

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED KAROO ARRAY TELESCOPE DEVELOPMENT, WILLISTON MUNICIPAL DISTRICT, NORTHERN CAPE PROVINCE

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NATIONAL CULTURAL HISTORY MUSEUM
NASIONALE KULTUURHISTORIESE MUSEUM

SUMMARY

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED KAROO ARRAY TELESCOPE DEVELOPMENT, WILLISTON MUNICIPAL DISTRICT, NORTHERN CAPE PROVINCE

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the boundaries of the area in which it is proposed to develop a astronomical observatory.

A number of sites and features have been identified in the area and would probably be impacted on by the proposed development. We therefore recommend, from a heritage point of view, that the proposed development can continue on condition of acceptance of the following recommendations:

- All areas containing red dunes should be avoided. Not all of these areas currently show evidence of human occupation, but it might simply mean that the occupation layers are still hidden by the shifting sands. Therefore it is recommended that an archaeologist should investigate each sand dune area where development is going to take place, and that he/she should be in attendance when construction starts.
- Ideally the graves should be left in place. In that case it should be protected by fencing them off and by maintaining them on a regular basis, e.g. by controlling vegetation growth. If that is not possible, the graves should be relocated after following the proper procedure (See Appendix 3).
- If archaeological sites or graves are exposed during construction work, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

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GLOSSARY OF TERMS AND ABBREVIATIONS**STONE AGE**

Early Stone Age (ESA)	2 000 000 - 150 000 Before Present
Middle Stone Age (MSA)	150 000 - 30 000 BP
Late Stone Age (LSA)	30 000 - until c. AD 200

IRON AGE

Early Iron Age (EIA)	AD 200 - AD 1000
Late Iron Age (LIA)	AD 1000 - AD 1830

HISTORIC PERIOD

Since the arrival of the white settlers - c. AD 1840 in this part of the country

ADRC - Archaeological Data Recording Centre

Impact - A description of the effect of an aspect of the development on a specified component of the biophysical, social or economic environment within a defined time and space

PHRA – Provincial Heritage Resources Agency

SAHRA - South African Heritage Resources Agency

DEFINITIONS AND ASSUMPTIONS

- *Cultural resources* are all non-physical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.
- The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.
- Sites regarded as having low significance have already been recorded in full and require no further mitigation. Sites with medium to high significance require further mitigation.
- Archaeological sites: any area of land containing artefacts, ecofacts, features and structures in any combination of the above.
- Isolated occurrences: findings of artefacts or other remains located apart from archaeological sites. Although these are noted and samples are collected, it is not used in impact assessment and therefore do not feature in the report.
- Traditional cultural use: resources which are culturally important to people.
- The latitude and longitude of archaeological sites are to be treated as sensitive information by the developer and should not unduly be disclosed to members of the public.

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED KAROO ARRAY TELESCOPE DEVELOPMENT, WILLISTON MUNICIPAL DISTRICT, NORTHERN CAPE PROVINCE

1. INTRODUCTION

The National Cultural History Museum¹, Pretoria, was appointed by Strategic Environmental Focus to conduct a Heritage Impact Assessment (HIA) in and area in which it is proposed to develop a astronomical observatory, known as the Karoo Array Telescope (KAT).

2. SCOPE OF WORK

The scope of work consisted of conducting a Phase 1 archaeological survey of the site in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

This include:

- Conducting a desk-top investigation of the area;
- A visit to the proposed development site.

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development areas;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

¹ The National Cultural History Museum is affiliated to the Northern Flagship Institution, which acts as parent body for a number of museums, all of which resort under the Department of Arts and Culture.

3. STUDY APPROACH AND METHODOLOGY

3.1 Extent of the Study

This survey and impact assessment covers the areas of the proposed development and its related infrastructure, as presented in Section 4 and illustrated in Figure 1.

3.2 Methodology

3.1 Preliminary investigation

3.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various books were consulted - see the list of references below. Nothing pertaining to the area specific was found and most sources deal with topics in the larger geographical region.

