

**McGregor Museum
Department of Archaeology**



**AES Solar PV Installation
on the property Dabenoris 44
near Aggeneys, Northern Cape:
Scoping phase Heritage Input**

**David Morris
August 2013**

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1. INTRODUCTION

The applicant, Alternative Energy Solutions, as indicated by Environmental Impact Management Services (Pty) Ltd, is proposing the establishment of a solar photovoltaic energy facility on the property Debenoris 44 north of Aggeneys in the Northern Cape.

1.1 Focus and Content of Scoping Report: Heritage

No detail has been provided on any possible infrastructure parameters or preferred locations within the property.

This heritage scoping report therefore presents a brief baseline description and sets out a modus operandi for a full heritage impact study.

1.2 Heritage Specialist

The author of this report is a qualified archaeologist (PhD, University of the Western Cape) accredited as a Principal Investigator by the Association of Southern African Professional Archaeologists. The author has worked as a museum archaeologist in the Northern Cape since 1985 and has since the late 1980s carried out surveys in the general area of Upington (e.g. Morris & Beaumont 1991; Morris 2000 – 2012). In addition the author has a comprehensive knowledge of the province's history and built environment, and received UCT-accredited training at a workshop on *Architectural and Urban Conservation: researching and assessing local (built) environments* (S. Townsend, UCT). He is also Chairman of the Historical Society of Kimberley and the Northern Cape.

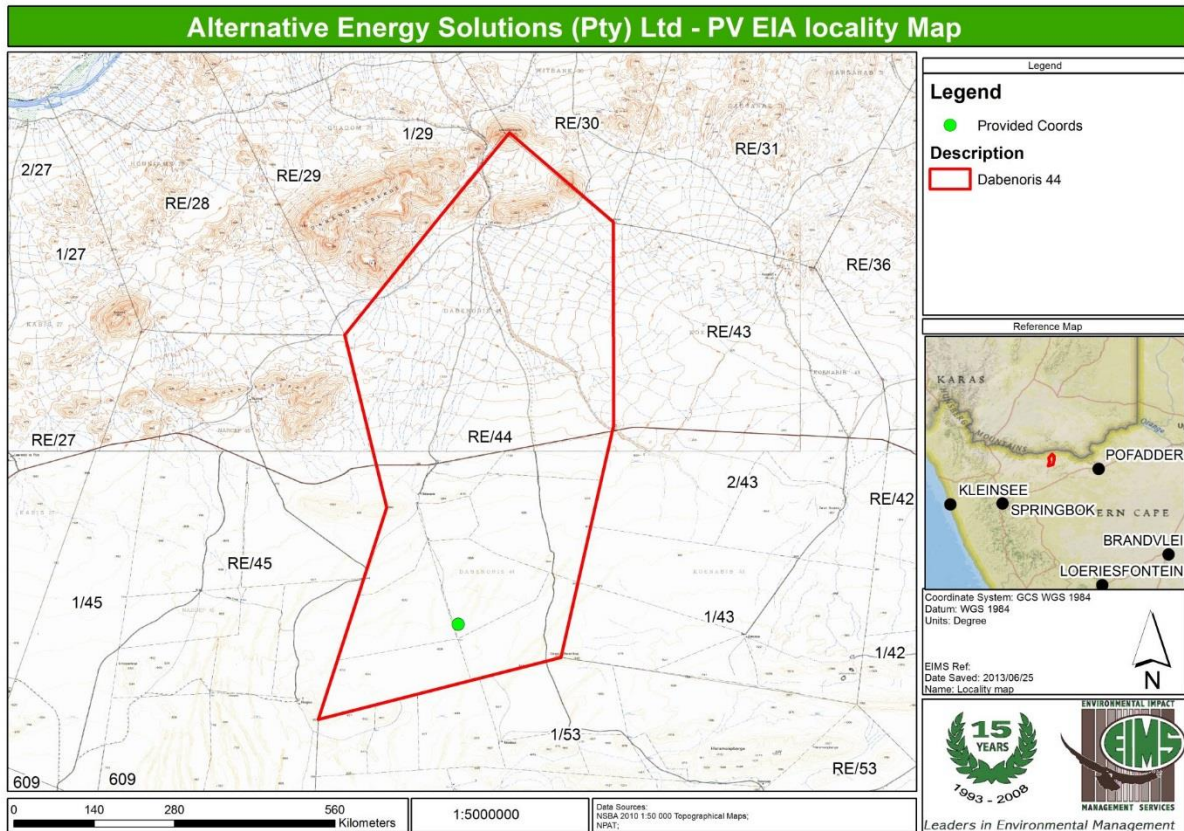
The author is independent of the organization commissioning this specialist input, and provides this Specialist Report within the framework of the National Heritage Resources Act (No 25 of 1999).

