



Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

**A REPORT ON A CULTURAL HERITAGE IMPACT ASSESSMENT FOR A
PROPOSED PROSPECTING RIGHTS APPLICATION ON PORTIONS 1, 2 AND
RE OF THE FARM VERDOORST KOLK 342, CLOSE TO BRANDVLEI,
NORTHERN CAPE PROVINCE**

For:

CABANGA ENVIRONMENTAL
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REPORT NO.: AE01755V

By:

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18 November 2017

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SUBMISSION OF REPORT

Please note that the South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report.

It is the client's responsibility to do the submission via the SAHRIS System on the SAHRA website.

Clients are advised not to proceed with any action before receiving the necessary comments from SAHRA.

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EXECUTIVE SUMMARY

Purpose:

Archaetnos cc was requested by Cabanga Environmental to conduct a cultural heritage impact assessment (HIA) for a proposed prospecting right application on portions 1, 2 and RE of the farm Verdoorst Kolk 342. This is close to the town of Brandvlei in the Northern Cape Province. Brandvlei falls within the Hantam Local Municipality of the Namaqua District.

The heritage study forms part of a Basic Assessment. This report is the result of the HIA study.

Project description:

The applicable mineral related to the project is gypsum. A number of boreholes will be used to determine the possibility of future mining. Details of the proposed work on site include the prospecting for Gypsum by means of a TLB mounted auger drill. Drilling will be to a maximum depth of 5m.

Methodology:

The methodology for the study includes a survey of literature and a field survey. The latter was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development.

If required, the location/position of any site was determined by means of a Global Positioning System (GPS), while photographs were also taken where needed. The survey was undertaken by doing a physical survey via off-road vehicle and on foot and covered as much as possible of the area to be studied. Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage.

All sites, objects features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information was added to the description in order to facilitate the identification of each locality.

Public consultation:

Public consultation will be done by the Environmental Practitioner.

Findings:

During the survey six sites of cultural heritage significance were identified within the immediate project area.

Recommendations:

- Six sites were identified. These are all outside of the area of direct impact, but it is possible that a secondary impact may be experienced due to the increase

of traffic and movement on the site. Four of these (site 1-3 and 6) are grave sites and two (sites 4 and 5) are residential sites.

- Usually there are two options when dealing with graves. The first and preferred option is to manage the grave *in situ*. This is only possible when no direct impacts are expected. Secondary impacts such as dust remain a possibility.
- The second option is to exhume the graves and have the bodies reburied. This usually is only allowed if there is a direct impact on the site. Graves younger than 60 years are handled by a registered undertaker. Graves older than 60 years and those of an unknown date is regarded as heritage graves. In such a case an archaeologist is also involved in the process.
- Since Site no. 1 is fenced in, but the other graves not. It is recommended that the graves remain *in situ*. These should be fenced off where necessary, and a buffer zone of 20m implemented.
- The two residential sites should also be left in situ, fenced in and a buffer zone of 20 m be implemented.
- It should always be realized that the subterranean presence of archaeological and/or historical sites, features or artifacts is a distinct possibility. Due to the nature of this development and the environment, it is indeed expected that some Stone Age sites may only become known later on, thus emphasizing the need for further studies.
- This report is seen as ample mitigation and the proposed development may thus continue, but only after the report had been approved by SAHRA.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation it also is possible that some sites may only become known later on. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence.
- In this regard the following a 'Chance find Procedure' is indicated.

It is also important to take cognizance that it is the client's responsibility to do the submission of this report via the SAHRIS System on the SAHRA website. No work on site may commence before receiving the necessary comments from SAHRA.

CURRICULUM VITAE OF SPECIALIST: PROF ANTON CARL VAN VOLLENHOVEN

Tertiary education

- BA 1986, University of Pretoria
- BA (HONS) Archaeology 1988 (cum laude), University of Pretoria
- MA Archaeology 1992, University of Pretoria
- Post-Graduate Diploma in Museology 1993 (cum laude), University of Pretoria
- Diploma Tertiary Education 1993, University of Pretoria
- DPhil Archaeology 2001, University of Pretoria.
- MA Cultural History 1998 (cum laude), University of Stellenbosch
- Management Diploma 2007 (cum laude), Tshwane University of Technology
- DPhil History 2010, University of Stellenbosch

Employment history

- *1988-1991*: Fort Klapperkop Military Museum - Researcher
- *1991-1999*: National Cultural History Museum. Work as Archaeologist, as well as Curator/Manager of Pioneer Museum (1994-1997)
- *1999-2002*: City Council of Pretoria. Work as Curator: Fort Klapperkop Heritage Site and Acting Deputy Manager Museums and Heritage.
- *2002-2007*: City of Tshwane Metropolitan Municipality. Work as Deputy Manager Museums and Heritage.
- *August 2007* – present – Managing Director for Archaetnos Archaeologists.
- *1988-2003*: Part-time lecturer in Archaeology at the University of Pretoria and a part-time lecturer on Cultural Resources Management in the Department of History at the University of Pretoria.
- *2014*: Part-time lecturer for the Honours degree in Museum Sciences in the Department of History and Heritage Studies at the University of Pretoria
- *2015*: Appointed extraordinary professor in history at the Mafikeng Campus of the Northwest University

Other

- Published 75 articles in scientific and popular journals on archaeology and history.
- Author and co-author of over 580 unpublished reports on cultural resources surveys and archaeological work. A list of reports can be viewed on www.archaetnos.co.za
- Published a book on the Military Fortifications of Pretoria.
- Contributed to a book on Mapungubwe.
- Delivered more than 50 papers and lectures at national and international conferences.
- Member of SAHRA Council for 2003 – 2006.
- Member of the South African Academy for Science and Art.
- Accredited professional member of Association for South African Professional Archaeologists.
- Accredited professional member of the South African Society for Cultural History (Chairperson 2006-2008; 2012-2014).
- Has been editor for the SA Journal of Cultural History 2002-2004.
- Member of the Provincial Heritage Resources Agency, Gauteng's Council.
- Member of Provincial Heritage Resources Agency, Gauteng's HIA adjudication committee (Chairperson 2012-2019).

ASAPA Accreditation number: 166
SASCH Accreditation number: CH001

DECLARATION OF INDEPENDENCE

I, Anton Carl van Vollenhoven from Archaetnos, hereby declare that I am an independent specialist within the field of heritage management.

Signed:



Date: 18 November 2017

LIST OF ACRONYMS:

AIA – Archaeological Impact Assessment
CMP – Cultural Management Plan
EAP – Environmental Assessment Practitioner
EIA – Environmental Impact Assessment
HIA – Heritage Impact Assessment
PIA – Palaeontological Impact Assessment
SAHRA – South African Heritage Resources Agency

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1. INTRODUCTION

Archaetnos cc was requested by Cabanga Environmental to conduct a cultural heritage impact assessment (HIA) for a proposed prospecting right application on portions 1, 2 and RE of the farm Verdoorst Kolk 342. This is close to the town of Brandvlei in the Northern Cape Province. Brandvlei falls within the Hantam Local Municipality of the Namaqua District (Figure 1-4).

A central co-ordinate of the development is 30°01'38.4"S; 20°24'32.6"E. The 1:50 000 map sheet number is 29020CD, 3020AB, 3020BA.



FIGURE 1: LOCATION OF BRANDVLEI IN THE NORTHERN CAPE PROVINCE.