3.1.2 Data bases

The *Heritage Sites Database* and the *Environmental Potential Atlas* was consulted.

3.1.3 Other sources

Topocadastral and other maps were also studied - see the list of references below.

3.1.4 Interviews

A number of people working in the heritage field in the region, were interviewed – list of names below.

3.2 Field survey

The area that had to be investigated, was identified by Strategic Environmental Focus by means of maps. The site was visited on 8 and 9 November 2006 and again on 15 and 16 January 2007. The site was surveyed by using existing farm tracks and fences to divide it into blocks. Blocks with the highest potential, i.e. containing valleys, watercourses and hills were surveyed on foot. The flat areas with no features were surveyed by vehicle.

3.3 Documentation

Sites, objects and structures that are identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities are determined by means of the *Global Positioning System (GPS)*² and plotted on a map. This information is added to the description in order to facilitate the identification of each locality.

Map datum used: Hartebeeshoek 94 (WGS84).

² According to the manufacturer a certain deviation may be expected for each reading. Care was, however, taken to obtain as accurate a reading as possible, and then to correlate it with reference to the physical environment before plotting it on the map.

4. DESCRIPTION OF THE AFFECTED ENVIRONMENT

4.1 Location

The study area is located some kilometres north of the R63, approximately equidistant from the towns of Williston and Carnarvon, in the Williston municipal district of Northern Cape Province (Fig. 1). As such it is very isolated and can only be reached by means of some dirt roads. The study area centre around the following coordinates: S 30.71508; E 21.32139.

The area surveyed is largely located on the farm Losberg 73, as well as on Rooizand 72. (see Fig. 2).

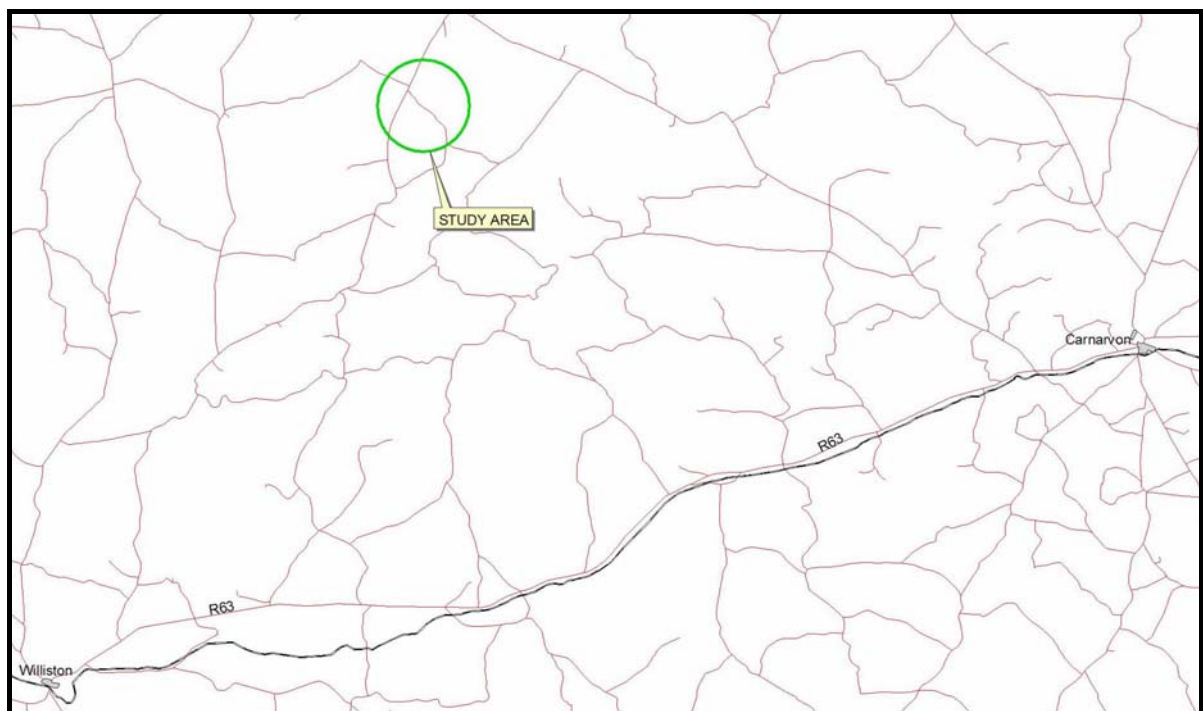


Fig. 1. The survey area (green circle) in regional context.

