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27 August 2019

Lisa Opperman
Savannah Environmental (Pty) Ltd
P.O. Box 148
Sunninghill
2157
By email: lisa.o@savannahsa.com

Dear Lisa

RE: REVISED LAYOUT AND TURBINE SPECIFICATIONS FOR THE ZONNEQUA WIND FARM: HERITAGE OPINION

<u>FACILITY NAME</u>	<u>SAHRA CASE NUMBER</u>	<u>DEA REFERENCE NUMBER</u>
ZONNEQUA WIND FARM:	13065	14/12/16/3/3/1/1970

Thank you for providing the details of the amended facility layout and turbine specifications for the authorised Zonnequa Wind Farm to be located some 21 km southeast of Kleinsee in Northern Cape. The new turbine specifications provided for this opinion are as follows:

Genesis Zonnequa Wind (Pty) Ltd, which received Environmental Authorisation on 18 February 2019, is proposing to amend the turbine specifications and layout of the Zonnequa Wind Farm. The intended amendments include the following:

- Reduction of the number of turbines from **up to 56 turbines** to **up to 35 turbines**
- Increase in hub height from **up to 130m** to **up to 150m**
- Increase in tip height from **up to 205m** to **up to 240m**
- Increase in individual turbine capacity from **up to 4.5MW** to **up to 7MW**

In addition, the layout of the proposed facility will be amended in order to account for the fewer turbines to be built. The newly proposed layout is shown in the maps presented below.

Having reviewed the above new specifications, the amended facility layout and also the known heritage resources on and around the study area, it is apparent that the potential impacts likely to be experienced are no different from those that were anticipated in the Heritage Impact Assessment undertaken for the same area as assessed previously. These impacts are as follows:

- Archaeological sites may be impacted;
- Palaeontological materials (fossils) may be impacted; and
- Visual impacts to the cultural landscape will occur.

Archaeological sites were found to be distributed variably around the study area with more present on the dune cordon closest to the coast. The flat plains and dunes towards the east were free of archaeology, but it

should be noted that some sites were found in the eastern dune cordon further to the south of the proposed layout. The amended layout has been devised to avoid all known sites but, although the survey carried out during the EIA aimed to locate as many sites within the study area as possible, it is still possible, indeed likely, that some sites will be intersected. The number, however, should be small. The HIA recommended that a walk down survey should be done pre-construction and this is still recommended for the amended layout.


Palaeontological materials were not discovered during the EIA Phase survey but they are likely to occur beneath the surface and may be revealed during excavations for turbine foundations and/or related infrastructure. A chance finds procedure was recommended to allow for the rescuing of any fossils discovered by chance during construction and this requirement remains valid.

Although the turbines will be somewhat higher, I do not believe that this increase will result in meaningful changes to their visibility. The vast majority of the impact relates simply to the presence of turbines on the landscape and being taller will therefore make a negligible difference.

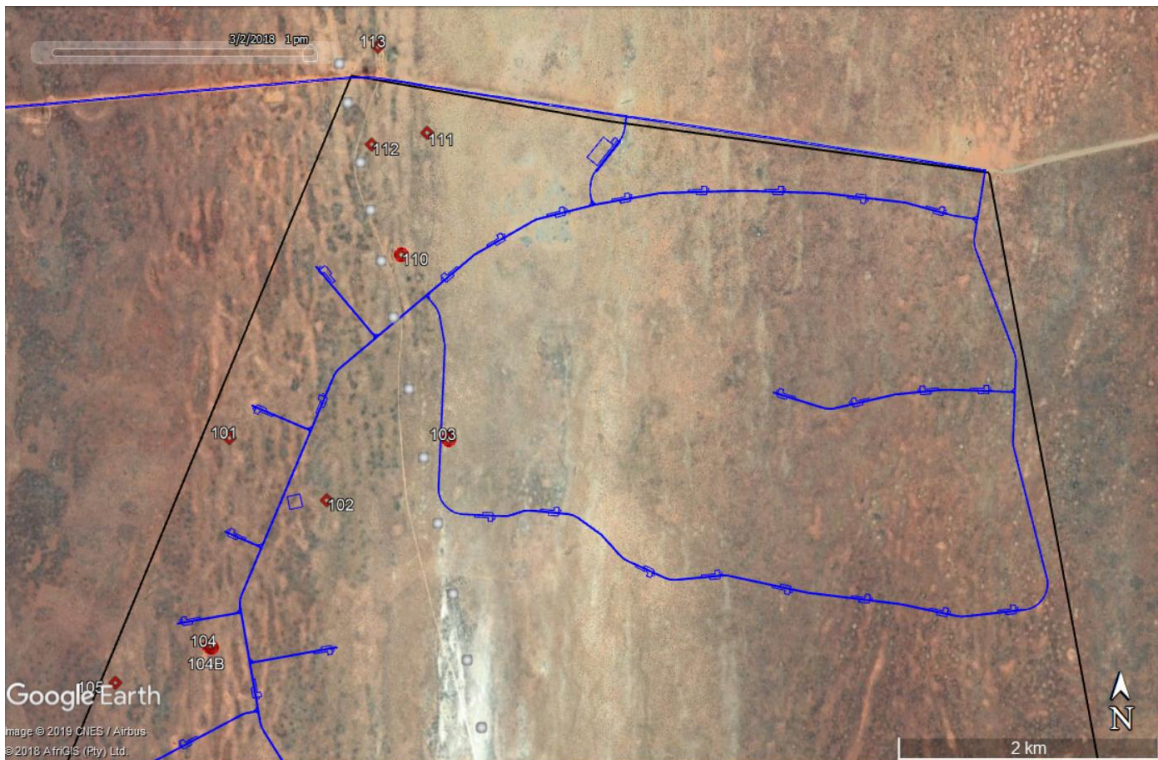
All impacts and the significance of the impacts therefore remain the same, no comparative impact assessment is required and there are no particular advantages or disadvantages of the amended layout. The recommendations also therefore remain the same and must be carried forward into the amendment authorisation should this be issued. These recommendations are as follows:

