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Ref: Albany WEF Change

Coastal & Environmental Services
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Attention: Ms. Caroline Evans

Dear Madam

SPECIALIST STUDY: NOISE IMPACT ASSESSMENT: PROPOSED AMENDMENT – ALBANY WIND ENERGY FACILITY: CHANGE OF WIND TURBINE LAYOUT AND SPECIFICATIONS

The above-mentioned issue as well as report CES-IAWEF/ENIA/201904-Rev 0 is of relevance.

I conducted an Environmental Noise Impact Assessment (ENIA) during 2017 and 2019 for the proposed Albany Wind Energy Facility (WEF).

A number of alternative layouts were considered, with the April 2019 report evaluating layout version 8.5 illustrated in **Figure 1**. With the input data as used, this assessment indicated that the proposed project will have a noise impact of a ***medium significance*** on one receptor, and a noise impact of ***low significance*** on all other identified Noise Sensitive Developments (NSDs) in the area during both the construction and operational phases. The potential construction phase noise impact relates to potential night-time construction activities. This assessment used the sound power emission levels of the Vestas V136 3.45 MW wind turbine with a maximum sound power level of 105.1 dBA.

The developer of the Albany WEF has since optimized the layout (proposed new layout superimposed on the previous layout illustrated on **Figure 1**) of the facility, locating the wind turbines at optimal locations and changing the Wind Turbine Generators (WTGs) specifications as defined below:

TURBINE DESIGN SPECIFICATIONS	
Number of turbines	Up to 43 (as per the new layout)
Facility output	Up to 297 MW
Turbine hub height	Up to 130 m
Turbine rotor diameter	Up to 170 m
Turbine blade length	Up to 85 m
Turbine tip height	Up to 215 m
Turbine platform area	3 900 m^2
Turbine road width	14 m to be rehabilitated to 8 m

It should be noted that the change in wind turbine specifications such as the wind turbine hub height and rotor diameter does not relate to sound power emission levels, which depends on the model and make of a wind turbine. For the same model and make, a change in specifications such as hub-height and rotor diameter have an insignificant impact on sound power emission levels. Therefore, there is no advantage or disadvantage in terms of acoustics by changing the wind turbine specifications such as turbine hub height as well as rotor diameter. By changing the wind turbine model and make to a wind turbine with a lower sound power emission levels however will have a significant advantage on acoustics (reduced noise emissions). However, changing the

wind turbine model or make to a wind turbine with a higher sound power emission level will similarly increase the operational noise levels and the potential noise impact significance.

The wind energy market is fast changing and adapting to new technologies as well as site specific constraints. Optimizing the technical specifications can add value through, for example, minimizing environmental impact and maximizing energy yield. As such the developer has been evaluating several turbine models, however the selection will only be finalized at a later stage once the most optimal wind turbine is identified (factors such as meteorological data, price and financing options, guarantees and maintenance costs, etc. must be considered). As such the developer cannot commit to a specific wind turbine model, but it should be noted that the previous noise impact assessments did consider a worst-case scenario, using a wind turbine that have a very high noise emission level.

The proposed layout:

- locates the WTGs on average further from the identified NSD;
- no WTG is moved closer than 1,000m from any NSD;
- the total number of WTG within 1,000 m from NSD 17 are reduced from three (3) to two (2). This reduction will result in a slight reduction in noise levels due to the reduction in cumulative noises (from three to two WTGs) and likely reduce the significance of the operational noise impact from **Medium** to **Low**. WTGs further than 1,000m from any identified NSD, with the closest WTG approximately 1,580 m from NSD10.

Therefore, considering the proposed locations of the WTGs and the potential noise impact, it is my opinion that:

- the change will not increase the significance of the noise impact (the noise level will likely reduce at NSD 17 considering previous noise levels modelled);
- 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;
- the cumulative noise impact will not change, as there are no new or proposed wind turbines (from a different WEF), located within 2,000m from identified NSDs that will cumulatively increase the noise levels;
- there are no new limitations or assumptions.

An updated noise impact assessment will not be required and the findings, mitigation measures and recommendations as contained in the previous document (report CES-IAWEF/ENIA/201904-Rev 0) will still be valid, subject that the developer use a wind turbine with a sound power emission level less than 105 dBA (re 10^{-12} watt). In terms of noise, this change will be acceptable.

