AN ARCHAEOLOGICAL WALKTHROUGH SURVEY OF THE FINAL OPTIMISED LAYOUT OF THE AUTHORISED NXUBA WIND FARM NEAR COOKHOUSE, BLUE CRANE ROUTE LOCAL MUNICIPALITY, SARAH BAARTMAN DISTRICT MUNICIPALITY, EASTERN CAPE PROVINCE.

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Note: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency for compiling Archaeological Phase 1 Impact Assessment (AIA) reports and forms part of an Environmental Impact Assessment.

EXECUTIVE SUMMARY

Savannah Environmental (Pty) Ltd on behalf of Nxuba Wind farm (RF) (Pty) Ltd. appointed Eastern Cape Heritage Consultants to conduct an archaeological walkthrough survey of the final optimised layout of the turbine positions and associated infrastructure for the authorised Nxuba Wind Farm. The wind farm will comprise of 47 wind turbines and associated infrastructure with a proposed total generating capacity of up to 140 MW. An on-site substation as well as a new section of 132KV overhead power line feeding into the Poseidon Substation will be constructed.

The walkthrough was conducted to establish the range and importance of possible exposed and *in situ* archaeological heritage remains and features, the potential impact of the development on the aforementioned, and to make recommendations to minimise possible damage to these sites/materials.

The general landscape comprises a gentle undulating hill landscape, lowlands and non-perennial open valley drainage lines well-covered with dense grass and small trees and shrubs in places. The section north and northeast of the Poseidon Substation consists of more pronounced hills with steeper gradients. The dense grass cover impeded the archaeological visibility and made it difficult to locate sites/materials. Only a few isolated weathered Middle Stone Age stone tools were observed during the walkthrough. These stone tools were in secondary contexts and of **low** archaeological significance.

It is recommended that the construction managers/Environmental Control Officer (ECO)/Environmental Officer (EO) should be informed before construction starts on the possible types of heritage sites/materials they may encounter and the procedures to follow when they find sites. Should any archaeological material be exposed during construction, all work must cease in the immediate area and reported to the archaeologist at the Albany

Museum in Grahamstown (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 6422811), so that a systematic and professional investigation can be undertaken. In general the proposed layout zones/ project layout are of **low** archaeological significance and the construction activities will have little impact on possible archaeological sites/material, but will contribute to a larger negative cumulative visual impact on the cultural landscape.

BRIEF PROJECT INFORMATION

Background to the study

ACED Bedford Wind Farm (Pty) Ltd obtained an Environmental Authorisation in March 2012 from the National Department of Environmental Affairs (DEA) for the construction of a wind energy facility and associated infrastructure on a site near Cookhouse in the Eastern Cape Province (DEA Ref No. 12/12/20/1569/2).

Great Fish River Wind Farm (Pty) Ltd also obtained an Environmental Authorisation in February 2012 from the National DEA for the construction of a wind energy facility and associated infrastructure on a site near Cookhouse in the Eastern Cape Province (DEA Ref No. 12/12/20/2290). Based on technical aspects and location of the two above-mentioned projects, being located adjacent to each other, it was determined that the two project will be more energy efficient when combined. Combining the two projects also resulted in optimisation, both from a commercial as well as an environmental point of view due it being possible to share some infrastructure. The combined projects will be developed by Nxuba Wind Farm (Pty) Ltd and will be referred to as Nxuba Wind Farm (Maps 1-2). Nxuba Wind Farm has been awarded Preferred Bidder status within the Renewable Energy Independent Power Producer Process (REIPPP) Bid Window 4.

A phase 1 archaeological impact assessments and report was compiled for the Nxuba Wind Farm siteduring 2011 (Booth 2011). Several other phase 1 archaeological and heritage impact assessments have also been conducted inadjacent areas (Webley *et al.* 2009; Hart and Webley 2010; Halkett *et al.* 2010; Booth, C. 2011; Gaigher 2012; Binneman 2012a & b, 2013, 2014). All background and heritage information are included in these reports and will not be repeated here in any detail.

Type of development

The Nxuba Wind Farm will consist of 47 turbines with a capacity of up to 140 MW within an area of approximately 5 733 hectares (Maps 1-2). The associated infrastructure required for the facility will include concrete foundations to support the turbine towers, and crane hardstand areas (which will also double-up as lay down areas) next to each turbine. Cabling between the turbines will be lain underground where practical. An on-site substation (of up to 120 x 120 metres) and a new section of a 132kV overhead power line feeding into the Poseidon Substation will be constructed. Other associated infrastructure will include administration facilities, storage facilities, internal access roads to each turbine (3-5 metres wide) and turn-around areas.

Purpose of the walkthrough

The purpose of the study was to conduct an archaeological walkthrough survey of the final layout of the turbine positions and associated infrastructure of the proposed Nxuba Wind Farm near Cookhouse, Blue Crane Route Local Municipality, Eastern Cape Province,in order to establish;

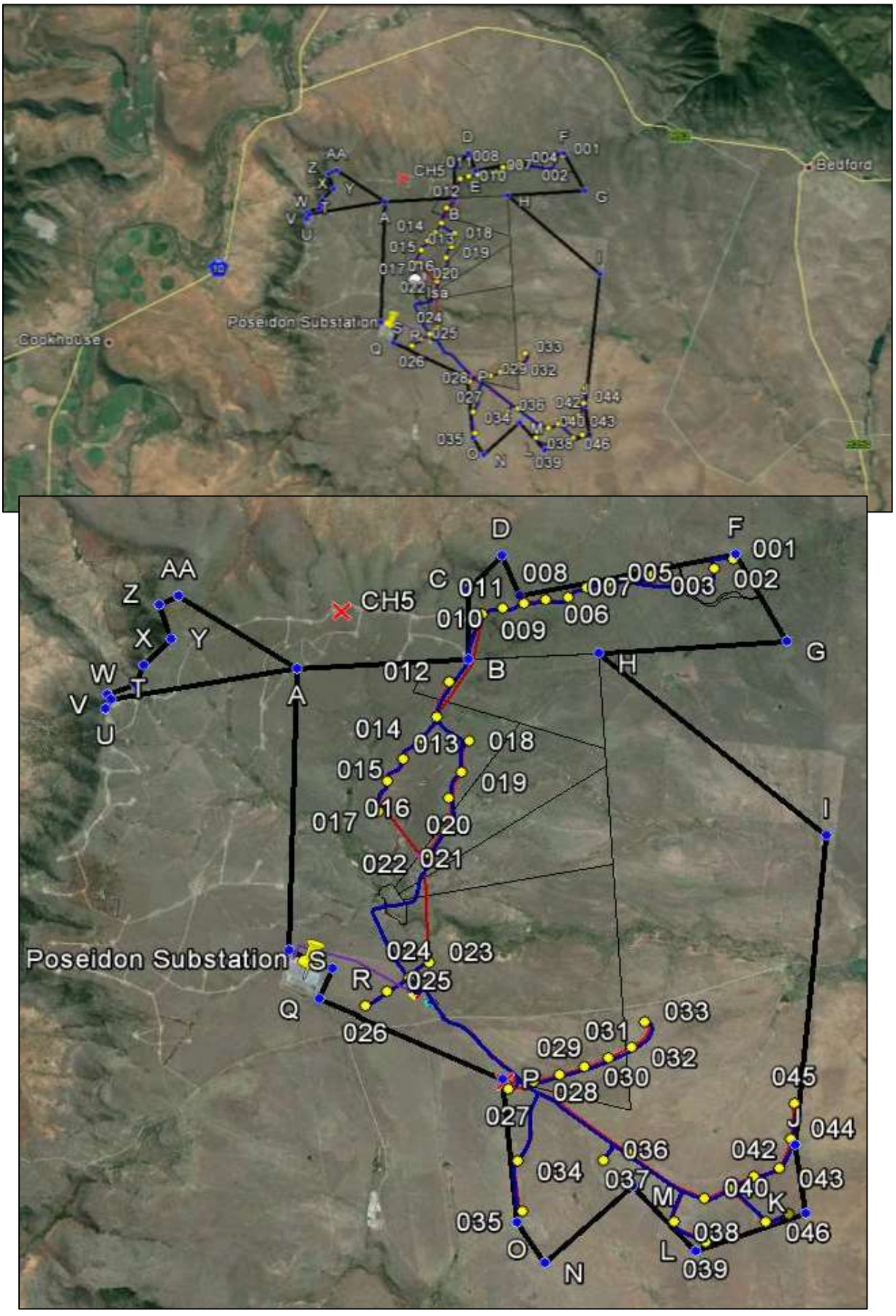
- the range and importance of possible exposed and *in situ* heritage remains and features within the servitude of the proposed development;
- the potential impact of the developments on these heritage resources; and
- to make recommendations to minimise possible damage to these heritage sites/materials.

