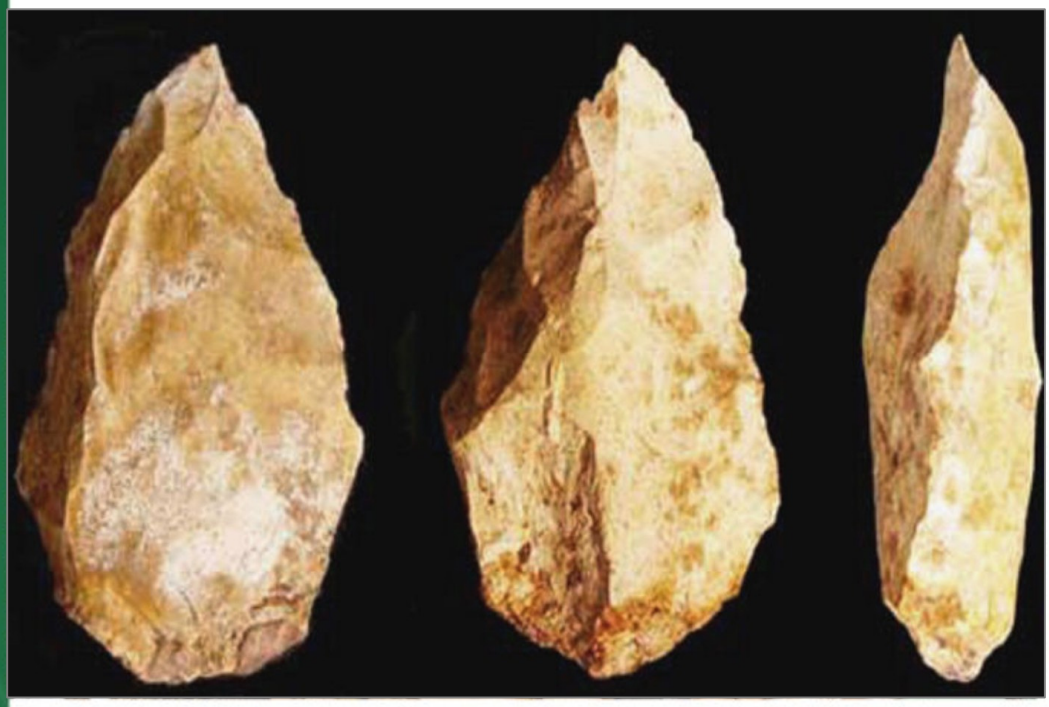
August 2012

REPORT

VUNENE MINING (PTY) LTD

ARCHAEOLOGICAL IMPACT ASSESSMENT

Submitted to:
Vunene Mining (Pty) Ltd
Private Bag X9001
Ermelo
2350



Report Number:	**HIA-REP-325D-12 (HERITAGE)**
Revision:	**00/ 12 Oct '12**
Distribution:	
1x Copy:	**Vunene Mining (Pty) Ltd**
1 x Copy:	**ENVASS**
1 x Copy:	**Department of Mineral Resources**
1 x Copy:	**SAHRA**

"Your Partner in Calculating Environmental Solutions"
ENVASS
ENVIRONMENTAL ASSURANCE (Pty)Ltd

ARCHAEOLOGICAL IMPACT ASSESSMENT

FOR THE

EXTENSION OF DEVELOPMENT FOR COAL MINING

FOR

VUNENE MINING (PTY) LTD

ON PORTIONS 3, 4, 6, 9, 14 AND 15 OF THE FARM JAN HENDRIKSFONTEIN 263 IT, PORTIONS 2, 8, 9, 11,17 AND 21 OF THE FARM WITPUNT 267 IT, PORTIONS 5, 6, 7, 8 OF THE FARM VLAKFONTEIN 266 IT, HOLBANK 265 IT, ROODEWAL 270 IT, TWYFELAAR 298 IT, VLAKFONTEIN 269 IT AND MOOIPLAATS 290 IT

IN THE

District Municipality: Gert Sibande
Mpumalanga Province

SOUTH AFRICA

	Originated By:	Reviewed By:	Approved By:
Name:	Tobias Coetzee	Retha Weir	Vernon Siemelink
Designation:	Archaeological Specialist	Quality Reviewer	Systems Manager
Signature:			
Date:	2012/08/20	2012/08/22	2012/10/12

Table of Contents

1. Executive Summary

Environmental Assurance (Pty) Ltd was appointed by Vunene Mining (Pty) Ltd to undertake an Archaeological study to determine the scope of archaeological resources which could be impacted on by the proposed expansion of mining activities. Expansion is planned in the general vicinity of the farm Transutu 257 IT and Camden power station on the farm Jan Hendriksfontein 263 IT. This report therefore mainly focuses on the areas on which development is planned, although several examples from other properties for which mining rights have been obtained will be discussed and assessed.

During the pedestrian survey, a number of graves and features were observed, some of which possibly date to the Historical Period. Apart from the heritage objects present on the property, the significance of the larger historical landscape must also be taken into account as the archaeological site found on top of Tafelkop, which is classified as a provincial heritage site, as well as Welgelegen Shelter are located in the Ermelo district.

It is recommended that the graveyard located on portion nine of the farm Jan Hendriksfontein 263 IT (Site U1) be fenced off and a conservation buffer of 100m be placed around it. This stems from the fact that graves are protected under the Human Tissue Act (65 of 1983) and Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) while graves older than 60 years are protected under the National Heritage and Resources Act (25 of 1999). It is further recommended that the provenance of sites U2, U3, U4-1, U4-2, U5, U6, U7, U8, U9, U10 and 04 be determined prior to any alteration and a destruction permit be obtained should the need arise to demolish these structures since they may be of historical origin. If these structures are older than 60 years they would be protected under the National Heritage Resources Act (25 of 1999).

No other archaeological remains were observed on the areas demarcated for development. It should however be noted that material of archaeological and heritage value exist within the greater area for which prospecting rights were obtained. The recommendations for these sites are similar to the above mentioned sites discovered on portion nine of the farm Jan Hendriksfontein 263 IT. These archaeological remains include two historical homesteads (Sites 63 & 65) on the remaining portion of the farm Holbank 265 IT which is protected under the National Heritage Resources Act (25 of 1999), two graveyards (Site 006 & 007) on the same portion and one possible grave (Site 003) on portion 36 of the farm Witpunt 267 IT, which is also protected under the National Heritage Resources Act (25 of 1999), the Human Tissues Act (65 of 1983) and the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925).

