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Report on a Phase 1 Archaeological Assessment of proposed mining areas on the farms Bruce, King, Mokaning and Parson, between Postmasburg and Kathu, Northern Cape.

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Introduction

The archaeology of the Northern Cape is rich and varied, covering long spans of human history. 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.

The present report concerns archaeological observations on proposed mining areas and associated infrastructure development on the properties Bruce, King, Mokaning and Parson.

This report also provides background information on the archaeology of the wider region against which field survey observations may be assessed.

Terms of reference

Terms of reference were to detail observations based on a field survey on the properties in question and to assess significance of impact should mining proceed. The report was to provide: Site description; Methodology; Impact assessment (including all linear infrastructure) for construction, operation and decommissioning phases; and Mitigation measures and recommendations.

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 is renewing an agreement whereby SAHRA at national level is requested to act on an agency basis where archaeological sites are concerned. Permit applications should 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.

During the site investigation, areas of proposed mining and associated infrastructure construction were examined in some detail. In several instances there were extensive areas that were not considered to be of high potential. These were checked at various points, while features in the respective landscapes that were more likely to have been foci for past human activity were assessed more carefully.

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, where soils are generally shallow. However, some tracts are mantled with Kalahari sands (see remarks below under "General description of the terrain and remarks on archaeological visibility"). Hence, subsurface traces and features may occur. In the event that any major feature is encountered, for example a burial or a cache of ostrich eggshell flasks, then work should be halted and a professional archaeologist consulted. It was not considered necessary in this environment to sink test trenches to assess potential subsurface occurrences since archaeological visibility (density of resources) was expected to be low.

Basic documentation of cemeteries has been included in this report, but heritage features such as old farming and mining infrastructure have not been detailed. No such features or buildings that were considered to be of special note from a heritage perspective were observed.

Appendix 1 indicates criteria used here in archaeological significance assessment.

Background: archaeological resources in the region

While much of the surrounding region has yet to be examined from an archaeological viewpoint, certain areas have been investigated in great detail, particularly in the last quarter century. This is especially true of the Kathu area (Beaumont & Morris 1990; Beaumont 2004; Morris & Beaumont 2004), to the north of Bruce, where renewed research by an international team in partnership with the McGregor Museum was commenced in August 2004. This existing work suggests that sites of great significance may yet be brought to light in the region. Broadly speaking, the archaeological record of this region reflects the long span of human history from Earlier Stone Age times (more than one and a half million to about 270 000 years ago), through the

Middle Stone Age (about 270 000 – 40 000 years ago), to the Later Stone Age (up to the protocolonial era). The last 2000 years was a period of increasing social complexity with the appearance of farming (herding and agriculture) alongside foraging, and of ceramic and metallurgical (Iron Age) technologies alongside an older trajectory of stone tool making. Of interest in this area is evidence of early mining of specularite, a sparkling mineral that was used in cosmetic and ritual contexts in from early times (Beaumont 1973). Rock art is known in the form of rock engravings.

In the area within and immediately to the north of the BKMP farms, the Earlier Stone Age is represented by 11 known sites (including one on the farm Bruce, as well as Kathu, Uitkoms, Sishen, Demaneng, Lylyveld and Mashweni); the Middle Stone Age by 5 sites (all in the vicinity of Kathu); various phases of the post-12 000 year old Later Stone Age by 10 sites (including one on King, one at Mashweni and eight at Kathu); the Iron Age by 3 sites (Demaneng, Lylyveld and Kathu); while rock engravings are (or have been) known from Sishen and Bruce (the latter site was salvaged and recorded by Fock & Fock 1984), as well as Beeshoek, to the south (Fock & Fock 1984; Morris 1992; Beaumont 1998). Specularite sources are known on Demaneng and Lylyveld, and were mined in Stone Age times at a site on Doornfontein to the south (Beaumont 1973; Beaumont & Boshier 1974) and at Tsantsabane on the eastern side of Postmasburg (Beaumont 1973; Thackeray *et al.* 1983); numerous other specularite workings are on record (Beaumont 1973).

