made available, the specialist could use it to help inform the assessment for this species. Unfortunately, the paper as published describing that model does not include sufficient detail to be able to replicate it without further information on the model parameters.* *What is clear, however, is that even adopting very wide buffers, the collision risk to eagles is not removed and that a residual collision risk will remain. That will remain the case however much modelling and analysis is carried out, as both Murgatroyd et al's work and the specialist's local studies have shown that these birds range widely from their nests. Avoiding the close proximity to nests can reduce the risk, but not remove it altogether."*
	#The response then mentions that they could not use the model as there was not enough information in the published report to replicate it and that if it was made available it could be used. Was any attempt made to contact the publisher for this?		**X**		The model is not available for specialists to make use of. Only the publisher of the model has access to the detailed model methodology. As stated in the previous response provided, the approach that this model takes is very similar to that which adopted by the specialist (though they have used local survey data rather than data on tagged individuals).
	Comment ref: App C9: email 14 July 21: 4.4 Lukhanyo as a neighbouring property was not approached for any Avifaunal studies. A main concern was the amount of large cliff areas and		**X**		As detailed in the AIA (Appendix E of the BAR), The design of the bird study drew primarily on BirdLife South Africa (BLSA) guidance, including general guidance on surveys methods and assessment (Jenkins et al. 2015), as well as being informed by international best practice (SNH 2017). The study

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	several valleys feeding down into the Windgarden WEF site. Response: #Response given that states that "a huge amount of effort" of 3000 hours were undertaken to put together this report is not addressing my concern in any way! The amount of hours is irrelevant if the observations did not cover the area correctly. This did not answer my concern as to the large gap in coverage on a direct neighbouring property.				area was defined to include areas outside the potential impact zone of the wind farm, in order to provide a reference area for post-construction monitoring (to compare priority species' numbers, distribution and flight activity in that area with that in the wind farm site) and enable a Before-After-Control Impact analysis to be carried out. The survey area was defined to cover the maximum extent of the possible wind turbine envelope (plus relevant buffers as appropriate) and other associated development such as grid connection cables. As stated previously in the CRR (as referred to in the comment - see page 20 of the C&RR), *the avifaunal specialist indicated that there has been a huge amount of survey effort to inform the assessment, with over 3 000 hours of vantage point survey across the proposed cluster of wind farms.* *With any assessment there will always be some uncertainties, which is why the assessment here has been conducted on a precautionary basis (and why it has been proposed that a specific Ornithological Mitigation Plan should be developed and implemented for all of the Choje wind farms)*.
	#The response states that the specialist was highly confident that the field observation team did locate all relevant nests in areas that they had access to but then states that he is confident that they did the same where they did not have access to. This answer once again is nonsensical and dodges the fact that the observation team did not attempt		**X**		In the response provided (CRR page 21), the specialist indicates "*even where access could not be obtained active territories were confirmed and nesting areas identified*." This indicates a reliance on breeding territories and not specific nest sites where access to a property was not possible.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	to access approx 1300ha directly adjacent to the WEF site.				
	#I would like to know why! Even after I offered access to Lukhanyo so they could ensure that the 2 cliff systems of 3.04km (South and North Facing cliffs) and 3.16km long respectively had no birds of interest? There is no way observation from the R400 can cover these cliff areas that are 2.3km (The north facing slope is behind the hill) and 2.7km away.		X		A total of 17 VPs were used for the Wind Garden and Fronteer project sites, six of which covered the Wind Garden Wind Farm site. The location of the vantage points and the computer-generated prediction of viewsheds from those VPs (showing the areas visible at 40m above the ground, the lowest point that the rotor sweep of the proposed turbines would reach, from each VP) are shown in Figure 3 of the AIA (Appendix E of the BAR) in relation to the current proposed layouts for the Wind Garden Wind Farm and for the Fronteer Wind Farm proposal. This covers 84% of the proposed Eastern Block turbines (in line with the minimum BLSA-recommended 75% coverage). For the Wind Garden Wind Farm on its own (which is adjacent to Lukhanyo), coverage of the full risk volume was achieved for 40 of the 47 wind turbine locations (85%). Any flight activity from the cliffs within Lukhanyo would have been recorded from the vantage point (VP) monitoring undertaken on the site. Breeding raptor surveys were carried out in June 2019 and August 2020, checking all known and other possible raptor nest sites within a 5km buffer of the wind farm site. These include mini-VP surveys (VP-type watches but for shorter time periods) and walkover surveys, focussing on likely habitat/nesting sites (which have been initially identified from the site visit and from inspection of aerial photographs of the area). Repeat visits were made to monitor range occupancy and breeding success. The following visit protocol for each range was implemented through the breeding period: visit 1

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					to check for occupancy of the range, visit 2 to locate active nests, visit 3 to check for young, and visit 4 to check for fledged young. This includes surveys for all key raptors that could use the survey area, but with particular focus on Verreaux's and Martial Eagle. A first visit during March 2019 to inform the scoping process was followed up with at least three further visits through the year, focusing on key species' breeding periods.
	#I would like to know how this obvious gap in data can just be brushed aside by the EAP on behalf of the specialist?		**X**		The specialist consultants appointed for the project are independent from Savannah Environmental. The specialists conducted detailed assessments of the projects and have the responsibility to provide an assessment of the significance of identified impacts, both with and without mitigation. The specialists were required to undertake their assessments in accordance with the relevant guidelines and determine the acceptability of the project based on the significance of the impacts. In this regard, details of assumptions and limitations are to be included in the specialist reports. The AIA included in Appendix E of the BAR includes such assumptions and limitations in Section 5, and states "*It is considered that the extensive nature of the data collection from a large number of VPs, in combination with spatial modelling of these data, has provided a robust baseline for the assessment*."
	Comment ref: App C9: email 14 July 21: 4.5.C I pointed out that there was no response to my question on how Red billed Oxpeckers were influenced by windfarms. <u>Response</u>: #There was no response given?		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 21:</u> *The avifauna specialists have confirmed that they have not recorded oxpeckers in the monthly Walking Transects. It is presumed that these birds avoid the domestic stock (cattle,*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					etc.) because they walk around with dips/chemicals on their backs, therefore rather forage on wild antelope. The numbers quoted are Incidental observations.
	#The only response given was to above points A and B that questioned observation numbers - however this response also does not answer the questions either. The response is an irrelevant statement that they were not seen on walking transects and a reference to a presumption of domestic vs wild game?		**X**		According to the AIA (Appendix E of the BAR), "*The Wind Garden wind farm falls in the Cookhouse REDZ, assessed within the Strategic Environmental Assessment (SEA) report of the Department of Environmental Affairs (2015). It forms one of two wind farms that make up the Eastern block of the Choje cluster of renewable energy developments. This report list 283 bird species while nine Priority species were recorded during the Pre-construction bird monitoring study. These include Blue Crane, Ludwig's Bustard, Denham's Bustard, Southern Black Korhaan, Secretarybird, Verreaux's Eagle, Martial Eagle, Black Harrier and Lanner Falcon.*" The oxpecker is not identified as a priority species which is expected to be impacted by a wind farm development. The International Union for the Conservation of Nature (IUCN) rates oxpecker birds as "least concern" on the extinction scale. According to the Kwandwe website (http://www.kwandwe.com/the-resurgence-of-red-billed-oxpeckers/) "*Red-billed Oxpeckers had become locally extinct in the Eastern Cape…*" "*Their demise was ultimately caused by two main factors, the first of which was the dwindling number of their preferred hosts: buffalo and rhino. This resulted in a loss of the Oxpeckers' prey – ticks – which in turn led to the birds using domestic livestock as host species. This, however, had disastrous consequences for as early as*
	#Please can the EAP answer my actual questions				

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					1890, the livestock dips in use contained arsenic trioxide, a fatal chemical, and the local population of oxpeckers was erased entirely." In terms of impacts of wind farms on this species, the study "Wind energy's impacts on birds in South Africa: A preliminary review of the results of operational monitoring at the first wind farms of the Renewable Energy Independent Power Producer Procurement Programme Wind Farms in South Africa" compiled by BirdLife in 2017 did not identify any impacts on this species. Oxpeckers can be found over a vast range, but due to their dependence on large ungulates (both wild and domestic), their distribution appears to be patchy and in close association with the ungulate host counterparts. A symbiotic relationship exists between Oxpeckers and ungulates where birds obtain their main food source, ticks, from the ungulates and in turn their feeding behaviour reduces the ectoparasite loads on host species and also minimises the risk of ungulates contracting vector borne diseases. They either catch insects flying around their hosts, pluck or peck at parasites from their hosts (Botes.2019)[1]. Given their habits and foraging behaviour, they are unlikely to fly at heights which coincide with the rotor swept area.
	Comment ref: App C9: Email 21 July 21 13h09		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR.

[1] Botes, M (2019). Foraging behaviour and health status of Red-billed Oxpeckers (Buphagus erythrorhynchus) in the Kruger National Park, South Africa. A dissertation submitted in fulfilment of the requirements in respect of the degree Masters of the Science in the Department of Zoology and Entomology Faculty of Natural and Agricultural Sciences at the University of the Free State. Supervisor: Dr Mduduzi Ndlovu; Co-supervisor: Dr Antón Pérez-Rodríguez. January 2019

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Comments with regards questioning optimized turbine placements not being in accordance with your statement that they are being placed according to ecological and specialist studies. Response: #I perceive the response given as completely untrue! And has not answered my questions. The response states that the CLA buffers have been added to the final optimised layout on figure 12.2. However I only see farmstead buffers?? The CLA report shows on Figure 2 that the buffers indicate an allowance after mitigation of only 7 turbines! The EAPs response is therefore fictitious.				Page 23: *As shown on Figure 12.2 of the final BA Report, all no-go buffers recommended by specialists have been avoided. It is correct that turbines are still reflected within cautionary buffers, but as stated in the report, additional mitigation for these is required in order for them to be considered acceptable. This was detailed in the presentation provided at the meetings held.* *With regards to the CLA buffers recommended, the heritage specialist consolidated this study into the overall Heritage Impact Assessment, and included additional mitigations required to manage impacts in this regard. The updated buffers recommended within the HIA have been included within the overall sensitivity map for the project."*
	#Please can you respond to my questions in the email of 21 July 2021.		**X**		The questions were responded to in the C&RR, included as **Appendix C9** of the final BA Report. Refer to Page 25 of the CRR.
	Comment ref: App C9: Email 21 July 21 13h55 Question on why the incorrect impact numbers have been published in the final BAR. Response: #The Response by the EAP has misconstrued my actual concern and not in any way answered why they publish an impact significant rating that is fictitious as they are not going to be implementing the proposed mitigation.		**X**		The response referred to was provided in the C&RR included as Appendix C9 of the final BAR. Page 25: *The impact ratings presented within the BA Report reflect those included in the HIA. The mitigation recommended for impacts on the cultural landscape include mitigations relating to ecological, aesthetic, historic and socio-economic impacts. The impact rating post-mitigation assumed the implementation of these recommended measures.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					In terms of the avifauna impact ratings, the post-mitigation rating reflects the expected extent, duration, magnitude and probability of the impact occurring following the implementation of the recommended mitigation measures. In terms of the reference to the black blade, the following is stated: » *All turbines located within the cautionary buffers must have a single blade painted black during construction. Given this is a novel mitigation, which has been proven to be effective internationally, a post-construction monitoring scheme should be implemented to determine its effectiveness.* *By implication, if this mitigation (or similar mitigation to increase the visibility of the blade) is not implemented, turbines would not be permitted to be located within this area. This has been made clear in the final report through the addition of the following "Where this mitigation is not feasible, turbines must be removed from the cautionary buffer."* **Further response:** As indicated in the meeting of 07 July 2021 (refer to Appendix C8 of the BAR), if the black blade mitigation recommended to minimise impacts on avifauna is not a technically feasible mitigation, then those turbines located in the cautionary buffer area must be removed from the layout. This was in response to a question raised by Chris Pike at this meeting. Turbines within the precautionary buffer have been removed

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					in the reduced optimised layout as presented in the Revised Final BAR.
	#Response on the Avifaunal point on black blade is acceptable but on the CLA/Heritage is not.		X		It is the assumption of the specialist and the EAP when providing conclusions on the project that the mitigation measures recommended will be implemented as this is what has informed the assessment. An overall recommendation of the assessment is that all mitigation measures recommended by the specialists are to be implemented. The EAP has recommended that this be included in the Environmental Authorisation, should one be issued for the project. This is states in Section 12.6 of the BAR.
	Comment ref: App C9: Email 21 July 21 14h34 VIA - comments requesting why Lukhanyo(Neighbour) as one of the most visually impacted receptors were not consulted. <u>Response</u>: #The response that one montage done from Clifton Farm (where only the tops of the turbines are visible) does not answer my concerns of the visual impact on my property. The EAP has not answered in a manner which is meaningful.		X		A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 26:</u> *As discussed in the public participation process meeting held on 08 July 2021, the visual impact assessment included a list of 74 sensitive receptors, including the list of objecting landowners, of which Chris Pike is included as one. The purpose of the photos montages is just to give a snapshot of what the wind farm would look like from varying distances once it had been constructed. It is not intended to show the wind farm from every angle. There are views presented from as close as 400m from the site, and a viewpoint from Clifton Farm, an adjacent property. These are shown in Figures 7.1 – 7.3 and 7.10 – 7.12 of the VIA.* **<u>Further response:</u>** The VIA (Appendix K of the BAR) includes a map showing objecting landowners in proximity to the proposed wind
	#The concerns have indeed been raised in several PP meetings where the EAP was informed that there are vast gaps in the VIA. The EAP or their specialist has never made any attempt to rectify this. #Please can you answer my concerns		X		

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					energy facility (Map 9). Chris Pike (and Lukhanyo) are reflected on this map and the visual impact is shown as being high. With the implementation of the optimised layout as presented in the Revised Final BAR (Section 12.3), the overall encroachment of wind turbine structures to the north is expected to dissipate somewhat, due to the increased distance in between the receptor sites and the turbines. This may apply, to some degree to the Clifton homestead, located within a 5km radius of the proposed turbines. The closest wind turbine to the Clifton homestead was 2.2km (original layout) and is 3.5km with the optimised layout.
	#On point 3: By cutting and pasting a section of the VIA you have not answered my questions. The reason i asked a question is that I do not understand how the index can only show a difference of 4 points between visual impacts between 0 and 20KM away? As well as the stand alone vs cumulative impacts being the equal. Please can you explain this to me		**X**		As detailed in Chapter 7 of the BAR, a standard assessment methodology was used by the specialist consultants. Significance of impacts is determined through consideration of all aspects as required in terms of the EIA Regulations (i.e. extent, duration, magnitude and probability). This is as detailed below: *Specialist studies considered direct and indirect environmental impacts associated with the development of all components of the Wind Garden Wind Farm. Issues were assessed in terms of the following criteria:* » *The **nature**, a description of what causes the effect, what will be affected, and how it will be affected;* » *The **extent**, wherein it is indicated whether the impact will be local (limited to the immediate area or site of development), regional, national or international. A score of between 1 and 5 is assigned as appropriate (with a score of 1 being low and a score of 5 being high);* » *The **duration**, wherein it is indicated whether:*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					∗ *The lifetime of the impact will be of a very short duration (0–1 years) – assigned a score of 1;* ∗ *The lifetime of the impact will be of a short duration (2-5 years) - assigned a score of 2;* ∗ *Medium-term (5–15 years) – assigned a score of 3;* ∗ *Long term (> 15 years) - assigned a score of 4;* ∗ *Permanent - assigned a score of 5.* » *The **magnitude**, quantified on a scale from 0-10, where a score is assigned:* ∗ *0 is small and will have no effect on the environment;* ∗ *2 is minor and will not result in an impact on processes;* ∗ *4 is low and will cause a slight impact on processes;* ∗ *6 is moderate and will result in processes continuing but in a modified way;* ∗ *8 is high (processes are altered to the extent that they temporarily cease);* ∗ *10 is very high and results in complete destruction of patterns and permanent cessation of processes.* » *The **probability of occurrence**, which describes the likelihood of the impact actually occurring. Probability is estimated on a scale, and a score assigned:* ∗ *Assigned a score of 1–5, where 1 is very improbable (probably will not happen);* ∗ *Assigned a score of 2 is improbable (some possibility, but low likelihood);* ∗ *Assigned a score of 3 is probable (distinct possibility);* ∗ *Assigned a score of 4 is highly probable (most likely);*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					∗ *Assigned a score of 5 is definite (impact will occur regardless of any prevention measures).* » *The **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;* » *The **status**, which is described as either positive, negative or neutral;* » *The degree to which the impact can be reversed;* » *The degree to which the impact may cause irreplaceable loss of resources;* » *The degree to which the impact can be mitigated.* *The **significance** is determined by combining the criteria in the following formula:* *S = (E+D+M) P; where* *S = Significance weighting.* *E = Extent.* *D = Duration.* *M = Magnitude.* *P = Probability.* *The **significance weightings** for each potential impact are as follows:* » ***< 30 points:** Low (i.e. where this impact would not have a direct influence on the decision to develop in the area);* » ***30-60 points:** Medium (i.e. where the impact could influence the decision to develop in the area unless it is effectively mitigated);*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					» ***> 60 points:*** *High (i.e. where the impact must have an influence on the decision process to develop in the area).* *Specialist studies also considered cumulative impacts associated with similar developments within a 30km radius of the proposed project. The purpose of the cumulative assessment is to test if such impacts are relevant to the proposed project in the proposed location (i.e. whether the addition of the proposed project in the area will increase the impact). In this regard, specialist studies considered whether the construction of the proposed development will result in:* » *Unacceptable risk* » *Unacceptable loss* » *Complete or whole-scale changes to the environment or sense of place* » *Unacceptable increase in impact* *A conclusion regarding whether the proposed development will result in any unacceptable loss or impact considering all the projects proposed in the area is included in the respective specialist reports.* In terms of cumulative visual impact, the report clearly details the other wind farms considered in the assessment. A cumulative viewshed analysis is presented in Map 5. The significance rating remains one of high significance with rating value being informed by the extent, duration, magnitude and probability.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Comment ref: App C9: Email 21 July 21 15h37 Comments made on the CLA and Heritage report with regards the EAP making a decision not to agree with the findings of the Specialist, stating that the Socio-economic benefits outway the need to conserve the cultural resources at all costs. Responses: #The EAP denises that they have done this as a response		**X**		The overall conclusion on the heritage impacts, including consideration of impacts on archaeology, heritage resources (buildings older than 60 years), cultural resources (such as graves), palaeontology and cultural landscape were provided by the heritage specialist and not the EAP. A response to the question regarding incorporation of the CLA into the overall HIA was provided in the C&RR included as Appendix C9 of the final BAR. Page 29: *The findings of the Cultural Landscape Assessment were incorporated into the overall HIA for the project, in the same way as those from the palaeontological impact assessment have been. The results from the revised HIA were included within the Revised BAR.* *The ratings provided by the CLA specialist were considered by the heritage specialist and, as per the provisions of the National Heritage Resources Act, were considered together with the socio-economic contribution of the project in determining the overall impact significance.* *The EIA process is required to consider environmental, economic and technical aspects of the project, as the project is required to be considered from a sustainable development perspective.* *All information regarding positive and negative impacts identified and assessed in the EIA process have been*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					presented within the report for consideration by the DFFE. The conclusion of the study are presented in Chapter 12, and states that "the benefits of the project are expected to partially offset the localised environmental costs of the wind farm". There is no statement that the negative impacts can be overlooked due to the positive impacts stated in the socio-economic report. *The report states that the project is intended to provide electricity to private off takers. The intended parties are industrial users but the details in this regard are yet to be confirmed. The off takers as mentioned at the public participation process meetings held in March 2021 made reference to industrial users such as possible mining. Details of the off-takers are not available at this stage, and is considered confidential as the developer is still undertaking negotiations in this regard.* *The post-mitigation rating reflects the expected extent, duration, magnitude and probability of the impact occurring following the implementation of the recommended mitigation measures. The conclusion of the report is that the project will not result in unacceptable environmental impacts (subject to the implementation of the recommended mitigation measures). In addition, the report recommends the following key conditions which would be required to be included within an authorisation issued for the Wind Garden Wind Farm:*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					» *All mitigation measures detailed within this BA report, as well as the specialist reports contained within Appendices D to M, are to be implemented.* » *The EMPr as contained within Appendix N of this BA report should form part of the contract with the Contractors appointed to construct and maintain the wind farm in order to ensure compliance with environmental specifications and management measures. The implementation of this EMPr for all life cycle phases of the Wind Garden Wind Farm is considered key in achieving the appropriate environmental management standards as detailed for this project.* *Therefore, mitigation measures recommended will be required to be implemented should the project be authorised. This is a legal requirement.*
	#The response to this is that the CLA and HIA have been looked at and considered with the Socio economic benefits? I still fail to understand why the socio-economic benefits have been directly used as a factor to seemingly dilute a specialist's finding? Please could you clarify why this has specifically used in the CLA		**X**		Section 38(3) of the National Heritage Resources Act (Act No 25 of 1999) requires that "*The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included: (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;"* This requirement is included in the *Guidelines for Heritage Impact Assessments required in terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999)* published by SAHRA in June 2015.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	#In response to the EAP stating that there is no statement where negative impacts can be overlooked in view of positive economic aspects - this is a fictitious statement by the EAP as it is stated in both the BAR and EMPr.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR and is reiterated. There is no statement to this effect in the BAR or EMPr. <u>Page 29:</u> *The ratings provided by the CLA specialist were considered by the heritage specialist and, as per the provisions of the National Heritage Resources Act, were considered together with the socio-economic contribution of the project in determining the overall impact significance.* *The EIA process is required to consider environmental, economic and technical aspects of the project, as the project is required to be considered from a sustainable development perspective.* *All information regarding positive and negative impacts identified and assessed in the EIA process have been presented within the report for consideration by the DFFE. The conclusion of the study are presented in Chapter 12, and states that "the benefits of the project are expected to partially offset the localised environmental costs of the wind farm". There is no statement that the negative impacts can be overlooked due to the positive impacts stated in the socio-economic report.*
	#The response given to using the mitigation score of 55 which is based on the reduction to 7 turbines is a generic cut and paste and does not answer the question.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. The response refers to the ratings provided in the overall HIA, which includes consideration of impacts on archaeology, heritage resources (buildings older than 60 years), cultural resources (graves), palaeontology

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	The response is that post-mitigation rating is obtained after taking into account all mitigation measures stated in the report being instigated! However you also state that you will not be adhering to the proposed recommendations of the CLA! Please can you explain as I requested why you are using misleading figures! and why the real impacts after not being published.				and cultural landscape. This is as provided by the Heritage specialist. Mitigation measures recommended within the CLA have been included in the overall HIA. Page 29: *The findings of the Cultural Landscape Assessment were incorporated into the overall HIA for the project, in the same way as those from the palaeontological impact assessment have been. The results from the revised HIA were included within the Revised BAR.* *The ratings provided by the CLA specialist were considered by the heritage specialist and, as per the provisions of the National Heritage Resources Act, were considered together with the socio-economic contribution of the project in determining the overall impact significance.*
	Comment ref: App C9: Email 21 July 21 23H24 Questions with regards to the EAP's analysis of the Visual impact ratings. Response: #The EAP, after receiving feedback from I&AP's on the negative socioeconomic effects that the WEF will have on their properties, turns the I&AP's input into a "Probability" that is not able to be proved and therefore disregards this. #The EAP's response is utterly biased towards what seems to be a preconstructed medium rating in order to attain a predetermined outcome.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. The response was provided by the SEIA specialist and not the EAP. Visual impacts on Lukhanyo Lodge is rated as high in the VIA. The influence of probability of impact on the significance score in the SEIA is responded to in the response provided n the CRR. Page 32: *This question was discussed in the meeting of 08 July 2021. As explained by the specialist, the VIA had indicated that the visual impact on the immediate properties would be that of a high significance. From a socio-economic perspective, this must be interpreted based on the visual impact as a contributor to potential tourism impacts in the broader area*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	#The response is simply the same talking in circles as was done in the PP meetings when it was brought up. #Please can you adequately answer the questions in this email to a point where it is understandable!				*and on immediately adjacent farms. In the revised SEIA report, an additional impact rating for immediate and adjacent farms to the project site and there is another table rating the impact on the broader area. The scoring for both rate the impact at medium negative impact. The rating of significance is based on the calculation of the significance. In calculating this impact, the specialist considers the extent of the impact (where the impact will be felt), duration (short- , medium- or ling-term), magnitude (how will it change the existing processes in the area) and the probability (how can evidence be provided to support the notion that the impact will occur will not occur). The calculation of the significance rating is to add extent, duration and magnitude multiplied by probability. In contrast to the visual impact where the probability and magnitude scorings are very high – i.e. there can be no doubt that the visual impacts will be realised, the SEIA specialist cannot definitively say based on the evidence throughout the rest of the report say that the magnitude and probability for the changes in tourism activity will be at the top end of the scale. In order to say that any of the impacts will be high, the probability rating must also be high. In the case of the SEIA, the probability is rated as medium. Therefore, although it is stated that there are likely going to arise negative impacts associated with tourism numbers potentially reducing, they are deemed to be medium significance and not high.*
3.	As per the below comments on previous email I would like you to please respond to the following questions as the occupier/staff have to date still not received any feedback from Savannah.	Chris Pike Director: Lukhanyo Reserve		**X**	Responses to the comments received at the meetings held with occupiers/workers are included in Appendix C8 and have been distributed to the attendees, where access to these was provided by the landowner.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	1) Why have the occupier/staff not received feedback?	E-mail: 10 February 2022 @ 23h04			
	2) Does the EAP consider this 16min session, of which only 5 Min was used to present the WEF document, with the occupiers and staff sufficient Public Participation?		**X**		Consultation with I&APs (including occupiers) was undertaken in accordance with the approved Public Participation Plan for the project. In addition to the approved means of consultation, the following additional mechanisms were used: » Face-to-face consultation meetings were held in March 2021 in Makhanda at the request for registered parties. Four (4) meetings were held across 2 days to provide sufficient opportunity for I&APs to attend while still ensuring compliance with the COVID-19 Regulations (specifically the requirement relating to 50% capacity not being exceeded at the venue in Makhanda). All registered parties were invited to these meetings and were requested to register their attendance. They were also requested to extend the invitation to any other person that they believe should attend the meetings, and request that they also register their attendance. Where I&APs are unable to attend in person, provision was made for them to attend virtually via MS Teams. » A Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc, as well as a summary of the findings of the BAR in isiXhosa was distributed on 29 April 2021 to community members on the project database, including to the Ward Councillor, Ward Committee Members and

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					landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the BA Report). » Savannah Environmental arranged information sessions with landowners who welcomed the social facilitator on their farm. The social facilitator then presented the SIA findings in the local language and engaged on the socio-economic impacts and mitigation measures of the project. Responses to comments raised have been provided to the attendees of these meetings. The approach taken is in line with the Guideline for Public Participation published by the Department of Environmental Affairs in 2017, which allows for announcing the PPP on a local radio station, and specific approaches to existing community structures, committees and leaders.
	3) Do you consider the one page flyer(Attached) adequate in informing the occupier/staff of the SIA and WEF. And do you consider this to be an adequate public participation?		**X**		Consultation with I&APs (including occupiers) was undertaken in accordance with the approved Public Participation Plan for the project. In addition to the approved means of consultation, the following additional mechanisms were used: » Face-to-face consultation meetings were held in March 2021 in Makhanda at the request for registered parties. Four (4) meetings were held across 2 days to provide sufficient opportunity for I&APs to attend while still ensuring compliance with the COVID-19 Regulations (specifically the requirement relating to 50% capacity not being exceeded at the venue in Makhanda). All registered parties were invited to these meetings and were requested to register their attendance. They were

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					also requested to extend the invitation to any other person that they believe should attend the meetings, and request that they also register their attendance. Where I&APs are unable to attend in person, provision was made for them to attend virtually via MS Teams. Some occupiers attended these meetings (refer to attendance registers contained in Appendix C8 of the BAR). » A Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc, as well as a summary of the findings of the BAR in isiXhosa was distributed on 29 April 2021 to community members on the project database, including to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the BA Report). » Savannah Environmental arranged information sessions with landowners who welcomed the social facilitator on their farm. The social facilitator then presented the SIA findings in the local language and engaged on the socio-economic impacts and mitigation measures of the project. The approach taken is in line with the Guideline for Public Participation published by the Department of Environmental Affairs in 2017, which allows for announcing the PPP on a local radio station, and specific approaches to existing community structures, committees and leaders.

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4.	**Public participation process** 1. At face value (measured superficially in terms of the volume of reports produced in connection with the proposed Wind Garden and Fronteer Wind Energy Facilities ("WEFs")), the basic assessment process might appear to be comprehensive. In terms of the sheer volume of reports, the EAP has created the illusion of having undertaken a comprehensive assessment and responded to I&AP comments. We dispute this. Key impacts have not been assessed.	Richard Summers Richard Summers Inc. Director Letter: 10 February 2022	**X**		The volume of the BAR is not intended to provide an illusion of having undertaken a comprehensive assessment and responded to I&AP comments. The report includes comprehensive specialist assessments of all impacts identified within the EIA process, as well as copies of all comments received and responses provided. This is evident from the content of each report submitted as part of the BAR, as well as from the main BAR which includes a comprehensive consolidation of all findings.
	2. Despite the tabling of I&APs comments and responses by the EAP, there is an undeniable superficiality to the process. I&APs are sceptical of the process and the overwhelming perception is that the public participation was neither adequate nor meaningful for the following reasons: 2.1. I&APS were provided with two separate windows to comment on the basic assessment reports ("BARs") for the proposed Wind Garden and Fronteer WEFs. However, the sheer volume of information and total documentation for each project (see below) shows that it was grossly unreasonable and inadequate to provide the <u>bare minimum of 30 days</u> to comment on the revised BARs.		**X**		A response was provided in numerous instances in the C&RR included as Appendix C9 of the final BAR. <u>Page 11:</u> *The BA Report was made available for a 30-day public review period from 04 March 2021until 07 April 2021. At the request of I&APs, this review period was extended to 06 May 2021, resulting in a 60-day review period being afforded to I&APs. A 30-day review period has been provided for the Revised BA Report. All changes made within the revised BA Report have been underlined for ease of reference and these are the only review that is required by I&APs. The time available is constrained by the regulated timeframe which ends one week after the close of the review period.* *A request for extension of the regulated timeframe was submitted to the DFFE in May 2021. This included a request in*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	2.2. The volume of information for each project increased by approx. 807 and 796 pages respectively between the initial draft and revised BARs equating to an additional 1600 pages across both projects for I&APs to review. Yet the bare minimum of 30 days was provided for I&APs to comment in connection with the revised BARs. The volume of documentation is set out below: 2.2.1. Fronteer WEF draft BAR + SPECIALIST REPORTS + EMPR = 1845 pages 2.2.2. Fronteer revised WEF BAR + SPECIALIST REPORTS + EMPR = 2652 pages 2.2.3. Wind Garden WEF draft BAR + SPECIALIST REPORTS + EMPR = 1890 pages 2.2.4. Wind Garden WEF revised BAR + SPECIALIST REPORTS + EMPR = 2686 pages		**X**		*terms of Regulation 3(7) to extend the timeframe to afford sufficient time for engagement with stakeholders in revising the reports, as well as notification to the DFFE in terms of Regulation 19(1) of the requirement to undertake further public review of the BA reports. The DFFE did not respond to the Section 3(7) request and only acknowledged the Regulation 19(1) notification (refer to Appendix B of the final BA Report).* *Based on the request for extension of the review period from I&APs, a further request for extension of the regulated timeframe in terms of Regulation 3(7) was submitted to the DFFE on 12 July 2021 (refer to Appendix B of the final BA Report). The DFFE responded letter on 21 July 2021 (letter dated 19 July 2021 and received per e-mail on 21 July), refusing the requested extension of the regulated timeframe. All registered parties were advised of this decision.*
	2.3. The duplication of information in the public domain, the number and volume of specialist studies and the effort required by stakeholders to review the applications has completely overwhelmed I&APs. The dual application process has caused public participation fatigue and undermined I&APs rights.		**X**		<u>Pages 5 – 10:</u> *The Public Participation Process has been conducted in terms of Regulation 39, 40, 41, 42, 43 & 44 of the EIA Regulations 2014, as amended (GNR 326), as well as in accordance with the approved Public Participation Plan (Appendix C1) as follows:* » ***Project database:*** *A register of I&APs has been compiled and updated throughout the BA process.* » ***BA process announcements:***
	2.4. Despite repeated requests by I&APs to be provided with separate and adequate (i.e. not combined) commenting periods for each project to enable meaningful engagement in respect of the information for each project, the EAP continued with the assertion that a		**X**		

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	combined process was the one agreed to. This resulted in I&APs being required to digest and comment on a combined volume of approx. 4000 pages within a minimum statutory commenting period of 30 days.				∗ *The BID, accompanied by a cover letter inviting I&APs to register on the project database, was distributed via email to those I&APs identified and the relevant OoS on 17 November 2020 (refer to **Appendices C4 & C5** of the Revised BA Report.) The BA processes announcement was a combined notification for all nine (9) projects which form part of the larger cluster of renewable energy projects proposed.*
	2.5. Even those I&APs with specialist assistance and access to resources could not deal meaningfully with the volume of information and EAP's responses to issues raised in that limited timeframe.		**X**		∗ *Advertisements were placed as follows (refer to **Appendix C3** of the Revised BA Report):* ▪ *Hartlandnuus – 12 November 2020* ▪ *The Herald (Eastern Cape) – 12 November 2020*
	3. Running the two projects as separate applications directly increased the burden on I&APs. It is for this exact reason that I&APs approached both the EAP and the DFFE to request an extension to the public commenting period in accordance with Regulation 3(7) of the EIA Regulations. A chronology of the repeated attempts by I&APs to obtain an extension in order to facilitate meaning engagement by I&APs with the information which formed the basis of the basic assessment process for the proposed Wind Garden and Fronteer WEFs particularly in light of the prejudice faced by I&APs if the extension was not granted are set out below: 3.1. On 8 July 2021, Richard Summers Inc. addressed a letter to the EAP in terms of which we sought clarity on issues relating to the public participation process and		**X**		∗ *Site Notices (refer to Appendix C3 of the Revised BA Report)* ∗ *Process Notices placed at various public libraries throughout the study area (refer to **Appendix C3** of the Revised BA Report)* » ***BA Report available for review and comment**:* ∗ *Report originally available from 04 March until 07 April 2021* ∗ *Registered I&APs were notified of the availability of the BA Report via e-mail (refer to **Appendix C6** of the Revised BA Report).* ∗ *Commenting authorities, municipal councillor and local and district municipalities which have jurisdiction in the area received personalised letter requesting written comments on the BA Report (refer to **Appendix C6** of the Revised BA Report).*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	wherein we motivated on behalf of I&APs that an extension to the public participation process was both reasonable and justifiable in the circumstances.				∗ *Advertisements were placed as follows (refer to **Appendix C3** of the Revised BA Report):* ▪ *Hartlandnuus – 04 March 2021* ▪ *The Herald (Eastern Cape) – 04 March 2021* ▪ *Liveread (radio) on Radio Grahamstown 102.1FM on Thursday, 04 March 2021, morning and afternoon and Friday, 12 March 2021, morning and afternoon.* ∗ *Review and comment period extended to 19 April 2021 at request of I&APs:* ▪ *Email notification to all registered I&APs and OoS distributed on 10 March 2021 (refer to **Appendices C5 and C6** of the Revised BA Report).* ∗ *Review and comment period further extended to 06 May 2021 at request of I&APs:* ▪ *Email notification to all registered I&APs and OoS distributed on 16 March 2021 (refer to **Appendices C5 and C6** of the Revised BA Report).* ▪ *Adverts were placed in the Hartland Nuus (on 01 April 2021) and The Herald (on 08 April 2021)* ▪ *A radio live read on Radio Grahamstown was undertaken on 29 April 2021 advising I&APs of the extended review period.* » ***Revised BA Report available for review and comment**:* ∗ *Registered I&APs and OoS were notified on 03 May 2021 that a Revised BA Report will be made available for review and comment to address the comments received on the content of the BA Report*
	3.2. On 12 July 2021, the EAP (Savannah) submitted a "motivation" for extension of the public participation process in terms of Regulation 3(7) of the EIA Regulations.		**X**		
	3.3. On 13 July 2021, Richard Summers Inc. wrote an email to Mr. Lunga Dlova of the DFFE indicating that the EAP failed to disclose to the DFFE the substance of the motivation underlying the request by I&APs for an extension to the public participation process for the proposed Wind Garden and Fronteer WEFs. Attached to the email was a letter explaining the need for an extension.		**X**		
	3.4. On 21 July 2021, the EAP informed I&APs that the DFFE had denied the request for an extension of the review and comment periods for the revised BARs. This decision by the DFFE was taken on 19 July 2021. We draw issue with the fact that the substantive input tabled by I&APs regarding the need for the extension had not been canvassed in the EAP's motivation to the DFFE. Based on the information provided to us in terms of the DFFE's decision, it was clear that the DFFE was not satisfied with the motivation for the extension which was provided to the		**X**		

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	DFFE by the EAP. Owing to I&APs concerns not being adequately communicated to the DFFE, a decision was made to dismiss the request made in terms of Regulation 3(7) of the EIA Regulations. The request to DFFE made by the EAP failed to identify the concerns raised by I&APs regarding the approach by the project team to provide I&APs with the bare minimum 30-day commenting period. The Regulation 3(7) request was therefore crippled by the EAP as DFFE had no regard to the motivation from the most directly impacted stakeholders (I&APs) as to why the process was unfair and more time was required.				*during the 60-day review and comment period (refer to **Appendices C5 and C6** of the final BA Report).* ∗ *Notifications regarding the availability of the Revised BA Report were distributed via e-mail on 18 June 2021 (refer to **Appendix C6** of the final BA Report).* ∗ *Commenting authorities, municipal councillors and local and district municipalities which have jurisdiction in the area received personalised letter requesting written comments on the BA Report (refer to **Appendix C5** of the Final BA Report).* ∗ *Advertisements announcing the availability of the Revised BA Report were placed as follows (refer to **Appendix C3** of the final BA Report):* ▪ *Hartlandnuus – 17 June 2021* ▪ *The Herald (Eastern Cape) – 17 & 18 June 2021* ▪ *Liveread (radio) on Radio Grahamstown 102.1FM on Monday, 21 June 2021, morning and afternoon, and 14 July 2021, morning and afternoon.* » ***Attempts to obtain comments on the BA Report:*** ∗ *Email reminder e-mail to all registered I&APs and OoS regarding the end of the review and comment period for the BA Report on 06 May 2021 (refer to **Appendices C5 and C6** of the final BA Report).* » ***Meetings** (refer to **Appendix C8** of the final BA Report for meeting notes)**:*** ∗ *Virtual public meetings were held on 15 & 16 March 2021;*
	3.5. On 21 July 2021, Richard Summers Inc. submitted preliminary comments on the revised BARs undercover of an email wherein we expressed that the timeframes for public comment were unreasonable and truncated. In terms of that email, we advised the EAP that "additional specialist information commissioned in support of our comments will be sent directly to the DFFE" and that any further comments (if any) will be tabled before the DFFE directly. At that time, we had anticipated submitting avifaunal input from Dr. Andrew Jenkins of Avisense Consulting who had not been		**X**		

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	available during the 30-day public commenting timeframe.				∗ *Virtual Key Stakeholder Workshop held 29 March 2021* ∗ *Four (4) face-to-face Public Meetings conducted on 26 March 2021 and 27 March 2021 (morning, midday and evening).* ∗ *Virtual meetings during the Revised BA Report review and commenting period with:* • *Sarah Baartman District Municipality: 06 July 2021* • *KSW (all OoS and Key Stakeholders): 06 July 2021* • *Public Participation Process Meetings:* – *07 July 2021 @ 09h00, 14h00 & 18h00* – *08 July 2021 @ 09h00, 14h00 & 18h00* • *DEDEAT, Provincial Commenting Authority: 14 July 2021* • *Makana Local Municipality: 20 July 2021* • *Meetings with occupiers on various properties was undertaken on 22 July 2021.* » ***Consultation:*** ∗ *Proof of consultation with I&APs and OoS throughout the BA process is included in* ***Appendices C5 and C6*** *of the final BA Report.* ∗ *A summary of the BID was translated into isiXhosa and distributed on 29 April 2021 to community members on the project database but also to the Ward Councillor and her Ward Committee Members (refer to* ***Appendix C6*** *of the final BA Report).* ∗ *A Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind*
	3.6. On 24 July 2021, Richard Summers Inc. wrote a letter to the DFFE requesting reasons why the DFFE decided that the concerns raised by I&APs were insufficient to warrant the requested extension to the public participation process until 21 August 2021. In terms of this letter, we summarised the need for the extension and explained the prejudice faced to I&APs.				
	3.7. On 4 August 2021, the EAP notified I&APs that the final BARs for the proposed Wind Garden and Fronteer WEFs had been submitted to the DFFE – as competent authority— for decision-making despite the fact that we had informed the EAP that additional specialist inputs had been commissioned by I&APs but could not be completed within the commenting period without the requisite extension being granted.		**X**		

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					*turbine, etc was distributed on 29 April 2021 to community members on the project database, include to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to **Appendix C6** of the final BA Report).* » ***Comments & Responses Report:*** *All comments received during the BA Report have been captured in this C&RR which is attached as a separate document to the final BA Report (refer **Appendix C9** of the final BA Report).* <u>Page 51:</u> *The objection is noted.* *It must be noted that the review period on the initial Basic Assessment Report was extended from 04 March 2021 to 06 May 2021, at the request of I&APs. In order for the project applicant and Savannah Environmental to adequately address the comments received from I&APs as part of the EIA process, the Basic Assessment Report was revised, and the revised BAR made available for public review and comment. The I&APs were provided with a further 30-day period from 21 June to 21 July 2021 to comment on the revised BAR. All changes made within the revised BAR were underlined for ease of reference. As a result of the regulated timeframe, the EAP was not in a position to provide a period of longer than 30 days for the review period. Following the request from I&APs for an extension on the timeframe for review, the EAP requested an extension of the regulated timeframe for the BA*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					process from the DFFE in accordance with the provisions of Regulation 3(7) of the EIA Regulations. The EAP was informed on 21 July 2021 that the request had been denied. **<u>Further response:</u>** It is thus not factual that a bare minimum of 30 days was provided to comment on the reports. In addition, as indicated by the I&AP in section 2.3 – there is duplication of information, which is understandably so given the fact that several aspects of the sites overlap (receiving desktop environment, legislative context, etc.). Changes made between the draft and revised draft BAR were underlined for ease of reference. Changes made between the Revised Draft and the Final BAR were again underlined for ease of reference. Various chapters remained unchanged from the Draft to the Final reports, reducing the number of pages to be reviewed. Therefore, changes made between the various reports made available for review were clear for ease of review by the I&APs and the DFFE.
	4. It was not acceptable that the EAP submitted the final BARs for decision-making on 4 August 2021. The EAP could not have properly dealt with all I&AP comments within the space of 14 days (i.e. between the date of receiving our comments on 21 July 2021 and the date of submitting the final BARs to the DFFE for decision-making on 4 August 2021). This action on the part of the EAP led to the complaint raised by Indalo Private Game Reserve Association, which effectively suspended the			**X**	A response was provided in the C&RR included as **Appendix C9** of the final BAR. Page 52: *The EAP is bound by the regulated timeframes within the legislation, in this instance the submission of the Final BA Report to the Department within 140 days of the submission of the application, in accordance with Regulation 19 (1) of the 2014 EIA Regulations, as amended. I&APs have been afforded 90 days of this period for review and comment. In the absence of an extension of this timeframe by the*