The site and location

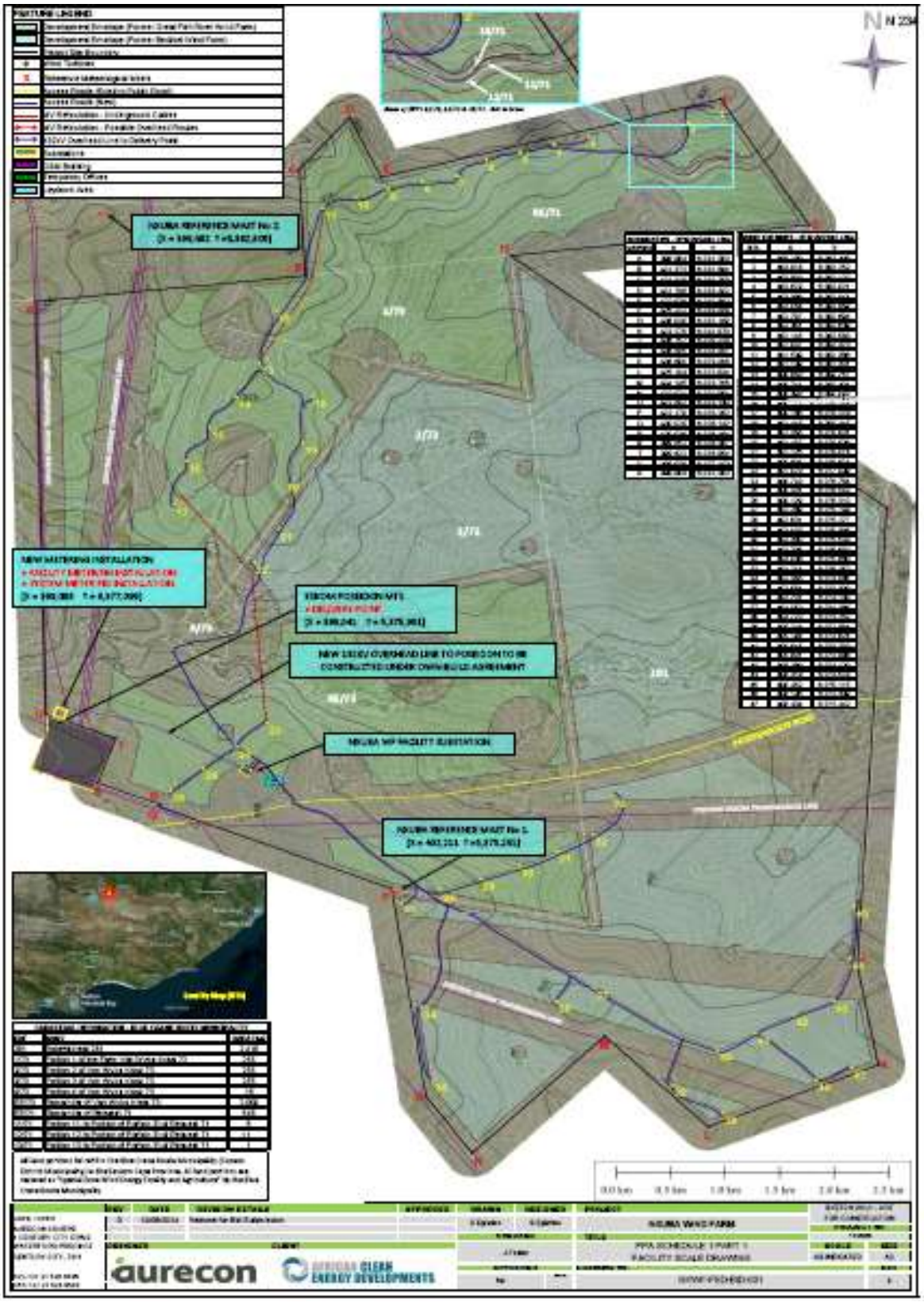
The proposed Nxuba Wind Farm site near Cookhouse is located within the 1:50 000 topographic reference maps 3225DB Cookhouse, 3225DD Golden Valley, 3226CA Bedford and 3226CC Herbert's Hope. It falls within the Blue Crane Route Local Municipality and Sarah Baartman District Municipality of the Eastern Cape Province and is situated approximately 12 kilometres east to southeast of Cookhouse and about 10 kilometres west to southwest of Bedford (Map 1). The site is located north and south of the gravel road between Cookhouse and Bedford which also runs pass the Poseidon Substation. The wind farm will be constructed on the following farms:

- Remainder Extent of the Farm Request 71;
- Portion 11 of the Farm Request 71;
- Portion 12 of the Farm Request 71;
- Portion 13 of the Farm Request 71;
- Remainder of the Farm Van Wyks Kraal 73;
- Portion 1 of the Farm Van Wyks Kraal 73;
- portion 2 of the Farm Van Wyks Kraal 73;
- Portion 3 of the Farm Van Wyks Kraal 73;
- Portion 4 of the Farm Van Wyks Kraal 73.
- Roberts Kraal 281;

The proposed area for development is situated close to the edge (western side) of a raised plateau overlooking the Great Fish River Valley. The edge of the plateau is steep in the north, but less pronounced towards the south. The general landscape towards the east and south comprises a gentle undulating hill landscape, lowlands and non-perennial open valley drainage lines. The section north and northeast of the Poseidon Substation has more pronounced hills with steeper gradients. No perennial rivers traverse the study area. The major rivers occur many kilometres to the north, east (Great Fish River) and west (Sunday's River). The dominant natural vegetation is grassland, small, low shrubs in places and patches of *Acacia karroo* in the drainage valleys. The main activity in the study area is commercial stock farming and the land is used for grazing of livestock.