Information on these sites is on hand at the McGregor Museum in Kimberley (Beaumont 1973; Beaumont & Morris 1990; Beaumont 2004; Morris & Beaumont 2004; Fock & Fock 1984).

At a regional level the sites of Wonderwerk Cave (east side of the Kuruman Hills) and the Kathu complex of sites provide important sequences against which to assess the age and significance of finds made during the present survey.

Observations

General description of the terrain and remarks on archaeological visibility.

The terrain comprises, broadly, three kinds of topographical elements: undulating plains; hills with occasional prominent rocky outcrops; and non-perennial water courses, the principal one being the valley of the Gamogara River. Each of these has represented different opportunities in terms of human settlement and activity in the past, and cultural/heritage residues are not likely to be evenly distributed across them. It was expected that areas of higher sensitivity would include the margins of water courses, and sheltered locales such as in the vicinity of rocky outcrops. The plains are mantled with aeolian sand with thornveld and *Tarchonanthus* vegetation, while the hills comprise mostly scree with combinations of *Tarchonanthus* and *Acacia mellifera* vegetation.

All these zones were examined. Observations indicated that archaeological visibility is generally lower on the plains and higher along the river banks and on hills, especially in the vicinity of prominent outcrops. It is possible that on the plains in particular archaeological material would occur mainly below the surface, and hence eroded and disturbed areas were examined especially to assess how much material might be expected to be sub-surface. The impression of lower visibility on the plains was sustained. However, the possibility of sub-surface features in those areas constitutes one of the limitations of this report and is a reason for monitoring to take place during the construction phase.

Archaeological and heritage observations

Observations made on the properties in question are tabulated below and their significance ranked relative to Tables of Significance (See Appendix 1). Table 1 significance data provide an *estimate of site potential*, where Type 3 sites tend to be those with higher archaeological potential (there are notable exceptions, such as the renowned rock art site Driekopseiland, near Kimberley, which is on landform L1 Type 1. Generally, moreover, the older a site, the poorer the preservation. Estimation of potential, in the light of such variables, thus requires specialist interpretation). Table 2 significance data are a measure for assessing *site value by attribute*, where the relative strengths of a range of attributes are ranked (aspects of this matrix remain qualitative, but attribute assessment is a good indicator of the general archaeological significance of a site, with Type 3 attributes being those of highest significance).

Cemeteries/graves

Four cemeteries, previously identified, were inspected and briefly characterised. Only the last of these appears to be threatened by the proposed mining and associated infrastructure.

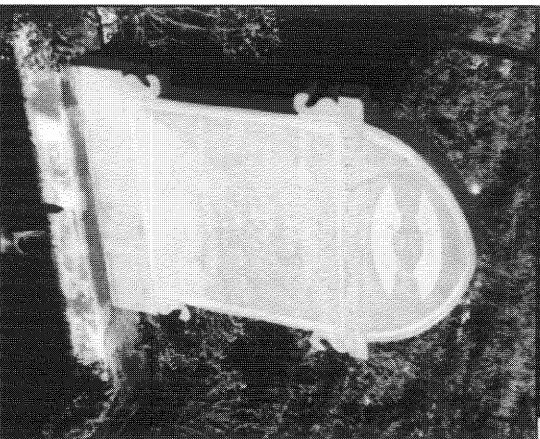
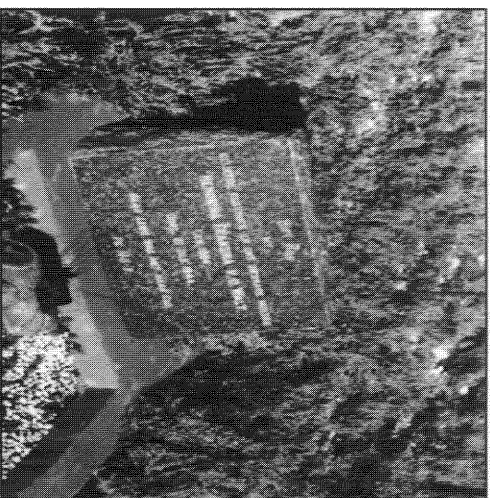
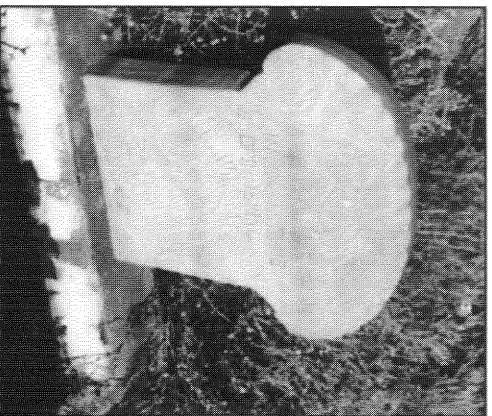
1. On the property Parson, at 27°52.926' S 22°58.345' E, a small farm cemetery, with four graves, each with a headstone inscribed as follows: XXXX