The National Heritage Resources Act no. 25 of 1999 (NHRA) protects heritage resources which include archaeological and palaeontological objects/sites older than 100 years, graves older than 60 years, structures older than 60 years, as well as intangible values attached to places. The Act requires that anyone intending to disturb, destroy or damage such sites, objects and/or structures may not do so without a permit from the relevant heritage resources authority. This means that a Heritage Impact Assessment should be performed, resulting in a specialist report as required by the relevant heritage resources authority/ies to assess whether authorisation may be granted for the disturbance or alteration, or destruction of heritage resources.

2. DESCRIPTION OF THE AFFECTED ENVIRONMENT

The environment in question is arid, comprising a combination of hills and relatively flat drainage plains with localised dunes some 6 to 20 km south of the Orange River, to the north of Aggeneys and

west of Pofadder. The landscape is sparsely vegetated, with, in most parts, shallow soils, in consequence of which any surface archaeological traces would tend to be highly visible.



Map indicating the property where the development is intended to be located.

2.1 Heritage features of the region

No previous archaeological survey work by the McGregor Museum has been carried out on the property in question. However previous survey work has documented archaeological observations in areas immediately south of here around Aggeneys. For the broader region the following comments can be made as background or baseline information from which certain heritage predictions may be made for testing in the full HIA study.

2.1.1 Colonial frontier

The eighteenth- and nineteenth-century records for this region (Penn 2005) include the travelogues of George Thompson (1827) and E.J. Dunn (1931, Robinson 1978), who visited the area in 1824 and 1872 respectively. Place names were becoming fixed in this colonial frontier period (in a cadastral sense, on maps and in farm names), many such names having Khoe-San origins encapsulating vestiges of precolonial/indigenous social geography. A much more prominent appreciation is now emerging concerning the history of genocide against the Bushmen in this area (Anthing 1863), with certain mountainous areas (like Gamsberg and Namiesberg near Aggeneys) being likely massacre sites, referred to by Dunn in 1872 (Robinson 1978) and, more obliquely, by Anthing (1863; de Prada-Samper 2011).

2.1.2 Later Stone Age

Late Holocene Later Stone Age (LSA) sites are frequently noted in surveys of the region (e.g. Morris & Beaumont 1991; Beaumont *et al.* 1995; and numerous impact assessment reports for the area between Pofadder and Springbok). Beaumont *et al.* (1995) have shown, with reference to the LSA, that “virtually all the Bushmanland sites so far located appear to be ephemeral occupations by small groups in the hinterland on both sides of the [Orange] river” (1995:263). This was in sharp contrast to the substantial herder encampments along the Orange River floodplain itself (Morris & Beaumont 1990), which reflected the “much higher productivity and carrying capacity of these bottom lands.” “Given choice, the optimal exploitation zone for foragers would have been the Orange River.” The appearance of herders in the Orange River Basin, Beaumont *et al.* argue, led to competition over resources and ultimately to marginalisation of hunter-gatherers, some of whom then occupied Bushmanland, probably mainly in the last millennium, and focused their hunting and gathering activities around the limited number of water sources in the region. Surveys have located signs of human occupation mainly in the shelter of granite inselbergs, on red dunes which provided clean sand for sleeping, or around the seasonal pans (Beaumont *et al.* 1995:264). Possibly following good rains, herders moved into the Orange River hinterland, as attested archaeologically at sites with ample pottery near Aggeneys and, east of Pofadder, at Schuifdrift South – Morris 1999a). However, Thompson (1824) refers to herder groups settled at the stronger springs such as Pella dispersing during periods of drought to smaller springs in the region, which could equally well account for the traces referred to here. At such times competition between groups over resources and stress within an already marginalised hunter-gatherer society, must have intensified.