Because archaeological artefacts generally occur below surface, the possibility exists that other culturally significant material and skeletal remains may be exposed during development and construction phases, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist (See National Heritage and Resources Act, 25 of 1999 section 36 (6)). From a heritage point of view development may proceed subject to the abovementioned conditions and recommendations.

2. Project Background

2.1 Introduction

Environmental Assurance (Pty) Ltd was appointed by Vunene Mining (Pty) Ltd to undertake an Archaeological study to determine the scope of archaeological resources which could be impacted on by the expansion of the opencast area of Usutu Colliery on the following portions of the farm Jan Hendriksfontein 263 IT in Mpumalanga: Portions 3, 4, 6, 9, 14 and 15 (**refer to Table 1 and Figure 2**). The purpose of this study was to examine the portions / farms on which development is planned in order to determine whether archaeological resources will be impacted on as well as to gain a better understanding of the type and extent of archaeological remains of heritage value located in the specific region. For this reason were different farms falling within Usutu's mining right boundaries surveyed as well. The aim of this report is not only to provide the developer with information regarding the location of heritage resources that will safeguard such resources against construction, but also to aid decision making in terms of selecting future areas to be developed. This report also serves as a guide to identify material/structures, which are protected under the National Heritage and Resources Act (25 of 1999).

During the survey, sites of heritage importance were located and recorded via GPS location and photographic record. In the following report, the significance and importance as well as legislative requirements regarding heritage resources found on the demarcated farms are discussed.

2.2 Legislation

The South African Heritage Resources Agency (SAHRA) aims to conserve and control the management, research, alteration and destruction of cultural resources of South Africa and to prosecute if necessary. It is therefore crucially important to adhere to heritage resource legislation contained in the Government Gazette of the Republic of South Africa (Act No.25 of 1999) as many heritage sites are threatened daily by development. Conservation legislation requires an impact assessment report to be submitted for development authorisation that, in all cases must include HIA's.

HIA's should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources including archaeological and palaeontological sites that might occur in areas of development and (b) make recommendations for protection or mitigation of the impact of the sites.

2.2.1 The EIA and HIA processes

Phase 1 Archaeological Assessments generally involve the identification of sites during a field survey with assessment of their significance, the possible impact development might have and relevant recommendations.

All Heritage Impact Assessment reports should include:

a. Location of the sites that are found;

b. Short description of the characteristics of each site;

c. Short assessment of how important each site is, indicating which should be conserved and which mitigated;

d. Assessment of the potential impact of the development on the site/s;

e. In some cases, a shovel test, to establish the extent of a site, or collection of material might be required to identify the associations of the site. (A pre-arranged SAHRA permit is required); and

f. Recommendations for conservation or mitigation.

This HIA report is intended to inform the client about the legislative protection of heritage resources and their significance and make appropriate recommendations. It is essential that it also provide the heritage authority with sufficient information about the sites to enable them to assess with confidence:

a. Whether or not it has objections to a development;

b. What the conditions are upon which such development might proceed;

c. Which sites require permits for mitigation or destruction;

d. Which sites require mitigation and what this should comprise;

e. Whether sites must be conserved and what alternatives can be proposed that may re-locate the development in such a way as to conserve other sites; and

f. What measures should/can be put in place to protect the sites that should be conserved.

When a Phase 1 HIA is part of an EIA, wider issues such as public consultation and assessment of the spatial and visual impacts of the development may be undertaken as part of the general study and may not be required from the archaeologist. If, however, the Phase 1 project forms a major component of an HIA it will be necessary to ensure that the study addresses such issues and complies with section 38 of the National Heritage Resources Act.

2.2.2 Legislation regarding archaeology and heritage sites

National Resource Act of April 1999

According to Act No.25 of 1999 a historical site is "any identifiable building or part thereof, marker, milestone, gravestone, landmark or tell older than 60 years." This clause is commonly known as the "60-years clause". Buildings are amongst the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Farming Community settlements. "Tell" refers to the evidence of human existence which is no longer above ground level, such as building foundations and buried remains of settlements (including artefacts). The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects, meteorites and rare geological specimens;
- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- any other prescribed category.

With regards to activities and work on archaeological and heritage sites this Act states that:

"No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit by the relevant provincial heritage resources authority." (34. [1] 1999:58)

and

"No person may, without a permit issued by the responsible heritage resources authority-

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological 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 palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites. (35. [4] 1999:58)."

and

"No person may, without a permit issued by SAHRA or a provincial heritage resources agency-

(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, 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;

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals (36. [3] 1999:60)."

On the development of any area the gazette states that:

"…any person who intends to undertake a development categorised as-

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

(d) exceeding 5000m² in extent; or

(e) involving three or more existing erven or subdivisions thereof; or

(f) involving three or more erven or divisions thereof which have been consolidated within the past five years; or

(g) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(h) the re-zoning of a site exceeding 10000m² in extent; or

(i) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development (38. [1] 1999:62-64)."

and

"The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected;

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;

(c) an assessment of the impact of the development on such heritage resources;

(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(g) plans for mitigation of any adverse effects during and after the completion of the proposed development (38. [3] 1999:64)."

Human Tissue Act and Ordinance 7 of 1925

The Human Tissues Act (65 of 1983) and Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) protects graves younger than 60 years. These fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities. Graves 60 years or older fall under the jurisdiction of the National Heritage Resources Act as well as the Human Tissues Act, 1983.

3. Study Area and Project Description

The Ermelo region generally consists of fairly level farmlands with typical Highveld climatic conditions and a rainfall average that ranges between 650mm and 750mm per year (Paulsen & Stone 2001: 35-36). The dominant vegetation in the area is Eastern Highveld Grassland, but Wakkerstroom Montane Grassland, Amersfoort Higveld Clay Grassland and Soweto Higveld Grassland is found as well. In terms of geology the greater area falls under Eccca while Drakenberg and Meinhardskraal occur to a lesser extent. It is in this geographical landscape, in the Breyten area north of Ermelo, that coal production started (Paulsen & Stone 2001:36).

Usutu Colliery is located about 10 kilometres SE of the town of Ermelo, close the Camden power station. The N2 passes just to the south of the colliery while the R65 passes it further to the north. Witpuntspruit and Humanspruit, two perennial rivers, flow through the area of planned development while the Vaal River forms a large part of the eastern boundary of the larger Usutu Colliery area. In addition to a number of rivers, several inland water sources and wetlands occur in the area, one which is located on one of the affected portions but was partially mined out (see **Figures 1 & 2** for general area).