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	decision-making process. The EIA process itself has been a whitewash and the issues raised by I&APs during the public participation process remain unresolved.				*Department, the EAP has no alternative but to comply with this timeframe.* **Further Response:** It must be noted, that all comments received during the review period for the Revised BAR were considered and addressed within the Final BAR. How these were addressed is detailed in the Comments and Responses Report included as Appendix C9 of the BAR.
	5. Now that the final BARs have been released for comment for a 30-day period, we are formally tabling our concerns relating to avifaunal impacts to the EAP. As previously mentioned, Dr. Jenkins was unavailable during the previous public participation process and only had capacity to investigate the concerns after the final BARs were already submitted for decision-making on 4 August 2021. We did not submit input commissioned by Dr. Jenkins while the public participation process was closed as there was a real concern that the avifaunal impact assessment specialist would not be privy to the complaints raised and that our concerns would not be appropriately resolved. Our comments tabled herewith demonstrate significant problems with the avifaunal impact assessment undertaken during the EIA process and we require our concerns to be addressed before any decision is taken by the competent authority. This unfortunate situation of I&APs		**X**		It is not a legislated requirement for the final BAR to be release for comment. This was a requirement of the 2010 EIA Regulations but is not required in terms of the 2014 EIA Regulations. All comments are required to be raised during the legislated EIA process and allocated public review period (90 days in the case of this project). The additional 30-day review period for the Wind Garden BAR was provided in order to address any outstanding issues raised during the process, as instructed by the DFFE, and was not a platform for the tabling of additional issues. Comments regarding the avifaunal study were previously provided by Dr Jenkins via Mr Summers and were addressed in the CRR included in the BAR (refer to page 122 and Appendix C9b for the specialists' response). It must be noted that I&APs were notified of the EIA process for this project in November 2020. The BAR was released in March 2021 for public comment, and a 60-day review period was provided for public comment. A further 30 days was provided for comment on the revised BAR in June 2021.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	supplying detailed specialist input at this late stage is directly attributable to how the EAP has dealt with the process. Until such time that our concerns are adequately addressed, it will result in protracted objections and appeals from I&APs to the DFFE requesting that our concerns be addressed properly.				Stakeholders therefore has a collective 90 days for review and comment on the reports. Any additional information or comments could have also been provided in the period prior to July 2021 when the final report was submitted as ample opportunity well above the legislated minimum timeframe of 30 days was provided to the I&APs.
	6. We further note that the substance of the final BARs and specialists' reports are wholly inadequate. The content contained therein hardly differs from the information contained in the revised BARs. The only notable difference between the final BARs and the revised BARs is that new I&AP comments are purportedly addressed in Appendix C9. Owing to the nature of the concerns raised by I&APs as of 21 July 2021, the EAP would have required more than 14 days (i.e. the period between receiving comments and submitting the final BARs to the DFFE for decision-making) to adequately address the issues raised. The responses in Appendix C9 are superficial and do not meaningfully consider the impacts on I&APs. This is evidenced from the fact that the specialist reports submitted with the final BARs are the same reports which supported the revised BARs. It is nonsensical to suggest that I&AP comments have been adequately addressed if there are no substantive changes in the final BARs or the specialist impact		**X**		Comments received on the revised BAR were not different to those received on the draft report. All comments received during the review period for the Revised BAR were considered and addressed within the Final BAR. How these were addressed is detailed in the Comments and Responses Report included as Appendix C9 of the BAR.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	assessment reports which underpin the final BARs.				
	7. Owing to the obvious omission in the final BARs and avifaunal impact assessments, we trust that Dr. Jenkin's input will be taken into account and implemented accordingly. As explained above, I&APs did not previously have a reasonable opportunity to collate inputs from specialists and complete their reviews of the revised BARs given that the bare minimum comment period of 30 days was provided for in connection with the revised BARs, and that the Regulation 3(7) extension request was refused. With the formal EIA comment periods having closed and the EAP having submitted the reports to the DFFE, there was no earlier opportunity for additional input and/or information to be tabled, or for comments to be resolved by the EAP. There was no guarantee that if specialist information had been tabled outside the scope of the EIA process that such information would have been considered by either the EAP or the DFFE.		**X**		I&APs were notified of the EIA process for this project in November 2020. The BAR was released in March 2021 for public comment, and a 60-day review period was provided for public comment. A further 30 days was provided for comment on the revised BAR in June 2021. Stakeholders therefore had a collective 90 days for review and comment on the reports, which is well above the legislated minimum timeframe of 30 days.
	Occupiers 8. There is limited evidence of occupiers / employees on neighbouring properties and/or affected community members (including the beneficiaries of the Ubunye Foundation) having been consulted proactively by the EAP or		**X**		Consultation with I&APs (including occupiers on affected and adjacent properties where relevant, as required in terms of the EIA Regulations) was undertaken in accordance with the approved Public Participation Plan for the project. Where details of other occupiers or beneficiaries were provided, these were also consulted. No details were provided for the Ubunye Foundation, and in fact no reference to this

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	specialists. The obligation to engage with directly affected communities does not rest on I&APs. This critically important component of impact assessment falls on the EAP to undertake, and to undertake correctly in accordance with the requirements of the EIA Regulations and the overarching guidance of the Constitution and the rights enshrined therein. This has not happened in these projects.				foundation was provided prior to the comments on the final BAR and no representative from this foundation registered on the project database. According to their website (https://www.ubunyefoundation.co.za/about) Ubunye works with communities in Fort Brown village of the Makana Municipality, Sarah Baartman District. Fort Brown is approximately 20km from the Wind Garden WEF site. In addition to the approved means of consultation, the following additional mechanisms were used: » Face-to-face consultation meetings were held in March 2021 in Makhanda at the request for registered parties. Four (4) meetings were held across 2 days to provide sufficient opportunity for I&APs to attend while still ensuring compliance with the COVID-19 Regulations (specifically the requirement relating to 50% capacity not being exceeded at the venue in Makhanda). All registered parties were invited to these meetings and were requested to register their attendance. They were also requested to extend the invitation to any other person that they believe should attend the meetings, and request that they also register their attendance. Where I&APs are unable to attend in person, provision was made for them to attend virtually via MS Teams. » A Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc, as well as a summary of the findings of the BAR in isiXhosa was distributed on 29 April 2021 to community

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					members on the project database, including to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the BA Report). » Savannah Environmental arranged information sessions with landowners who welcomed the social facilitator on their farm. The social facilitator then presented the SIA findings in the local language and engaged on the socio-economic impacts and mitigation measures of the project. The approach taken is in line with the Guideline for Public Participation published by the Department of Environmental Affairs in 2017, which allows for announcing the PPP on a local radio station, and specific approaches to existing community structures, committees and leaders. A response to the comment regarding consultation with occupiers was provided in the C&RR included as **Appendix C9** of the final BAR in numerous instances, including *inter alia* the following: <u>Page 15:</u> *At the public participation process meetings held during March 2021, attendees were requested to inform Savannah Environmental how they would prefer their workers and/or occupiers to be contacted to present the project to them. Savannah Environmental had not received any guidance or protocol in this regard since that date.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					A consultation process of contacting the affected and adjacent landowners to obtain the best way to contact their workers and/or occupiers on their properties to present and discuss the proposed project and respond to concerns raised by workers / occupiers, whether it would be via whatsapp video call or the method of communication as suggested by landowners was undertaken (refer to Appendix C6 of the final BA Report). *An e-mail to all landowners / occupiers and/or occupants and community members on the project database was sent in April 2021 to which the summary of the BID and a summary of the BA Report, translated into Xhosa, was attached to the e-mail correspondence. Recipients of this e-mail correspondence was requested to share the information with the occupiers.* *In subsequent follow up discussions with landowners, only one landowner agreed to send a contact number of a representative of the occupiers on their properties. The remainder required the EIA team to work through them directly.* *Face-to-face meetings have been conducted with occupiers with whom not only a date and time could be secured but also access to the properties of the occupiers through the landowner.* <u>Page 33:</u> *Savannah Environmental from inception of the project engaged with landowners to ensure that land occupiers*

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					were informed. Consultation has also been ongoing with the relevant Ward Councillor to ensure that the relevant information is available to community members and land occupiers in the area. A summary of the BID was translated into isiXhosa and distributed on 29 April 2021 to community members on the project database but also to the Ward Councillor and her Ward Committee Members (refer to Appendix C6 of the final BA Report). Further, a Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc was distributed on 29 April 2021 to community members on the project database, include to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the final BA Report). *During consultations undertaken since March 2021, Savannah Environmental requested that landowners please provide a way in which land occupiers could be informed. No information was received, on how consultations can be undertaken.* *In subsequent follow up discussions with landowners, only one landowner agreed to send a contact numbers of a representative of the occupiers on their properties. The remainder required the EIA team to work through them directly.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					As part of the environmental legal process, consultations should be undertaken as far as possible. Savannah Environmental complies with legal process and did make contact to get clarification on how and when consultations could take place. At no point is this a tick-box exercise, but rather we explore all methods to ensure consultation is undertaken as per the legal requirements. <u>Page 35:</u> *Savannah Environmental from inception of the project engaged with landowners to ensure that land occupiers were informed. Consultation has also been ongoing with the relevant Ward Councillor (Ward 1) to ensure that the relevant information is available to community members and land occupiers in the area. A summary of the BID was translated into isiXhosa and distributed on 29 April 2021 to community members on the project database but also to the Ward Councillor and her Ward Committee Members (refer to Appendix C6 of the final BA Report). Further, a Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc was distributed on 29 April 2021 to community members on the project database, include to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the final BA Report).* *The project was also announced on the local community radio station, Grahamstown 102 FM at various stages of the*

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					project including announcing the availability of the BA Reports and Revised BA Reports for review and comment. Since the first announcement in March 2021 no community members have contacted the public participation office requesting to be registered, information regarding the proposed projects or a meeting to present the projects to them. *During consultations undertaken since March 2021, Savannah Environmental requested that landowners please provide a way in which land occupiers could be informed. No information was received, on how consultations can be undertaken.* *An objection letter signed by 25 occupiers on properties affected and/or adjacent to the proposed developments was received as part of the comments on the BA Report, indicating that they are informed regarding the proposed projects. In addition, an affidavit was received from occupiers of one of the affected properties confirming that they are aware of the projects and that their questions had been noted and addressed by the landowner. They also confirmed receipt of the Xhosa summary and community Q&A document distributed by the PP team.* *In subsequent follow up discussions with landowners, only one landowner agreed to send a contact numbers of a representative of the occupiers on their properties. The remainder required the EIA team to work through them directly.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					As part of the environmental legal process, consultations should be undertaken as far as possible. Savannah Environmental complies with legal process and did make contact to get clarification on how and when consultations could take place. At no point is this a tick-box exercise, but rather we explore all methods to ensure consultation is undertaken as per the legal requirements.
	9. The EAP's repeated assertion is that it has done all that it can and that landowners must share the responsibility to run the public participation and consultative process with occupiers on the EAP's behalf. The suggestion by the EAP in the reports, and repeated during the public participation meetings, that landowners are effectively responsible for sharing and dissemination project information with occupiers and ensuring that occupiers are familiar with the contents of the information in the BARs is an abrogation of the EAP's statutory responsibilities.		**X**		Savannah Environmental did not at any time request that landowners must, on behalf of the EAP, engage with the occupiers. It was noted during the process that it is also the landowner's responsibility to inform their workers and/or occupiers of proposed developments either on their property or within the area. This was done by some landowners as detailed on Page 272 of the CRR. As detailed above, consultation with I&APs (including occupiers) was undertaken in accordance with the approved Public Participation Plan for the project. In addition to the approved means of consultation, the following additional mechanisms were used: » Face-to-face consultation meetings were held in March 2021 in Makhanda at the request for registered parties. Four (4) meetings were held across 2 days to provide sufficient opportunity for I&APs to attend while still ensuring compliance with the COVID-19 Regulations (specifically the requirement relating to 50% capacity not being exceeded at the venue in Makhanda). All registered parties were invited to these meetings and were requested to register their attendance. They were also requested to extend the invitation to any other
	10. The EAP, by failing to do all that is required to ensure the needs, rights and interests of all stakeholders are accounted for properly during the assessment process has sought to reverse the onus of who is responsible for public participation. The EAP's approach - which seeks to lay the blame for inadequate consultation on the landowners – is rejected as this flies in the face of the minimum requirements of public participation.		**X**		

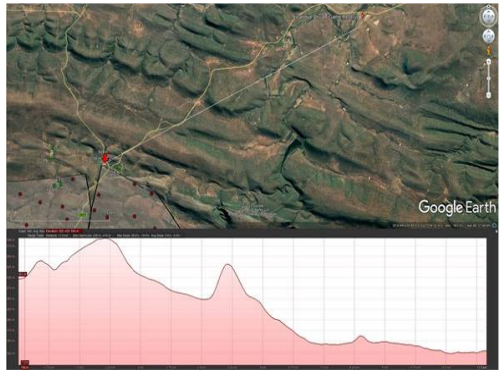
No.	Comment	Raised by	Previously Addressed	New Comment	Response
					person that they believe should attend the meetings, and request that they also register their attendance. Where I&APs are unable to attend in person, provision was made for them to attend virtually via MS Teams. Some occupiers attended these meetings, as detailed kin the attendance registers contained in Appendix C8 of the BAR. » A Community Brochure/Question & Answer document which provided information regarding the development of a wind farm in layman terms and included pictures of construction of a wind turbine, etc, as well as a summary of the findings of the BAR in isiXhosa was distributed on 29 April 2021 to community members on the project database, including to the Ward Councillor, Ward Committee Members and landowners – requesting them to distribute it to occupiers on their property/properties (refer to Appendix C6 of the BA Report). » Savannah Environmental arranged information sessions with landowners who welcomed the social facilitator on their farm. The social facilitator then presented the SIA findings in the local language and engaged on the socio-economic impacts and mitigation measures of the project. The approach taken is in line with the Guideline for Public Participation published by the Department of Environmental Affairs in 2017, which allows for announcing the PPP on a local radio station, and specific approaches to existing community structures, committees and leaders.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	11. Regulation 41(2)(b)(i) places the onus squarely on the EAP to give notice in section 47D of NEMA to occupiers of the site and to enable active participation. Consultation with staff and occupiers on neighbouring properties / game reserves was left to the very end of the EIA process and in certain instances was limited to one 15-minute meeting (best case) only, or none at all (worst case). One-page flyers were used for this purpose which cannot possibly convey the key issues, impacts and information gathered in the EIA. Staff and occupiers had an opportunity to ask questions during these limited sessions, but this was not meaningful. There was no active participation, and the process was circumscribed – as an afterthought. These consultations were undertaken by persons contracted by the EAP and who had limited direct knowledge of the proposed Wind Garden and Fronteer WEFs. As a result, they were thus not able to answer many of the questions or concerns raised by farm occupiers or employees on the game reserves in question. Questions posed were met with a standard response that "we have noted that and will give this information to the developer to reply". No reply was ever provided directly to such stakeholders. The process is grossly inadequate.			**X**	Regulation 41(2)(b)(i) is applicable to affected and adjacent landowners and their occupiers (people living on the property) and this has been done in accordance with the approved PP Plan and the additional means outlined above. Since March 2021 (during the review period of the draft BAR) Savannah Environmental requested landowners to provide information on how best to engage with occupiers on their properties. Some landowners indicated their preference to undertake this process themselves. Evidence of this is provided in comments submitted by occupiers as reflected on page 271 - 273 of the CRR included in Appendix C9 of the BAR. A social facilitator was engaged to communicate project information to occupiers following a request from occupiers to provide information on the SEIA in Xhosa (as reflected on page 270 of the CRR). Other than informing the occupiers of the proposed projects, the facilitator who conducted a separate occupiers' consultation process, presented the proposed projects and the key findings of the social study to the attendees. As a qualified facilitator, she read and understood the need of the occupiers and made sure that what they indicated they wanted to know has been presented.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Black rhino 12. With the intensity of the global poaching pandemic, significant rhino losses have been experienced in many state-owned or controlled protected areas in South Africa. The current situation is unsustainable and has direct implications for global and long-term conservation efforts aimed at the preservation of critically endangered species. For various reasons, national parks and other state-owned and managed protected areas are vulnerable to poaching. The result of this is that conservation efforts on private land and private sector initiatives now play an increasingly important, if not centrally critical, role in stemming the tide of poaching and securing the sustainability of rhino conservation initiatives in southern Africa. This role and the potential impact of incompatible (and competing) land uses in the area such as wind farm development in unreasonable proximity to game reserves poses a serious and material conservation threat. This threat is not evaluated by the EAP.		**X**		A response regarding impacts on rhino as a result of noise was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 61:</u> *There is only one property which forms part of the Indalo PE within 5km of the proposed wind farm development, with an area of less than 2000ha. This represents less than 3% of the Indalo PE. Beyond 5km it is difficult to see how the operation of the wind farm could significantly impact the resident population of black rhino. These animals are already living in an environment with various sources of anthropogenic noise and at this distance, noise levels are likely to be too low to have a significant impact on the Rhino. The turbines are generating a noise when the wind blows and at the same time, the wind itself is generating a lot of noise as it blows over the vegetation, with the result that the turbine noise will generally be masked within the wind noise. The effect would largely be to make the area appear more windy to fauna. Although this can have a negative impact on smaller fauna that are vulnerable to predation, it is difficult to see how this could significantly affect the local population of black rhino which tend to stick to dense bush and are not vulnerable to constant predation. As a result, noise within the audible and infra-sound ranges are not expected to have a noticeable impact on rhino at the distances likely to be experienced by the affected animals.* <u>Page 85:</u>

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					While there are a few studies that highlight that sound from large animals can be detected over large distances, most of these studies highlight that wind itself is a significant masking noise that influence these "communication, or that the "communication" is only detected during no- or low-wind conditions. The noise specialist discusses this in section 7.1.4, highlighting that (amongst others): • *To date there are, however, no guidelines or sound limits with regards to noise levels that can be used to estimate the potential significance of noises on animals.* • *Animals of most species exhibit adaptation with noise (Broucek, 2014), including impulsive noises, by changing their behaviour.* • *More sensitive species would relocate to a quieter area, especially species that depend on hearing to hunt or evade prey, or species that makes use of sound/hearing to locate a suitable mate (Drooling, 2007).* • *There are no published studies in reputable journals that provide support for the negative impacts of noise from wind turbines on animals.* • *Animal communication is generally the highest during no and low wind conditions. It has been hypothesised that this is one of the reasons why birds sing so much in the mornings (their voices carry the farthest and there are generally less observable wind).* • *Background noise levels (ambient sound levels) in remote areas are not always low in space or time. Wind generates significant noise itself and also significantly changes the ability of fauna to hear the environmental noises around them.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					• *Infrasound is present in the environment, and is generated by a wide range of natural sources, including wind.* • *Wind is a significant source of natural noise, with a character similar to the noise generated by wind turbines, with a significant portion of the acoustic energy in the low frequency and infrasound range.* • *Wind turbines does not emit broad-band sound on a continual basis as the turbines only turn and generate noise when the wind speeds are above the cut-in speed.* • *The wind turbines will only operate during periods of higher wind speeds, a period when background noise levels are already elevated due to wind-induced noises.* *Considering the location of the Kwandwe Private Game Reserve (well farther than 5 km), the complex topography between the proposed wind farms and the Private Game Reserve (see also Figure below illustrating the Elevation Profile), as well as the practical distances that sound (including Infrasound) travel, there is a low risk of a noise impact to animals, especially at the Kwandwe Private Game Reserve.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					 **<u>Further response from the noise specialist:</u>** There are no peer reviewed studies that define a potential sound level that can be used to evaluate the potential impact of noise on Black Rhino. The purpose of noise impact assessment is to use available guidelines, modelling and academic studies to conclude whether a particular project may impact on humans or animals. It is not academic research papers making conjectures or predictions, develop potential hypotheses or to carry out experiments. Little factual information is available and there are no evidence that noise from wind turbines does influence large animals in any significant levels. <u>The optimised layout presented for approval within the Revised Final BAR includes a reduced number of turbines (i.e. 50% less), located further from the Kwandwe Nature Reserve, reducing the risk of noise impacts on black rhino even further.</u>

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	13. Collective initiatives by among others the Indalo PE Association and Kwandwe private game reserve have been instrumental in this conservation success story. Well-resourced private reserves are able to minimise this serious threat and to effectively keep poaching levels low. The potential impact of the proposed Wind Garden and Fronteer WEFs on this delicate situation have not been assessed. This is serious gap. The concern was alluded to in previous I&AP comments, but it has not been integrated in the EIA process. The danger associated with the proliferation of wind farms in the area is that the security and integrity of anti-poaching initiatives will be compromised in a manner that poses a serious and unsustainable conservation threat. This threat is not addressed in the final BARs or specialist studies.		**X**		The concern regarding poaching has been noted in the BA process and specific management regarding poaching which is under the control of the developer is included in the project EMPr (Appendix N). This includes the requirement that construction workers are restricted to the development area. In addition, the applicant has recognised the challenges regarding anti-poaching mechanisms and as such has proposed anti-poaching support as part of their Conservation Framework included in Appendix R(4) of the BAR. The conservation framework details the support planned for the conservation industry in the area, and will form part of their SED/ED spend related to the project.
	14. Helicopter patrols are an essential part of effective anti-poaching patrols and ongoing monitoring. The proliferation of wind turbines in the area immediately adjacent to and surrounding Kwandwe private game reserve poses a direct, tangible and real impact on the efficacy of continued anti-poaching operations. The resultant obstacle posed by turbines poses a health and safety risk to pilots and an aviation risk in general.			**X**	Wind turbines would not be surrounding Kwandwe game reserve as implied in the comment. In terms of the Civil Aviation Regulations, the wind farm would be required to be registered as an obstacle. Therefore, pilots would be aware of the position of the turbines. Any additional measures which may be required to reduce any potential risk of these obstacles to pilots will be defined by the CAA. Even before the further reduction of turbines as presented in the optimised layout in the Revised Final BAR, no turbine is located within the Reserve's Helicopter flight path as it is assumed that they fly the Reserve and the immediate border

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					by a few 100 meters from the boundary. It is further assumed that they would not be flying far from their boundary over other farmer's land as this is of no relevance to their operations. It is worth noting that the wind farm will have security of its own which will limit access to the properties on this the facility is located. This will enhance the security from the current situation in which access control is limited.
	15. Even in circumstances where wind turbines do not pose a particular aviation threat by penetrating an obstacle surface or introduce turbulence, the mere presence of turbines within this landscape and context presents a special hazard for helicopters and general aviation due to the position and number of turbines in proximity to the point of turn in an approach flight path or a flight path in general. Turbines impede or block critical visibility for the pilot during a manoeuvre close to the ground which are necessary in this context of anti-poaching patrols and game management. All of this is critical in the current context and the nature of land uses in the surrounding environment. The health, safety and environmental aspects of this threat to aviation and the function that aviation plays in the successful and sustainable wildlife management operations have been ignored by the EAP.			**X**	The positioning of turbines is required to be approved by the Civil Aviation Authority (CAA) and Air Traffic and Navigation Services (ATNS). Flight paths use by the aviation industry is considered in this registration process.

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	16. Whilst the EAP refers to the 1km buffer in the DEA SEA for REDZ as a weak justification, this in no way removes the need to evaluate this critical impact. The entire essence of project level assessment is to allow a context specific and case-by-case impact assessment with directly affected stakeholders. This was not done. Deflecting this key issue with reference to a general rule of thumb in the DEA SEA for REDZ has had the effect of leaving this core concern unresolved and unaddressed.		**X**		As the relevant authorities for aviation related issues, the Civil Aviation Authority (CAA) and Air Traffic and Navigation Services (ATNS) were consulted as part of the BA process in order to determine any concerns in this regard. No objections or concerns were noted.
	17. As a general rule, it is imperative that the low-level airspace around the heliports and associated facilities required by anti-poaching operations (i.e. the space that is needed for aircraft and helicopters to climb or descend) must be protected and generally be free from obstacles, especially in case of engine failure and the need for low-level flying manoeuvres associated with game census operations and anti-poaching initiatives. Wind turbines are obstacles. Turbines as a rule, should not be permitted to penetrate the obstacle surface or be situated in a place where they contribute to a direct and real safety risk. In this instance, there is a consequential serious conservation initiative impact which has not been evaluated objectively and, in the manner, required by the EIA Regulations.			**X**	No details regarding the presence of heliports was provided in the EIA process. The only airfield identified through the process is the Makhanda (Grahamstown) airfield, which is located outside of the required buffer defined in the REDZ SEA (Table 7; CSIR 2015). According to the Kwandwe website, the reserve has a tarred, Category 3 private airstrip. **NO** reference is made to a heliport. No objections or concerns regarding proximity to registered airfields were noted by the CAA or ATNS during the process.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	18. Referring to the buffer between a windfarm and a small landing strip as being 1km as per the SEA for REDZ (page 120 of the comments and responses report) is about as far as the EAP delves into this key consideration. This glib response is unacceptable as it places lives at risk and threatens national and globally conservation imperatives to protect and conserve critically endangered species. The aviation-related impacts are ignored. This is not something that can just be deflected onto the Civil Aviation Authority. The EAP is required to address this key-project impact during the assessment process. The failure to do so compromises the efficacy of the EIA and the relevance of information tabled.		**X**		As the relevant authorities for aviation related issues, the Civil Aviation Authority (CAA) and Air Traffic and Navigation Services (ATNS) were consulted as part of the BA process in order to determine any concerns in this regard. No objections or concerns regarding proximity to registered airfields were noted by the CAA or ATNS during the process.
	19. Insofar as the competent authority purports to approve these projects on the back of the paucity of information and inadequate assessments undertaken, it will place South Africa on a direct path of conflict in terms of being unable to meet its international conservation targets and initiatives regarding the protection of critically endangered species. This aspect is a critical prerequisite to any balanced consideration of all relevant impacts and integration of all social, economic and environmental considerations into the decision-making framework within the broad umbrella of sustainable development. The current state of		**X**		The BA Report presents all information regarding impacts on the environment identified to be associated with the proposed project for the DFFE to make an informed decision regarding the proposed project.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	project impact evaluation and absence of critical information renders an informed and sustainable decision by the DFFE impossible. The assessment in this regard is inadequate and I&AP concerns have simply not been addressed.				
	20. We point out that Kwandwe has in its possession material information relating to project-related impacts, including impacts on Critically Endangered Species (Black Rhino). The information is both sensitive and confidential and cannot be released in the public domain. A mechanism for the introduction of this information into the NEMA EIA process needs to be identified and implemented.			**X**	The comment is noted. A request was sent to the I&AP requesting his advice on the way forward in sharing this information with the specialists and the DFFE, considering that the information could reasonably be expected to become public information once submitted to the DFFE. It was confirmed by email on 09 March 2022 that the redacted report could be made available to the ecological specialist Simon Todd. It was also confirmed that the redacted report could be included in the assessment process through its inclusion in the relevant environmental assessment reports and or comments and responses report.
	Anthropogenic noise 21. Based on I&AP concerns and issues raised during the assessment process regarding the impact of anthropogenic noise on wildlife, what was in fact required is a credible specialist study to assess the impact of anthropogenic noise on wildlife and megafauna give the proximity of the developments to Kwandwe private game reserve and other game reserves. This assessment has not been done.		**X**		A response was provided in the C&RR included as **Appendix C9** of the final BAR. <u>Page 61 and 91:</u> *There is only one property which forms part of the Indalo PE within 5km of the proposed wind farm development, with an area of less than 2000ha. This represents less than 3% of the Indalo PE. Beyond 5km it is difficult to see how the operation of the wind farm could significantly impact the resident population of black rhino. These animals are already living in an environment with various sources of anthropogenic noise and at this distance, noise levels are likely to be too low to have a significant impact on the Rhino. The turbines are*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					generating a noise when the wind blows and at the same time, the wind itself is generating a lot of noise as it blows over the vegetation, with the result that the turbine noise will generally be masked within the wind noise. The effect would largely be to make the area appear more windy to fauna. Although this can have a negative impact on smaller fauna that are vulnerable to predation, it is difficult to see how this could significantly affect the local population of black rhino which tend to stick to dense bush and are not vulnerable to constant predation. As a result, noise within the audible and infra-sound ranges are not expected to have a noticeable impact on rhino at the distances likely to be experienced by the affected animals. <u>Page 85:</u> *While there are a few studies that highlight that sound from large animals can be detected over large distances, most of these studies highlight that wind itself is a significant masking noise that influence these "communication, or that the "communication" is only detected during no- or low-wind conditions. The noise specialist discusses this in section 7.1.4, highlighting that (amongst others):* • *To date there are, however, no guidelines or sound limits with regards to noise levels that can be used to estimate the potential significance of noises on animals.* • *Animals of most species exhibit adaptation with noise (Broucek, 2014), including impulsive noises, by changing their behaviour.* • *More sensitive species would relocate to a quieter area, especially species that depend on hearing to hunt or*

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					evade prey, or species that makes use of sound/hearing to locate a suitable mate (Drooling, 2007). • *There are no published studies in reputable journals that provide support for the negative impacts of noise from wind turbines on animals.* • *Animal communication is generally the highest during no and low wind conditions. It has been hypothesised that this is one of the reasons why birds sing so much in the mornings (their voices carry the farthest and there are generally less observable wind).* • *Background noise levels (ambient sound levels) in remote areas are not always low in space or time. Wind generates significant noise itself and also significantly changes the ability of fauna to hear the environmental noises around them.* • *Infrasound is present in the environment, and is generated by a wide range of natural sources, including wind.* • *Wind is a significant source of natural noise, with a character similar to the noise generated by wind turbines, with a significant portion of the acoustic energy in the low frequency and infrasound range.* • *Wind turbines does not emit broad-band sound on a continual basis as the turbines only turn and generate noise when the wind speeds are above the cut-in speed.* • *The wind turbines will only operate during periods of higher wind speeds, a period when background noise levels are already elevated due to wind-induced noises.* *Considering the location of the Kwandwe Private Game Reserve (well farther than 5 km), the complex topography*

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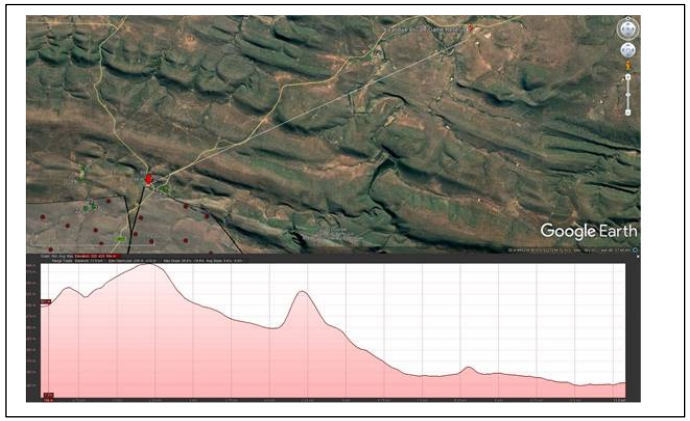
					between the proposed wind farms and the Private Game Reserve (see also Figure below illustrating the Elevation Profile), as well as the practical distances that sound (including Infrasound) travel, there is a low risk of a noise impact to animals, especially at the Kwandwe Private Game Reserve.  **<u>Further response from the noise specialist:</u>** There are no peer reviewed studies that define a potential sound level that can be used to evaluate the potential impact of noise on Black Rhino. The purpose of noise impact assessment is to use available guidelines, modelling and academic studies to conclude whether a particular project may impact on humans or animals. It is not academic research papers making conjectures or predictions, develop potential hypotheses or to carry out experiments. Little factual information is available and there are no evidence

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					that noise from wind turbines does influence large animals in any significant levels. A further response, specifically in terms of Low Frequency Noise is provided by the specialist and attached to this CRR as Appendix A. The following is of relevance to highlight here from this specialist opinion: » *LFN, when measured using the A-weighted scale is an insignificant component of the noise spectrum emitted by wind turbines. LFN, when described in terms of Z-weighted scale is a significant component of the noise spectrum. Yet, while LFN from wind turbines can be measured, wind turbines only operate during a period of increased wind speeds. As discussed on sections 2 and 3, there are already significant LFNsub-160Hz during periods of increased wind. The author again would like to highlight the findings of Evans (2012), that indicated that "infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations"* » *Without criteria about LFN it is not known if the impact is underestimated or over-estimated. LFN from the wind turbines could extend 3.5 km (using a level of 50 dBZ). However, this is during a period when the wind speeds are higher and LFNsub-160Hz may already be between 50 and 70 dBZ (or higher) and the existing LFNsub-160Hz is likely to be higher than the 50 dBZ value. However, since the conservation area is further than 3.5 km, a preliminary*

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					assessment can only state that the impact on animals is likely to be insignificant. <u>The optimised layout presented for approval within the Revised Final BAR includes a reduced number of turbines, located further from the Kwandwe Nature Reserve, reducing the risk of noise impacts on black rhino even further.</u>
	22. We reject the noise impact assessment as a technical desktop study. A desktop study is not a suitable substitute for an expert assessment of anthropogenic noise impacts on wildlife and megafauna. A recognised global expert, Dr. Angela Stoeger informed the EAP that the conclusions underpinning findings in the assessment are fatally flawed. Notwithstanding expert inputs regarding the flawed findings in the noise impact assessment, this issue remains unaddressed and unresolved.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 14:</u> *It is important to note that the paper discusses elephant communication during conditions ideal for the propagation of these sounds. This is typically during low, or no wind conditions. The paper provided (compiled by Michael Garstang) also clearly highlights the impact of wind on the communication of elephants, stating:* *Wind is directly related to turbulence and will attenuate a signal along its path, as well as creating flow noise at the elephant's ear, effectively elevating the threshold of hearing and reducing the ability of the animal to detect or interpret the signal.* *and* *Optimum atmospheric acoustic conditions for the transmission of low-frequency sounds exist when the height of the inversion lies between 50 and 200 m and surface winds are less than 2 m/s. Model calculations show that under these*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					conditions a loud, low-frequency elephant call can be detected by another elephant at a range of approximately 10 km. *Wind turbines do not operate in such conditions and would therefore not impact on elephant communication.* <u>Page 65:</u> *Both the Ecology Impact Assessment and the Noise Impact Assessment include consideration of the impact of wind turbines on animals. Consideration has been given to research undertaken in this regard. This included information provided by Angela Stoeger - Department of Behavioural & Cognitive Biology, University of Vienna. Following review of this information, the noise specialist provided the following response:* *It is important to note that the paper discusses elephant communication during conditions ideal for the propagation of these sounds. This is typically during low, or no wind conditions. The paper provided (compiled by Michael Garstang) also clearly highlights the impact of wind on the communication of elephants, stating:* *Wind is directly related to turbulence and will attenuate a signal along its path, as well as creating flow noise at the elephant's ear, effectively elevating the threshold of hearing and reducing the ability of the animal to detect or interpret the signal.* *and*

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					Optimum atmospheric acoustic conditions for the transmission of low-frequency sounds exist when the height of the inversion lies between 50 and 200 m and surface winds are less than 2 m/s. Model calculations show that under these conditions a loud, low-frequency elephant call can be detected by another elephant at a range of approximately 10 km. *Wind turbines do not operate in such conditions and would therefore not impact on elephant communication.*
	23. In circumstances where a known expert has identified weaknesses that questions the integrity of the impact assessment process, it is submitted that the precautionary principle must be applied. This principle mandates action to protect the environment when there is a scientifically plausible but unproven risk, and the principle provides a rationale for immediate intervention to protect wildlife from anthropogenic noise impacts while definitive studies are undertaken.			**X**	**Response from the noise specialist:** There are no peer reviewed studies that define a potential sound level that can be used to evaluate the potential impact of noise on Black Rhino. The purpose of noise impact assessment is to use available guidelines, modelling and academic studies to conclude whether a particular project may impact on humans or animals. It is not academic research papers making conjectures or predictions, develop potential hypotheses or to carry out experiments. Little factual information is available and there are no evidence that noise from wind turbines does influence large animals in any significant levels. Further information regarding potential noise impacts on fauna as provided by the noise specialist is included in Appendix A of this CRR.
	24. Dr. Angela Stoeger from the Department of Behavioural & Cognitive Biology at the University of Vienna is a recognised global expert on the issue and has in fact confirmed		**X**		The comment received from Dr. Angela Stoeger (page 14 of the CRR included in Appendix C9 of the BAR) states:

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	that the noise impact assessment undertaken in respect of the proposed Wind Garden and Fronteer WEFs and conclusions reached by the EAP are not scientifically valid or defensible.				*Please find attached a paper of ours that shows that elephant calls in Addo travel at least up to 1.5, and in some cases 2 km distance (we did not test for greater distances). Other research showed that elephant communicate up to 4 km distance, in some cases even more, up to 10 km (paper attached).* *It is absolutely incorrect to state that low-frequency noise (at a distance greater of 100 meter) does not affect elephants. Low-frequency noise travels far, and it has been shown that the noise of wind turbines travels up to 20km.* *So from a scientific point of view, this statement that elephant and rhino communication and welfare is not effected is dramatically incorrect, and totally unsubstantiated.* There is no reference to conclusions reached as being "*not scientifically valid or defensible*". It is noted that conclusions on noise impacts on wildlife were considered by both the noise specialist and the ecologist and both concluded that impacts are unlikely given the nature of the project. The responses on pages 14 and 65 of the CRR (detailed in the sections above) are relevant in this regard. A further response from the noise specialist to the comments provided by Mr. R. Summers and Dr. D. Balfour is included in Appendix A of this CRR. The following is of relevance to highlight here from this specialist opinion:

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					» *LFN, when measured using the A-weighted scale is an insignificant component of the noise spectrum emitted by wind turbines. LFN, when described in terms of Z-weighted scale is a significant component of the noise spectrum. Yet, while LFN from wind turbines can be measured, wind turbines only operate during a period of increased wind speeds. As discussed on sections 2 and 3, there are already significant LFNsub-160Hz during periods of increased wind. The author again would like to highlight the findings of Evans (2012), that indicated that "infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations"* » *Without criteria about LFN it is not known if the impact is underestimated or over-estimated. LFN from the wind turbines could extend 3.5 km (using a level of 50 dBZ). However, this is during a period when the wind speeds are higher and LFNsub-160Hz may already be between 50 and 70 dBZ (or higher) and the existing LFNsub-160Hz is likely to be higher than the 50 dBZ value. However, since the conservation area is further than 3.5 km, a preliminary assessment can only state that the impact on animals is likely to be insignificant.* <u>The optimised layout presented for approval within the Revised Final BAR includes a reduced number of turbines, located further from the Kwandwe Nature Reserve, reducing the risk of noise impacts on black rhino even further.</u>
	25. A definitive study and expert assessment of anthropogenic noise impacts on wildlife and		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	megafauna must be undertaken before a decision is taken on the applications for both the proposed Wind Garden and Fronteer WEFs.				<u>Page 14:</u> *It is important to note that the paper discusses elephant communication during conditions ideal for the propagation of these sounds. This is typically during low, or no wind conditions. The paper provided (compiled by Michael Garstang) also clearly highlights the impact of wind on the communication of elephants, stating:* *Wind is directly related to turbulence and will attenuate a signal along its path, as well as creating flow noise at the elephant's ear, effectively elevating the threshold of hearing and reducing the ability of the animal to detect or interpret the signal.* *and* *Optimum atmospheric acoustic conditions for the transmission of low-frequency sounds exist when the height of the inversion lies between 50 and 200 m and surface winds are less than 2 m/s. Model calculations show that under these conditions a loud, low-frequency elephant call can be detected by another elephant at a range of approximately 10 km.* *Wind turbines do not operate in such conditions and would therefore not impact on elephant communication.* <u>Page 65:</u>

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Both the Ecology Impact Assessment and the Noise Impact Assessment include consideration of the impact of wind turbines on animals. Consideration has been given to research undertaken in this regard. This included information provided by Angela Stoeger - Department of Behavioural & Cognitive Biology, University of Vienna. Following review of this information, the noise specialist provided the following response: *It is important to note that the paper discusses elephant communication during conditions ideal for the propagation of these sounds. This is typically during low, or no wind conditions. The paper provided (compiled by Michael Garstang) also clearly highlights the impact of wind on the communication of elephants, stating:* *Wind is directly related to turbulence and will attenuate a signal along its path, as well as creating flow noise at the elephant's ear, effectively elevating the threshold of hearing and reducing the ability of the animal to detect or interpret the signal.* *and* *Optimum atmospheric acoustic conditions for the transmission of low-frequency sounds exist when the height of the inversion lies between 50 and 200 m and surface winds are less than 2 m/s. Model calculations show that under these conditions a loud, low-frequency elephant call can be detected by another elephant at a range of approximately 10 km.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Wind turbines do not operate in such conditions and would therefore not impact on elephant communication.
	Ineffective mitigation 26. The impact mitigation hierarchy as purportedly applied in respect of the proposed Wind Garden and Fronteer WEFs are flawed in several material respects. This is evident from the following key observations:				Responses to comments raised are provided in the sections below.
	Ornithological mitigation 26.1. Landowners of neighbouring properties were not approached to provide any information on possible nests on any target species or for the use of their properties for observation. The EAP indicates that significant vantage point surveying informed the avifaunal assessment undertaken but that, as with any assessment, there will be uncertainty. As such, the assessment has been "conducted on a precautionary basis" and a "specific Ornithological Mitigation Plan should be developed and implemented for all of the Choje wind farms".[2]		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 20:</u> *The avifaunal specialist has indicated that there has been a huge amount of survey effort to inform the assessment, with over 3 000 hours of vantage point survey across the proposed cluster of wind farms. With any assessment there will always be some uncertainties, which is why the assessment here has been conducted on a precautionary basis (and why it has been proposed that a specific Ornithological Mitigation Plan should be developed and implemented for all of the Choje wind farms).* *The specialist has further indicated that at least four survey visits were made to all potentially suitable raptor nest sites, as well as information from other surveys especially the VP surveys (which involved long periods of viewing over the survey area). The raptor survey methodology is set out in the*

[2] Wind Garden Appendix C9: Comments and Responses Report at pages 17-18.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					avifauna impact assessment report section 4.2.2. The specialist has stated that they are highly confident that the field survey team did locate all relevant nests on the development site and outside that where full access was possible, but that even where access could not be obtained active territories were confirmed and nesting areas identified. **<u>Further response:</u>** The response above and the approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.* *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*"
	26.2. I&APs raised concern that the recommendations in the "*draft Ornithological Mitigation Plan*" are based on uncertainty, and the measures are vague and not site-		**X**		The response referred to is included on page 40 of the C&RR included as Appendix C9 of the final BAR. The Ornithological Mitigation Plan is part of the adaptive management strategy which is being recommended by the avifauna specialist. This

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	specific. Specifically, Sam Ralston (Birds and Renewable Energy Project Manager from BLSA) noted that "*much more work is required to flesh the recommendations out and test the effectiveness and feasibility*".[3] Furthermore, that "*operational phase mitigation measures proposed in the EMPr are not proactive and are too vague*".[4] In response to these issues, the EAP indicated that "*the plan (draft Ornithological Mitigation Plan) is intended to be a working document which will be finalised for implementation prior to operation. Inputs from key stakeholders such as Birdlife and EWT will be sought during this finalisation*" (emphasis added). The EAP further stated that "*the requirement for the implementation of the Ornithological Mitigation Plan as well as the finalisation thereof ... has been included within the EMPr submitted to DFFE with the final BA Report*".[5]				adaptive management is in line with the requirements of the Birds and Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston. This guideline defines Adaptive Management as "*An iterative decision-making process used in the face of uncertainty where management policies and practices are continually improved through monitoring and learning from the outcomes of previous approaches*." Further to the above, EMPrs are considered to be live/dynamic documents that may require updating and adapting as new and more effective mitigations become available over the life cycle of the project. The EMPr for this project is no different. Any updates or amendments to the EMPrs will be undertaken in accordance with the requirements of the relevant Regulations at the time.
	26.3. If landowners were not approached at the outset so that the specialist could inspect their properties for nests, and the draft Ornithological Mitigation Plan (which is currently weak in terms of its proposed mitigation) is still a work in progress and		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. Page 20[7]: *The avifaunal specialist has indicated that there has been a huge amount of survey effort to inform the assessment, with*

[3] Wind Garden Appendix C9: Comments and Responses Report at page 35.
[4] Wind Garden Appendix C9: Comments and Responses Report at page 36.
[5] Wind Garden Appendix C9: Comments and Responses Report at page 36.
[7] The reference to page 17-18 by Mr Summers is incorrect

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	subject to change – then it is unclear how the mitigation hierarchy has been implemented in this case where the bulk of the information required to inform the assessment and mitigation is unknown or inadequate. Although the avifaunal specialist has stated that they are *"highly confident that the field survey team did locate all relevant nests on the development site and outside that where full access was possible"*, this is not possible if neighbouring properties were not accessed with a view to assessing the presence of nests first-hand.[6]				*over 3 000 hours of vantage point survey across the proposed cluster of wind farms. With any assessment there will always be some uncertainties, which is why the assessment here has been conducted on a precautionary basis (and why it has been proposed that a specific Ornithological Mitigation Plan should be developed and implemented for all of the Choje wind farms).* *The specialist has further indicated that at least four survey visits were made to all potentially suitable raptor nest sites, as well as information from other surveys especially the VP surveys (which involved long periods of viewing over the survey area). The raptor survey methodology is set out in the avifauna impact assessment report section 4.2.2. The specialist has stated that they are highly confident that the field survey team did locate all relevant nests on the development site and outside that where full access was possible, but that even where access could not be obtained active territories were confirmed and nesting areas identified.* **Further response:** The statement "*even where access could not be obtained active territories were confirmed and nesting areas identified*" indicates a reliance on breeding territories and not specific nest sites where access to a property was not possible. A specific nest survey was undertaken in the avifauna impact assessment. The methodology employed is detailed in Chapter 2 of the AIA (Appendix E of the BAR).

