Archaeological Impact Assessment of the Proposed AB's Wind Energy Facility near Indwe, Eastern Province

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Report prepared for Savannah Environmental (Pty) Ltd

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EXECUTIVE SUMMARY

Instructions were given by Savannah Environmental (PTY) Ltd for an Archaeological Impact Assessment of a proposed wind energy facility some 12 km east of Indwe in the Eastern Cape.

This study followed an initial desktop survey by eThembeni Cultural Heritage, who noted that no previous archaeological work had been reported from this area.

The method used in this survey was to walk on roads and areas which were free of grass cover. Only in such localities were archaeological residues visible.

The results of the foot survey showed that isolated artifacts were scattered across the landscape. In three instances groups of artifacts were in close proximity to each other, however, these would be very difficult to assume were from a single occupational event due to the disturbed nature of the locality.

Conclusions reached are that although a prehistoric presence can be recognised on the landscape, this tends to be in the form of isolated pieces, and the proposed wind facility will have a low impact on the heritage.

The recommendations are, that in order to minimise any impact on the cultural landscape, existing roads need to be upgraded as far as possible where heavy equipment will be used to install the turbine towers and other infrastructure. Ditches for laying underground cables should also be lain under access roads as far as possible.

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1. INTRODUCTION

Instructions were given by Savannah Environmental (Pty) Ltd for the undertaking of an Archaeological Impact Assessment of a proposed wind facility on the outskirts of Indwe in the Eastern Cape, to be known as AB'S Wind Energy Facility (Fig. 1).

Because wind farms are relatively new on the South African landscape, there is still a degree of novelty attached to them, especially during this period of an energy crunch, and the desire to find alternative energy sources. This means the procedures attached to their development are still being worked out, particularly with respect to their effect on the cultural landscape.

An initial scoping (desktop) survey had originally been undertaken by eThembeni Cultural Heritage in which it is noted that no archaeological study had been done in this area. Thus the fieldwork proposed would be completely new, and would necessitate writing on a 'blank slate'.

Fieldwork, in the form of a foot survey, was done over the 26th and 27th July. This was facilitated by meeting with the owner of the property Devon Bank, Craig Fitzhenry, as well as Luke Callcott-Stevens, Director of Business Development of the company who will develop the facility, Rainmaker Energy. This allowed me the opportunity to discuss the project and issues of windpower face-to-face; at least as far as my brief of an archaeological impact assessment was concerned.

Mr Fitzhenry showed me a borrow-pit (Fig. 2) he had dug to provide material for his access road. From this exposure I was able to see that nature of the deposit below the grass cover. The borrow-pit was also a good start for looking for *in situ* archaeological material. As it turned out, only one piece was found on the edge, and this piece may not have originally been in the deposit removed from the borrow-pit.