Ingwe initially mined the larger area, which prospecting rights were obtained for (**Figure 2**). This allowed Usutu Colliery to prospect only on certain portions of the selected farms because of Ingwe's care and maintenance responsibility. Usutu Colliery primarily consists of underground mining activities, but geological studies revealed that shallow coal reserves exist and could be exploited via opencast mining methods. Usutu Colliery therefore

decided to undertake opencast mining while exploring underground coal reserves.

Table 1: Farm portions & coordinates

Jan Hendriksfontein 263 IT	Map Reference (1:50 000)	Coordinates
PT 3	2630 CA Camden	26°33'21.99"S 30°04'37.86"E
PT 4	2630 CA Camden	26°33'45.68"S 30°05'05.65"E
PT 6	2630 CA Camden	26°35'24.75"S 30°05'31.36"E
PT 9	2630 CA Camden	26°34'32.91"S 30°04'37.23"E
PT 14	2630 CA Camden	26°34'18.39"S 30°05'43.80"E
PT 15	2630 CA Camden	26°35'15.62"S 30°04'48.65"E

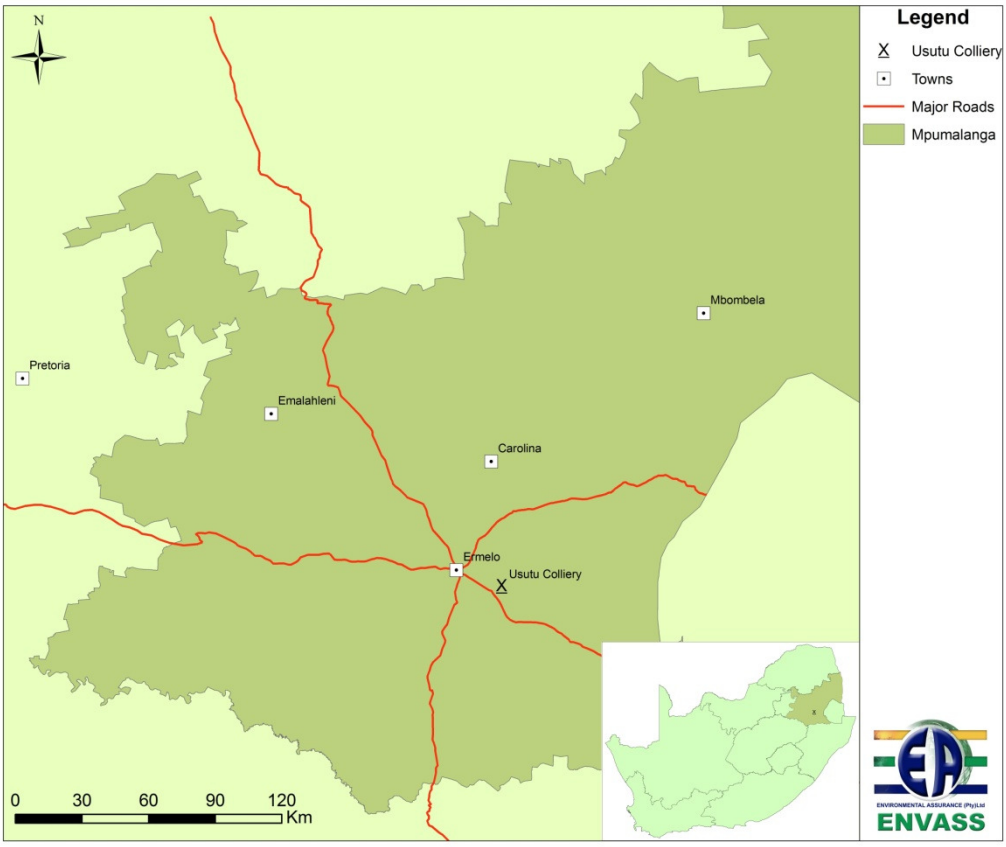


Figure 1: Provincial location of study area

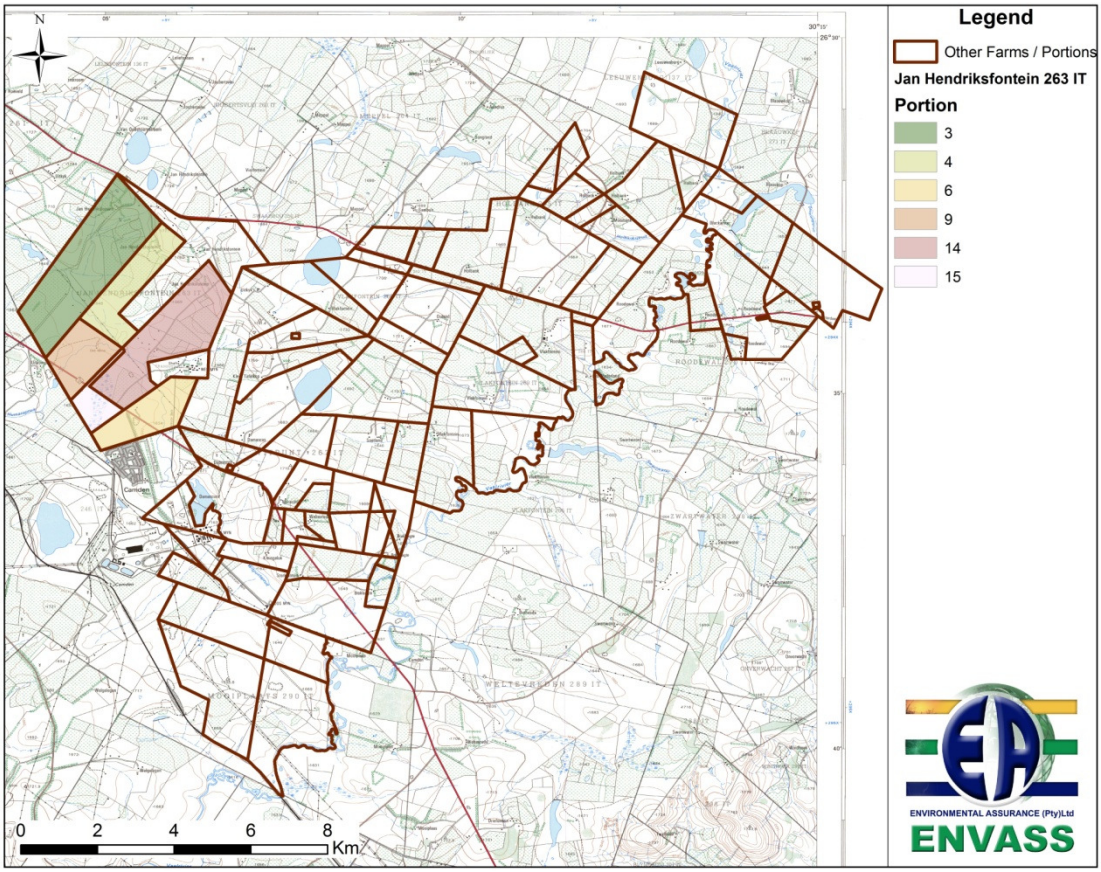


Figure 2: Segment of SA 1: 50 000 2630 CA indicating the study area.