"In tere herinnering aan PIETER WILLEM VD WALT Geb 13 Julie 1940 Ov 9 Maart 1941. Rus in Vrede"

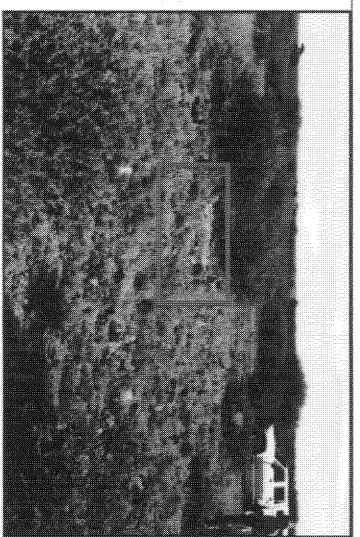
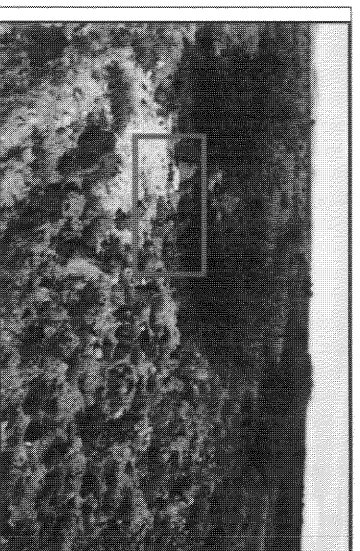
"Hier rus my geliefde eggenoot en ons dierbare moeder HENDRINA FRANSINA VD WALT. Geb 1884, Oorl 21 Des 1944. Haar lewe was met haar God. Ps 146:3"

"In liefdevolle herinnering aan ons dierbare eggenoot en vader NICOLAAS VD WALT. Geb 18 Feb 1908 Oorl 30 Jan 1946. Tot weersiens liefing. Ps 116:15. Veilig in Jesus arme."

"In tere herinnering aan my eggenoot en ons vader PIETER WILLEM VAN EEDEN. Geb 3 Des 1868 Oorl 13 Julie 1943. Ps 116:vi"



2. Also on the property Parson, on a hill south of and overlooking the GalMogara valley at 27°50.478' S 22°58.270' E, a small farm cemetery probably used by farm workers. There are at least 10 graves, none of which has any inscribed headstone. The present generation of farm-workers do not know who is buried here. The style of burial is similar to that observed in other mainly rural farm-worker or related graves, having an oval shape in plan, with upright stones at the head and foot ends.