- An archaeologist should be appointed to conduct a final pre-construction survey of the approved layout at least 6 months prior to commencement of construction;
- A chance finds procedure must be implemented for the rescuing of any fossils discovered during construction;
- All work is to be carried out within the authorised construction footprint. Any new areas that may need to be disturbed must be surveyed for archaeological sites prior to disturbance;
- Where possible, built elements should be painted in a colour to match the surrounding landscape;
- Any disturbed areas not required during operation must be rehabilitated after construction; and
- If any archaeological material or human burials are uncovered during the course of development then work in the immediate area should be halted. The find would need to be reported to the heritage authorities and may require inspection by an archaeologist. Such heritage is the property of the state and may require excavation and curation in an approved institution.

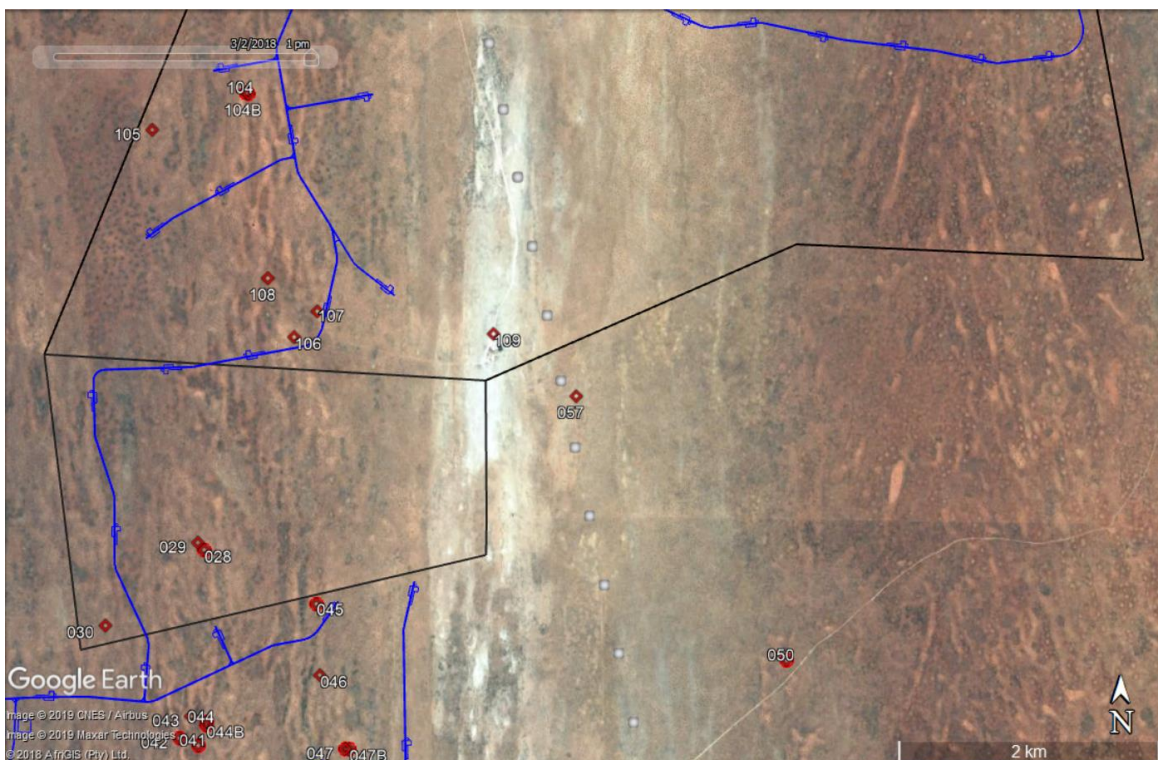
Yours sincerely



Jayson Orton



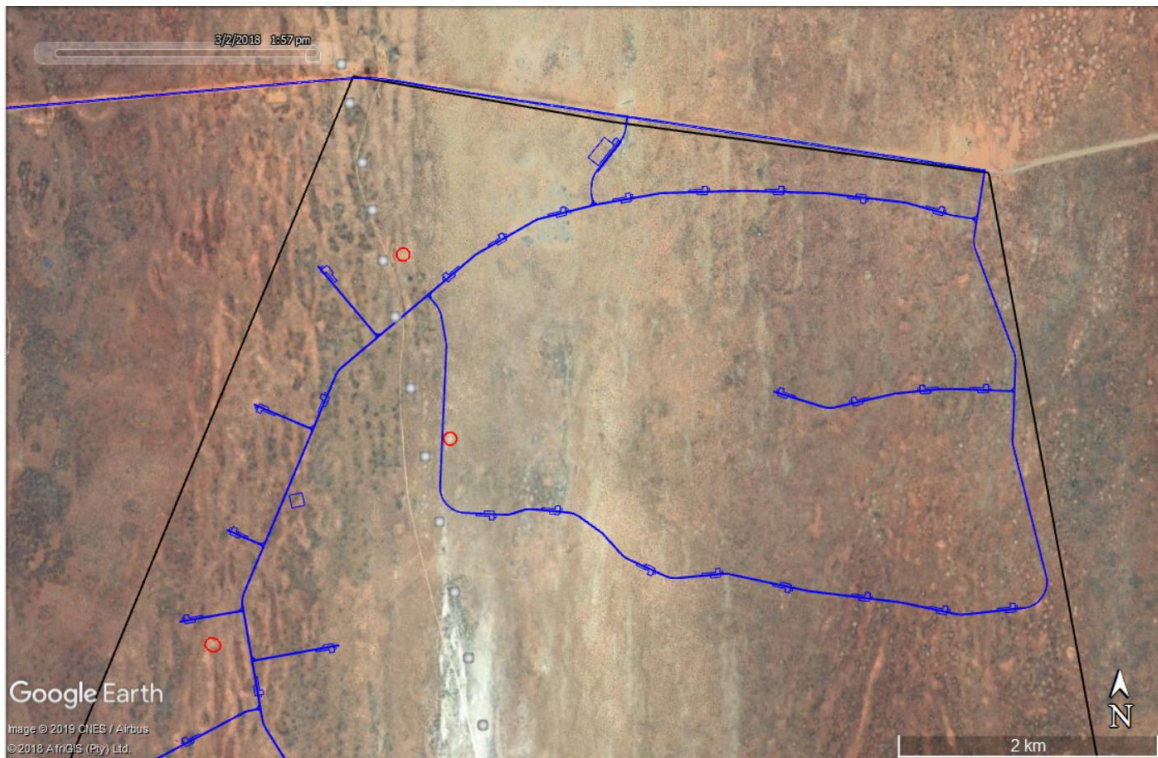
The northern portion of the Zonnequa Wind Farm showing the farm portions (black polygons), all finds (red numbered symbols) and the amended facility layout (blue lines). The white dots in the centre are a soon-to-be-constructed Eskom powerline.



