A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENTS OF THE PROPOSED NEW SUBSTATION AND 132KV POWER LINE AT THE NOJOLI WIND FARM NEAR COOKHOUSE, BLUE CRANE ROUTE LOCAL MUNICIPALITY, CACADU DISTRICT, EASTERN CAPE PROVINCE.

Prepared for: Savannah Environmental (Pty) Ltd
P.O. Box 148
Sunninghill, 2157
Tel: (011) 234 6621
Fax: (086) 684 0547
Contact person: Ms Lusani Rathanya
Email: lusani@savannahsa.com

Prepared by: Dr Johan Binneman
On behalf of: Eastern Cape Heritage Consultants cc
P.O. Box 689
Jeffreys Bay 6330
Tel: 042 2960399
Cell: 0728006322
Fax: 042 296 0399
Email: kobusreichert@yahoo.com

Date: November 2013

CONTENTS

BRIEF SUMMARY/OVERVIEW

Background

Savannah Environmental (Pty) Ltd on behalf of Nojoli Wind Farm (Pty) Ltd, appointed Eastern Cape Heritage Consultants to conduct a Phase 1 Archaeological Assessments for the proposed project.

Nojoli Wind Farm (Pty) Ltd is proposing the establishment of a new substation and 132kv power line south of Eskom's Poseidon substation near Cookhouse. Two site alternatives (options A and B) for the location of the substation and two for the 132kv powerline (option A and B) have been identified for consideration (Maps 1-3).

Several comprehensive archaeological impact assessments and reports have been compiled for the Nojoli (previously referred to as ACED Cookhouse South Wind Farm) site (Webley et al. 2009; Gaigher 2012) and adjacent areas (Hart and Webley 2010; Halkett et al. 2010; Booth, C. 2011; Binneman 2012a, b & c). All background information is included in these reports and will not be repeated here in any detail.

Purpose of the Study

The purpose of the study was to conduct a Phase 1 Archaeological Impact Assessments of the proposed construction of a new substation and 132kv power line south of Eskom's Poseidon substation at the Cookhouse South Wind Farm near Cookhouse, Blue Crane Route Local Municipality, Cacadu District, 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 developments,
- the potential impact of the developments on these heritage resources,
- to make recommendations to minimize possible damage to these heritage sites/materials,
- to establish the most preferred substation site and powerline route.

The site and location

The proposed Nojoli Wind Farm Project site is located within the 1:50 000 topographic reference maps 3225 DB Cookhouse and 3225 DD Golden Valley (Map 2). It falls within the Cacadu Magisterial District, Blue Crane Route Local Municipality of the Eastern Cape Province and is situated approximately 12 kilometres south-east of Cookhouse and about 15 kilometres south-west of Bedford. The site is located south of the gravel road between Cookhouse and Bedford which also runs pass the Poseidon substation. The following farms are being investigated for the location of the substation and power line:

Farm Bavians 151
Portion 2 of the Farm Bavians 151
Hillbrow Farm 148

Portion 2 of the Farm Klipfontein 150
Remainder of the farm Van Wyks Kraal 73

The two site alternatives for the location of the substation are:

Substation Site Alternative 1: the substation is located south of the existing Eskom's Poisedon substation. The proposed power line is approximately 4.5 km from the Poseidon substation and runs along existing power lines.

Substation Site Alternative 2: the substation is located south-west of the existing Eskom's Poisedon substation. The proposed power line is approximately 3 km from the Poseidon substation and will cross existing power lines in order to connect.

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 comprises a gentle undulating hill landscape, lowlands and non-perennial open valley drainage systems/lines. No perennial rivers traverse the study area. The mayor rivers occurs 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. A

Type of development

Nojoli Wind Farm (Pty) Ltd is proposing the establishment of a new substation and 132kv power line south of Eskom's Poseidon substation near Cookhouse. The substation will be approximately 4ha in extent and established within a footprint of approximately 5ha.

Investigation

The terrain was relatively easy to access and the archaeological visibility in general was good, but poor in places due to the dense surface cover of grass and shrubs. However, no archaeological sites/materials of any significance were observed. Nevertheless, it is possible that sites/materials are covered by soil and vegetation and may be exposed during the construction of the substation and power lines.

Cultural sensitivity

In general the study area investigated appears to be of low archaeological and historical (sites/materials) sensitivity and the impact of construction therefore will be of low negativity. However, the construction of the substation and powerline will have a cumulative visual impact and negative effect on the cultural landscape.