Map 1. Aerial images indicating the location of the Nxuba Wind Farm between Cookhouse and Bedford, the layout of the turbine positions, cable connections and access roads. (layout information courtesy of Savannah Environmental (Pty) Ltd).



Map 2. 1:50 000 Topographic map indicating the layout of the turbine positions cable connections and access roads (maps courtesy of Savannah Environmental (Pty) Ltd).

Archaeological background

The archaeology and history of the area have been address in several reports and will not be repeated here again (see relevant impact assessment reports below).

Selected impact assessments for the immediate area

Binneman, J. 2014. An archaeological walkthrough survey of the final layout of the proposed Nojoli Wind Energy Facility near Cookhouse, Blue Crane Route Local Municipality, Bedford District, Eastern Cape Province. Prepared for Savannah Environmental Ltd. (Pty). Eastern Cape Heritage Consultants.

Binneman, J. 2013. A phase 1 archaeological impact assessments of the proposed new substation and 132kv power line at the Cookhouse South Wind Farm near Cookhouse, Blue Crane Route Local Municipality, Bedford District, Eastern Cape Province. Prepared for Savannah Environmental Ltd. (Pty). Eastern Cape Heritage Consultants.

Binneman, J. 2012a. Basic archaeological assessments for: 1. the kopleegte substation (250m x 250m), 2. The new 132kv power line from Kopleegte Substation to Poseidon Substation, 3. The re-route of the 66kv power line from Poseidon Substation to Zebra Substation, 4. The re-route of the 132kv power line from Klipfontein to Poseidon Substation, Cookhouse District, Blue Crane Route Municipality, Eastern Cape Province. Prepared for Savannah Environmental Ltd. (Pty). Eastern Cape Heritage Consultants.

Binneman, J. 2012b.Basic archaeological assessments for the proposed: 1. Golden Valley-Poseidon 132kv power lines (3 power lines), 2. Golden Valley-Kopleegte power lines (2 power lines) and, 3. The 132kv Golden Valley Substation (250m x 250m) (2 options),Bedford District, Blue Crane Route Local Municipality, Eastern Cape Province. Prepared for Savannah Environmental Ltd. (Pty). Eastern Cape Heritage Consultants.

Booth, C. 2011. A phase I archaeological impact assessment (AIA) for the proposed Cookhouse II wind energy facility, Blue Crane Route Local Municipality, Eastern Cape. Prepared for Savannah Environmental Ltd. (Pty). Albany Museum.

Gaigher, S. 2012. Walk-through survey and re-evaluation report indicating the possible impact on heritage resources by the infrastructure proposed for the wind farm near Cookhouse in the Eastern Cape. Prepared for Savannah Environmental Ltd. (Pty). G & A Heritage.

Halket, D., Webley, L., Orton, J. and Pinto, H. 2010. Heritage impact assessment of the proposed Amakhala-Emoyeni wind Energy Facility, Cookhouse District, Eastern Cape. Prepared for Savannah Environmental Ltd. (Pty). ACO Associates cc.

Hart, T. and Webley, L. 2010. Heritage impact assessment of a proposed Cookhouse Wind Energy Project, Blue Crane Route Local Municipality. Unpublished report prepared for CES Ltd. (Pty). ACO Associates cc.

Webley, L., Halkett, D. and Hart, T. 2009. Heritage Impact Assessment of a proposed Wind Energy Facility to be situated on portions of farms Arolsen 69, Farm 148, Farm 148/1; Rooidraai 146, Baviaans Krans 151, Baviaans Krantz 151/2, Klip Fonteyn 150/2, Roberts Kraal 281, Zure Kop 74/1, Zure Kop 74/2, Van Wyks Kraal 73, Van Wyks Kraal 73/2 and Van Wyks Kraal 73/3 in the Cookhouse District, Eastern Cape. Unpublished report prepared for Savannah Environmental Ltd. (Pty). ACO Associates.

THE WALKTHROUGH ASSESSMENT

Methodology

The purpose of the study was to do a walkthrough of the turbine locations, underground cable routes, access roads and other infrastructures (i.e. hardstands, lay down areas, administrative and storage facilities)for the proposed Nxuba Wind Farm site (refer to Map 1 and 2). The landowners were contacted prior to the visit to inform them of the investigation and to obtain permission to access their properties. They were also consulted on possible locations of historical buildings and features, cemeteries, graves and archaeological sites. All relevant survey information for the immediate and adjacent areas was consulted before the walkthrough started (see reference list). A Google Earth aerial image investigation was also conducted of the area (Maps 2–6). The walkthrough for the proposed Nxuba Wind Farm and associated infrastructure followed the layout as supplied by the proponent which mainly follows the hilltops and high ground. The turbine positions, roads and cable connections routes are well removed from farmyards and the drainage lines, open valleys and erosion gullies where in general concentrations of archaeological sites occur.

The walkthrough survey was conducted on foot by two archaeologists and spots checks and surveys were also conducted from a vehicle to investigate as much of the terrain as possible. GPS readings were taken and all important features were digitally recorded (for views of the turbine routes and the surrounding landscape and vegetation see Appendix C, Maps 3-6 and Figures 1-8).

A number of isolated stone tools and surface stone tool scatters, mainly of Middle Stone Age (MSA) origin were observed during a previous phase 1 archaeological impact assessment of the Nxuba Wind Farm site (Booth 2011). These were in secondary contexts and not associated with any other archaeological material and are of **low** significance. A graveyard was also recorded at the farmstead on the Farm Van Wyks Kraal. All these remains and features fall outside the layout zones.

Limitations and assumptions

Although the terrain was relatively easy to access, the archaeological visibility in general was poor due to the dense surface cover of grass, patches of small trees and shrubs in places. Due to the dense surface vegetation and little sheet erosion on the high ground of the Nxuba Wind Farm site, it was difficult to locate archaeological sites/materials. Where the surface soils were exposed by natural erosion and vehicle tracks the archaeological visibility was good and made it fairly easy to locate occasional archaeological stone tools. Regardless of the restrictions imposed by the dense vegetation, the experiences and knowledge gained from several other investigations in the wider surrounding region provided background information to make assumption and predictions on the incidences and the significance of possible pre-colonial archaeological sites/materials which may be located in the area, or which may be covered by soil and vegetation.

