

**Archaeological Specialist Input
to the EIA Phase for the proposed
Aries-Garona Eskom Transmission Power Line, Northern Cape#
and comment on
Garona Substation Extension**

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Introduction

This report presents a comparative assessment of alternative routes proposed for the proposed Aries-Garona Eskom Transmission Power Line, which is based on field observation and desktop survey. As indicated in the scoping report, archaeological sites in this environment are often highly localised and it was not cost-effective to scan the route and alternative corridors in great detail at this stage. It was recommended that once tower positions along the preferred route were known with certainty it would be feasible to carry out focused inspections or site visits in locales expected to be potentially more sensitive and to recommend mitigation measures, if and where necessary, in relation to findings made then.

It was found that while certain heritage features can be anticipated en route, no major problem areas were expected to arise.

Background

The archaeology of the Northern Cape is rich and varied, covering long spans of human history. The Karoo is particularly bountiful. Concerning Stone Age sites here, C.G. Sampson has observed: "It is a great and spectacular history when compared to any other place in the world" (Sampson 1985). Some areas are richer than others, and not all sites are equally significant. Heritage impact assessments are a means to facilitate development while ensuring that what should be conserved is saved from destruction, or adequately mitigated and/or managed.

This report also repeats the background information given earlier on the archaeology of the wider region against which observations along the servitude may be assessed. Once again, detailed assessment and recommendations can only be made once the *exact route including tower positions* is known and areas of higher sensitivity inspected.

Terms of reference

This report highlights issues and impacts in relation to potential loss of cultural/heritage resources along the route/s of the proposed transmission power line. Potential impacts are described and assessed comparatively in a significance matrix. Recommendations for management and/or mitigation and implementation procedures are given, together with assessment of residual

impacts. This report is based on pre-existing regional data complemented by field observations at selected points along the routes in question.

Legislation

The National Heritage Resources Act (No 25 of 1999) (NHRA) provides protection for archaeological resources.

It is an offence to destroy, damage, excavate, alter, or remove from its original position, or collect, any archaeological material or object (defined in the Act), without a permit issued by the South African Heritage Resources Agency (SAHRA).

Section 35 of the Act protects all archaeological and palaeontological sites and requires that anyone wishing to disturb a site must have a permit from the relevant heritage resources authority. Section 36 protects human remains older than 60 years. In order for the authority to assess whether approval may be given for any form of disturbance, a specialist report is required. No mining, prospecting or development may take place without heritage assessment and approval.

The Provincial Heritage Resources Agency (PHRA) in the Northern Cape has, for the time being, requested SAHRA at national level to act on an agency basis where archaeological sites are concerned. Permit applications must be made to the SAHRA office in Cape Town.

Methods and limitations

A background literature/museum database search provides indications of what might be expected in the region.

Limitations include:

- The highly localised nature of some sites: it is possible that 'hot spots' could be missed. Once tower positions are known, those in places of potentially higher sensitivity should be checked for possible localised sites.
- The possibility that sites occur subsurface. During fieldwork dongas and animal burrows would need to be carefully examined in areas of potentially higher sensitivity to ascertain the chances of such sites existing.
- During a preliminary field visit access could not be gained to most of the route but we were able to observe comparable terrain close to it and inspect parts of the routes where they intersected roads.

When assessing archaeological resources, surface indications may be regarded as providing a fair estimate of the nature and range of material present in this environment, given the predominant deflation regime that typifies local recent geological history. However, sedimentary processes have

occurred along river courses, pan side settings and in red sand dunes, so that subsurface traces and features are likely to occur. Other events could result in archaeological traces being buried (graves, etc). In the event that any major feature is encountered during construction, for example a burial or a cache of ostrich eggshell flasks, then work should be halted and a professional archaeologist consulted.

Archaeological resources in the Karoo

The significance of sites encountered in the study area may be assessed against previous research in the region and subcontinent. Humphreys' evaluation remains true, that "the amount of archaeological research that has been undertaken in the Karoo is in no way proportional to its importance in terms of area in South Africa" (1987:117). The region's remoteness from research institutions accounts for this.

