

**A PHASE 1 ARCHAEOLOGICAL HERITAGE IMPACT ASSESSMENT FOR THE
PROPOSED HAPPY VALLEY WIND ENERGY FACILITY NEAR HUMANSDORP, KOUGA
LOCAL MUNICIPALITY, DISTRICT OF HUMANSDORP, 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 Phase 1 Archaeological Heritage Impact Assessment (AHIA) reports.

EXECUTIVE SUMMARY

Purpose of the Study

The purpose of the study was to conduct a phase 1 archaeological impact assessment (AIA) for the proposed Happy Valley Wind Energy Facility near Humansdorp, Kouga Local Municipality, Cacadu District Municipality, Eastern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage remains and features, the potential impact of the development and, to make recommendations to minimize possible damage to these sites.

Site and location

The proposed Happy Valley Wind Energy Facility site is situated approximately 9 kilometres north-west of Humansdorp on the farms Geelhoutboom and Happy Valley No. 810. The development will take place on top of a high ridge and some 20 kilometres north from the Oyster Bay coast, overlooking the relatively flat coastal foreland. The site is currently being used for general farming activities and grazing. The entire area for the proposed wind energy facility is covered by dense grass and fynbos vegetation.

Type of development

The proposed development entails the construction and operation of a wind energy facility and associated infrastructure. The wind energy facility will be developed on some 5 square kilometres and comprise a maximum of 20 wind turbines with a proposed total generating capacity of approximately 30 MW.

Investigation

The proposed Happy Valley Wind Energy Facility site is approximately 20 kilometres from

the coast and falls outside the coastal sensitive zone. The site is covered by dense grass and fynbos vegetation, which made archaeological visibility difficult. Only one large Earlier Stone Age hand axe was observed eroding from the exposed gravel in a track leading to the top of the ridge. It is unlikely that any significant archeological will be exposed during the development.

Cultural sensitivity

The area investigated appears to be of low archaeological sensitivity and the impact of construction will be of low negativity.

Recommendations

In the unlikely event that any concentrations of archaeological material are uncovered during development, work must immediate cease and be reported to the nearest archaeologist and/or the South African Heritage Resources Agency.

Community consultation

Consultation with the Gamtkwa KhoiSan Council was conducted as required by the National Heritage Resources Act No. 25 of 1999, Section 38(3e).

PROJECT INFORMATION

Status

The proposed wind energy facility is to be developed by Renewable Energy Investments South Africa (Pty) Ltd and is referred to as the Happy Valley Wind Energy Facility. This report is part of an Environmental Impact Assessment.

The type of development

The proposed Happy Valley Wind Energy Facility and associated infrastructure will be developed on some 5 square kilometres and comprise of up to 20 wind turbines with a proposed generating capacity of approximately 30 MW. The associated infrastructure required for the facility will include concrete foundations to support the turbines. Cabling between the turbines will be lain underground where practical. An on-site substation to facilitate the connection between the wind energy facility and the grid will be constructed. New overhead power lines will be constructed to connect to Eskom's existing Melkhout substation near Humansdorp. Other developments will include internal access roads to each turbine and a workshop area for maintenance and storage of equipment.

The Developer:

Renewable Energy Investments South Africa (Pty) Ltd.

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Terms of reference

To conduct a phase 1 archaeological impact assessment (AIA) for the proposed Happy Valley Wind Energy Facility and the associated infrastructure near Humansdorp, Kouga Local Municipality, Cacadu District Municipality, Eastern Cape Province. The survey was conducted to establish the range and importance of the exposed and *in situ* archaeological heritage remains and features, the potential impact of the development and, to make recommendations to minimize possible damage to these sites.

ARCHAEOLOGICAL BACKGROUND

Brief literature review (a comprehensive desktop study was compiled)

Little archaeological research has been conducted in the immediate vicinity of the Geelhooutboom/Happy Valley area and therefore there are no recorded archaeological sites. However, information is available on the archaeology of the surrounding areas which can inform us about how hunter-gatherers and later pastoralist groups lived in the area. The oldest evidence of the early inhabitants in this area are large stone tools, called hand axes and cleavers, which can be found in the gravels which capped the hill slopes in the wider region (Laidler 1947). These large stone tools are from a time period called the Earlier Stone Age and may date between 1,4 million and 250 000 years old. These large stone tools were replaced by smaller stone tools called the Middle Stone Age (MSA) flake and blades industries. MSA stone tools occur throughout the region and may date between 250 000 and 30 000 years old ((Klein, 1976; Singer & Wymer, 1982; Rightmire & Deacon, 1991; Deacon, 1992, 1993, 2001; Deacon & Wurz, 1996; Deacon & Deacon, 1999).