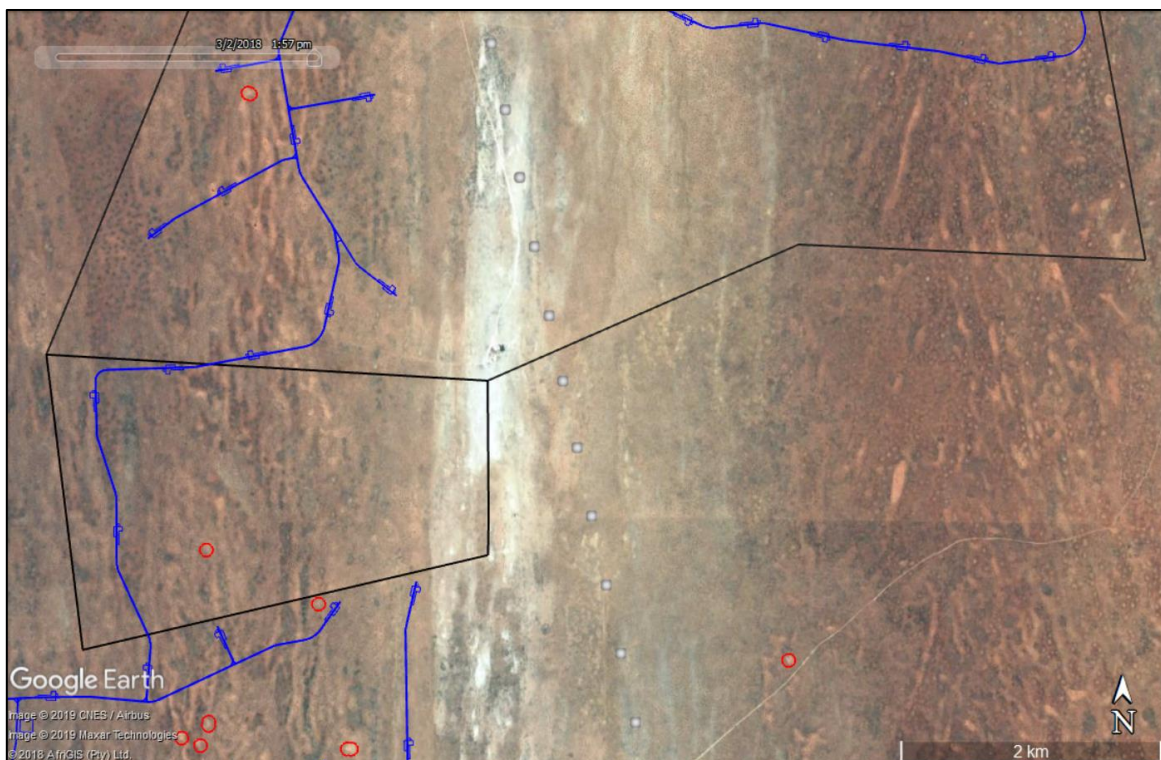
The southern portion of the Zonnequa Wind Farm showing the farm portions (black polygons), all finds (red numbered symbols) and the amended facility layout (blue lines). The white dots in the centre are a soon-to-be-constructed Eskom powerline.

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The northern portion of the Zonnequa Wind Farm showing the farm portions (black polygons), significant finds (red polygons) and the amended facility layout (blue lines). The white dots in the centre are a soon-to-be-constructed Eskom powerline.



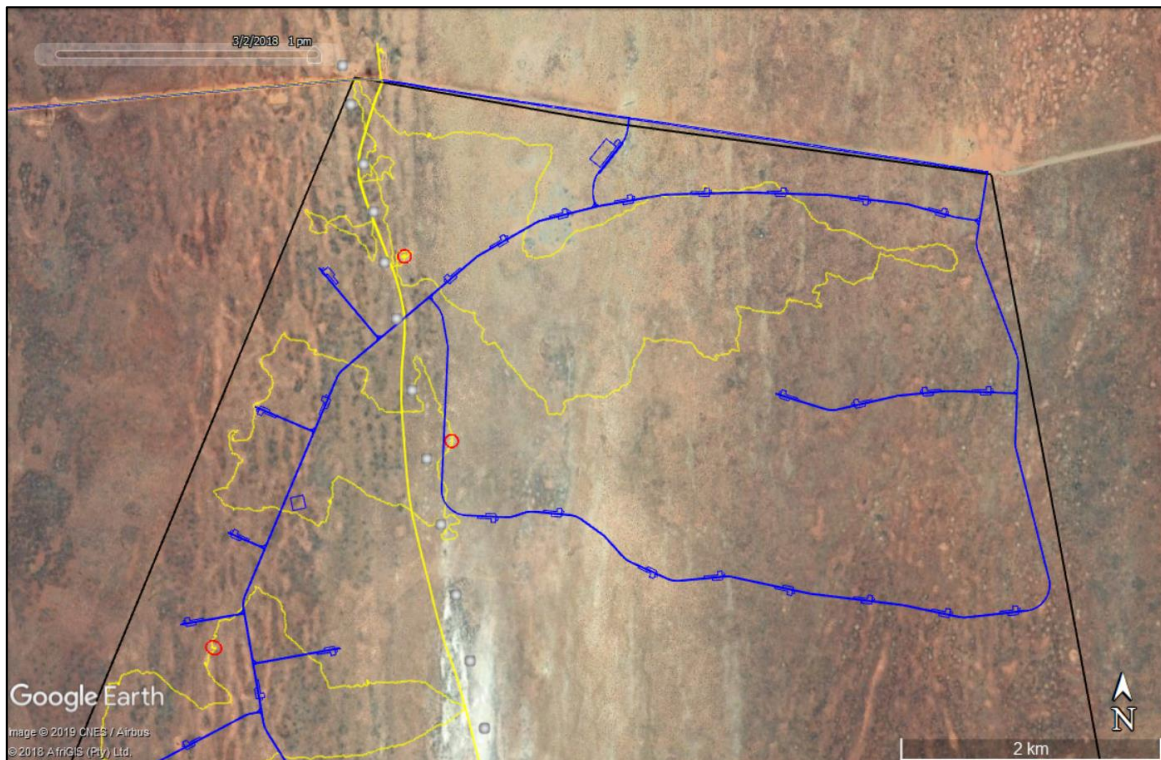
The southern portion of the Zonnequa Wind Farm showing the farm portions (black polygons), significant finds (red polygons) and the amended facility layout (blue lines). The white dots in the centre are a soon-to-be-constructed Eskom powerline.

