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**Date:** 5 February 2019  
**Ref:** Great Karoo WEF change

Savannah Environmental (Pty) Ltd  
PO Box 148  
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**Attention: Mr. Gideon Raath**

Dear Sir

**SPECIALIST STUDY: NOISE IMPACT ASSESSMENT: PROPOSED GREAT KAROO WIND ENERGY FACILITY NEAR SUTHERLAND: CHANGE OF WIND TURBINE LAYOUT AND SPECIFICATIONS**

The above-mentioned issue as well as report ACED-HV/NIS/201202-Rev 0 is of relevance.

I conducted an Environmental Noise Impact Assessment (ENIA) during end 2012 for the proposed Hidden Valley Wind Energy Facility (WEF). This larger WEF was divided into the Karusa, Soetwater and Great Karoo Wind farms. This review specifically covers the Great Karoo Wind Farm.

With the input data as used, the 2012 assessment indicated that the proposed wind farm will have a noise impact of a **low significance** on all potential noise-sensitive developments. The projected noise level at NSD07 was 44 dBA, with the closest wind turbine generator (WTG) around 800 m, with the noise level the cumulative effect of nine WTG located within 1,500m from this NSD. The model used the Vestas V90 3.0MW wind turbine with a maximum sound power emission level of 106 dBA.

The developer of the Great Karoo Wind Farm has since optimized the layout of the wind farm, reducing the number of wind turbines and locating the wind turbines at optimal locations. The developer also wants to change the WTG specifications to:

- Increase the hub height to up to 150m;
- Increase the rotor diameter to up to 180m; and,
- Increase the rated power per WTG to up to 6.5MW per turbine.

The wind energy market is fast changing and adapting to new technologies and site specific constraints. Optimising the technical specifications can add value through, for example, minimising environmental impact and maximising energy yield. As such the developer has been evaluating several turbine models, however the selection will only be finalised at a later stage once a most optimal wind turbine are identified (factors such as meteorological data, price and financing options, guarantees and maintenance costs, etc. must be considered). The developer indicated that the selected wind turbine will have a maximum sound power emission level similar to the Vestas V90 3.0MW wind turbine previously considered.

The updated layout locates the closest WTG 1,090m from NSD07, with eight WTG located within 1,500m from this NSD. The wind turbines (of the new layout) are on average slightly further from this potential noise sensitive receptor.

Considering the location of the wind turbines and the potential noise impact, it is my opinion that the change will not increase the significance of the noise impact, subject that a wind turbine with a maximum sound power emission level of 107 dBA are used by the developer. A full noise impact assessment with new modeling will not be required and the recommendations as contained in the previous document will still be valid.

If the developer selects a wind turbine generator with a sound power emission level exceeding 107 dBA, the noise impact assessment must be reviewed in detail.

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

Yours Faithfully,

A handwritten signature in black ink, appearing to read 'M. de Jager', written in a cursive style.

Morné de Jager  
Enviro-Acoustic Research cc

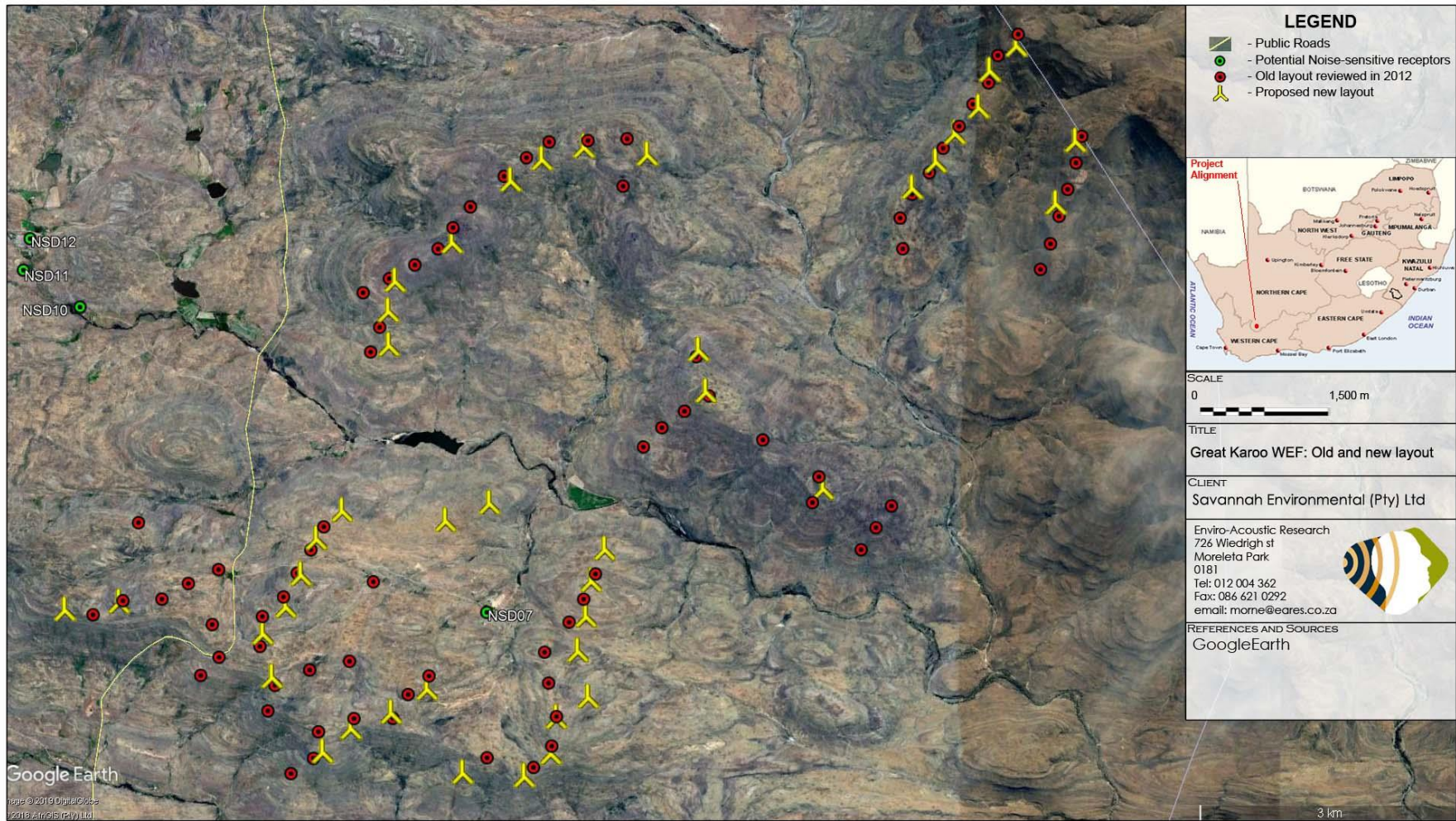


Figure 1: Previous and new locations of the wind turbines for the proposed wind farm