Figure 2: Borrow pit

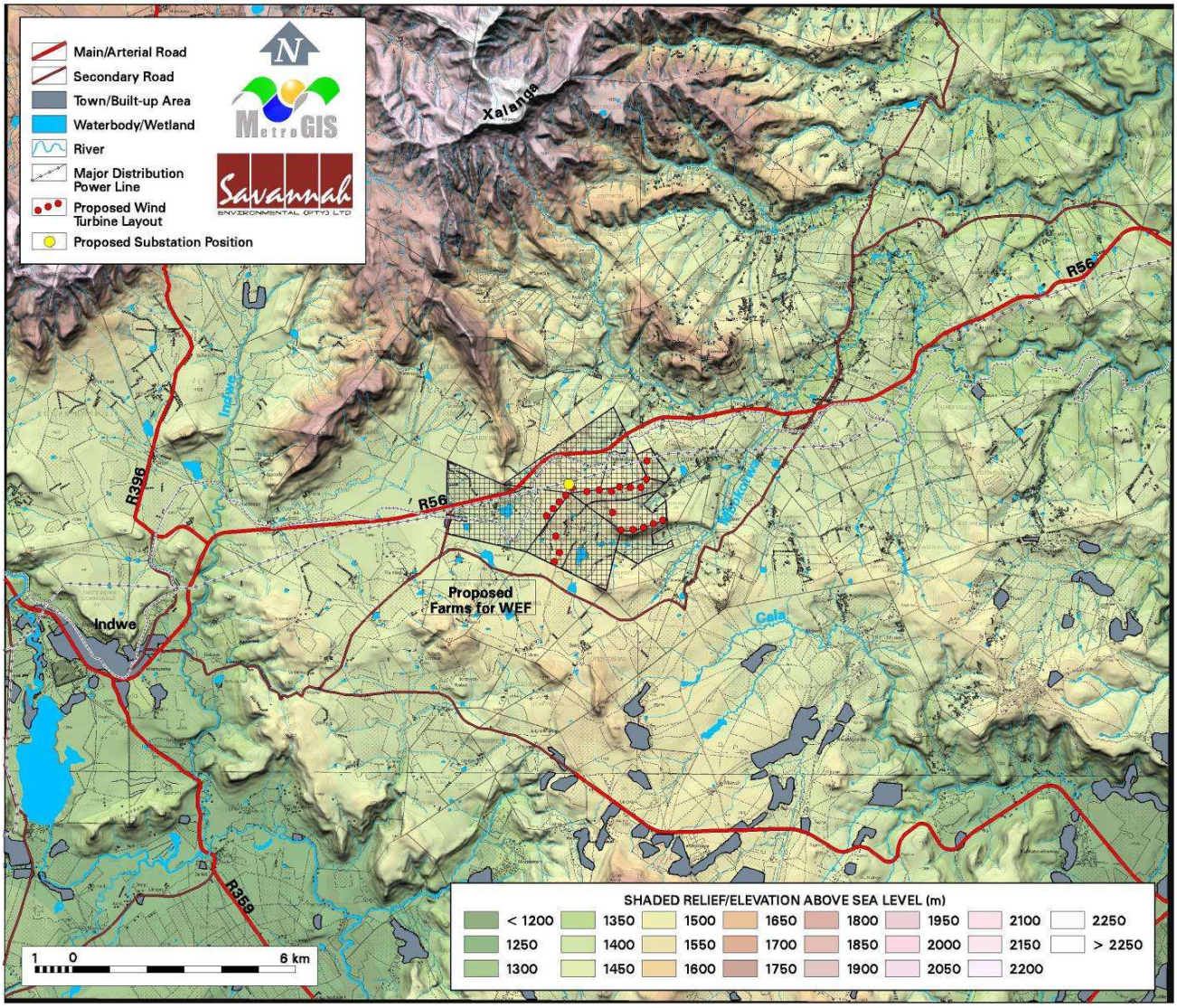


Figure 1: Map showing proposed wind energy facility near Indwe

2. METHODOLOGY

Since the information given by Savannah Environmental of where the turbines would be located inevitably was going to be a first approximation, the method of survey was to walk the proposed alignment of the turbines, and to use existing roads where possible. By definition, roads had been graded down through the grass cover to the hard impermeable layer on which archaeological residues could be seen.

The proposed alignment of the wind turbines followed the fence line from where the access road reached the top of the hill and where a proposed substation would be built (Fig. 3), so it was easy to navigate the main direction the turbine layout would take.

Figure 3: View from top of ridge where substation proposed

To the west, the fence was followed (Fig. 4), and any time an artifact was seen it was described in the field notebook, given a GPS reading, and usually photographed. Nothing was collected. On this western side the main exposures were under wattle trees where livestock had degraded the grass cover (Fig. 5), and artifacts were exposed (Fig. 6). Fortuitously, the road paralleled the fence to the east, and this made observation easier (Fig. 7).