3.1 Archaeological Background

The southern African archaeology is broadly divided into the Earlier, Middle and Later Stone Age, Early and Later Iron Age, and Historical / Colonial Periods.

3.1.1 The Earlier Stone Age

The earliest stone tool industry, the Oldowan, was developed by the earliest members of the genus *Homo* such as *Homo habilis*, around 2.6 million years ago. It contained tools such as cobble cores and pebble choppers (Toth & Schick 2007). The oldest stone tools from the Sterkfontein cave are found in the Oldowan Infill and date to between 2 and 1.7 million years ago. As the name suggests these tools are similar to those found at Olduvai Gorge in Tanzania. These stone tools therefore suggest the earliest direct evidence for culture in southern Africa (Clarke & Kathleen 2000). It was completely replaced by the Acheulean industry, which was first conceived by *Homo ergaster* around 1.8 or 1.65 million years ago, which lasted until around 300 000 Kya. Evidence from this period is also found at Swartkrans, Kromdraai and Sterkfontein. At about 1.5 million years ago the western side of the cave probably enlarged, since artefact-bearing breccias are more widely distributed.

The most typical tools of the ESA are handaxes, cleavers, choppers and spheroids. Although they appear to have used handaxes often, there is disagreement about their use. There are no indications of hafting, and some artefacts are far too large for that. Choppers and scrapers were likely used for skinning and butchering scavenged animals and sharp ended sticks were often obtained for digging up edible roots. Presumably, early humans used wooden spears as early as 5 million years ago to hunt small animals. Fire was used by the hominin *Homo erectus* and *Homo ergaster* as early as 300,000 or 1.5 million years ago and possibly even earlier. The invention of fire reduced mortality rates and provided protection against predators. Examples of sites from this time period include Kromdraai, Makapansgat and Sterkfontein and Swartkrans (Toth & Schick 2007).

3.1.2 The Middle Stone Age

Middle Stone Age artefacts started appearing about 250 000 years ago and replaced the larger Earlier Stone Age bifaces, handaxes and cleavers with smaller flake industries consisting of scrapers, points and blades. These artefacts roughly fall in the 40-100 mm size range and were in some cases attached to handles, indicating a significant technical advance. Few other artefacts remain from this period. In some cases circular hearths were found which indicate the ability to make fire while animal and plant remains refer to a hunting and gathering lifestyle. It is also during this period that the first *Homo sapiens* species emerged. Associated sites are Klasies River Mouth, Blombos Cave and Border Cave (Deacon & Deacon 1999). The most recent deposit in the Sterkfontein cave dates to between 115 000 and 253 000 years ago and includes a few hominid fragments, fauna and Middle Stone Age artefacts (Clarke & Kuman 2000:10-13).

3.1.3 The Later Stone Age

This time period ranges from about 20 000 years ago to the present and saw the emergence of *Homo sapiens sapiens*. Stone tools from this period are generally smaller but were used to do the same job as those from previous periods, but in a different way. At the time of European contact in South Africa, some such as the Khoisan people, were still making these tools. This greatly helped in understanding what these tools were used for. Some Later Stone Age associations are: rock art, smaller stone tools (microliths), bows and arrows, bored stones, grooved stones, polished bone tools, earthenware pottery and beads. Some Later Stone Age sites include Nelson Bay Cave, Rose Cottage Cave and Boomplaas Cave (Deacon & Deacon 1999).

Although no Stone Age artefacts were observed during the site visits, a possibility exists that such artefacts may exist in the vicinity of the study area. **Figures 3-5** below are examples of stone tools often associated with the different time period within the southern African Stone Age and care must be taken during development or construction phases should such artefacts be discovered. One example where Later Stone Age artefacts were

discovered in the Ermelo district is at Welgelegen Shelter to the north of Usutu Colliery. Typical remains associated with such sites are microliths and long end scrapers of the Smithfield B complex and may include pottery (Bergh 1999: 95). Welgelegen Shelter, however, is discussed under the Later Iron Age (3.1.5) because of the wide variety of remains from later periods discovered.

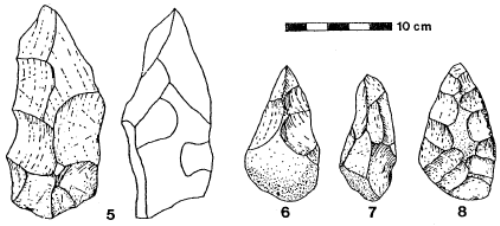


Figure 3: ESA artefacts from Sterkfontein (Volman 1984)

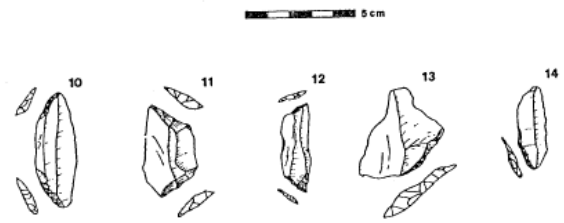


Figure 4: MSA artefacts from HowiesonsPoort (Volman 1984)

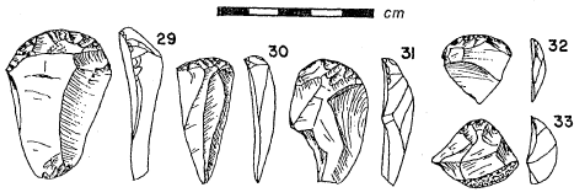


Figure 5: LSA scrapers (Klein 1984)

3.1.4 Early Iron Age

The Early Iron Age marks the movement of farming communities into South Africa at around 200 A.D. These groups were agro-pastoralist communities that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Artefact evidence from Early Iron Age sites is mostly found in the form of ceramic assemblages. The origins and archaeological identities of this period are largely based upon ceramic typologies. Early Iron Age ceramic traditions are classified by some scholars into different "streams" or trends in pot types and decoration that, over time emerged in southern Africa. These "streams" are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). Early Iron Age ceramics typically display

features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. This period continued up to the end of the first millennium AD (Huffman 2007). Some well-known Early Farming Community sites include the Lydenburg Heads in Mpumalanga, Happy Rest in the Limpopo Province and Mzonjani in Kwa-Zulu Natal.