[6] Wind Garden Appendix C9: Comments and Responses Report at pages 17-18.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Detailed analysis of the data collected from the site surveys undertaken between January 2019 and August 2020 and spatial modelling of the factors affecting key species' distributions were undertaken to enhance the evidence base and ensure that the data and models used for the assessment were robust and reliable. Whilst the mitigation measures (including the design mitigation) proposed were informed by the baseline survey and the spatial modelling, they are precautionary in their nature. Rather than based on past scenarios, they look forward so that they can be adapted to mitigate future scenarios. The approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.* *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*"

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					Adaptive Management as "*An iterative decision-making process used in the face of uncertainty where management policies and practices are continually improved through monitoring and learning from the outcomes of previous approaches.*"
	26.4. More is required to be done – including engagements with key stakeholders from BLSA (i.e. prior to the operational phase) particularly as key stakeholders have already raised concern with the draft mitigation plan during the public participation process. More information and more consultation is required to rectify deficiencies in the draft Ornithological Mitigation Plan.		**X**		The BLSA and EWT are registered parties on the project database from the onset of the application process. Representatives of BLSA attended virtual meetings held and submitted written comments on the BAR. These comments have been captured in the C&RR and responded to and addressed as applicable.
	Post-mitigation rating for avifaunal impacts 26.5. The post-mitigation rating for avifaunal impacts reflects - according to the avifauna specialist - the expected extent, duration, magnitude and probability of the impact following the implementation of the recommended mitigation measures. In terms of this approach, one of the mitigation measures proposed is the use of a single blade painted black during construction which – according to the specialist - results in a significance score of 56 being mitigated down to a rating of 26. In other words, the assessment relies on the efficacy of the		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 40:</u> The *post-mitigation rating reflects the expected extent, duration, magnitude and probability of the impact occurring following the implementation of the recommended mitigation measures. In terms of the reference to the black blade, the following is stated:* » *All turbines located within the cautionary buffers must have a single blade painted black during construction. Given this is a novel mitigation, which has been proven to be effective internationally, a post-construction*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	measure to achieve mitigation. The comments and response report records *"all turbines located within the cautionary buffers must have a single blade painted black during construction. Given this is a novel mitigation, which has been proven to be effective internationally, a post-construction monitoring scheme should be implemented to determine its effectiveness"*.[8]				*monitoring scheme should be implemented to determine its effectiveness.* *By implication, if this mitigation (or similar mitigation to increase the visibility of the blade) is not implemented, turbines would not be permitted to be located within this area. This has been made clear in the final report through the addition of the following "Where this mitigation is not feasible, turbines must be removed from the cautionary buffer."* **Additional response:** The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by I&APs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This optimised layout is presented in Chapter 12 of the Revised Final BAR. Turbines within the precautionary avifaunal buffers have been removed and the avifaunal specialist has confirmed that Collision risk was reduced for all species.
	26.6. Therein lies the flaw in logic used by the avifaunal specialist and which illustrates the defective application of mitigation in this			**X**	The Ornithological Mitigation Plan included in the AIA includes an adaptive management strategy which is being recommended by the avifauna specialist. This adaptive

[8] Wind Garden Appendix C9: Comments and Responses Report at pages 22-23.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	case. The effectiveness of the mitigation measure is uncertain. The efficacy is speculative as admitted by the specialist. The effectiveness is left to be determined accurately in the construction phase and only after the authorisation for the projects has been granted. This defies logic and circumvents the impact mitigation hierarchy. If the mitigation proves ineffective, the entire assessment of impact mitigation would have been premised upon a falsehood.				management would be informed by the outcomes of post-construction monitoring in line with the requirements of the Birds and Wind-Energy Best-Practice Guidelines (third Edition), 2015, and also includes the requirement for Shutdown-on-Demand where other measures prove ineffective. The approach taken by the specialist in this regard is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.* *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*" Adaptive Management as "*An iterative decision-making process used in the face of uncertainty where management policies and practices are continually improved through monitoring and learning from the outcomes of previous approaches.*"

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	26.7. There is no credible basis upon which the efficacy of the mitigation measures can be relied upon by the EAP in circumstances where the avifauna specialist admits that the determination of effectiveness has not been undertaken in the current assessment process and ultimately that the evaluation of mitigation is to be done ex post facto and is entirely dependent on post- construction monitoring. This defeats the one of the singular most important objectives of EIA, namely that necessary and credible information (regarding project impact and mitigation) is required before a decision is taken in connection with a project.			**X**	The approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.* *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*" Several case studies have proved the success of mitigation measures where these have been implemented appropriately. This includes the implementation of shut down on demand implemented at the Excelsior Wind Farm in the Western Cape (refer to Appendix B of the CRR). The proposed mitigation (as set out in detail in the Ornithological Mitigation Plan) forms part of a package of measure adopting a precautionary approach to ensure that the local bird populations are not significantly affected by the wind farm.
	27. There is no guarantee that buffers will be respected. The fact that turbines are still			**X**	The requirement to comply with the recommended buffers is included in the conditions to be included in the EMPr (Section

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	reflected within the cautionary buffers in circumstances where the efficacy of mitigation is untested and to be verified in the post construction phase is unacceptable.				12.6 of the BAR), which states: *All mitigation measures detailed within this BA report, as well as the specialist reports contained within Appendices D to M, are to be implemented.* All mitigation measures recommended, as well as the facility layout recommended for implementation are included within the EMPr for the project. The preferred layout for implementation is the reduced optimised layout presented in Chapter 12 of the Revised Final BAR. The applicant has proposed this optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. Turbines within the precautionary avifaunal buffers have been removed and the avifaunal specialist has confirmed that Collision risk was reduced for all species.
	Avifaunal impacts 28. AVISENSE previously peer-reviewed the avifaunal studies for the proposed Wind Garden and Fronteer WEFs and provided detailed comments on those studies. AVISENSE was unable to complete a subsequent review		**X**		Comments regarding the avifaunal study were previously provided by Dr Jenkins on the draft BAR (dated May 2021) via Mr Summers and were addressed in the CRR included in the BAR (refer to page 122 and Appendix C9b for the specialists' response).

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	of the avifaunal specialist's responses to AVISENSE's earlier comments during the previous commenting period for the revised BARs at time in June – July 2021. AVISENSE could only complete their subsequent peer-review in August 2021 but by that time the EAP had prematurely submitted the final BARs to the DFFE for decision-making. Due to the subsequent I&AP complaint and resultant DFFE investigations which occurred during the remainder of 2021 (and which culminated in the DFFE's requirement that the EAP undertake this commenting period), this is the first formal opportunity to table the results of the additional inputs prepared by AVISENSE.				
	29. AVISENSE has reviewed (i) the EAP / specialist responses to specific aspects of the AVISENSE peer reviews of the bird studies for the proposed Wind Garden and Fronteer WEFs, and (ii) the revisions of the two avifaunal studies dated June 2021. We confirm that the issues raised previously by AVISENSE have been largely dismissed. This is a serious flaw in the assessment. In fact, no substantive changes to either of avifaunal studies has been made since the previous comments by AVISENSE, notwithstanding the deficiencies and problems with the assessment identified by AVISENSE. Bizarrely, no substantive changes to either of avifaunal studies has been made between the		**X**		Comments regarding the avifaunal study were previously provided by Dr Jenkins on the draft BAR (dated May 2021) via Mr Summers and were addressed in the CRR included in the BAR (refer to page 122 and Appendix C9b for the specialist's response). Responses provided as to how issues raised were addressed were substantiated with evidence from the report. No comments were received from Mr Jenkins on the Revised BAR, which included a substantively revised AIA compiled to address comments received during the public review period. Comments received from Mr Summers on the Revised BAR on 21 July 2021 (Point 7 of Section 1.2 of the CRR included in the BAR) did not include any comments on avifauna.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	drafts made available for public comment in June 2021 and the final BARs now belatedly made available in January 2022. This is seriously problematic. It presupposes that the avifaunal specialists have no intention of correcting or changing their studies in order to address the deficiencies point out by AVISENSE. It also flies in the face of Best Practice Guidelines, which has substantially changed since the final BARs were released for public comment. AVISENSE has confirmed in writing that the fundamental problems with the two studies highlighted in the original peer review have not been addressed.				As stated in the AIA (Appendix E of the BAR) "*The pre-construction bird monitoring has been designed using the BirdLife South Africa (BLSA) guidance and international best practice (Jenkins et al. 2015, SNH 2017, BLSA 2017 Verreaux's eagle guidelines, BLSA 2018 Cape vulture guidelines) and the information in the Strategic Environmental Assessment (SEA) (Department of Environmental Affairs 2015) completed by CSIR for the Cookhouse REDZ Focus Area.*" These are the most recent guidelines available for avifauna monitoring and assessment of impacts associated with wind energy facilities at the time of the application and surveys conducted. It is therefore unclear what is being referred to in the statement: "*Best Practice Guidelines, which has substantially changed since the final BARs were released for public comment*". As with any Legal process such as an EA application, the legislation and guidelines applicable at the outset of the process are those required to be complied with. Changes in the Regulations during a process are not required to be implemented as is usually stated in the relevant Transitional Arrangements. Therefore, applicants are not required to apply amended/revised guidelines in the middle of the process after monitoring protocols have been determined on the basis of relevant guidelines and surveys have commenced. This will defeat the purposes of legislated timeframes and projects will never reach the conclusion/decision making phase as it will remain open-ended which is not the purpose of such Acts/Regulations.
	30. The large eagle nest survey methods, effort and efficacy remain questionable, as do the		**X**		Response provided in the avifauna specialist response (Appendix C9b of the CRR) states:

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	specific whereabouts of eagle nest sites that were included as relevant to the two assessments but were not present at the indicated locations when AVISENSE surveyed the area in April 2021.				*The review included eight days of surveys during April 2021 where the authors claimed to have evaluated "the coverage, accuracy and overall adequacy of the field work done to determine the status of cliff- and tree-nesting raptors". The authors accepted that their access to much of the study area was heavily restricted (they were unable to gain ground access to the whole of the development site) and limited the effectiveness of this work, but attempted to address this partly through use of helicopter as a survey platform, an unusual choice given the high level of disturbance that helicopters can cause. As a result, most of their results had a high degree of uncertainty and they were unable to confirm the specific identify of any eagle nests in the area.* And further: *the reviewers have again understated the survey effort that has been undertaken and as a result, their conclusions are again flawed.*
	31. Given that the predicted significance of impacts on birds of the proposed Wind Garden and Fronteer WEFs are largely dependent on the distribution of Martial and Verreaux's Eagle nests in relation to the proposed turbine layouts, these inconsistencies and deficiencies must still be fully addressed. In the absence of the avifaunal impact studies having been updated to address these deficiencies, NEMA dictates		**X**		Comments regarding the avifaunal study were previously provided by Dr Jenkins on the draft BAR (dated May 2021) via Mr Summers and were addressed in the CRR included in the BAR (refer to page 122 and Appendix C9b for the specialist's' response). Responses provided as to how issues raised were addressed were substantiated with evidence from the report. The AIA was revised following the initial comments received in the review period of the draft BAR in order to address

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	that the precautionary principle must be applied in this context. This principle mandates action to protect the environment when there is a scientifically plausible but unproven risk, and the principle provides a rationale for immediate intervention to protect Martial and Verreaux's Eagle from impacts while definitive studies are undertaken.				comments raised by stakeholders. No comments were received from Mr Jenkins on the Revised BAR, which included a substantively revised report compiled to address comments received during the public review period. Comments received from Mr Summers on 21 July 2021 (Point 7 of Section 1.2 of the CRR included in the BAR) did not include any comments on avifauna. The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This optimised layout is presented in Chapter 12 of the Revised Final BAR. Turbines within the precautionary avifaunal buffers have been removed and the avifaunal specialist has confirmed that Collision risk was reduced for all species.
	32. The models used to estimate eagle flight behaviour and collision risk (and hence the significance of unmitigated and residual impacts on these key species) are based on (i) inaccurate and possibly deficient distributions of occupied nest sites, and (ii) insufficient and/or insufficiently reliable and accurate		**X**		Response provided in the avifauna specialist response (Appendix C9b of the CRR) states: *Whilst the reviewers claim that in their opinion the collision risk modelling and bird impact assessment are not of the required standard, their primary reason for this appears to be based on "the quality, extent and intensity of the nest survey and*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	vantage point data. Based on the failure to supply adequate detail regarding the field methods used and the distribution and quantity of observer effort applied, it is not possible to take this comment any further without further detail.				*monitoring information being particularly poor". As shown above, this conclusion that they have reached is based on a flawed interpretation of the report. The claim a "possibility that at least one or two important nest sites may have been overlooked" has no evidence base and is simple speculation based on a misinterpretation of the baseline surveys carried out.* *Concerns are raised about the amount of VP data. There has though been a very considerable amount of surveys (900 hours over the Wind Garden/Fronteer study area as a whole, i.e. the area indicated in Figure 3 of the report). The lack of records flying through the collision risk zone was not a result of a lack of survey effort but rather reflect the very low use that these species made of the zone.* *Assertions about the quality of VP data ignore the fact that this is a well-proven methodology that has been adopted worldwide to assist in wind farm collision risk analysis. To describe rigorously collected VP data as 'notoriously unreliable' is at best disingenuous, if not misleading.* *The review raises concerns about the way that eagle nest buffers have been implemented. There are, however, clear problems with simple circular buffers, as Murgatroyd et al (2021) have highlighted in their recent paper – circular buffers have limited benefit and are inefficient in defining areas of higher collision risk, as these eagles do not randomly move around a specific distance from their nests but choose to forage and fly over specific areas and habitats within their*

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					range. This is why buffers based on actual bird use of an area (and spatial modeling using those data) provide a more robust solution. Our spatial modelling has shown the importance of distance from the nest, but also altitude (higher flight activity in the 600-800m range), distance from ridge lines (higher closer to ridge lines), and slope (higher in areas of steeper slope).
	33. The stubborn and indefensible insistence on applying <u>minimal protective buffers</u> around the affected eagle nests – buffers that are substantially smaller than those considered to be local best practice (e.g. Verreaux's Eagle; BirdLife 2021), or than those likely to be established as best practice in forthcoming guidelines documents (e.g. Martial Eagle; G. Tate pers. comm.) - remains highly problematic. Importantly, the new Verreaux's Eagle guidelines were published in November 2021 (i.e. prior to the release of the final BARs for public comment) have completely been ignored by the specialist. The new Guidelines have been extensively workshopped by various specialists and industry and represents the most up-to-date scientific information regarding impact assessment and mitigation on Verreaux's Eagles. No explanation has been provided as to why the avifaunal impact assessment was not updated following the publication of the new Verreaux's Eagle guidelines in November 2021.		**X**		As with any Legal process such as an EA application, the legislation and guidelines applicable at the outset of the process are those required to be complied with. Changes in the Regulations during a process are not required to be implemented as is usually stated in the relevant Transitional Arrangements. Therefore, applicants are not required to apply amended/revised guidelines in the middle of the process after monitoring protocols have been determined on the basis of relevant guidelines and surveys have commenced. ***<u>Response provided by the Avifaunal Specialist</u>*** In relation to the design of the site buffers, the analysis used to inform the 2.5km distance for Martial Eagle, for example, is set out in Appendix 2 of the AIA (Appendix E of the BAR). Figure 1 from that appendix is reproduced here as it illustrates the evidence base for the use of that specific distance. The survey data showed a strong relationship between flight density and distance from the nest, but this relationship flattened out beyond 2.5km. The highest densities were recorded within 500m of nests and there was a steady decline in flight density with distance from the nest, but only up to a distance of 2.5km. Beyond 2.5km flight density was

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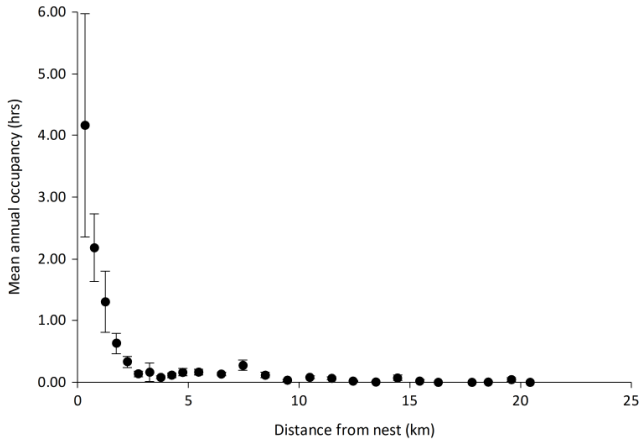
					consistently lower. Any exclusion of turbines beyond 2.5km would be of much less benefit in reducing collision risk. A similar result was found for the Choje East Block, though there, higher flight activity was noted within 1.5km of the nest (though with a smaller amount of baseline data available a precautionary approach was adopted and a 2.5km applied in the East and as well as the West). *Appendix 2. Figure 1. Martial Eagle flight density and distance from the nest, Choje West June 2019 - August 2020 (mean ± 95% confidence limits).*  The combination of the field survey data and spatial modelling, with the collision risk assessment have shown that the impact risk for this species for the proposed site about would not be significant (which will be further ensured through the mitigation measures).

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					The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This optimised layout is presented in Chapter 12 of the Revised Final BAR. Turbines within the precautionary avifaunal buffers have been removed and the avifaunal specialist has confirmed that Collision risk was reduced for all species.
	34. Once the eagle nest surveys for the proposed Wind Garden and Fronteer WEF sites have been fully completed and the specific locations of occupied and active nesting territories have been verified, the latest versions of the VERA model and whatever equivalent guidelines is currently available for Martial Eagle must be applied to the avifaunal impact studies. The outputs of more definitive studies and these models – both based on large quantities of accurate, high resolution flight data derived from large samples of GPS-tagged eagles in broadly comparable habitats to those in the Wind Relic area – must then be used to map avian impact sensitivity and impact risk in		**X**		***Response provided by the Avifaunal Specialist*** A detailed spatial analysis of the Martial and Verreaux's Eagle range behaviour has been undertaken to inform the wind farm site design, and turbines removed in higher risk areas (see **AIA Appendix 2;** Appendix E of the BAR). The precautionary approach was adopted by the specialist and circular buffers applied as a more bespoke approach to determine buffers was previously proposed and not accepted by BirdLIfe. It must be noted that the buffers recommended are based on on-site data collected and spatial flight analyses conducted, which is considered important in informing buffers as no 2 wind farm sites are the same by virtue of the environment that they are situated

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	relation to the two proposed wind farms. Without this additional assessment and information, any decision in terms of NEMA will undermine the section 2 NEMA principles.				within. The specialist supports models such as VERA, but has taken a more refined approach as VERA is limited in the way impacts are assessed and ranked.
	35. reviews remain essentially the same, as follows: 35.1. The bird impact studies for the proposed Wind Garden and Fronteer WEFs are superficially adequate only. The studies lack the accuracy, completeness and detail required to fully identify and evaluate the impacts of each of the proposed developments. In other words, the assessment is inadequate.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 122:</u> *As detailed in the response from the avifauna specialist to the peer review submitted with these comments (refer to Annexure C9b of this CRR), the peer review is flawed and lacking in rigour, and has not fully considered all of the information provided in the report. Despite its superficial criticisms of the ornithological impact assessment, it offers no substantive evidence-based reasons to alter the conclusions reached in the assessment. It remains the case that the Wind Garden and Fronteer sites are of low ornithological sensitivity and that the proposed wind farm will not result in any significant ornithological impact. This conclusion is further emphasised by the commitment of the developer to implement an Ornithological Mitigation Plan that is being developed with stakeholders, to ensure the delivery of the proposed mitigation and enhancement measures.*
	35.2. The survey work on cliff-and tree-nesting raptors is deficient in scope, extent and intensity, possibly resulting in important sites not being detected and therefore not being factored into the impact assessments.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 20:</u> *The avifaunal specialist has indicated that there has been a huge amount of survey effort to inform the assessment, with over 3 000 hours of vantage point survey across the proposed*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					cluster of wind farms. With any assessment there will always be some uncertainties, which is why the assessment here has been conducted on a precautionary basis (and why it has been proposed that a specific Ornithological Mitigation Plan should be developed and implemented for all of the Choje wind farms). *The specialist has further indicated that at least four survey visits were made to all potentially suitable raptor nest sites, as well as information from other surveys especially the VP surveys (which involved long periods of viewing over the survey area). The raptor survey methodology is set out in the avifauna impact assessment report section 4.2.2. The specialist has stated that they are highly confident that the field survey team did locate all relevant nests on the development site and outside that where full access was possible, but that even where access could not be obtained active territories were confirmed and nesting areas identified.*
	35.3. The impact assessments and bird studies underplay the potential severity of the impacts of the two developments on threatened and collision-prone species such as Verreaux's Eagle, Martial Eagle, Crowned Eagle (and possibly Secretary bird, Lanner Falcon and Blue Crane), and over-estimate our current ability to mitigate such impacts, resulting in residual impact ratings that are overly lenient on the two development proposals.		**X**		The approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.*

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					Post-construction monitoring is therefore critical to: *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*" **<u>Further response:</u>** As stated in the AIA (Appendix E of the BAR) "*The pre-construction bird monitoring has been designed using the BirdLife South Africa (BLSA) guidance and international best practice (Jenkins et al. 2015, SNH 2017, BLSA 2017 Verreaux's eagle guidelines, BLSA 2018 Cape vulture guidelines) and the information in the Strategic Environmental Assessment (SEA) (Department of Environmental Affairs 2015) completed by CSIR for the Cookhouse REDZ Focus Area.*" These are the most recent guidelines available for avifauna monitoring and assessment of impacts associated with wind energy facilities. In the absence of any published guidance on Martial Eagle (at the time of the surveys and at present, a detailed and phased programme of design mitigation was followed to inform a wind farm layout that optimised collision risk for this species by dropping all of the higher risk turbines as identified through extensive field surveys. The field data and spatial modelling showed that Martial Eagle flight density (and hence collision risk) was higher within 2.5km of an active nest but not beyond that distance, so that distance was applied as the first phase buffer (and a definite no-go buffer where all turbines were dropped). A second phase design process was then applied, removing further turbines where flight activity

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					was higher (mostly, though not exclusively within a 5km buffer). Given that Martial Eagle is a wide-ranging species, there will always be a small residual risk of collision even with this two-phased design mitigation. This is the reason why an adaptive management plan is recommended that will deliver a range of additional mitigation as required to ensure that significant impacts do not occur. The Ornithological Mitigation Plan included in the AIA includes an adaptive management strategy which is being recommended by the avifauna specialist. This adaptive management would be informed by the outcomes of post-construction monitoring in line with the requirements of the Birds and Wind-Energy Best-Practice Guidelines (third Edition), 2015, and also includes the requirement for Shutdown-on-Demand where other measures prove ineffective. As stated previously, the approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015. As with all projects and themes, the use of tools and guidelines requires confirmation by a specialist verified by onsite data. This verification process was followed by the Avifaunal specialists and their knowledge and experience used to determine the best sustainable recommendations and mitigation measures for the development site. The comments made thus contradict the customary verification process and the need for long-term onsite monitoring.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	35.4. These project-specific failings are still compounded and magnified in the two reports' attempts to evaluate the cumulative impacts of these and other renewable energy projects in the region on local populations of threatened birds.		**X**		Cumulative impacts are assessed comprehensively by each Specialist Assessment in accordance with the requirements of the EIA Regulations and the requirements of DFFE.
	36. Detailed comments prepared by AVISENSE are attached. Itemised responses are also provided to each of the rebuttals provided by the avifaunal specialist. The supplied "Response to peer review..." documents for each of the two projects are identical therefore these comments apply equally to both projects and the deficiencies in the avifaunal studies. The DFFE's attention is specifically drawn to the specific and detailed counter-arguments (and peer-review) provided by AVISENSE which show that the information is neither accurate, sufficient nor credible. The current state of information does not inform responsible or relevant decision-making regarding the sustainability of impacts.			**X**	A response from the avifauna specialist to the comments submitted by AVISENSE is included in the relevant sections of this C&RR. As stated in the AIA (Appendix E of the BAR) "*The pre-construction bird monitoring has been designed using the BirdLife South Africa (BLSA) guidance and international best practice (Jenkins et al. 2015, SNH 2017, BLSA 2017 Verreaux's eagle guidelines, BLSA 2018 Cape vulture guidelines) and the information in the Strategic Environmental Assessment (SEA) (Department of Environmental Affairs 2015) completed by CSIR for the Cookhouse REDZ Focus Area.*" These are the most recent guidelines available for avifauna monitoring and assessment of impacts associated with wind energy facilities at the time of the application and surveys conducted. In terms of the REDZ SEA, the proposed project site (and specifically the optimised layout) is located within an area considered to be of low to moderate sensitivity for avifauna. Priority bird species were identified from the SEA document (of which Andrew Jenkins of AVISENSE is an author), as well as from SABAP2 data as specified in the SEA. These were further confirmed through comprehensive field assessments and surveys undertaken over the monitoring period as required in terms of the Guidelines.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Failure to respond to I&AP concerns 37. A comment was submitted to the EAP 8 July 2021 by Dr. Angela Stoeger of the Department of Behavioural and Cognitive Biology at the University of Vienna. Dr Stoeger is an acknowledged expert on elephant communication. The essence of the comment was threefold: (1) elephant communication occurs up to significant distances of 10km; (2) the argument in the revised BARs that low-frequency noise does not affect elephants is absolutely incorrect; (3) low-frequency noise travels great distances and anthropogenic wind turbine noise generated impacts travel up to 20km. According to Dr. Angela Stoeger, the statement in the assessment reports / studies that elephant and rhino communication and welfare is not adversely affected is dramatically incorrect and totally unsubstantiated from a scientific point of view. This represents a serious and fatal flaw in the assessment.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. Page 14: *It is important to note that the paper discusses elephant communication during conditions ideal for the propagation of these sounds. This is typically during low, or no wind conditions. The paper provided (compiled by Michael Garstang) also clearly highlights the impact of wind on the communication of elephants, stating:* *Wind is directly related to turbulence and will attenuate a signal along its path, as well as creating flow noise at the elephant's ear, effectively elevating the threshold of hearing and reducing the ability of the animal to detect or interpret the signal.* *and* *Optimum atmospheric acoustic conditions for the transmission of low-frequency sounds exist when the height of the inversion lies between 50 and 200 m and surface winds are less than 2 m/s. Model calculations show that under these conditions a loud, low-frequency elephant call can be detected by another elephant at a range of approximately 10 km.* *Wind turbines do not operate in such conditions and would therefore not impact on elephant communication.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					<u>Further response from the noise specialist:</u> There are no peer reviewed studies that define a potential sound level that can be used to evaluate the potential impact of noise on elephants. The purpose of noise impact assessment is to use available guidelines, modelling and academic studies to conclude whether a particular project may impact on humans or animals. It is not academic research papers making conjectures or predictions, develop potential hypotheses or to carry out experiments. Little factual information is available and there are no evidence that noise from wind turbines does influence large animals in any significant levels. A further response, specifically in terms of Low Frequency Noise is provided by the specialist and attached to this CRR as Appendix A. The following is of relevance to highlight here from this specialist opinion: » *LFN, when measured using the A-weighted scale is an insignificant component of the noise spectrum emitted by wind turbines. LFN, when described in terms of Z-weighted scale is a significant component of the noise spectrum. Yet, while LFN from wind turbines can be measured, wind turbines only operate during a period of increased wind speeds. As discussed on sections 2 and 3, there are already significant LFNsub-160Hz during periods of increased wind. The author again would like to highlight the findings of Evans (2012), that indicated that "infrasound levels near wind farms are comparable to*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					levels away from wind farms in both urban and rural locations" » *Without criteria about LFN it is not known if the impact is underestimated or over-estimated. LFN from the wind turbines could extend 3.5 km (using a level of 50 dBZ). However, this is during a period when the wind speeds are higher and LFNsub-160Hz may already be between 50 and 70 dBZ (or higher) and the existing LFNsub-160Hz is likely to be higher than the 50 dBZ value. However, since the conservation area is further than 3.5 km, a preliminary assessment can only state that the impact on animals is likely to be insignificant.* <u>The optimised layout presented for approval within the Revised Final BAR includes a reduced number of turbines, located further from the Kwandwe Nature Reserve, reducing the risk of noise impacts on black rhino even further.</u>
	38. The competent authority's attention is specifically drawn to the concern raised by AVISENSE, an acknowledged global expert, which show that the information is neither accurate, sufficient nor credible. The current state of information does not inform responsible or relevant decision-making regarding the sustainability of impacts required in terms of NEMA.		**X**		The AIA (Appendix E of the BAR) was undertaken by Adri Barkhuysen and Steve Percival. Adri is a registered professional natural scientist (registration no.: 400350/13) with 18 years of experience in the avifauna field. The AIA was reviewed by Dr Owen Davies of Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus'). Dr Davies is a Professional Natural Scientist registered with the South African Council for Natural Scientific Professions (SACNASP) and obtained his doctoral degree from the Percy FitzPatrick Institute of African Ornithology, a DST-NRF Centre of Excellence at the University of Cape Town. Owen has been involved in avifaunal monitoring activities for renewable

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					energy projects since 2013. Extensive field research has given Owen experience in the techniques required for conducting biological surveys on a variety of taxa including observations, physical trapping and identification of small terrestrial birds, raptors, bats, small mammals, rodents, snakes, reptiles, scorpions and fish. He is also qualified to conduct observations and acoustic monitoring of marine mammals in the offshore environment. Data collection in a diversity of habitats and ecosystems, combined with formal training in field skills such as off-road driving, enables Owen to conduct ecological surveys across southern Africa. In addition, his skills in data analysis and scientific writing at the PhD level enable him to produce high quality assessments and reports. CVs of the specialist project team are included in Appendix A of the BAR. The draft report was updated in accordance with the recommendations of the peer review and a revised report was included into the Revised BAR released for public comment in June 2021. No comments were received from Mr Jenkins on the Revised BAR or revised AIA. Comments received from Mr Summers on the Revised BAR on 21 July 2021 (Point 7 of Section 1.2 of the CRR included in the BAR) did not include any comments on avifauna.
	39. The EAP fails to deal with this issue (as evidenced by Appendix C9 of the final BARs). The EAP's response is limited to responding to Dr Stoeger's comment by providing a summary / paraphrasing the findings of the academic		**X**		**Response from the noise specialist:** There are no peer reviewed studies that define a potential sound level that can be used to evaluate the potential impact of noise on elephants. The purpose of noise impact assessment is to use available guidelines, modelling and

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	paper (co-authored by Dr Stoeger) instead of grappling with the issues and flaws identified by Dr Stoeger as the author of the comment and the academic paper in question. We reiterate that Dr Stoeger is one of the co-authors of the academic report. It is pointless responding to this project -related impact by restating in the EAP's opinion what the academic paper purports to address. Logic dictates that if the author of an academic peer reviewed paper stipulates that the findings in the BARs / specialist studies are incorrect and unsubstantiated from a scientific point of view that the substance of this concern would be addressed.				academic studies to conclude whether a particular project may impact on humans or animals. It is not academic research papers making conjectures or predictions, develop potential hypotheses or to carry out experiments. Little factual information is available and there are no evidence that noise from wind turbines does influence large animals in any significant levels. A further response, specifically in terms of Low Frequency Noise is provided by the specialist and attached to this CRR as Appendix A. The following is of relevance to highlight here from this specialist opinion: » *LFN, when measured using the A-weighted scale is an insignificant component of the noise spectrum emitted by wind turbines. LFN, when described in terms of Z-weighted scale is a significant component of the noise spectrum. Yet, while LFN from wind turbines can be measured, wind turbines only operate during a period of increased wind speeds. As discussed on sections 2 and 3, there are already significant LFNsub-160Hz during periods of increased wind. The author again would like to highlight the findings of Evans (2012), that indicated that "infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations"* » *Without criteria about LFN it is not known if the impact is underestimated or over-estimated. LFN from the wind turbines could extend 3.5 km (using a level of 50 dBZ). However, this is during a period when the wind speeds*

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					are higher and LFNsub-160Hz may already be between 50 and 70 dBZ (or higher) and the existing LFNsub-160Hz is likely to be higher than the 50 dBZ value. However, since the conservation area is further than 3.5 km, a preliminary assessment can only state that the impact on animals is likely to be insignificant. The optimised layout presented for approval within the Revised Final BAR includes a reduced number of turbines, located further from the Kwandwe Nature Reserve, reducing the risk of noise impacts on black rhino even further.
	40. The assumptions about what conditions wind turbines operate in and the impact on elephant communication is flawed. There is no evidence that a specialist study undertaken by a recognised and acknowledged expert in the field of elephant communication has addressed this concern in the assessment process. The area of influence for subsonic noise impacts extends well beyond 20km and would include and encompass the whole of Kwandwe private game reserve. There is no evidence that Dr Stoeger was registered as an I&AP notwithstanding the use and tabling of her comment in the comments and response report. Dr Stoeger, a renowned expert, has been deprived of the opportunity to respond to the EAP's flawed interpretation of the paper and the implications of that for impact assessment.		**X**		The response referred to as provided in the CRR was provided by the noise specialist and not the EAP. **Response from the noise specialist:** There are no peer reviewed studies that define a potential sound level that can be used to evaluate the potential impact of noise on elephants. The purpose of noise impact assessment is to use available guidelines, modelling and academic studies to conclude whether a particular project may impact on humans or animals. It is not academic research papers making conjectures or predictions, develop potential hypotheses or to carry out experiments. Little factual information is available and there are no evidence that noise from wind turbines does influence large animals in any significant levels. **Registration on database** Dr Stoeger did not request to be registered on the project databases. The information on the study undertaken was

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					tabled by Jeni Williams (a registered I&AP) at the meeting held on 07 July 2021 (refer to Appendix C8 of the BAR). Dr Stoeger provided the paper referred to following this meeting. The content of her email is captured in the CRR. No specific comment was submitted on the project.
	41. In addition, the response by the EAP to the comments raised by Mr. Chris Pike, an objecting landowner from Lukhanyo Game Reserve, is wholly inadequate. Mr. Pike made the point that the land neighbouring the proposed project area *"relies exclusively on eco and hunting tourism as a source of income"*.[9]		**X**		The question referred to relates to the visual and socio-economic impacts associated with the project. The Response provided in the C&RR (provided by the specialist and not the EAP) (Page 32[10]) is as follows: *This question was discussed in the meeting of 08 July 2021. As explained by the specialist, the VIA had indicated that the visual impact on the immediate properties would be that of a high significance. From a socio-economic perspective, this must be interpreted based on the visual impact as a contributor to potential tourism impacts in the broader area and on immediately adjacent farms. In the revised SEIA report, an additional impact rating for immediate and adjacent farms to the project site and there is another table rating the impact on the broader area. The scoring for both rate the impact at medium negative impact. The rating of significance is based on the calculation of the significance. In calculating this impact, the specialist considers the extent of the impact (where the impact will be felt), duration (short-, medium- or ling-term), magnitude (how will it change the existing processes in the area) and the probability (how can evidence be provided to support the notion that the impact will occur will not occur). The calculation of the significance*
	42. Socio-economic related questions due to high visual impacts as raised by Mr. Pike have not been responded to. The credibility, objectivity and independence of the socio-economic specialist was questioned at the outset of the process and stakeholders indicated that they do not have any faith or trust in the merit of the socio-economic assessment undertaken. Conclusions were reached in favour of the developments on the back of no consultation with directly affected neighbouring landowners and that continues to permeate the assessment. It is a fatal omission and fatal bias. No empirical evidence or specialist tourism impact study exists to justify the socio-economic specialist scoring of the impact rating for		**X**		

[9] Appendix C9: Comments and Responses Report at page 29.
[10] The response is on page 32 and not on page 29

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	immediate and adjacent farms to the project sites as a medium negative impact.				*rating is to add extent, duration and magnitude multiplied by probability. In contrast to the visual impact where the probability and magnitude scorings are very high – i.e. there can be no doubt that the visual impacts will be realised, the SEIA specialist cannot definitively say based on the evidence throughout the rest of the report say that the magnitude and probability for the changes in tourism activity will be at the top end of the scale. In order to say that any of the impacts will be high, the probability rating must also be high. In the case of the SEIA, the probability is rated as medium. Therefore, although it is stated that there are likely going to arise negative impacts associated with tourism numbers potentially reducing, they are deemed to be medium significance and not high.*
	43. The probability and magnitude scoring provided by the socio-economic specialist are not based on empirical data or a specialist tourism impact assessment and therefore it is not a credible basis to rely on for the final outcome of negative impacts being "medium significant" and "not high". This is entirely self-serving and, as the socio-economic specialist himself admits that he "*cannot definitively say based on the evidence throughout the rest of the report say that the magnitude and probability for the changes in tourism activity will be at the top end of the scale*".[11] There is nothing to justify that response.		**X**		
	44. Lukhanyo Lodge has nine wind turbine positions directly in the immediate view of the front of the lodge. Two of those turbines are within a 1.5km distance and seven of those turbines are within a 5km distance.[12] This has a "*very high*" impact on the economic viability of Lukhanyo.[13] The lack of respect shown to directly impacted I&APs undermines the credibility and objectivity of the process. As described by the I&AP, Mr.		**X**		A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 26:</u> *As discussed in the public participation process meeting held on 08 July 2021, the visual impact assessment included a list of 74 sensitive receptors, including the list of objecting landowners, of which Chris Pike is included as one. The purpose of the photos montages is just to give a snapshot of what the wind farm would look like from varying distances once it had been constructed. It is not intended to show the*

[11] Appendix C9: Comments and Responses Report at page 30.
[12] Appendix C9: Comments and Responses Report at page 30.
[13] Appendix C9: Comments and Responses Report at page 30.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Pike, it shows a total lack of consideration by the EAP of I&AP concerns and comments.[14]				*wind farm from every angle. There are views presented from as close as 400m from the site, and a viewpoint from Clifton Farm, an adjacent property. These are shown in Figures 7.1 – 7.3 and 7.10 – 7.12 of the VIA.* **<u>Further response:</u>** The VIA (Appendix K of the BAR) includes a map showing objecting landowners in proximity to the proposed wind energy facility (Map 9). This included adjacent landowners. Chris Pike (and Lukhanyo) are reflected on this map and the visual impact is shown as being high. The EAP has never disputed this fact.
	The information tabled does not enable the DFFE to give effect to or support sustainable development 45. The deeply compromised socio-economic impact studies illustrates that the disadvantages of the proposed Wind Garden and Fronteer WEFs have not been assessed. A meaningful cost benefit analysis of the relative advantages and disadvantages is not possible based on current reporting.		**X**		The SEIA was undertaken by suitably qualified specialists with the relevant experience in similar projects. The team includes: » Matthew Keeley. Matthew obtained his Bachelor's degree majoring in Geography and Economics from Rhodes University; this was followed by an Honours degree in Economic Geography (Spatial Development), part of which was studied at University West, Sweden. He holds a Master of Science (MSc) through dissertation in Geography, with a focus on human settlement socio-economic planning. He has 14 years of experience and is currently a Senior Development Economist at Urban Econ. Matthew's professional experience has involved the project management of a number of high-profile economic planning projects in the province, these include studies such as the Eastern Cape Provincial

[14] Appendix C9: Comments and Responses Report at page 30.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Industrial Strategy Implementation Plan, Nelson Mandela Bay Iconic Landmark Precinct Business Plan, Nelson Mandela Bay Stadium Property Precinct Plan, Kingdom of Lesotho Renewable Energy Master Plan Impact Analysis & NMBM Integrated Public Transport System (IPTS) SMME Strategy, to name just a few. » Elena Broughton. Elena Broughton is a senior professional and the manager of the Innovation & Sustainable Development Unit at Urban-Econ. She has an MSc (Technology Management) from the University of Pretoria. She has extensive knowledge in various fields of economic development that includes 16 years of experience in undertaking socio-economic impact assessment studies for a variety of private clients spanning the mining, manufacturing, energy, infrastructure, and retail sectors. She also acted as a peer reviewer in several socio-economic impact assessment studies and completed a few strategic socio-economic impact assessments. Her involvement in the field allowed her to develop a sound understanding of the South African environmental legislation and developmental policies and equipped her with a widespread knowledge of socio-economic implications and benefits of various new developments. A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 48 & 311:</u>