The parallel alignment on the opposite hill to the south (Figs. 8 & 9), however, did not have such neat exposure, and though the grassland was walked no archaeological residues were seen.

Figure 4: View along fence line looking west to wattle trees where turbines to be fixed

Figure 5: Cllear area under wattle trees

Figure 6: MSA tools found under wattle trees

Figure 7: View to east along fence line along which turbines will run

Figure 8: Skyline of 2nd ridge

Figure 9: Fence line looking west on 2nd ridge

3. RESULTS

Table 1 shows coordinates for archaeological material noted in the survey. As can be seen, there are numerous isolated stone tools, as well as some scattered groupings. One grouping was seen beneath the wattle trees (site 8. Since livestock had been sheltering under these trees, all the stone artifacts had been disturbed). The nature of the disturbance made it difficult to assume this was a single episode site.

Another such scatter was seen on the road on the east side of the access road (site 12). Again, dispersed nature of the tools would argue against assuming a single occupation horizon.

GPS Reading	Archaeological material
Site 1: 31° 25.997S: 27° 28.807E	Borrow pit
Site 2: 31° 26.034S: 27° 28.793E	Isolated MSA flake
Site 3: 31° 25.986S: 27° 23.819E	Isolated MSA? flake
Site 4: 31° 25.942S: 27° 28.825E	Isolated stone flake
Site 5: 31° 25.993S: 27° 28.822E	Isolated stone flake
Site 6: 31° 26.012S: 27° 28.802E	Isolated quartzite flake/core
Site 7: 31° 26.099S: 27° 28.653E	Isolated quartzite flake
Site 8: 31° 26.109S: 27° 28.658E	scattered flakes, core & scraper
Site 9: 31° 26.141S: 27° 28.610E	Isolated MSA core
Site 10: 31° 26.186S: 27° 23.598E	Isolated MSA core & flake
Site 11: 31° 26.256S: 27° 28.538E	Scattered stone pieces across 30msq area
Site 12: 31° 25.938S: 27° 29.013E	Scattered MSA flakes + ESA handaxe
Site 13: 31° 25.920S: 27° 29.047E	Isolated ESA handaxe
Site 14: 31° 25.919S: 27° 29.106E	Isolated MSA flake
Site 15: 31° 25.918S: 27° 29.159E	3 isolated MSA? Core tools
Site 16: 31° 25.909S: 27° 29.214E	Isolated MSA flake
Site 17: 31° 25.905S: 27° 29.257E	Isolated flake
Site 18: 31° 25.906S: 27° 29.273E	Isolated MSA flake
Site 19: 31° 25.915S: 27° 29.427E	Isolated flake
Site 20: 31° 25.925S: 27° 29.515E	Isolated flake
Site 21: 31° 25.911S: 27° 29.633E	Isolated small chert tool + 3 MSA flakes
Site 22: 31° 25.892S: 27° 29.652E	Isolated MSA blade
Site 23: 31° 25.951S: 27° 28.983E	Isolated MSA flake

Table 1: Location of stone tools seen in survey

4. SUMMARY AND CONCLUSIONS

Taking Hart & Webley (2010) as a baseline for discussion on 'wind farms', this study shows little departure from what they found in the Cookhouse area. There is a general scatter of mostly Middle Stone Age (and less Early Stone Age) stone tools across the landscape. In places, these are more numerous, but can hardly be called dense concentrations.

Even the relatively large scatters, with tools in close proximity, would be hard to define as single episode sites. Given that the main observations were on open areas devoid of vegetation, such as roads, which made the tools visible, the grading of such roads would inevitably have meant that tools had already been moved from their original place.

The paucity of later material is somewhat surprising, and few small artefacts in fine-grained raw materials were seen. No pottery was noted, nor were any historical structures found.

Thus, the archaeological residues were limited to isolated and scattered ESA and MSA stone tools.