3.1.5 Later Iron Age and Historical Periods

Welgelegen Shelter

Welgelegen Shelter is located about 20 km from Ermelo in a NNE direction on the banks of the Vaal River and is about 41m wide, 13m deep and 2m high. In 1967 M. Schoonraad and P. Beaumont carried out excavations at this site. Two yard squares located about 30 m upstream of the shelter under the overhang were excavated and classified into two strata: Stratum one ranged from a depth of 10 to 15 inches and proved to be sterile. Stratum two ranged from one to ten inches and revealed Later Stone Age as well as Iron Age material. Excavations in the shelter were also classified into two strata which revealed Later Stone Age material in stratum one and a combination of LSA and Iron Age material in stratum 2. Some of the artefacts excavated include: Concave and convex scrapers, irregular flakes, bone beads, cowry shell beads, bone implements, ostrich eggshell beads, potshards, iron awls, adzes and bangles, copper hairpins, glass beads etc (Schoonraad & Beaumont : 1971)

In addition to these remains, the following rock art were found: three biochrome white and yellow images depicting what appears to be impala (published by Schoonraad 1965), a white image of a bird (published by Battis 1949), and faded dark red blotches (Schoonraad & Beaumont 1971).

Tafelkop Settlement

In early times the Ermelo environment was quite inhospitable since it is known for very low winter temperatures, little timber for firewood, and grass not suitable for thatching. Although initial contact with the study area were rather sporadic and may to a large extent be attributed to unfavourable environmental conditions, Iron Age Farming communities did travel this region, although not excessively. It is noted that Lowveld communities sent hunting parties to the Escarpment during summer months. An example of one settlement site, however, occurs about 20 km NW of the town of Ermelo on Tafelkop Mountain. More than 100 corbelled huts are found on top of the mountain of which most are situated in clusters or circles. These clusters are also organised into two main groups: A relatively large complex and a smaller concentration to the north-west. The larger complex has been somewhat damaged by farmers constructing a cattle kraal from the huts. The smaller complex consists of 13 huts of which eight are well preserved. These huts are arranged around an oval cattle kraal. Several other

enclosures are also found around the outside of the hut circles while a few middens are located in peripheral areas. The dimensions of the huts vary between 1,8m X 1.2m and 2m X 1.8m with an average inside height of 1.4m. The entrances are about 0.3m X 0.4m (Paulsen & Stone 2001:39).

A few burials are also associated with the settlement on top of Tafelkop Mountain. In the first case an infant buried in a midden associated with the smaller concentration of huts was exhumed. The infant was buried at a depth of about 0.6m, under an earthenware pot. In the second case an adult, buried in a different midden, and at a depth of 1.2m in a sitting position was discovered with a large earthenware pot inverted above the head (Paulsen & Stone 2001:38).

There is a possibility that the Leghoya settled these stone walled enclosures **(Figure 6)** towards the end of the 18th and early 19th century, but were attacked by the Ndebele under Mzilikazi as they moved northward (Paulsen & Stone 2001:38). This time period, characterised by the 'Difaqane', was marked by conflict and the displacement of people. The reasons for these conflicts have for long been attributed to individuals, such as Shaka, and Nguni state formation processes. In recent years, however, a general shift towards a wider interpretation regarding the origins of these conflicts has been noted. It is now argued that a multitude of factors, such as socio-economical, demographical, political processes as well as the effects of slavery and the movement of groups like the Korana, Griekwa and white pioneers might have contributed to the rise in conflict (Bergh 1999: 110).

According to R. K. Rasmussen (1978) the Ndebele under Mzilikazi moved from the northern Nguni area in a north-western direction around 1821. To the west of modern day Swaziland they crossed the Usutu River, the same name given to the mine this report is concerned with (Usutu Coal Colliery). Accordingly Mzilikazi attacked the Phuting to the west of this area between the Olifants and Vaal Rivers. Afterwards the Phuting crossed the Vaal River to join other Southern Sotho groups who suffered attacks by the Tlokwa, Hkubi and the Ngwane. These groups, mainly consisting of Tshane's Phuting, Nkgaraganye's Hlakwana and Sebetwane's Foken, moved in a northern and western direction and plundered Tswana communities but also incorporated other communities who suffered defeat (Bergh 1999: 110).

Figure 6: Example of one of the corbelled huts on top of Tafelkop Mountain (adapted from Paulsen & Stone 2001)

Later times and a brief history of Ermelo

During the 1877 British annexation of the Transvaal, three towns were proclaimed, namely Standerdton, Bethal and Ermelo. This followed that Ermelo was declared a town on 12 February 1880 (Bergh 1999: 143). The Dutch Reformed minister, Rev Frans Lion Cachet, who was part of the community who settled on the site in 1870, is responsible for the town's name **(Figure 7)**. He decided to name the settlement in memory of his friend, Rev Hermanus Willem Witteveen, who was a minister in Ermelo in the Netherlands. It is interesting to note that Rev Frans Lion Cachet was buried in Crooswijk near Rotterdam, the same place where coal from Ermelo was later stockpiled. A street was also named after him and the caption underneath reads: "Frans Lion Cachet 1835-1899, Minister and founder of Ermelo in Transvaal" (Paulsen & Stone 2001:38). When the South African Ermelo celebrated its 75th anniversary, the Ermelo in the Netherlands celebrated its 1100th (Paulsen & Stone 2001:38).

One of the earliest Voortrekkers to settle in the vicinity of Ermelo was the Jacobsz family. Willem Hendrik Jacobsz moved from the Graaff-Reinet area to the Ermelo district after the Cape government allegedly placed a price of £2000 on his head for masterminding the battle of Boomplaats in Natal. Willem's son, Jan-Hendrik, settled in the Ermelo district in 1863 and bought the farms Tweefontein and Uitsig (Paulsen & Stone 2001:40). These farms are located about 20 km SW of the town of Ermelo and border Tafelkop Mountain. Accordingly the Jacobsz family had a 5 km stone wall constructed around Tafelkop Mountain to protect their horses during summer months from midges carrying horse sickness (Paulsen & Stone 2001:40). Following Paulsen & Stone

(2001) the location of these farms were partially selected for its proximity to the Natal – Pretoria trade route. It is therefore possible that the people who settled on Tafelkop Mountain, as indicated by the numerous corbelled stone huts, selected the site not only on grounds of a favourable defensive position, but might have had an interest in trade as well. This might be true since many later trade routes followed early trade footpaths.

