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Dear Ms Bodasing and Ms Albertyn

Project addendum: UmSinde Emoyeni Wind Farm Project, Heritage Component of EIA process

Please find enclosed my response to the proposed changes and layout for phase 1 and phase 2 of the proposed Umsinde Emoyeni wind farm project. I have replotted the baseline observations with respect to the new proposed layouts and have found that the original assessment of 2015 continues to apply with some minor changes.

Overall the new layouts are beneficial to heritage and are therefore supported. Some pre-construction mitigation will continue to be necessary which can be implemented as each phase of the project comes into play. Please find below my amendment document.

Yours sincerely

A handwritten signature in black ink that reads "TJG Hart".

Tim Hart

1 INTRODUCTION

This addendum serves to support the Heritage Impact Assessment prepared for Arcus Consulting PTY Ltd on behalf of UMSINDE EMOYENI WIND FARM PROJECT Proprietary Limited (EFWP) by Hart and Almond (2015). Since completion of the heritage impact assessment some changes have been made to phases 1 and 2 of the proposal along with access roads. The grid connections remain as before.

In summary the changes are as follows:

- The amount of turbines per phase has decreased from 98 to 35 turbines each.
- The layout has changed to suite the decreased number of turbines.
- The proposed size of the turbines is now 135 m hub height and 150 m rotor diameter.

ACO Associates CC was appointed by Arcus Consulting to assess the impact of the revised layout (Table 1) and comment accordingly, making changes to significance ratings if and where needed. The project area remains the same and the previous survey that was completed in 2014 and released in 2015 remains largely applicable as the baseline observations obtained are relevant to the entire project area and do not expire, unless massive physical and environmental change has taken place which is not the case.

Table 1 Summary Table of project description.

Facility	Footprint	Height	Comments
Total site area WEF area:	58100 ha Phase 1: 5 484ha Phase 2: 9 668ha	n/a n/a	
No. of wind turbines: Phase 1 Phase 2	4.5MW max. 35 turbines max. 35 turbines	135 m hub height 150 m rotor diameter	
Electrical turbine trans- former.	9m ² (3x3m) each turbine.	2.5 m	Colour: Off-white / grey
Turbine pad. Hardstanding area / crane pad.	Approx. 400m ² Approx. 60 x 30m	n/a n/a	Visible concrete pad after construction. Compacted gravel hardstanding.
Internal access tracks: Phase 1 Phase 2	33.65 km 29.63 km	n/a	Max. 9m wide during construction. 6m wide during operation. Gravel surface.
Electrical substation	200 x 250 m substation	Single story buildings Gantries approx. 10m	Earth-colour building and roof finish.
Wind measuring masts	5 x 80 m met masts remain on site post construction at each		Mast type: monopole or lattice with guy-lines.

	phase.		
Transmission lines: 132kV line between on-site substation and Ishwati Emoyeni WEF.	38.5km	up to 40m height.	33 or 66kV internal lines are mainly underground. Monopole or lattice pylon.
Operations and maintenance buildings (O&M building) and possible visitor/education centre.	150 x 80 m	Single story	Earth-colour plastered and painted masonry buildings or steel portal frame structures. No reflective finishes.
Fuel storage			Unknown
Security fencing	n/a	2 m	Possibly around around substation and O&M buildings.
Security Lighting Navigation lights	n/a For selected turbine nacelles as per CAA	At hub height.	At substation and O&M buildings. Flashing red light on selected turbines only (to CAA requirements).
<i>Construction Phase:</i>			
Lay down area, construction camp and batching plant	150 x 60 m (for each phase)	Single story	Temporary gravel hard standing and prefab structures. No on-site construction accommodation.
Borrow pits	Not established	n/a	From development site and/or imported from the district.

2 METHOD

This addendum is entirely based on the 2015 observations of heritage sites in the area (palaeontology, archaeology, built environment and cultural landscape). No additional fieldwork has been included. The method of recording and the kind of heritage assessed meets the current requirements of the National Heritage Resources Act 25 of 1999.

The proposal for both Phases 1 and 2 of the proposed UmSinde Emoyeni Wind Energy Facility has undergone some changes, particularly with respect to the location and number of turbines per phase when contrasted with that which was assessed in 2014 – 015.

These changes are perceived as positive for potentially lessening heritage impacts for the following reasons.

There does; however remain the possibilities of impacts to prehistoric and historic rock engravings which occur in the area. Finding engravings on the dolerite boulders (which can occur as single outcrops or mazes) has to be done carefully on foot. There is no easy way to find them other than by checking every boulder outcrop, which in a project area of this size is a significant task. This heritage can be exceptionally ancient and can be very highly significant. The access road system will remain a possible source of impact as it will be necessary to displace boulders, or even break them to clear the way.