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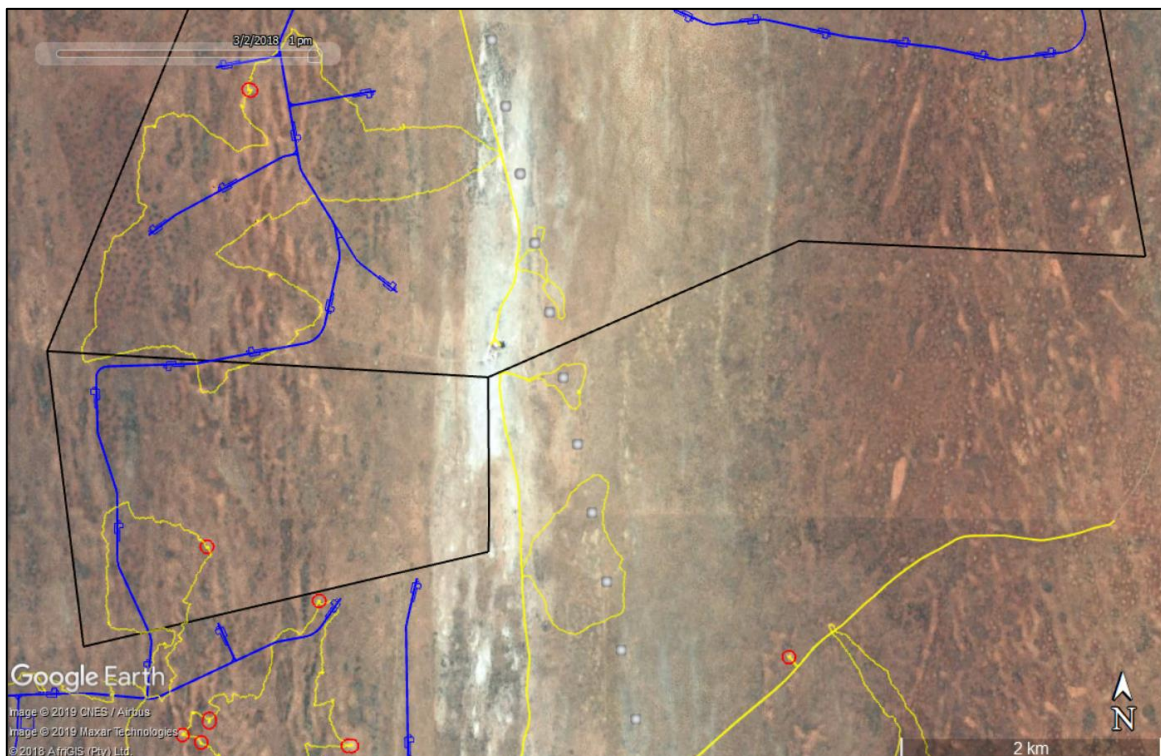
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The western portion of the Zonnequa Wind Farm showing the farm portions (black polygons), significant finds (red polygons), the EIA Phase survey tracks (yellow lines) and the amended facility layout (blue lines). The white dots in the centre are a soon-to-be-constructed Eskom powerline.



The southern portion of the Zonnequa Wind Farm showing the farm portions (black polygons), significant finds (red polygons), the EIA Phase survey tracks (yellow lines) and the amended facility layout (blue lines). The white dots in the centre are a soon-to-be-constructed Eskom powerline.

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