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					The SEIA study (Appendix L of the BAR) has identified 10 short-term (construction related) impact indicators and 10 operational related socio-economic impact indicators. Over both phases of the proposed development seven impacts are forecasted to be negative before and after mitigation, while 13 are anticipated to be positive, before and after mitigation. It is concluded that the project is anticipated to make a prominent contribution towards the national and local economy during both construction and operation. <u>Page 63:</u> • *The updated SEIA has noted the role of Indalo and the fact that Kwandwe forms part of the group.* • *The updated SEIA has acknowledged the potential negative impact on tourism businesses as a result of changes to the sense of place and associated visual impacts. The impacts on properties such as Kwandwe that are in close proximity of the proposed WEFs have been acknowledged, as such a new impact indicator for 'select tourism establishments' has been added to the assessment.* • *The SEIA does not find conclusive evidence either through secondary nor primary research analysis that the negative impact on game farming enterprises within the study area will be absolute.* • *As an off-set against some of the potential negative impacts on select tourism enterprises, the study has also presented a detailed account of the positive economic impacts that may be derived from the developer's intended SED Spend within the study area once the proposed WEFs are in operation. This included proposals*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					to investment in conservation and community enrichment initiatives to the extent of R15.5 million per annum per WEF project. *The conclusion of the BAR (Chapter 12) presents a summary of the findings of all studies undertaken for the project. The overall conclusion (impact statement) includes consideration of the biodiversity and socio-economic impacts. All information is presented to the DFFE for review and decision-making.*
	46. <u>Economically</u>: Advantages associated with proposed Wind Garden and Fronteer WEFs are speculative, being based on no actual or verified data regarding the direct SED benefit of these projects. Disadvantages in terms of impacts on sustainability of existing operations is either discounted or excluded and therefore this disadvantage is unquantified. Impacts on property values and investments in game reserves and eco-tourism similarly remain unaddressed.		**X**		A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 31:</u> *The impacts related to operation and capital investment expenditure presented in Chapter 4 of the SEIA were provided by the Developer, through data obtained from the technology supplier Vestas. This considers the largest turbine which could be installed and a generating capacity of 264MW. The SED/ED values reflected in the SEIA are based on the wind data from the site, the average energy yield that the turbines produce per annum (P75 value) and subject to a percentage of the gross annual revenue for a defined tariff within a confidential PPA. The value is based on an efficiency of around 40%.* <u>Page 352:</u> *The SEIA provides a qualitative perspective to enhance the understanding of the potential benefits that will be derived through the value chain as a result of the WEF investments*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					and subsequent contribution that the projects will have in alleviating load shedding, stabilising energy supply for key industries etc. The direct production impacts linked to committed SED are also detailed within Chapter 3, the majority of which are expected to be experienced within the local Makana LM, and specifically within the tourism and conservation related industries.
	47. <u>Environmentally</u>: The imperative of renewable energy at the level of national policy does not outweigh the significant negative impact on individual reserves at the project scale and the protected area network at the broader regional scale. The incompatibility between the proposed Wind Garden and Fronteer WEFs and the protected areas which are sustaining biodiversity and ecological processes and increased resilience to climate change has not been resolved. The EIA process adopts a singular and predetermined mindset that views the goal of the National Protected Area Expansion Strategy as less important than renewable energy.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 41:</u> *The BA Report presents all information regarding impacts on the environment associated with the proposed project for the DFFE to make an informed decision regarding the proposed project. In terms of need and desirability of the proposed development in the area, consideration of given to the policy framework at a national, provincial and local level, as well as impacts on biodiversity and the socio-economic environment.* <u>Page 66:</u> *Specific policies and legislation relevant to the natural environment was considered in the ecological, aquatic avifauna and bat impact assessments. Chapter 5 of the Revised BAR was updated to include additional detail regarding planning and biodiversity policy for the area. Relevant aspects of the District and Local Municipality SDF, including details regarding planning for the area, are detailed in Section 5.6 of the BAR. In terms of this, the project sites fall outside of any designated protected areas and are on the boundary of the defined tourism corridor.*

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					Relevant aspects of the Eastern Cape Tourism Master Plan (2014), the Eastern Cape Environmental Management Bill (2019 and the Eastern Cape Conservation Plan (2019)) were included in Chapter 5 of the Revised BAR. The Eastern Cape Biodiversity Conservation Plan 2019 does not include reference to a corridor that runs through the area proposed for the wind farm. *The impact of the proposed projects on game reserves, and the biodiversity economy has been considered within the SEIA. The following is of relevance in this regard:* • *The updated SEIA has noted the role of Indalo and the fact that Kwandwe forms part of the group.* • *The updated SEIA has acknowledged that the potential negative impact on tourism businesses as a result of changes to the sense of place and associated visual impacts. The impacts on properties such as Kwandwe which are in close proximity of the proposed WEFs have been acknowledged, and as such, a new impact indicator for 'select tourism establishments' has been added to the assessment.* • *The SEIA does not find conclusive evidence either through secondary nor primary research analysis that the negative impact on game farming enterprises within the study area will be absolute.* • *As an off-set against some of the potential negative impacts on select tourism enterprises, the study has also presented a detailed account of the positive economic impacts that may be derived from the developer's*

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					intended SED Spend within the study area once the proposed WEFs are in operation. This included proposals to investment in conservation and community enrichment initiatives to the extent of R15.5 million per annum per WEF project. *The conclusion of the BAR (Chapter 12) presents a summary of the findings of all studies undertaken for the project. The overall conclusion (impact statement) includes consideration of the biodiversity and socio-economic impacts. All information is presented to the DFFE for review and decision-making.*
	48. <u>Socially</u>: The impacts on employees and communities whose livelihoods depend on sustainability of eco-tourism operations and game reserves in the region is not addressed.		**X**		A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 188 & 195:</u> *Impacts on services, industries and other sectors as a result of the proposed project are included within Section 8 of the SEIA Report. These include:* » *Temporary increase in the GDP and production of the national and local economies during construction, including consideration of sectors and industries that will receive a stimulus during construction.* » *Negative impact on the local tourism, game industry and associated industries during construction and operation.* » *Impact on economic and social infrastructure during construction.*
	49. The benefits identified in the final BARs (repeatedly emphasised in a manner which motivates in favour of the projects) in		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	connection with both the Wind Garden and Fronteer WEF is entirely disproportional and unrelated to the long-term impact on the sustainability of existing ecotourism operations and the contribution of the tourism sector to the regional economy.				Page 63 & 90: *The conclusion of the BAR (Chapter 12) presents a summary of the findings of all studies undertaken for the project. The overall conclusion (impact statement) includes consideration of the biodiversity and socio-economic impacts. All information is presented to the DFFE for review and decision-making.*
	50. A critical aspect that is deficient is the failure to treat the three elements of sustainable development in an integrated and balanced manner where each of the social, environmental and economic considerations are afforded a similar weight in terms of benefits and costs. What the EAP fails to embrace is the manner in which the assessment motivates for the approval of the projects by downplaying environmental or socio-economic costs and suddenly emphasising the net benefit of the projects which are according to the EAP "*expected to partially offset localised environmental costs of the windfarm*". The cost benefit analysis underpinning the entire EIA is flawed and biased. The entire assumption around quantification of localised environmental costs is inadequate because no tourism impact assessment has been undertaken.		**X**		Section 12.4 of the BAR includes the consideration of costs versus benefits of the project. This includes consideration of social, environmental and economic aspects. The cost benefit analysis is based on the findings of the specialist studies undertaken and concludes that "*The benefits of the Wind Garden Wind Farm are expected to occur at a national, regional and local level. As the costs to the environment at a site-specific level have been largely limited through the appropriate placement of infrastructure on the project site within lower sensitive areas through the avoidance of features and areas considered to be sensitive, the benefits of the project are expected to partially offset the localised environmental costs of the wind farm*." The socio-economic impacts of the project include consideration of impacts on tourism as the impacts on tourism are linked to economic impacts. Therefore, it is considered appropriate that this impact was considered within the SEIA. Based on the detail include in the SEIA which was submitted, no requirement for a separate tourism study was raised by either the Competent Authority or the I&APs during the EIA process (based on comments on either the Draft or Revised Report).

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					As was determined in the original BA socio-economic report (Appendix L of the BAR), the net effective impact from a socio-economic perspective, indicates that the project would generate greater socio-economic benefits during both the construction and operation phases than the potential losses that could occur as a result of its establishment. The positive and negative impacts will be distributed mostly amongst different receptors but will not result in inequality. Adherence to the proposed mitigation measures, however, would ensure that the offset of impacts is more balanced and that it also takes into account communities and businesses that will be negatively affected. The proposed optimisation of the layout by the developer which has resulted in a reduced number of turbines proposed, has taken into account the opposition to the project from neighbouring and nearby property and business owners and have thus sought to reduce the potential visual disturbances and impacts of the project. As a result of the reduction in the number of turbines as well as the proposed layout changes it is anticipated that various negative impacts will reduce in their overall significance.
	Visual 51. The visual impact assessments are flawed and no rational justification is provided for why the VERY HIGH and HIGH negative visual impacts have not been avoided and mitigated through a sensitivity screening analysis and process.		**X**		A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 75:</u> *The visual specialist has reiterated that a site screening exercise was undertaken during the initial stages of planning (see attached together with the visual specialist response to*

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	Expert visual specialists commissioned by I&APs have been tabled throughout the process yet the EAP persists with ignoring the implications of this peer-review which demonstrates that the integration of visual impacts is deeply flawed.				*the external review in Appendix C9g of the CRR included with in Revised BAR). This was based on an initial/preliminary turbine layout. The results of the screening exercise were partially incorporated in the subsequent proposed layout by the project proponent.* **<u>Further response:</u>** The independent VIA specialist has confirmed that there is not additional response that is needed to be provided as the responses as provided in the C&RR of August 2021 is still valid. The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. From the optimised layout of forty-seven (47) turbines presented in the Final BAR of July 2021, a further twenty-four (24) turbines were removed from the Wind Garden Wind Farm as a result of high visual intrusion (refer to Table 12.3 of the Revised Final BAR).
	52. Given the high proportion of approved WEFs that rely on subsequent NEMA amendment processes in order to increase the height and size of turbines, (and therefore the visual impact) there is no guarantee that the EIA has			**X**	The EIA process has assessed the worst-case scenario available in the market at this time. Should newer technology be available at the time of implementation of the project, an amendment process would be required to be undertaken prior to implementation of different turbines. This process

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	in fact assessed the largest turbine which could be installed on site i.e., the worst-case scenario according to page 31 of the comments and responses report.				would require specialist input and public consultation to inform the acceptability of the amendments to the project scope.
	53. The EAP is requested to confirm in writing that the specifications of the turbines as utilised in the impact assessment is/are as a matter of fact the largest turbine which could be installed on the sites, and it is not practically possible for a larger turbine to be installed on the sites (which is what the EAP expressly claims in the reports).			**X**	The selection of the turbine is a technical issue and therefore the EAP cannot provide this confirmation. **<u>Confirmation from the applicant:</u>** There is no merit in using a turbine with a higher hub height as the increased CAPEX required for additional height (additional tower sections) is not feasible as the financial return will be negative for the additional energy yield obtained at height, for the following reason: *This site has a proven vertical wind shear value of 0.14, however only a wind shear value of 0.2 or greater gives better cost of energy.* *If it wasn't for the minimum sweep tip height of 36m from the ground as required by the bat specialist, the developer would have opted for an ever-lower hub height of 105m.*
	Environmental injustice 54. The ultimate beneficiaries of these two projects are identified by the EAP as private offtake and industrial users, according to the EAP but the details of this are yet to be confirmed. The EAP has since distanced itself that it is a mining operation that will be the beneficiary of the electricity generated.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 30:</u> *The report states that the project is intended to provide electricity to private off takers. The intended parties are industrial users but the details in this regard are yet to be confirmed. The off takers as mentioned at the public participation process meetings held in March 2021 made*

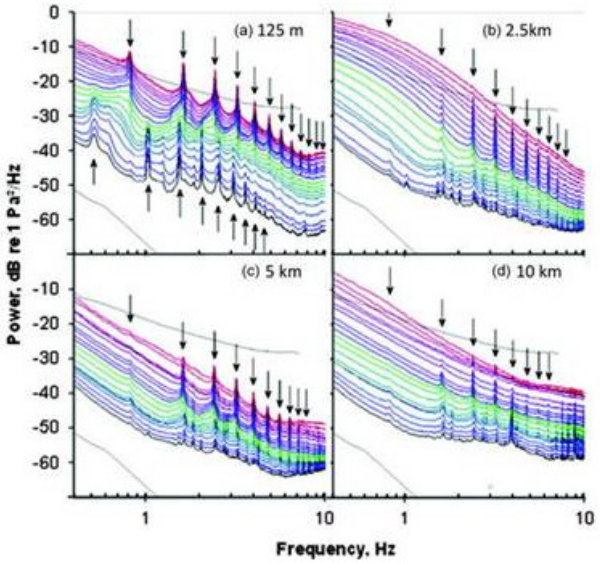
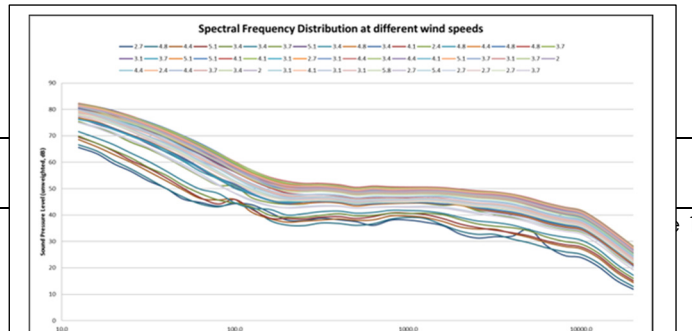
No.	Comment	Raised by	Previously Addressed	New Comment	Response
					reference to industrial users such as possible mining. Details of the off-takers are not available at this stage, and is considered confidential as the developer is still undertaking negotiations in this regard. **<u>Additional response:</u>** It should be noted that reference to mining in the above response was provided as an example. The reference to mining was in no means a confirmation that this industry will be the beneficiary. Details regarding the profile of potential off-takers is provided in Appendix B of the BAR as presented to the DFFE in the pre-application consultation meeting.
	55. This concern raised by I&APs about the apparent disconnect between localised significant adverse impacts – which are experienced exclusively with the receiving environment / study area - in order to serve the interests of a private off taker and/or industrial user has not been resolved.		**X**		The Recommendations of the SEIA included as Appendix L of the BAR states the following: *The net positive impacts associated with the development and operation of the proposed wind energy facility are expected to outweigh the net negative effects. The project is also envisaged to have a positive stimulus on the local economy and employment creation, leading to the economy's diversification and a small reduction in the unemployment rate. The project should therefore be considered for development. It should, however, be acknowledged that the negative impacts would be largely borne by the nearby farms and households residing on them, whilst the positive impacts will be distributed throughout both the local and national economies. Due to this imbalance, it is recommended that the mitigation measures suggested be strictly adhered to. Application of these mitigation measures will ensure that the negative impacts on the nearby farms*
	56. The imbalance between significant adverse impacts on a public good i.e., the landscape and wilderness in the receiving environment compared to the "need" of proprietary or private commercial interests of a private off taker / industrial user offends the principle of environmental justice encapsulated in, among others, section 2 of NEMA.		**X**		

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					and businesses are minimised and that the distribution of the potential benefits of the project are more balanced. As was determined in the original BA socio-economic report (Appendix L of the BAR), the net effective impact from a socio-economic perspective, indicates that the project would generate greater socio-economic benefits during both the construction and operation phases than the potential losses that could occur as a result of its establishment. The positive and negative impacts will be distributed mostly amongst different receptors but will not result in inequality. Adherence to the proposed mitigation measures, however, would ensure that the offset of impacts is more balanced and that it also takes into account communities and businesses that will be negatively affected. The proposed optimisation of the layout by the developer which has resulted in a reduced number of turbines proposed, has taken into account the opposition to the project from neighbouring and nearby property and business owners and have thus sought to reduce the potential visual disturbances and impacts of the project. As a result of the reduction in the number of turbines as well as the proposed layout changes it is anticipated that various negative impacts will reduce in their overall significance.
	Persistent assessment flaws / omissions 57. Certain fundamental overriding assessment flaws persist and undermine the process. These are highlighted below:				

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	57.1. The 'narrative' of the BARs has from the outset been weighted heavily towards the predetermined conclusion that the projects should be approved. The pro-project stance has persisted throughout, irrespective of I&APs concerns raised or the nature, severity and duration of identified impacts (some assessed, others dismissed outright).		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 41:</u> *The BA Report presents all information regarding impacts on the environment associated with the proposed project for the DFFE to make an informed decision regarding the proposed project.* <u>Page 66</u> *The conclusion of the BAR (Chapter 12) presents a summary of the findings of all studies undertaken for the project. The overall conclusion (impact statement) includes consideration of the biodiversity and socio-economic impacts. All information is presented to the DFFE for review and decision-making.*
	57.2. The substance of the BARs is lacking in several key respects (which has been verified by external specialist input). For example: 57.2.1. The impact on tourism and the effect on the sustainability of existing game reserves and eco-tourism operations has not been assessed or quantified at all during the EIA process. The final BARs state that the effects of the WEFs on tourists' decisions to visit reserves in the affected area have not been		**X**		An assessment of impacts on tourism and game farms is included in the socio-economic impact assessment included as Appendix L of the BAR. A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 144:</u> *It is acknowledged that limited, if any, academically published research is available in a South African context which considers the specific impact of wind farms on the safari/wildlife/ecotourism-specific industry. However, the cross-section of literature reviewed in Chapter 6 of the SEIA cannot simply be dismissed. Several commonalities between*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	confirmed in a South African wildlife context. The issue is unresolved. The EAP justifies this information gap with reference to *"primary research undertaken"* and *"international literature"* to conclude that the overall effect on the eco-tourism industry is not anticipated to be detrimentally negative. This is not supported by defensible evidence-based opinion. As a result, the findings are speculative and cannot be relied upon as a basis for rendering a defensible, objective and informed decision by the DFFE.				*the study areas considered in the literature, and the study area dynamics of this area should be appreciated, these include:* » *The regional origin of tourists is similar i.e., both sets of tourists originate in the majority from European/British Isles.* » *Study areas in the literature are predominantly rural in nature* » *The tourism industry in each of the respective countries, like in a South African context, is recognised as an economic driver* » *A dominant characteristic of many of the study areas considered in the literature, is that the respective areas' scenic vistas and sense of place are an important drawcard for tourists looking to enjoy the natural environment.*
	57.2.2. Secondly, the noise impact studies do not address the specific nature of the concern raised regarding subsonic noise impacts on megafauna, repeatedly identified as a concern by I&APs throughout the process. No justification has been tendered for this information gap in the final BARs.		**X**		A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 79:</u> *The noise specialist has advised that while there are studies that highlight that Low-Frequency Noise and Infrasound may be detected up to large distances, it should be noted there is a big difference between detection and audible. There is a vast difference between a research paper and a noise study. This is illustrated below with an extract of such a study that indicate that Low-Frequency Noise and Infrasound can be detected over significant distances (Wind turbine low frequency and infrasound propagation and sound pressure level calculations at dwellings, The Journal of the Acoustical*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Society of America 144, 981 (2018); https://doi.org/10.1121/1.5051331). *The specialist has noted that the article referenced is a self-published article and not a peer-reviewed paper and therefore does not have any scientific standing unless accepted and published in an internationally recognised journal or similar publication.* *SPLs were obtained at four distances, 125, 2.5, 5, and 10 km from the wind turbines using Chaparral Physics model-25 microbarometers (Chapparal Physics, Fairbanks, AK). At the 125 m distance the microbarometer sensors were within 2 m of the transducers used to measure wind turbine sound power (Sec. II G). For isolation from wind noise the microbarometer was mounted inside a 0.5 m diameter × 0.9 m high polyvinyl chloride plenum attached to four 15 m long, 1.9 cm outside diameter garden soaker hoses, which extended radially in 4 directions to form an orthogonal "X" shape. Data were recorded using a Nanometrics Trident 24 bit digitizer (Nanometrics, Ottawa, Canada) with a 200 Hz sample rate.* *One should note the specialised equipment used, with the barometers mounted within a plenum, isolated from the typical environmental noise associated with increased wind speeds, connected with 15 m long hoses, that would act like resonators to "amplify" certain frequencies of interest. With these specialized equipment, methodologies and statistical analysis the harmonics, associated with the wind turbines, were detected as illustrated below:*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					 *However, what one should realise is that, apart from the measurements at 125 m, that the levels detected at 2.5, 5 and 10 km distances are very low. In practice these frequencies will be undetectable as environmental noises, induced by the high wind speeds, will completely mask these signatures. Please note the typical spectral frequencies measured in the Addo Elephant park by the noise specialist, indicating the typical high Infrasound and Low-frequency Noise present in the environment with higher wind speeds:* 

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					This is highlighted in the findings of a study on Infrasound levels near windfarms, done by the Environmental Protection Authority of South Australia in February 2013 (study available at https://www.epa.sa.gov.au/files/477912_infrasound.pdf). This study measured infrasound levels at urban locations, rural locations with wind turbines close by, and rural locations with no wind turbines in the vicinity. It found that infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations. Infrasound levels were also measured during organized shut-downs of the wind farms; the results showed that there was no noticeable difference in infrasound levels whether the turbines were active or inactive. *Therefore, considering the practical distances that sound (including Infrasound and Low Frequency Noise) travel, the significant acoustic energy being present at low frequencies due to wind-induced noises as well as the findings of available studies, it must be concluded that Infrasound and Low Frequency Noise is of a low concern further than a few hundred meters from wind turbines. Noise contours, as illustrated within the noise study (Figures 8-4 and 8-5) is*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					therefore considered adequate to illustrate the potential extent of Infrasound and Low Frequency Noise. <u>Page 144:</u> *While there are a few studies that highlight that sound from large animals can be detected over large distances, most of these studies highlight that wind itself is a significant masking noise that influence these "communication, or that the "communication" is only detected during no- or low-wind conditions. The noise specialist discusses this in section 7.1.4, highlighting that (amongst others):* • *To date there are, however, no guidelines or sound limits with regards to noise levels that can be used to estimate the potential significance of noises on animals.* • *Animals of most species exhibit adaptation with noise (Broucek, 2014), including impulsive noises, by changing their behaviour.* • *More sensitive species would relocate to a quieter area, especially species that depend on hearing to hunt or evade prey, or species that makes use of sound/hearing to locate a suitable mate (Drooling, 2007).* • *There are no published studies in reputable journals that provide support for the negative impacts of noise from wind turbines on animals.* • *Animal communication is generally the highest during no and low wind conditions. It has been hypothesised that this is one of the reasons why birds sing so much in the mornings (their voices carry the farthest and there are generally less observable wind).*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					• *Background noise levels (ambient sound levels) in remote areas are not always low in space or time. Wind generates significant noise itself and also significantly changes the ability of fauna to hear the environmental noises around them.* • *Infrasound is present in the environment, and is generated by a wide range of natural sources, including wind.* • *Wind is a significant source of natural noise, with a character similar to the noise generated by wind turbines, with a significant portion of the acoustic energy in the low frequency and infrasound range.* • *Wind turbines does not emit broad-band sound on a continual basis as the turbines only turn and generate noise when the wind speeds are above the cut-in speed.* • *The wind turbines will only operate during periods of higher wind speeds, a period when background noise levels are already elevated due to wind-induced noises.* A further response, specifically in terms of Low Frequency Noise is provided by the specialist and attached to this CRR as Appendix A. The following is of relevance to highlight here from this specialist opinion: » *LFN, when measured using the A-weighted scale is an insignificant component of the noise spectrum emitted by wind turbines. LFN, when described in terms of Z-weighted scale is a significant component of the noise spectrum. Yet, while LFN from wind turbines can be measured, wind turbines only operate during a period of increased wind speeds. As discussed on sections 2 and 3,*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					there are already significant LFNsub-160Hz during periods of increased wind. The author again would like to highlight the findings of Evans (2012), that indicated that "infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations" » *Without criteria about LFN it is not known if the impact is underestimated or over-estimated. LFN from the wind turbines could extend 3.5 km (using a level of 50 dBZ). However, this is during a period when the wind speeds are higher and LFNsub-160Hz may already be between 50 and 70 dBZ (or higher) and the existing LFNsub-160Hz is likely to be higher than the 50 dBZ value. However, since the conservation area is further than 3.5 km, a preliminary assessment can only state that the impact on animals is likely to be insignificant.* <u>The optimised layout presented for approval within the Revised Final BAR includes a reduced number of turbines, located further from the Kwandwe Nature Reserve, reducing the risk of noise impacts on black rhino even further.</u>
	57.2.3. Thirdly, several issues raised in connection with the avifauna impact assessments undertaken for the projects have not been addressed in the responses to comments or in the final BARs. Again, the issues raised remain unresolved. These issues – and others – have been set out fully in		**X**		Without specific details of where issues relating to avifauna have not been addressed, this comment cannot be responded to. <u>Visual sensitivity mapping:</u> A response from the specialist was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 75:</u>

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	the comments submitted by I&APs as well as independent specialist inputs procured by I&APs as part of the EIA process. Again, no reasonable explanations have been tendered for this information gap. Certain specialists engaged by I&APs were not available during the limited commenting period previously provided and therefore their inputs could not be procured within the timeframes of the process in terms of the EIA Regulations. For this reason, the following deficiencies are evident: 57.2.3.1. visual sensitivity mapping has not been fully integrated into the assessment and this undermines the impact mitigation hierarchy. 57.2.3.2. the consequential effect of high negative visual impacts on socio-economic conditions in the receiving environment (despite the EAP's repeated assertions to the contrary) have not				*The visual specialist has reiterated that a site screening exercise was undertaken during the initial stages of planning (see attached together with the visual specialist response to the external review in Appendix C9g of the CRR included with in Revised BAR). This was based on an initial/preliminary turbine layout. The results of the screening exercise were partially incorporated in the subsequent proposed layout by the project proponent.* **Further response:** The independent VIA specialist has confirmed that there is not additional response that is needed to be provided as the responses as provided in the C&RR of August 2021 is still valid. The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. From the optimised layout of forty-seven (47) turbines presented in the Final BAR of July 2021, a further twenty-four (24) turbines were removed from the Wind Garden Wind Farm as a result of high visual intrusion (refer to Table 12.3 of the Revised Final BAR).

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	been evaluated or assessed. 57.2.3.3. ring-fencing as irrelevant or dismissing I&AP concerns does not satisfy the obligation to evaluate and assess the impact in question.				<u>Negative visual impacts on socio-economic conditions</u> Section 6.3 of the SEIA included as Appendix L of the BAR describes the sensitivity of the tourism industry and game farms towards the visual disturbances and provide an estimation of the potential loss in revenue that could result from the establishment of the wind energy facility. This is based on the sensitivity of tourists to visual disturbances, which is detailed in Section 6.3.1. Impacts on the socio-economic environment as a result of the visual impact associated with the proposed project are assessed in Section 8.1.2. Negative impacts during Construction – a) Negative changes to the sense of place and b) Negative impact on the local tourism, game industry and associated industries during Construction, and in Section 8.2.2. Negative impacts during operations – a) Negative changes to the sense of place and b) Negative impact on the local tourism, game industry and associated industries during Operation <u>Ring-fencing as irrelevant or dismissing I&AP concerns</u> All comments are responded to within the Comments and Responses Report included in the BAR. No comments are dismissed without providing a response.
	Impacts on water resources / geohydrology 58. A core concern raised by IA&Ps is the absence of a relevant geohydrological specialist study relating to the assessment of groundwater impacts associated with the proposed water		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 125:</u> *A Geohydrological preliminary feasibility study was undertaken by JG Afrika. This is included as Appendix R(6) of*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	uses and the sustainability of such uses in this context. The lack of a comprehensive specialist geohydrological impact study means that the assessment of cumulative impacts in accordance with the EIA Regulations and the assessment of the nature, significance and consequences of the impact and risk to environmental conditions is deficient.				*the Revised BAR. Further detailed assessments will be undertaken as part of the Water Use License application process, as per the requirements of the DHSWS.* **<u>Further response:</u>** The report provides details of the availability of groundwater for use by the project. The report was subsequently submitted to the Department of Water and Sanitation (DWS) as part of the General Authorisation (GA) registration process. This report was considered to provide sufficient information regarding the sustainability of the groundwater resource and a GA was registered for the project.
	59. The EIA process is required to consider all environmental, economic and technical aspects of the projects, as the projects are required to be considered from a sustainable development perspective. Potential impacts identified in the final BARs as a result of the projects include disturbance and the loss of pans, impact on watercourses through physical disturbance, increase in surface water runoff that could lead to hydrological changes, an increase in sedimentation and erosion and impact on localised surface water quality.[15] None of this addresses the sustainability of the proposed direct and cumulative uses of a scarce resource (groundwater).		**X**		An Aquatic Ecology Impact Assessment was undertaken as part of the BA process (Appendix G of the BAR). It was concluded that all sensitive features (i.e. the identified pans and associated buffers) were avoided by the proposed layout. The watercourses will only be impacted upon by a limited number of water course crossings that will be mitigated by appropriate measures which include erosion protection etc. A response regarding water availability was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 158:</u> *Based on DWS data, the project site falls within the P10A, P10B, Q91B and Q91C quaternary catchments. Groundwater in all catchments is classified as under-utilised. The dominant groundwater use is for livestock watering.*

[15] Final BARs at page 295.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Page 158: *A groundwater feasibility study was undertaken by JG Afrika, including consideration of water availability and feasibility of use for the project, as well as indications of areas to investigate further for the establishment of boreholes. This report is included in Appendix R(6) of the Revised BAR with a summary included in Chapter 2 of the Revised BA Report.*
	60. The NEMA principles require that the competent authority must be satisfied that the proposed listed activities will not compromise sustainable development or conflict with the general objectives of Integrated Environmental Management stipulated in Chapter 5 of NEMA, and that any potentially detrimental environmental impacts resulting from the listed activities must be mitigated to acceptable levels. Specialist impact assessment reports are crucial for the sake of determining if the proposed projects will result in unacceptable cumulative impacts on the receiving environment and, furthermore, whether the measures currently outlined in the EMPr are adequate to mitigate the impacts of the projects to acceptable levels.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. Page 41: *The BA Report presents all information regarding impacts on the environment associated with the proposed project for the DFFE to make an informed decision regarding the proposed project.* **Further Response:** To state that this application has not complied with NEMA and the objectives of IEM is factually incorrect and a misguided theory. The whole aim of the Environmental Authorisation Process and Impact Assessment Process is to ensure that the development being applied for is sustainable, by means of applying the mitigation hierarchy. The process incorporates several comprehensive specialist impact assessments which has been incorporated into the Basic Assessment and associated EMPr. All of the above undertaken by suitably qualified **and** registered professionals. Measures for the avoidance, management and mitigation of adverse impacts has been included and by means of

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					successful implementation which the developer is committed to, the impacts will be managed appropriately. These assessments have also considered all cumulative impacts. The said reports comply with the requirements of the NEMA EIA Regulations (as amended).
	61. The final BARs identified negative water impacts associated with the projects, but groundwater impacts have not been subjected to a comprehensive geohydrological specialist assessment. In terms of the Department of Environmental Affairs and Development Planning guideline regarding hydrological impact studies, specialist hydrological input into the EIA process is triggered when "*it has been established that an activity coincides with an environmental condition that makes the environmental impact likely*".[16] We submit that the impact on ground water is "likely" given that the EAP has indicated that a water use licence has been applied for and, furthermore, that I&APs have raised concern about the over utilisation and unsustainable demand on water resources and the concomitant loss arising therefrom as well as concerns about a declining water table adversely impacting on the environment (including wetlands, springs or river systems).		**X**		An Aquatic Ecology Impact Assessment was undertaken as part of the BA process (Appendix G of the BAR). It was concluded that all sensitive features (i.e. the identified pans and associated buffers) were avoided by the proposed layout. The watercourses will be only be impacted upon by a limited number of water course crossings that will be mitigated by appropriate measures which include erosion protection etc. A response regarding water availability was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 158:</u> *Based on DWS data, the project site falls within the P10A, P10B, Q91B and Q91C quaternary catchments. Groundwater in all catchments is classified as under-utilised. The dominant groundwater use is for livestock watering.* <u>Page 158:</u> *A groundwater feasibility study was undertaken by JG Afrika, including consideration of water availability and feasibility of use for the project, as well as indications of areas to investigate further for the establishment of boreholes. This*

[16] Department of Environmental Affairs and Development Planning "*Guideline for Involving Hydrogeologists in EIA Process* at page v.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					report is included in Appendix R(6) of the Revised BAR with a summary included in Chapter 2 of the Revised BA Report. **<u>Further response:</u>** This report was subsequently submitted to the Department of Water and Sanitation (DWS) as part of the General Authorisation (GA) registration process. This report was considered to provide sufficient information regarding the sustainability of the groundwater resource and a GA was registered for the project.
	62. In terms of the comments and responses report, an I&AP stated: "*Please can you share the studies conducted showing the availability of this water and assist in answering the following questions: ... What will the permanent effect on ground water levels be on the properties where the proposed windfarms will be situated?*"[17] In response the EAP states: "*A groundwater feasibility study was undertaken by JG Afrika, including consideration of water availability and feasibility of use for the project, as well as indications of areas to investigate further for the establishment of boreholes. This report is included in Appendix R(6) of the Revised BAR with a summary provided in Chapter 2 of the BA Report*".[18] The EAP further states that "*(b]ased on DWS data, the project site falls within the P10A, P10B, Q91B and Q91C quaternary*		**X**		The comments and responses referred to are as captured in the Comments and Responses Report. Further responses are provided in the sections above.

[17] Appendix C9: Comments and Responses Report at page 194.
[18] Appendix C9: Comments and Responses Report at page 194.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	catchments" and "(g]roundwater in all catchments is classified as under-utilised. The dominant groundwater use is for livestock watering".[19]				
	63. The EAP's sole reliance on the report undertaken by JG Afrika should be viewed with circumspection in context. The "*Desktop Groundwater Feasibility Assessment for Choje Windfarm Projects, Eastern Cape*" (i.e. Appendix R6 to the revised BARs) is described as a "*preliminary groundwater feasibility report*" and it was dated 25 September 2019.[20] There are some serious limitations to any reliance by the DFFE on the conclusions drawn in this report, which on its own version points out the following: "*Target areas were identified at a <u>desktop level</u> throughout the priority areas. The target list would be augmented with a site review, <u>following which a geophysical survey should be conducted at target areas to identify optimal drilling locations</u>. An additional consideration would be to review existing borehole resources in the project area subject to landownership agreement. <u>Existing resources would need to</u>*			**X**	The purpose of the groundwater feasibility assessment was to determine the availability of water for the project. This was confirmed through this study, with no impact on groundwater availability expected as a result of the projects due to the fact that the water in the study area is considered to be under-utilised. A response regarding water availability was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 158:</u> *Based on DWS data, the project site falls within the P10A, P10B, Q91B and Q91C quaternary catchments. Groundwater in all catchments is classified as under-utilised. The dominant groundwater use is for livestock watering.* Confirmation of yield and water quality will be done by the EPC contractor at the time of construction. Any abstraction would need to be in accordance with the authorised volumes in terms of the GA for the project. If the water available is not suitable for concrete batching etc, water will need to be obtained from an alternative legal source. This is standard practise.

[19] Appendix C9: Comments and Responses Report at page 194.
[20] Appendix R6 of the Wind Garden revised BAR at "Verification Page".

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	<u>be subjected to yield and water quality tests</u> to assess the suitability of use within the project."[21]				
	64. The high-level report is as far as the EAP has taken this critical sustainability issue. The report itself notes that ground truthing is necessary to assess the extent of the project-related impacts. The clear inference being that project-related impacts on groundwater resources have not been assessed.			**X**	The ground truthing referred to relates to the location of optimal drilling locations which has been conducted and approved by DWS in the said General Authorisation. The purpose of the groundwater feasibility assessment was to determine the availability of water for the project. This was confirmed through this study, with no impact on groundwater availability expected as a result of the projects due to the fact that the water in the study area is considered to be under-utilised. A response regarding water availability was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 158:</u> *Based on DWS data, the project site falls within the P10A, P10B, Q91B and Q91C quaternary catchments. Groundwater in all catchments is classified as under-utilised. The dominant groundwater use is for livestock watering.*
	65. We note further that this report is dated September 2019 and that a change in environmental factors may have occurred in the intervening period which requires more thorough assessment of the impacts on groundwater to date. The limitations of the desktop report should be considered in light of a comment from a Commenting Official from Proto – CMA (Department of Water and		**X**		Studies undertaken as part of assessment processes are considered by DFFE to remain valid for at least a 5 year period. A response regarding the WULA process was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 2:</u>

[21] Appendix R6 of the3 Wind Garden revised BAR at page 15.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Sanitation: Eastern Cape) during the public participation process who stated that "*[t]he applicant must conduct a comprehensive geohydrological study which will aid in establishing the sustainable yields and quality of the groundwater resource*" (emphasis added).[22]				*It can be confirmed that the Applicant has submitted a WULA to the DWS: Eastern Cape Province under reference number WU19601. The required supporting information and studies required for the application are noted.* A General Authorisation for the project has been issued by the Department of Water and Sanitation (DWS). No additional groundwater assessment was required in support of this application.
	66. We agree with this comment especially in light of the final BARs noting that a Water Use License for water uses identified in section 21(c) and 21(i) of the National Water Act[23] would be required where activities are undertaken within 500m of watercourses and pans.[24] The final BARs further recognised that the "*impact on all watercourse and wetland systems through the possible increase in surface water runoff on riparian form and function through hydrological changes*" was limited to an assessment of aquatic impact identified during the EIA process.[25] This is not the same as evaluating the sustainability of the proposed and cumulative water uses on groundwater resources.		**X**		A response regarding the WULA process was provided in the C&RR included as Appendix C9 of the final BAR. Page 2: *It can be confirmed that the Applicant has submitted a WULA to the DWS: Eastern Cape Province under reference number WU19601. The required supporting information and studies required for the application are noted.* A General Authorisation for the project has been issued by the Department of Water and Sanitation (DWS). No additional groundwater assessment was required in support of this application.
	67. Given that there is a risk that ground water levels on the properties where the proposed			**X**	A General Authorisation for the project has been issued by the Department of Water and Sanitation (DWS). No

[22] Appendix C9: Comments and Responses Report at page 120.
[23] Act No. 36 of 1998.
[24] Final BAR at page 295.
[25] Final Bar at page 189.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	windfarms will be situated may be impacted by the developments, it is crucial that this impact be comprehensively assessed through a specialist geohydrological study as part of the NEMA assessment. The information this relates to and the underlying concern regarding environmental impact are directly relevant to the environmental mandate of the DFFE in considering and deciding applications for environmental authorisation in terms of section 24 of NEMA.				additional groundwater assessment was required in support of this application. Exploratory holes were drilled to 30m deep by the applicant on the affected properties. The groundwater depth in the area is in excess of 20m below underside of foundations, which is much deeper than the required foundations for the towers. The development will, therefore, not impact on this resource or vice versa.
	68. The information relating to ground water presented during the EIA process is in the form of a 2019 desktop study that does not focus specifically on P10A, P10B, Q91B and Q91C quaternary catchments with relate to the proposed Wind Garden and Fronteer WEFs specifically, but rather a review of the quaternary catchments pertaining to the Choje Windfarm Projects generally. The assessment of geohydrological impacts, adequate water availability and the impact of the proposed Wind Garden and Fronteer WEFs on the sustainability of the water resource and the ecological groundwater reserve have not been properly assessed.[26]			**X**	A General Authorisation for the project has been issued by the Department of Water and Sanitation (DWS). No additional groundwater assessment was required in support of this application. Exploratory holes were drilled to 30m deep by the applicant on the affected properties. The groundwater depth in the area is in excess of 20m below underside of foundations, which is much deeper than the required foundations for the towers. The development will, therefore, not impact on this resource or vice versa.
	69. The sustainability of water use and water abstraction cannot be divorced from the requirements of NEMA to assess all project				A response regarding water availability was provided in the C&RR included as Appendix C9 of the final BAR.