Results and findings

Apart from a few isolated weathered Middle Stone Age stone tools observed in vehicle tracks (Figure 8), no other significant archaeological sites/materials were observed during the walkthrough. The tools, mainly flakes with typical facetted striking platforms, date between 250 000 – 30 000 years old and were manufactured on hornfels. They were in secondary context and not associated with any other archaeological material and of **low** cultural significance. No further action is required.

Although sites/materials may be covered by soil and vegetation, the layout zones/ project layout appear to be of **low** cultural sensitivity and it is unlikely that any heritage remains of significance will be found *in situ* or exposed during the development. There are no known buildings/features or graves older than 60 years within the layout zones.

ASSESSMENT OF THE LAYOUT AND ITS IMPACTS ON ARCHAEOLOGY

Wind turbine towers, power lines and substations have become an integral part of the wider Poseidon Substation area. The huge pylons and power lines dominate the skyline in all directions and the Nxuba Wind Farm will contribute to the cumulative visual impact on the surrounding landscape and confront the public directly in terms of changes of place. Given the size and numbers of the turbines, no mitigation can reduce the negative visual effect on the cultural landscape and 'significance of place' although the additional contribution of Nxuba to this change will be marginal, given the extent of the change already from other developments and the existing substation and lines.

The construction of the proposed Nxuba Wind Farmturbines will consist of relatively small concrete bases. Although the placing of the structures will only affect a few square metres, it will be the additional activities such as the clearing of vegetation along the servitude, service/access roads for the construction vehicles and the underground cables connecting the turbines which will disturb the land surface on a larger scale although limited due to the low significance of the area from a heritage perspective. These activities may have a negative effect on the above and below ground archaeological remains. These disturbances to the landscape may be rehabilitated over time, but the turbines, facility substation[1], power lines and associated infrastructure, however, will have a long term visual impact on the general countryside, although marginal given the existing developments already in place.

Pre-colonial archaeology and colonial period heritage

Nature of the impacts by the optimised project layout

Apart from occasional Middle Stone Age stone tool finds, no other sites/remains of significance were observed. However sites/materials may be covered by soil and

[1] A facility substation, 132kV overhead power line and a metering station, which forms an integral part of the Nxuba wind farm as it is required to connect into the Eskom grid at Poseidon substation, is being assessed in a separate Basic Assessment process. This study however also included a walkthrough of the aforementioned in order to identify any potential archaeological sensitive areas to be avoided.

vegetation. The main impact onpre-colonial archaeology and colonial period heritage sites/remains (if any) will be the physical disturbance and/or destruction of the material and its context. The construction of the turbine foundations, facility substation, cabling between the turbines and access roads may expose, disturb, displace and destroy archaeological sites/material. Nevertheless, from the available information it would appear that the proposed layout zones are of **low** archaeological sensitivity.

Extent of the impacts by the optimised project layout

Construction of the turbine foundations, facility substation, cabling between the turbines and access roads may impact on remains which are buried, but these impacts will be limited and restricted to the local area. The construction of the turbine bases may disturb small areas and the negative impact on possible pre-colonial archaeological and colonial period heritage sites/materials may be relatively small. Other projects such as the construction of roads, buildings and underground cabling will disturb larger areas and may expose sites/materials on a larger scale.

Table 1. Impacts of the Nxuba Wind Farm layout on the pre-colonial archaeology and colonial period heritage.

Nature: The potential impact of the construction of the turbines, facility substation, cabling between the turbines, access roads, administrative building and lay down areas on above and below ground pre-colonial archaeological and colonial period heritage.		
	Without Mitigation	**With Mitigation**
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (1)	Minor (1)
Probability	Unlikely (2)	Unlikely (2)
Significance	**Low (14)**	**Low (14)**
Status (positive or negative)	Negative	Neutral
Reversibility	No	No
Irreplaceable loss of resources?	No, but in some cases, yes	No
Can impacts be mitigated?	Yes	
Mitigation: No mitigation is proposed before construction starts because the archaeological remains (if any) are of **low** significance (excluding human remains). However, if concentrations of pre-colonial archaeological and colonial period heritage materials are exposed then work in the immediate area affecting the find must stop for an archaeologist to investigate (see below). If any human remains (or any other concentrations of archaeological heritage material) are exposed during construction, all work must cease and it must be reported immediately to the Albany Museum (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 6422811), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites/materials they may encounter and the procedures to follow when they find sites. The ECO and the contractor's Environmental Officer (EO) may be trained to identify, follow the relevant procedure and report to the site manager if sites are found (see Appendix B below).		
Cumulative impacts: The number of concrete bases will determine the impact on the buried		

materials (if any), but in general it will be negligible in this case. The size of developments at the substation in the future will determine the impact on the buried materials (if any) and if these increase, so will the possible impact.
Residual impacts: Long term to permanent, especially in the case of human remains/graves.

Table 2. Environmental management programme for the construction of the Nxuba Wind Farm

Objective: To conserve the pre-colonial archaeological and colonial period heritage sites/remains of the construction of the Nxuba Wind Farm as outlined in the National Heritage Resources Act of 1999.	
Project component/s	Construction of turbines, new roads, power lines, facility substation, lay down areas and other associated infrastructure.
Potential impact	The physical disturbance, damage and/or destruction of pre-colonial archaeology and colonial period heritage sites/remains, either by direct impact or secondary impact such as vandalism. The impact on the cultural landscape.
Activity/risk source	Levelling, excavations and construction of the turbine foundations, access roads for construction vehicles, clearing of vegetation and earthworks for underground cables.
Mitigation: Target/Objective	All construction activities on the Nxuba Wind Farm site must be monitored by an archaeologist/heritage practitioner, or alternatively a person should be trained to conduct the monitoring, such as the ECO or contractor's EO. This must include the clearing of the vegetation (which constrained the visibility of heritage resources during the walkthrough investigation).

Mitigation: Action/control	**Responsibility**	**Timeframe**
If any human remains or any other concentrations of archaeological heritage material are exposed during construction, all work must cease and it must be reported immediately to the archaeologist at the Albany Museum in Grahamstown (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 6422811), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation (see Appendix B below).	Consultant/ECO/EO, contractor and the archaeologist/heritage practitioner.	From the start and duration of all phases of the construction, i.e., during the clearing of the vegetation for the above ground heritage. During the levelling and construction phases for the buried heritage.
Apply for permits from the Eastern Cape Province Heritage Resources Authority to collect and/or excavate sites/materials from archaeological sites if exposed during construction work.	Consultant/ECO/EO, contractor and the archaeologist/heritage practitioner.	Before the construction continues and for the duration of the project.
Construction managers/foremen should be	Consultant/ECO/EO,	Before the construction

informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.	contractor and the archaeologist/heritage practitioner.	starts.

