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Dear Stephnie

**AMENDMENT TO ENVIRONMENTAL AUTHORISATION FOR KOKERBOOM 1 WIND ENERGY FACILITY:  
HERITAGE COMMENT**

Thank you for sending the revised layout (see Figures 1 and 2 below) and project details for the proposed Kokerboom Wind Energy Facility (WEF). The following points are noted as being relevant to the present heritage comment:

- There are minor decreases in the footprint area of the proposed development with the permanent footprint (roads, turbines, etc) changing from c. 80 ha to c. 75 ha and the temporary footprint (laydown areas, etc) changing from 155 ha to 154 ha;
- The number of turbines will be reduced from a maximum of 64 to a maximum of 60<sup>1</sup>;
- Individual turbine generation capacity will change from a maximum of 4 MW to a maximum of 6.5 MW;
- Rotor diameter would increase from a maximum of 150 m to a maximum of 180 m;
- The maximum tip height would increase from 225 m to 240 m;
- The substation site has moved 850 m to the southeast to 30°28'6.42"S 19°26'15.88"E;
- The locations of the two construction camps/laydown areas to be flexible rather than fixed (but subject to the approval of the Environmental Control Officer prior to the start of construction);
- Internal construction (temporary) roads to reduce from c. 70 km to c. 65 km long (width remains approximately 20 m), while internal permanent roads to reduce from c. 70 km to c. 65 km long (width remains approximately 8 m);
- MV cabling within the facility is to be buried alongside internal roads where feasible, but with up to 32 km of overhead MV cabling to allow for the possibility of having to span ecologically sensitive areas or not being able to excavate solid bedrock areas; and
- The route of the HV powerline linking the on site substation to the Eskom switching station is altered to allow for the new substation location.

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<sup>1</sup> The actual number of turbines constructed will depend on the available turbine technology in South Africa at the specific point in time that construction commence, i.e. the larger the turbine that is utilised, the fewer turbines required. The generation capacity of the wind farm will however be capped at 256MW, as authorised by the Department of Environmental Affairs (DEA).

It is noted that the new layout respects all known heritage resources (all of them being archaeological sites). Furthermore, the palaeontological specialist study by Dr John Almond showed that the project site was of low palaeontological sensitivity and that there were no areas that required avoidance.


I have examined the new layout relative to the known archaeological resources (Figure 1). One archaeological find lies about 60 m from the power line route but is a scatter of historical ceramic fragments of very low significance and requires no mitigation. All other sites are well away from the layout. The minimum distance between significant archaeological sites and the revised layout is 400 m (Figure 2). As such, no impacts to these sites are expected at all. Because the survey aimed to visit all landscape features where archaeology would be expected and to sample the remaining parts of the landscape, a good understanding of site distribution has been gained and it is considered very unlikely that further significant resources would be present anywhere within the project site.

Visual impacts to the cultural landscape were also considered. Although the turbines would be equipped with longer blades (the hub height will remain the same), there will be slightly fewer of them. Given that the original turbine structures were already very tall, the increase in height will not make much difference. The reduction in turbine numbers is therefore considered to be a positive aspect.

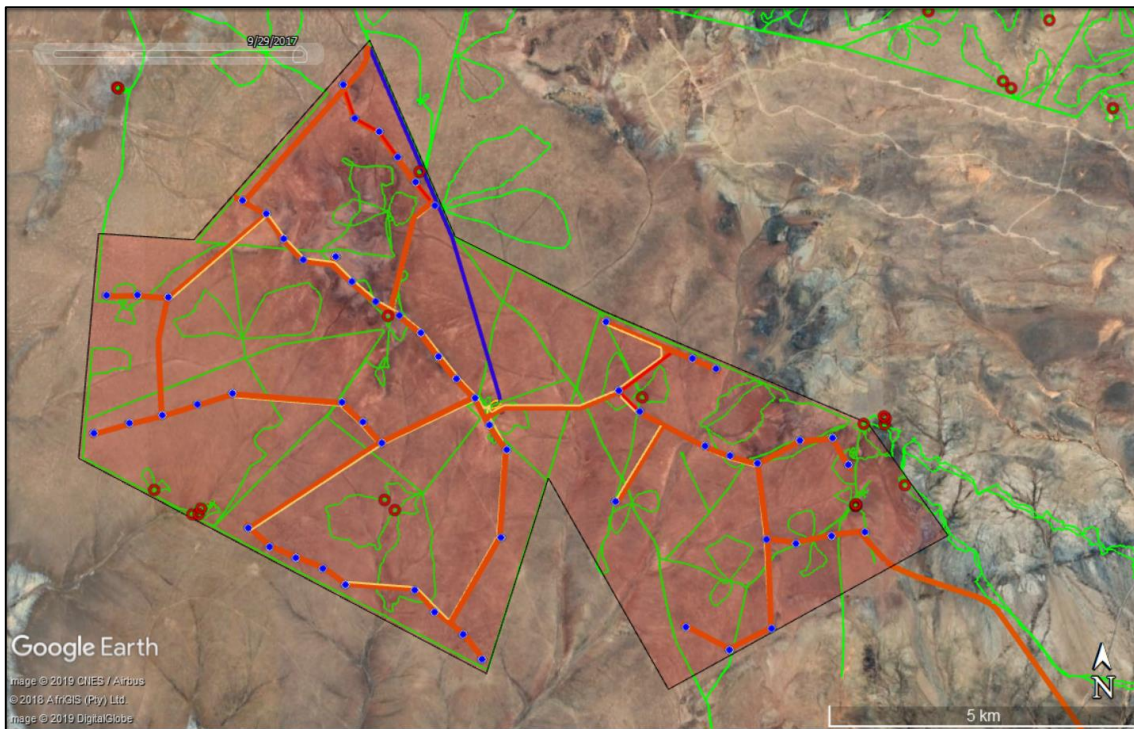
The proposed amendments will not affect the nature or significance of the impacts previously assessed. No additional fieldwork or reporting is required to assess the proposed amendments, and all mitigation measures previously recommended remain valid. I therefore support the amendment of the environmental authorisation but, once more, subject to the following conditions as contained in the original assessment:

- If there are any further changes to the layout then these should be evaluated by an archaeologist. If any mitigation becomes necessary this should be commissioned and completed before the start of construction; and
- If any archaeological material or human burials are uncovered during the course of development then the find should be protected from further disturbance and work in the immediate area should be halted if necessary. 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.

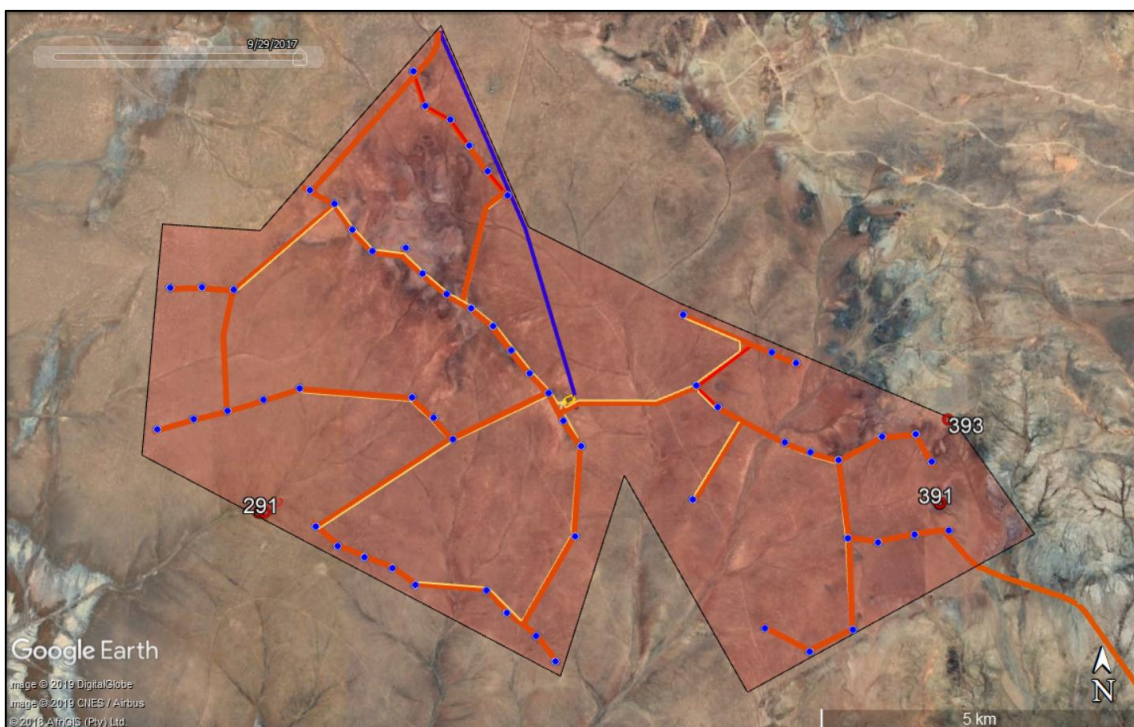
Yours sincerely



Jayson Orton



**Figure 1:** Revised layout as contemplated in the amendment application. Blue dots denote turbines, red lines are roads, orange lines are overhead MV cabling, blue line is HV power line. Heritage resources are shown by red circles and the survey tracks are in green.



**Figure 2:** Revised layout with only the significant archaeological sites shown. Note that more than one sensitive occurrence occurs at 291 and 391.