Some 30 000 years ago the MSA gave way to the Later Stone Age (LSA) cultural time period. Several caves and shelters have been researched in the surrounding mountains and along the coast which provided valuable information on the life ways of these people. In comparison with previous time periods, the LSA is characterised by several 'new' technological innovations while other cultural artefacts became more common, such as rock art. New microlithic stone tool types (some fixed to handles with mastic) emerged along with bows and arrows, containers (such as tortoise shell bowls and ostrich eggshell flasks which were sometimes decorated), decorative items, bone tools and much more. For the first time people were buried in caves and shelters and often these burials are

associated with grave goods and marked by painted stones (Deacon & Deacon, 1999).

Excellent preservation of organic material in some caves and shelters yielded remarkable botanical artefacts, such as digging sticks (4 500 years old), fire sticks (5 800), decorated wooden sticks (9 200) and almost complete mummified human remains dating to some 2 000 years ago. Other interesting features are 'storage pits' (hollows lined with plant material) which were used to store seeds for later use, and 'postholes' (often with post still *in situ*). It would appear that shelters were divided, presumably into small family living areas (Binneman 1997, 1998, 1999a & b, 2000).

For most of the past 20 000 years San hunter-gatherers lived in the cave rock shelters of the region and many still display paintings along the walls. In general the paintings are not well-preserved and appear to be of a similar 'style' throughout the region with the dominant colours being red and maroon, and red with black, with yellow and white being present to a lesser degree. The paintings do not, for example, represent only a hunting scene or some or other daily activity, but each painting had a particular symbolic meaning for the painters.

The first real change in the socio-economic landscape came some 2 000 years ago when Khoi pastoralists settled in the region. They were the first food producers in this area and introduced domesticated animals (sheep, goats and cattle) and ceramic vessels to the region. Not long after their arrival, the first Europeans rounded the Cape and greatly altered the prehistoric socio-economic landscape.

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Museum/University databases and collections

The Albany Museum in Grahamstown houses collections and information from the wider region.

Relevant impact assessments

Binneman, J. 2010. A phase 1 archaeological heritage impact assessment for the proposed Deep River Wind Energy Project, Kouga Municipality, District Of Humansdorp, Eastern Cape Province. Prepared for Savannah Environmental (Pty) Ltd, Sunninghill.

DESCRIPTION OF THE PROPERTY

Area Surveyed

Location data

The site for the proposed Happy Valley Wind Energy Facility and associated infrastructure is situated approximately 9 kilometres north-west of Humansdorp in the Kouga Local Municipality and Humansdorp District of the Cacadu District Municipality, Eastern Cape Province. The development will take place on the farms Geelhoutboom and Happy Valley No. 810 just north of the N2 national road to Port Elizabeth and the narrow gauge railway line from Port Elizabeth to Avontuur in the Langkloof (Maps 1-4).

The development will take place on top of a high ridge and some 20 kilometres north from the Oyster Bay coast, overlooking the relatively flat coastal foreland. The site is currently being used for general farming activities and grazing. The entire area for the proposed wind energy facility is covered by dense grass and fynbos vegetation (Figs 1-10)