The applicable mineral related to the project is gypsum. A number of boreholes will be used to determine the possibility of future mining. Details of the proposed work on site include the prospecting for Gypsum by means of a TLB mounted auger drill. Drilling will be to a maximum depth of 5m. Associated activities include:

- Clearance of vegetation in areas where drilling is proposed
- Relocation of species of conservation concern in areas to be disturbed (assumed at this stage).
- Establishment of a site camp, laydown area and storage site. Including fuel storage and portable chemical toilets.
- No formal roads will be constructed; farm tracks will be used as far as possible.

- Rehabilitation of the boreholes and disturbed areas.

The heritage study forms part of a Basic Assessment. The relevant reference number for the project is DMR NC30/5/1/1/2/12069PR.

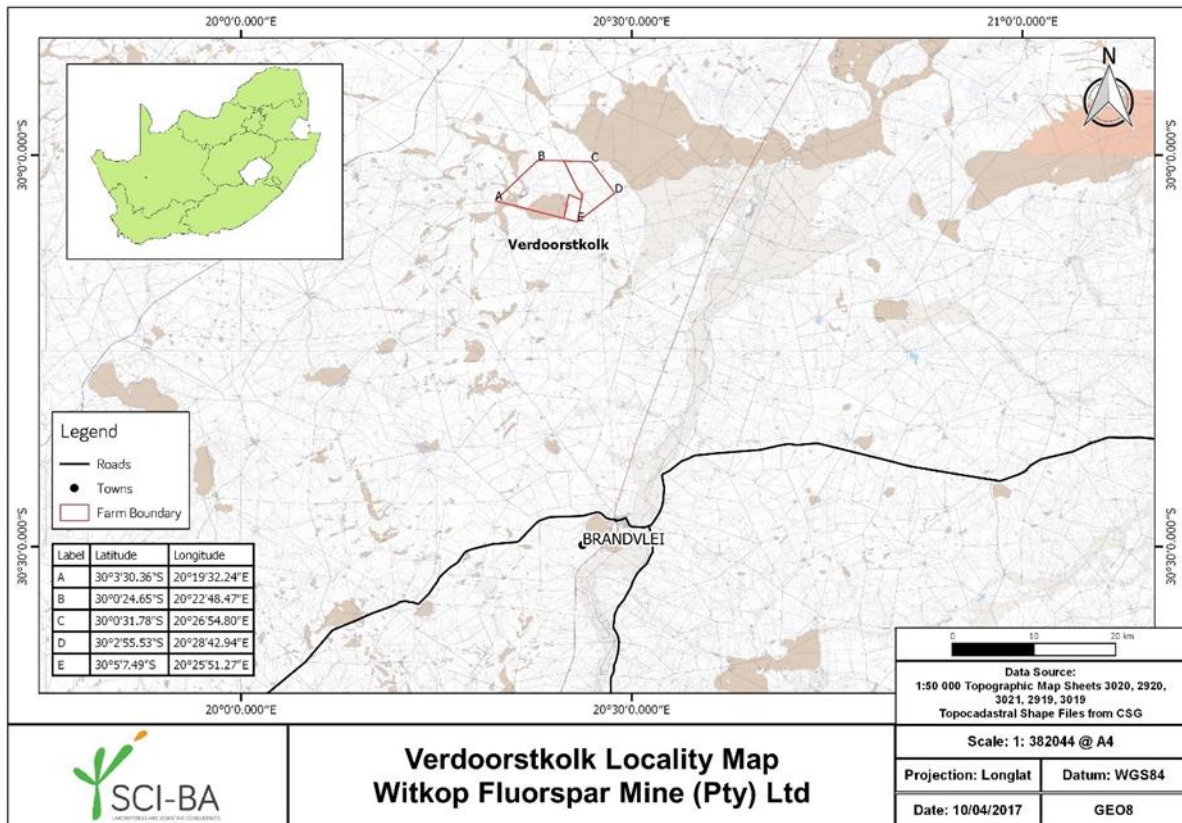


FIGURE 2: LOCATION OF THE SITE IN RELATION TO BRANDVLEI (SCI-BA).

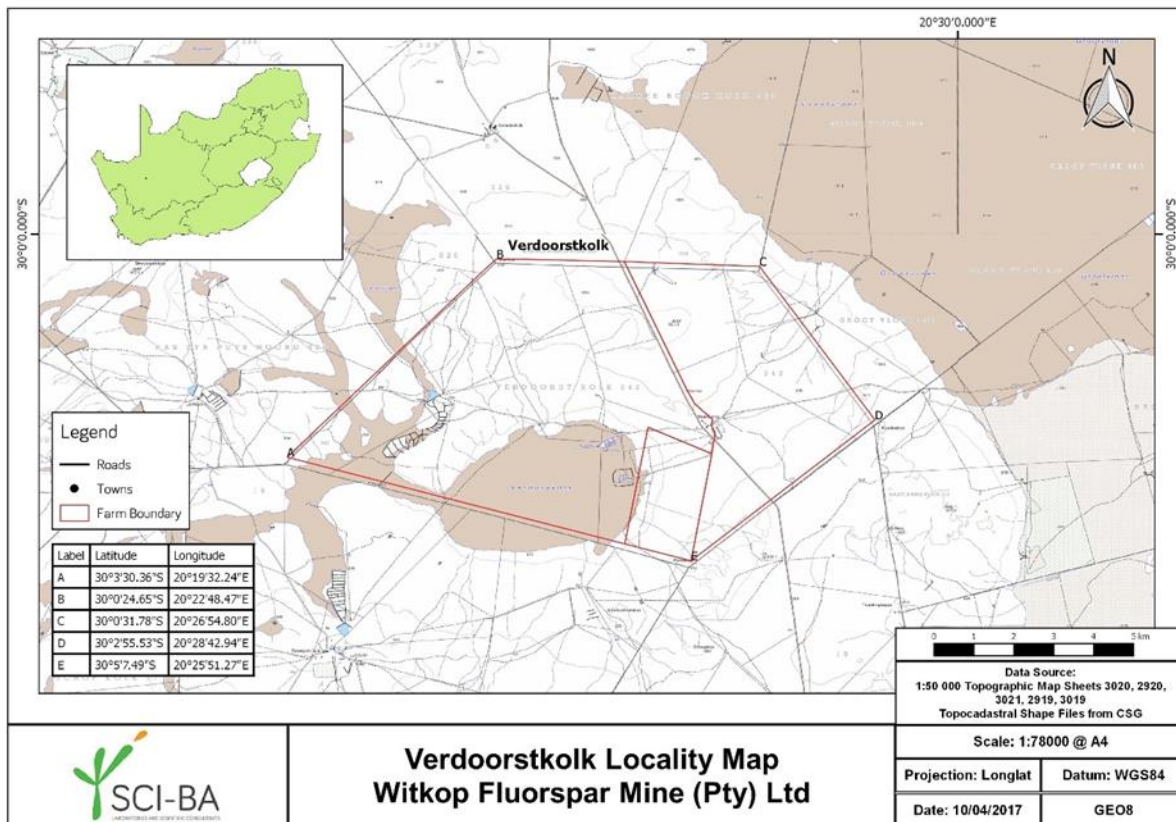


FIGURE 3: DETAILED MAP OF THE STUDY AREA (SCI-BA).