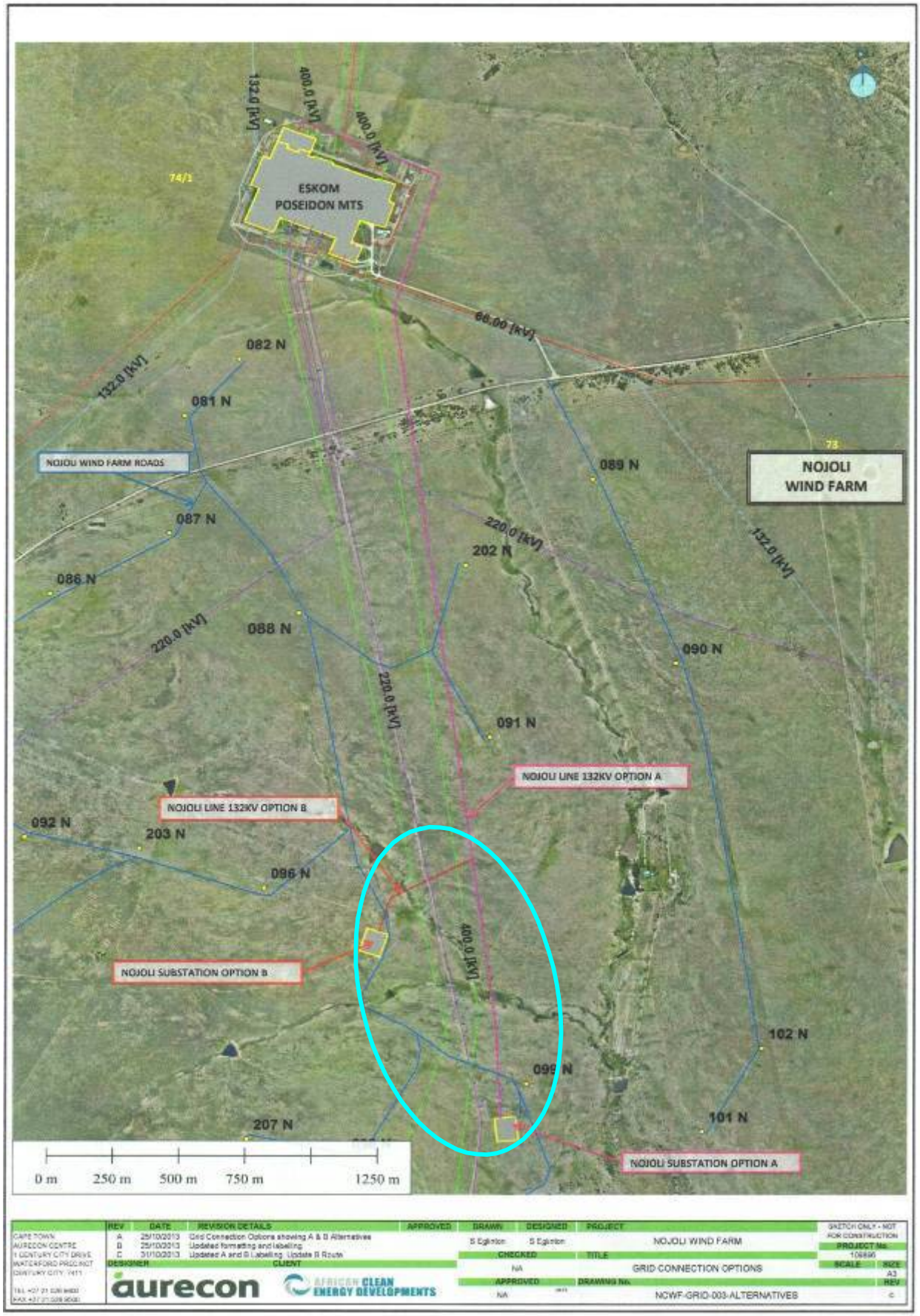
Preferred substation site and powerline route

The study area is of low cultural sensitivity and it would appear that the construction of the substation and associated power line will have little impact on heritage remains. The development will also take place in and along already disturbed areas. Therefore any of the two site alternatives for the location of the substation and power line route may be used.

Recommendations

1. If any concentrations of archaeological materials are exposed, work must stop immediately and reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.

2. Construction managers/foremen should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter. It is suggested that a person, such as the onsite environmental control officer be trained to be on site to report to the site manager if sites are found.



Map 1. Locality map of the proposed Nojoli Wind Farm Project site. The proposed substations are marked with yellow squares and the proposed power lines by the red and pink lines. The light-blue oval marks the area investigated on foot (map supplied by Savannah Environmental (Pty) Ltd).

Brief archaeological background

The area has a rich documented historical past of conflict, change, adaptation and interaction between different groups and individuals (Mostert 1992). The pre-colonial archaeological history of the area is less clear, mainly because little field research has been conducted here. Several Heritage Impact Assessments conducted in recent years of the study area provide information on the different stone tool industries found in the area from eroded open sites (Webley, *et al. 2*009; Halket, D. & Webley, L. 2010; Halket, et al. 2010; Hart, T. & Webley, L. 2010; Booth 2011; Binneman 2012a). Nevertheless, there are a large number of reports, references and accessioned material in museums of the region and nationally which provide us with a general background. This information was compiled by R.M. Derricourt during the early1970s and published in his book, *Prehistoric man in the Ciskei and Transkei in* 1977*.* He also conducted fieldwork at Middledrift and Ann Shaw close to the study area.

From the archival information and limited field work, it is evident that the area has an interesting and complex archaeological past. Earlier Stone Age (ESA) hand axes, cleavers and other stone tools, dating to approximately a million or more years old, were found on the slopes of the Thyume River around the University of Fort Hare in Alice and also throughout the Cookhouse and Cacadu districts. During a rescue excavation on the campus in 1974 thousands of ESA stone tools were recovered (Opperman 1979). The Albany Museum also houses a large collection of ESA material from the Grahamstown area. Large numbers of ESA stone tools were also found at Middledrift (Hewitt 1925; Burkitt 1928). These sites were regarded important at the time and were visited by A.J.H. Goodwin (Goodwin & Lowe 1929).