3. Again, on the property Parson, on the north bank of the GalMogara, at

27°50.097' S 22°58.368' E, a small farm cemetery with four graves, only two of which have inscriptions:

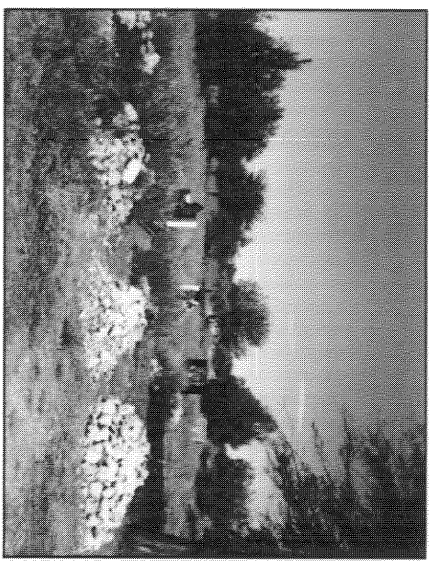
"In memory 1955C P L E. PRICE 5th SAMR [South African Mounted Rifles] 14-2-16. Erected by his comrades."

"HENRY MARKRAM Gebore 6 April 1940 Oorlede 27 Junie 2003. Ps 23. Die swerwer het tot rus gekom".



4. On the property King A large rectangular cemetery with north east and south west corners at GPS positions: 27°50.005' S; 22°53.125' E and 27°50.121' S; 22°53.098' E respectively. This cemetery with several tens of graves dates from about the late 1960s to within the last few years. It has an interesting lych gate with half "ossewa" wheel design element. Burials are markedly segregated along apartheid lines.

This cemetery had been in the course of a proposed linear development, namely the servitude of proposed 32 kV powerline; but since the powerline will now be rerouted to following the conveyor servitude, there will be no impact on the cemetery.



Plains

A very sparse scatter of Stone Age artefacts, principally on jaspilite, was observed at several points inspected on the flat and gently undulating plains on the four properties. No major sites could be distinguished and it was determined that on the whole this topographic feature has generally low archaeological visibility.

River courses

The lower banks of the GaMogara bore traces of Stone Age sites, over generally low density. However, an area with much higher density was noted at 27°50.344' S 22°58.394' E on the south bank of the GaMogara on the property Parson.

Artefacts on jaspilite included flakes with prepared platforms, ascribable to the Middle Stone Age or Fauresmith.

(Photo: Artefacts).

Hills

As on the plains, a low density of artefacts was found on some parts of hills, for example in the vicinity of 27°50.576' S 23°01.854' near the eastern boundary of King. It was possible that prominent rocky outcrops could have been locales offering shelter or a range of resources making them more attractive for dwelling or other activities in the past, and hence sites of greater archaeological visibility. Amongst the outcrops in the vicinity of the above GPS position it appeared possible that cavities amongst the rocks had been formed by artificial extraction possibly of specularite, a substance used for cosmetic and ritual purposes.

The prominent outcrop of rocks, one of the landmarks of the area, some hundreds of metres to the north of there, in the vicinity of 27°49.989' S 23°01.421' E clearly had been a focus of human activity in the past. Pot

fragments reflecting Tswana settlement in the region were found, in addition to rich surface spreads of Middle Stone Age or Fauresmith stone artefacts.

(Photos: Shelter and Outcrop)

Other observations

None of the rock outcrops examined appeared to be of a nature suitable for rock engravings and no rock art was found (at Beeshoek, Gamagara shale was favoured – no outcrops of this rock were encountered in the course of the survey).

No indubitable specularite workings with associated artefacts were found, although, as noted above, there were places where cavities may have been hollowed out artificially and were possibly sources for pigment in the past.

The very scattered low visibility dispersal of artefacts observed over much of the terrain examined is consistent with a scenario of sporadic discard over perhaps millennia by hunter-gatherers away from their home-base, while the more concentrated spreads at places along the GaMogara and near prominent rocky outcrops on hills probably represent places where people were living or focusing more concerted activities.

It is possible that sub-surface features of an archaeological nature (ostrich eggshell cache, high density artefact horizons, burials) *may* be found during mining. In the event of these being found, an archaeologist should be contacted immediately to assess significance and recommend mitigation measures.

Assessment of impacts during construction, operational and decommissioning phases of mining.

