McGregor Museum
Department of Archaeology

ARCHAEOLOGY SPECIALIST INPUT ON THE PROPOSED ACCESS ROAD FOR THE VANDERLINDESKRAAL PHOTOVOLTAIC SITE SITUATED NEAR HANOVER, NORTHERN CAPE

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1. INTRODUCTION

This report supplements an earlier (September 2011) report assessing the archaeology of the site of a proposed Photovoltaic facility at Remainder of Portion 1 of the Farm Van der Lindeskraal No.79. This report focuses specifically on the route of a proposed access road to the facility on part of the adjacent site, The Remainder of Van Der Lindes kraal No.79. It was commissioned by Jean Beater for Scatec Solar.

1.1 Focus and Content of Specialist Report: Archaeology

This archaeology specialist study is focused on the proposed access road for the Vanderlindeskraal Photovoltaic site. It incorporates the following information:

- Introduction (1)
  - Focus and content of report (1.1)
  - Archaeology specialist (1.2)
- Description of the affected environment (2)
  - Heritage features of the area (2.1)
  - Description and evaluation of environmental issues and potential impacts identified in the scoping phase (2.2)
- Methodology (3)
  - Assumptions and limitations (3.1)
  - Potentially significant impacts to be assessed (3.2)
  - Description and evaluation of environmental issues (3.3)
  - Determining archaeological significance (3.4)
- Observations and assessment of impacts (4)
  - Fieldwork observations (4.1)
  - Characterising the archaeological significance (4.2)
- Conclusions (5)
- References (6)

1.2 Archaeology Specialist

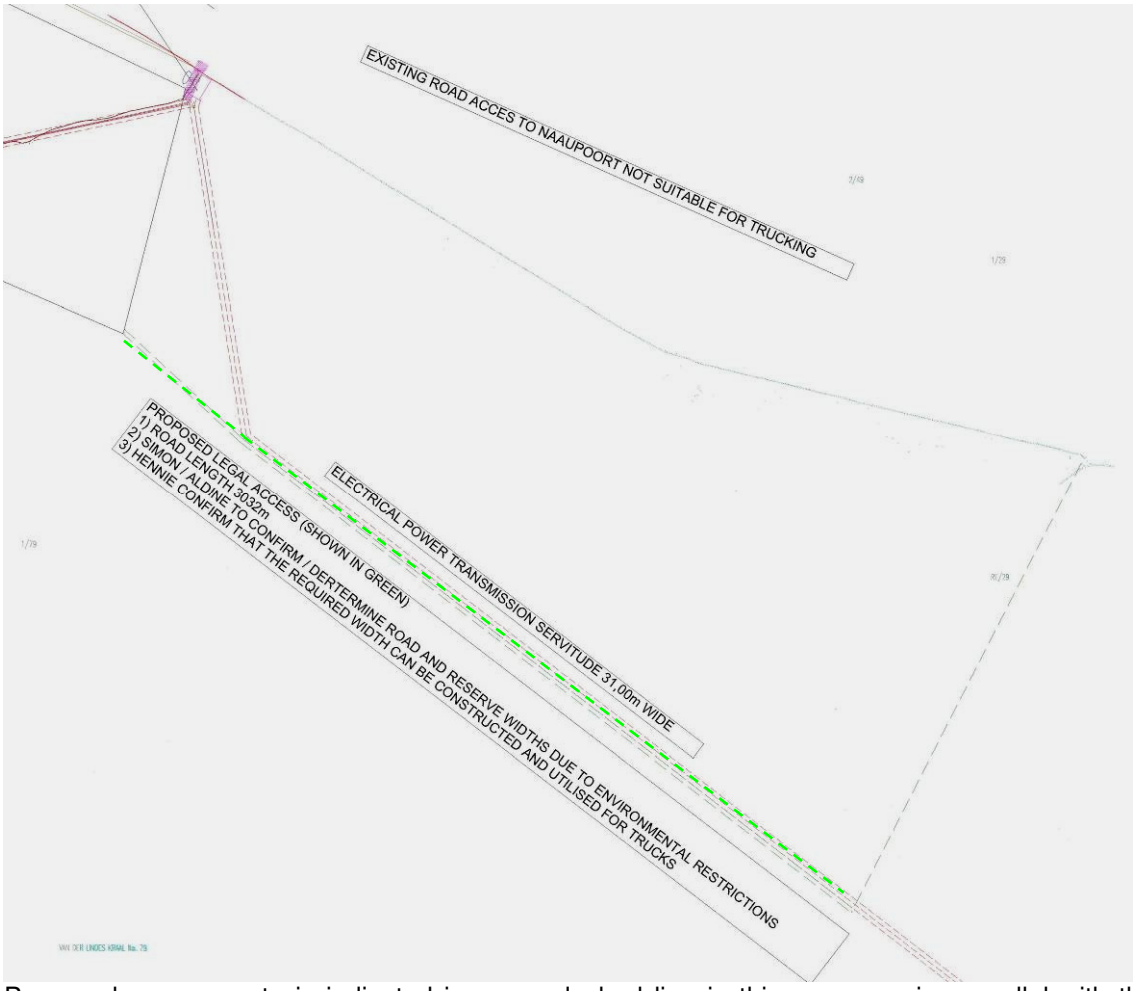
The author of this report is an archaeologist accredited as a Principal Investigator by the Association of Southern African Professional Archaeologists, having previously carried out surveys and fieldwork on sites in the region (Morris 1988; Morris 2011; Beaumont & Morris 1990; Morris & Beaumont 2004).