Map

1:50 000 – 3324 Andrieskraal

ARCHAEOLOGICAL INVESTIGATION

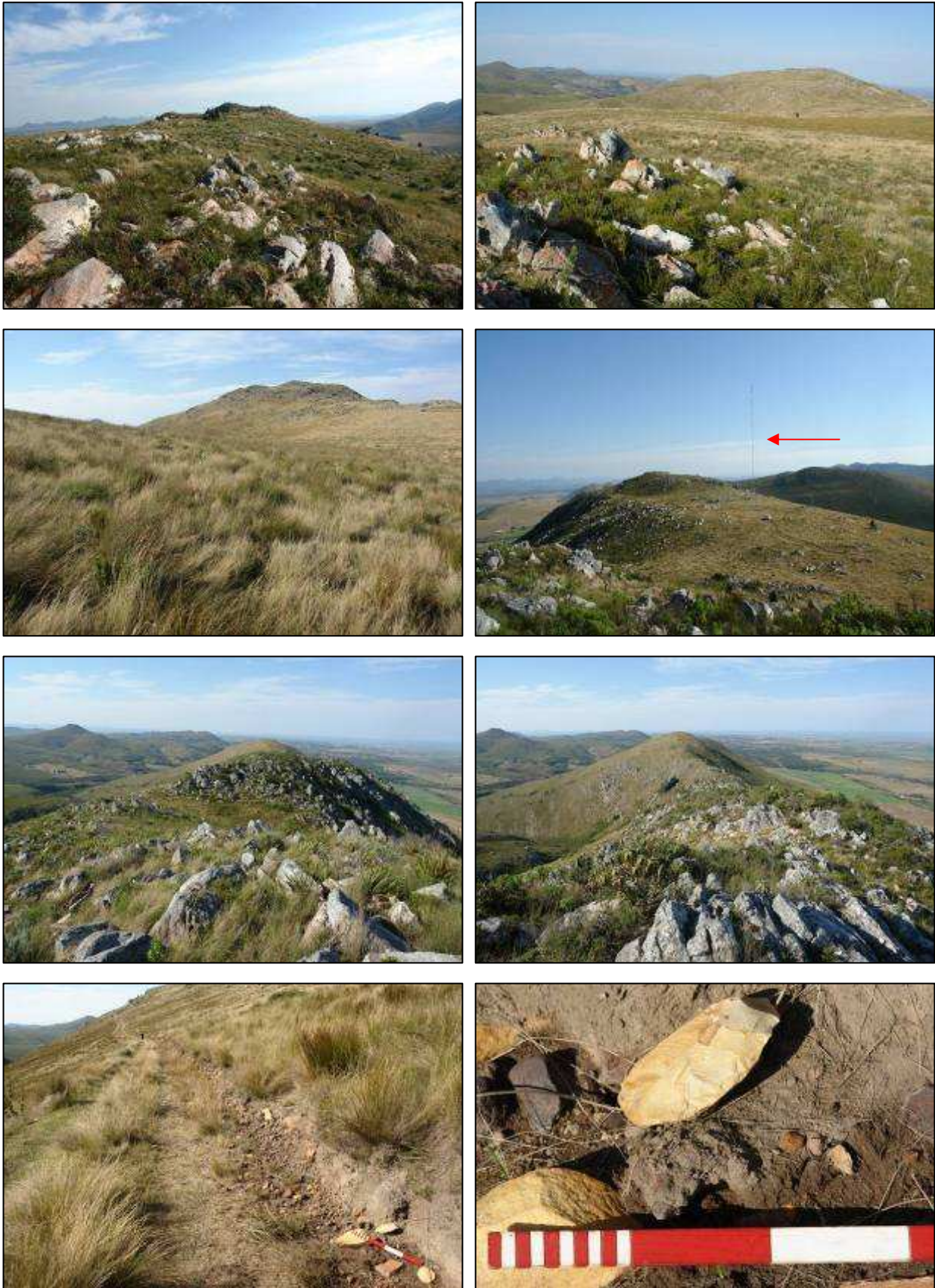
Methodology and results

The proposed Happy Valley Wind Energy Facility site was investigated by two people on foot and from a vehicle. A literature study of the archaeology of the region was compiled prior to the survey. GPS readings were taken with a Garmin and all important features were digitally recorded. Consultation was conducted with the local Gamtkwa KhoiSan community regarding the archaeological heritage of the area.