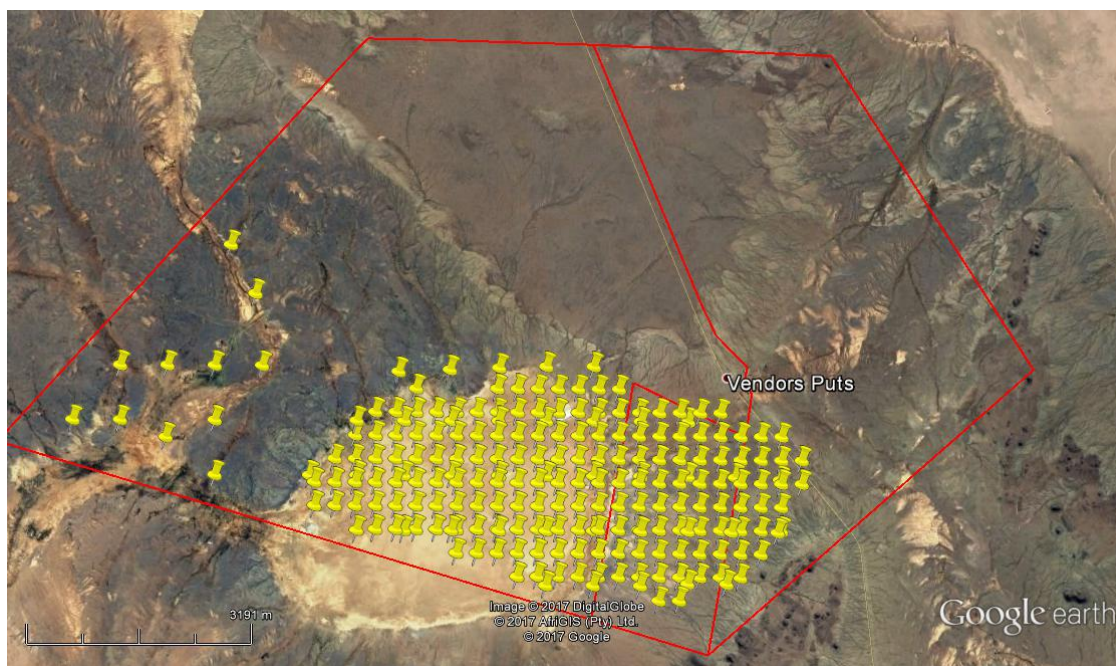


FIGURE 4: GOOGLE EARTH IMAGE INDICATING THE PROPOSED BOREHOLES ON SITE.

2. TERMS OF REFERENCE

The Terms of Reference for the survey were to:

1. Identify objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the property (see Appendix A).
2. Document the found cultural heritage sites according to best practice standards for heritage related studies.
3. Study background information on the area to be developed.
4. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
5. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.
6. Recommend suitable mitigation measures to minimize possible negative impacts on the cultural resources by the proposed development.
7. Review applicable legislative requirements.

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. The first of these are the National Heritage Resources Act (Act 25 of 1999) which deals with the cultural heritage of the Republic of South Africa. The second is the National Environmental Management Act (Act 107 of 1998) which inter alia deals with cultural heritage as part of the Environmental Impact Assessment process.

3.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

- a. Archaeological artifacts, structures and sites older than 100 years
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years
- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils

- i. Objects, structures and sites of scientific or technological value.

The national estate (see Appendix D) includes the following:

- a. Places, buildings, structures and equipment of cultural significance
- b. Places to which oral traditions are attached or which are associated with living heritage
- c. Historical settlements and townscapes
- d. Landscapes and features of cultural significance
- e. Geological sites of scientific or cultural importance
- f. Archaeological and paleontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment (AIA) only looks at archaeological resources.

A Palaeontological Impact Assessment (PIA) is an assessment of palaeontological heritage. Palaeontology is a different field of study, and although also sometimes required by the South African Heritage Resources Agency (SAHRA)¹, should be done by a professional palaeontologist.

The different phases during the HIA process are described in Appendix E. An HIA must be done under the following circumstances:

- a. The construction of a linear development (road, wall, power line canal etc.) exceeding 300m in length
- b. The construction of a bridge or similar structure exceeding 50m in length
- c. Any development or other activity that will change the character of a site and exceed 5 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

¹ Please consult SAHRA to determine whether a PIA is necessary.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological material or object or any meteorite;
- c. trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

- a. ancestral graves
- b. royal graves and graves of traditional leaders
- c. graves of victims of conflict
- d. graves designated by the Minister
- e. historical graves and cemeteries
- f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- a. destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- b. destroy, damage, alter, exhume or remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- c. bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations (Ordinance no. 12 of 1980)** (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place. Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

3.2 The National Environmental Management Act

This Act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

3.3 The International Finance Corporations' performance standard for Cultural Heritage

This standard recognizes the importance of cultural heritage for current and future generations. It aims to ensure that clients protect cultural heritage in the course of their project activities.

This is done by clients abiding to the law and having heritage surveys done in order to identify and protect cultural heritage resources via field studies and the documentation of such resources. These need to be done by competent professionals (e.g.

archaeologists and cultural historians). Any possible chance find, encountered during the project development, also needs to be managed by not disturbing it and by having it assessed by professionals.

Impacts on the cultural heritage should be minimized. This includes the possible maintenance of such sites in situ, or when not possible, the restoration of the functionality of the cultural heritage in a different location. When cultural historical and archaeological artifacts and structures need to be removed, this should be done by professionals and by abiding to the applicable legislation. The removal of cultural heritage resources may, however, only be considered if there are no technically or financially feasible alternatives. In considering the removal of cultural resources, it should be outweighed by the benefits of the overall project to the affected communities. Again professionals should carry out the work and adhere to the best available techniques.

Consultation with affected communities should be conducted. This entails that such communities should be granted access to their cultural heritage if this is applicable. Compensation for the loss of cultural heritage should only be given in extra-ordinary circumstances.

Critical cultural heritage may not be impacted on. Professionals should be used to advise on the assessment and protection thereof. Utilization of cultural heritage resources should always be done in consultation with the affected communities in order to be consistent with their customs and traditions and to come to agreements with relation to possible equitable sharing of benefits from commercialization.

4. METHODOLOGY

4.1 Survey of literature

A survey of literature was undertaken in order to obtain background information regarding the area. Sources consulted in this regard are indicated in the bibliography.

4.2 Reference to other specialist studies

A desktop PIA was conducted by Bamford (2017). According to this study the rocks in the area are mudstones of the Prince Albert Formation from the settling of marine or deltaic suspension muds. Sterile Jurassic dykes are close by. It further indicated that there is an extremely small chance of finding fossils.

No Archaeological or Heritage Impact Assessments have been done on the farm Verdoorst Kolk before. A few reports from surrounding areas have however been compiled. These were utilised in compiling the historical context for this report.

4.3 Public consultation and stakeholder engagement

This aspect will be dealt with by Cabanga Environmental. It has not been done yet. It will be undertaken in line with NEMA EIA Regulations.

4.4 Oral histories

People from local communities are interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography. In this case it was not done additionally since it would be covered by the Public consultation report.

4.5 Physical field survey

The survey was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development. One regularly looks a bit wider than the demarcated area, as the surrounding context needs to be taken into consideration.

If required, the location/position of any site was determined by means of a Global Positioning System (GPS)², while photographs were also taken where needed. The survey was undertaken by doing a physical survey via off-road vehicle and on foot and covered as much as possible of the area to be studied (Figure 5).

Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage. In this instance the under footing was reasonably open and the vegetation varied between medium and low. Accordingly both the horizontal and the vertical archaeological visibility was influenced positively. There were however a few areas where the vegetation cover was dense and high and due to the impenetrability thereof it has a negative effect on visibility. The size of the surveyed area is limited to the borehole positions, but the entire prospect area is approximately 8 224 Ha. The survey took 16 hours to complete.

4.6 Documentation

All sites, objects features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information was added to the description in order to facilitate the identification of each locality.

² A Garmin Oregon 550 with an accuracy factor of a few meters.

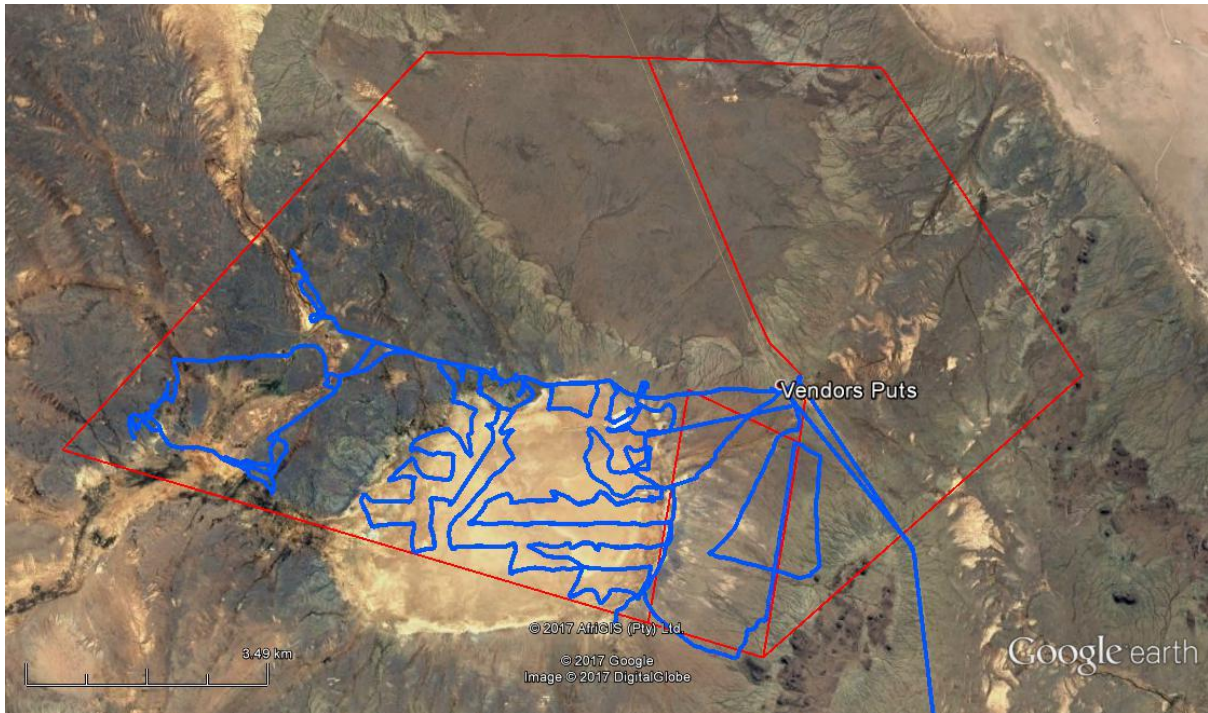


FIGURE 5: GPS TRACK OF THE SURVEYED AREA. NORTH REFERENCE IS TO THE TOP.

4.7 Evaluation of Heritage sites

The evaluation of heritage sites is done by giving a field rating of each (see Appendix C) using the following criteria:

- The unique nature of a site
- The integrity of the archaeological deposit
- The wider historic, archaeological and geographic context of the site
- The location of the site in relation to other similar sites or features
- The depth of the archaeological deposit (when it can be determined or is known)
- The preservation condition of the site
- Uniqueness of the site and
- Potential to answer present research questions.

5. ASSUMPTIONS, GAPS, RESTRICTIONS, CONDITIONS AND LIMITATIONS

The following conditions and assumptions have a direct bearing on the survey and the resulting report:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity (Appendix A). These include all sites, structures and artifacts of importance, either individually

or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.

2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.
3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see Appendix C).
4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public.
5. All recommendations are made with full cognizance of the relevant legislation.
6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area, as it will be very time consuming. Developers should however note that the report should make it clear how to handle any other finds that might occur.
7. In this particular case the vegetation under footing was reasonably open and the vegetation varied between medium and low. Accordingly both the horizontal and the vertical archaeological visibility was influenced positively and it was possible to see over a large distance with a diameter of approximately 300 m.
8. There were however a few areas where the vegetation cover was dense and high and due to the impenetrability thereof it has a negative effect on visibility.
9. A very large section of the surveyed area consist of a pan. It was dry during the survey and therefore accessed, but is regarded as a low risk area for finding cultural resources due to it being a water body.
10. Certain areas which are clearly disturbed are also seen as very low risk areas and were therefore not surveyed in detail and sometimes just driven through.

6. DESCRIPTION OF THE SOCIO-ECONOMIC ENVIRONMENT

The Hantam Municipality covers 36 128km² and includes Calvinia, the centre, as well as Brandvlei, Loeriesfontein, Middelpoos, Nieuwoudtville and Swartkop. Calvinia is approximately 400 km from Cape Town, Springbok, Upington and Beaufort West.

The Municipality provides work for more than 140 permanent employees. Seventy percent of the population of approximately 20 000 people live and work in the towns. Agriculture is however the main economic sector.

Brandvlei apparently originated from a 19th-century trekboer called Ou Brand, who first settled here. Brand camped at this spot at the Sakrivier, a dry river bed, which only occasionally had water after good rains and which typically result in flash floods. The settlement was cut in two by such a flood in 1961. After it was recovered, a municipality was formed in 1962. The area is also known as the Bushmanland or the Thirst Land.

From 1910 the farmers used an irrigation method comparable to one used for thousands of years by the Egyptians. As the overall topography is flat, water can be spread over a large area and allowed to percolate into the soils making small-scale crop cultivation possible.

7. DESCRIPTION OF THE PHYSICAL ENVIRONMENT

As indicated above, the farm Verdoorst Kolk lies within Namaqualand, known to be a very arid region. This region contains very little vegetation, primarily very low shrubs and yellow grass among a rocky desert kind of landscape. If you travel north from Brandvlei towards Kenhardt, you will pass through a huge landscape of nothingness for the next 200 km and more. During the seasons many birds flock to the pans, when they contain water, after some rainfall. Temperature above 40 °C is not uncommon.

As a result the vegetation cover is scarce. It mostly consist of low shrubs in between open patches of dry land (Figure 6-7). A very large portion of the study area is filled by a pan, which was dry during the survey. In the pan plant growth is minimal and mostly consist of pioneer species (Figure 8-10). Archaeological visibility was reasonably good during the survey with the exception of the areas surrounding the non-perennial stream. Here vegetation was dense and impenetrable, consisting of medium sized trees and shrubs (Figure 11).

Disturbance is limited to the activities associated with the old salt works constructed within the pan (Figure 12). These are not in operation any more.

The topography of the surveyed area is fairly flat, dipping slightly towards the pan in the south-west. A few non-perennial streams are found in the study area.



FIGURE 6: OPEN SECTION OF LAND IN THE SURVEYED AREA.



FIGURE 7: GENERAL VIEW OF THE SURVEYED AREA.