The author works independently of the organization commissioning this specialist input, and I provide observations 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 a Karoo landscape adjacent to the railway between Hanover Road and Noupoort, consisting of a flat plain with low relief. The proposed access route extends from a public road at the eastern side of the property, descending from higher ground at the foot of a range of hills. Shallow soil with locally outcropping dolerite and Karoo sedimentary rocks supports Karoo scrub and grass. Surface archaeological traces are most visible in surface-eroded patches. Stone Age traces occur at and just beneath the surface of the shallow soil.



Proposed access route is indicated in green dashed line in this map, running parallel with the existing powerline from south east to north west

View south-eastwards towards dolerite hills. The topographic feature in the foreground consists of Karoo sedimentary rock which forms 'platforms' of higher ground above the surrounding plain.

2.1. Heritage features of the area

Archaeological survey work in the immediate vicinity of the proposed PV plant is limited to the 2011 survey by the present author (Morris 2011). The surrounding Karoo landscape is known for its richness of Stone Age archaeological traces (Sampson 1985), both in the form of surface and sub-surface scatters of stone tools and of rock engravings on dolerite outcrops.

The proximity of the railway means that material traces may exist alongside relating to its construction, previous alignments, maintenance and use. Defence of the line in the Anglo-Boer War means that remains of forts (blockhouses) and related debris may exist.

2.2. Description and evaluation of environmental issues and potential impacts identified in the scoping phase

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 such resources. The objective of an heritage impact assessment would be to assess the sensitivity of heritage resources where present to assess the significance of potential impacts on them and to recommend mitigation or management measures where necessary.

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 construction. In the long term, the proximity of operations in a given area could result in secondary indirect impacts resulting from the movement of vehicles and people in the immediate or surrounding vicinity.

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 (Sampson 1985), whereas a road 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).

3. METHODOLOGY

A site visit was conducted on 12 December 2012 to inspect the terrain on foot, focusing particularly on the route of the proposed access road. Heritage traces would be evaluated in terms of their archaeological significance.

3.1. Assumptions and limitations

It was assumed that, by and large in this landscape, with its sparse vegetation, some sense of the archaeological traces to be found would be readily apparent from surface observations.

A proviso is routinely given, 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).

3.2. Potentially significant impacts identified

- Where dolerite koppies or ridges occur there is a possibility that rock engravings might be found.
- More or less rich spreads of Stone Age artefacts may occur across this Karoo landscape with localised 'sites' having higher densities.
- More recent heritage features of note may exist in the vicinity of railway and farm infrastructure (not a critical aspect of this report as the proposed road access is at a remove from the railway and farming infrastructure (other than tracks and fences).

3.3. Description and evaluation of environmental issues and potential impacts identified in the scoping phase

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 of high significance 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 Boškwa jwa Kapa Bokone (the Northern Cape Heritage Authority).

Disturbance of surfaces includes the construction: of a road, 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.

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 previously excavated	Little deposit remaining	More than half deposit remaining	High profile site
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

4. OBSERVATIONS AND ASSESSMENT OF IMPACTS

The manner in which archaeological and other heritage traces or values might be affected by the proposed development may be summed up in the following terms: 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, any archaeological material or object (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 the proposed access road construction.