[26] Appendix C9: Comments and Responses Report at pages 120-121.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	related impacts and the reasoning that a water use licence has been applied for in terms of the National Water Act is simply inadequate. Although we recognise that a Water Use Licence has been applied for and that specialist studies (such as a geohydrological impact assessment) will likely be undertaken during that process, this does not obviate the need for undertaking a geohydrological assessment in the context of section 24 of NEMA. The issue cannot be treated in a silo. While we have no objection to thorough water impact studies being conducted through the National Water Act process, in terms of the basic assessment process underway in terms of NEMA, all cumulative impact must be assessed. The preliminary desktop groundwater study for the Choje Windfarm project area dated September 2019, inserted as Appendix R6 of the revised BARs, does not suffice in this regard. In the absence of a comprehensive geohydrological impact assessment report being prepared and submitted to the DFFE with the final BARs and final EMPRs, there is a risk that the EAP will not have placed before the decision-maker all relevant considerations needed in order to make a reasonable decision in accordance with the requirements of the EIA Regulations.				<u>Page 158:</u> *Based on DWS data, the project site falls within the P10A, P10B, Q91B and Q91C quaternary catchments. Groundwater in all catchments is classified as under-utilised. The dominant groundwater use is for livestock watering.* A General Authorisation for the project has been issued by the Department of Water and Sanitation (DWS). No additional groundwater assessment was required in support of this application. In addition, a geohydrology assessment was not an assessment required in terms of the DFFE Screening tool. However, a prefeasibility study was conducted by the applicant in order to confirm that there would be no impact. Exploratory holes were drilled to 30m deep by the applicant on the affected properties. The groundwater depth in the area is in excess of 20m below underside of foundations, which is much deeper than the required foundations for the towers. The development will, therefore, not impact on this resource or vice versa.
	Concluding comments		**X**		All comments received have been responded to within the Comments and Responses Report included within Appendix

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	70. Overall, the process lacks impartiality, accountability and transparency. The efficacy of the entire EIA process has been called into question by the failure to address adequately the project impacts and concerns raised throughout the process. The strong perception held by many I&APs remains that their concerns have not been resolved, with the reporting and assessment displaying an inherent bias towards motivating in favour of the projects being approved.				C9 of the BAR. Where required, the BAR was revised and a Revised Report was made available for public review. The BA Report presents all information regarding impacts on the environment associated with the proposed project for the DFFE to make an informed decision regarding the proposed project. There is no evidence presented that the process "*lacks impartiality, accountability and transparency*". Additional responses have been provided within this CRR where it was deemed required in order to close out concerns raised.
	71. The minutes of public meetings issued by the EAP are sanitised and do not represent a fair refection of the substance of issues raised by I&APs, thus further disempowering the concerns of I&APs.		**X**		The notes of the meeting included in the BAR clearly state that these are not verbatim. The issues are summarised and all relevant details (including the objections raised and issues regarding consultation by a number of attendees) are included in these notes.
	72. Minutes of meetings were released to I&APs for comment and input outside of the formal EIA process. This is evident from the fact that the last public hearing was conducted virtually on 7 July 2021, the public commenting period closed on 21 July 2021, yet I&APs were only furnished with the draft meeting notes on 25 July 2021. This further limits the ability to I&APs to engage meaningfully. Many issues of substance were discussed in the virtual meetings, yet the minutes are not released to I&APs until after the comment period closes. This is neither fair nor meaningful.			**X**	Although it is not a legal requirement in terms of the EIA Regulations to distribute meeting minutes to I&APs, no disrespect was intended with the late distribution of the public participation meeting notes. It was important that the key issues raised at these meetings were accurately recorded in the draft meeting notes.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	73. During the public participation meetings, various I&APs repeatedly raised concerns regarding the limited timeframes and truncated comment periods within which I&APs were required to provide inputs as well as concerns regarding the credibility of the findings in the specialist reports, particularly the socio-economic impact studies. These concerns were strongly fuelled by the fact that the specialists had indicated that only a small sample group of affected stakeholders had been engaged in order to derive primary research data regarding localised impacts of the proposed wind farms. It was however pointed out to the EAP and specialist during a public meeting that <u>at least 5 directly affected stakeholders</u> (i.e. the game farms surroundings the wind farms) had in fact not been approached or formally engaged **<u>AT ALL</u>** by the socio-economic specialist. Therefore, it was not possible for the socio-economic impact studies to draw any relevant or evidence-based conclusions regarding the impacts of the wind farms on the neighbouring game farms and associated ecotourism operations. This fact notwithstanding, the conclusions drawn at the outset of the assessment in favour of the projects being approved have continued to influence the process. The initial lack of credibility and perception of biased assessment has not been addressed or resolved. Conclusions tainted by		**X**		The public participation process for the projects was announced in November 2020 at which time I&APs were requested to register on the project database and provide any preliminary comments on the proposed project. This was more than 4 months prior to the release of the report for public review and comment. In terms of timeframes for comment on the reports for the project, a response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 11:</u> *The BA Report was made available for a 30-day public review period from 04 March 2021until 07 April 2021. At the request of I&APs, this review period was extended to 06 May 2021, resulting in a 60-day review period being afforded to I&APs. A 30-day review period has been provided for the Revised BA Report. All changes made within the revised BA Report have been underlined for ease of reference and these are the only review that is required by I&APs. The time available is constrained by the regulated timeframe which ends one week after the close of the review period.* <u>Page 12:</u> *A request for extension of the regulated timeframe was submitted to the DFFE in May 2021. This included a request in terms of Regulation 3(7) to extend the timeframe to afford sufficient time for engagement with stakeholders in revising the reports, as well as notification to the DFFE in terms of Regulation 19(1) of the requirement to undertake further public review of the BA reports. The DFFE did not respond to*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	bias and lack of objectivity (and not underpinned by appropriate, objective assessment methodologies) have continued to undermine the credibility of the assessments. The inescapable inference being that the process is marred by a lack of professional objectivity in the specialist studies undertaken.				*the Section 3(7) request and only acknowledged the Regulation 19(1) notification (refer to Appendix B of the final BA Report).* *Based on the request for extension of the review period from I&APs, a further request for extension of the regulated timeframe in terms of Regulation 3(7) was submitted to the DFFE on 12 July 2021 (refer to Appendix B of the final BA Report). The DFFE responded letter on 21 July 2021 (letter dated 19 July 2021 and received per e-mail on 21 July), refusing the requested extension of the regulated timeframe. All registered parties were advised of this decision.* <u>Page 41 and 50:</u> *Following requests by I&APs at a meeting held on 07 July 2021 for an extended review period on the Revised BAR, the EAP requested an extension of the regulated timeframe for the BA process form the DFFE in accordance with the provisions of Regulation 3(7) of the EIA Regulations. The EAP was informed on 21 July 2021 that the request had been denied.* <u>Page 51:</u> *It must be noted that the review period on the initial Basic Assessment Report was extended from **04 March 2021** to **06 May 2021**, at the request of I&APs. In order for the project applicant and Savannah Environmental to adequately address the comments received from I&APs as part of the EIA process, the Basic Assessment Report was revised, and the revised BAR made available for public review and comment. The I&APs were provided with a further 30-day period from **21***

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					June to 21 July 2021 *to comment on the revised BAR. All changes made within the revised BAR were underlined for ease of reference. As a result of the regulated timeframe, the EAP was not in a position to provide a period of longer than 30 days for the review period. Following the request from I&APs for an extension on the timeframe for review, the EAP requested an extension of the regulated timeframe for the BA process from the DFFE in accordance with the provisions of Regulation 3(7) of the EIA Regulations. The EAP was informed on 21 July 2021 that the request had been denied.* Page 52: *The EAP is bound by the regulated timeframes within the legislation, in this instance the submission of the Final BA Report to the Department within 140 days of the submission of the application, in accordance with Regulation 19 (1) of the 2014 EIA Regulations, as amended.* ***I&APs have been afforded 90 days of this period for review and comment.*** *In the absence of an extension of this timeframe by the Department, the EAP has no alternative but to comply with this timeframe.* A response regarding the SEIA was provided in the C&RR included as Appendix C9 of the final BAR. Page 46, 128, 278, 281, 294, 303, 309 and 348: The comment raised regarding was addressed in the Comments and Responses Report included in the Revised BAR as follows (refer to point 29 of section 1.2):

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					It was acknowledged during the Public Participation Meetings held in March 2020 that additional consultation was required with landowners and representatives of properties and businesses that fall within the viewshed of the two proposed WEFs so as to provide a more thorough status quo of the economic activities and enterprises operating within the immediate vicinity of the proposed WEFs. Between and March and May 2021 a database of farm portions and corresponding ownership was developed in conjunction with the Savannah I&AP Team and the visual impact specialist. The intention of this database formulation, and subsequent contact with landowners was to solicit business, and enterprise-specific data from each owner/representative, so as to better understand the economic activity and employment dynamics of the area. A combination of telephonic interviews, online survey tool and face-to-face engagements has been conducted. The updated profile is included in Chapter 3 of the SEIA report included as Appendix L of the Revised BAR. The additional information obtained through this process has been included and considered in the revised SEIA Report. <u>Page 189:</u> *Based on comments received during the public review period for the BA report, additional interviews and research were undertaken by the socio-economic specialist. Refer to Appendix A of the revised SEIA Report included in Appendix L of the Revised BA Report.* Further to the above, Paragraph 2 of this section which reads:" *Two rounds of engagements were carried out, one in*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					the Q2-Q4, 2020 and the second in Q2 2021. The latter round was undertaken following acknowledgement that insufficient opportunities had been given to adjacent and nearby landowners to provide their perspective and their perceived views of the socio-economic impacts of the proposed WEF, and secondly, such feedback could further enhance and present a more detailed profile of the current business enterprises operating in the affected area." The above paragraph clearly acknowledges that the SEIA team recognised the need for a more thorough engagement process after the submission of the draft report. The EAP will confirm that the BA/EIA process which involves the presentation of draft reports at public meetings, allows for such limitations to be acknowledged and later addressed in an updated report. This is precisely why additional engagements were undertaken by the SEIA team.
	74. In addition to the above, the factual position in reports and specialist studies is often misrepresented as the most directly impacted properties / affected eco-tourism operations were not consulted at the appropriate time before conclusions were drawn to dismiss or negate I&APs concerns. Several I&APs raised questions and comments of substance throughout (i.e. during) the assessment process yet the EAP only responded to issues raised in the formal comment period in the comments and responses report. Outside that framework, the EAP did not respond to direct questions or emails from I&APs. There was in other words only			**X**	It is not true or correct that the "*EAP only responded to issues raised in the formal comment period in the comments and responses report. Outside that framework, the EAP did not respond to direct questions or emails from I&APs*." This is evident in the C&RR included in Appendix C9 as well as in Appendix C7 of the Final BAR which includes comments received and responses provided through various means (including responses at meetings and responses to emails) from throughout the process since the announcement in November 2020. Mr Summers is aware of this since, as noted on page 186 of the C&RR "*An information meeting was held by the public participation consultant and member of the EAP team with*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	controlled and managed responses to issues raised – this does not equate to meaningful engagement. The EAP-controlled dialogue (by focussing only on the comments and responses report) is disempowering and removes the ability for I&APs to engage meaningfully with the process during the process or with the EAP's responses to issues raised outside the scope of the comments and responses report. Selective responses to I&AP identified issues effectively shuts down participation.				*Kwandwe Private Game Reserve (at which Mr Summers was present) in November 2020 where the project was presented, and initial inputs requested from the I&AP prior to the release of the BA Report*." The comments received and responses provided, including an indication of how comments had been addressed, were included in the Revised BAR which was available for public review and comment.
	75. Various conclusions reached in the final BARs are not evidence-based but speculative. The efficacy of many mitigation measures is not evidence-based or supported by scientific data but rather speculative and reliant on post-authorisation monitoring.			**X**	The conclusions drawn within the BAR are largely dependent on the information and assessments provided by the independent specialists and the input received during the public participation process in order to inform the overall environmental assessment of the proposed development on both environmental and social aspects. The EAP's findings are therefore considered to be objective and factual and based on the expert support provided in the specialist findings. Mitigation measures recommended are considered to be practical and are based on experience of the specialists on other similar projects. There is no requirement for post-authorisation monitoring to inform the acceptability of the project. Where post-authorisation monitoring is recommended (in the instance of birds and bats), this is required in terms of the industry Best Practice Guidelines.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Specialist assessments have been undertaken by experienced, suitably qualified and professionally registered specialists and EAP which was supported by site surveys and ground truthing. The statement that the findings, mitigation measures and conclusions are not evidence-based and speculative is misguided and ill-judged.
	76. The approach to cumulative impact assessment and the slavish adherence to a 30km radius of the site is the effect of ensuring that cumulative visual impacts have not been assessed as the cumulative visual impact of this and similar projects extends beyond a 30km radius.		**X**		The cumulative impact assessment is undertaken in accordance with the requirements of the Regulations and the DFFE (as stated in the comments on the BAR from DFFE recorded on page 4 of the BAR and included in Appendix B). This includes consideration of cumulative visual impacts (as detailed in Section 6.2 of the VIA included in Appendix K of the BAR). Details of the approach to the cumulative assessment are included in Chapter 11 of the BAR and within the specialist studies included in Appendix D – M. A response in this regard was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 23:</u> *As per the requirements of the Regulations, each project is assessed in terms of direct, indirect and cumulative impacts. As the projects are proposed by different entities and will be developed and implemented separately, separate applications have been submitted to the Department. The assessment of impacts of the project on its own considers only the project under investigation (i.e. only Wind Garden Wind Farm). The cumulative assessment considers the impacts of all proposed and operating similar developments within a 30km radius of the site, as required by the DFFE.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Page 89: *An assessment of cumulative impacts associated with the proposed project and all other existing and proposed projects within 30km of the suite is included within Chapter 11 of the BAR and within the specialist studies included in Appendix D – M.* Page 89: *The cumulative visual assessment concludes that the visual impact associated with the project together with other proposed and existing projects in a 30km radius of the site will be high.* Page 154: *The combined visual impact or cumulative impact of up to four wind energy facilities (i.e. the existing Waainek WEF, and the proposed Wind Garden, Fronteer and Albany WEFs) is expected to increase the area of potential visual impact within the region. The intensity of visual impact (number of turbines visible) to exposed receptors, especially those located within a 5-10km radius of the proposed Wind Garden/Fronteer WEFs, is expected to increase when considered in conjunction with the other existing or proposed WEFs. The cumulative visual impact of the existing Waainek WEF, and the proposed Wind Garden, Fronteer and Albany WEFs is expected to be of high significance. The fact that these WEFs are located within a REDZ is not likely to mitigate the potential visual impact on affected sensitive visual receptors is acknowledged.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Page 390: *As per the usual requirement by the DFFE for renewable energy projects, cumulative impacts of projects within a 30km radius of the site are considered in the BAR.*
	77. The placement of turbines does not respect the information regarding all impacts / sensitivities identified in the final BARs and visual inputs is a key case in point which is selectively applied to the exclusive and sole benefit of the proponent and to the detriment of the environment.		**X**		The final preferred (optimised) development footprint for the Wind Garden Wind Farm, overlain with the identified environmental sensitivities is presented in Figure 12.2 of the BAR. This presents the buffers as determined by the specialists in relation to the location of the infrastructure. Where buffers are infringed on, this is on condition that mitigation as recommended by the specialists is adhered to. The visual assessment undertaken for the project (Appendix K of the Revised BA Report) concludes that the visual impact of the project is expected to be of high significance. Mitigation is recommended and it is acknowledged that it is unlikely to succeed (refer to Section 9 of the VIA). The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. From the optimised layout of forty-seven (47) turbines presented in the Final BAR of July 2021, a further twenty-four

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					(24) turbines were removed from the Wind Garden Wind Farm as a result of high visual intrusion (refer to Table 12.3 of the Revised Final BAR).
	78. The reports submitted to the DFFE do not enable the Department to discharge its obligations in terms of section 2 of NEMA.		**X**		All information has been presented in the Draft and Revised Basic Assessment Reports (which both include all specialist reports, all comments received and a Comments and Responses Report) for the consideration of the DFFE. The main report states that the report was revised to address the comments received and refers the reader to the Comments and Responses Report. In addition, the report refers the reader to the specialist reports attached as appendices for more detailed information where required. The statement made that the DFFE cannot make an informed decision based on incomplete and inadequate assessments is not only misguided and unsupported given the pure nature of these comprehensive assessments, but also a derogatory statement towards the DFFE as the Competent Authority, which raises the question of the intention of the said I&AP in making such unsupported statements.
	79. The information in the final BARs does not support decision-making by the competent authority that is capable of promoting sustainable development as envisioned in terms of the Constitution and NEMA, which requires securing ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.[27] This goal of ensuring sustainable development is not achievable on the basis of the incomplete and inadequate assessments.		**X**		
5.	**Dr Andrew Jenkins: Avisense Consulting** *Please see attached comments on behalf of several registered I&APs we represent:* **Peer reviews of bird impact studies – Letter dated 06 August 2021**	**Richard Summers** **Richard Summers Inc.** **Director** **E-mail: 10 February 2022**			
	Having now been through both (i) the authors' itemised responses to specific elements of our peer		**X**		Comments regarding the avifaunal study were previously provided by Dr Jenkins via Mr Summers and were addressed

[27] Constitution of the republic of south Africa, 1996 at section 24.

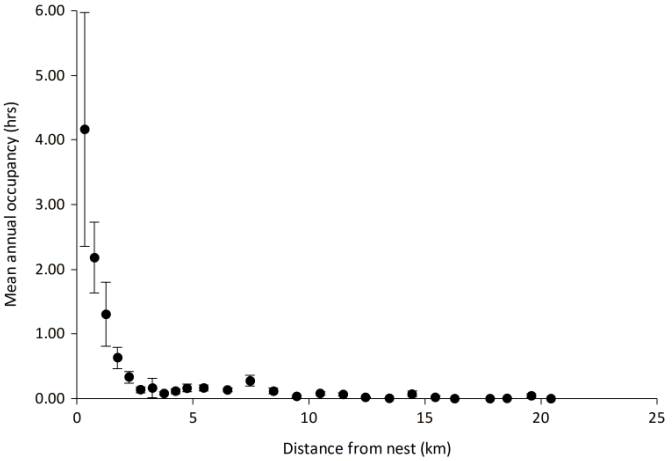
No.	Comment	Raised by	Previously Addressed	New Comment	Response
	reviews of the bird studies for the proposed Wind Garden and Fronteer Wind Farm developments, and (ii) submitted revisions of the two reports, we can confirm that the authors have been largely dismissive of the issues we have raised, and as a result have made no substantive changes to either of their reports. Our comments on the itemised responses are attached separately (note that the supplied "Response to peer review..." documents for each of the two projects are identical). Overall, and not surprisingly, we are not happy with the authors' responses and feel that the fundamental problems with the two studies highlighted in our review have not been addressed.				in the CRR included in the BAR (refer to page 122 and Appendix C9b for the specialists' response). No comments were received from Mr Jenkins on the Revised BAR, which included a substantively revised AIA compiled to address comments received during the public review period. Comments received from Mr Summers on the Revised BAR on 21 July 2021 (Point 7 of Section 1.2 of the CRR included in the BAR) did not include any comments on avifauna.
	The large eagle nest survey methods, effort and efficacy remain in question, as do the specific whereabouts of eagle nest sites that were included as relevant to the two assessments but were not present at the indicated locations when we surveyed the area in April 2021. Given that the predicted significance of impacts on birds of the two projects is largely dependent on the distribution of Martial and Verreaux's Eagle nests in relation to the proposed turbine layouts, we feel strongly that these inconsistencies and deficiencies must still be fully addressed.		**X**		A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 20:</u> *The avifaunal specialist has indicated that there has been a huge amount of survey effort to inform the assessment, with over 3 000 hours of vantage point survey across the proposed cluster of wind farms. With any assessment there will always be some uncertainties, which is why the assessment here has been conducted on a precautionary basis (and why it has been proposed that a specific Ornithological Mitigation Plan should be developed and implemented for all of the Choje wind farms).*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					The specialist has further indicated that at least four survey visits were made to all potentially suitable raptor nest sites, as well as information from other surveys especially the VP surveys (which involved long periods of viewing over the survey area). The raptor survey methodology is set out in the avifauna impact assessment report section 4.2.2. The specialist has stated that they are highly confident that the field survey team did locate all relevant nests on the development site and outside that where full access was possible, but that even where access could not be obtained active territories were confirmed and nesting areas identified. A specific nest survey was undertaken in the avifauna impact assessment. The methodology employed is detailed in Chapter 2 of the AIA (Appendix E of the BAR). Detailed analysis of the data collected from the site surveys undertaken between January 2019 and August 2020 and spatial modelling of the factors affecting key species' distributions were undertaken to enhance the evidence base and ensure that the data and models used for the assessment were robust and reliable. Whilst the mitigation measures (including the design mitigation) proposed were informed by the baseline survey and the spatial modelling, they are precautionary in their nature. Rather than based on past scenarios, they look forward so that they can be adapted to mitigate future scenarios.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					The approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.* *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*" Adaptive Management as "*An iterative decision-making process used in the face of uncertainty where management policies and practices are continually improved through monitoring and learning from the outcomes of previous approaches.*"
	Similarly, we believe that the models used to estimate eagle flight behaviour and collision risk (and hence the significance of unmitigated and residual impacts on these key species) are based on what appear to be (i) inaccurate and possibly deficient distributions of occupied nest sites, and (ii) insufficient and insufficiently reliable and accurate vantage point data. This perception may stem partly from the				A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 20:</u> *A response to this comment was included in the CRR included in the Revised BA Report (refer to point number 21(6)). The response provided was as follows:*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	authors' continued failure to supply adequate detail on the field methods used and the distribution and quantity of observer effort applied. But even if these failings are addressed, the authors' insistence on applying minimal protective buffers around the affected eagle nests – buffers that are substantially smaller than those considered to be local best practice (e.g. Verreaux's Eagle; BirdLife 2021), or than those likely to be established as best practice in forthcoming guidelines documents (e.g. Martial Eagle; G. Tate pers. comm.) - remains highly problematic. We strongly recommend that, once the eagle nest surveys for the two WEF sites have been fully completed and the specific locations of occupied and active nesting territories have been verified, the authors apply the latest versions of the VERA model and whatever equivalent is currently available for Martial Eagle, and that the outputs of these models – both based on large quantities of accurate, high resolution flight data derived from large samples of GPS-tagged eagles in broadly comparable habitats to those in the Wind Relic area – are used to map avian impact sensitivity and impact risk in relation to the two proposed wind farms.				*The avifaunal specialist has indicated that its paper post-dates most of the analytical work that was carried out for the assessment. The approach that it takes is very similar to that which adopted by the specialist (though they have used local survey data rather than data on tagged individuals). Both studies model eagle flight activity spatially on the basis of environmental conditions such as topography and distance from the nest. The site-based spatial modelling used by the avifaunal specialist has been used to inform the site design, based on data from the wind farm site itself. BLSA notes that the paper "suggests that a precautionary buffer of 5.2km would be more appropriate". However, as set out in the Murgatroyd et al. paper, even that enlarged distance of 5.2km only captured 50% of reported collisions. As the paper concludes:* "Our collision risk potential (CRP) model included the variables distance to nest, distance to conspecific nest, slope, distance to slope and elevation. Using our model, rather than a circular buffer, resulted in c. 4%–5% improvement in eagle protection while excluding development from the same amount (but not shape) of area. For an equal level of eagle protection, our model can make c. 20%–21% more area available for wind energy development compared to a circular buffer." *If the Verreaux's Eagle Risk Assessment Model can be made available, the specialist could use it to help inform the assessment for this species. Unfortunately, the paper as published describing that model does not include sufficient*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					detail to be able to replicate it without further information on the model parameters. *What is clear, however, is that even adopting very wide buffers, the collision risk to eagles is not removed and that a residual collision risk will remain. That will remain the case however much modelling and analysis is carried out, as both Murgatroyd et al's work and the specialist's local studies have shown that these birds range widely from their nests. Avoiding the close proximity to nests can reduce the risk, but not remove it altogether.* <u>Page 219:</u> *As Murgatroyd et al (2021) have highlighted in their recent paper – circular buffers have limited benefit and are inefficient in defining areas of higher collision risk, as these eagles do not randomly move around a specific distance from their nests but choose to forage and fly over specific areas and habitats within their range. This is why buffers based on actual bird use of an area (and spatial modeling using those data) provide a more robust solution. The spatial modelling undertaken by the avifauna specialist has shown the importance of distance from the nest, but also altitude (higher flight activity in the 600-800m range), distance from ridge lines (higher closer to ridge lines), and slope (higher in areas of steeper slope).* *In relation to the design of the site buffers, the analysis used to inform the 2.5km distance for Martial Eagle is set out in Appendix 2. Figure 1 from that appendix is reproduced here as it illustrates the evidence base for the use of that specific*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					distance. The survey data showed a strong relationship between flight density and distance from the nest, but this relationship flattened out beyond 2.5km. The highest densities were recorded within 500m of nests and there was a steady decline in flight density with distance from the nest, but only up to a distance of 2.5km. Beyond 2.5km flight density was consistently lower. Any exclusion of turbines beyond 2.5km would be of much less benefit in reducing collision risk. A similar result was found for the Choje East Block, though there, higher flight activity was noted within 1.5km of the nest (though with a smaller amount of baseline data available a precautionary approach was adopted and a 2.5km applied in the East and as well as the West). *Appendix 2. Figure 1. Martial Eagle flight density and distance from the nest, Choje West June 2019 - August 2020 (mean ± 95% confidence limits).*  **Further Response provided by the Avifaunal Specialist**

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					A detailed spatial analysis of the Martial and Verreaux's Eagle range behaviour has been undertaken to inform the wind farm site design, and turbines removed in higher risk areas (see **AIA Appendix 2;** Appendix E of the BAR). The precautionary approach was adopted by the specialist and circular buffers applied as a more bespoke approach to determine buffers was previously proposed and not accepted by BirdLIfe. It must be noted that the buffers recommended are based on on-site data collected and spatial flight analyses conducted, which is considered important in informing buffers as no 2 wind farm sites are the same by virtue of the environment that they are situated within. The specialist supports models such as VERA, but has taken a more refined approach as VERA is limited in the way impacts are assessed and ranked. A specific nest survey was undertaken in the avifauna impact assessment. The methodology employed is detailed in Chapter 2 of the AIA (Appendix E of the BAR). Detailed analysis of the data collected from the site surveys undertaken between January 2019 and August 2020 and spatial modelling of the factors affecting key species' distributions were undertaken to enhance the evidence base and ensure that the data and models used for the assessment were robust and reliable. Whilst the mitigation measures (including the design mitigation) proposed were informed by the baseline survey

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					and the spatial modelling, they are precautionary in their nature. Rather than based on past scenarios, they look forward so that they can be adapted to mitigate future scenarios. The approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.* *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*" Adaptive Management as "*An iterative decision-making process used in the face of uncertainty where management policies and practices are continually improved through monitoring and learning from the outcomes of previous approaches.*"
	In closing, and given that the authors have chosen to largely ignore the issues we have raised, the key findings of our reviews remain essentially the same:		**X**		A response was provided by the specialist in Appendix C9b of the BAR.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	1. The bird impact studies for the Wind Garden and Fronteer Wind Farm proposals are superficially adequate, but still lack the accuracy, completeness and detail required to fully identify and evaluate the impacts of each of the proposed developments.				*This review is flawed and lacking in rigour, and has not fully considered all of the information provided in the report. Despite its superficial criticisms of the ornithological impact assessment, it offers no substantive evidence-based reason to alter the conclusions reached in the assessment. It remains the case that the Wind Garden site is low ornithological sensitivity, and that the proposed wind farm will not result in any significant ornithological impact. This conclusion is further emphasised by the commitment of the developer to implement an Ornithological Mitigation Plan that is being developed with stakeholders, to ensure the delivery of the proposed mitigation and enhancement measures.* **Further response:** The pre-construction monitoring which informed the bird impact assessment was compiled in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston. A specific nest survey was undertaken in the avifauna impact assessment. The methodology employed is detailed in Chapter 2 of the AIA (Appendix E of the BAR). Detailed analysis of the data collected from the site surveys undertaken between January 2019 and August 2020 and spatial modelling of the factors affecting key species' distributions were undertaken to enhance the evidence base and ensure that the data and models used for the assessment were robust and reliable.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Whilst the mitigation measures (including the design mitigation) proposed were informed by the baseline survey and the spatial modelling, they are precautionary in their nature. Rather than based on past scenarios, they look forward so that they can be adapted to mitigate future scenarios.
	2. The survey work on cliff-and tree-nesting raptors contributing to the two studies still appear to be deficient in scope, extent and intensity, possibly resulting in important sites not being detected and therefore not being factored into the impact assessments.				A response was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 20:</u> *The avifaunal specialist has indicated that there has been a huge amount of survey effort to inform the assessment, with over 3 000 hours of vantage point survey across the proposed cluster of wind farms. With any assessment there will always be some uncertainties, which is why the assessment here has been conducted on a precautionary basis (and why it has been proposed that a specific Ornithological Mitigation Plan should be developed and implemented for all of the Choje wind farms).* *The specialist has further indicated that at least four survey visits were made to all potentially suitable raptor nest sites, as well as information from other surveys especially the VP surveys (which involved long periods of viewing over the survey area). The raptor survey methodology is set out in the avifauna impact assessment report section 4.2.2. The specialist has stated that they are highly confident that the field survey team did locate all relevant nests on the development site and outside that where full access was*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					possible, but that even where access could not be obtained active territories were confirmed and nesting areas identified. A further response was provided by the specialist in Appendix C9b of the BAR. *This review is flawed and lacking in rigour, and has not fully considered all of the information provided in the report. Despite its superficial criticisms of the ornithological impact assessment, it offers no substantive evidence-based reason to alter the conclusions reached in the assessment. It remains the case that the Wind Garden site is low ornithological sensitivity, and that the proposed wind farm will not result in any significant ornithological impact. This conclusion is further emphasised by the commitment of the developer to implement an Ornithological Mitigation Plan that is being developed with stakeholders, to ensure the delivery of the proposed mitigation and enhancement measures.*
	3. The impact assessments still underplay the potential severity of the impacts of the two developments on threatened and collision-prone species such as Verreaux's Eagle, Martial Eagle, Crowned Eagle (and possibly Secretarybird, Lanner Falcon and Blue Crane), and over-estimate our current ability to mitigate such impacts, resulting in residual impact ratings that are overly lenient on the two development proposals.		**X**		The opinion of Mr Jenkins is noted. Without substantiated reasons for this opinion, a response cannot be provided. It must be noted that comments regarding the avifaunal study were previously provided by Dr Jenkins via Mr Summers and were addressed in the CRR included in the BAR (refer to page 122 and Appendix C9b for the specialists' response). No comments were received from Mr Jenkins on the Revised BAR, which included a substantively revised AIA compiled to address comments received during the public review period. Comments received from Mr Summers on the Revised BAR on

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					21 July 2021 (Point 7 of Section 1.2 of the CRR included in the BAR) did not include any comments on avifauna.
	4. These project-specific failings are still compounded and magnified in the two reports' attempts to evaluate the cumulative impacts of these and other renewable energy projects in the region on local populations of threatened birds.		**X**		The opinion of Mr Jenkins is noted. Without substantiated reasons for this opinion, a response cannot be provided.
	***AVISENSE* comments on authors' responses to points made in the review** Specific points raised in the AVISENSE review and challenged by the authors in their responses are listed below, with our return comments, as well as an indication of the any corresponding changes made by the authors in their revision of the two reports. Note that this single comment and response document is considered adequate for the two sets of reports and reviews given that the supplied authors' responses to our two review reports appear to be identical. **Baseline study**				Specific comments are addressed in the sections below.
	1. <u>Review point</u>: The report refers to and maps sampling sites in a control area located to the southwest of the development area, but the 'Before' data collected here are not presented anywhere in the report, or compared with the equivalent data collected in the WEF area. This denies the reader the opportunity to examine the quantity and nature of these data and to			**X**	There is no requirement in the Best Practice Guideline for the inclusion of raw data collected into the report. This data is interpreted and the results presented in the report in order to inform the impact assessment and mitigation recommendations. AVISENSE did not request the raw data form the avifauna specialist at any stage in the process in order to support the conclusions drawn in their review report. There is no detail in the review report regarding the period on site, vantage points used, or compliance with the

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	assess their comparability with the on-site data and legitimacy for use in a BACI-type study. *<u>Authors' response</u>: the data from the reference area were collected in exactly the same way as the data for the development site itself. The report itself focuses on the birds in the vicinity of the wind farm site as it is these that could be affected by the proposed development. The full area surveyed is shown in Figure 3 of the report.* ***<u>AVISENSE comment</u>*: The way in which the control or reference site data were collected, or where they were collected, are not specifically in question here. The issue raised – which has not been addressed here or in the revised report - is that the data themselves are not presented anywhere in the report. We think it would be helpful for the authors to include - as appendices to each report – carefully captioned tables of all the raw data collected during each baseline study and relevant to each impact assessment, both on the project sites and in the reference or control area. This would allow the reader fully interrogate the report findings.** ***<u>Adequate, corresponding change made in the revised report?</u> : No***				requirements of the Best Practice Guidelines in support of the findings of the report. The original review letter submitted in May 2021 refers to only 8 days on site which is substantially less than the time spent by the project specialists on these sites. It is further noted that only the area surrounding the area surrounding the proposed project site was surveyed using a vehicle and that a further survey using a helicopter was undertaken to expand the survey. It is questioned how this very limited fieldwork, using invasive means such as a helicopter could compare to the 18-months pre-construction monitoring which informed the impact assessment. The AIA (Appendix E of the BAR) was undertaken by Adri Barkhuysen and Steve Percival. Adri is a registered professional natural scientist (registration no.: 400350/13) with 18 years of experience in the avifauna field. The AIA was reviewed by Dr Owen Davies of Arcus Consultancy Services South Africa (Pty) Ltd ('Arcus'). Dr Davies is a Professional Natural Scientist registered with the South African Council for Natural Scientific Professions (SACNASP) and obtained his doctoral degree from the Percy FitzPatrick Institute of African Ornithology, a DST-NRF Centre of Excellence at the University of Cape Town. Owen has been involved in avifaunal monitoring activities for renewable energy projects since 2013. Extensive field research has given Owen experience in the techniques required for conducting biological surveys on a variety of taxa including observations, physical trapping and identification of small terrestrial birds, raptors, bats, small mammals, rodents, snakes, reptiles,

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					scorpions and fish. He is also qualified to conduct observations and acoustic monitoring of marine mammals in the offshore environment. Data collection in a diversity of habitats and ecosystems, combined with formal training in field skills such as off-road driving, enables Owen to conduct ecological surveys across southern Africa. In addition, his skills in data analysis and scientific writing at the PhD level enable him to produce high quality assessments and reports. CVs of the specialist project team are included in Appendix A of the BAR.
	2. Review point: While it is clear that the locations of large eagle nest sites in the proximity of the proposed WEF are of critical importance in assessing the potential impacts of the development, only two searches for such nests were conducted over the study period. Both these surveys were conducted in mid-late winter – usefully timed for Verreaux's Eagle and Martial Eagle, but of little use in searches for active Crowned Eagle nests, or in surveying cliff habitat for Lanner Falcon, Peregrine Falcon Falco peregrinus, Booted Eagle Hieraaetus pennatus or Jackal Buzzard nests, all of which are spring/summer breeders. Furthermore, no information is presented on the extent or intensity of these nest surveys – what habitats were targeted, where and how, so there is no way of knowing what habitats have or haven't			**X**	Comments regarding the avifaunal study were previously provided by Dr Jenkins via Mr Summers and were addressed in the CRR included in the BAR (refer to page 122 and Appendix C9b for the specialists' response). No comments were received from Mr Jenkins on the Revised BAR, which included a substantively revised AIA compiled to address comments received during the public review period. Section 2.4 of the AIA Report (included as Appendix E of the BAR) includes details of the pre-construction monitoring methods. The area surveyed is shown in Figure 3. **Response from avifauna specialist:** We strongly dispute the contention that the baseline surveys were inadequate. They gave a comprehensive picture of bird distribution, abundance and flight activity over the potential impact zone of the wind farm.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	been searched or how well the searching has been done. *<u>Authors' response</u>: this is simply incorrect. At least four survey visits were made to all potentially suitable raptor nest sites, as well as information from other surveys especially the VP surveys (which involved long periods of viewing over the survey area). The raptor survey methodology is set out in the report section 4.2.2. The reviewers appear not to have read the report properly. We are highly confident that the field survey team did locate all relevant nests on the developments site and outside that where full access was possible, but that even where access could not be obtained active territories were confirmed and nesting areas identified. The reviewers' April 2021 survey data do not present any new information that would suggest that this conclusion is not correct.* ***<u>AVISENSE</u>* <u>comment:</u> The reviewers did in fact read the reports properly. The problem is that there is so little detail given in the reports on the nature of the nest surveys conducted, and most importantly where they were (and weren't) conducted, that it is not possible for the reader to determine how thoroughly this work was done. The series of four visits made to identified locations in the project area through each of two breeding seasons constitute a commendable effort by the field team to**				

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	monitor activities at known nests. But there is still no clarity on when, how and where searches were conducted of other areas to locate other nests not yet known to the survey team...? ***Adequate, corresponding changes made in the revised report? : No***				
	3. *Review point*: Stemming from (2) above, the locations and actual status of at least three of the large eagle nests listed in the baseline report (Barkhuysen & Percival 2021) remain uncertain, we suspect because the nest survey team was unable to access the relevant properties (owned either by the South African National Defence Force of by landowners in opposition to the development) to do this directly, and reverted to estimation from a distance, based mainly on behavioural evidence (e.g. Table 1). While we are sympathetic to this kind of constraint on the efficiency of fieldwork, in the scheme of a full year of baseline monitoring it is imperative that such obstacles are overcome, and sensitive sites are accurately located and effectively protected from harmful impacts. *<u>Authors' response</u>: as noted in the response to the previous point, the reviewers appear not to have read the report properly with regard to the survey effort undertaken. Whilst access to some areas outside the development was not possible (despite repeated efforts to gain*			**X**	The specialist has reiterated that they are highly confident that the field survey team did locate all relevant nests on the development site and outside that where full access was possible, but that even where access could not be obtained active territories were confirmed and nesting areas identified. They are confident that the data collected in the field and presented in the report is accurate and that the baseline surveys were adequate. They gave a comprehensive picture of bird distribution, abundance and flight activity over the potential impact zone of the wind farm.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	access), the surveys that were possible (including many hours spent observing over areas to which access on the ground was not possible) provided sufficient information to undertake a robust assessment. ***AVISENSE* comment: While we concede that we didn't have much time to search the area fully and weren't able to access the properties actually included in either of the two WEFs, we used the limited time we had available to systematically search the area around each WEF, including the locations of all of the most directly relevant nest sites mapped in each of the WEF avian baseline and impact studies (note that, unlike the two bird studies under review, the scope, intensity and location of our survey effort is detailed in our two reports). Despite these efforts, which included both ground and aerial survey work, we were unable to locate two Martial Eagle nest sites and one Verreaux's Eagle nest site plotted in the bird impact reports. This is not to say that these nests are not present and key in any assessment of the potential impacts of the two proposed WEFs, but rather that they are demonstrably NOT present at the specific locations indicated. We searched the ravine to the northwest of the two WEF projects for the Verreaux's Eagle nest site purported to be there, but there is little in the way of optimal habitat and no sign of a nest**				

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	structure on the cliffs; we searched the location given for the Martial Eagle site to the northeast of Fronteer and there is no suitable habitat there and certainly no nest; and we searched for the Martial Eagle site to the south of Wind Garden and while we saw an adult and there is good habitat in the general area, the nest is clearly not located where indicated in the AIA report. Given that the specific locations of these nest sites are so central to establishing the significance of impacts likely to result from the proposed developments, we find this level of inaccuracy in the field data that inform the impact assessment concerning. ***Adequate, corresponding changes made in the revised report? : No***				
	4. Review point: The complex integration of undulating, rugged terrain, impenetrable thicket and hidden or inaccessible ravines, riparian forest and forest patches is difficult habitat to survey, and we didn't find as much to add to or change the outcome of the large eagle survey work informing the bird impact study as we had expected. However, given the proximity of potentially suitable habitat to the proposed development area and gaps in the spacing of known or suspected breeding pairs, we do not feel that this survey work has been done well enough. In particular, we are concerned that the actual location of the			**X**	Section 2.4 of the AIA Report (included as Appendix E of the BAR) includes details of the pre-construction monitoring methods. The area surveyed is shown in Figure 3. AVISENSE has misunderstood that the statement that they quote about the survey coverage "The baseline surveys included many watches and walks to search for these species' nests, but none were specifically located in this area". This appears to have been read that no surveys were undertaken in this area when in fact this statement is indicating that there were no nests found in this area during the surveys.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Martial Eagle nest to the northeast of the project remains unknown. *Authors' response: the reviewers have again understated the survey effort that has been undertaken and as a result, their conclusions are again flawed.* ***AVISENSE* comment: Our contention is that we can't under- or overstate the survey effort if no real detail on the nature, distribution or intensity of the survey effort is provided in either of the two reports. We would like to see maps that identify the areas of potentially suitable habitat that were surveyed for key species, along with details of when and how each of these areas was assessed and what was found. Without this, and without clear evidence that such areas located in potential vacancies between known or suspected eagle territories have been checked, we have to assume that they weren't properly checked and could be occupied by resident and breeding pairs – some or all of which could contribute meaningfully to the impact risk profiles of the two projects.** ***Adequate, corresponding changes made in the revised report?* : No**				
	5. Review point: The baseline report refers to the likelihood that both Blue Crane and Secretarybird– globally threatened and impact susceptible species (Taylor et al. 2015, https://www.iucnredlist.org/search) - breed on			**X**	Section 2.4 of the AIA Report (included as Appendix E of the BAR) includes details of the pre-construction monitoring methods. The area surveyed is shown in Figure 3.

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	or close to the development area, and yet no concerted effort was made to find such sites during the baseline study. Why was this important work not done during the baseline study when it could have made a material difference to the outcomes of the EIA? Secretarybird is now both regionally and globally Endangered, and regularly active nest sites either close to or within the development area would require considerable buffering – applied at the authorization and design stages of the project, rather than during pre-construction - to be fully protected from displacement and mortality impacts. *Authors' response: Again, the reviewers have not appreciated the full extent of the survey effort that has been undertaken. The baseline surveys included many watches and walks to search for these species' nests, but none were specifically located in this area. Records were infrequent and no specific nest site identified for either, but it was assumed on a precautionary basis that they could breed in the area for the purpose of the assessment.* ***AVISENSE* comment: "The baseline surveys included many watches and walks to search for these species' nests, but none were specifically located in this area.". Again – why not? And if the baseline surveys were so extensive, why is**				

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	this not expressly indicated – mapped and quantified - in either of the reports? ***Adequate, corresponding changes made in the revised report? : No***				
	6. Review point: Although the report is dated 2021, references made to the regional and global threat status of key species are outdated. For example, both Martial Eagle and Secretarybird are now globally Endangered – important changes to consider when assigning the significance ratings of negative impacts. *Authors' response: the assessment was made on the basis of the December 2019 IUCN list and it is accepted that this has been subsequently updated as stated in 2020. Further consideration has been given to this change, but it has been concluded that it does not make any material change to the conclusions reached previously.* ***AVISENSE* comment: We consider this to be a very strange response to the uplisting of species potentially affected by the proposed WEFs. How can the fact that Martial Eagle is now considered to be globally Endangered be of no consequence in assessing the impacts of these two wind farms, both of which are situated within easy foraging range of Martial Eagle nests?** ***Adequate, corresponding changes made in the revised report? : No. The global conservation***			**X**	The conservation status of the Martial Eagle and Secretarybird is reflected as being globally Endangered within the AIA (Appendix E of the BAR). Potential impacts on these species are assessed in Section 10 of the AIA. The impacts expected during operation are informed by the collision risk calculated in Section 8.3.1, based on data collected through the pre-construction monitoring. The response given by the specialist to the comment on the BAR does not state that the uplisting of the Martial Eagle to be globally Endangered be of no consequence. The statement is that "*it has been concluded that it does not make any material change to the conclusions reached previously*".