Both locations also yielded Middle Stone Age (MSA) stone artefacts dating between 200 000 and 30 000 years old. MSA artefacts can be found throughout the region, but carry little information because they are not associated with any other archaeological material. Excavations at MSA sites adjacent to the study area include the well-known type site for the Howieson's Poort Industry (rock shelter with the same name) near Grahamstown (Stapleton & Hewitt 1927) and Oakleigh Farm Shelter near Queenstown (Derricourt 1977).

Later Stone Age open sites, dating to the past 20 000 years are also widely scattered throughout the area. The bulk of information for the wider region comes from the Cape Fold Mountains to the south of the study area where several sites were excavated. Among these are Wilton Large Rock Shelter (Deacon 1972), Melkhoutboom Cave (Deacon 1976) and Uniondale Rock Shelter (Leslie-Brooker 1987). Two rock shelters, Edgehill and Welgeluk excavated by Hall (1990) in the Koonap River Valley close to the study area, provide an excellent archaeological record of exclusive subsistence and cultural risk management strategies during the past 5 500 years for Eastern Cape Midlands. Another small shelter at Adam's Kranz in the Great Fish River valley has also been excavated. A hafted arrowhead was recovered from the site (Binneman 1994). Further north in the southern Winterberg Mountains, research at Fairview Shelter (Robertshaw 1984) suggests mobile seasonal movements between the Winterberg and the Fish River regions during the Late Holocene. Derricourt (1977) excavated several mounds at Middledrift and Ann Shaw

where he found a stone tool tradition in the bottom layers which he called the Middledrift Tradition, dating to some 5 000 years old. The origins of the upper deposits of these mounds are not clear, but it would appear that they were associated with pastoralist groups. Thin, fine, mainly undecorated pot shards, a KhoiSan burial and complete cow burials found in these mounds, would strongly suggest Khoi occupation. Early European travellers such as Beutler (Theal 1896) also found the Gonaqua Khoi in 1752 living here and along the Keiskamma River towards the nearby coast. The Eastern Cape Midland, Koonap River valley and the adjacent Winterberg Mountains to the north and Cape Fold Belt to the south are also rich in San and KhoiSan rock art.

Although there are no records of Early Iron Age (first farming communities) sites or material from this area, it is possible that such settlements may be present in the region (Maggs 1973). Evidence in the form of thick walled well-decorated pot shards is present along the coast (Rudner 1968) and the nearest settlement was excavated just west of East London (Nongwaza 1994). Research in the Great Kei River Valley indicates that the first mixed farmers were already settled in the Eastern Cape A.D. 600 - 700 (Binneman 1994).

In the same area at Ann Shaw, Derricourt also excavated a Late/Historical Iron Age settlement with grain pits and ash heaps. The grain pits were of typical Nguni type; jar-shaped with a small opening. The floor was lined with stones and sealed with a layer of clay.

ARCHAEOLOGICAL INVESTIGATION

Methodology

The landowners were contacted prior to the visit to inform them of the investigation and to obtain permission for access to their properties. They were also consulted on possible locations of historical buildings and features, cemeteries, graves and archaeological sites. The northern section of the proposed powerline route in the vicinity of the Poseidon substation has been investigated previously (Binneman 2012c) and only the section south of the gravel road between Cookhouse and Bedford was investigated (Figure 1). To cover as much of the proposed powerline route as possible tracks close to the route were followed and spot investigations were conducted on foot from the vehicle. The two substation site alternatives and the powerline alternatives were investigated on foot (light-blue oval on Map 1) (Figures 2–3). GPS readings were taken with a Garmin and all important features were digitally recorded.

Results

The proposed 132kv powerline (option A – pink line), which will run from the new substation to the Poseidon substation will be constructed next (eastern side) to the already disturbed servitude of an existing 400kv powerline route (Figure 1). The northern section of the powerline route near the gravel road has also been disturbed in the past by agricultural activities. The remainder of the route is covered by dense grass and shrubs

which made it difficult to observe archaeological sites/materials. The other proposed 132kv powerline (option B), which will run from the location of substation option B to the 132kv option A powerline route (from west to east) will also be constructed in an already disturbed servitude under the 220KV and 400KV power lines (Figure 2) (Maps 1-3).

The proposed location of substation option B is situated west of the existing power lines on high ground facing east. It is located between two small drainage lines and covered by short dense grass. The immediate area has been disturbed in the past by small scale farming activities such as the construction of a cattle kraal, reservoir, windmill and earth wall dams (Figure 2). The proposed location of substation option A is situated on relatively level high ground close to the east of the 400kv powerline and a gravel service track (Figure 3) (Maps 1-3). Short dense grass and small shrubs also cover the area.

Although the area is covered by relatively dense short grass and small shrubs, the archaeological visibility was good, but no significant archaeological sites/materials were observed at the two site alternatives for the substation locations or along the alternative powerline routes. Special attention was given to the two small drainage lines close to the proposed substation sites because investigations in adjacent areas yielded Middle and Later Stone Age stone tools on eroded surface close to drainage lines (Halket et al. 2010; Binneman 2012a). However, no sites/materials were observed in these areas either. The reason is that there is little sheet erosion in the study area where material could have been exposed. Nevertheless, it is possible that sites/materials are covered by soil and vegetation and may be exposed during the construction of the substation and power lines.