4.2 Description of the area

The geology of the area is made up of shale and sand. The original vegetation is classified as Bushmanland Nama Karoo. This manifests in patches of shrub and low fynbos, with barren patches mostly occurring on the slopes and on top of the hills.

The area is largely used for sheep farming. A few very shallow dams occur and probably were used for some sort of seasonal irrigation.

No rivers, caves or rock shelters are known to exist in the area. No sites of heritage significance have been reported on in the area (D Morris, pers. com).

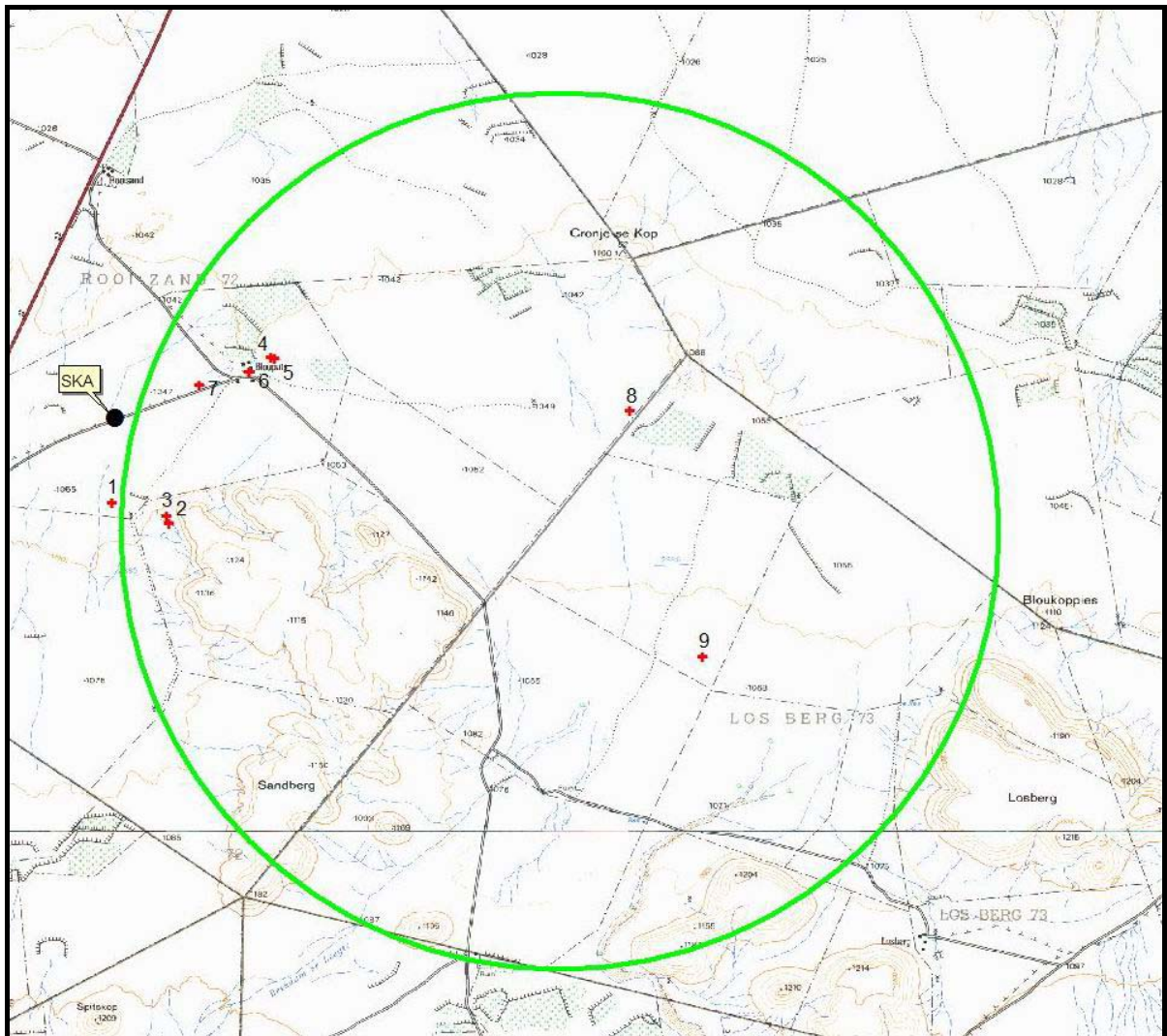


Fig. 2. Location of the identified sites in the study area. The SKA refers to the current location of the research station.

4.3 Identified sites

4.3.1 Stone Age

A number of sites containing material dating to the Late Stone Age were identified. These usually occur in areas characterised by red dunes. These areas vary in size and location, some being linear, whereas others are rectangular. The archaeological remains are exposed probably as the dunes slowly shift due to wind action. Stone tools, pottery and ostrich eggshell pieces were noticed. This type of material was not noticed in all areas with dunes, but it is expected that it would probably occur in most of them and that in particular cases it is currently still covered with sand.

What is significant in the dating and cultural affinity of these sites is the occurrence of pottery. Unfortunately, the pieces recovered is very fragmented, and small. At least three different vessels were identified. The thickness of the sherds range between 3mm and 5mm.

4.3.2 Historic Period

One farmstead was identified. Although not very old, it is abandoned and in ruins. Furthermore, it does not show any interesting or unique features and it is therefore viewed to have a very low significance. The same goes for the two farm-labourer cottages, located close by. They do not show any unique or interesting features and do not differ from others found in the larger region.