Grinding grooves have been found on rock outcrops in the Aggeneys area (Morris 2011) and rock paintings are known from a boulder site alongside the Aggeneys/Black Mountain aggregate quarry (Morris 2011). More recently, important engraved cupule sites have been identified at two sites on Black Mountain Mining property, Aggeneys and at the foot of the Swartberg on Zuurwater 62 (Morris 2013).

2.1.3 Pleistocene: Middle and Earlier Stone Age

Beaumont *et al.* (1995:240-1) note a widespread low density stone artefact scatter of Pleistocene age across areas of Bushmanland to the south where raw materials, mainly quartzite cobbles, were derived from the Dwyka glacial till. Similar occurrences have been noted north of Upington in situations where raw materials are abundant. Systematic collections of this material at Olyvenkolk south west of Kenhardt and Maans Pannen east of Gamoep could be separated out by abrasion state into a fresh component of Middle Stone Age (MSA) with prepared cores, blades and points, and a large aggregate of moderately to heavily weathered Earlier Stone Age (ESA) (Beaumont *et al.* 1995).

The Middle (and perhaps in some instances Lower) Pleistocene occupation of the region that these artefacts reflect must have occurred at times when the environment was more hospitable than today. This is suggested by the known greater reliance of people in Acheulean times on quite restricted ecological ranges, with proximity to water being a recurrent factor in the distribution of sites.

2.2 Description and evaluation of environmental issues and potential impacts

Heritage resources including archaeological sites are in each instance unique and non-renewable resources. Area and linear developments such as those envisaged can have a permanent destructive impact on these resources. The objective of an EIA would be to assess the sensitivity of such resources where present, to evaluate the significance of potential impacts on these resources and, if

and where appropriate, to recommend no-go areas and measures to mitigate or manage said impacts.

Area impacts are possible in the case of the AES PV Installation and the proposed substation; the power lines and access roads would represent linear impacts.

2.2.1 *Direct, indirect and cumulative impacts (in terms of nature, magnitude and extent)*

The destructive impacts that are possible in terms of heritage resources would tend to be direct, once-off events occurring during the initial construction period. In the long term, the proximity of operations in a given area could result in secondary indirect impacts resulting from the movement of people or vehicles in the immediate or surrounding vicinity. The Environmental Management Plan should seek to minimize the latter impacts as far as possible.

With respect to the magnitude and extent of potential impacts, it has been noted that the erection of power lines would have a relatively small impact on Stone Age sites, in light of Sampson's (1985) observations during surveys beneath power lines in the Karoo (actual modification of the landscape tends to be limited to the footprint of each pylon), whereas a road or a water supply pipeline would tend to be far more destructive (modification of the landscape surface would be within a continuous strip), albeit relatively limited in spatial extent, i.e. width (Sampson compares such destruction to the pulling out of a thread from an ancient tapestry).

2.2.2 *Issues potentially influencing choice of preferred development locales*

Various considerations including possible concentration of past human activity (and hence archaeological traces) along water courses may suggest that the development footprint not be directly on or near the main drainage channels. Features such as hills and rocky outcrops may also have been a focus of past human activity.