There are no known buildings/features or graves older than 60 years in the study area. In general the study area is of low cultural sensitivity and it would appear unlikely that any archaeological remains of significance will be found *in situ* or exposed during the development.

The preferred substation site and powerline route

From the archaeological investigation it would appear that the study area is of low cultural sensitivity. The development will also take place in and along the main stream of power lines running in a southerly direction. The area is already disturbed (physically and visually) by the construction of this concentration of large power lines in the past. Although sites/materials may be covered by soil and vegetation it would appear that the construction of the substation and associated power lines will have little impact on heritage remains. Therefore any of the two site alternatives for the location of the substation and power line routes may be used.

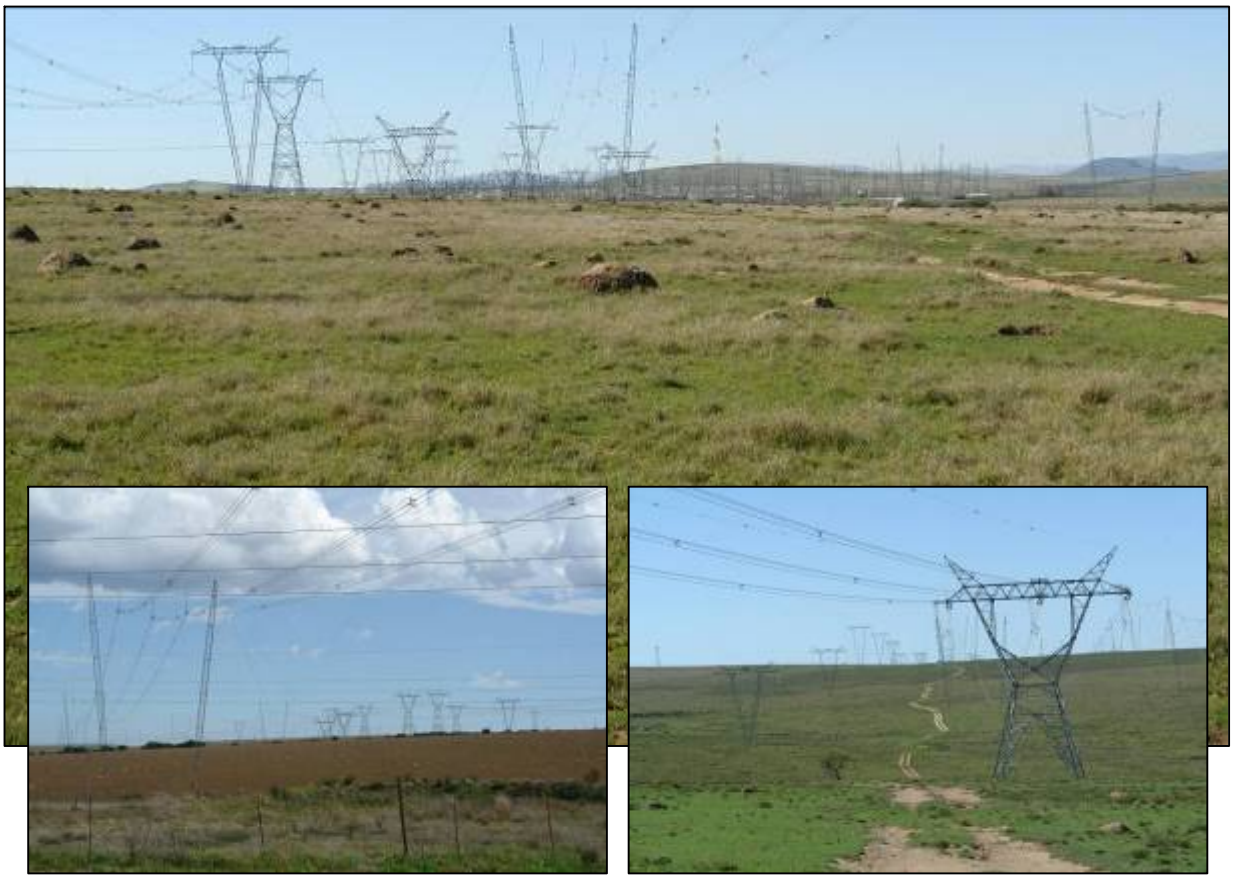


Figure 1. General views of the Poseidon substation (main image) and the powerline route south towards the new substation.