Three sets of graves were identified. Most of them do not have headstones, and as a result it is difficult to date them. According to the farm owner, Mr J Louw, they belong to farm labourers that were buried here "many years ago". As a result of large-scale depopulation of the area, it was not possible to identify descendants in the short period available. The third set of graves belongs to the Maritz family, whom occupied the farm some decades ago.

5. IDENTIFICATION OF RISK SOURCES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

The following project actions may impact negatively on heritage sites and other features of cultural importance. The actions are most likely to occur during the construction phase of a project.

Table 1

Construction phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Construction work
Anticipated risks	
- looting of sites	Curious workers

Operation phase:

Possible risks	Source of risk
Actually identified risks	
- damage to sites	Not keeping to development plans
Anticipated risks	
- damage to sites	Unscheduled construction/developments
- looting of sites	Curious workers/visitors

6. RECOMMENDATIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the boundaries of the area in which it is proposed to develop a astronomical observatory.

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- If archaeological sites or graves are exposed during construction work, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

7. REFERENCES

7.1 Data bases

Heritage Sites Database, Pretoria.

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

7.2 Literature

Acocks, J.P.H. 1975. *Veld Types of South Africa*. Memoirs of the Botanical Survey of South Africa, No. 40. Pretoria: Botanical Research Institute.

Henderson, Z. 2002. A dated cache of ostrich-eggshell flasks from Thomas' Farm, Northern Cape Province, South Africa. *South African Archaeological Bulletin* 57(175):38-40.

Morris, D. 1994. An ostrich eggshell cache from the Vaalbos National Park, Northern Cape. *Southern African Field Archaeology* 3:55-58.

Richardson, D. 2001. *Historic sites of South Africa*. Cape Town: Struik Publishers.

Van der Waal-Braaksma, G & Ferreira, O.J.O. 1986. Die Noordweste. Die stoflike kultuuruiting van die streek se bewoners. Johannesburg: Genootskap vir Afrikaanse Volkskunde.