The greatest impact on archaeological resources is likely to be during the construction and operational phases of the proposed mining, with negative impacts (where they are likely to occur) being non-reversible (archaeological resources are non-renewable and therefore rehabilitation is not a concept that can be applied). Mitigation is recommended (see below) in a few instances.

Longer-term management of heritage resources will need to be applied mainly in relation to the cemeteries.

Recommendations

The proposed mining is not expected to have a significant negative impact on the archaeological resources of the region.

It is suggested that the following mitigation measures be implemented, together with monitoring during construction/operation phases.

Graves

It does not appear that any of the graves/cemeteries will be directly impacted by the proposed mining. The recommendation is that these should be adequately fenced and protected.

There may be a desire by family members to be able to gain access to the graves, most probably in the case of the large cemetery on King. Provision would need to be made for this.

Stone Age sites

Since Stone Age material scattered over the entire area will be impacted, it is recommended that Phase 2 surface collections be made at two localities (see below) in order to characterise the material observed in higher density occurrences and to salvage a representative sample of these as part of the South African National Estate.

It is recommended that a Pleistocene age Stone Age site on the south bank of the GaMogara at 27°50.344' S 22°58.394' E (Parson Site 1) should be sampled systematically, as well as a shelter and a talus slope on the east side of King at 27°49.989' S 23°01.421' E (King Site 1) where Iron Age pottery and Pleistocene age material was found, and 27°49.932' S 23°01.463' E (King Site 2) where there is ample Pleistocene age material.

In each case it is felt that collection of a representative sample is called for and will provide some insight into the nature of material sparsely scattered over adjacent areas that will be mined. It is not felt that the sites warrant fencing off.

Appendix 1 significance criteria for these three sites (see Appendix 1 for explanation of criteria):

Site: Parson 1					
Table 1		Table 2			
Landscape L 1/3	Archaeological Traces Class A3	Class 1	Class 2	Class 3	Classes 4-7
Type 2	Type 1	Type 1	Potentially Type 2	Type 1	Low

Site: King 1					
Table 1		Table 2			
Landscape L 8	Archaeological Traces Class A3	Class 1	Class 2	Class 3	Classes 4-7
Type 2	Type 2	Type 1	Potentially Type 2	Type 1	Low

Site: King 2					
<i>Table 1</i>		<i>Table 2</i>			
Landscape	Archaeological	Class 1	Class 2	Class 3	Classes
L 1/3	Traces Class A3				4-7
Type 2	Type 1	Type 1	Potentially Type 2	Type 1	Low

Relatively poorer preservation of older archaeological traces, e.g. of Pleistocene age (where absence of organic material is essentially the norm in this landscape) is to be expected, so that seemingly low significance scores in some classes can be misleading. This is the case in some of the sites in question.

A permit would be required from SAHRA to undertake this work. (All sites are protected by law: a permit would also be required if any site is to be destroyed during mining).

A funding schedule for this and for monitoring is provided separately.

Procedure in the event of sites being found during construction or mining

In the event that sites or features are found during construction or mining, an archaeologist should be alerted immediately in order to assess the find and make recommendations for mitigation, if necessary. All archaeological traces are protected by legislation (see section headed "Legislation", above). The McGregor Museum would normally be in a position to send an archaeologist at short notice, or to recommend an accredited archaeologist for such work.

Acknowledgements

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Appendix 1

Criteria to be used for archaeological significance assessment

In addition to guidelines provided by the Act, archaeological criteria for use in assessing relative significance of archaeological resources have been developed and found to be suitable in Northern Cape settings (Morris 2000).

Estimating site potential

Table 1 is a classification of landforms and visible archaeological traces for estimating the potential for archaeological sites (after J. Deacon nd, National Monuments Council). Type 3 sites tend to be those with higher archaeological potential. There are notable exceptions, such as the renowned rock art site Driekopseiland, near Kimberley, which is on landform L1 Type 1. Generally, moreover, the older a site the poorer the preservation. Estimation of potential, in the light of such variables, thus requires some interpretation.

Assessing site value by attribute

The second matrix (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. 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

	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 Whiteclaw 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