FIGURE 8: GENERAL VIEW OF VEGETATION COVER IN THE PAN.



FIGURE 9: ANOTHER VIEW OF THE PAN.



FIGURE 10: VIEW OF THE PAN WITH DENSER VEGETATION IN THE BACKGROUND.



FIGURE 11: DENSE VEGETATION ALONG ONE OF THE NON-PERENNIAL WATER COURSES.



FIGURE 12: SALT WORKING DAMS IN THE PAN.

8. HISTORICAL CONTEXT

Six sites of cultural heritage significance were identified during the survey. Background information is given in order to place the surveyed area in a historical context and to contextualize possible finds that could be unearthed during prospecting activities.

There is very little archaeological information available of the area around Brandvlei. Only three reports were identified on SAHRIS, whereas numerous reports are known from surrounding areas (SAHRIS database). The information found is included in the below discussion.

8.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided in three periods. It is, however, important to note that dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Korsman & Meyer (1999: 93-94) is as follows:

Early Stone Age (ESA) 2 million – 150 000 years ago
Middle Stone Age (MSA) 150 000 – 30 000 years ago
Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

This geographical area is not well-known as one containing many prehistoric sites. One however has to realize that this most likely only indicates that not much research has been done here before.

Rock engravings are known to occur near Brandvlei (Kaplan 2017), while Webley & Halkett (2010) also recorded dispersed scatters of Middle Stone Age (MSA) tools around the Katkop Hills to the west of Brandvlei. Kaplan (2013) recorded exceptionally high density scatters of MSA tools covering 10's of thousands of square meters about 40 km east of Brandvlei. A well preserved Later Stone Age (LSA) Khoekhoen herder site with large numbers of stone tools, hundreds of fragments of ostrich eggshell was also recorded by Kaplan (2013).

Many Middle and Late Stone Age tools have been found by Archaetnos during surveys in the Northern Cape. The closest of these sites are at Kenhardt, more than 100 km north of the surveyed area. On the farm Konkooksies 91 in the Pofadder district, five sites with Middle and Late Stone Age tools were identified (Archaetnos database). Rock engraving (rock pecking) sites are known from the nearby Putsonderwater (Archaetnos database). Rock engravings are associated with the Late Stone Age people.

The mentioned Late Stone Age sites are associated with the San people. Mitchell (2002: 126) indicates that the language group who occupied the Northern Cape is the /Xam. These people were hunters and gatherers which means that they would have moved around, leaving little trace of their existence.

Bushmanland was one of the last regions of the Cape Province to be settled by early European farmers. The result was that it became a last outpost of the /Xam Bushman who still hunted and gathered there in the last decades of the 19th Century (Deacon 1986, 1997). Research suggests that the 'Grass Bushmen' may have lived between Kenhardt and Brandvlei, while the 'Flat Bushmen' lived between Vanwyksvlei and Kenhardt (Deacon 1996).

The environment here seems very similar to that at the study area, indicating that Stone Age material is likely to also be found within the Verdoorst Kolk study area. This was indeed the case. Isolated MSA and LSA tools were found scattered throughout the area (Figure 13). Fragments of Ostrich Egg Shell were also noted.

From the above mentioned it is clear that Stone Age people did utilize the area by settling and probably hunting and gathering in it. The environment definitely would be supportive to Stone Age activities. The small hills towards the south of the surveyed area most likely would have given natural shelter and material to make stone tools from. These volcanic intrusions definitely give material suitable for the manufacture of lithic tools. Although the large flat surrounding area would not have given shelter, it must have been a prime hunting area. It should be indicated that the surrounding plains are dominated by softer rocks like calcrete which are not suitable for the manufacture of stone tools. This would most likely be limited to the few small hills in the area.



FIGURE 13: MSA AND LSA TOOLS FOUND DURING THE SURVEY.

8.2 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.
Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however, indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.
Middle Iron Age (MIA) 900 – 1300 A.D.
Late Iron Age (LIA) 1300 – 1840 A.D.

No Early or Middle Iron Age sites have been identified in the area of study. Iron Age people occupied the central and eastern parts of southern Africa from about 200 A.D., but the San and Khoi remained in the western and southern parts (Inskeep 1978: 126; see also Huffman 2007).

During the Late Iron Age (LIA), people stayed in extensive stonewalled settlements, such as the Thlaping capital Dithakong, 40 km north of Kuruman. Sotho-Tswana and Nguni societies, the descendants of the LIA mixed farming communities, found the region already sparsely inhabited by the Late Stone Age (LSA) Khoisan groups, the

so-called 'first people'. Most of them were eventually assimilated by LIA communities and only a few managed to survive, such as the Korana and Griqua. This period of contact is sometimes known as the Ceramic Late Stone Age and is represented by the Blinkklipkop specularite mine near Postmasburg and finds at the Kathu Pan (De Jong 2010: 36). It is also known that Late Iron Age people did utilize the area close to the Orange River, albeit briefly, as they did mine copper in the Northern Cape (Inskeep 1978: 135).

Iron Age people therefore did not settle in the study area. It therefore is no surprise that no such sites were identified during the survey.

8.3 Historical Age

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. This era is sometimes called the Colonial era or the recent past. Due to factors such as population growth and a decrease in mortality rates, more people inhabited the country during the recent historical past. Therefore and because less time has passed, much more cultural heritage resources from this era have been left on the landscape.

It is important to note that all cultural resources older than 60 years are potentially regarded as part of the heritage and that detailed studies are needed in order to determine whether these indeed have cultural significance. Factors to be considered include aesthetic, scientific, cultural and religious value of such resources.

Such sites include the many historical buildings and structures indicated on the SAHRA database in Kakamas, Kenhardt, Keimoes and Brandvlei (SAHRA Database). In Brandvlei the Dutch Reformed Church building is noted as of heritage significance. These sites are associated with the early missionaries, travelers, first white farmers and establishment of towns during the 19th century.

From the 1880's onwards colonial settlement was promoted in the area. Government-owned land was surveyed and divided into farms, which were transferred to farmers. Surveyors were given the task of surveying and naming some of the many farms in this region. These farms were allocated to prospective farmers, but permanent settlement only started in the late 1920s and the first farmsteads were possibly built during this period. The region remained sparsely populated until the advent of the 20th century (De Jong 2010: 36). The farm Verdoorst Kolk seems to have been measured out first in 1881 (Surveyor-General F1027/1881). Another source about the region (Van Zyl 2010: 13) also indicates that most of the farms were still Government farms and were leased to farmers in 1875. It seems as if shortly hereafter farms were sold to individuals.

During previous surveys around Brandvlei, 19th Century colonial household ware were recorded (Kaplan 2013) and Webley and Orton (2012) documented a dispersed scatter of 20th Century dump material to the south and east of the Brandvlei reservoir.

The above mentioned information means that the buildings on these farms could only have been built after the mid-19th century and most likely after more or less 1875. This gives assistance in the dating thereof.

9. DISCUSSION OF SITES IDENTIFIED DURING THE SURVEY

As indicated six sites have been identified. None of these will directly be impacted on by the proposed prospecting activities. However, secondary impact, e.g. dust may be experienced and the developers need to be aware of these sites in order to steer well clear thereof.