In terms of the economy, coal mining has played a prominent role in Mpumalanga. eMalahleni (Witbank) saw the first coal mines in the late 1980's, following the opening of several other coal mines in the area over the next three decades. This increase in coal production led to the coal price dropping significantly. The Transvaal Coal Owners' Association was therefore formed to regulate the price as well as the amount produced. The price of coal, however, continued to drop. The answer was found in machinery, since more coal had to be produced at a lower price. At first mines started cutting the coal from the seams using compressed air cutters and later made use of electrical coal cutters as technology improved. By 1946 the coal industry had grown significantly with 34 large mines producing 99.7 % of the Province's coal. Twenty-three of these collieries were located near Middelburg and eMalahleni while six were found near Ermelo. As a result of the Transvaal Coal Owners' Association regulating prices, complaints were raised by smaller coal mines who struggled to join. Although coal production increased from 13 million to 25 million tons between 1940 and 1960, the 1950's saw a decrease in demand both locally and internationally as a result of industries switching to oil. The next step involved South Africa converting coal to oil, but more markets were needed. A research programme launched in Western Europe by the Anglo American Corporation to find overseas markets for South African coal was successful and benefitted Transvaal coal producers. In addition, Eskom opened new power stations, which further stimulated the market (Delius & Hay 2009: 158-161).

Figure 7: Rev Frans Lion Cachet (adapted from Paulsen & Stone 2001)

4. Methodology

Archaeological reconnaissance of the area under question was mainly done through identifying possible heritage sites from satellite imagery and personal communication with farm owners regarding known structures and graves. These sites were then visited and recorded. In addition to these sources, unsystematic pedestrian surveys were conducted on those portions on which development will commence, as well as other accessible portions. The reconnaissance of the area under question served a twofold purpose:

- To obtain an indication of heritage material found in the general area as well as to identify/locate archaeological sites on the portions that will be affected most. This was done in order to establish a heritage context and to supplement background information that would benefit developers through identifying areas that are sensitive from a heritage perspective.

- All archaeological and historical events have spatial definitions in addition to their cultural and chronological context. Where applicable, spatial recording of these definitions were done by means of a handheld GPS (Global Positioning System) during the site visit.

4.1 Sources of information

Standard archaeological procedures for the observation of heritage resources were followed at all times during the survey. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was given to disturbances, both man-made such as roads and clearings, as well as those made by natural agents such as burrowing animals and erosion. Locations of archaeological material remains were recorded by means of a Garmin Oregon 550 GPS and archaeological features and general conditions on the terrain were photographed with a Sony Cyber-shot digital camera.

A literature study, consisting of published sources regarding the archaeology of the general area as well as an investigation of aerial and satellite images, was conducted in order to place the study area into context. Google imagery, which proved to be of high quality for the area under question, was examined in order to locate possible areas of heritage importance. In addition to Google imagery, 1: 10 000 aerial photographs were analysed to cross-check areas identified on satellite imagery. A total of 78 areas of interest were located and represents the total study area. The majority of these sites were visited but most of them turned out to be natural features. Sites which did proof to be of heritage importance were recorded via a GPS and photographic record and are also discussed in this report. Additional attention was paid to the portions on which development will commence through unsystematic pedestrian surveys on the selected portions.

4.2 Limitations

The general visibility of most of the investigated areas was good at the time of surveying (July 2012), see **Figures 8 & 9**. Vegetation cover, however, did play a constricting part in certain areas. Other limitations include the general size of the area and therefore relates to time constraints. The total area examined on satellite imagery covers about 16 100 hectares while the area on which development will commence about 1200 hectares. Areas selected for surveying were therefore firstly based on proximity to planned development, thereafter on areas identified using satellite imagery and lastly on general accessibility. Special attention was also given to localities near rivers since water sources often played a key role in selecting settlement locations. It should be noted that undetected heritage remains may be present in sub-surface deposits which could be unearthed during construction, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist (See National Heritage and Resources Act, 25 of 1999 section 36 (6)).

Figure 8: Environment on the farm Jan Hendriksfontein 263 IT in an eastern direction

Figure 9: Environment on the farm Jan Hendriksfontein 263 IT in a north-eastern direction

5. Archaeological and Historical Remains

5.1 Stone Age Remains

No Stone Age archaeological remains were found on any of the farms / portions visited, but a possibility exists that stone tools may be discovered during development / construction phases.

5.2 Iron Age Farmer Remains

No Iron Age Farmer archaeological remains were identified in the study area or any of the other portions visited.

5.3 Historical / Colonial Remains

Figure 26 depicts all the sites recorded on the entire area of which prospecting rights were obtained for, while Figure 27 is an enlarged version of the sites on portion 9 of the farm Jan Hendriksfontein. In Figure 26 these sites are indicated as 'U1' due to their close proximity. It should also be noted that site U4-1 and U4-2 are located in relatively close proximity and were therefore recorded as one point.

5.3.1 Jan Hendriksfontein 263 IT

The only Historical archaeological remains identified on the demarcated farm portions, are that of a historical mine on portion 9 of the farm Jan Hendriksfontein, although a few structures occur in the vicinity that might date to this period as well. Clear evidence regarding this mine, however, were not observed as indicated on the 1:50 000 topographical map. Possible evidence that could relate to this mine were therefore recorded (**Figure 10**). In addition to the historical mine a few sites on the selected portions demarcated for development do contain some building remains or appeared to be sites on aerial images, but are likely to date to more recent times. The provenance of these structures is therefore unknown. Figures 11 - 21 depict these sites, while figures 26 and 27 indicate their locations. If these structures are older than 60 years, they are protected under the National Heritage Resources Act, but because they are possibly of low research potential they be demolished if a destruction permit is obtained from SAHRA.

Sites **U2, U3, U6, U7 and U8** may possibly relate to historical mining activities, although it could not be definitely determined. The material used to build these structures appears to be older than the material used in U4-1, U4-2, U5, U9 and U10. The provenance of these sites, however, could not be established. It should also be noted that sites U2, U3, U7 and U8 fall within the 100 m graveyard conservation buffer and is therefore protected.