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	status of key species listed in the two reports has been updated, but this has not resulted in any adjustment of the impact tables. We believe that the uplisting of Martial Eagle and Secretarybird should affect the estimated significance of project.				
	Impact Assessment 7. *Authors' response*: Whilst the reviewers claim that in their opinion the collision risk modelling and bird impact assessment are not of the required standard, their primary reason for this appears to be based on "the quality, extent and intensity of the nest survey and monitoring information being particularly poor". As shown above, this conclusion that they have reached is based on a flawed interpretation of the report. ***AVISENSE* comment: See comments above.** ***Adequate, corresponding changes made in the revised report? : No***			**X**	Refer to relevant previous responses.
	8. *Authors' response*: The claim a "possibility that at least one or two important nest sites may have been overlooked" has no evidence base and is simple speculation based on a misinterpretation of the baseline surveys carried out. ***AVISENSE* comment: See comments above.** ***Adequate, corresponding changes made in the revised report? : No***			**X**	Refer to relevant previous responses. The approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on*

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					imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments. *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*" Adaptive Management as "*An iterative decision-making process used in the face of uncertainty where management policies and practices are continually improved through monitoring and learning from the outcomes of previous approaches.*"
	9. Authors' response: Concerns are raised about the amount of VP data. There has though been a very considerable amount of surveys (900 hours over the Wind Garden/Fronteer study area as a whole, i.e. the area indicated in Figure 3 of the report). The lack of records flying through the collision risk zone was not a result of a lack of survey effort but rather reflect the very low use that these species made of the zone. ***AVISENSE* comment: This response does not adequately address the substance of the issue raised.** ***Adequate, corresponding changes made in the revised report? : No***			**X**	It is not stated what is inadequate about the response provided. It is therefore not possible to provide a further response.
	10. Authors' response: Assertions about the quality of VP data ignore the fact that this is a well-			**X**	The approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third

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	proven methodology that has been adopted worldwide to assist in wind farm collision risk analysis. To describe rigorously collected VP data as 'notoriously unreliable' is at best disingenuous, if not misleading. ***AVISENSE* comment: The unreliability of generic, observer-based vantage point data relative to actual flight behaviour (as recorded by tracking devices, radar or other remote sensing devices) is not misleading or disingenuous, it is an empirically demonstrated fact (e.g. Jenkins et a!. 2018, McClure et a!. 2018, Becker et a!. 2020), and particularly so for solitary, soaring species that can so easily be overlooked by fieldworkers. In fact, this demonstrated deficiency is leading workers in this area lean more and more towards to technology to increase the quantity and accuracy of flight tracking data used to inform assessments of collision risk (Largey et a!. 2021).** **Our contention is that while a standard, minimum best practice requirements approach to understanding bird collision risk in relation to a proposed wind farm may be sufficient for a project in a low sensitivity area distant from habitat frequented by threatened, impact susceptible species, should such an approach identify nest sites of such species located close to or within the area for development the**				Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.* *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*" A response regarding the use of the VERA model was provided in the C&RR included as Appendix C9 of the final BAR. <u>Page 19:</u> *The avifaunal specialist has indicated that its paper post-dates most of the analytical work that was carried out for the assessment. The approach that it takes is very similar to that which adopted by the specialist (though they have used local survey data rather than data on tagged individuals). Both studies model eagle flight activity spatially on the basis of environmental conditions such as topography and distance from the nest. The site-based spatial modelling used by the avifaunal specialist has been used to inform the site design, based on data from the wind farm site itself. BLSA*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	consulting specialist should resort to more sophisticated methods to determine the possible severity of impacts. In this instance, a far more substantial and customized approach to observer-based VP work should have been applied at some stage during the baseline study, coupled with nest surveys that were far more systematic, extensive and thorough. There is still opportunity for the bird specialist team to address the latter deficiency, which would allow them to use pre-existing, locally developed eagle flight models – VERA for Verreaux's Eagle (Murgatroyd et a!. 2020) which is readily available, and an equivalent for Martial Eagle which is in the closing stages of development and may well already be available in beta form for use on this project. The use of these gold-standard tools for estimating eagle collision risk at South African wind farms would go along way to resolving conflicting opinions on the relative sustainability of these two projects. ***Adequate, corresponding changes made in the revised report? : No***				*notes that the paper "suggests that a precautionary buffer of 5.2km would be more appropriate". However, as set out in the Murgatroyd et al. paper, even that enlarged distance of 5.2km only captured 50% of reported collisions. As the paper concludes:* "Our collision risk potential (CRP) model included the variables distance to nest, distance to conspecific nest, slope, distance to slope and elevation. Using our model, rather than a circular buffer, resulted in c. 4%–5% improvement in eagle protection while excluding development from the same amount (but not shape) of area. For an equal level of eagle protection, our model can make c. 20%–21% more area available for wind energy development compared to a circular buffer." *If the Verreaux's Eagle Risk Assessment Model can be made available, the specialist could use it to help inform the assessment for this species. Unfortunately, the paper as published describing that model does not include sufficient detail to be able to replicate it without further information on the model parameters.* *What is clear, however, is that even adopting very wide buffers, the collision risk to eagles is not removed and that a residual collision risk will remain. That will remain the case however much modelling and analysis is carried out, as both Murgatroyd et al's work and the specialist's local studies have shown that these birds range widely from their nests. Avoiding the close proximity to nests can reduce the risk, but not remove it altogether.*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Page 40: *The specialist supports models such as VERA, but have taken a more refined approach as VERA is limited in the way impacts are assessed and ranked.*
	11. Authors' response: The review raises concerns about the way that eagle nest buffers have been implemented. There are, however, clear problems with simple circular buffers, as Murgatroyd et al (2021) have highlighted in their recent paper – circular buffers have limited benefit and are inefficient in defining areas of higher collision risk, as these eagles do not randomly move around a specific distance from their nests but choose to forage and fly over specific areas and habitats within their range. This is why buffers based on actual bird use of an area (and spatial modeling using those data) provide a more robust solution. ***AVISENSE* comment: We agree 100% that circular buffers are overly simplistic, and that buffers shaped and sized to correspond with actual bird flight behaviour – either determined directly by dedicated observation or on-site tracking, or by models based on such high resolution spatial data – are far preferable and far more likely to be effective in mitigating harmful impacts. However, models used to establish buffer areas and estimate collision risk must be developed in terms of large quantities**			**X**	The opinion of Mr Jenkins regarding the data collected is noted. Some contradictions have been noted in the comments made by the I&AP's peer reviewer (Avisence) as the findings of the AIA and the buffers proposed by the Avifaunal specialist have in fact been supported by ample site survey data. The specialist has reiterated that there has been a huge amount of survey effort to inform the assessment, with over 3 000 hours of vantage point survey across the proposed cluster of wind farms. The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, primarily to consider all comments, issues and concerns raised by I&APs through the numerous PP processes. Secondly, the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and to address outstanding issues as directed by the DFFE. In response to the comment by EWT regarding the preferred use of precautionary buffers, this reduced layout was proposed. Irrespective of the fact that the Birdlife Guidelines clearly states that "*this is a precautionary buffer and may be reduced (or increased) based on the results of rigorous*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	of relevant, accurate movement data to be valid. Our contention is that this is not the case here. ***Adequate, corresponding changes made in the revised report? : No***				*avifaunal surveys*", the Applicant optimised the layout to remove all turbines that were located within these precautionary buffers (i.e. within 3km from Verreaux's Eagle nests and within 5km of Martial Eagle nests). This optimisation also simultaneously addressed other outstanding I&AP concerns regarding avifauna. This resulted in a reduced number of turbines from the 47 originally proposed to 23. A reassessment of the collision risk associated with the project (Appendix S2 of the Revised Final BAR) concluded that **collision risk was reduced for all species**. Collision risk for Verreaux's Eagle is predicted to be 0.053 collisions per annum and that for Martial Eagle is predicted to be 0.002 per annum.
	12. Authors' response: Our spatial modelling has shown the importance of distance from the nest, but also altitude (higher flight activity in the 600-800m range), distance from ridge lines (higher closer to ridge lines), and slope (higher in areas of steeper slope). In relation to the design of the site buffers, the analysis used to inform the 2.5km distance for Martial Eagle is set out in Appendix 2. Figure 1 from that appendix is reproduced here as it illustrates the evidence base for the use of that specific distance. The survey data showed a strong relationship between flight density and distance from the nest, but this relationship flattened out beyond 2.5km. The highest densities were recorded			**X**	Details of the modelling are included in Section 8.2 of the AIA and in its Appendix 2. In the absence of any published guidance on Martial Eagle (at the time of the surveys and at present, a detailed and phased programme of design mitigation was followed to inform a wind farm layout that optimised collision risk for this species by dropping all of the higher risk turbines as identified through extensive field surveys. The field data and spatial modelling showed that Martial Eagle flight density (and hence collision risk) was higher within 2.5km of an active nest but not beyond that distance, so that distance was applied as the first phase buffer (and a definite no-go buffer where all turbines were dropped). A second phase design process was then applied, removing further turbines where flight activity

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	within 500m of nests and there was a steady decline in flight density with distance from the nest, but only up to a distance of 2.5km. Beyond 2.5km flight density was consistently lower. Any exclusion of turbines beyond 2.5km would be of much less benefit in reducing collision risk. A similar result was found for the Choje East Block, though there, higher flight activity was noted within 1.5km of the nest (though with a smaller amount of baseline data available a precautionary approach was adopted and a 2.5km applied in the East and as well as the West). ***AVISENSE* comment: Firstly, despite the shortcomings of circular buffers, and the alleged superiority of the model-based approach applied by the authors, they ultimately resort to imposing circular buffers of their own! Secondly, the two reports provide scant detail on how the models used were developed – what data were used to build them (how much, from where and collected how and by whom)? For example, the graphs of flight activity in relation to distance from the nest seem to include data points collected out to 19-20 km. How were individual eagles sighted at these distances from known nests identified as being from those sites (and distinguished from birds from other, unknown nest sites located closer to the observer), and who made these**				was higher (mostly, though not exclusively within a 5km buffer). Given that Martial Eagle is a wide-ranging species, there will always be a small residual risk of collision even with this two-phased design mitigation. This is the reason why an adaptive management plan is recommended that will deliver a range of additional mitigation as required to ensure that significant impacts do not occur. As stated above, the approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015. As with all projects and themes, the use of tools and guidelines requires confirmation by a specialist verified by onsite data. This verification process was followed by the Avifaunal specialists and their knowledge and experience used to determine the best sustainable recommendations and mitigation measures for the development site. The comments made by the Appellant thus contradicts the customary verification process and the need for long-term onsite monitoring.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	observations, where and when? Also, while the difficulty with which observers are able to estimate flight heights and 3-D locations of flying eagles is acknowledged in each report, the models are apparently capable of showing "...the importance of distance from the nest, but also altitude (higher flight activity in the 600-800m range), distance from ridge lines (higher closer to ridge lines), and slope (higher in areas of steeper slope).". How is this level of spatial accuracy achieved..? ***Adequate, corresponding changes made in the revised report? : No***				
	13. Authors' response: The review raised additional concerns about the assessment of foraging range loss. Specifically, it notes that the range sizes used were taken from studies of higher-density populations of both species, and it is suggested that the territories at the Wind Garden site would be larger. It is then claimed that if territories were indeed larger, then "percentage losses of foraging habitat to turbines in each case are likely to be greater". This appears to demonstrate a lack of understanding of the range loss impacts. With a specific fixed loss from the wind farm, the percentage impact would actually be lower on a larger territory – the size of the territory is simply the denominator in the percentage calculation. These concerns raised therefore do			**X**	**Response form the avifauna specialist** The foraging range losses have not been calculated using a 2.5km range but rather a distance of 5.8km, as set out in Section 8.4 of the AIA. In addition to several other reasons as discussed above, in order to address outstanding issues raised during the EIA process, as instructed by the DFFE, a reduced layout has been proposed by the Applicant within the Revised Final BAR. This layout was proposed following discussions with EWT where it was agreed that turbines would be removed from the whole extent of all Verreaux's Eagle nests to a buffer of 3km and of all Martial Eagle nests to a buffer of 5km (i.e. precautionary buffers). These turbines were removed from these precautionary buffers, irrespective of the fact that the Birdlife Guidelines clearly states that "*this is a precautionary*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	not, as the reviewers claim, increase the magnitude of any effects or the significance of those effects but would, in proportionate terms, reduce it as the birds would have more alternative foraging areas within their larger range. ***AVISENSE* comment: The point is taken that eagle pairs with larger territories could lose proportionately less of their foraging ranges to a WEF area than birds with smaller ranges. However, this rather depends on the relative sizes of the two areas, and how they are positioned in relation to one another. For example, assuming that the Martial Eagle site located to the northeast of the Fronteer WEF has a core foraging range with a radius of 2.5 km (and an area of about 20 km2) as the authors would claim, it loses 0% of that area to the proposed wind farm. However, if it has a core range of 6 km as we would claim (with an area of about 113 km2), it loses >15% of that range to the wind farm if it is developed to the edge of the designated land parcel and eagles are completely displaced from the turbine populated area. The crux of our argument is that it serves the purposes of development to consider that potentially affected eagles occupy smaller rather than larger ranges – hence we question the legitimacy of referencing studies of high-density eagle**				*buffer and may be reduced (or increased) based on the results of rigorous avifaunal surveys*". This resulted in a reduced number of turbines from the 47 originally proposed to 23 (50% drop in turbines). A reassessment of the range loss for Martial Eagle associated with the project (Appendix S2 of the Revised Final BAR) concluded that there would be no loss of the NE range but up to 14% loss of the SW range, and given the low use that these birds make of this area (from the vantage point survey results and from the range modelling), such a loss would not be considered significant.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	populations in discussing the as-yet unknown space requirements of eagles implicated in a bird impact assessment. ***Adequate, corresponding changes made in the revised report? : No***				
	14. Authors' response: In relation to the use of Shutdown-on-demand as a mitigation measure, the reviewers claim that "no formally published study that clearly demonstrates the efficacy of such an approach in a situation where the flight behaviour of target species is relatively unpredictable". This is incorrect. For example, a recent study by McClure et al (2021)1 showed a substantial reduction in collision risk to eagles from an automated shutdown system in the USA. They state that shutdown-on-demand should be used as a 'mitigation measure of last resort' and that is precisely how it is being proposed to be used at Wind Garden, as a back-up to ensure that collision risk is minimised. The draft Ornithological Mitigation Plan that is being developed with stakeholders (and to which the developer has committed) sets out further details of how this would be implemented. ***AVISENSE* comment: We thank the authors for bringing the McClure 2021 paper to our attention. It does indeed provide empirical evidence of the efficacy of a shutdown system in reducing eagle collision rates. However, the**			**X**	The avifauna specialists have provided a specific example of a system that is being implemented elsewhere. The key point at Wind Garden is that the collision risk for Martial Eagle will be low but notwithstanding that a mitigation package will be implemented to ensure that significant effects are avoided.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	following should be noted about this example: (i) the sophisticated, automated system being tested in this study is new, previously untested in this context, and expensive, (ii) the eagles in question are at least partly made up of migrating birds moving along ridgelines in a reasonably predictable manner – unlike the situation at Wind Garden and Fronteer, (iii) this system was trialed at the Top-of-the-World wind farm in Wyoming, USA, only after that WEF had caused sufficient eagle deaths to be issued a US$1 million fine by the US government, and (iv) the system was found to be up 80% effective – i.e. eagles were still exposed to collision risk. The latter is the kind of situation in which largely untested, partially effective mitigation measures such as this should be considered as an option. They should NOT be invoked as a means to justify construction and operation of a WEF in a recognized, eagle-sensitive area. ***Adequate, corresponding changes made in the revised report? : No***				
	15. Authors' response: The reviewers are dismissive of the principle of delivering on- and off-site habitat management measures, despite the fact that it is a widely-used technique for reducing risk. They acknowledge the proven success of a scheme for golden eagles in Scotland (Walker et al 2005) but dismiss it as 'exceptional circumstances'. Yet much			**X**	**Response from the avifauna specialists:** The example given is most certainly not exceptional and habitat management has been effectively used as a tool to reduce collision risk. Whilst this specific example involved forestry there is no reason why it would not be equally applicable to other habitats.

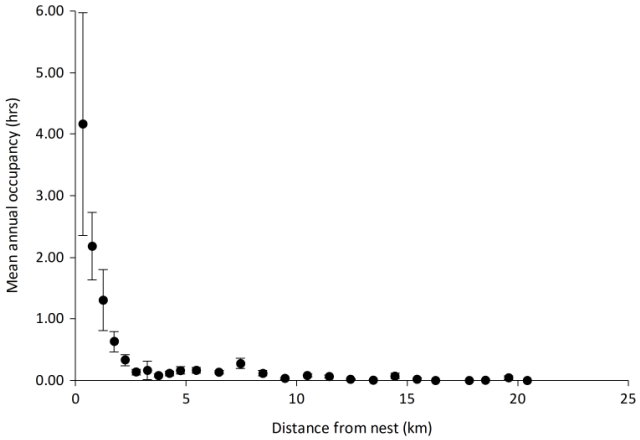
No.	Comment	Raised by	Previously Addressed	New Comment	Response
	international guidance recommends such an approach to achieve not net loss (or net gain). As an example, the European Commission (2010)2 guidance on wind energy and protected nature conservation areas specially picks out this case study as an example of good practice. The BLSA guidance for Verreaux's Eagle (BirdLife 2021), as the reviewers acknowledge, also sets out measures that could be implemented for this species, including both on-site (to reduce the possibility of birds being attracted into the wind farm) and off-site enhancement. We are not proposing these measures in isolation but rather as part of a comprehensive mitigation package. ***AVISENSE* comment: The cited example of habitat management to improve foraging conditions and/or manipulate foraging patterns of resident eagles (Walker et al. 2005) involved the felling of tracts of commercial pine plantation to open up areas of moorland that had previously been unavailable to Golden Eagle pairs. There are no opportunities in the vicinity of either the Wind Garden or Fronteer WEF sites even remotely equating to this, where relatively simple but fundamental changes can be made to habitat within eagle foraging ranges, sufficient to significantly change the foraging behaviour of the target species. Also, in our situation, we have two and possibly three**				

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	large eagle species to consider – each with markedly different habitat requirements. How do the authors propose to manage habitat to limit impacts on one species without having an adverse effect on at least one of the others...? ***Adequate, corresponding changes made in the revised report? : No***				
	16. Authors' response: This review is flawed and lacking in rigour, and has not fully considered all of the information provided in the report. Despite its superficial criticisms of the ornithological impact assessment, it offers no substantive evidence-based reason to alter the conclusions reached in the assessment. It remains the case that the Wind Garden site is low ornithological sensitivity, and that the proposed wind farm will not result in any significant ornithological impact. This conclusion is further emphasised by the commitment of the developer to implement an Ornithological Mitigation Plan that is being developed with stakeholders, to ensure the delivery of the proposed mitigation and enhancement measures. ***AVISENSE* comment: Needless to say, we strongly disagree. Also, the authors make much of the "Ornithological Mitigation Plan" that they are developing, but until we have sight of and can interrogate the substance of the final draft**			**X**	The opinion of Mr Jenkins is noted. The Ornithological Mitigation Plan was in fact included within the EMPr for the project and is considered a dynamic plan to be informed by post-construction and operational monitoring. The Ornithological Mitigation Plan is part of the adaptive management strategy which is being recommended by the avifauna specialist. This is in line with the requirements of the Birds and Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston. This guideline defines Adaptive Management as "*An iterative decision-making process used in the face of uncertainty where management policies and practices are continually improved through monitoring and learning from the outcomes of previous approaches*." There is no detail in the AVISENSE review report regarding the period on site, vantage points used, or compliance with the requirements of the Best Practice Guidelines in support of the findings of the report. The original review letter submitted in May 2021 refers to only 8 days on site. It is further noted that only the area surrounding the area surrounding the proposed

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	of this plan, it should have no material bearing on the present decision-making process.				project site was surveyed using a vehicle and that a further survey using a helicopter was undertaken to expand the survey. It is questioned how this very limited fieldwork, using invasive means such as a helicopter could compare to the 18-months pre-construction monitoring which informed the impact assessment.
	17. <u>Review point:</u> The study's approach to buffering nest sites is also intrinsically problematic and flies in the face of a growing body of empirical evidence that we should be applying much bigger buffers than previously thought. Recent GPS tracking data used to develop the VERA model usefully define a practical, effective, generic buffer radius to impose around Verreaux's Eagle nest sites. Previously set at 3 km, the most recent analyses suggest that a circular buffer distance of as much as 5.2 km would be more appropriate (with 3.7 km as the absolute minimum), and even that would have only excluded 50% of collision fatalities recorded for this species to date (Perold et a!. 2020, Murgatroyd et a!. 2020, BirdLife 2021). This is more than triple the no-go buffer distance applied in the present study, with significant implications for the proposed turbine layout (Fig. 5 vs Fig. 6). The same principles apply to Martial Eagle, where recent GPS tracking data for a large sample of territory-holding adults in the Karoo suggest an optimal buffer distance of 6 km, and perhaps as much as 7-8 km (G. Tate,		**X**		Responses were provided in the C&RR included in Appendix C9 of the BAR: <u>Page 361:</u> *It must be noted that the paper by Dr Murgatroyd has only just been published and post-dates most of the analytical work that was carried out for the assessment. The approach that it takes is actually very similar to that which we have adopted (though we have used local survey data rather than data on tagged individuals). Both studies model eagle flight activity spatially on the basis of environmental conditions such as topography and distance from the nest. Our site-based spatial modelling has been used to inform the site design, based on data from the wind farm site itself. BLSA notes that the paper "suggests that a precautionary buffer of 5.2km would be more appropriate". However, as set out in the Murgatroyd et al. paper, even that enlarged distance of 5.2km only captured 50% of reported collisions. As the paper concludes:* "Our collision risk potential (CRP) model included the variables distance to nest, distance to conspecific nest, slope, distance to slope and elevation. Using our model, rather than a circular buffer, resulted in c. 4%–5% improvement in eagle protection while excluding

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Pers. comm.). This is 2.4 times the buffer used in the Barkhuysen & Percival study. In combination, imposition of these more appropriate buffers around Martial Eagle nests, based on data-rich analysis of tracked birds in comparable habitats, would substantially reduce the space available for turbine placement in the Fronteer development area (Table 1, Fig. 5 vs Fig. 6). ***Adequate, corresponding changes made in the revised report? : No – no response at all***				development from the same amount (but not shape) of area. For an equal level of eagle protection, our model can make c. 20%–21% more area available for wind energy development compared to a circular buffer." *If the Verreaux's Eagle Risk Assessment Model can be made available, we would be pleased use it to help inform the assessment for this species. Unfortunately, the paper as published describing that model does not include sufficient detail to be able to replicate it without further information on the model parameters.* *What is clear, however, is that even adopting very wide buffers, the collision risk to eagles is not removed and that a residual collision risk will remain. That will remain the case however much modelling and analysis is carried out, as both Murgatroyd et al's work and our own local studies have shown that these birds range widely from their nests. Avoiding the close proximity to nests can reduce the risk, but not remove it altogether.* <u>Page 362:</u> *This follows on from the same principle as above, where Murgatroyd et al highlighted the limited benefit of simple circular buffers and their inefficiency in defining areas of higher collision risk, as birds (such as Martial Eagle) do not randomly move around a specific distance from their nests but choose to forage and fly over specific areas and habitats within their range. The specialist's spatial modelling has shown the importance of distance from the nest, but also altitude (higher flight activity in the 600-800m range),*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					distance from ridge lines (higher closer to ridge lines), and slope (higher in areas of steeper slope). *In relation to the design of the site buffers, the analysis used to inform the 2.5km distance for Martial Eagle, for example, is set out in Appendix 2. Figure 1 from that appendix is reproduced here as it illustrates the evidence base for the use of that specific distance. The survey data showed a strong relationship between flight density and distance from the nest, but this relationship flattened out beyond 2.5km. The highest densities were recorded within 500m of nests and there was a steady decline in flight density with distance from the nest, but only up to a distance of 2.5km. Beyond 2.5km flight density was consistently lower. Any exclusion of turbines beyond 2.5km would be of much less benefit in reducing collision risk. A similar result was found for the Choje East Block, though there, higher flight activity was noted within 1.5km of the nest (though with a smaller amount of baseline data available a precautionary approach was adopted and a 2.5km applied in the East and as well as the West).*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					Appendix 2. Figure 1. Martial Eagle flight density and distance from the nest, Choje West June 2019 - August 2020 (mean ± 95% confidence limits). 
	18. Review point: While confidently putting forward on-site and off-site habitat modification as viable and effective ways to mitigate collision risk for eagles and harriers, Barkhuysen & Percival (2021) provide no detail at all on what these modifications might entail, how they would discourage or attract foraging raptors, how much habitat would have to be modified and where, whether or not modifications required to influence Verreaux's Eagle behaviour might conflict with those required to influence Martial Eagle behaviour, and what the impacts of these modifications might be on			**X**	The mitigation measures that will be implemented through the adaptive management programme will ensure that no impacts will occur at the scale at which they could make any significant contribution to any cumulative impacts. The approach taken by the specialist is in line with the approach in the Wind-Energy Best-Practice Guidelines (third Edition), 2015 compiled by A.R. Jenkins, C.S. van Rooyen, J.J. Smallie, J.A. Harrison, M. Diamond, H.A. Smit-Robinson and S. Ralston: "*Avifaunal impact assessments rely on a number of assumptions. The pre-construction monitoring protocols outlined in this document represent a compromise between practicality (time and cost) and statistical rigour. Relying on*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	other components of the local biodiversity. In short, the mitigation alternatives put forward are experimental at best and unlikely to be effective at worst. ***Adequate, corresponding changes made in the revised report?*** : ***No – no response at all References***				*imperfect data and research findings from different regions (and often different species) means that there will always be a degree of uncertainty and risk associated with assessments.* *Post-construction monitoring is therefore critical to:* *i. determine the actual impacts of the WEF;* *ii. determine if additional mitigation is required (adaptive management); and* iii. *improve future assessments.*" Adaptive Management as "*An iterative decision-making process used in the face of uncertainty where management policies and practices are continually improved through monitoring and learning from the outcomes of previous approaches.*" Several case studies have proved the success of mitigation measures where implemented appropriately. This includes the implementation of shut down on demand implemented at the Excelsior Wind Farm in the Western Cape (refer to Appendix B of this CRR). The proposed mitigation (as set out in detail in the Ornithological Mitigation Plan) forms part of a package of measure adopting a precautionary approach to ensure that the local bird populations are not significantly affected by the wind farm. Firstly, design mitigation (over two separate phases) has been implemented to avoid locating turbines in higher risk areas. However, even following that approach, it is not possible to eliminate the risks completely, so the operational phase mitigation addresses these residual risks following an adaptive approach that will enable measures to be implemented to ensure that no significant

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					effects result from the wind farm. The scheme is based on a range of measures, which have been implemented successfully at numerous wind farms. The delivery of these proposed mitigation measures must be guaranteed. To this end, the developer has fully committed to the implementation of the Ornithological Mitigation Plan, and it is intended that this will be secured through a legally binding agreement. The specialist and EAP strongly agree that the Plan needs to be legally enforceable, which is the reason that the EAP recommends that the EMPr proposed for the project is approved for implementation. It is noted that AVISENSE do not provide any recommendations regarding mitigation or how the proposed management strategy should be adapted or enhanced. The basis of the conclusion that the measures proposed are inadequate is therefore questioned and unsupported by evidence.
6.	*Please see attached comments on behalf of several registered I&APs we represent:* **Sarah Winter: Heritage Consultant** **Review from a HIA and Cultural Landscape Perspective** **REVIEW OF THE FINAL BAR WITH RESPECT TO CULTURAL LANDSCAPE**	Richard Summers Richard Summers Inc. Director E-mail: 10 February 2022	**X**		A response regarding cultural landscape buffers is included in the C&RR included in Appendix C9 of the BAR: <u>Page 23:</u> *With regards to the CLA buffers recommended, the heritage specialist consolidated this study into the overall Heritage Impact Assessment, and included additional mitigations required to manage impacts in this regard. The updated buffers recommended within the HIA have been included within the overall sensitivity map for the project.* **<u>Further response from the specialist:</u>**

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	All concerns previously raised with respect to cultural landscape issues have not been addressed and are summarised as follows: 1. Notwithstanding the critical new information provided by the specialist Cultural Landscape Assessments, the primary findings around the carrying capacity of the cultural landscape and the significant number of problematic turbine positions have been dismissed in the final HIA and BAR.				The HIA has not dismissed the findings around carrying capacity. It has considered the recommendations regarding the management of the impact of the cultural landscape within the parameters of the economic scaling of the project. By implementing the whole set of CLA recommendations it will lead to a fatal flaw in the economic feasibility of the project. This weighed against the need for greener energy and the fact that the site is within a proclaimed REDZ leaned heavily on the consideration of recommending the addition 1000-meter buffering.
	2. It is inconceivable in a HIA process for the findings of a heritage specialist to be dismissed based on the economic feasibility of a project. The ramifications for such an argument in heritage and environmental practice is seriously problematic.			**X**	**<u>Response from the specialist:</u>** Considering the possibility of approval of the Wind Garden WEF to the west of the Fronteer WEF, the need to reduce cumulative impacts on the cultural landscapes will lean toward a reduction in turbine numbers. **<u>Further response:</u>** The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, as detailed in the table below. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This has resulted in the reduction of turbine numbers by 50%, largely as a result of high visual intrusion.
	3. The question of economic feasibility is outside of the ambit of the provisions of Section 38 (3) (d) of the NHRA, which refers to an evaluation of the heritage impact of development relative to the sustainable social and economic benefits to be derived from the development.			X	**Response from the specialist:** The economic feasibility of the project implies that outside of the profitable operation of the project it will enable the upliftment of the areas through the initiative as indicated in section 9 of the HIA. These social and economic upliftment projects and initiatives are considered as part and parcel of the project. If the project is not considered feasible in the removal of the bulk of turbines then none of the proposed socio-economic benefits as projected through the SEIA will realise.
	4. The extent to which other 'economic sustainable' mitigations measures can result in an acceptable level of heritage impact is unfounded. It is very clear from the Cultural Landscape Assessments that a moderate level of impact is achievable by limiting the turbine positions to low lying areas and maintaining buffers around routes and farmsteads. There are no grounds to dispute this information.			X	**Response from the specialist:** This statement is correct. The only way of reduction in the impact on the cultural landscape is through a reduction in the turbine numbers and their placement in the landscape. **Further response:** The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, as detailed in the table below. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised

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					layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This has resulted in the reduction of turbine numbers by 50%, largely as a result of high visual intrusion.
	5. The conclusion of the revised HIA reports that the development will constitute an additional layer to the cultural landscape and that through the implementation of 'economically feasible' recommendations will 'preserve' and in some cases 'enhance' the 'older layers' in the cultural landscape is regarded as a misconception of heritage management principles and role of cultural landscape assessment in HIA processes.			**X**	**Response from the specialist:** The impact rating post-mitigation in consideration of the cultural-historic landscape should remain High in the absence of the recommended 1000-meter buffer and turbines remaining on the visually sensitive slopes. It is also evident that all other mitigation measures regarding the reduction of the impact on the various landscape element remain high even with the implementation of the recommended mitigation measures as included in the CLA and HIA.
	The Final BAR Comments and Responses Report dated July 2021 is very inadequate in dealing with cultural landscape concerns. Reference to the fact that cultural landscape issues have been rated in the same way as palaeontological issues is representative of a serious misconception of cultural landscape heritage management. The consideration of socio-economic issue as over-riding heritage impacts from a cultural landscape perspective is not qualified.			**X**	Further responses on the incorporation of the CLA into the HIA are provided in the above sections.
	KWANDWE AND GREAT FISH RIVER NATURE RESERVE CULTURAL LANDSCAPE			**X**	The aim of the CLA undertaken for the project (Appendix i(2) of the BAR, was to identify the cultural landscape (CL)

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	The following statement of cultural significance expands the work of the specialist Cultural Landscape Assessments of the WEF projects. It provide a regional perspective which is regarded as a missing from previous work and critical to decision making in terms of adequately addressing cultural landscape issues.				elements of the proposed development area and to assess the impact of the proposed development on those elements. The field survey of cultural landscape elements was conducted by a cultural landscapes specialist and cultural heritage resources and cultural landscape elements falling within and adjacent to the proposed development footprint were identified, mapped and photographed where appropriate.
	Section 3 (2) (b) of the NHRA includes "landscapes and natural features of cultural significance" as part of the national estate. The extent to which the landscape comprising Kwandwe and the Great Fish Nature Reserves constitutes a heritage resource worthy of protection from a heritage management perspective is outlined below. It has high heritage significance in terms of the following preliminary statement of significance. • The pristine quality of the landscape as a Protected Natural Environment primarily for conservation and biodiversity purposes, as well as associated eco-tourism use.			**X**	The study was undertaken in accordance with the requirements of the NHRA (as detailed in Section 5 of the report). The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, as detailed in the table below. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This has resulted in the reduction of turbine numbers by 50%, largely as a as a result of high visual intrusion.
	• The role of Kwandwe Nature Reserve as a significant anchor in terms of natural landscape protection status at a regional, sub-regional and local scale. This role is defined by its strategic location adjacent to the Great Fish Nature			**X**	Impacts of the project on cultural landscape in the vicinity of Kwandwe Nature Reserve are considered in the CLA (Appendix I(2) of the BAR). A view south to the Wind Garden plateau taken from the Kwandwe Reserve entrance road off the historic R67 is shown in Figure 46. It is stated that "*Although*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	Reserve and forming part of an interlinking system of nature reserves contributing to the biodiversity, wilderness landscape character and tourism base of the region extending along the Great Fish River and constituting a bio-diversity corridor which is continuous with the Addo biodiversity corridor.				*the distance from the WEF site will significantly reduce the impact of the turbines, the constant movement in an otherwise still landscape will be noticeable with a low to moderate impact on the sense of place*." This is at a distance of 10-15km from the project site. The Great Fish Nature Reserve is located approximately 40km from the project site and therefore turbines would be further removed from this site than from Kwandwe. According to the Visual Impact Assessment (Appendix K of the BAR), visual impacts beyond 20km from the site are expected to be of low significance. The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, as detailed in the table below. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This has resulted in the reduction of turbine numbers by 50%, largely as a as a result of high visual intrusion.
	• The high visual integrity of the landscape with minimal visual intrusions, especially infrastructural development. It possesses varied topographical conditions resulting in open, expansive views from open plains and hilltops which contrast with enclosed views along the riverine corridor. Dominant expansive views southwards are framed by a mountain ridge that forms a strong and continuous presence in the landscape and defines an outer boundary of the visual catchment area contributing to a sense of containment of Kwandwe Nature Reserve. This visual integrity is experienced from within the Nature Reserves but also along a network of historic scenic routes traversing the broader region.			**X**	
	• The experiential qualities of the landscape in terms of its wilderness landscape character based on a combination of land use as a nature reserve with very limited extractive opportunities, an ephemeral settlement pattern embedded in nature, the very dramatic meandering serpentine qualities of the Great Fish River, the			**X**	

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	unique indigenous vegetation composed of "Albany thicket" containing many endemic species and forming part of the Greater Cape Floristic Region, as well as animal species endemic to the region. The landscape possesses a powerful overall sense of remoteness and stillness.				
	• The role of the landscape adjacent to the Great Fish River as a linear element in the landscape and marker of a shifting frontier during the Frontier Wars (1779 to 1879) reflecting the evolution of the history of the country and the history of European colonialism in Africa. It is highly representative of the Zuurveld cultural landscape located between the Great Fish and Sundays Rivers as a zone of contact, conflict and contestation, survival and dispossession between late 18th and early 19th century. In addition, the role of the Great Fish River as a late 18th century colonial boundary, later an apartheid boundary in the creation of Ciskei as a 'Bantustan'.			**X**	
	• Embedded within this landscape are a number of sites associated with the Frontier Wars e.g. Double Drift 1835, Fort Brown 1835, Fort Wiltshire (1811). During this period, the landscape contributed to a line of military surveillance with signal towers established overlooking the Great Fish River Valley, connecting Makhanda (formerly known as Grahamstown) to Fort Beaufort to the north.			**X**	

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	• A network of 'poorts' and drifts evident in the landscape navigating the topography of mountains and riverine corridors. These crossing points and movement passages have been used by both animals and peoples to traverse the landscape for centuries and serve as subtle but important historical markers.			**X**	
	• The role of the Great Fish River as a frontier zone with its meandering serpentine alignment and dense thicket. This is in contrast to the open landscape qualities of the late 17th frontier along the Liesbeek River in Table Bay or the semi-arid conditions of the 18th century northern frontier of the west coast and karoo regions.			**X**	
	• The role of this wilderness landscape in representing the notion of 'safari' as derived from the Swahili word for 'journey' and associated with a search for transcendence, a journey of discovery and change and its linkages with the notion of 'frontier', establishing edges or boundaries of control, and the resultant shifting ideas of order beyond the boundary.			**X**	
	• A sense of balance and harmony associated with the pristine nature of the landscape beyond the urban periphery, which is in contrast to a colonial and apartheid system which disrupted the long tradition of a symbiotic relationship between nature and people, and the delicate balance between nature, agriculture and settlement.			**X**	

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	Heritage Grading: In terms of the three tier system of NHRA for grading heritage resource, Kwandwe Nature Reserve, together with the Great Fish Nature Reserve and a stretch of the Great Fish River Corridor is worthy of being considered for possible Grade II heritage status.			**X**	No confirmation regarding the heritage grading for the Kwandwe Nature Reserve, Great Fish Nature Reserve and a stretch of the Great Fish River Corridor could be confirmed. No supporting information regarding this alleged status was provided or is available on the SAHRA website. **Response from specialist:** The CLA specialist supports the reviewer's argument that a Grade II landscape for the Fish River NR corridor may be applicable, however has advised that further research into this matter would be required to confirm this.
	ACCEPTABLE THRESHOLDS OF CHANGE: HERITAGE MANAGEMENT IMPLICATIONS FOR THE IMPACT OF WIND ENERGY FACILITIES ON CULTURAL LANDSCAPE SIGNIFICANCE Based on the above preliminary statement of significance it is clear that proposed WEF projects require a cautious approach to an assessment of impacts from a cultural landscape perspective. The landscape comprising the Kwandwe and Great Fish Nature Reserves has limited capacity to accommodate change given that the experiential qualities of this landscape are primarily related to its sense of remoteness and stillness resulting from an ephemeral pattern of human intervention on the landscape, and a current pattern of land use related to biodiversity conservation and eco-tourism.			**X**	Impacts of the project on cultural landscape in the vicinity of Kwandwe Nature Reserve are considered in the CLA (Appendix I(2) of the BAR). A view south to the Wind Garden plateau taken from the Kwandwe Reserve entrance road off the historic R67 is shown in Figure 46. It is stated that "*Although the distance from the WEF site will significantly reduce the impact of the turbines, the constant movement in an otherwise still landscape will be noticeable with a low to moderate impact on the sense of place.*" This is at a distance of 10-15km from the project site. The Great Fish Nature Reserve is located approximately 40km from the project site and therefore turbines would be further removed from this site than from Kwandwe. According to the Visual Impact Assessment (Appendix K of the BAR), visual impacts beyond 20km from the site are expected to be of low significance. Further, the visual impact of operational, safety and security lighting of the facility at night was assessed as being of a high significance, which can be reduced to a medium

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	While the principle of 'green energy' is not incompatible with landscape conservation objectives, the degree of compatibility of large scale 'green energy' facilities needs to be balanced against the unacceptably high visual impacts on the integrity of landscapes of high natural and cultural significance. The desirability of the location of wind energy facilities needs to be viewed from a consolidated regional landscape perspective with the demarcation of clearly identified no-go areas. Based on the criteria of visual impact and landscape integrity, there is a need to retain unfettered vistas from within the wilderness zone, (both day and night), notwithstanding the impact of the existing Waainek turbines which are limited in number (8 turbines) above the skyline when viewed from within the reserves.				significance through the implementation of mitigation measures. The Visual Impact Assessment Report refers to ground-breaking new technology in the development of strobing lights that only activate when an aircraft is detected nearby that may aid in restricting light pollution at night and should be investigated and implemented by the project proponent, if available and permissible by the CAA. This new technology is referred to as needs-based night lights, which basically deactivates the wind turbine's night lights when there is no flying object within the airspace of the WEF. The system relies on the active detection of aircraft by radar sensors, which relays a switch-on signal to the central wind farm control to activate the obstacle lights. The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, as detailed in the table below. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This has resulted in the reduction of turbine numbers by 50%, largely as a as a result of high visual intrusion. From the specialist inputs provided regarding the reduced optimised layout (provided in Chapter 12 of the Revised Final

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					BAR), it can be concluded that the proposed reduced layout will not result in a change in the potential impacts identified. No impacts of higher significance are expected and a number of impacts are expected to reduce in impact significance, specifically those relating to ecology, aquatics, avifauna and socio-economic impacts. The removal of 24 wind turbines (50% of the original total) is expected to reduce the frequency of visual exposure and has the potential to benefit specific sensitive receptor sites where turbines have been removed. The proposed reduction in the number of turbines is ultimately not expected to significantly influence the anticipated visual impact, as stated in the original VIA report (i.e. the visual impact is expected to occur regardless of the amendment). This statement relates specifically to the assessment of the visual impact within a 5km radius of the wind turbine structures (potentially high significance), but also generally apply to potentially moderate to low visual impacts at distances of up to 20km from the structures. For sensitive receptors such as Kwandwe specifically, the revision of the layout means that very few portions of their property falling within a 0-10km radius will be exposed whatsoever. It is only on high-lying land further than 10km from the closest turbine that will still have distant views of Wind Garden WEF.
	CONCLUSIONS The cultural landscape issues are still inadequately addressed in the Final HIA and BAR reports due to the fact that the primary recommendations of the specialist Cultural Landscape Assessments have not been adequately integrated into the final reports.				**<u>Response from specialist:</u>** There is a need to consider the larger landscape and the Kwandwe and the Great Fish Nature Reserves in relation to the proposed Fronteer and proposed Wind Garden WEFs.