A layout map for the proposed locations of 13 turbines and the substation was available at the start of the survey. Farm tracks to some of the turbine locations were followed by vehicle and investigated on foot. Spots checks were also conducted from the vehicle along the tracks and those locations which could not be reached by vehicle were also investigated on foot (Maps 3-4). In this way most of the area and proposed turbine locations were investigated. The entire area is covered by dense grass and the rocky outcrops along the top of the ridge (where the turbines will be constructed) by fynbos vegetation. The dense vegetation cover made it difficult to observe archaeological sites (Figs 3-8). Only one Earlier Stone Age (1,5 million – 250 000 years old) stone tool (hand axe) was observed where the underlying gravel was exposed by a vehicle track (GPS reading: 33.58.892S; 24.40.261E) (Fig. 9-10). Although no archaeological remains were observed, material may be covered by soil and grass. Previous surveys in the wider area indicated that there are Earlier and Middle Stone Age stone tools in the exposed river gravels and surrounding hill tops, but these are in secondary context and of low cultural value. Weathered quartzite Middle Stone Age stone tools are found throughout the region, but are also in secondary context and not associated with any other archaeological materials. It is improbable that the exposed windswept rocky outcrops on the summit of the ridge would have been preferred sites for occupation. Against this background it would appear unlikely that any archaeological remains will be found *in situ* or of any contextual significance.



Figs 1-2. Views of the high ridge where the turbines will be constructed.



Figs 3-10. General views of the proposed Happy Valley Wind Energy Facility site. Turbine positions 1-5 (top row), 6,7 and 14 (substation) (second row), the red arrow marks the wind measuring mast, 8-13 (third row) and the hand axe found in the exposed track gravel.

Assessment of the impacts

Nature of the impacts

The investigation of the proposed Happy Valley Wind Energy Facility site proved to be of low archaeological sensitivity and no sites/remains of significance were recorded, but material may be covered by soil and grass. The main impacts to archaeological sites/remains (if any) will be the physical disturbance of the material and its context. The construction of the turbine foundations, substation, cabling between the turbines and access roads may expose and/or disturbed/destroy the sites/remains. However, it is improbable that the exposed windswept rocky outcrops on the summit of the ridge would have been preferred sites for occupation.

Extent of the impacts

Construction of the turbine foundations, substation, cabling between the turbines and access roads may impact on remains which are buried and not visible, but these impacts will be limited and restricted to the local area. Deep excavations for the turbine foundations will also have limited impact on possible buried remains because the top soil is shallow which do not allow for deep archaeological deposits.

Table 1. Assessment of the impacts

| | | |
|---|---------------------------|------------------------|
| Nature: The potential impact of the construction of the turbines, substation, cabling between the turbines, access roads and workshop on above and below ground archaeology. | | |
| | Without Mitigation | With Mitigation |
| Extent | Local (1) | Local (1) |
| Duration | Permanent (5) | Permanent (5) |
| Magnitude | Minor (2) | Minor (2) |
| Probability | Improbable (2) | Improbable (2) |
| Significance | Low < 30 | Low < 30 |
| Status (positive or negative) | Negative | Neutral |
| Reversibility | No | No |
| Irreplaceable loss of resources? | No | No |
| Can impacts be mitigated? | Yes | |
| <p>Mitigation</p> <p>No mitigation is proposed for the ridge area as the archaeological remains (if any) are of low significance - excluding human remains.</p> <p>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 South African Heritage Resources Agency, 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.</p> | | |
| Cumulative impacts: The cumulative impact is not likely to be different from the above. | | |
| Residual impacts: | | |

CONCLUSIONS

The proposed Happy Valley Wind Energy Facility site appears to be of low archaeological sensitivity. No archaeological remains of any heritage significance were found, but it is possible that stone tools may occur and be exposed if the surface soil is disturbed. The impact of the development on archaeological sites/materials (if any) will be limited. However, 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 then it must be reported to the nearest museum, archaeologist or to the South African Heritage Resources Agency (see general remarks and conditions below).

RECOMMENDATIONS

1. In the unlikely event that any concentrations of archaeological material or human remains are uncovered during further development of the site, all work must immediately cease and be should reported to the Albany Museum and/or the South African Heritage Resources Agency so that systematic and professional investigation/excavations can be undertaken. Sufficient time should be allowed to remove/collect such material (See Appendix B for a list of possible archaeological sites that maybe found in the area).
2. Construction managers/foremen should be informed before the start of construction on the possible types of heritage sites and cultural material they may encounter and the correct procedures to follow when they encounter sites.