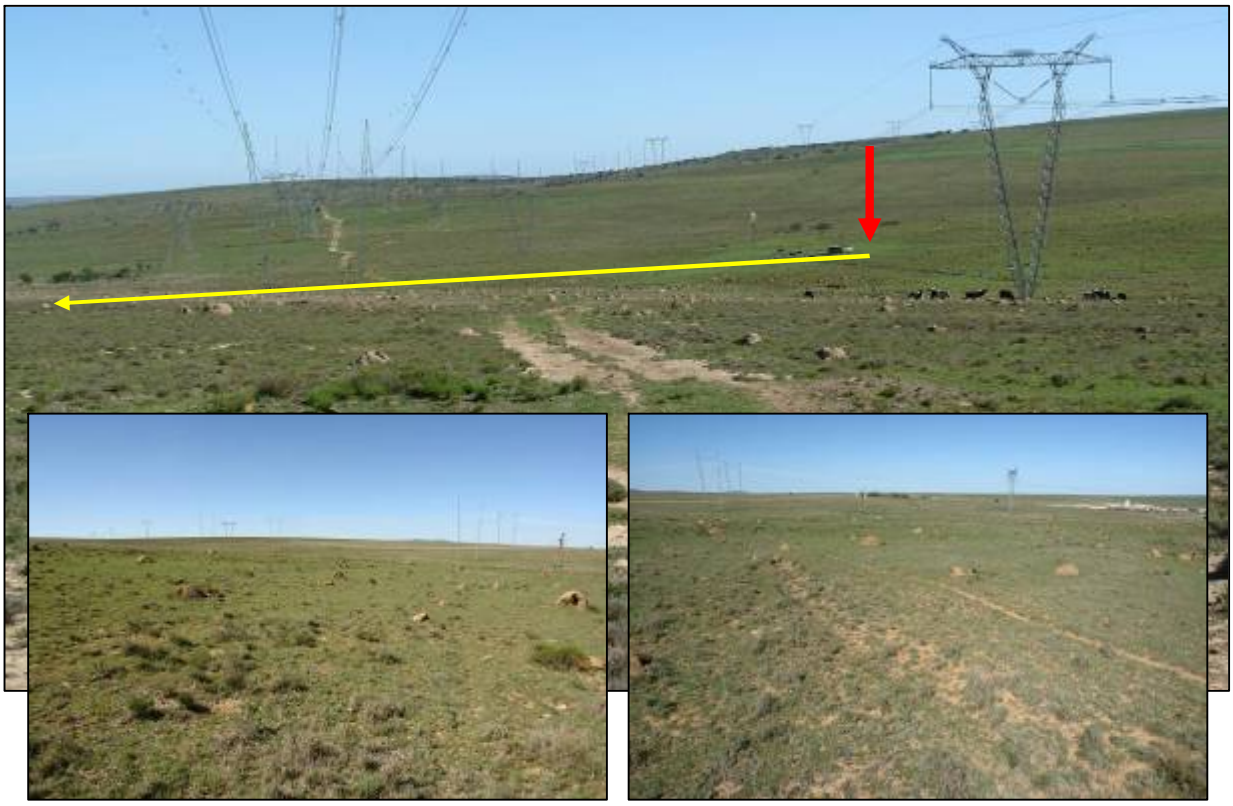


Figure 2. General views of the location of substation option B (red arrow) and the direction of the 132kv option B powerline (yellow line).

Figure 3. General views of the location of substation option A and the 132kv option A powerline rout towards the Poseidon substation.

ASSESSMENT OF THE IMPACTS

The substation

The area for the proposed substation is relatively large and together with the additional activities such as the service road for the construction vehicles, clearing of vegetation and levelling of the site will disturb the land surface on a large scale. These activities may have a negative effect on the above and below ground archaeological remains. The disturbances to the landscape may be rehabilitated over time, but the substation and associated infrastructure, however, will have a long term visually impact on the general countryside.

Pre-colonial archaeology and colonial period heritage

Nature of the impacts

The main impact to pre-colonial archaeological 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 substation and access road may expose, disturb, displace and

destroy archaeological sites/material. However, no pre-colonial archaeology or colonial period heritage sites/remains were observed and it would appear that the proposed sites for the construction of the substation are of low cultural significance. Notwithstanding, sites/materials may be covered by soil and vegetation.

Extent of the impacts

Construction of the substation may impact on remains which are buried, but these impacts will be limited and restricted to the local area. The construction activities will only disturb a small area and the negative impact on possible pre-colonial archaeology and colonial period heritage sites/remains may be relatively small. Other projects such as the construction of the access road and other infrastructure will disturb larger areas and may expose sites/materials on a larger scale. In both cases further disturbances of sites/materials can be limited by mitigation.

Table 1. Impacts of the construction of the proposed substation on the pre-colonial archaeology and colonial period heritage sites/materials.

Nature: The potential impact of the construction of the proposed substation, access road and other infrastructure on the below and above ground pre-colonial archaeological and colonial period heritage sites/remains.		
	Without Mitigation	**With Mitigation**
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (2)	Minor (2)
Probability	Unlikely (2)	Unlikely (2)
Significance	Low (16)	Low (16)
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 archaeological materials are exposed then all work 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 nearest museum/archaeologist or to the Eastern Cape Provincial Heritage Resources Authority, 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.		
Cumulative impacts: 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 impact.		
Residual impacts: Long term to permanent		

The powerline

The proposed 132KV power line will consist of overhead cables suspended from wooden/metal structures placed a few hundred metres apart. These structures must be firmly positioned several metres deep in the ground. Although the placing of the structures will only affect a few square metres, it will be the additional activities such as the service

roads for the construction vehicles and clearing of vegetation along the servitude which will disturb the land surface on a large scale.

These activities may have a negative effect on the above and below ground archaeological remains. The disturbances to the landscape may be rehabilitated over time, but the powerline, however, will have a long term visually impact on the general countryside.

Pre-colonial archaeology and colonial period heritage

Nature of the impacts

The main impact on the pre-colonial archaeological and colonial period heritage sites/remains (if any) will be the physical disturbance of the material and its context. The construction of the tower foundations for the powerline and service roads may expose, disturb and displace archaeological sites/material. Nevertheless, from the available information it would appear that the proposed 132kv powerline route from the proposed substation to the Poseidon substation is of low archaeological sensitivity. However, sites/material may be covered by soil and vegetation.