5. RECOMMENDATIONS

Taking into account the provisos laid down by Hart & Webley (2010), namely:

1. Turbines must be positioned in such a way that they are at least 500m away from farm complexes, most of which have a moderate degree of heritage significance.
2. Guarantees for demolition of turbines after their useful life must be in place as a condition of approval
3. Road alignments must be planned in such a way that the minimum of cut and fill iperations are required
4. Existing farms tracks must be re-used or upgraded to minimise the amount of change to un-transformed landscape
5. In general terms, construction of turbines and roads in valley bottoms should be kept to a minimum
6. During the detailed planning phase, drawings of proposed road alignments, infrastructure and near-final turbine positions should be submitted to an archaeologist for review and field-proofing. Micro-adjustment of alignments and turbine positions is likely to be sufficient to achieve adequate mitigation.

The results of this survey suggest that the infrastructure for the deployment of equipment to raise the turbine towers and to lay the footings holding the towers in place should have little impact on the archaeological material. Elsewhere, Halkett & Webley (2009) have noted "that

archaeological sites are very sparse on the landscape" in the Cookhouse area. The same could be said for this study, and what was found at Indwe was of low significance.

Since observation was restricted to those areas cleared of grass cover, it is recommended, however, in order to minimise any disturbance to possible archaeological sites, that the existing roads should be upgraded as far as possible, rather than creating new roads, and ditches for laying cables should follow these roads.

Nature	Potential impacts on archaeological recources	
	Without mitigation	With mitigation
Extent	Medium-low (2)	Low (1)
Duration	Short term (1)	Short term (1)
Magnitude	Low (1)	Low (1)
Probability	Probable (1)	Probable (1)
Significance	**30 (medium-low)**	**20 (low)**
Status	Negative	Negative
Reversibility	Low	Low
Irreplaceable loss	Yes	Yes
Mitigation	None needed	
Cumulative impacts	Low	
Residual impacts	Low	

Table 2: EMP Table

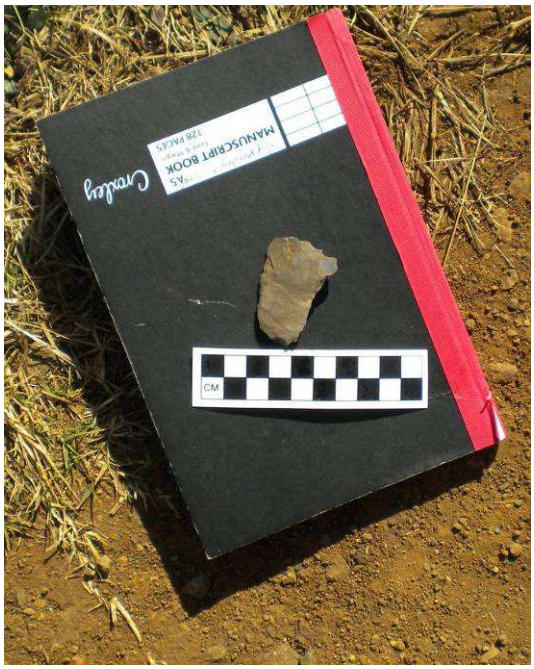
Project components	Heritage/archaeology
Potential impact	Disturbance of archaeological sites
Activity/risk source	Digging footings for turbines, widening roads
Mitigation	None needed
Mitigation action	None needed
Performance indicator	n/a
Monitoring	n/a