Mitigation

The recommendation in the 2014 Heritage Impact Assessment remains relevant in that it will be necessary for an archaeologist to check final road and turbine sites so that rock engravings can be identified, photographed and moved before they are damaged or destroyed.

3.3 Colonial period heritage (built environment)

It is noted that the placement of turbines, both for phase 1 and 2 on the highest areas of the project area has reduced the impact, especially in the southern areas. It is here where the majority of historic structures are situated. This will go further in terms of minimising impacts to sense of place and context and as such is supported. Hence the impact tables for cultural landscape as well as built environment have been adjusted to accommodate this decreased impact.

Nature of impacts: Historic structures are sensitive to physical damage such as demolition as well as neglect. They are also context sensitive in that changes to the surrounding landscape will affect their significance.

Extent of Impacts: Direct impacts are not expected. Some visual impacts in terms of Karoo context are expected.

Significance of impacts: Given that there are no structures or historical sites that will be affected by Phase 1 of UmSinde Emoyeni physical impacts will be low, but impacts to context at some sites will be medium significance..

Status of impacts: Within the boundaries of the proposed wind energy facility, impacts are considered to be low negative.

Table 2 Revised table for impacts to colonial period heritage.

	<i>Extens</i>	<i>Intensit</i>	<i>Duratio</i>	<i>Consequenc</i>	<i>Probabilit</i>	<i>Significanc</i>	<i>Statu</i>	<i>Confidenc</i>
Without mitigation	Local 1	Low 1	Long-term 3	Medium 4	Possible	Medium	- ve	High
<p>Essential mitigation measures:</p> <ul style="list-style-type: none"> No essential mitigation measures are suggested. <p>Best practice mitigation measures</p> <ul style="list-style-type: none"> Re-use and sensitive repair of abandoned farm houses would make a positive contribution to heritage conservation. Refurbishment should be done under the advice of a heritage architect/consultant. 								

With mitigation	Local 1	Low 2	Long-term 3	Medium 5	Probable	Medium	+ve	High
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3.4 Landscape and setting

The renewed placement of turbines for phases 1 and 2 has assisted in further relieving the cultural landscape impacts associated with a number of historical farmsteads in the area. The infrastructure is confined to the more remote and inhospitable parts of the project area with the result that visual and contextual impacts to historic farmsteads are further reduced.

Nature of impacts: Cultural landscapes are highly sensitive to accumulative impacts and large scale development activities that change the character and public memory of a place. In terms of the National Heritage Resources Act, a cultural landscape may also include a natural landscape of high rarity value, aesthetic and scientific significance. The construction of a large facility can result in changes to the overall sense of place of a locality, if not a region. There will be high visibility of some turbines for a distance along local roads. A tangible change to sense of place will be experienced by farmer and road user however the impact will be reduced due to the lower number of turbines proposed. Major visual impacts to the R63 are avoided.

Extent of impacts: Wind Turbines are without doubt conspicuous structures which will affect the atmosphere of the “place”. While this impact may be considered local in terms of physical extent, there may be wider implications in terms of the change in “identity” of the area and the accumulative effect this could have on future tourism potential. The impact of the proposed activity will be local.

Significance of impacts: The impact of the proposed activity is medium without mitigation.

Status of impacts: The status of the impact is negative.

Table 3 Summary of impacts - landscape and setting.

	<i>Extent</i>	<i>Intensity</i>	<i>Duration</i>	<i>Consequence</i>	<i>Probability</i>	<i>Significance</i>	<i>Status</i>	<i>Confidence</i>
Without mitigation	Local 1	Medium 2	Long-term 3	Medium 6	Likely	Medium	- ve	High
Essential mitigation measures:								
<ul style="list-style-type: none"> Mitigation very difficult to achieve, however recommendations of the VIA apply. 								
With mitigation	Local 1	Low 2	Long-term 3	Medium 6	Likely	Medium	-ve	High

4 CONCLUSION

While the recommendations of Almond (2015) and Hart (2015) continue to be supported, indications are that the proponent has responded to the EIA of 2015 with the result that mitigation is less onerous and the proposed activity in its present form is acceptable.

References

Hart, TJG. and Almond, J. 2015. Heritage Impact Assessment for the proposed UmSinde Emoyeni wind energy facility. Report prepared by ACP Associates CC for Arcus Consulting Ltd.