9.1 Site 1 – Grave yard

This is a grave yard consisting of between four and six graves (Figure 14). The site is fenced in. Two of the graves are fenced in within the wider enclosure. These two graves have granite borders and headstones. The third grave has a granite border and marble headstone. Three names and dates are legible, being:

- Johannes van Rooyen, 12, September 1888-29 December 1954
- Cecilia van Rooyen, born Van Niekerk, was Burger, 14 March 1892-19 September 1968
- SC Burger, 6 May 1891-26 December 1925

The farmer indicated that Cecilia was married to SC Burger. After his death she re-married to Johannes van Rooyen.



FIGURE 14: THREE GRAVES AND AN ALLEDGEDLY PREPARED GRAVE AT SITE NO. 1.

The fourth grave is stone packed and is located just outside of the outer fence (Figure 15). The last two 'graves' merely have cement dressing (Figure 16-17). The farmer however indicated that at least one of these was only prepared, but never used (Personal communication: J. Bothma).

There are therefore one (possible three) unknown graves at the site, two older than 60 years and one younger than 60 years.

GPS: 30°03'02.2"S
20°25' 55.4"E



FIGURE 15: GRAVE OUTSIDE OF THE FENCED-IN AREA.



FIGURE 16: PREPARED GRAVE IN THE FRONT.



FIGURE 17: ANOTHER POSSIBLE GRAVE AT SITE NO. 1.

Cultural significance Table:

A place is considered to be part of the national estate if it has cultural significance because of -	Applicable or not	Rating: 1 - Negligible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High
Its importance in the community or pattern of South Africa's history	Y	H
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	Y	H
Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Y	M
Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	Y	H
Its importance in exhibiting particular aesthetic characteristics valued by a community cultural group	N	
Its importance in demonstrating a high degree of creative or technical achievement at a particular period	N	
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	H
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	
Sites of significance relating to the history of slavery in South Africa	N	
Reasoned assessment of significance using appropriate indicators outlined above:	6 – High	

Integrity scale:

1 – Bad state of preservation, but no contextual information

- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

Field-rating = Cultural significance x Integrity

$$= 6 \text{ (High)} \times 6$$

$$= 36$$

Graves are always given a rating of **high** cultural significance due to it being a sensitive matter. Graves with an unknown date are always handled as if older than 60 years. Graves older than 60 years are regarded as heritage graves. The graves receive a field rating of Local grade III B.

Usually there are two options when dealing with graves. The first option is to leave the graves *in situ*. This would be possible should there be no direct impact on the graves. However, the possibility of secondary impacts due to dust etc. remains.

The second option is to exhume the graves and have the bodies reburied. This usually is only allowed if there is a direct impact on the site. Graves younger than 60 years are handled by a registered undertaker. Graves older than 60 years and those of an unknown date is regarded as heritage graves. In such a case an archaeologist is also involved in the process.

Since this site is fenced in and will not be impacted on directly, it should remain *in situ*. The fence should be maintained and a 20m buffer implemented.

9.2 Site 2 - Graves

This is a grave yard consisting of at least three graves. These are all stone packed. Two of these are small and therefore likely represent children’s graves (Figure 18-19). No legible information is visible.

The graves are poorly preserved. All three graves are therefore unknown graves, which needs to be handle similar to heritage graves.

GPS: 30°02’58.4”S
 20°23’37.1”E



FIGURE 18: THE LARGER GRAVE AT SITE NO. 2.



FIGURE 19: THE TWO SMALLER GRAVES.

Cultural significance Table:

A place is considered to be part of the national estate if it has cultural significance because of -	Applicable or not	Rating: 1 - Negligible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High
Its importance in the community or pattern of South Africa's history	Y	H
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	Y	H
Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Y	M
Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	Y	H
Its importance in exhibiting particular aesthetic characteristics valued by a community cultural group	N	
Its importance in demonstrating a high degree of creative or technical achievement at a particular period	N	
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	H
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	
Sites of significance relating to the history of slavery in South Africa	N	
Reasoned assessment of significance using appropriate indicators outlined above:	6 – High	

Integrity scale:

1 – Bad state of preservation, but no contextual information

- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

Field-rating = Cultural significance x Integrity

$$= 6 \text{ (High)} \times 6$$
$$= 36$$

Graves are always given a rating of **high** cultural significance due to it being a sensitive matter. Graves with an unknown date are always handled as if older than 60 years. Graves older than 60 years are regarded as heritage graves. The graves receive a field rating of Local grade III B.

Usually there are two options when dealing with graves. The first option is to leave the graves *in situ*. This would be possible should there be no direct impact on the graves. However, the possibility of secondary impacts due to dust etc. remains.

The second option is to exhume the graves and have the bodies reburied. This usually is only allowed if there is a direct impact on the site. Graves younger than 60 years are handled by a registered undertaker. Graves older than 60 years and those of an unknown date is regarded as heritage graves. In such a case an archaeologist is also involved in the process.

It is recommended that the site be fenced in and managed *in situ*. A 20m buffer zone should be implemented to prevent inadvertent damage.

9.3 Site 3 - Graves

This is a grave yard consisting of at least three graves. These are all stone packed. Only one has a headstone, but no legible information is visible (Figure 20). Glass and porcelain shards are found in the surrounding area.

The graves are poorly preserved. All three graves are therefore unknown graves, which needs to be handle similar to heritage graves.

GPS: 30°02'54.8"S
20°23'37.2"E



FIGURE 20: THE GRAVES AT SITE NO. 3.

Cultural significance Table:

A place is considered to be part of the national estate if it has cultural significance because of -	Applicable or not	Rating: 1 - Neglible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High
Its importance in the community or pattern of South Africa's history	Y	H
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	Y	H
Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Y	M
Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	Y	H
Its importance in exhibiting particular aesthetic characteristics valued by a community cultural group	N	

Its importance in demonstrating a high degree of creative or technical achievement at a particular period	N	
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	H
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	
Sites of significance relating to the history of slavery in South Africa	N	
Reasoned assessment of significance using appropriate indicators outlined above:		6 – High

Integrity scale:

- 1 – Bad state of preservation, but no contextual information
- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

Field-rating = Cultural significance x Integrity

$$= 6 \text{ (High)} \times 6$$

$$= 36$$

Graves are always given a rating of **high** cultural significance due to it being a sensitive matter. Graves with an unknown date are always handled as if older than 60 years. Graves older than 60 years are regarded as heritage graves. The graves receive a field rating of Local grade III B.

Usually there are two options when dealing with graves. The first option is to leave the graves *in situ*. This would be possible should there be no direct impact on the graves. However, the possibility of secondary impacts due to dust etc. remains.

The second option is to exhume the graves and have the bodies reburied. This usually is only allowed if there is a direct impact on the site. Graves younger than 60 years are handled by a registered undertaker. Graves older than 60 years and those of an

unknown date is regarded as heritage graves. In such a case an archaeologist is also involved in the process.

It is recommended that the site be fenced in and managed *in situ*. A 20m buffer zone should be implemented to prevent inadvertent damage.

9.4 Site 4 - Historical residential remains

The site consist of a circle of stones with a diameter of approximately 6 m, most likely the remains of a hut or a basis for a temporary shelter (Figure 21). About 20 m from the circle, a possible midden was identified. Cultural material found includes glass and ceramic shards as well as broken pieces of metal (Figure 22-24).

GPS: 30°02'53.7"S
20°23'25.4"E

It most likely is a shepherds hut or the camp site of the farmers during the early years before permanent structures were erected. The cultural material dates to the end of the 19th/ beginning of the 20th century. It is similar to a site identified by Van Vollenhoven (2016) close to Beaufort West.