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

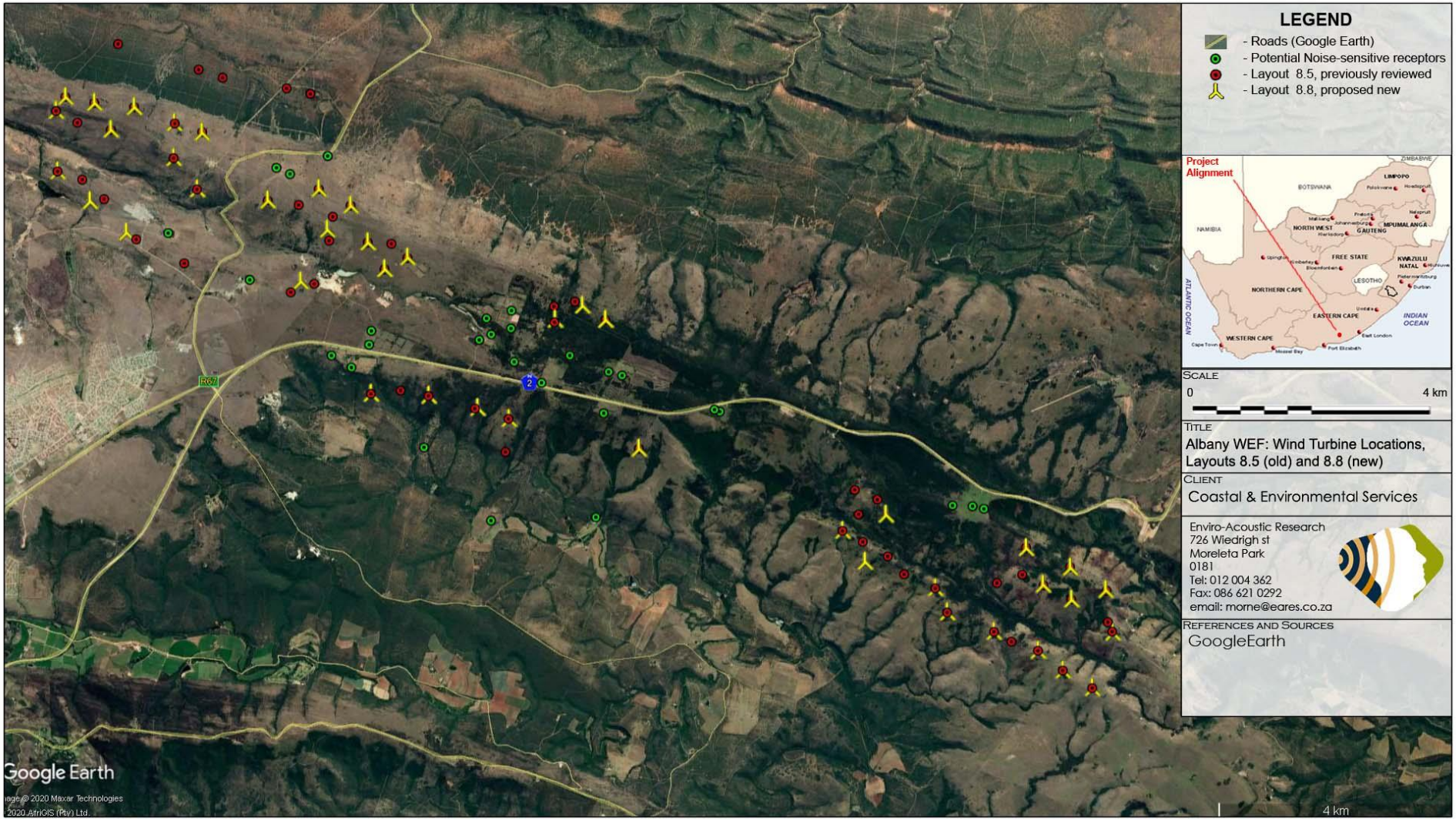

Figure 1: Layout previously evaluated as well as the proposed WTG locations