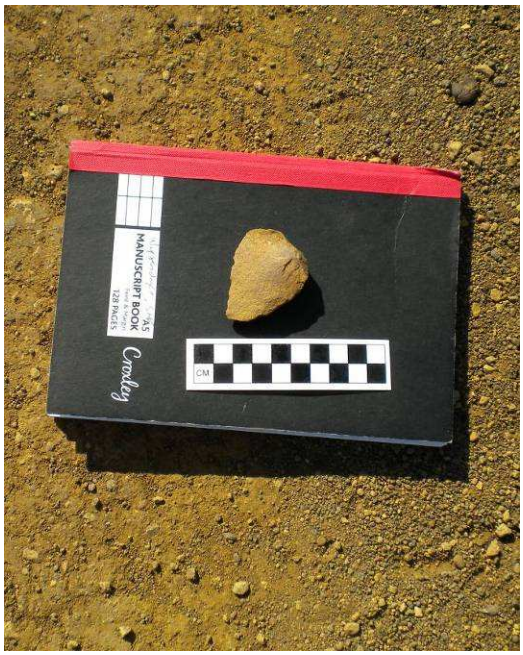
6. REFERENCES

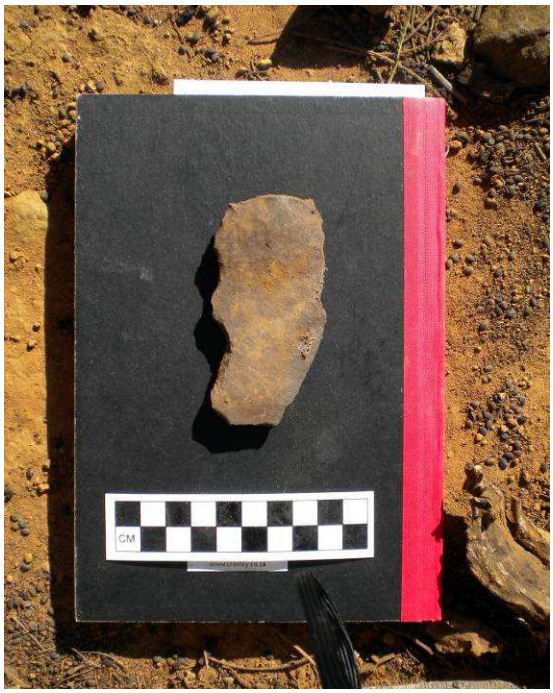
Halkett, D. & Webley, L.E. (2009). Scoping Heritage Impact Assessment of a proposed Wind Energy Facility to be situated on portions of farms Arolsen 69, etc. In the Cookhouse District, Eastern Cape. Unpublished report prepared for Savannah Environmental (PTY) Ltd by ACO Associates, Cape Town.

Hart, T. & Webley, L.E. (2010). Heritage Impact Assessment Proposed Cookhouse Wind Energy Project, Blue Crane Route Local Municipality. Unpublished report prepared by ACO Associates, Cape Town.