The area has probably been relatively marginal to human settlement for most of its history, yet it is in fact exceptionally rich in terms of Stone Age sites and rock art, as a relatively few but important studies have shown. Pre-eminent amongst these are the projects undertaken by C.G. Sampson and his colleagues in the Seekoei Valley (Sampson 1985). McGregor Museum archaeologists have focused attention on the Upper Karoo and the northern periphery of the Karoo (Humphreys 1987; Beaumont & Morris 1990; Beaumont & Vogel 1984; 1989; Morris 1988; 1994; 1996; 2000a; 2000b; 2001; Morris & Beaumont 1991; 1994; 2004).

Sparse as previous studies have been, the information to hand (in this case from the Seekoei Valley specifically) enabled Sampson (1985:107) to declare that:

"The South African central plateau is unique in the world...in that it supported large numbers of non-farming people who were also prolific makers of stone tools until very recent times. A brief comparison of surveys conducted elsewhere in the world reveals promptly and unambiguously that South Africa is richer in Stone Age remains than any other place on earth."

Against this background, any and every conservation effort is significant.

Experience has also shown that, fortunately, the impact of transmission power line development is minimal. Based on his considerable empirical survey work, Sampson (1985:21) has stated that "powerlines have no marked impact on surface sites in this terrain." Similarly, indeed, "farm tracks have no serious impact on surface sites" (ibid.).

Significance assessments for Northern, Central and Southern Sections and Alternative Routes

Section 1: Impacts w.r.t. the northern section of the study area

At the Groblershoop end the proposed alternative routes cross areas of Aeolian sand dune. The crests of dunes not infrequently were favoured activity/dwelling locales in Later Stone Age times and it is possible that traces may be found there. The approaches to the Orange River are also areas of potentially higher archaeological visibility.

The routes traverse the plains west and south westwards from the Orange River to a poort alternatively north or south of the Nous se Berg: minimal traces of archaeological materials were noted during field inspections here, but localized sites could be expected. West of the hills there are again areas of red dunes that may have been a focus of past habitation, but beyond the dunes at Kleinbegin, for example, only very sparse surface traces of Stone Age material were noted.

Alternative 1A

Issue/ Impact	Corrective measures	Impact					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Loss of cultural/ heritage resources	No	Negative	1	4	4	2	18 Low
	Yes	Negative	1	4	4	1	9 Low
Corrective / Mitigation Measures	<ul style="list-style-type: none"> Develop awareness programme for recognition by workers at all relevant levels of resources accidentally disturbed. Report such finds/disturbance to an archaeologist. Focused field inspection once final route and tower positions are known. 						

Note: In all cases (all three sections and for all alternatives) Duration could be 4 or 5: damage could be permanent; but Magnitude is reckoned as 4 (Low) on the basis of Sampson's considered observations that power lines and farm tracks (created during construction and maintained to a low extent during the lifetime of the power line) have no marked or serious impact on the kinds of heritage resources for which this environment is known.

Alternative 1B

Issue/ Impact	Corrective measures	Impact					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Loss of cultural/ heritage resources	No	Negative	1	4	4	2	18 Low
	Yes	Negative	1	4	4	1	9 Low

Corrective / Mitigation Measures	<ul style="list-style-type: none"> • Develop awareness programme for recognition by workers at all relevant levels of resources accidentally disturbed. Report such finds/disturbance to an archaeologist. • Focused field inspection once final route and tower positions are known.
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Section 2: Impacts w.r.t. the central section of the study area

The terrain in the central section of the study area is relatively uniform, with the route of the line traversing plains with shallow soils and occasional leegtes (shallow depressions, non-perennial water courses). Archaeological sites are known to occur in this kind of terrain, for example Later Stone Age sites documented at Arbeidsvreug to the south and Middle Stone Age material at Kalkgaten to the north. In pan depressions there could well be preservation of ancient bone, such as at Bundu near Marydale.