Extent of the impacts

Construction of the powerline tower foundations and service roads may impact on remains which are buried, but these impacts will be limited and restricted to the local area. The construction of the tower foundations will also only disturb small areas and the negative impact on possible pre-colonial archaeology and colonial period heritage sites/materials may be relatively small. Other projects such as the construction of service roads will disturb larger areas and may expose sites/materials on a larger scale. In both cases further disturbances of sites/materials can be limited by mitigation.

Table 2. Impacts of the proposed 132kv powerline from the proposed substation to the Poseidon Substation on the pre-colonial archaeology and colonial period heritage.

Nature: The potential impact of the construction of the powerline foundations and service roads on above and below ground pre-colonial archaeological and colonial period heritage sites/materials.		
	Without Mitigation	**With Mitigation**
Extent	Local (1)	Local (1)
Duration	Permanent (5)	Permanent (5)
Magnitude	Minor (2)	Minor (2)
Probability	Unlikely (2)	Unlikely (2)
Significance	Low (16)	Low (16)
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 archaeological materials are exposed then all work 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 nearest museum/archaeologist or to the Eastern Cape Provincial Heritage Resources Authority, 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.
Cumulative impacts: The number of tower foundations will determine the impact on the buried materials (if any), but in general it will be negligible.
Residual impacts: Long term to permanent

Cultural landscape and sense of place

Power lines and substations are an integral part of the South African landscape. This is especially the case for the wider Poseidon substation area, where huge pylons and power lines dominate the skyline in all directions. The proposed powerline and substation, however, are relatively small in comparison to the existing network of power lines and will probably have little impact in the short term on the cultural landscape.

Nature of the impacts

It is difficult to assess what impact the substation and the powerline will have on the cultural landscape in the sort term because they will eventually be dwarfed by the huge wind turbines. Notwithstanding, the powerline from the substation to the Poseidon substation will contribute to the cumulative impact of 'visual pollution' and the change of sense of place. Furthermore, the developments will also contribute (on a small scale) to the transformation of a once rural agricultural environment to an 'industrial character' of the region. It will also add to a negative visual impact on the historical and natural landscape and character of the area.

Extent of the impacts

Due to the relatively small size of the proposed 132kv powerline and the substation the visual impact on the landscape may be not very prominent in the sort term. Nevertheless, as an addition to an existing power lines in the area it will add a cumulative visual impact to the landscape, especially on the high lying areas. The main impact on the cultural landscape will be the extensive construction of roads and other activities which will leave permanent scars.

Table 5. Impacts on the cultural landscape.

Nature: The potential impact of the construction of the substation and powerline on the cultural landscape in terms of visual impacts and changes to 'sense of place'.		
	Without Mitigation	**With Mitigation**
Extent	Local (2)	Local (2)
Duration	Long term (4)	Long term (4)
Magnitude	Low (4)	Low (4)
Probability	Probable (3)	Probable (3)
Significance	Medium (30)	Medium (30)
Status (positive or negative)	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	yes	

Mitigation Mitigation cannot reduce the negative visual effect on the cultural landscape and 'significance of place'.
Cumulative impacts: The construction of the power lines will slightly increases the visibility of these features on the high ground.
Residual impacts: Disturbances to the landscape by the construction of the power lines and service roads will be long term.

DISCUSSION AND MITIGATION

In general the proposed substation sites and powerline routes to the Poseidon substation appear to be of low cultural significance. Although it would appear unlikely that any significant *in situ* sites/material will be exposed during these developments, sites/materials and/or human remains may be covered by soil and vegetation. It is recommended that;

1. If any concentrations of archaeological material are exposed, work must stop immediately and reported to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). 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).

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 a person, such as the onsite environmental control officer must be trained as a site monitor to report to the foreman when archaeological sites are found. This person must monitor all activities during the construction phase.

GENERAL REMARKS AND CONDITIONS

Note: This report is for a Phase 1 Archaeological Impact Assessment only and do not include or exempt other required heritage impact assessments (see below).

The National Heritage Resources Act (Act No. 25 of 1999, section 35) (see Appendix A) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, scientific, social, spiritual linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of all these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/material and may not therefore, reflect the true state of affairs. Many sites 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 any phase of construction work), archaeologists must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Resources Act No. 25 of 1999 (NHRA).

It must also be clear that Phase1 Specialist Reports (AIAs) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should give a permit or a formal letter of permission for the destruction of any cultural sites.

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 developers

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. Developers 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