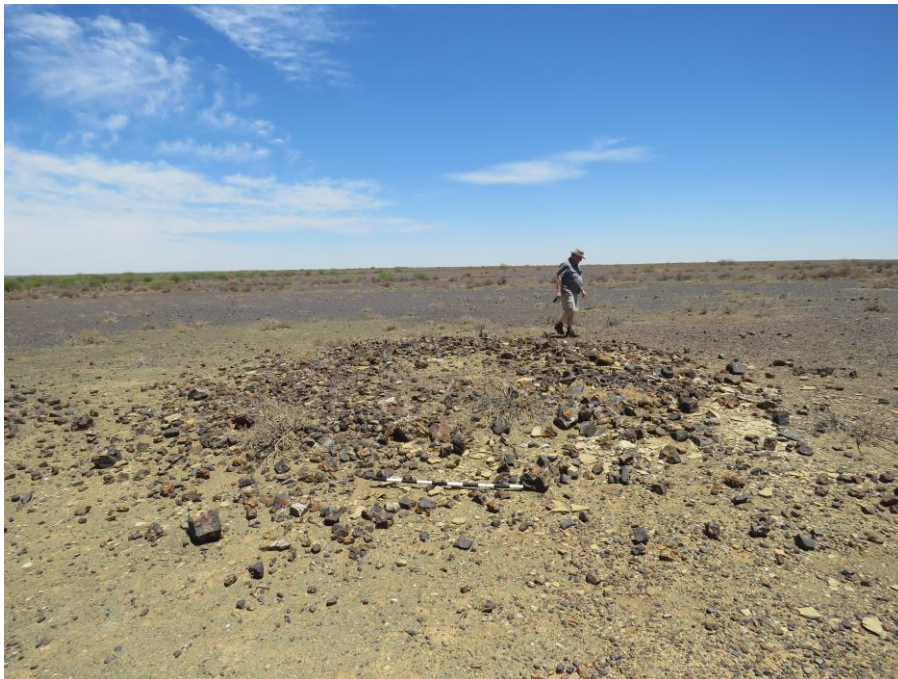


FIGURE 21: SITE NO. 4, A RESIDENTIAL SITE.



FIGURE 22: CULTURAL MATERIAL FROM THE SITE.



FIGURE 23: CERAMIC SHARDS WITH A BELGIAN MAKER'S MARK.



FIGURE 24: MORE CULTURAL MATERIAL FROM THE SITE.

Cultural significance Table:

A place is considered to be part of the national estate if it has cultural significance because of -	Applicable or not	Rating: 1 - Neglible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High
Its importance in the community or pattern of South Africa's history	Y	H
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	Y	H
Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Y	H
Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	Y	H
Its importance in exhibiting particular aesthetic characteristics valued by a community cultural group	N	

Its importance in demonstrating a high degree of creative or technical achievement at a particular period	N	M
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	H
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	
Sites of significance relating to the history of slavery in South Africa	N	
Reasoned assessment of significance using appropriate indicators outlined above:		6 – High

Integrity scale:

- 1 – Bad state of preservation, but no contextual information
- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

Field-rating = Cultural significance x Integrity
= 6 (High) x 3
= 18

These type of site are reasonably rare and therefore the site receives a high significance. The field rating thereof is Local protection III B. The site will not be directly impacted on by the development, but the prospectors need to steer clear thereof. It is therefore recommended that it be left in situ, fenced in and that a buffer zone of 20 m is implemented.

9.5 Site 5 – Historical residential remains

The site is similar to the above one. It consist of a circle of stones, but one side seems to be squared to form a wall or kind of threshold (Figure 25-27). The diameter of the site is approximately 8 m. There are two circles of stones nearby which may be graves,

but which could also be another cultural feature. Cultural material, dating to the late 19th/early 20th century, was also identified.

GPS: 30°02'56.5"S
20°23'24.7"E

It most likely is a shepherds hut or the camp site of the farmers during the early years before permanent structures were erected. It is similar to a site identified by Van Vollenhoven (2016) close to Beaufort West.

Cultural significance Table:

A place is considered to be part of the national estate if it has cultural significance because of -	Applicable or not	Rating: 1 - Neglible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High
Its importance in the community or pattern of South Africa's history	Y	H
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	Y	H
Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Y	H
Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	Y	H
Its importance in exhibiting particular aesthetic characteristics valued by a community cultural group	N	
Its importance in demonstrating a high degree of creative or technical achievement at a particular period	N	M
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	H
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	

Sites of significance relating to the history of slavery in South Africa	N	
Reasoned assessment of significance using appropriate indicators outlined above:		6 – High

Integrity scale:

- 1 – Bad state of preservation, but no contextual information
- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

Field-rating = Cultural significance x Integrity
= 6 (High) x 3
= 18



FIGURE 25: RESIDENTIAL REMAINS AT SITE NO. 5. NOTE THE TWO STONE FEATURES IN THE BACKGROUND.



FIGURE 26: RECTANGULAR SECTION WHICH COULD BE A WALL OR THRESHOLD.

These type of site are reasonably rare and therefore the site receives a high significance. The field rating thereof is Local protection III B. The site will not be directly impacted on by the development, but the prospectors need to steer clear thereof. It is therefore recommended that it be left in situ, fenced in and that a buffer zone of 20 m is implemented.

9.6 Site 6 - Graves

This is a grave yard consisting of at least four graves. These are all stone packed. Two of the graves have headstones made from slate (Figure 27). Only one of these is partially legible. It also has a flower motif incised into the stone. The following word could be made out or partially made out:

- Geliefde eggenoot SEG Farmer (?) [Loving husband]
- De 25 July in het...getroud..July in het jaar... [the 25th July of the...married...July in the year...]
- Hy is verreze...gan weg van haar sicht...gaan dat deze dag nis... [He is risen...go away from her sight...go that this day...] – the latter comes from a Bible text.

The graves are poorly preserved. All four graves are therefore unknown graves, which needs to be handle similar to heritage graves.

GPS: 30°02'58.1"S
20°23'07.3"E



FIGURE 27: THE GRAVES AT SITE NO. 6.

Cultural significance Table:

A place is considered to be part of the national estate if it has cultural significance because of -	Applicable or not	Rating: 1 - Negligible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High
Its importance in the community or pattern of South Africa's history	Y	H
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	Y	H
Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Y	M
Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	Y	H
Its importance in exhibiting particular aesthetic characteristics valued by a community cultural group	N	

Its importance in demonstrating a high degree of creative or technical achievement at a particular period	N	
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	H
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	
Sites of significance relating to the history of slavery in South Africa	N	
Reasoned assessment of significance using appropriate indicators outlined above:		6 – High

Integrity scale:

- 1 – Bad state of preservation, but no contextual information
- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

Field-rating = Cultural significance x Integrity

$$= 6 \text{ (High)} \times 6$$

$$= 36$$

Graves are always given a rating of **high** cultural significance due to it being a sensitive matter. Graves with an unknown date are always handled as if older than 60 years. Graves older than 60 years are regarded as heritage graves. The graves receive a field rating of Local grade III B.

Usually there are two options when dealing with graves. The first option is to leave the graves *in situ*. This would be possible should there be no direct impact on the graves. However, the possibility of secondary impacts due to dust etc. remains.

The second option is to exhume the graves and have the bodies reburied. This usually is only allowed if there is a direct impact on the site. Graves younger than 60 years are handled by a registered undertaker. Graves older than 60 years and those of an

unknown date is regarded as heritage graves. In such a case an archaeologist is also involved in the process.