Performance indicator	All heritage sites/materials must be managed within the legislative guidelines. The success of the monitoring will be determined by the degree of damage/disturbance that can be avoided to heritage sites.
Monitoring	All construction activities must be monitored by a heritage practitioner or alternatively a person must be trained/inducted, for example the ECO or contractor's EO. A report and if required a list of recommendations, should be compiled as part of the ECO Monthly/Quarterly Report and submitted to the Eastern Cape Provincial Heritage Resources Authority after the monitoring phase(s) for comment.

DISCUSSION AND MITIGATION

Dense grass cover throughout the study area and little sheet erosion on the high ground made it difficult to locate heritage sites and materials. However, in areas where the surface soils were exposed by natural erosion, for example in foot paths and in vehicle tracks the archaeological visibility was good and made it fairly easy to locate archaeological materials. However, apart from a few weathered Middle Stone Age stone tools, no other significant archaeological sites/materials were observed during the walkthrough of the layout zones. In general it would appear that the layout zones are of relatively **low** cultural significance. Although it would also appear unlikely that any significant *in situ* sites/material will be exposed during these developments, sites/materials may be covered by soil and vegetation. It is recommended that;

1. All construction activities must be monitored by an archaeologist/heritage practitioner or alternatively a person must be trained, for example the ECO or contractor's EO, to conduct the monitoring. This must include the clearing of the dense grass (which constrained the visibility of heritage resources during the walkthrough), leveling, placing and excavations of the turbine foundations and construction of the access roads.

2. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. Alternatively the ECO or Contractor's EO must be trained as a site monitor to report to the foreman when heritage sites are exposed. This person must monitor all activities during the construction phase.

3. Although it would seem unlikely that any significant archaeological remains will be exposed during the development, there is always a possibility that human remains and/or other archaeological and historical material may be uncovered during the development. Should such material be exposed during construction, all work must cease in the immediate area (depending on the type of find) and it must be reported to the archaeologist at the Albany Museum in Grahamstown (Tel: 046 6222312) or to the

Eastern Cape Provincial Heritage Resources Authority (Tel: 043 6422811), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation (See appendix B for a list of possible archaeological sites that maybe found in the area).

4. Although the development is well-removed from the historical Van Wyks Kraal homestead and graveyard (which date from 1805), care must be taken that no damage occur to these buildings and features. It must be listed as a 'no-go zone'.

GENERAL REMARKS AND CONDITIONS

Note: This is an Archaeological Walkthrough report compiled for the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) to enable them to make informed decisions regarding the heritage resources assessed in this report and only they have the authority to revise the report. This report must be reviewed by the ECPHRA where after they will issue their Review Comments to the EAP/proponent. The final decision rests with the ECPHRA who must grant permits if there will be any impact on cultural sites/materials as a result of the development

This report is an Archaeological Walkthrough Impact Assessment and does not exempt the proponent from any other relevant heritage impact assessments as specified below:

In terms of the National Heritage Resources Act, No. 25 of 1999 (section 38) ECPHRA may require a full Heritage Impact Assessment (HIA) to assess all heritage resources, that includes *inter alia*, all places or objects of aesthetical, architectural, historic, scientific, social, spiritual, linguistic, or technological significance that may be present on a site earmarked for development. A full Heritage Impact Assessment (HIA) should assess all these heritage components, and the assessment may include archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects (refer to archaeological background on p.6 for a reference list of various HIA's undertaken in and around the study area).

It must be emphasized that this Phase 1 AIA is based on the visibility of archaeological sites/material and may not therefore reflect the true state of affairs. Sites and material may be covered by soil and vegetation and will only be located once this has been removed. In the event of such finds being uncovered during construction activities, ECPHRA or an archaeologist must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed (see attached list of possible archaeological sites and material). The developer must finance the costs should additional studies be required as outlined above. The *onus* is on the proponent to ensure that the provisions of the National Heritage Resources Act No. 25 of 1999 and any instructions from ECPHRA are followed. The EAP must forward this report to ECPHRA in order to obtain their Review Comments, unless alternative arrangements have been made with the heritage specialist to submit the report.

APPENDIX A: brief legislative requirements

Parts of sections 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

Archaeology, palaeontology and meteorites

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves

36. (3) (a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority—

(a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
(b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of the site –
(i) exceeding 5000m^2 in extent, or
(ii) involving three or more erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;

(d) the re-zoning of a site exceeding 10 000m^2 in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.

APPENDIX B: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for proponents

Human Skeletal material

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general human remains are buried in a flexed position on their side, but are also found buried in a sitting position with a flat stone capping. Proponents are requested to be on alert for the possibility of uncovering such remains.

Freshwater mussel middens

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These shell middens frequently contain stone tools, pottery, bone, and occasionally human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m^2 in extent, should be reported to an archaeologist.

Large stone cairns

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane.* They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