GENERAL REMARKS AND CONDITIONS

Note: This report is for a Phase 1 archaeological heritage 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 5000m² 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 000m² 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 the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

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

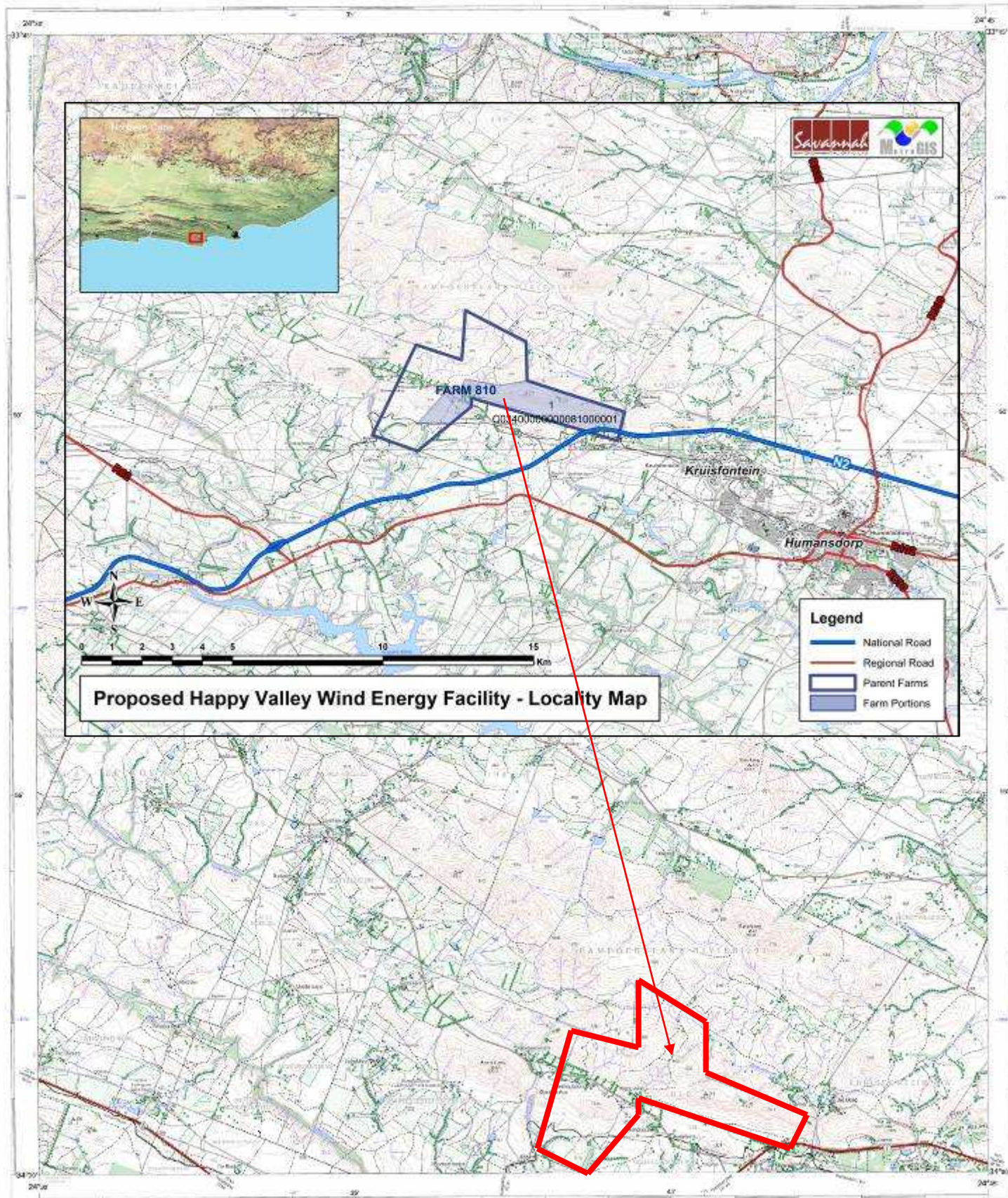
Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