7. APPENDIX: Gallery of stone artifacts identified during survey





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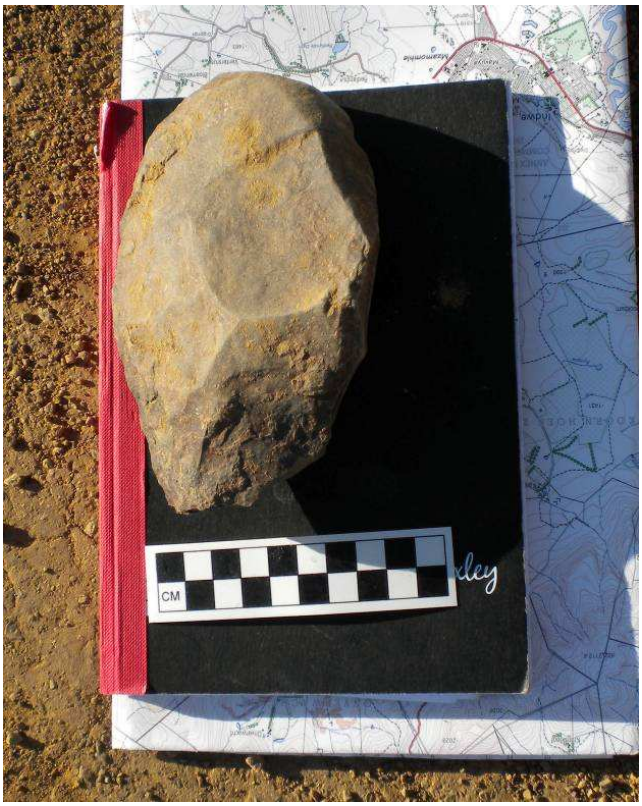
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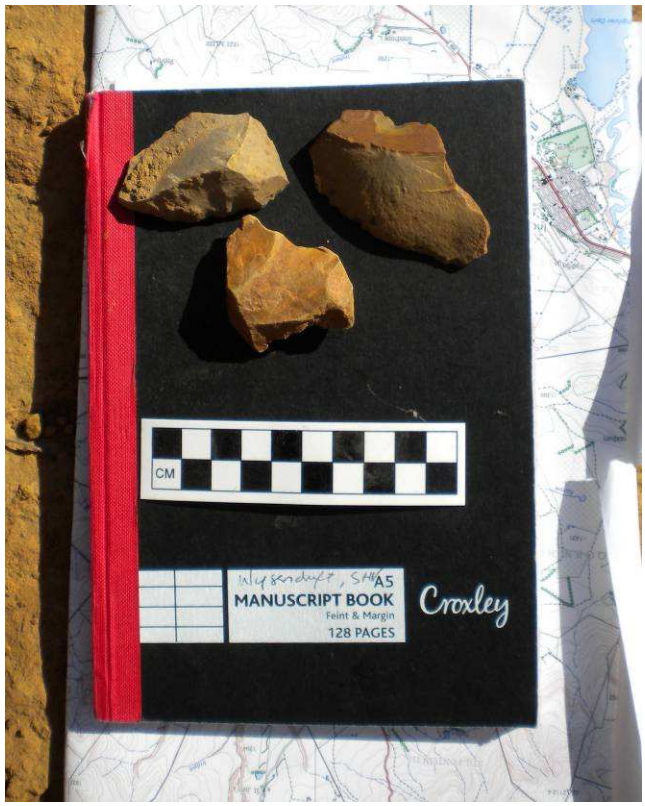
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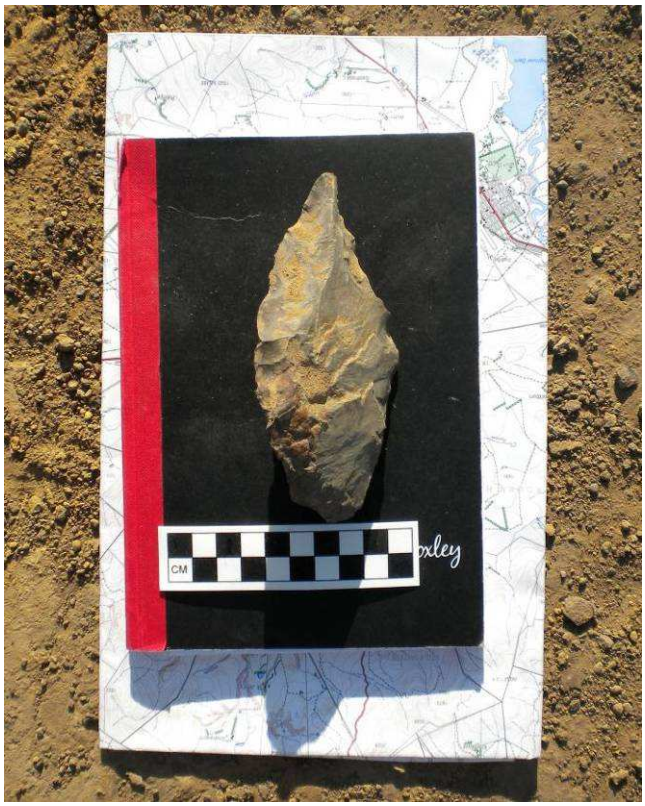
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