Stone artefacts

These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

Fossil bone

Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

Historical artefacts or features

These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities**.**

APPENDIX C

DIGITAL IMAGES OF THE LANDSCAPE AND
AERIAL VIEWS OF THE TURBINE LOCATIONS

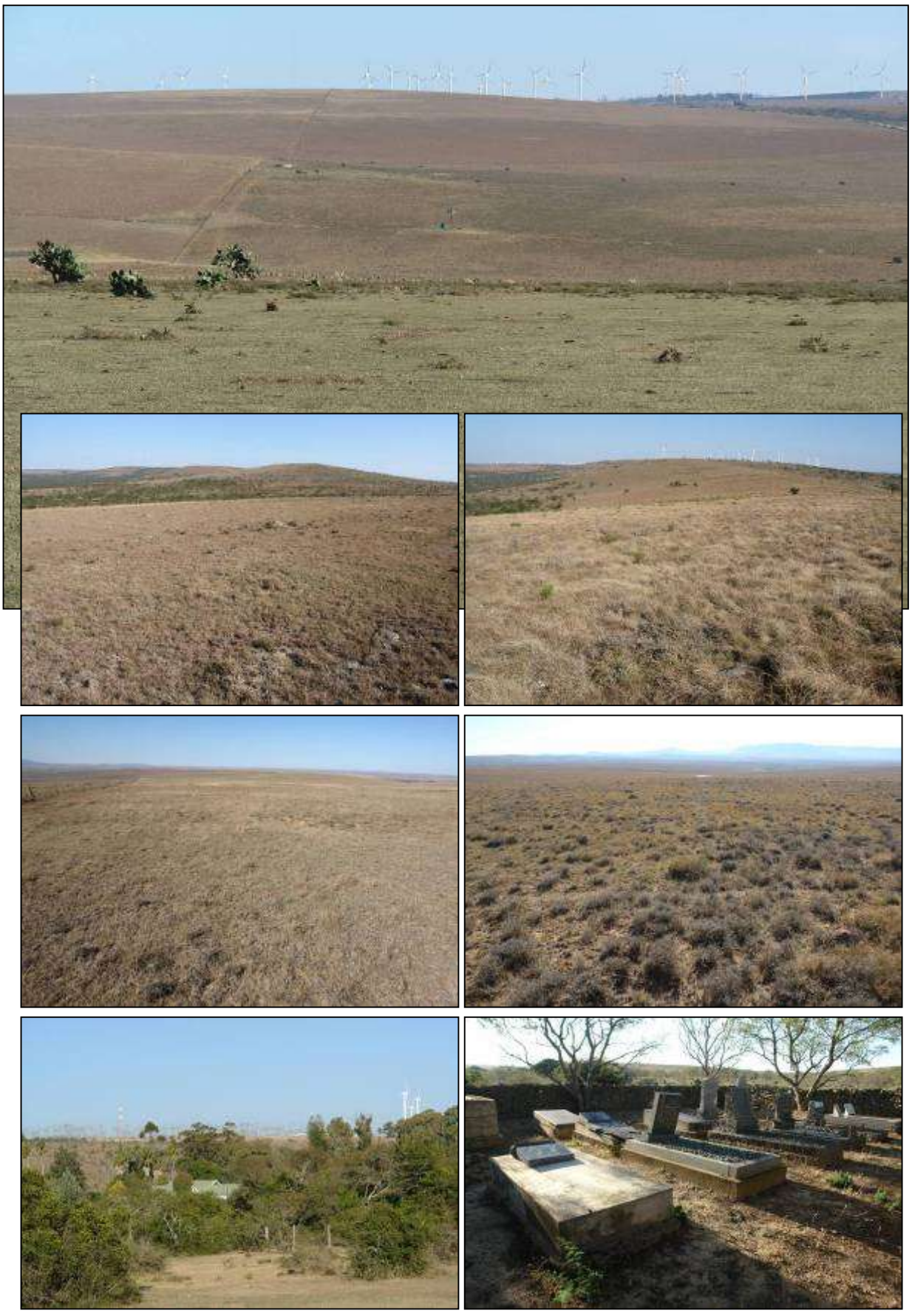
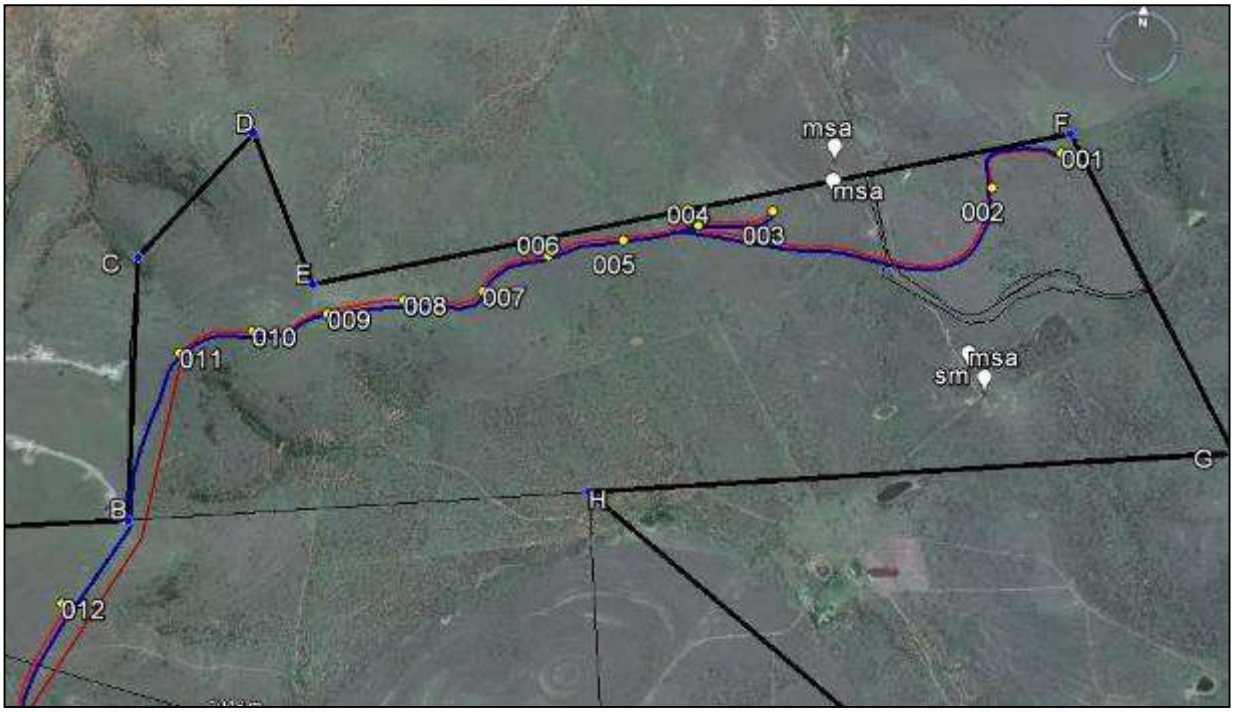
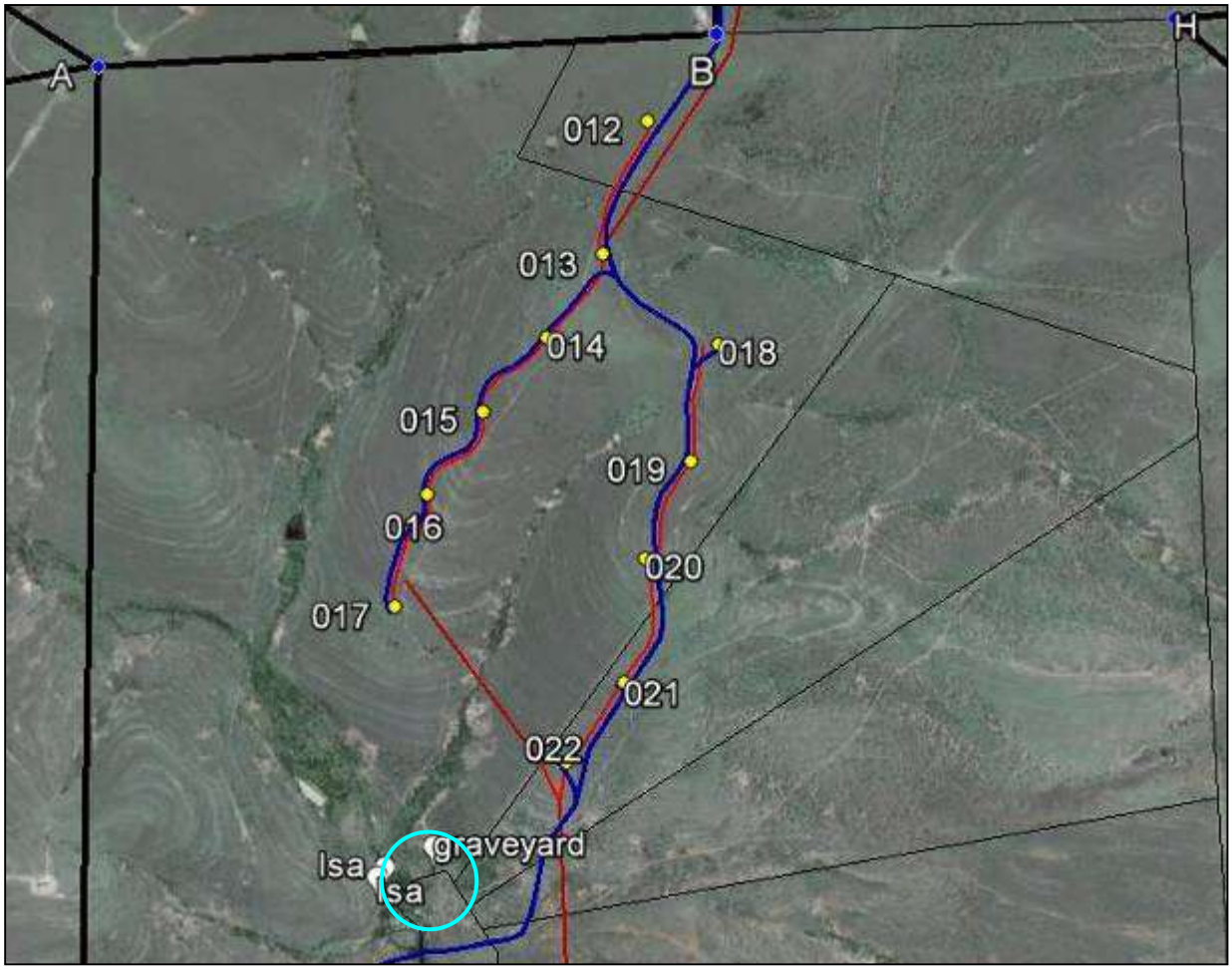