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	The primary recommendations of the specialist Cultural Landscape Assessments have been dismissed. Therefore, the revised HIA reports have still not met the requirements of Section 38 (3) of the NHRA. Notwithstanding the findings and recommendations of the Cultural Landscape Assessments, there is a regional perspective clearly missing from previous work and which critical to decision making in terms of adequately addressing cultural landscape issues. This regional respective incorporates the Kwandwe and Great Fish River Nature Reserves and a stretch of the Great Fish River Corridor as being of possible Grade II heritage status. The implications of this status from a heritage management perspective have not been considered in the heritage assessment and environment process.				An outcome of such consideration and probable Grade II status will impact the consideration of the placement of turbines in the landscape as the only way of a reduction in the impact on the cultural landscape impacts. **Further response:** The applicant has proposed an optimised layout for the facility, which includes changes to the proposed number, location layout, and specifications of the proposed turbines, as detailed in the table below. First and foremost, the primary reason for the applicant proposing an optimised layout was to consider all comments, issues and concerns raised by IAPs through the numerous PP processes. Secondly the revised layout has been proposed in an attempt to further reduce some of the potential negative impacts identified by the various specialist reports and lastly to address outstanding issues as directed by the DFFE. This has resulted in the reduction of turbine numbers by 50%, largely as a as a result of high visual intrusion.
7.	**SUPPLEMENTATION OF COMMENTS ON THE FINAL BASIC ASSESSMENT REPORTS FOR THE PROPOSED WIND GARDEN WIND ENERGY FACILITY AND FRONTEER WIND ENERGY FACILITY, EASTERN CAPE PROVINCE [UNDER DFFE REF. NO.: 14/12/16/3/3/1/2314 AND 14/12/16/3/3/1/2315 RESPECTIVELY]** 1. On 10 February 2022, we submitted comments on the final Basic Assessment Reports ("final BARs") for the abovementioned Wind Garden	Richard Summers Richard Summers Inc. Director Letter: 16 February 2022		**X**	The letter dated 10 February 2022 states "*We point out that Kwandwe has in its possession material information relating to project-related impacts, including impacts on Critically Endangered Species (Black Rhino). The information is both sensitive and confidential and cannot be released in the public domain. A mechanism for the introduction of this information into the NEMA EIA process needs to be identified and implemented.*" There was no indication that the EAP was required to provide such mechanism.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	and Fronteer Wind Energy Facilities as part of the public participation process. As set out in paragraph 20 of our comments, we indicated that Kwandwe in possession material information relating to project-related impacts, including impacts on Critically Endangered Species (Black Rhino), which information is both sensitive and confidential and cannot be released in the public domain. As a result, the EAP was requested to revert to our clients with a mechanism for the introduction of this information into the NEMA EIA process. To date, no such mechanism has been provided for by the EAP.				A request was sent to the I&AP requesting his advice on the way forward (on 28 February 2022) in sharing this information with the specialists and the DFFE, considering that the information could reasonably be expected to become public information once submitted to the DFFE. It was confirmed by email on 09 March 2022 that the redacted report could be made available to the ecological specialist Simon Todd. It was also confirmed that the redacted report could be included in the assessment process through its inclusion in the relevant environmental assessment reports and or comments and responses report. The redacted report was considered by the EAP and the specialists and the relevant specialist has provided a response in this regard (refer to Appendix A of this CRR).
	2. The purpose of this letter is therefore to emphasise the deficiencies in the impact assessment reports and to specifically draw the EAP's attention to our request for a mechanism to introduce sensitive and confidential information relating specifically to impacts on the black rhino population which has not been assessed as part of the EIA process.			**X**	
	3. In the time that lapsed between the release of the revised BARs in 2021 and the final BARs in 2022, our clients had hoped that the impacts of the two proposed WEFs, particularly in light of the substantive comments submitted in 2021, would result in a proper and more comprehensive assessment of all concerns			**X**	The final BAR was submitted to DFFE in July 2021 and included all comments received during the BA process since November 2020. Responses to comments received, including how these comments were addressed in the Revised and Final reports was included in Appendix C9 of the report and it is the opinion of the EAP that these were addressed adequately. The release of the Final BAR in January 2022 was in accordance with the instruction from

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	raised about the project impacts. This did not occur.				DFFE in order to close out any remaining/outstanding issues on the project. The aim was not to introduce new information or obtain new comments on the same reports which has already been circulated. This Final BAR was the same as that submitted to DFFE for review and decision-making.
	4. In light of the deficiencies in assessment and information gaps in the reports as well as the EAP's failure to revert on appropriate mechanisms to introduce confidential information into the EIA process, our clients have requested that we submit a redacted version of the independent specialists entitled "*Kwandwe Private Nature Reserve: A socio-economic and conservation assessment*" authored by D Balfour and S Fourie. The report identifies the direct, indirect and cumulative impacts of the abovementioned proposed WEFs on Kwandwe and its surrounds, specifically in relation to the black rhino population.			X	The report has been received and is included with the comments received in Appendix C10 for the Revised Final BAR. The letter dated 10 February 2022 states "*We point out that Kwandwe has in its possession material information relating to project-related impacts, including impacts on Critically Endangered Species (Black Rhino). The information is both sensitive and confidential and cannot be released in the public domain. A mechanism for the introduction of this information into the NEMA EIA process needs to be identified and implemented.*" There was no indication that the EAP was required to provide such mechanism. It was confirmed by Mr Summers by email on 09 March 2022 that the redacted report could be made available to the ecological specialist Simon Todd. It was also confirmed that the redacted report could be included in the assessment process through its inclusion in the relevant environmental assessment reports and or comments and responses report. It is noted that the report is dated 18 July 2021. This is during the review period for the Revised BAR which ended on 21 July 2021. It is therefore unclear why this report was not previously submitted to the EAP. It seems apparent that the intentions of Kwandwe were clearly to delay process given that there was ample opportunity to disclose this to the EAP in 2021 during

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					the extensive public consultation process undertaken for the project and the opportunities to provide comments on the draft and revised BARs. Irrespective of withholding this information, it is evident from the input provided by the Noise Specialist that the findings of the report do not alter the conclusions of the assessment undertaken for the project and the conclusions drawn.
	5. In a bona fide attempt to ensure that the DFFE is in possession of all material information relevant to its decision-making process prior to adjudicating on the applications, we attach hereto a copy of the redacted report for inclusion in the final documentation that will be submitted to DFFE. We confirm that the redacted Report may be submitted to the DFFE only for the purposes of adjudicating on the environmental authorisation applications for the proposed Wind Garden and Fronteer WEFs. We also attach a separate report by D Balfour dated 16 February 2022 which confirms that the Final BARs for the projects have failed to address: 5.1. The importance of the biodiversity of the area and in particular the role of the area in conserving black rhino;			X	The ecology impact assessment included within the BAR (Appendix D) includes details regarding the biodiversity importance of the area, specifically with regards to CBAs and important habitats.
	5.2. The importance of noise to the natural ecological functioning of large mammals and particularly black rhino and recognized weaknesses (uncertainties) in the current state of knowledge in that regard;		**X**		Refer to the response letter from the noise specialist included as Appendix A.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	5.3. The contribution of Kwandwe and other Indalo Protected Environment properties to three national strategies i.e., the National protected Area Expansion Strategy (NPAES), the Biodiversity Management Plan (BMP) for black rhino, or the National Biodiversity Economy Strategy (BES).			**X**	The project site does not fall within any conservation areas (i.e. declared nature reserves, national park or NPAES areas).
	5.4. The importance of any of the above strategies and discussion of trade-offs that need to be considered in this context.			**X**	Chapter 5 of the BAR includes details of policies and plans which may be applicable to the proposed project. This includes those relevant to conservation and tourism.
	6. We point out that our client's personal information recorded in the redacted report is protected in terms of the Protection of Personal Information Act No 4 of 2013. We therefore request that Savannah refrains from disclosing this information on any public platforms and refrains from providing access to the redacted Report to other registered stakeholders / interested and affected parties without the prior written approval of Kwandwe.			**X**	It was confirmed by Mr Summers by email on 09 March 2022 that the redacted report could be made available to the ecological specialist Simon Todd. It was also confirmed that the redacted report could be included in the assessment process through its inclusion in the relevant environmental assessment reports and or comments and responses report. He is aware that this document could become available in the public domain if so instructed by the DFFE.
	7. We trust that the reports will be accepted by the EAP for the purposes of supplementing the concerns raised in our comments dated 10 February 2022.				The report has been received and is included with the comments received in Appendix C10 for the Revised Final BAR.
8.	*Submitted by Richard Summers, Richard Summers Inc. Director: Email dated 16 February 2022* Response to changes in the Final BAR **The brief**	D Balfour On behalf of Kwandwe Private Game Reserve		**X**	It is noted that the report is dated 18 July 2021. This is during the review period for the Revised BAR which ended on 21 July 2021. It is therefore unclear why this report was not previously submitted. It seems apparent that the intentions of Kwandwe were clearly to delay process given that there was ample opportunity to disclose this to the EAP in 2021 during the

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	As per telephonic discussion during which I was briefly updated on progress with the environmental impact assessment process for the Wind Garden and Fronteer wind energy applications in REDZ3 on 15 February 2022 I was requested to: a) Assess modifications made to the "Final Basic Assessment Report (Final BAR)" for the two applications with a particular focus on modifications that may have addressed concerns and comments made in our original report on this development (Balfour & Fourie 2021); and b) Indicate the extent to which any modifications did indeed address our original comments i.e., those from Balfour & Fourie (2021).	Report: 16 February 2022			extensive public consultation process undertaken for the project and the opportunities to provide comments on the draft and revised BARs. Irrespective of withholding this information, it is evident from the input provided by the Noise Specialist that the findings of the report do not alter the conclusions of the assessment undertaken for the project and the conclusions drawn.
	Methodology The documents assessed were: a) Fronteer Wind Farm - Final Basic Assessment Report; July 2021. b) Wind Garden Wind Farm - Final Basic Assessment Report; July 2021. c) Fronteer Wind Farm – Fauna and Flora Specialist Impact Assessment Report; June 2021. d) Wind Garden Wind Farm – Fauna and Flora Specialist Impact Assessment Report; June 2021. e) Fronteer Wind Farm – Environmental Noise Impact Assessment; May 2021.				

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	f) Wind Garden Wind Farm – Environmental Noise Impact Assessment; May 2021. g) Fronteer App. C9. Comments and Responses Report; July 2021. h) Wind Garden App. C9. Comments and Responses Report; July 2021 Changes to both the two Final BARs (i.e., for Fronteer and for Wind Garden) were identified by the underlined text[28] and a search for underlined text was thus conducted in each document. Text, thus located, was read to determine if the changes made to the two Final BARs included mention of, or addressed, any concern or comment made in my original report. In addition, a search was made of the Comments and Responses Report for each document to ascertain if this recorded any relevant information.				
	Modifications to the final documents that were of particular interest were those that might reflect changes in information regarding: a) The importance of the biodiversity of the area and in particular the role of the area in conserving black rhino;			**X**	Responses to the details within the redacted report are provided in the specialist letters contained in Appendix A of this CRR and not in the BAR circulated given that this report was underhandedly concealed until the letter dated 12 February 2022 and then still not shared until 16 February 2022.
	b) Recognition of the importance of noise to the natural ecological functioning of large mammals and particularly black rhino and recognized			**X**	

[28] Both documents indicated this to be the case on page ii of the text "*Changes made were underlined for ease of reference.*" It is useful to note that all changed text was underline, although instances of unchanged text being underlined were also identified.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	weaknesses (uncertainties) in the current state of knowledge in that regard;				
	c) The contribution of Kwandwe and other Indalo Protected Environment properties to three national strategies i.e., the National protected Area Expansion Strategy (NPAES), the Biodiversity Management Plan (BMP) for black rhino, or the National Biodiversity Economy Strategy (BES).			**X**	
	d) Recognition by the EAP and/or specialists of the importance of any of the above strategies and discussion of trade-offs that need to be considered in the NEMA assessment decision making around the two proposals			**X**	
	Assessment 1. Reading both Final BAR documents revealed no textual modifications which demonstrate that the points made in the original Balfour and Fourie (2021) report had been considered and included in the Final BAR.			**X**	The report dated 2021 compiled by Balfour and Fourie was not provided to the EAP or specialists prior to 16 February 2022, this despite numerous opportunities to comment during the extensive public participation process (which amounted to a combined 120 days). Responses to the details within the redacted report are provided in the specialist letters contained in Appendix A of this CRR.
	2. Reading the two Comments and Responses Reports, particularly pertaining to comments made by Key Stakeholders and Interested & Affected Parties (KSIAPs) I note a tendency for the responses to dismiss or sidestep concerns raised in earlier stages of the process, instead of clearly and repeatedly acknowledging that limited knowledge should invoke the precautionary principle and therefore a need to proceed with caution. I see little evidence of the EIA team's		**X**		All comments received have been recorded within the reports and responded to. No comments have been side stepped or dismissed.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	responses to KSIAP comments contributing to developing a balanced and fair account of the motivation for the projects and a comprehensive account of the risks, externalities and cost-benefit trades-offs that are at play in connection with the projects. This is disappointing and smacks of administrative and procedural cynicism.				
	3. In relation to KSIAP # 7 comment 43 in both CRR documents: Our original report highlighted considerable uncertainty in our knowledge of the impact of sound on large mammal behaviour. The Final BAR response in both cases is to state *"Beyond 5km it is difficult to see how the operation of the wind farm could significantly impact the resident population of black rhino..."*. This opinion is inadequate as a response to the concern raised and the information provided in that regard. Specifically for example: *Please note this is a sub-set of the issues and not all comments and responses are dealt with here.* 4. In relation to KSIAP # 7 comment 45 in both CRR documents: Bullet 3. The statement that "The SEIA did not find conclusive evidence ... that the negative impact on game farming enterprises within the study area will be absolute" is inadequate to address the comment made. Firstly, we are dealing with more than simply game farming. Areas such as Kwandwe are declared			**X**	Refer to responses provided in the specialist letters contained in Appendix C11a. Section 5.4 of the SEIAs quantifies the potential impacts that will be brought about as a result of the SED spend on the projects, much of this (as per the intentions of the developer) are proposed to be directed towards projects that involve the preservation of pristine natural assets and protection of natural assets that are indigenous and endangered. In addition, the applicant has recognised the challenges regarding anti-poaching mechanisms and as such has proposed anti-poaching support as part of their Conservation Framework included in Appendix R(4) of the BAR. The conservation framework details the support planned for the conservation industry in the area, and will form part of their SED/ED spend related to the project.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	protected areas and contribute to the NPAES, the BES and the black rhino BMP – all national strategies adopted by national Government. Secondly the trade-off i.e., the consequence of the collapse of such an enterprise could result in regressions in achieving national conservation objectives under all three strategies and plans but this is not considered in the comment.				
	5. In relation to KSIAP # 7 comment 51 in both CRR documents: The responses of the "noise specialist" are superficial and inadequate and do not address the comments and concerns that were raised.			**X**	Refer to a further response provided by the noise specialist included in Appendix C11a.
	6. In relation to KSIAP # 7 comments 55 and 59 in both CRR documents: Simply repeating superficial statements of process and conclusions reached in the SEIA which took place at a different scale and may not have been correct in its conclusions does not adequately address the comments made and concerns raised.			**X**	These comments relate to the consideration of policy in the SEIA. The response provided responds to this question and states (refer to page 66 of the C&RR): *Specific policies and legislation relevant to the natural environment was considered in the ecological, aquatic avifauna and bat impact assessments. Chapter 5 of the Revised BAR was updated to include additional detail regarding planning and biodiversity policy for the area. Relevant aspects of the District and Local Municipality SDF, including details regarding planning for the area, are detailed in Section 5.6 of the BAR. In terms of this, the project sites fall outside of any designated protected areas and are on the boundary of the defined tourism corridor.* *Relevant aspects of the Eastern Cape Tourism Master Plan (2014), the Eastern Cape Environmental Management Bill (2019 and the Eastern Cape Conservation Plan (2019)) were*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					included in Chapter 5 of the Revised BAR. The Eastern Cape Biodiversity Conservation Plan 2019 does not include reference to a corridor that runs through the area proposed for the wind farm.
	7. In relation to KSIAP # 7 comment 64 in both CRR documents: Again, simply repeating superficial statements of process and conclusions reached in the SEIA which took place at a different scale and may not have been correct in its conclusions does not adequately address the comments made and concerns raised. No information or wholistic and adequately detailed discussion on the trade-offs are presented.			**X**	The question posed in the comment relates to the importance of conservation and restoration of land which forms part of the Indalo PE. The response provided is not generic and refers to the intended contribution to conservation by the developer as follows (refer to page 69 of the C&RR): *As an off-set against some of the potential negative impacts on select tourism enterprises, the study has also presented a detailed account of the positive economic impacts that may be derived from the developer's intended SED Spend within the study area once the proposed WEFs are in operation. This included proposals to investment in conservation and community enrichment initiatives to the extent of R15.5 million per annum per WEF project.*
	8. In relation to KSIAP # 7 comment 105 in both CRR documents: The response acknowledges that the guidelines do not set noise limits for "animals" but that the impact on "animals was considered" – what is not clear is how the uncertainty in our knowledge was addressed and specifically with reference to how large mammals may be affected. In the absence of this discussion – how were the impacts on animals considered? I fear it may boil down to the personal opinion of the report writer. This is not appropriate for the			**X**	Refer to a further response provided by the noise specialist included in Appendix C11a. This response is not based on personal opinion but on an extensive review of information available regarding the impacts of low frequency noise on animals. The specialist is confident in his assessment and findings even more so given the most recent revision of the layout in order to address these comments.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	decisions that are being made in terms of NEMA and this is not appropriately expressed in the Final BAR.				
	9. In relation to KSIAP # 7 comment 107 in both CRR documents: The issue of how large mammals and particularly black rhino may be affected and the limits of our knowledge in this regard, is not addressed. Instead, reference is made to certain technical details and factoids, to uncertain end, but concluding with comments such as "Therefore ...it must be concluded that Infrasound and Low Frequency Noise is of a low concern further than a few hundred meters from wind turbines". All this is done with no reference to the science of hearing in large mammals or specifically black rhino, which was a strong recommendation of our earlier report.				Refer to a further response provided by the noise specialist included in Appendix C11a.
	10. In relation to KSIAP # 7 comment 111 in both CRR documents: A key response is highlighted here "There are no published studies in reputable journals that provide support for the negative impacts of noise from wind turbines on animals". This acknowledgement alone makes a strong case for precautionary decision making yet there is little evidence of this being advocated in the Final BAR.			**X**	Refer to a further response provided by the noise specialist included in Appendix C11a.
	11. My general sense and overall impression is: a) The fact that very little change, and none in response to our comments, has been made in the Final BAR leaves me with the impression			**X**	The opinion of the I&AP is noted. The SEIA included in Appendix L of the BAR has noted the role of Indalo and the fact that Kwandwe forms part of the group.

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	that the process and the Final BAR have myopically ignored the broader benefits and contributions of the existing land-use in the area to national strategies, biodiversity and black rhino, sustainable employment and biodiversity in favour of a clear bias towards the projects being developed.				The BA Report presents all information regarding impacts on the social and biophysical environment identified to be associated with the proposed project for the DFFE to make an informed decision regarding the proposed project. The following is stated on the Overall Conclusion (Impact Statement): *From a review of the relevant policy and planning framework, it was concluded that the project is well aligned with the policy framework, and a clear need for the project is seen from a policy perspective at a local, provincial and National level. The broader area includes pockets designated as protected areas, game farms and conservancies, however, the project development area is located outside of any protected area. When considering biodiversity and socio-economic benefits and impacts on the affected and surrounding areas, the following is concluded from the specialist studies undertaken within this BA process.* *From a biodiversity perspective, the site is not located within a protected area. The site is located in the vicinity of the Indalo Protected Environment but does not fall within this area. Although there are CBA areas located within the site, only 1 turbine is located within a CBA2 area. This is considered as acceptable in terms of terrestrial biodiversity, as determined through the ecological impact assessment. The optimised layout proposed in Section 12.3 of this report ensures that all aquatic, avifauna and bat sensitivities identified through the BA process (as supported by the pre-*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					construction monitoring) are avoided and recommended buffer areas are honoured. This approach is in line with the application of the mitigation hierarchy, where all the sensitive areas which could be impacted by the development have been avoided (i.e. tier 1 of the mitigation hierarchy). Where impacts could not be avoided, appropriate mitigation has been proposed to minimise impacts. It follows therefore that the project does not adversely impact on the ecological integrity of the area. *In addition, consideration must also be given to the positive and negative socio-economic impact. The Socio-economic Impact Assessment has identified 10 short-term (construction related) impact indicators and 10 operational related socio-economic impact indicators. Over both phases of the proposed development seven impacts are forecasted to be negative before and after mitigation, while 13 are anticipated to be positive, before and after mitigation. An important aspect to consider is the socio-economic impacts of the proposed wind farm on the surrounding game farms which fulfil a role within the Eastern Cape's tourism industry from both an eco-tourism and hunting perspective. A large number of comments received through the public consultation process raised concerns regarding impacts on property values and tourism operations in the broader area as a result of the visual impacts associated with the proposed project. The Socio-economic Impact Assessment concluded that the likely impacts during both construction and operation of the proposed wind farm on the tourism industry and property values are anticipated to be negative (medium*

No.	Comment	Raised by	Previously Addressed	New Comment	Response
					and low significance). It is however acknowledged that the visual impact is expected to be moderate to high within 20km of the site and cannot be mitigated. This high significance rating is, however, not considered as a fatal flaw by the specialist. *As detailed in the cost-benefit analysis, the benefits of the Wind Garden Wind Farm are expected to occur at a national, regional and local level. As the costs to the environment at a site-specific level have been largely limited through the appropriate placement of infrastructure on the project site within lower sensitive areas through the avoidance of features and areas considered to be sensitive, the benefits of the project are expected to partially offset the localised environmental costs of the wind farm. From an economic perspective, both positive and negative impacts are expected.* *Based on the conclusions of the specialist studies undertaken, and the optimisation of the layout to avoid environmental sensitivities, it can be concluded that the development of the Wind Garden Wind Farm will not result in unacceptable environmental impacts (subject to the implementation of the recommended mitigation measures).* This statement is thus factually incorrect.
	b) The comments reflect very little analysis of the value of the comments and instead respond by stating facts, technical specifications or opinions, presenting information or describing			**X**	Responses to comments would typically include "*stating facts, technical specifications or opinions, presenting information or describing process*". Responses to formal comments raised within the sphere of the NEMA EIA process

No.	Comment	Raised by	Previously Addressed	New Comment	Response
	process. This is essentially a form of administrative stonewalling and is not acceptable.				should without a doubt be based on factual data provided after analysing the comment raised, which has been done by the specialists as well as the EAP. In addition, where relevant updates have been made to the report to address comments and concerns. This is evident in the process undertaken where the draft report was substantially updated to address comments received in the first round of public review. Where relevant, updates were also made to the final report submitted to DFFE for review and decision-making.

APPENDIX A

EARES
Enviro Acoustic Research

Name: Morné de Jager
Cell: 082 565 4059
email: morne@eares.co.za
Date: 18 March 2022
Ref: 2022/WR-Comments

Savannah Environmental (Pty) Ltd
Rivonia

Attention: Ms. Jo-Anne Thomas

Dear Madam

REPLY TO COMMENTS: SUPPLEMENTATION OF COMMENTS ON THE FINAL BASIC ASSESSMENT REPORTS FOR THE PROPOSED WIND GARDEN WIND ENERGY FACILITY AND FRONTEER WIND ENERGY FACILITY, EASTERN CAPE PROVINCE

The comments raised by Mr. R. Summers and Dr. D. Balfour are of relevance.

To be able to answer the comments comprehensively, I need to provide background to adequately address the comments, questions and uncertainties.

Section 1 - The measurement of ambient sound levels

The measurement of ambient sound levels in South Africa is regulated in GN.R.154 of 1992 in Regulation 6. This is also confirmed in the later document, South African National Standard (SANS) 10103:2008 in section 5.1. It specifies the type if instruments, as well as the measurement methods to determine sound levels. The Noise Study only followed this method. It should be noted that these stipulations are all based on the International Standards Organization (ISO)set of documents ISO 1996 (Acoustics – Description, measurement and assessment of environmental noise). There are a number of documents in this range.

The type of sound level meters (SLM) to be used is defined in SANS 61672-1 (Electroacoustics – Sound level meters – Part 1: Specifications), which in terms are also based on a set of documents published by the International Electrotechnical Commission (IEC). Therefore, SLM used in South Africa (and most of the world) are based on such a standard.

Because of this standard, these SLM generally focus on the frequencies in the audible spectrum used by humans, with IEC 61260 (Electroacoustics – Octave-band and fractional-octave-band filters) specifying these frequencies. Class 1 SLM normally measure from the frequencies 20 Hz to 20,000 Hz. There are numerous reasons why these frequencies are selected, including:

- We are only interested in the frequencies between 20 and 20,000 Hz, as this is the spectral range of frequencies that humans can detect;
- As all South African regulation (as well as most international guidelines and standards) focus on the A-weighted sound level, the contribution of sounds in the frequencies below 20 Hz and higher than 20,000 Hz is normally insignificant;
- There is significant “noise” below 20 Hz, known as infrasound. This is generated by industrial processed as well as nature, and most SLM use filters to remove frequencies below 20 Hz.

The reader is however invited to peruse the number of standards available from the ISO organization (available at https://www.iso.org/ics/17.140.01/x/). It should be noted that there are other standard organizations, and, while there is agreement about numerous standards, there are also differences and disagreements between the numerous organizations and institutes (such as the American National Standards Institute (ANSI), the British Standards Institution (BSI), the Deutsches Institut für Normung (DIN), Japanese Industrial Standards (JIS), etc., to name but a few).

Therefore, the type of SLM as well as measurement methodology is prescribed in law in South Africa, and deviating from these "guidelines" will open any Noise Study to warranted critique and likely resulting in the report being rejected, as it should. As such, the noise study done for the projects only follow the previously mentioned regulations and standards.

Section 2 - The measurement of Low Frequency Noise (LFN)

There are several technical reasons why LFN should be treated differently from typical noise. This is because LFN does propagate further outdoor than higher frequencies, due to:

- There is already significant acoustic energy at the lower frequencies due to natural sources;
- Lower atmospheric absorption;
- Negligible absorption by the ground surface and vegetation;
- LFN diffraction effects (LFN bends more over obstacles and barriers); and
- LFN does intrude easier into buildings.

It is important to note that there currently exist no clearly defined and internationally agreed guideline, method or standard on the measurement of Infrasound (generally defined as the frequencies below 20 Hz) and Low Frequency Noise (generally defined as the frequencies between 20 and 160/200 Hz). Even the definition of Infrasound and LFN is not yet agreed upon. This writ will use the term $LFN_{sub\text{-}160Hz}$ to refer to all acoustic energy (sound or noise) below 160 Hz.

Simmons (1997) compared 24 methods to determine sound pressure levels at low frequencies, concluding that most of the existing methods give large measurement uncertainties (poor reproducibility). At this stage there are not even agreement whether the LFN should be measured and reported using A- (IEC 61672), C- (IEC 61672), Z- (IEC 61672), or G-weighting (see ISO 7196:1995 - Acoustics — Frequency-weighting characteristic for infrasound measurements). Most academic papers that focus on noise from wind turbines did adopt a method stipulated in ISO 61400 (Wind turbines – Part 11: Acoustic noise measurement techniques).

The problem is that wind itself contain significant acoustic energy in the lower frequencies. This is illustrated in **Figure 1** below as reported by Gianoli (2016).

Section 3 - LFN levels measured by the Author

The author has also measured a similar curve, with most of the acoustic energy located in the lower frequencies, at most measurement locations (during periods with increased winds). It should however be noted that the measurements were done as per SANS 10103:2008, with most instruments rejecting frequencies below 20 Hz. As the author also measured the spectral data for the WindRelic projects, LFN can be calculated and processed as illustrated in **Figure 2** (Database of author).
This data however is normally not reported, as, there are no stipulated standard, and the method can be attacked with questions such as – "*Why didn't the author use the*" fill in a potential measurement method/protocol from the (limited) list below.

- ISO 61400 (ISO); SP INFO 1996:17 (Sweden); Nr. 9 1997 (Denmark); ISO 16032 (ISO); DIN 45680 (Germany); ÖNORM S 5007 (Austria); NSG 1999 (Netherlands); the Japanese guidelines; ANSI S 12.9 Part 1 (USA); Asumisterveysohje 2003 (Finland), etc. to name a few.

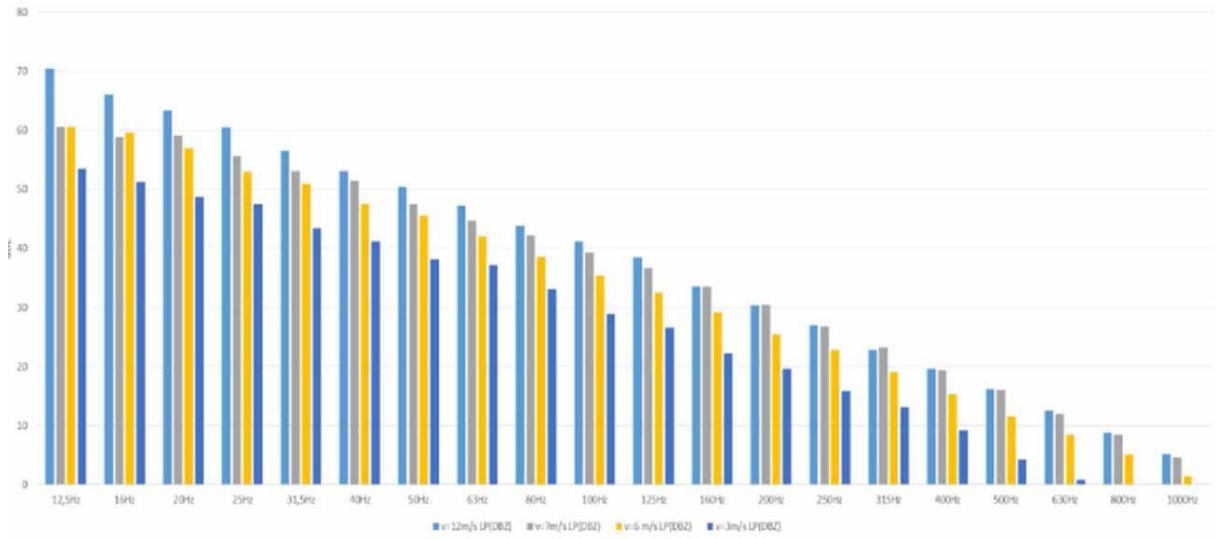

Figure 1: Wind noise spectra by third-octave bands, measured in a wind tunnel (Z-weighting)

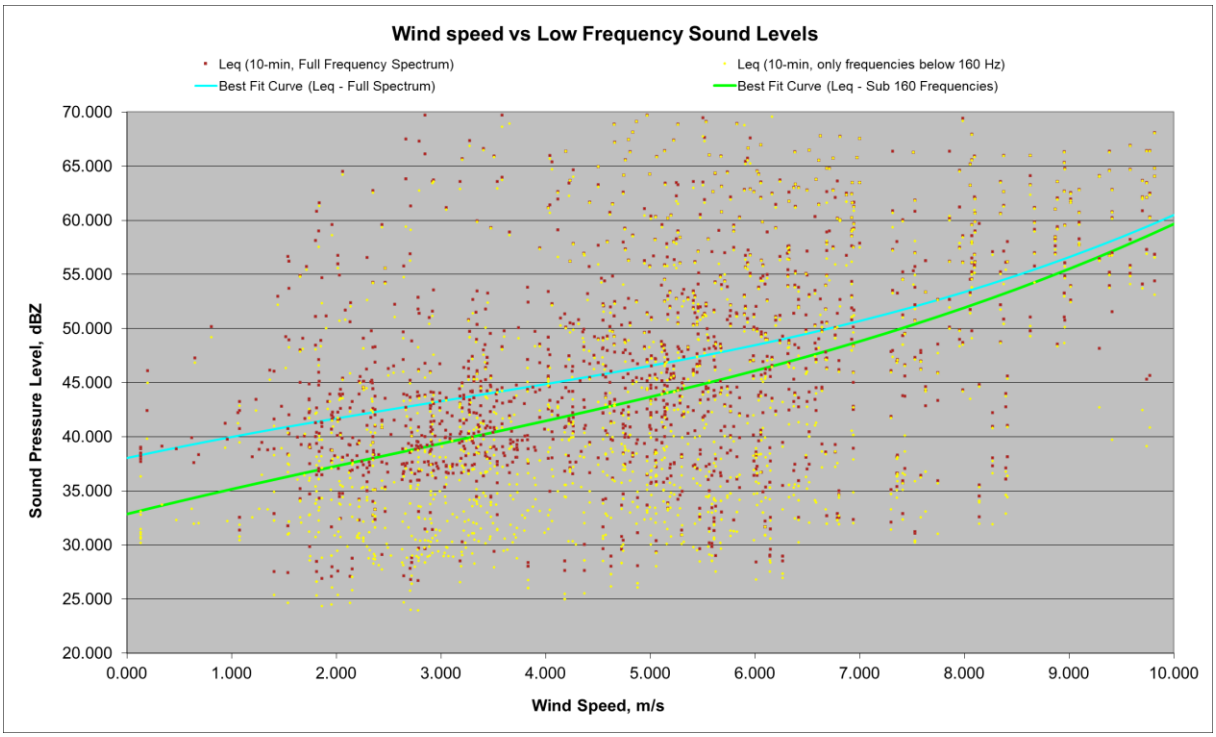

Figure 2: Processed data for the WindRelic projects, considering frequencies 20 – 20,000 and 20 – 160 Hz

Because this graph only considers the frequencies higher than 20Hz, a significant portion of acoustic energy is not accounted. When one evaluates the data from an instrument that measure and report data down to 12.5 Hz, see also **Figures 3 and 4** (database of author), it is easy to see that the quantity of LFN in the environment is significant.

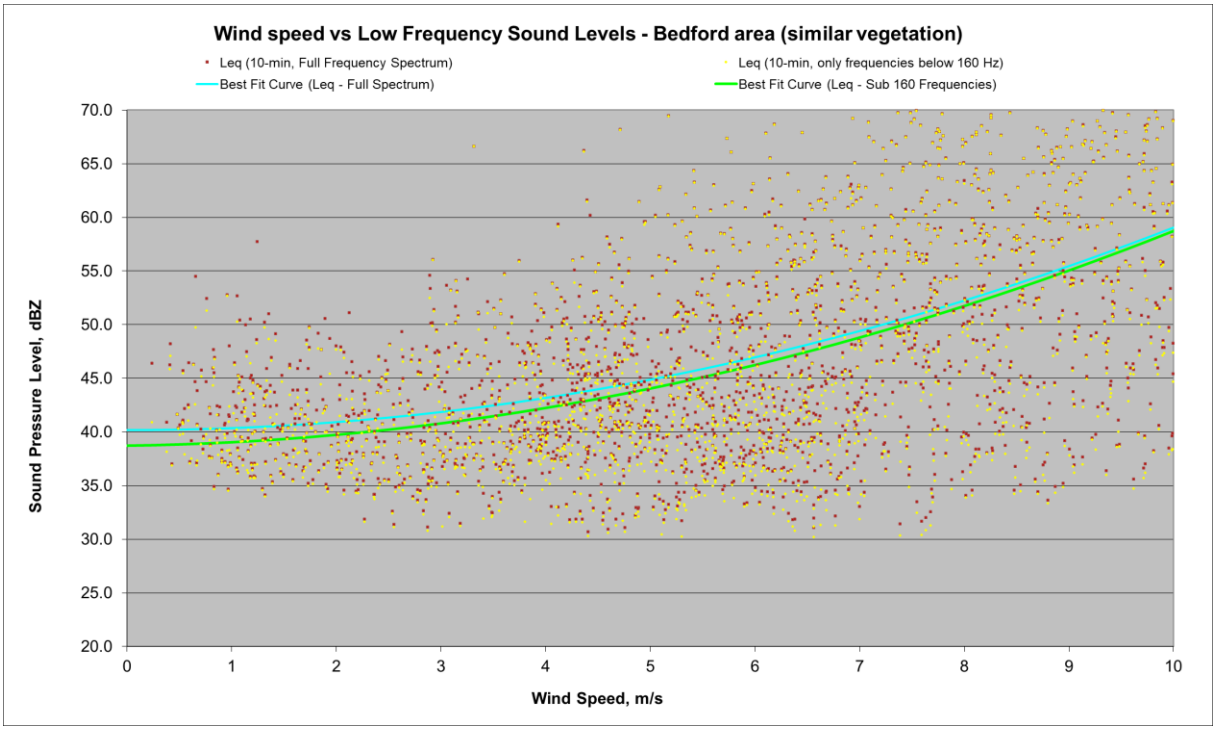

Figure 3: Processed data for measurements collected over 17 days in area with little vegetation, considering frequencies 12.5 – 20,000 and 12.5 – 160 Hz

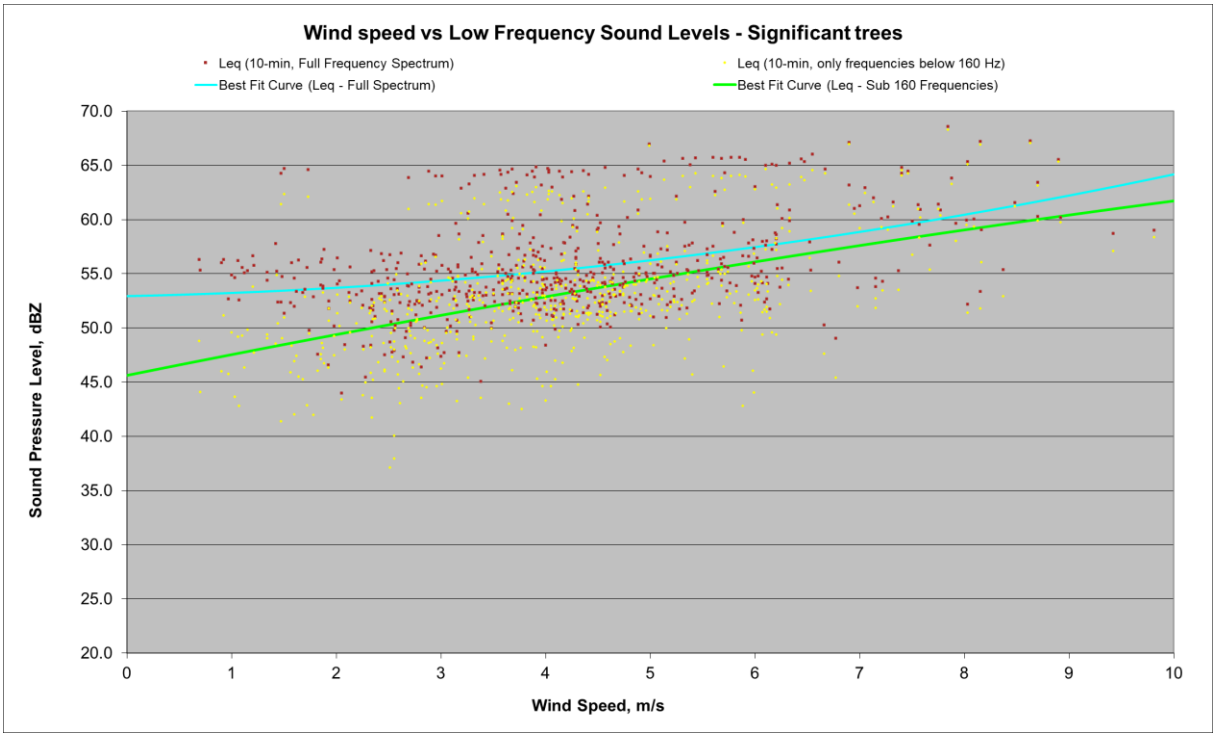

Figure 4: Processed data for measurements collected over 6 days in area with significant trees, considering frequencies 12.5 – 20,000 and 12.5 – 160 Hz

It should be noted, as wind speeds increase, the difference between the full spectrum sound level (based on the 20 (or 12.5) – 20,000 Hz range) and sub-160Hz spectrum FLN (based on the 20 (or 12.5) – 160 Hz range) becomes less and less and is generally insignificant at wind speeds exceeding 5 m/s.

While most of the acoustic energy are discarded, it is easy to see that the $LFN_{sub\text{-}160Hz}$ levels will be higher than 40 dBZ at the typical cut-in speed of a wind turbine. A $LFN_{sub\text{-}160Hz}$ level of 56 dBZ were measured at a wind speed of 5.6 m/s at WRLTSL01, with Gianoli (2016) reporting a $LFN_{sub\text{-}160Hz}$ level of 64 dBZ (calculated) at a wind speed of 6 m/s (in a wind tunnel).

It is critical to know that there is no relationship between audible spectrum dBA and audible spectrum dBZ levels or the associated $LFN_{sub\text{-}160Hz}$. Audible spectrum dBZ levels are always higher than the associated A-weighted sound level. A tone at 94 dBA (at 1,000Hz) will have a minimum level of 94 dBZ, yet, the $LFN_{sub\text{-}160Hz}$ level may be 0 dBZ (as there are no acoustic energy at the low frequencies). A noise with most of the acoustic energy located at 10 Hz (such as a 94 dBZ @10 Hz tone) will have an audible spectrum level of 0 dBA or dBZ (if the SLM eliminate sub-20 Hz frequencies), or an audible spectrum level of level of 11.7 dBA with an audible spectrum level of 94 dBZ (if the SLM did include the sub-20 Hz frequencies).

Section 4 - How far does audible noise and LFN travel

It is a fact that LFN does travel significant distances, however, as with the measurement of LFN, there are no agreed method to calculate LFN. The author did estimate the potential extent of LFN from the WindRelic projects (using the NORD2000 model), indicating a potential level of 50 dBZ at a maximum of 3,5 km. At this distance it is estimated that the LFN noise level from the wind turbines will be less than the typical ambient $LFN_{sub\text{-}160Hz}$ of the natural soundscape (at a wind speed of 8 m/s).

However, without any guideline on how a particular $LFN_{sub\text{-}160Hz}$ level may influence animals, this information is of no use, as it cannot be used to assess a particular impact significance. We do not know whether a $LFN_{sub\text{-}160Hz}$ dBZ level of 50, 60, 70, 80 or 90 dBZ will start to influence communication, increase stress levels or have other harmful effects. As there are no relationship between dBZ or dBA, any statements on potential noise impacts is conjecture at best.

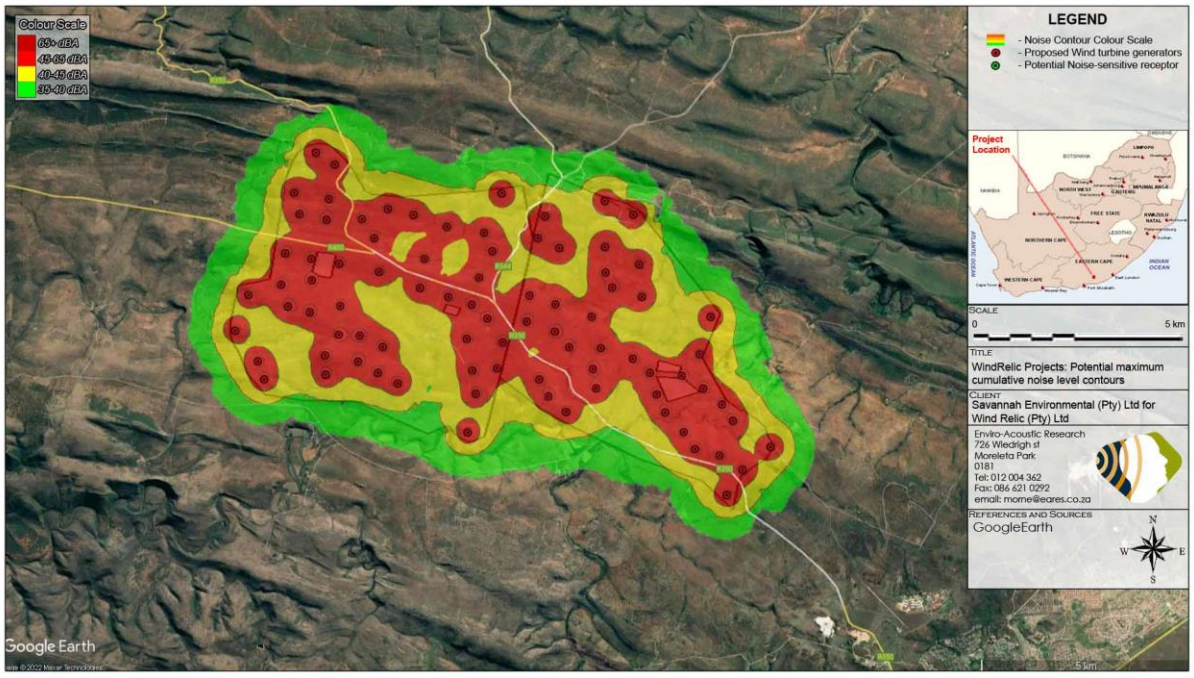

Figure 6: Aerial image illustrating potential extent of audible noise using the ISO 9613-2 noise propagation model for an 8 m/s wind speed

Section 5 - Noise Impact on Animals, focusing on large Mammals, specifically Rhinoceros – Literature

This writ will specifically highlight the information as contained in the Balfour (2021). It is a well research report, stating information as available in academic studies. From Balfour (2021), the following must be highlighted:

- Terrestrial wildlife responses begin at noise levels of approximately 40 dBA, with 20% of papers documenting impacts below 50 dBA (Shannon *et al.* 2015) – **noises from the operational WindRelic projects will not exceed 40 dBA further than 1,000 m**;
- Levels of 60–75 dBA have been shown to cause stress, e.g., increased respiration and heart rate, increased vigilance, and decreased time for grazing in domestic animals such as sheep and horses (Helldin *et al.* 2012) – **noises from the operational WindRelic projects will at no practical point exceed 60 dBA**;
- Harmful effects appearing at exposure levels of 55-60 dBA (Barber *et al.* 2009) – **noises from the operational WindRelic projects may exceed 55 dBA only a few meters from the wind turbines**;
- Large terrestrial mammals appear to acclimatize to the wind farms during the operational phase (Helldin *et al*. 2012);
- No noise standard exists for terrestrial species (Blickley *et al.* 2010).

Apart from the lack of available information or criteria that can be used to assess a potential noise effect, is the manner in which data was recorded. Academic studies generally do not measure wind speed during studies focusing on animal communication, ideally doing measurements during optimal weather conditions (periods with no-, or low winds). The author could not locate one study that reported the level at which animals communicate, whether in dBA or dBZ.

Without clear criteria for animal species, it is impossible to assess the significance of a noise impact on any animal species. Even Balfour (2021), while being a comprehensive review of potential noise impacts, referring to more than 80 papers, cannot provide this information.