It is recommended that the site be fenced in and managed *in situ*. A 20m buffer zone should be implemented to prevent inadvertent damage.

10. CONCLUSION AND RECOMMENDATIONS

The field work for the project has been completed successfully. Six sites were identified, all falling outside of the area of direct impact (Figure 28-31).

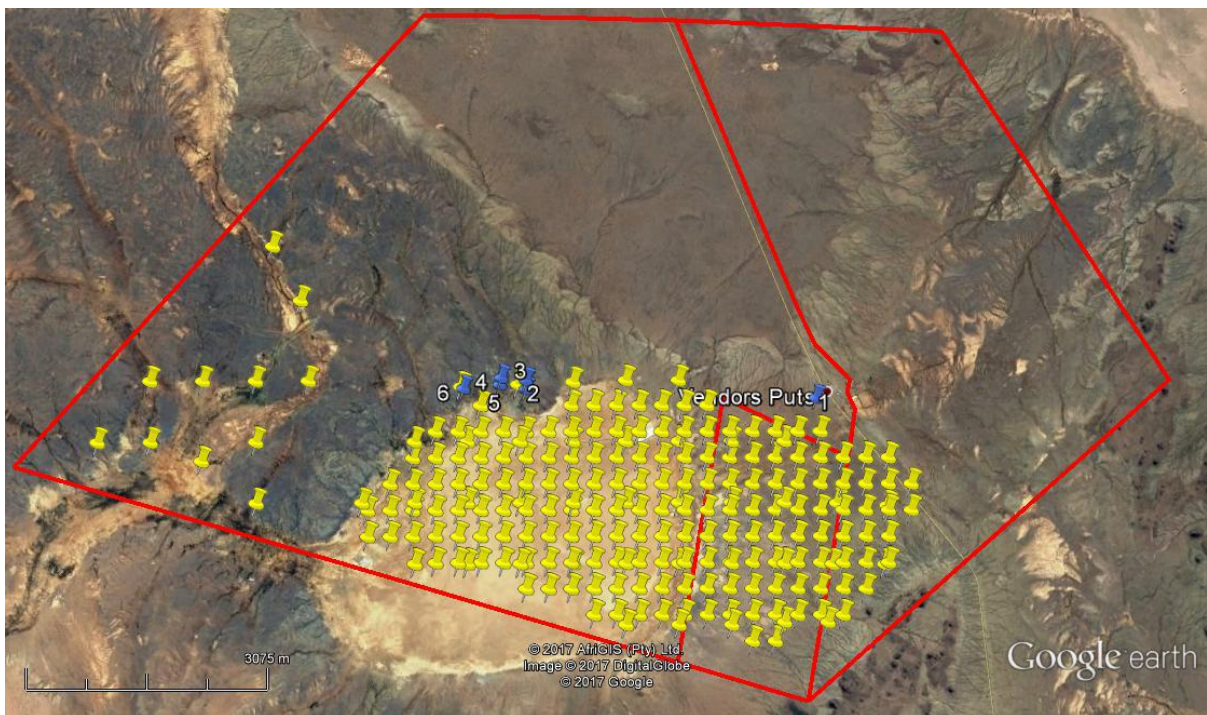


FIGURE 28: THE SIX SITES IDENTIFIED IN RELATION TO THE PROPOSED BORE HOLES.



FIGURE 29: CLOSER VIEW INDICATING THE SIX SITES TO BE OUTSIDE OF THE AREA TO BE IMPACTED ON.



FIGURE 30: VIEW OF THE FARM BOUNDARIES INDICATING THE SIX IDENTIFIED SITES.



FIGURE 31: CLOSER VIEW OF THE LOCATION OF THE SIX IDENTIFIED SITES.

The following is recommended:

- Six sites were identified. These are all outside of the area of direct impact, but it is possible that a secondary impact may be experienced due to the increase of traffic and movement on the site. Four of these (site 1-3 and 6) are grave sites and two (sites 4 and 5) are residential sites.
- It is recommended that the identified grave sites be managed in-situ. Sites are to be demarcated and fenced off, and 20m buffer zones implemented to prevent and inadvertent damage.
- Fencing must be maintained and the sites regularly inspected.
- The two residential sites should also be left in situ, fenced in and a buffer zone of 20 m implemented.
- It should always be realized that the subterranean presence of archaeological and/or historical sites, features or artifacts is a distinct possibility. Due to the nature of this development and the environment, it is indeed expected that some Stone Age sites may only become known later on, thus emphasizing the need for further studies.

- This report is seen as ample mitigation and the proposed development may thus continue, but only after the report had been approved by SAHRA.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation in certain areas it also is possible that some sites may only become known later on. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence.
- In this regard the following 'Chance find Procedure' should be followed:
 - *Upon finding any archaeological or historical material all work at the affected area must cease.*
 - *The area should be demarcated in order to prevent any further work there until an investigation has been completed.*
 - *An archaeologist should be contacted immediately to provide advice on the matter.*
 - *Should it be a minor issue, the archaeologist will decide on future action. Depending on the nature of the find, it may include a site visit.*
 - *SAHRA's APM Unit may also be notified.*
 - *If needed the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.*
 - *The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.*
 - *Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter.*

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APPENDIX A

DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

- Historic value: Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
- Aesthetic value: Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- Scientific value: Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
- Social value: Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Rarity: Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
- Representivity: Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or 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.

APPENDIX C

SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Negligible – The site has no heritage significance, although it may be older than 60 years.
- Low - A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings. A site with minimal importance which is decreased by its bad state of decay.
- Low-Medium - A site of lesser importance, which is increased by a good state of preservation and contextual importance (e.g. a specific community).
- Medium - Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- Medium-High - A site that has high importance due to its age or uniqueness, but which decreases due to its bad state of decay.
- High - Any site, structure or feature regarded as important because of its age or uniqueness. Also any important object found within a specific context.
- Very High - A site of exceptional importance due to its age, uniqueness and good state of preservation.

Heritage significance:

- Grade I Heritage resources with exceptional qualities to the extent that they are of national significance
- Grade II Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate
- Grade III Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

National Grade I significance: The site should be managed as part of the national estate, should be nominated as Grad I site, should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score above 50.

Provincial Grade II significance: The site should be managed as part of the provincial estate, should be nominated as Grade II site, should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score between 40 and 50.

Local Grade IIIA: The site should be included in the heritage register and not be mitigated (high significance), should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score between 37 and 40.

Local Grade IIIB: The site should be included in the heritage register and may be mitigated (high/ medium significance). Mitigation is subject to a permit application lodged with the relevant heritage authority. Score between 6 and 36.

Local Grade IIIC: The description in the phase 1 heritage report is seen as sufficient recording (low significance) and it may be granted destruction at the discretion of the relevant heritage authority without a formal permit application, subjected to the granting of Environmental Authorisation. Score below 5.

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – grade I and II

Protected areas - an area surrounding a heritage site

Provisional protection – for a maximum period of two years

Heritage registers – listing grades II and III

Heritage areas – areas with more than one heritage site included

Heritage objects – e.g. archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states

Structures – older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E

HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or scoping phase – establishment of the scope of the project and terms of reference.
2. Baseline assessment – establishment of a broad framework of the potential heritage of an area.
3. Phase I impact assessment – identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – if there is no likelihood that any sites will be impacted.
5. Phase II mitigation or rescue – planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.
6. Phase III management plan – for rare cases where sites are so important that development cannot be allowed.