Figure 1. General views of the Nxuba Wind Farm site and the historical homestead and graveyard (bottom row).



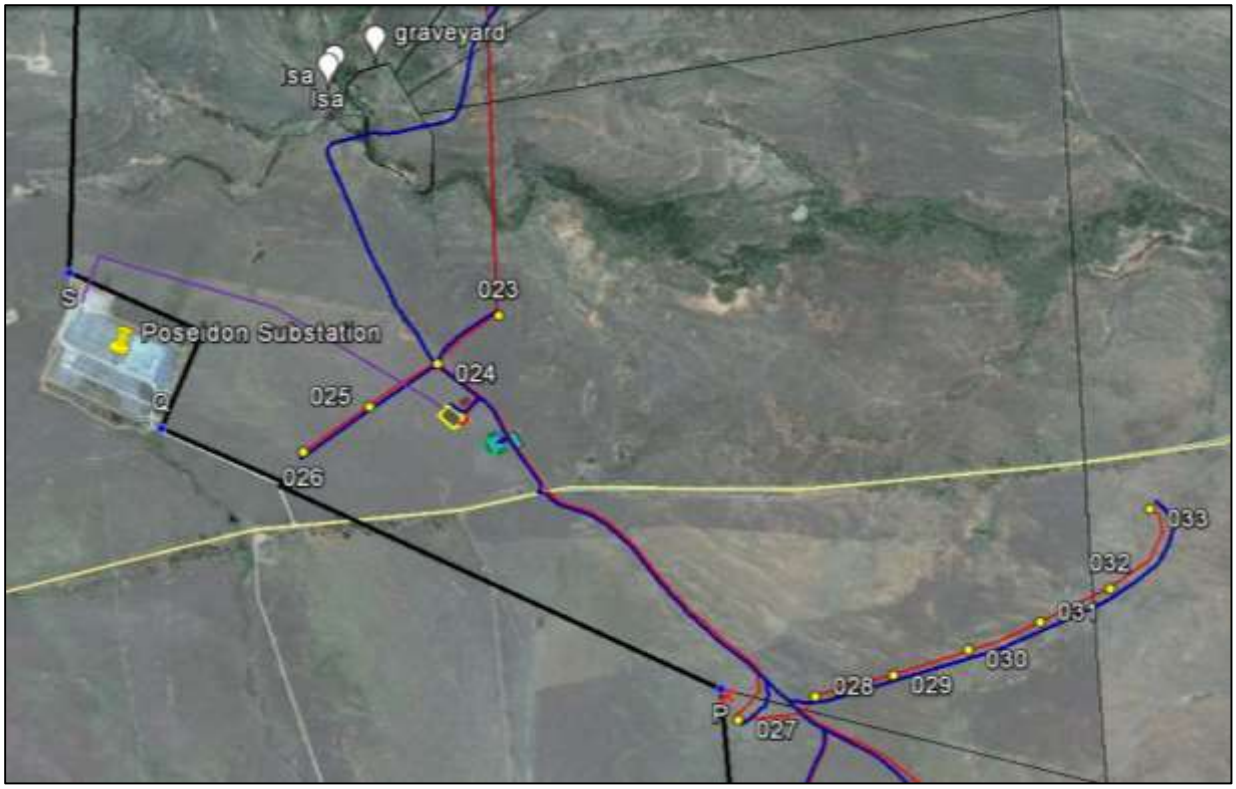
Map 3. An aerial image of the far north eastern section of the Nxuba Wind Farm. The white pegs mark some archaeological/historical sites/materials recorded by Booth (2011). These are of low significance and fall outside the area of development.

Figure 2. A view from Point B towards turbine positions 011 - 01 (main image), from 06 to 01 (left insert) and a reverse view from near 02/railway line to Point B (right insert). The red arrow marks turbine position 01.



Map 4. An aerial image of the section north of the Poseidon Substation. The white pegs mark archaeological sites and a graveyard recorded by Booth (2011) and the blue circle the historical farmyard. All features fall outside the area of development.