Large stone features

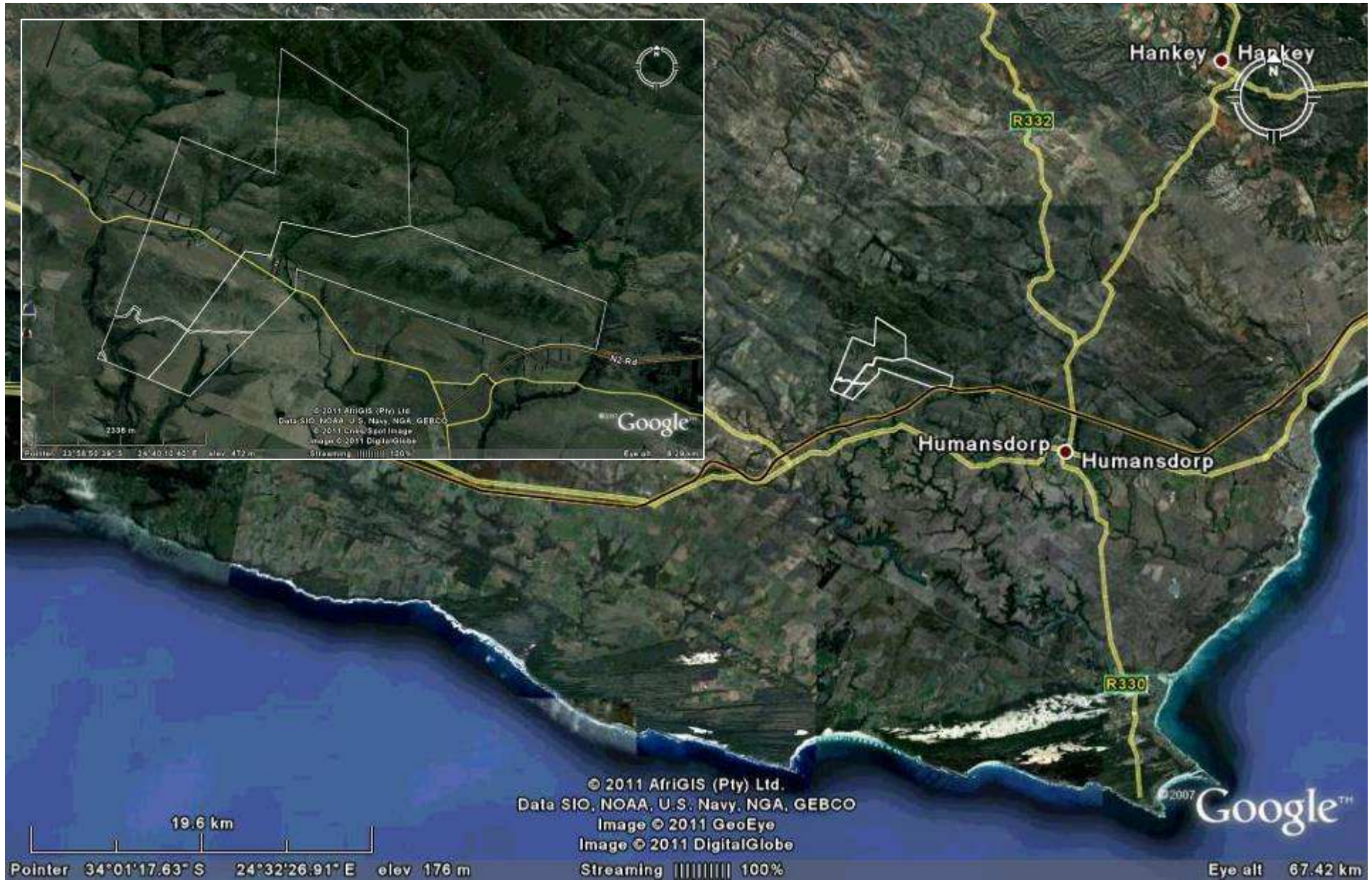
They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *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.