Isolated inselbergs and rocky outcrops in the region are known to have been a focus of past human activity and both finger paintings and rock engravings are known to occur on some of them. None appears to be directly on the route of the line.

Issue/ Impact	Corrective measures	Impact					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Loss of cultural/ heritage resources	No	Negative	1	4	4	2	18 Low
	Yes	Negative	1	4	4	1	9 Low
Corrective / Mitigation Measures	<ul style="list-style-type: none"> • Develop awareness programme for recognition by workers at all relevant levels of resources accidentally disturbed. Report such finds/disturbance to an archaeologist. • Focused field inspection once final route and tower positions are known. 						

Section 3: Impacts w.r.t. the southern section of the study area

Northwest of Kenhardt the proposed route traverses the Hartebeest River, the vicinity of which may have slightly higher archaeological visibility. The northern and southern alternative routes were inspected where they cross roads: in neither instance was there anything more than an extremely low density of stone artefacts.

In the vicinity of Olywen Kolk and Klein Zwart Bast, the farms at the south western most end of the proposed line, the terrain is characterized by Dwyka tillite, known to be a favoured source of raw materials in Earlier Stone Age times. In the vicinity of the sub station, indeed, several artefacts were noted amidst the strewn stones that typify the surfaces here.

Alternative 2A

Issue/ Impact	Corrective measures	Impact					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Loss of cultural/ heritage resources	No	Negative	1	4	4	3	27 Low
	Yes	Negative	1	4	4	1	9 Low
Corrective / Mitigation Measures	<ul style="list-style-type: none"> • Develop awareness programme for recognition by workers at all relevant levels of resources accidentally disturbed. Report such finds/disturbance to an archaeologist. • Focused field inspection once final route and tower positions are known. 						

Note: Increased probability of impact occurring is in the vicinity of the sub station where higher densities of artefacts occur within the Dwyka surface spreads.

Alternative 2B

Issue/ Impact	Corrective measures	Impact					Significance
		Nature	Extent	Duration	Magnitude	Probability	
Loss of cultural/ heritage resources	No	Negative	1	4	4	3	27 Low
	Yes	Negative	1	4	4	1	9 Low
Corrective / Mitigation Measures	<ul style="list-style-type: none"> • Develop awareness programme for recognition by workers at all relevant levels of resources accidentally disturbed. Report such finds/disturbance to an archaeologist. • Focused field inspection once final route and tower positions are known. 						

Note: increased probability of impact occurring is in the vicinity of the sub station where higher densities of artefacts occur within the Dwyka surface spreads.

Comment on Garona Substation Extension

The Garona Substation Extension site visit could be scheduled to take place at the time that more focused tower position assessments are planned.

Recommendations

Once the final route is decided and tower positions known, a selection of the latter which are deemed to be in potentially more sensitive locales should be inspected more closely. There are no grounds presently, based on

archaeological considerations, for deciding between the alternative routes at the northern and southern sections of the development.

An awareness programme for recognition, by workers at all relevant levels, of resources potentially or accidentally disturbed should be in place or be developed/refined. Such an awareness programme exists within Eskom and may simply need highlighting at this point. Any finds/disturbances (e.g. burials, etc) should be reported immediately to an archaeologist. The relevant authority at present is the SA Heritage Resources Agency (SAHRA) at national level, which currently manages archaeological resources in the Northern Cape on an agency basis on behalf of the Provincial Heritage Resources Authority. The McGregor Museum maintains the archaeological database for the province and is recognized by SAHRA for issuing National Site Numbers for the Northern Cape.

All sites are protected by law: a permit would be required if any site is to be destroyed. Mitigation measures, if necessary, would need to be formulated and acted upon.

From a heritage perspective, the proposed transmission line is not expected to have more than a low negative impact (see Sampson 1985:21).

Acknowledgements

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