2.2.3 *Observations derived from previous experience of the area*

- Based on previous experience, the terrain on which the proposed AES PV development would be located is likely, by and large, *not* to be rich in archaeological traces of major significance.
- However, any landscape features such as hills or rocky features, especially but not exclusively those with hollows where water may collect after rains, may prove to be sensitive, based on findings at other places in the vicinity. Dune crests may also be found to have been utilised.
- Nineteenth- and twentieth-century cultural history and intangible heritage values attached to places may be difficult to recover owing to the sparse population. An effort would need to be made to ascertain to what extent such values exist. An analysis of local place names would provide clues.
- There are farm settlements in the vicinity of 28.92955 S 18.65000 E and 29.01554 S 18.62909 E – with dwellings and kraals and the possibility of nearby graveyards.
- The likelihood of palaeontological features of significance occurring would be subject to a desktop enquiry and fieldwork if deemed necessary.

3. PROPOSED METHODOLOGY FOR FULL HERITAGE STUDY

A site visit will be necessary to inspect various parts of the terrain systematically on foot, focusing on areas of expected impact (should these be known, e.g. construction sites for the facility/ies, sub-station/s, and secondary infrastructure such as roads, pipelines and power lines). Heritage traces would be evaluated in terms of their archaeological significance (see tables below). The predictions set out in sections 2.2.2 and 2.2.3 above would need to be tested by way of observations made on the ground.

3.1 Assumptions and constraints

It would be assumed that, by and large in this landscape, with its sparse vegetation and shallow soil profiles, some sense of the archaeological traces to be found in the area would be readily apparent from surface observations (including assessment of places of erosion or past excavations that expose erstwhile below-surface features). Given a prevailing erosion regime noticed in nearby segments of this landscape, it would not be considered necessary to conduct excavations as part of the full HIA to establish the potential of sub-surface archaeology.

A proviso would routinely given, however, that should sites or features of significance be encountered during construction (this could include an unmarked burial, an ostrich eggshell water flask cache, or a high density of stone tools, for instance), specified steps are necessary (cease work, report to heritage authority).

With regard to fossils, a report and/or field assessment of the likelihood of their occurring here would be obtained from a palaeontologist.

3.2 Potentially significant impacts to be assessed in the HIA process

Any area or linear, primary and secondary, disturbance of surfaces in the development locales could have a destructive impact on heritage resources, where present. In the event that such resources are found, they are likely to be of a nature that potential impacts could be mitigated by documentation and/or salvage following approval and permitting by the South African Heritage Resources Agency and, in the case of any built environment features, by Ngwao Bošwa jwa Kapa Bokone (the Northern Cape Heritage Authority). Although unlikely, there may be some that could require preservation *in situ* and hence modification of intended placement of development features.

Disturbance of surfaces includes any construction: of a road, a pipeline, erection of a pylon, or preparation of a site for a sub-station, or plant, or building, or any other *clearance* of, or *excavation* into, a land surface. In the event of archaeological materials being present such activity would alter or destroy their context (even if the artefacts themselves are not destroyed, which is also obviously possible). Without context, archaeological traces are of much reduced significance. It is the contexts as much as the individual items that are protected by the heritage legislation.

Some of the activities indicated here have a generally lower impact than others. For example, Sampson (1985) has shown that powerlines tend to be less destructive on Stone Age sites than roads since access along the route of the line during construction and maintenance tends to be by way of a 'twee-spoor' temporary roadway (not scraped, the surface not significantly modified). Individual tower positions might be of high archaeological significance (e.g. a grave, or an engraving). Note: the impact of a 'twee-spoor' could be far greater on Iron Age landscapes in other parts of South Africa, where stone walling might need to be breached.

3.4 Determining archaeological significance

In addition to guidelines provided by the National Heritage Resources Act (Act No. 25 of 1999), a set of criteria based on Deacon (nd) and Whitelaw (1997) for assessing archaeological significance has been developed for Northern Cape settings (Morris 2000a). These criteria include estimation of landform potential (in terms of its capacity to contain archaeological traces) and assessing the value to any archaeological traces (in terms of their attributes or their capacity to be construed as evidence, given that evidence is not given but constructed by the investigator).