Sites of possible recent origin are: **U4-1, U4-2, U5, U9 and U10**. This assumption is purely made on the material used to build these structures, which appears to be more recent and less dilapidated. The provenance of these structures is also unknown and may therefore be of historical origin. Additionally, these sites fall in close proximity to the graveyard. Only sites 03 and 04 are located further away (on portion 3). Site 03 (**Figure 20**) is likely to be a water source during summer months when rainfall is higher and is therefore not associated with heritage resources. This feature was observed via satellite imagery and bore similarities to Iron Age cattle enclosures when perceived on aerial photographs. Site 04 was mapped as a result of loose surface scatter that

were visible on a slightly raised area. All the material observed, which included barbed wire and glass fragments, appeared to be of modern origin.

Figure 10: Possible historical mining activity (Site U2)

Figure 11: Linear Concrete structure (Site U3)

Figure 12: Square brick structure (Site U4-1)

Figure 13: Angular brick structure (Site U4-2)

Figure 14: Dilapidated brick Structure (Site U5)

Figure 15: Angular concrete structure (Site U6)

Figure 16: Concrete structure (Site U7)

Figure 17: Unknown brick and concrete structure (Site U8)

Figure 18: Unidentified brick structure (Site U9)

Figure 19: Unidentified brick structure (Site U10)

Figure 20: Circular Depression (Site 03)

Figure 21: Debris Mound (Site 04)

5.3.2 Historical and other remains on farm portions outside of the scope of development

Although only the possible presence of a historical mine were observed on the area demarcated for development, several other heritage remains were discovered on other farms / portions in the vicinity. These remains form part of the general history and landscape of the area and are therefore worthy of discussing. Also, these archaeological remains fall within the area for which Usutu has prospecting rights. These recordings may aid further studies in the study area, should development expand in these directions.

Sites: 004, 005, 63, 65

Site 63 and 65, located on the remaining portion of the farm Holbank 265 IT, revealed two historical homesteads. Site 63 (**Figure 23**) is located towards the southern boundary of the remaining portion of the farm Holbank 265 IT on the eastern side of a secondary road running north-south. According to the farm owner the homestead is about 80 years old and the graves located in close proximity to the homestead are associated with it.

Site 65 (**Figure 25**) is located near the north-western corner of the remaining portion of the farm Holbank 265 IT. There is also a strong possibility that this homestead was the original homestead when the farm was first settled. This stems from the possibility that the graves (site 007) located a short distance in a north-western direction from the homestead, may be associated with it since it dates to the 1870's and 1880's.

Site 22 (**Figure 22**) indicates a stone wall located on portion 26 of the farm Witpunt 267 IT, but its use probably relates to erosion management. This assumption is based on the fact that the stone wall is located diagonally across a furrow and also because no material culture is associated with the stone wall.

Site 005 (**Figure 24**) on portion 20 of the farm Witpunt 267 IT depicts a circular mound and was identified from aerial photographs. A site investigation, however, revealed no material culture. It is therefore likely that this is not an archaeological terrain, although it cannot be ruled out completely since soil marks have been known to reveal past human activity.

Figure 22: Stone Walled (Site 004)

Figure 23: Historical Homestead (Site 63)

Figure 24: Circular Mound (Site 005)

Figure 25: Historical Homestead (Site 65)