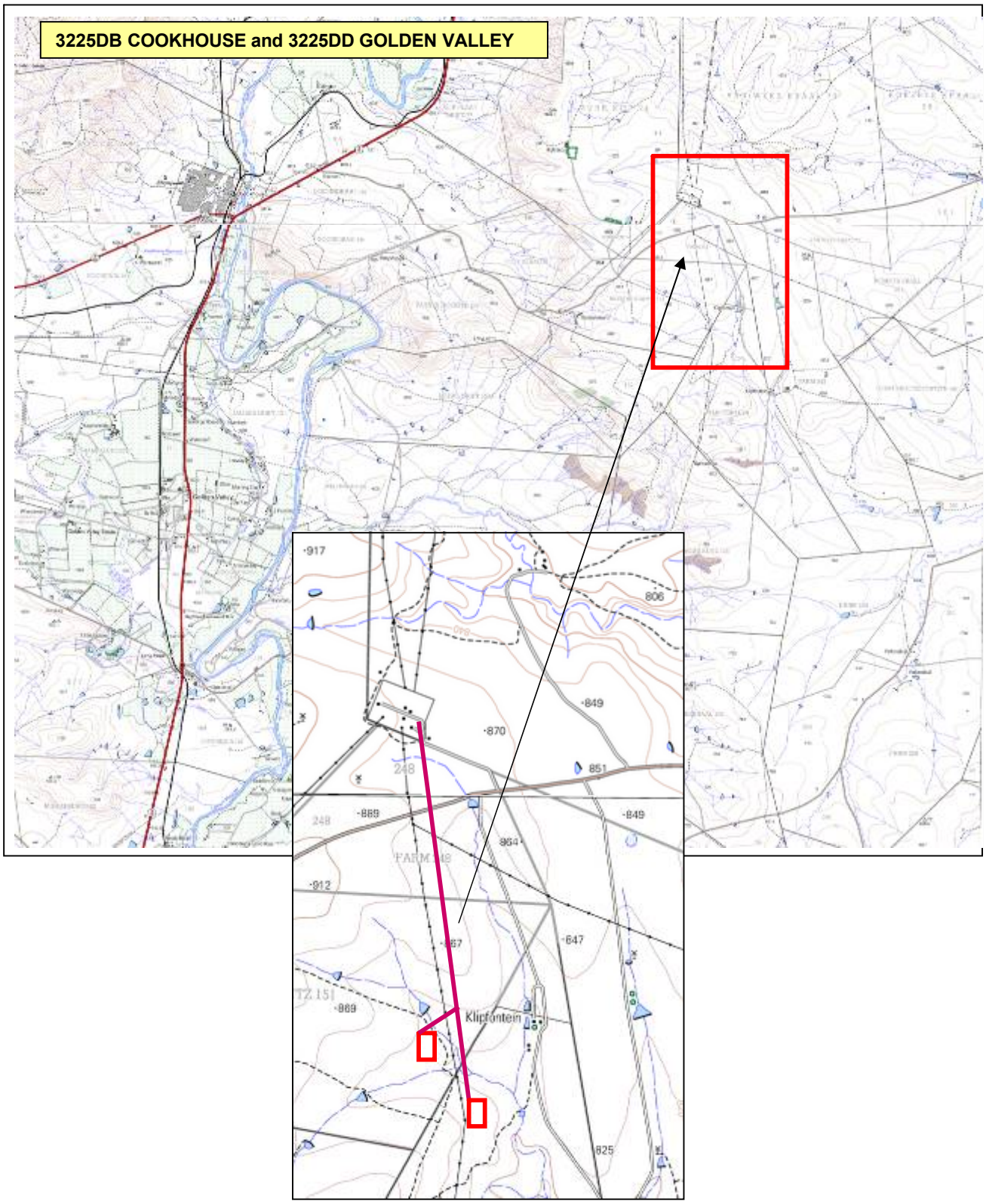
These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

Fossil bone

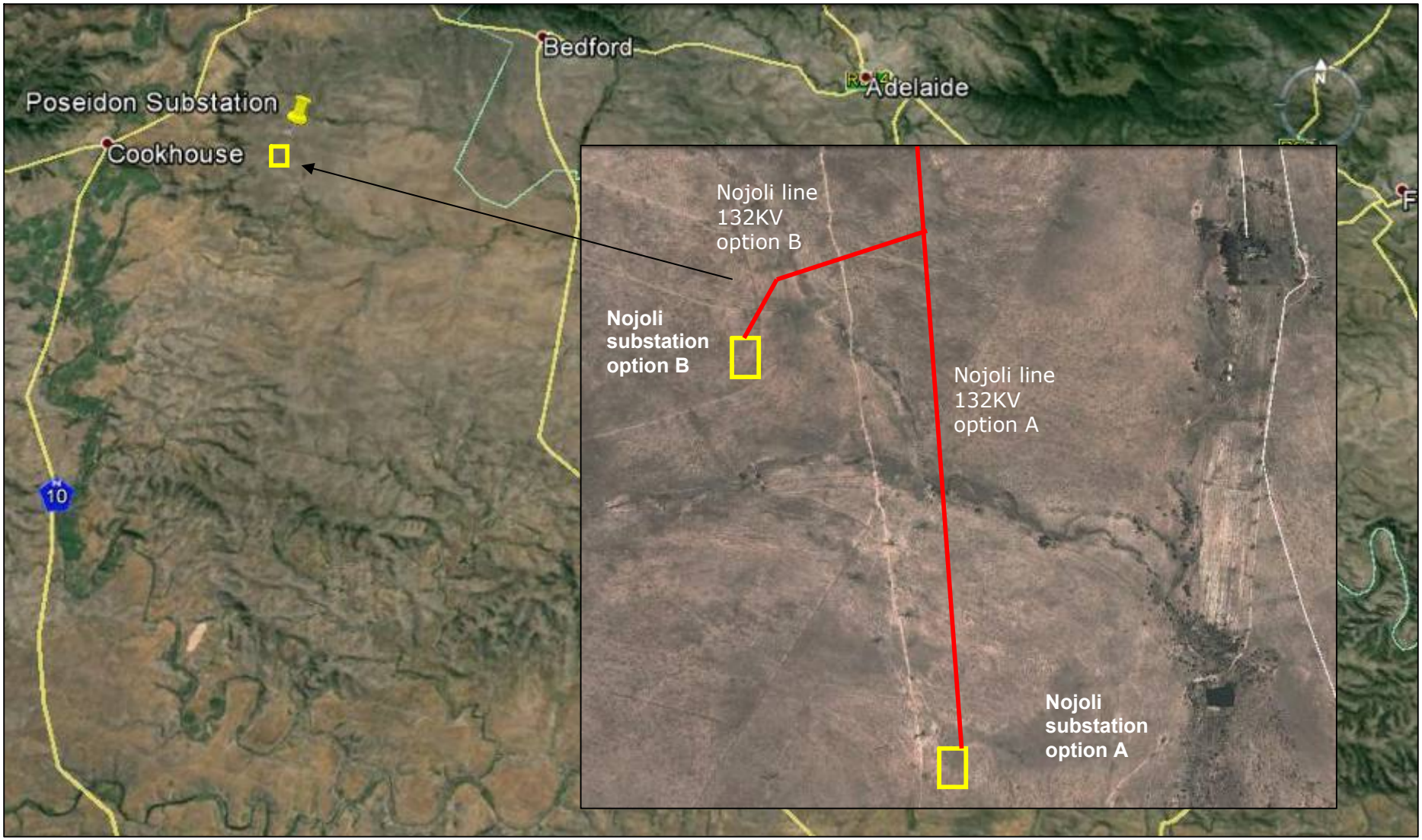
Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