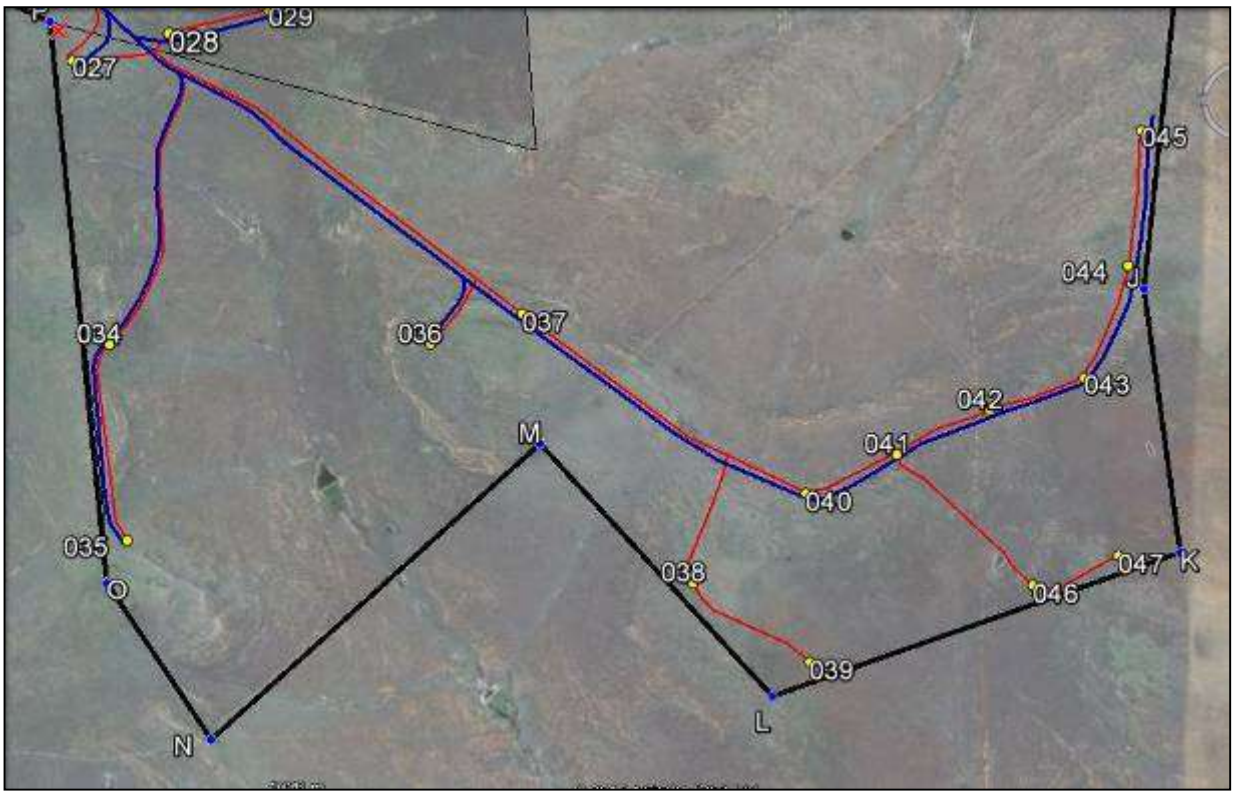
Figure 3. A view from Point B towards turbine positions 012-020 (main image and left insert) and a view from 020 towards 021 to 022 (right insert). The historical farmyard is visible in the background and the Poseidon Substation on the horizon.



Map 5. An aerial image of the section east of the Poseidon Substation. The white pegs mark some of the archaeological sites recorded by Booth (2011).

Figure 4. A view from turbine position 024 towards positions 023-13 in a northerly direction (main image), a reverse view from the farmyard area toward the Poseidon Substation (right insert) and a view from 026 towards turbine positions 023 (right insert).

Figure 5. A view from turbine position 028 towards positions 029-033 (main image), a reverse view from 032 toward turbine positions 031-28 (middle insert) and 029 to 027 (bottom insert).



Map 6. An aerial image of the section southeast of the Poseidon Substation.

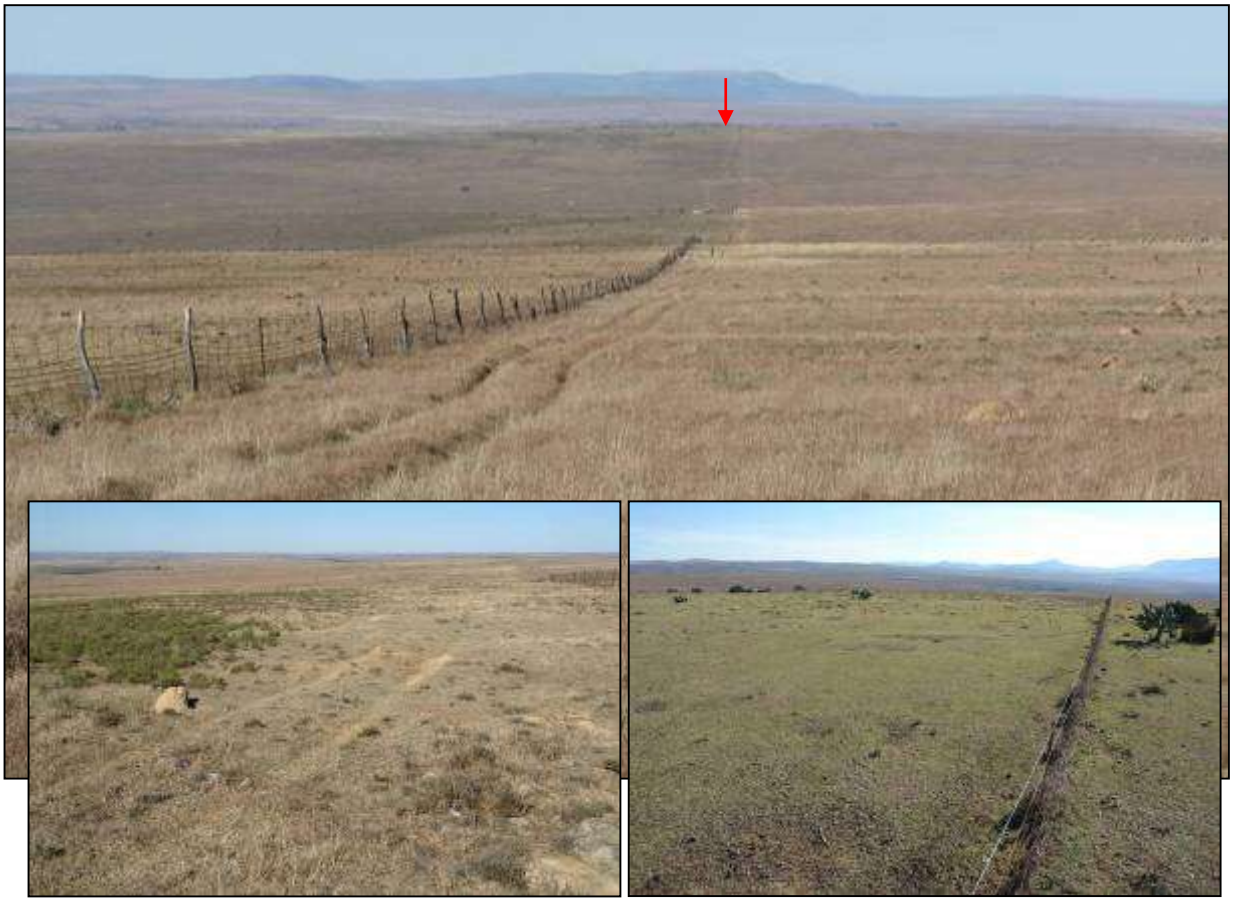


Figure 6. A view from turbine position 027 towards positions 036, 037, 040-045 (main image), towards 034-035 (left insert) and 044-045 (right insert). The red arrow marks turbine position 044.

Figure 7. A view from turbine position 037 towards positions 040-043 (main image), 038-047 (left insert) and a reverse view from position 047 towards 039 (right insert).

Figure 8. An sample of the few Middle Stone Age stone tools observed during the walkthrough in the layout zones.