4.1 Fieldwork observations

The proposed road access route was examined during a visit to the site on 12 December 2012. In summary the findings can be reported in relation to predictions made above (see 3.2):

4.1.1 Possible engraving occurrences on dolerite koppies or exposures:

Dolerite koppies occur as a significant feature of the Karoo landscape but along the proposed access road servitude the only occurrence of dolerite is a dyke protruding through Karoo sandstone, intersecting the servitude at 31.0256° S 24.6846° E. It lacks the kinds of boulders or surfaces which Later Stone Age people generally chose as panels for the making of rock engravings – and no rock art was found.

Dolerite dyke referred to in the text – no rock engravings found.

4.1.2 Occurrences of Stone Age artefacts:

As was found during the 2011 survey, great quantities of mostly quite weathered stone artefacts are in evidence across the study site, particularly in open patches where vegetation is sparse. They are preponderantly made on hornfels (indurated shale). In places they exceed 5 per m^2. A high proportion of those that were observed were heavily patinated and judged, on typological grounds, to be of Pleistocene age, probably mainly Middle Stone Age – although one small biface was found suggesting late Acheulian/cf Fauresmith affinity. On the tops and slopes of Karoo sandstone features towards the south eastern end of the road route there are dispersed scatters of much less patinated Later Stone Age artefacts.

Strewn across these surfaces are large quantities of amorphous weathered chunks of hornfels, some bearing flake scars. This landscape was clearly a source or 'quarry' area for hornfels, a metamorphic rock occurring in the contact zone between intrusive magma (dolerite) and shale beds. Impressive as the spreads of artefacts appear to be, they lack typological and contextual integrity: there is no preservation of organic traces (e.g. bone), and artefacts could have been displaced both vertically and spatially through many millennia of erosion and other natural processes. In these terms the vast numbers of stone tools to be seen at this site are considered, as an occurrence, to be of relatively low significance.

Middle Stone Age artefacts widespread as 'background scatter' across the terrain, this particular occurrence at 31.01565° S 24.66986° E

Later Stone Age lithics on the crest of a sandstone outcrop at 31.02036° S 24.67708° E

4.1.3 Colonial heritage:

No traces of colonial heritage (other than farm tracks and fencing) were in evidence along the route of the proposed road access.

An alternative option which, it is understood, Scatec had considered (Simon Bundy per comm.) was to create road access parallel with the railway. This would have intercepted at least one Anglo-Boer War blockhouse, the remains of which were noted at 31.01087°

S 24.68269° E. There is also what appears to be a grave at 31.01423° S 24.69639° E. Other packed stone features nearby, however, are later twentieth century efforts to prevent donga development, i.e. combating erosion. It was noted that earlier railway alignments were also evident in the vicinity. None of these features is near to the proposed access road servitude.

Remains of the probably 'Rice Pattern' blockhouse alongside the railway.

4.2 Characterising the archaeological significance (Refer to 3.4 above)

In terms of the significance matrices in Tables 1 and 2 under 3.4 above, all of the archaeological observations fall under Landforms L3 Type 1. In terms of archaeological traces they fall under Class A3 Type 1. These ascriptions (Table 1) reflect poor contexts and likely low significance for these criteria.

For site attribute and value assessment (Table 2), all the observations noted fall under Type 1 for Classes 1-7, reflecting low significance, low potential and absence of contextual and key types of evidence.

On archaeological grounds, the occurrences observed can be said to be of generally low significance for the proposed development footprint. No archaeological mitigation is considered necessary.

5. CONCLUSIONS

Although an apparent richness of archaeological traces, namely stone artefacts, was found along the proposed access road servitude, the material is probably mixed and lacking in any contextual or stratigraphic integrity. Preservation is poor (e.g. no organic materials such as bone have survived) and many of the stone tools are highly weathered.

Dolerite is exposed along a dyke intersecting the proposed access road but its manifestation in small weathered outcrops would not have been suitable for rock engravings, and no rock art was found.

The existence of raised ‘platforms’ of Karoo sedimentary rock (sandstone) towards the south eastern end of the proposed road route was highlighted in correspondence as requiring a comment from a palaeontologist.

From an archaeological perspective the finds documented above may be characterised as being of low significance and no mitigation measures are considered necessary.

6. REFERENCES

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