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**.**



Map 2. 1:50 000 topographic maps indicating the location of the developments south of the Poseidon substation. The red squares mark the proposed substation sites and the pink lines the power lines.



Map 3. Aerial images indicating the location of the proposed developments south of the Poseidon substation. The yellow squares mark the proposed substation sites and the red lines the power lines.

References

Burkitt, M. C. 1928. South Africa's past in stone and paint. Cambridge.

Binneman, J.N.F. 1994. A unique stone tipped arrowhead from Adam's Kranz Cave, eastern Cape.Southern African Field Archaeology 3:58-60.

Binneman, J. 1996. Preliminary report on the investigations at Kulubele, an Early Iron Age farming settlement in the Great Kei River Valley, Eastern Cape. Southern African Field Archaeology 5:28-35.

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).

Deacon, H.J. 1976. Where hunters gathered: a study of Holocene Stone Age people in the eastern Cape. Claremont: South African Archaeological Society Monograph 1.

Deacon, J. 1972. Wilton: an assessment after 50 years. South Africa Archaeological Bulletin 27:10-45.

Derricourt, R.M. 1977. Prehistoric man in the Ciskei and Transkei.Cape Town: C. Struik.

Goodwin, A.J.H. & Lowe, C. van Riet. 1929. The Stone Age cultures of South Africa. Annals of the South African Museum.

Hall, S.L. 1990. Hunter-gather-fishers of the Fish River Basin: a contribution to the Holocene prehistory of the eastern Cape. Unpublished thesis: University of Stellenbosch.

Halket, D. and Webley, L. 2010. Heritage scoping assessment of a proposed Amakhala-Emoyeni wind Energy Facility to be situated on 19 farms in the Cookhouse District, Eastern Cape. Unpublished report 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.

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).

Hewitt, J. 1925. On some stone implements from the Cape Province. South African Journal of Science 22:441-453.

Leslie Brooker, M. 1987. An archaeological study of the Uniondale Rock Shelter. Unpublished M.A. thesis: University of Stellenbosch.

Maggs, T. 1973. The NC3 Iron Age tradition. South African Journal Science 69:325-326.Mostert, N. 1992. Frontiers: the epic of South Africa's creation and the tragedy of the Xhosa people. London: Pimlico.

Mucina, L. and Rutherford, M.C. (eds) 2006. The vegetation of South Africa, Lesotho and Swaziland. Strelizia 19. South African National Biodiversity Institute, Pretoria.

Opperman, H. 1979. Reddingsopgrawing van 'n Steentydperk-Vindplek op die Fort Hare-Universiteitsterrein. Fort Hare Papers. 7:59-71.

Rudner, J. 1968. Strandloper pottery from South and South West Africa. Annals of the South African Museum 49:441-663.

Stapleton, P. and Hewitt, J. 1927. Some implements from a rock-shelter at Howieson's Poort near Grahamstown. South African Journal of Science 24: 574-587.

Theal, G.M. 1896. Balangrike historische dokumenten: Ries van den Vaandrig Beutler in 1752. Kaapstad: N. de Sandt de Villiers & Co. Drukkers.

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.

Relevant impact assessments

Binneman, J. 2012a. An archaeological walkthrough survey of the turbine footprint for the proposed Phase 1 Amakhala Emoyeni Wind Energy Facility, Cookehouse District, Blue Crane Route Municipality, Eastern Cape Province. Prepared for Savannah Environmental Ltd. (Pty).

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

Binneman, J. 2012c.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).

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).

Gaigher, S. 2012. Walk-through survey and re-evaluation report indicatingthe 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).

Halket, D. and Webley, L. 2010. Heritage scoping assessment of a proposed Amakhala-Emoyeni wind Energy Facility to be situated on 19 farms in the Cookhouse District, Eastern Cape. Unpublished report 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. and Hart, T. 2008. Scoping 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.

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.