7.3 Maps

1: 50 000 Topocadastral maps – 3021CB, 3021CD

7.4 Interviews

Mr Jooste, farm manager, Rooizand

Mr J Louw, farm owner, Losberg

Dr D Morris, McGregor Museum, Kimberley

8. PROJECT TEAM

J van Schalkwyk, principal investigator

APPENDIX 1: STANDARDIZED SET OF CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON CULTURAL RESOURCES

Significance

The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

1. Historic value			
Is it important in the community, or pattern of history			
Does it have strong or special association with the life or work of a person, group or organisation of importance in history			
Does it have significance relating to the history of slavery			
2. Aesthetic value			
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			
3. Scientific value			
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage			
Is it important in demonstrating a high degree of creative or technical achievement at a particular period			
4. Social value			
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			
5. Rarity			
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			
6. Representivity			
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects			
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class			
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.			
7. Sphere of Significance			High
International			Medium
National			Low
Provincial			
Regional			
Local			
Specific community			
8. Significance rating of feature			
1.	Low		
2.	Medium		
3.	High		

Significance of impact:

- low where the impact will not have an influence on or require to be significantly accommodated in the project design
- medium where the impact could have an influence which will require modification of the project design or alternative mitigation
- high where it would have a “no-go” implication on the project regardless of any mitigation

Certainty of prediction:

- Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring

- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

Recommended management action:

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

- 1 = no further investigation/action necessary
- 2 = controlled sampling and/or mapping of the site necessary
- 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
- 4 = preserve site at all costs
- 5 = relocate graves if need be

Legal requirements:

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

APPENDIX 2: SURVEY RESULTS³

[Previous site numbers relate to other known sites on a particular ¼ degree sheet already documented in the ADRC, and does not necessarily refer to sites occurring on or close to the specific area of development.]

Map datum used: Hartebeeshoek 94 (WGS84).

1. Location: Rooizand 72: S 30.71533; E 21.32102

Description: Large red dune area, containing Late Stone Age flakes, cores and tools, as well as pieces of ostrich eggshell. According to the owner of the farm, a cache of buried ostrich eggshells that served as water containers were found here. A natural spring occurs close by.

Discussion: The above coordinate indicates the centre of the area of dunes. From here, a circle with a radius of 120 m would be sufficient to protect the whole area.

Evaluation of significance: High on regional level.

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary

Legal requirements: SAHRA permit



Fig. 3. Stone tools (flakes and tools – the core, upper part of the photograph was moved slightly to be included in the photograph) and pieces of ostrich eggshell on the surface of the red dune area.

³ See Appendix 1 for an explanation of the conventions used in assessing the cultural remains.

2. Location: Rooizand 72: S 30.71763; E 21.32717

Description: Pieces of very thin pottery eroding out on the surface.

Discussion: No other context could be determined for this feature. This site is not located close to a dune area, but it is in close proximity of the feature identified in the next record.

Evaluation of significance: Medium on a regional level

Significance of impact: Medium

Certainty of prediction: Probable

Recommended management action: 2 = controlled sampling and/or mapping of the site necessary

Legal requirements: SAHRA permit



Fig. 4. Pieces of pottery eroding out.

3. Location: Rooizand 72: S 30.71681; E 21.32686

Description: Short semi-circular section of stone walling. It is approximately 2m in diameter. What seems to be an entrance is emphasised by two large rocks. The origin and function of this feature is not known, but it might have been the basis for some structure such as a goat pen.

Discussion: No other features could directly be related to this feature.

Evaluation of significance: Medium on a regional level.

Significance of impact: Medium

Certainty of prediction: Probably

Recommended management action: 2 = controlled sampling and/or mapping of the site necessary

Legal requirements: SAHRA permit



Fig. 5. Small circular structure of pack stone.

4. Location: Rooizand 72: S 30.69990; E 21.33793

Description: Two graves, marked with stone. No inscriptions or other details available.

Discussion: As these two graves are located close to the farmstead, it is taken that they might possibly be associated with it.