Section 6 - Noise Impact on Animals, focusing on large Mammals, specifically Rhinoceros – Questions and Response

Balfour (2021)	Author Response
Low frequency noise and infrasound both form the largest component of the noise spectrum emitted by wind turbines and have been recognized as a special environmental noise problem.	LFN, when measured using the A-weighted scale is an insignificant component of the noise spectrum emitted by wind turbines. LFN, when described in terms of Z-weighted scale is a significant component of the noise spectrum. Yet, while LFN from wind turbines can be measured, wind turbines only operate during a period of increased wind speeds. As discussed on sections 2 and 3, there are already significant $LFN_{sub\text{-}160Hz}$ during periods of increased wind. The author again would like to highlight the findings of Evans (2012), that indicated that "*infrasound levels near wind farms are comparable to levels away from wind farms in both urban and rural locations".*
Noise at these frequencies' travels further than noise at higher frequencies and their impact increases rapidly with sound level.	The first part of the statement is correct as discussed on section 3. However, the second part is questioned.
A-weightings are presented in the assessment report, and if they were also used in the modelling	Currently there exist only criteria to assess a potential noise impact on humans, using the A-

	weighted scale. Modelling is therefore done in the A-weighted scale. Even Balfour (2021) only reports potential noise "criteria" in the A-weighted scale (see section 5).
The contribution of infrasound and low frequency noise is likely to have been underestimated	Without criteria about LFN it is not known if the impact is underestimated or over-estimated. LFN from the wind turbines could extend 3.5 km (using a level of 50 dBZ). However, this is during a period when the wind speeds are higher and $LFN_{sub\text{-}160Hz}$ may already be between 50 and 70 dBZ (or higher) and the existing $LFN_{sub\text{-}160Hz}$ is likely to be higher than the 50 dBZ value. However, since the conservation area is further than 3.5 km, a preliminary assessment can only state that the impact on animals is likely to be insignificant.
Data on the decay of the sound energy for the IF and LF frequencies over distance, under varying atmospheric conditions (wind, temperature, humidity) has not been provided. We therefore do not know how far and at what intensity the sound in this frequency range will travel, and what impact this could have on the terrestrial mammals	The decay of LFN is discussed in section 3, for a worst-case scenario (higher humidity, low temperature, downwind). Note: Humidity and temperature have a low influence on the attenuation of LFN. As highlighted previously by the Author of the noise study as well as Balfour (2021), without guideline LFN levels it is not possible to assess the potential LFN impact. However, as stated above, no impact on animals (that communicate in the lower frequency spectrum) is expected further than 3.5 km.
Species which use low frequency and infrasound (known species in the area are rhinoceros, lion, hippo, elephant, giraffe, leopard, brown hyena and otter), and predators like leopards who have a greater hearing sensitivity and show a greater response to disturbance by humans, are most likely to be affected in a greater radius from the turbines.	As highlighted previously by the Author of the noise study as well as Balfour (2021), without guideline LFN levels it is not possible to assess the potential LFN impact. However, as stated above, no impact on animals (that communicate in the lower frequency spectrum) is expected further than 3.5 km.
Ambient sound levels were not measured in the wilderness areas (i.e., away from human habitation), and are therefore not representative of wilderness areas. An increase in noise levels from ambient wilderness levels to operational wind turbine conditions will require a greater adjustment for animals than presented in the noise assessment report	Ambient sound levels were measured away from houses, with at least 2 measurement locations in quiet areas typical of the surrounding environment. Unfortunately, due to safety and security concerns, SLM are not left in the field. However, one should not immediately assume that locations in the field are quiet, as bird and insect sounds is normally present. Modelling indicate that operating wind turbines may influence at area up to 1,500 m from the closest wind turbines (using the 35 dBA contour line as criteria), or 3,500 m if using the 50 dBZ contour line as criteria.
Very quiet, clear, frosty winter nights accompanied by temperature inversions, are the times when noise carries the furthest. Noise at night has a greater impact on predator/prey relations, for example on the terrestrial carnivores	Modelling indicate that operating wind turbines may influence at area up to 1,500 m from the closest wind turbines (using the 35 dBA contour line as criteria), or 3,500 m if using the 50 dBZ

of concern in the project; the black footed cat and brown hyena, both of whom are active during the night	contour line as criteria. The conservation area is well outside this potential zone of influence.

Should you require any further details, or have any additional questions, please do not hesitate to call me on the above numbers.

Yours Faithfully,

Morné de Jager
Enviro-Acoustic Research cc

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APPENDIX B

BioTherm's Excelsior wind farm works for bird conservation

29TH MARCH 2021

BY: MARLENY ARNOLDI
CREAMER MEDIA ONLINE WRITER

Working in collaboration with conservation organisations, BioTherm Energy's Excelsior wind energy facility, in the Western Cape, is pioneering the wind industry's approach to conserving avifauna.

The programmes that are being implemented go beyond looking at the potential impact of the wind farm on birds through mitigation, but are also aimed at a net gain in priority species, including Cape Vulture, Black Harrier, Verreaux's Eagle and Martial Eagle.

Subscribe Now site mitigation programme to avoid losses includes an

team of bird monitors to the wind farm's on-site operations room, where individual wind turbines are switched off when the priority species are in the vicinity, and switched on again once the bird has passed by.

This SDOD system, which was piloted in August 2020 before being fully implemented, has, to date, resulted in no less than 60 SDODs being successfully called for.

"This direct mitigation through shutdowns has resulted in zero loss of priority species to date, meaning that we can proudly say that there have been no turbine collision fatalities so far, and we expect the same into the future," says BioTherm Energy sustainability director **Libby Hirshon**.

Additionally, the programme provides local job creation. The eight biodiversity monitors, who are predominately female, in addition to their supervisor, have been recruited from the surrounding communities.

The team of monitors are sited at three vantage points, seven days a week, and are responsible for the implementation of this rigorous programme through active communication with the operators.

BioTherm Energy also recognises that, in the Overberg region, where the Excelsior wind facility is situated, many bird species are also susceptible to powerline collisions, which has been well documented by the Endangered Wildlife Trust (EWT).

This poses a significantly greater threat to certain species than wind turbines, including South Africa's national bird, e Crane.

powerlines near, but not directly associated with, our project.

"We believe this initiative will prevent needless collisions by Blue Cranes, Cape Vultures and a host of other raptors. We have no doubt that, through this kind of collaboration, we can create innovative solutions where both conservation and renewable energy can coexist and even enhance each other," comments EWT wildlife and energy programme manager **Lourens Leeuwner**.

"It is extremely encouraging to see an independent power producer actively seeking opportunities to conserve priority bird species in the regions surrounding their facilities. BioTherm Energy is actively engaging with project partners and looking to bolster conservation initiatives around their wind energy facilities."

The wind farm's off-site conservation activities also include work with the Overberg Renosterveld Conservation Trust to provide funding for the securing of easements for the protection of the Renosterveld, which is a critical habitat for the Black Harrier.

The 33 MW Excelsior wind energy facility, in the Western Cape, successfully achieved its commercial operations on December 23 last year, adding to the already achieved commercial operations of the 132 MW combined capacity of the solar plants, Aggeneys and Konkoonsies II, earlier in the year.

The wind farm is built on 2 300 ha of land in Swellendam, an area known as one of the largest agricultural producing areas in the country. By the very nature of wind power, over 90% of the land on the site will continue to yield agricultural crops, as well as sustain livestock farming.

EDITED BY: CHANEL DE BRUYN
CREAMER MEDIA SENIOR DEPUTY EDITOR ONLINE

Excelsior Wind Farm: Biodiversity Action Plan V.2

Contents

1. Introduction and Project description

Excelsior Wind Energy Facility (the Project) is a 13-turbine wind energy facility with installed capacity of 32.5 MW, between Bredasdorp and Swellendam, in the Overberg Renewable Energy Development Zone (REDZ), in the Western Cape Province of South Africa. A Critical Habitat Assessment (CHA) was performed for the Project in August 2019.

Based on the results and recommendations of the Critical Habitat Assessment completed in August 2019, a Biodiversity Action Plan (BAP) was developed. For a project in critical habitat, IFC Performance Standard 6 (PS6) requires that net gain is achieved for the biodiversity values for which critical habitat was designated. If the Project is found to be in critical habitat, the BAP must further demonstrate that:

- No other viable alternatives within the region exist for development of the Project on modified or natural habitats that are not critical;
- The Project does not lead to measurable adverse impacts on those biodiversity values for which the critical habitat was designated, and on the ecological processes supporting those biodiversity values;
- The Project does not lead to a net reduction in the global and/or national/regional population of any Critically Endangered or Endangered species over a reasonable period of time; and
- A robust, appropriately designed, and long-term biodiversity monitoring and evaluation program is integrated into the Project's management program.

The purpose of this BAP is to set out the Project's mitigation and monitoring actions (through avoidance, minimization, restoration and – where necessary – offset of impacts) to achieve alignment with (PS6) and with other statutory or stakeholder requirements.

2. Priority biodiversity values

2.1. Natural Habitat and Modified Habitat

The Project is situated predominantly in modified habitat, with small and fragmented remnants of natural habitat. Four habitat classes are present within the Project Area of Impact (AoI)[1]:

- Agriculture: A mixture of cereal crops and pastures, which comprises the vast majority (80 - 90%) of the habitat in the AoI;
- Scrub & thicket: This comprises endangered, indigenous Renosterveld, remnants of which are mostly found along drainage lines and on steeper slopes that are unsuitable for planting. The largest contiguous area of Renosterveld in the AoI is an area of approximately 350ha;
- Farmyards: Lawns and stands of Eucalyptus which are present at homesteads; and
- Waterbodies: Mostly farm dams, and a few natural wetlands in drainage lines.

[1] In this instance, the Project AoI was delineated as the area comprising the site footprint itself and a 5km buffer drawn around the outer most wind turbines, and a 2km buffer zone around the proposed 14km long 132kV grid connection powerline running from the on-site substation to the Vryheid substation

See Figure 1 for a map of the AoI

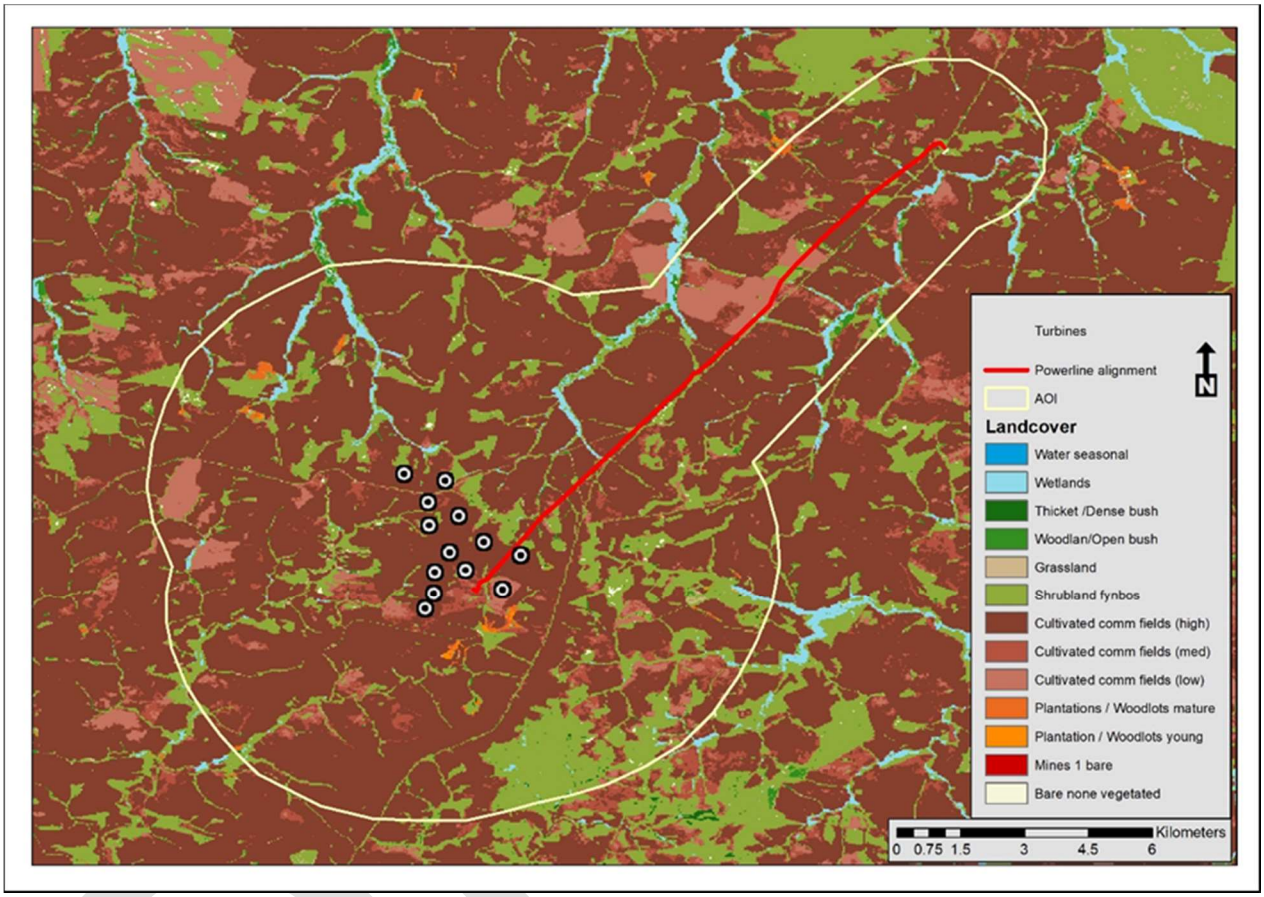

Figure 1: A map of the Area of Influence (AoI)

2.2. Critical Habitat

The CHA determined that the Project is situated in Critical Habitat for the following priority biodiversity values (see Table 1 below):

Table 1: Summary of Critical Habitat within Project Area of Influence

Feature	PS6 Criterion	Rationale	Critical Habitat
Black Harrier	Criterion 1	(a) Areas that support globally-important concentrations of an IUCN Red-listed EN or CR species (≥ 0.5% of the global population AND ≥5 reproductive units of a CR or EN species).	Yes
		(c) As appropriate, areas containing important concentrations of a nationally or regionally-listed EN or CR species.	Yes
	Criterion 3	Area is known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of the species at any point of the species' lifecycle.	Yes

Cape Vulture	Criterion 1	(a) Areas that support globally-important concentrations of an IUCN Red-listed EN or CR species (≥ 0.5% of the global population AND ≥5 reproductive units of a CR or EN species)[2].	Yes
		(c) As appropriate, areas containing important concentrations of a nationally or regionally-listed EN or CR species.	Yes
	Criterion 3	Area is known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of the species at any point of the species' lifecycle.	Yes
Agulhas Long-billed Lark	Criterion 2	a) Areas that regularly hold ≥10% of the global population size AND ≥10 reproductive units of a species.	Yes
Blue Crane	Criterion 3	Area is known to sustain, on a cyclical or otherwise regular basis, ≥ 1 percent of the global population of the species at any point of the species' lifecycle.	Yes
Renosterveld ecosystems	Criterion 4	b) Other areas, not yet assessed by IUCN, but determined to be of high priority for conservation by regional or national systematic conservation planning.	Yes

2.3. Protected and Internationally Recognised Areas

The Project is located in the Overberg Wheatbelt Important Bird Area (IBA) SA115, a Key Biodiversity Area which constitutes an internationally recognized area as defined in footnote 17 of Performance Standard 6 Paragraph GN20. Internationally recognized areas are defined as "UNESCO Natural World Heritage Sites, UNESCO Man and the Biosphere Reserves, Key Biodiversity Areas, and wetlands designated under the Convention on Wetlands of International Importance (the Ramsar Convention). PS6 requires that projects proposed inside legally protected or internationally recognized areas should result in tangible benefits to the conservation objectives of that area, and clear conservation advantages should be gained by the presence of the project. Stakeholder engagement and consultation is required for all projects located in legally protected and internationally recognized areas.

2.4. Priority biodiversity values

- Black Harrier *Circus maurus*

The species is classified as Endangered both nationally and globally. The total population is estimated at <1,000 individuals in South Africa, Lesotho and Swaziland (Taylor et al. 2015) with only approximately 10 mature individuals outside this region (Taylor et al. 2015). Taylor et al. 2015 puts the estimated number at approximately 670 mature individuals, placed here in the range of 251-999

[2] PS6 criteria need careful application when determining Critical Habitat for wide-ranging vultures. In this case Critical Habitat is considered to be present, considering the known importance of agricultural land in the Overberg IBA as the foraging area for the Potberg Cape Vulture colony, and the presence of foraging birds at the Excelsior site.

mature individuals. The species is one of the most range-restricted harrier species in the world, with its core range located in the Fynbos Biome (which includes Renosterveld) of south-western South Africa. The species has a polarized distribution in the Fynbos Biome, with breeding birds largely restricted to the coastal strip, and inland in the mountains, where most of the remaining untransformed Fynbos (including Renosterveld) is located. Black Harriers undergo seasonal migrations during the summer, travelling as far as 1 200km inland to the Grassland Biome, returning in winter to their breeding grounds in the Fynbos Biome (Taylor et al. 2015).

The Black Harrier is expected to occur fairly regularly in the Area of Impact, but in very low numbers. The species was not recorded during the initial four seasons' pre-construction monitoring, conducted in 2011-2012. It was subsequently recorded during spring and summer 2015-2016, in low numbers, with 2 birds recorded during transect surveys, and a total of 3 minutes and 15 seconds of flying time recorded during 48 hours of flight observations. During the autumn and winter 2018 surveys, no birds were recorded. Since the weekly counts started in 2019, the species have been recorded at an average rate of one bird per week from January to May 2019. It is likely that the birds recorded at the AoI are individuals moving through the area on their way to or from coastal breeding grounds to the south of the AoI area.

- Cape Vulture *Gyps coprotheres*

The species is classified as globally and regionally Endangered. In 2006, the total population was estimated at 8,000-10,000 individuals (M. Diekmann in litt. 2006), roughly equivalent to 5,300-6,700 mature individuals. The global population estimate has been revised with an estimate of 4,700 pairs or 9,400 mature individuals (Allan 2015). The IUCN (2019) puts the population estimate at 14 100 individuals, in an assessment done in October 2016.

The Project is located approximately 35km from the Potberg Vulture Colony, which is the only breeding colony of the species in the Western Cape. In 2017, the Potberg colony consisted of 100 breeding pairs, and the total population was 316 birds. Cape Vultures have been recorded regularly in the AoI during pre-construction monitoring. During the initial 12-months pre-construction monitoring in 2011-2012, Cape Vultures were recorded flying over the site for a total of 1 hour and 19 minutes, during 288 hours of flight observations. The concentration of flight activity recorded during that survey was directly linked to a lamb carcass which the birds fed on. Vultures are specifically attracted to lambing sheep, where they feed on the placentas of lambing ewes. During the spring and summer 2015 – 2016 surveys, the species was recorded for 1 hour and 42 minutes during 48 hours of flight observations. During the autumn and winter 2018 surveys, the species was observed for a period of five hours, during 48 hours of flight observations. However, since the weekly counts started in 2019, a single individual was recorded only once from January to May 2019.

- Blue Crane *Anthropoides paradiseus*

The species is classified as globally Vulnerable. The most recent Blue Crane population estimate for South Africa is a minimum of 25,500 mature individuals with 12,100 in the Western Cape (Taylor et al. 2015). Numbers in the south and south-western Western Cape have increased as the species has

expanded into agricultural areas (Taylor et al. 2015). Current population trend is stable (IUCN 2019). The Blue Crane occurs regularly in the AoI.

- Agulhas Long-billed Lark *Certhilauda brevirostris*

The species is classified as nationally Near Threatened and globally of Least Concern. The total population is estimated at approximately 9 000 individuals all in South Africa, with an estimated extent of occurrence of 16 418 km² (Taylor et al. 2015). Although it is not of immediate conservation concern, the species has a naturally small range and population which make it vulnerable to natural or anthropogenic changes in its habitat. Agulhas Long-billed Lark is abundant in the AoI.

- Renosterveld

The remnants of the natural vegetation in the AoI are Renosterveld, which is found mostly along drainage lines and on steeper slopes that are unsuitable for planting. There is one contiguous patch of approximately 350 hectares in the south-east, which is the largest unfragmented area of natural habitat in the AoI. The AoI is situated at the interface of two Critically Endangered ecosystems, namely Central Rûens Shale Renosterveld and Eastern Rûens Shale Renosterveld (Driver et al. 2012).

3. Potential impacts on priority biodiversity values

The manner in which the Project could potentially impact on priority biodiversity values is explained below.

3.1. Black Harrier

- Collisions with the turbines

The main potential Project impact on the regionally and globally Endangered Black Harrier is mortality due to collisions with the turbines. According to the latest publicly available statistics, a total of six Black Harrier mortalities have so far been recorded at two out of twenty operational wind farms in South Africa (BLSA 2018). Given the relatively low numbers of the species recorded at the site, the limited number of turbines (n = 13), and the anticipated impact of the of the mitigation measures listed below, it is not envisaged that the potential collision related mortality will substantially reduce the critical habitat's ability to support Black Harriers and the ecological processes underpinning the existence of the species in the Area of Assessment (AoA), namely the Overberg Wheatbelt IBA.

3.2. Cape Vulture

- Collisions with the turbines

The main potential Project impact on the regionally and globally Endangered Cape Vulture is mortality due to collisions with the turbines. According to the latest published results, Cape Vultures have been killed at a rate of 0.03 vultures per turbine per year at the five operational wind farms in South Africa which overlaps with the species range (Pfeiffer & Ralston 2018). The implementation of the mitigation measures listed below should ensure that the risk to Cape Vultures will be reduced to a minimum, to such an extent that the project will not jeopardize the long-term persistence of the species in the AoA, which was defined as a 50km radius around the Potberg vulture colony.

3.3. Blue Crane

- Collisions with the turbines

The globally Vulnerable Blue Crane at the Project site may collide with the turbines. However, the observed risk of turbine collisions for Blue Cranes is relatively low. The latest figure for Blue Crane mortality at twenty operational wind farms in South Africa is eight confirmed turbine related fatalities (BLSA 2018).

- Collisions with the 132kV grid connection

Blue Cranes are highly susceptible to powerline collisions. Shaw (2009) estimated a Blue Crane collision rate of 0.25 birds/km of powerlines per year (95% CI 0.10-0.46 birds/km per year) in the Overberg Wheatbelt IBA (the AoA), corrected for biases, which means that approximately 10% (95% CI 4-18%) of the total Blue Crane population within the Overberg Wheatbelt IBA could be killed annually in power line collisions, based on 199 km of surveyed powerlines. Collisions with the 14km long 132kV grid connection powerline running from the on-site substation to the Vryheid substation could potentially be the most significant Project-related impact on this species.

- Displacement of breeding birds through disturbance

The other potential impact is displacement of breeding Blue Cranes due to the disturbance associated with the construction of the wind farm. Blue Cranes are proving to be relatively unaffected by wind farm developments in the wheat growing Overberg region as far as displacement is concerned. No significant decline has been recorded in the Blue Crane population at the similarly sized Dassieklip Wind Farm near Caledon (personal observation), which has a very similar habitat mix to the Excelsior site with Blue Cranes successfully breeding within the turbine area every year since the wind farm became operational in 2014. Nest inspections conducted at Excelsior in the breeding season between December 2018 and January 2019 did not detect any obvious impacts on breeding pairs, despite the construction activities taking place around them, possibly because Blue Cranes in the Overberg are very habituated to human activity in the form of agricultural operations.

If the mitigation measures outlined below are implemented, it can be assumed that the residual impacts of the wind farm will be minimal and it will not substantially reduce the critical habitat's ability to support Blue Cranes and the ecological processes underpinning the existence of the species in the AoA (the Overberg Wheatbelt IBA).

3.4. Agulhas Long-billed Lark

- Displacement through habitat transformation

The main potential impact on the range-restricted Agulhas Long-billed Lark is displacement due to habitat transformation. The species' habitat of choice is stony wheat-fields and pastureland, which constitutes 95% of the approximately 6 000 km² Overberg Wheatbelt IBA (Marnewick *et al.* 2015). The wind farm perimeter plus a 1km buffer zone amounts to approximately 15 km². It is therefore self-evident that even if the species were to be completely displaced from that area, which is highly

unlikely, the displacement impact due to habitat transformation will not substantially reduce the critical habitat's long-term ability to support Agulhas Long-billed Larks and ecological processes underpinning the existence of the species in the AoA, due to the small size of the project footprint[3].

3.5. Renosterveld

- Destruction through habitat transformation

The most important potential impact on the Renosterveld in the Project footprint is habitat transformation. However, care has been taken to place all turbines and supporting infrastructure (including the powerline poles) outside the remaining areas of Renosterveld. No impact on the Renosterveld in the AoA (namely the Ouka River Renosterveld Cluster, and the Eastern Rûens De Hoop Renosterveld Cluster) is therefore envisaged.

4. Avoidance, minimisation and restoration

Mitigation measures to avoid and/or minimize impacts on the priority biodiversity values in Critical Habitat are listed and discussed below.

4.1. Black Harrier

- Avoidance

The site contains no suitable breeding habitat and the closest recorded Black Harrier nest is approximately 3.8 km away from the closest planned turbine. This is more than the 3km buffer zone which is recommended around Black Harrier nests (Simmons & Ralston-Paton in prep). The turbine lay-out also avoids all areas of remaining Renosterveld, i.e. potential foraging habitat.

- Minimisation

Turbine management (shut-down on demand - SSoD) will be implemented to minimise the risk of a Black Harrier colliding with a wind turbine through the feathering the blades or shut-down on demand (i.e. stopping the rotors when a Black Harrier moves through the site). The shut-down will be triggered by human observers. It is planned to expand the current compliment of 5 environmental monitors to 10, with a supervisor, who will be responsible for a variety of environmental duties, including the implementation of SSoD. Three vantage points with a radius of 1.8km have been identified from which monitors, working in pairs and in shifts, will scan the landscape during daylight hours for approaching harriers. The radius is based on the distance at which a large bird such as a raptor or vulture can be identified reliably, with enough time for a turbine to be stopped before the bird enters the danger zone.

4.2. Cape Vulture

- Avoidance

[3] The physical footprint of the facility is approximately 11 hectares

The key mitigation measure is management of food availability at the site to avoid any attraction of vultures. The availability of food at the site is closely monitored and all available carcasses are removed without delay before they can attract vultures. This procedure is already in place as an integral part of ongoing farming operations. Since January 2019, monthly experiments are being conducted to assess the reaction time of Cape Vultures to available food (a lamb carcass). So far, no vultures have been attracted to experimental carcasses.

- Minimisation

Turbine management (shut-down on demand) will be implemented to minimise the risk of a Cape Vulture colliding with a wind turbine, through the feathering the blades or shut-down on demand (i.e. stopping the rotors when a Cape Vulture moves through the site). The shut-down will be triggered by human observers. It is planned to expand the current compliment of 5 environmental monitors to 10, with a supervisor, who will be responsible for a variety of environmental duties, including the implementation of SSoD. Three vantage points with a radius of 1.8km have been identified from which monitors, working in pairs and in shifts, will scan the landscape during daylight hours for approaching vultures. The radius is based on the distance at which a large bird such as a raptor or vulture can be identified reliably, with enough time for a turbine to be stopped before the bird enters the danger zone.

Planned satellite tagging of Cape Vultures (see section 5.2) will provide information on movements and any patterns of activity over the Project site that may assist in minimising collision risk.

4.3. Blue Crane

- Avoidance

An intensive search was conducted for Blue Crane nests during November and December 2018, and January 2019. None of the recorded nests were close enough to the construction activities to be affected.

Five environmental monitors have also been trained by an avifaunal specialist to identify the signs that indicate possible breeding by Blue Cranes. The environmental monitors make a concerted effort to look out for such breeding activities of Blue Cranes during their weekly monitoring surveys. If any Blue Cranes are confirmed to be breeding (e.g. if a nest site is found), construction activities within 200m of the breeding site must cease, and the avifaunal specialist will be contacted immediately for further assessment of the situation and instruction on how to proceed.

- Minimisation

A site-specific Construction Environmental Management Programme (CEMPr) has been implemented, which gives appropriate and detailed description of how construction activities must be conducted. All contractors have to adhere to the CEMPr and apply good environmental practice during construction. This includes the following:

  - Construction activity is restricted to the immediate footprint of the infrastructure, and in particular to the proposed road network.

- Access to the remainder of the site is strictly controlled to prevent unnecessary disturbance of breeding pairs.
- Construction of new roads is only considered if existing roads cannot be upgraded.
- Measures are implemented according to best practice to curb noise and dust.

The Contractor HSE Officer oversees activities and ensure that the CEMPr is implemented and enforced.

The high-risk sections of the 14km long 132kV grid connection powerline will be marked with Eskom approved Bird Flight Diverters (BFD's), as identified during the avifaunal powerline walk-through conducted in February 2016.

4.4. Agulhas Long-billed Lark

- Avoidance

The transformation of a limited quantity of the species' habitat (wheat fields and pastures) which will be taken up by the Project footprint, is unavoidable (see Section 3). However, this impact is expected to be negligible in proportion to the available habitat within the Overberg Wheatlands IBA.

- Minimisation

All contractors have to adhere to the CEMPr and apply good environmental practice during construction. This includes the following:

- The minimum footprint areas of infrastructure should be used wherever possible, including road widths and lengths;
- No off-road driving;
- Existing roads and farm tracks should be used where possible;

- Restoration

Following construction, restoration of all disturbed areas (e.g. temporary access tracks and laydown areas) must be undertaken to restore them to their pre-construction state.

4.5. Renosterveld

- Avoidance

Care has been taken to place all turbines and supporting infrastructure (including the powerline poles) outside the remaining areas of Renosterveld. No impact on the Renosterveld in the AoA is therefore envisaged.

5. Measures designed to achieve net gain for priority biodiversity values

The measures listed below are aimed at achieving biodiversity net gain as per the requirements of PS6 for the biodiversity values for which the Critical Habitat has been designated.

5.1. Black Harrier

- Habitat enhancement outside the site

Increased habitat attractiveness outside the site can be achieved through the Overberg Renosterveld Conservation Trust's (ORCT) "Conservation Easement" programme involving landowners. This will entail assistance with implementation of Integrated Management Plans (IMPs), which include alien species clearing, watercourse restoration, erosion control (sheet and gully erosion), grazing management (through fencing) and ecological burning.

5.2. Cape Vulture

- Research to establish the status of the food supply of Cape Vultures at the Potberg Vulture Colony

This will entail a satellite tracking project to establish the foraging range and behaviour of the Cape Vultures at the Potberg Colony, inter alia to see how big a role the food provision at established vulture restaurants plays in the foraging behaviour of the birds. It will furthermore entail the investigation of land use patterns and farming practices (e.g. the timing of lambing) to see how those influence the foraging behaviour of the birds. The ultimate aim would be to establish what the critical factors are to sustain and possibly grow the colony in the long term from its current status of 100 breeding pairs, and specifically to establish if there are times when a supplementary feeding programme should be implemented to assist the birds through periods of food scarcity.

- Habitat enhancement

Implementation of a supplementary feeding programme, should the results of the research indicate a need for that.

5.3. Blue Crane

- Reduction of powerline collision risk outside the Project

A survey of all the existing powerlines in the AoI to establish a baseline for current mortality, and to identify high risk sections of powerline. High risk sections will subsequently be marked with Eskom approved bird flight diverters (BFDs). This will be followed by regular inspections to assess the effectiveness of the BFDs. This action is expected to reduce mortality of Blue Cranes on powerlines in the Overberg, and thus secure a net gain outcome for this species.

5.4. Agulhas Long-billed Lark

- Research planning

A workshop will be convened with stakeholders (e.g. Overberg Renosterveld Conservation Trust, BirdLife South Africa, CapeNature and the Percy Fitzpatrick Institute of African Ornithology) to explore avenues and budget needs for further research to enhance conservation of the species. Specific research questions that need to be answered are:

o Which agricultural practices are most beneficial to the species?

- What is the breeding success of the species through-out its range in different habitats?
- How effective are formally protected areas in conserving the species?
- What are the impacts of terrestrial predators on the breeding success in artificial pastures?

Based on the outcomes of the workshop, the Project intends to support a focused programme of agreed priority research. If this results in concrete recommendations for conservation measures, the Project will support a conservation management programme at an appropriate scale to achieve net gain for this species.

5.5. Renosterveld

- Habitat restoration

The quality of the remaining Renosterveld within the AoA will be improved at an appropriate scale through the Overberg Renosterveld Conservation Trust's (ORCT) "Conservation Easement" programme involving landowners. This will entail assistance with implementation of Integrated Management Plans (IMPs), which include alien clearing, watercourse restoration, erosion control (sheet and gully erosion), grazing management (through fencing), ecological burning, etc.

6. Monitoring

6.1. Avoidance, minimisation and restoration

A Biodiversity Monitoring and Evaluation Plan (BMEP) has already been implemented at the Project site since December 2018, at the start of the construction. Monitoring will be conducted both during the construction and the operational phases.

The construction phase monitoring consists of the following components:

- A total of 5 environmental monitors are currently conducting weekly bird surveys, and will be trained as carcass searchers and to perform various other environmental duties;
- The current construction period (18 months) is being used to investigate the feeding patterns of Cape Vultures at the site to assist with the formulation of a mitigation strategy to prevent mortality due to collision with the turbines. Elements of the mitigation strategy are outlined in section 4.2 above.
- A number of priority species' nests (including Blue Cranes) are being monitored during the construction phase of the Project in order to assess the potential impact of the construction activities on the breeding birds.

The operational phase monitoring will consist of the following components:

- The monitoring will be conducted in accordance with the latest version of *the Best practice guidelines for avian monitoring and impact mitigation at proposed wind energy development sites in southern Africa* (Jenkins et al. 2011).
- Operational monitoring will aim to answer the following questions:

    - How has the habitat available to avifauna in and around the wind farm changed?
    - How have the number of birds and species composition changed?
    - How have the movements of priority species changed?
    - How has the wind farm affected priority species' breeding success?
    - How many birds collide with the wind turbines? And are there any patterns to this?
    - How should mitigation be applied to reduce the impacts on avifauna?

- As an absolute minimum, operational monitoring will be undertaken for the first three years of operation, and then repeated again in year 5, and again every five years thereafter for the operational lifetime of the facility.
- The exact scope and nature of the operational monitoring will be informed on an ongoing basis by the results of the monitoring through a process of adaptive management (see Section 7 below).
- In order to determine if there are any impacts relating to displacement and/or disturbance, all methods used to estimate bird numbers and movements during pre-construction monitoring will be applied as far as is practically possible in the same way to operational monitoring in order to ensure maximum comparability of these two data sets. This includes sample counts of small terrestrial species, counts of large terrestrial species and raptors, focal site surveys and vantage point surveys according to the current best practice.
- The collision mortality monitoring will have three components:
    - Experimental assessment of search efficiency and scavenging rates of bird carcasses on the site through searcher detection and carcass persistence trials;
    - Regular searches in the immediate vicinity of the wind farm turbines for collision casualties;
    - Estimation of collision rates.

6.2. Net gain for priority biodiversity values

The following monitoring actions/deliverables will be implemented/produced to measure if the goal of biodiversity net gain is being achieved:

- Black Harrier
    - Monitoring of vegetation quality in the Ouka River Cluster and the Eastern Rûens De Hoop Cluster to assess the success of the measures implemented through the ORCT's Conservation Easement Programme.
    - Systematic recording of Black Harrier sightings in suitable habitat in the Ouka River Cluster and the Eastern Rûens De Hoop Cluster to see if the enhanced habitat is drawing in more foraging birds.
- Cape Vulture
    - Research report detailing findings and recommendations of the research project into the status of the food supply of Cape Vultures at the Potberg Vulture Colony.
    - Monitoring of colony numbers through regular counts, to assess the success of the supplementary feeding programme (if the research indicates the need for it).
- Blue Crane
    - Report detailing all the Eskom lines that had been surveyed, recorded carcasses and clear identification of sections to be marked.
    - Schedule for marking of all high risk Eskom lines with time frames.
    - Report detailing all the lines that had been surveyed to assess the effectiveness of the BFD's, and details of all the recorded carcasses.
- Agulhas Long-billed Lark
    - Research proposal detailing clear objectives for the planned research on the ecology of the Long-billed Lark.
    - Research paper with findings and recommendations for measures to better conserve the species.
    - Monitoring of outcomes of conservation measures implemented.
- Renosterveld
    - Monitoring of vegetation quality in the Ouka River Cluster and the Eastern Rûens De Hoop Cluster to assess the success of the measures implemented through the ORCT's Conservation Easement Programme.
    - Systematic recording of Black Harrier sightings in suitable habitat in the Ouka River Cluster and the Eastern Rûens De Hoop Cluster to see if the enhanced habitat is drawing in more foraging birds.

7. Adaptive management

Monitoring results will be used to inform refinement and improvement of mitigation measures, to ensure that these are as effective as possible.

The Project will develop a fatality threshold policy for **Black Harrier** and **Cape Vulture**, with input from relevant stakeholders. If fatality thresholds are exceeded this will trigger action to identify and implement further effective mitigation actions.

The Project will set aside a contingency mitigation budget annually, to cover additional mitigation needs if these arise.

8. Roles and responsibilities

Please see Appendix A, B and C for a breakdown of the roles and responsibilities of all relevant parties.

9. Budget

Please see Appendix A, B and C for a budget (TBD) detailing set-up costs and annual costs. The budget is broken down as follows:

- Costs of on-site mitigation measures.
- Costs of achieving biodiversity net gain for priority biodiversity values in Critical Habitat. Extend beyond the actual project footprint.
- The costs of on-site monitoring and evaluation.

See Table 2 below for a summary of the set – up and annual costs. (TBD)

Table 2: Set-up and annual costs		
	Set-up	**Annual (Year 1)**
Costs of on-site mitigation measures.	TBD	TBD
Costs of achieving biodiversity net gain	TBD	TBD
Costs of on-site monitoring and evaluation	TBD	TBD
Total	TBD	TBD

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Local wind farm pioneers system to protect birds in South Africa

By **PamL** Mar 30, 2021

bird monitors on site at Excelsior Wind Energy Facility in the Western Cape. Source: BioTherm Energy

In South Africa, BioTherm Energy's Excelsior Wind farm is collaborating with conservation organisations to minimise the wind industry's impact on local bird populations (avifauna).

To avoid losses, the on-site mitigation programme includes an industry-first implementation of an observer-led 'Shut Down on Demand' (SDOD) system for priority species.

The 33MW Excelsior Wind farm is constructed on 2,300 hectares of land in Swellendam, an area known as one of the largest agricultural producing areas in the country and home to many species of birds.

The programme not only studies how to mitigate the potential impact of the wind farm on birds but also aims to grow priority species, including Cape Vulture, Black Harrier, Verreaux's Eagle and Martial Eagle.

The SDOD system is implemented through notification by a team of bird monitors stationed in the wind farm's on-site operations room, where individual wind turbines are switched off when the priority species is in the vicinity and switched on again once the bird has passed by.

"This direct mitigation through shutdowns has resulted in zero loss of priority species to date, meaning that we can proudly say that there have been no turbine collision fatalities so far, and we expect the same into the future," said Libby Hirshon, BioTherm Energy's sustainability director.

Additionally, the programme provides local job creation. The eight biodiversity monitors, who are predominately female, have been recruited from the surrounding communities. The team of monitors are sited at three vantage points, seven days a week, and are responsible for the implementation of this rigorous programme through active communication with the operators.

BioTherm Energy recognises that in the Overberg region, where the Excelsior Wind Energy Facility is situated, many bird species are also susceptible to powerline collisions, which has been well documented by the Endangered Wildlife Trust (EWT). This poses a significantly greater threat to certain species than wind turbines, including South Africa's national bird, the Blue Crane.

"We approached the EWT to discuss potential conservation initiatives, and the result was the rollout of over four thousand bird flight diverters to mitigate avifauna fatalities along high-risk powerlines near, but not directly associated with, our project. We believe that this initiative will prevent needless collisions by Blue Cranes, Cape Vultures, and a host of other raptors. We have no doubt that, through this kind of collaboration, we can create innovative solutions where both conservation and renewable energy can coexist and even enhance each other," commented Hirshon.

The EWT's Wildlife and Energy Programme Programme Manager, Lourens Leeuwner, was recently reported in the media saying, "It is extremely encouraging to see an IPP actively seeking opportunities to conserve priority bird species in the regions surrounding their facilities. BioTherm Energy is actively engaging with project partners and looking to bolster conservation initiatives around their wind energy facilities".

https://www.engineeringnews.co.za/article/kipeto-wind-projects-biodiversity-plan-offsets-potential-bird-impacts-2022-04-26

Kipeto wind project's biodiversity plan offsets potential bird impacts

26TH APRIL 2022 BY: SCHALK BURGER - CREAMER MEDIA SENIOR CONTRIBUTING EDITOR

The biodiversity action plan of the 100 MW Kipeto Wind energy project, in Kenya, includes attempts to offset potential impacts on birds through on-site mitigation measures, including the observer-led shut-down-on-demand (SDOD) of turbines.

The plant also has off-site raptor conservation programmes implemented through conservation partners, which are focused primarily on anti-poisoning community-awareness-raising and interventions to decrease human-wildlife conflict.

“During the advanced development stage of Kipeto’s construction, two vulture species were found less than 15 km from the site, namely the White Backed Vultures and Ruppell’s Vultures, species that had recently been up-listed to critically endangered by the International Union for Conservation of Nature,” explained Kipeto ornithologist **Dominic Kimani**, who leads a team of 31 bird monitors together with deputy ornithologist **Mary Wanjiru Warui**.

“Populations of both of these vulture species are facing rapid decline primarily owing to retaliatory poisoning, resulting from pastoralists lacing dead livestock carcasses with poisonous agricultural

chemicals. The intention of this poisoning is to kill predators, such as lions and hyenas, as a result of human-wildlife conflict. Sadly, when vultures eat these carcasses, they also die, sometimes killing hundreds or even thousands of them," Kimani said.

As reported in Kipeto plant developer and operator BTE Renewables' 2021 Sustainable Development Report, Kipeto started with its on-site mitigation programme, including SDOD, when the project went into operation in July 2021.

The SDOD system is implemented through notification by a team of bird monitors to the wind farm's on-site operations room where individual wind turbines are switched off when the priority species, which is any animal species that is of wildlife management concern, are in the vicinity, and switched on again once the bird has passed by.

"The data shows that the SDOD significantly rose in the last quarter of the year, brought on by a drought that resulted in an increase of wildlife and livestock carcasses, consequently attracting large numbers of vultures and other raptors to the area," BTE Renewables said.

Despite the relatively short period, the programme has reported a total of close to 170 shutdowns, the majority, or 92%, of which were for vultures, with a further 8% for raptors and other priority flocks of birds.

This has been implemented with 100% success for vultures, with one instance of collision with another priority species.

In this instance, the team undertook a root cause analysis and has since adapted the programme to ensure this is avoided in future,

resulting in 100% successful implementation of SDOD since then, the team said.

“We have also had a two-man observer team monitoring bird activity daily, at eight vantage points, during raptor active hours between 09:00 to 18:00, since December 2019. This has yielded a significant set of data, which has provided a great deal of information for conservation organisations with whom we work,” added Kimani.

Meanwhile, the Kipeto Biodiversity Action Plan comprises close collaboration with the local community to protect the surrounding flora and fauna, and was developed in consultation with various nature and wildlife conservation groups.

In terms of off-site conservation measures, Kipeto and its implementation partners have made great progress, with activities including anti-poisoning campaign activities across approximately 8 000 km^2 of southern Kenya in poisoning hotspot areas and strengthening of livestock protection through building predator-proof enclosures.

Conservation activities also include supporting rapid response to wildlife poisoning aimed at minimising the number of deaths of wildlife and birds of prey as a result of poisoning.

A bird holding centre has also been set up at Kipeto to act as a transit site for injured or poisoned birds that need to be stabilised before being transferred to certified rehabilitation sites for full recovery.

Further, the company is establishing conservation measures at the Olerai Conservancy, a site close to Kipeto that holds an important

White-backed Vulture nesting colony and a good diversity of resident raptor species.

In February 2020, the team worked with the landowners to set up and resource a group of local scouts to patrol and protect the site. This intervention continues and is being transformed into a longer term focused plan.

Additionally, the same system has been implemented at BTE Renewables' Excelsior Wind Energy Facility, South Africa, where the on-site mitigation programme to avoid losses also includes the industry-first implementation of the SDOD system for priority species.

"This system, which was piloted in August 2020 before being fully implemented, has to date resulted in no less than 350 shutdowns being successfully called for, with 100% success for Cape Vultures and 99% for other priority species. A number of off-site conservation initiatives have also been implemented with conservation organisations in South Africa," BTE Renewables said.

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