Estimating site potential

Table 1 (below) is a classification of landforms and visible archaeological traces used for estimating the potential of archaeological sites (after J. Deacon nd, National Monuments Council). Type 3 sites tend to be those with higher archaeological potential, but there are notable exceptions to this rule, for example the renowned rock engravings site Driekopseiland near Kimberley which is on landform L1 Type 1 – normally a setting of lowest expected potential. It should also be noted that, generally, the older a site the poorer the preservation, so that sometimes *any* trace, even of only Type 1 quality, can be of exceptional significance. In light of this, estimation of potential will always be a matter for archaeological observation and interpretation.

Assessing site value by attribute

Table 2 is adapted from Whitelaw (1997), who developed an approach for selecting sites meriting heritage recognition status in KwaZulu-Natal. It is a means of judging a site's archaeological value by ranking the relative strengths of a range of attributes (given in the second column of the table). While aspects of this matrix remain qualitative, attribute assessment is a good indicator of the general archaeological significance of a site, with Type 3 attributes being those of highest significance.

Table 1. Classification of landforms and visible archaeological traces for estimating the potential for archaeological sites (after J. Deacon, National Monuments Council).

| Class | Landform | Type 1 | Type 2 | Type 3 |
|--------------|-------------------------------|---|--|---|
| L1 | Rocky surface | Bedrock exposed | Some soil patches | Sandy/grassy patches |
| L2 | Ploughed land | Far from water | In floodplain | On old river terrace |
| L3 | Sandy ground, inland | Far from water | In floodplain or near feature such as hill | On old river terrace |
| L4 | Sandy ground, Coastal | >1 km from sea | Inland of dune cordon | Near rocky shore |
| L5 | Water-logged deposit | Heavily vegetated | Running water | Sedimentary basin |
| L6 | Developed urban | Heavily built-up with no known record of early settlement | Known early settlement, but buildings have basements | Buildings without extensive basements over known historical sites |
| L7 | Lime/dolomite | >5 myrs | <5000 yrs | Between 5000 yrs and 5 myrs |
| L8 | Rock shelter | Rocky floor | Sloping floor or small area | Flat floor, high ceiling |
| Class | Archaeo-logical traces | Type 1 | Type 2 | Type 3 |
| A1 | Area | Little deposit | More than half | High profile site |

| Class | Landform | Type 1 | Type 2 | Type 3 |
|-------|---|-------------------|----------------------|--|
| | previously excavated | remaining | deposit remaining | |
| A2 | Shell or bones visible | Dispersed scatter | Deposit <0.5 m thick | Deposit >0.5 m thick; shell and bone dense |
| A3 | Stone artefacts or stone walling or other feature visible | Dispersed scatter | Deposit <0.5 m thick | Deposit >0.5 m thick |

Table 2. Site attributes and value assessment (adapted from Whitelaw 1997)

| Class | Attribute | Type 1 | Type 2 | Type 3 |
|-------|---|---|------------------|--|
| 1 | Length of sequence/context | No sequence Poor context Dispersed distribution | Limited sequence | Long sequence Favourable context High density of arte/ecofacts |
| 2 | Presence of exceptional items (incl regional rarity) | Absent | Present | Major element |
| 3 | Organic preservation | Absent | Present | Major element |
| 4 | Potential for future archaeological investigation | Low | Medium | High |
| 5 | Potential for public display | Low | Medium | High |
| 6 | Aesthetic appeal | Low | Medium | High |
| 7 | Potential for implementation of a long-term management plan | Low | Medium | High |

3.5 Conclusion

The manner in which archaeological and other heritage traces might be affected by the proposed AES PV solar facility development has been indicated above. In summary, it would be any act or activity that would result immediately or in the future in the destruction, damage, excavation, alteration, removal or collection from its original position, of any heritage material, object or value (as indicated in the National Heritage Resources Act (No 25 of 1999). The most obvious impact in this case would be land surface disturbance associated with infrastructure construction.

The predictions made in this scoping report relative to previous work in the area will guide the eventual full Heritage Impact Assessment which would include a field visit inter alia to test the predictions on the ground.

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