Historical artefacts or features

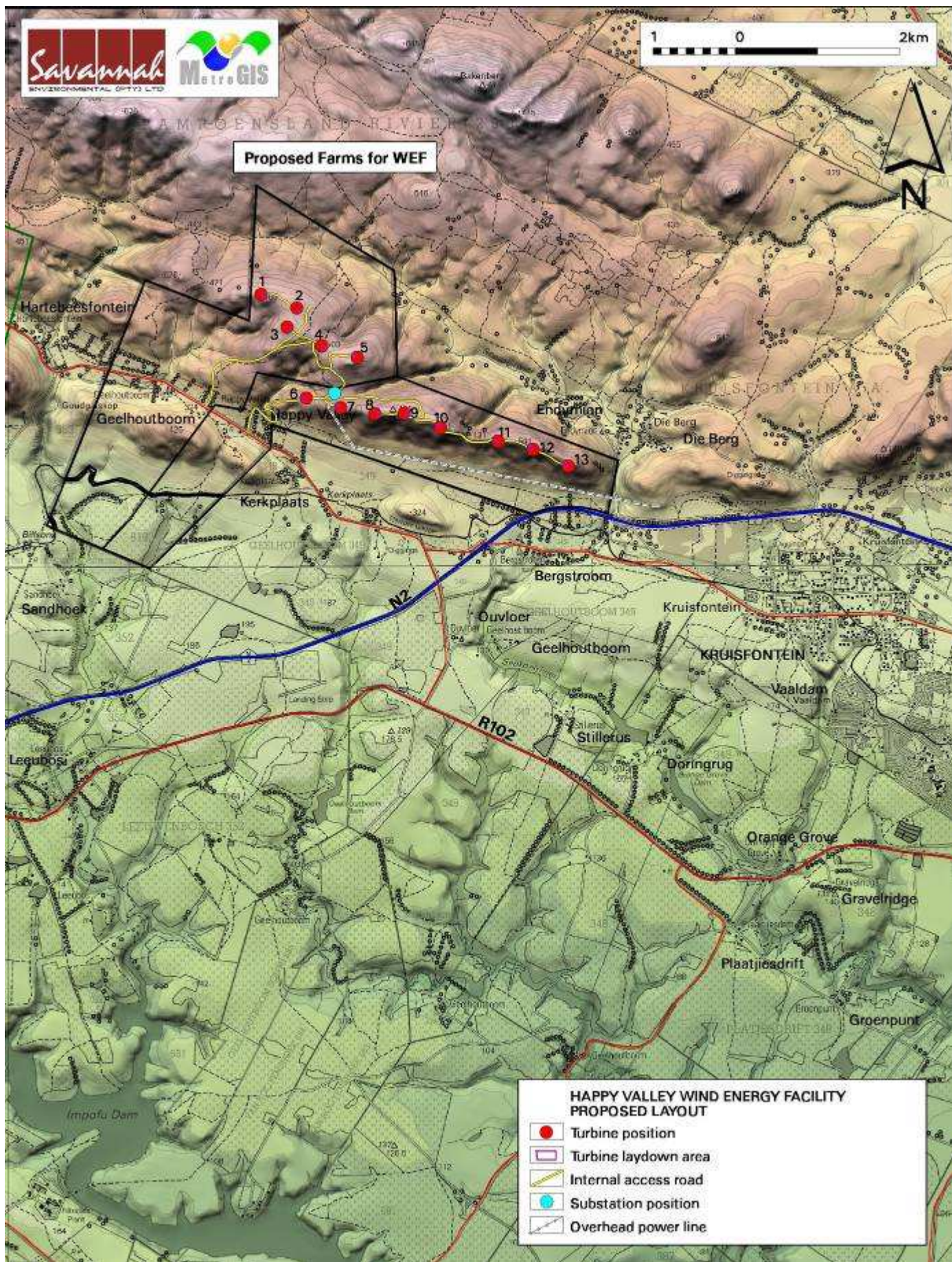
These are easy to identified and include foundations of buildings or other construction features and items from domestic and military activities.



Map 1. 1:50 000 maps indicating the location of the proposed Happy Valley Wind Energy Facility. The red lines outline the approximate size of the site (insert map courtesy of Savannah (Pty) Ltd).



Map 2. Aerial images of the location of the proposed Happy Valley Wind Energy Facility. The white lines outline the size of the development (maps courtesy of Savannah (Pty) Ltd).



Map 3. A map of the turbine positions (red dots) and the substation (blue dot) (map courtesy of Savannah Environmental (Pty) Ltd).



Map 4. An aerial image of the turbine positions mark by the yellow pegs (map courtesy of Savannah (Pty) Ltd).