Evaluation of significance: High for a specific community

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 5 = relocate graves if need be

Legal requirements: Notification, consultation and permits – see Appendix 3

5. Location: Rooizand 72: S 30.70002; E 21.33830

Description: Three graves of the Maritz family: H.C. Maritz (28/01/1893-30/8/1959); P.A.S. Maritz (née Kruger) (7/11/1896-12/09/1954); H.C. Maritz (4/01/1922-4/10/1974).

Discussion: As these graves are located close to the farmstead, it is taken that they might be associated with it.

Evaluation of significance: High for a specific community

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 5 = relocate graves if need be

Legal requirements: Notification, consultation and permits – see Appendix 3



Fig. 6. The Maritz family cemetery.

6. Location: Rooizand 72: S 30.70143; E 21.33566

Description: Farmstead consisting of a main house and a few smaller outbuildings, two of which are probably farm labourer houses. The house is built of brick that is plastered over. It has a flat, corrugated iron roof. The cottages are of brick, plastered with clay, with flat corrugated iron roofs

Discussion: These structures have been abandoned for some time and most valuable fittings have been removed. None show interesting or unique features or technological adaptations.

Evaluation of significance: Low on a regional level

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None



Fig. 7. The old farmhouse



Fig. 8. One of the old labourer cottages.

7. Location: Rooizand 72: S 30.70286; E 21.33029

Description: Eight graves marked with stone. No information could be obtained, apart from the fact that the graves belonged to farm workers.

Discussion: These graves are located some distance from the farmstead and their relationship to this and the other graves are uncertain.

Evaluation of significance: High for a specific community

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 5 = relocate graves if need be

Legal requirements: Notification, consultation and permits – see Appendix 3



Fig. 9. The eight identified graves.

8. Location: Losberg 73: S 30.70586; E 21.37615

Description: Dune site, with Late Stone Age flakes, tools and cores. Pieces of pottery as well as ostrich eggshell were identified.

Discussion: The above coordinate indicates the centre of a long dune, about 500 metres in length. Stone Age material was found only in sections of it.

Evaluation of significance: High on a regional level

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary

Legal requirements: SAHRA permit



Fig. 10. Pieces of pottery found in the dune area. The one on the left is a lip piece.

9. Location: Losberg 73: S 30.73170; E 21.38389

Description: Dune site, with Late Stone Age flakes, tools and cores; although to a lesser extent than in the previous cases.

Discussion: The above coordinate indicates the centre of a long dune, about 200 metres in length. Stone Age material was found only in sections of it.

Evaluation of significance: High on a regional level

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary

Legal requirements: SAHRA permit

APPENDIX 3: RELOCATION OF GRAVES

Burial grounds and graves are dealt with in Article 36 of the NHR Act, no 25 of 1999. Below follows a broad summary of how to deal with grave in the event of proposed development.

If the graves are younger than 60 years, an undertaker can be contracted to deal with the exhumation and reburial. This will include public participation, organising cemeteries, coffins, etc. They need permits and have their own requirements that must be adhered to.

If the graves are older than 60 years old or of undetermined age, an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. This is a requirement by law.

Once it has been decided to relocate particular graves, the following steps should be taken:

- Notices of the intention to relocate the graves need to be put up at the burial site for a period of 60 days. This should contain information where communities and family members can contact the developer/archaeologist/public-relations officer/undertaker. All information pertaining to the identification of the graves needs to be documented for the application of a SAHRA permit. The notices need to be in at least 3 languages, English, and two other languages. This is a requirement by law.
- Notices of the intention needs to be placed in at least two local newspapers and have the same information as the above point. This is a requirement by law.
- Local radio stations can also be used to try contact family members. This is not required by law, but is helpful in trying to contact family members.
- During this time (60 days) a suitable cemetery need to be identified close to the development area or otherwise one specified by the family of the deceased.
- An open day for family members should be arranged after the period of 60 days so that they can gather to discuss the way forward, and to sort out any problems. The developer needs to take the families requirements into account. This is a requirement by law.
- Once the 60 days has passed and all the information from the family members have been received, a permit can be requested from SAHRA. This is a requirement by law.
- Once the permit has been received, the graves may be exhumed and relocated.
- All headstones must be relocated with the graves as well as any items found in the grave.