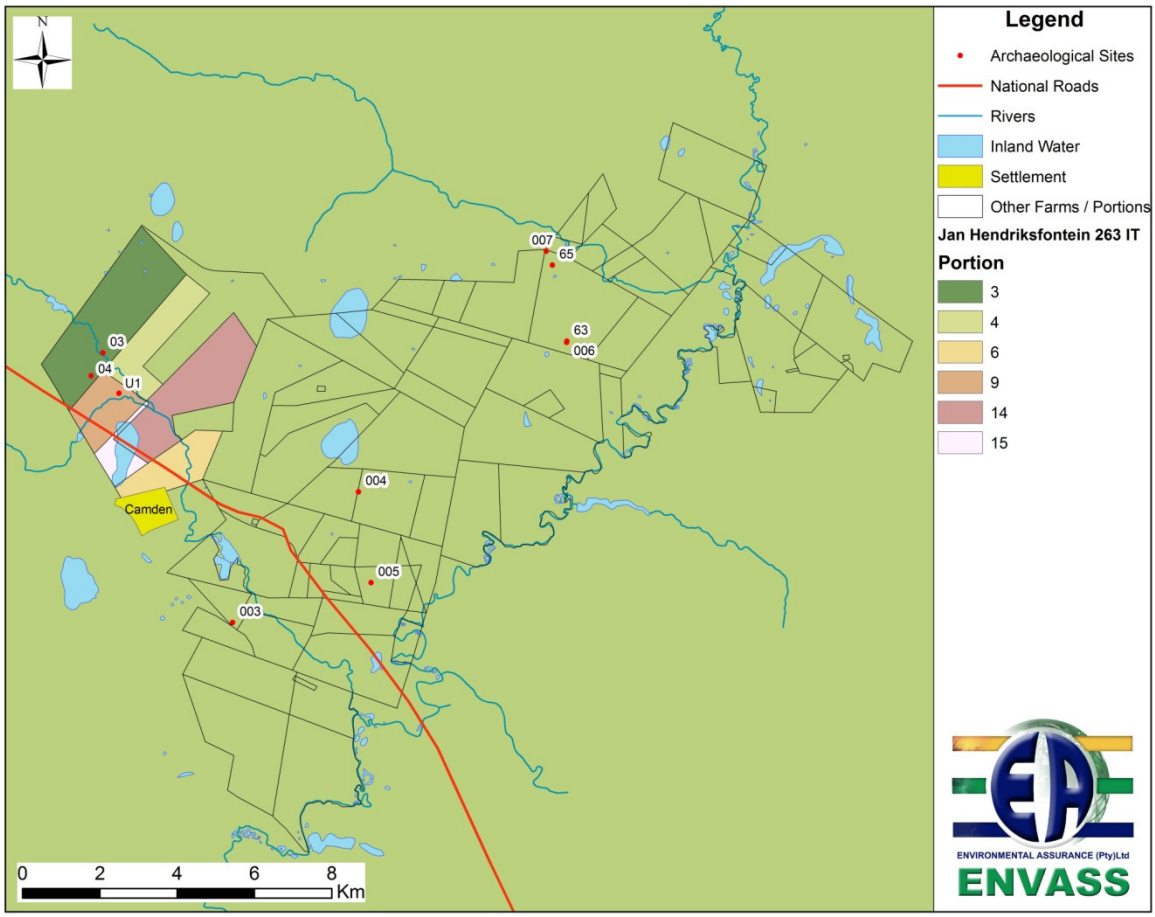


Figure 26: Distribution of sites

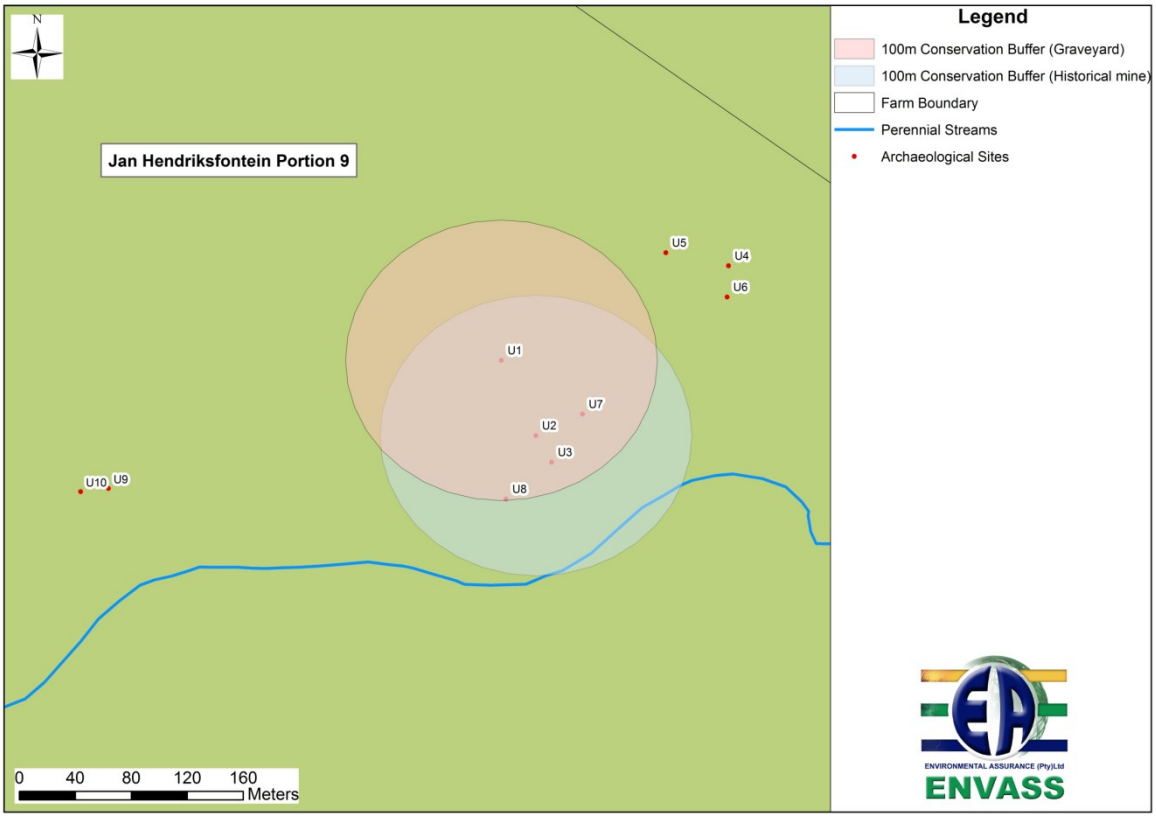


Figure 27: Distribution of sites on portion 9 of Jan Hendriksfontein 263 IT

Table 2: Possible points of interest on Constantia 309

Site	Coordinates
Sites on the portions marked for development	
U2	26°34'19.261" S 30°4'50.748"E
U3	26°34'19.911" S 30°4'51.158"E
U4-1	26°34'15.335" S 30°4'55.269"E
U4-2	26°34'15.335" S 30°4'55.269"E
U5	26°34'15.002" S 30°4'53.798"E
U6	26°34'16.059" S 30°4'55.241"E
U7	26°34'18.759" S 30°4'51.889"E
U8	26°34'20.764" S 30°4'50.111"E
U9	26°34'20.544" S 30°4'40.897"E
U10	26°34'20.544" S 30°4'40.235"E
03	26°33'43.737" S 30°4'36.529"E
04	26°34'03.317" S 30°4'26.442"E
Sites on other farm portions in the vicinity	
004	26°35'39.597" S 30°8'09.364"E
005	26°36'55.163" S 30°8'18.254"E
63	26°33'36.619" S 30°11'7.165"E
65	26°32'26.98" S 30°10'55.312"E

5.4 Graves

5.4.1 Jan Hendriksfontein 263 IT

One graveyard is located on portion 9 of the farm Jan Hendriksfontein 263 IT towards the north-eastern boundary. The graveyard consists of 14 graves, oriented east - west in the Christian-Western style. The burials are marked by monoliths on each of their corners (**Figure 28**). The graves are also located in close proximity to other more recent structures as discussed under 5.3. Preservation of the graves, which are not fenced off, is poor due to damage which can likely be attributed to livestock activity (**Figure 29**). The only visible date on a tombstone bears a birth date of 1979 (**Figure 30**). The other graves either have no tombstones or are damaged to the extent that no date could be obtained (**Figure 31**).

Figure 28: Graveyard on Jan Hendriksfontein (Site U1)

Figure 29: Grave (Site U1)

Figure 30: Close-up of tombstone (Site U1)

Figure 31: Grave without tombstone (Site U1)

5.4.2 Graves on other farm portions in the general area

Several graves were recorded on other farm portions near the area demarcated for development. Although these graves will probably not be impacted on developers can only benefit from being aware of its location. Should future development or construction processes impact on these graves, developers will know the correct course of action.

Site 007 (**Figures 32 - 34**) depicts a graveyard consisting of two graves in the north-western corner of the remaining portion of the farm Holbank 265 IT. Both graves are oriented east – west in the Christian-Western style but they differ in terms of the side on which the inscription occurs. The inscription of the taller tombstone faces east while the shorter tombstone's inscription faces west. The graveyard is properly fenced off, although the shorter tombstone is damaged to the extent where the decease date is not clearly visible but appears to

date to the 1870's. The other tombstone, however, reveals a decease date of 1880, the same year Ermelo was proclaimed a town. There is therefore a strong possibility that the graveyard (Site 007) relates to the nearby historical homestead (Site 65).

Site 003 (**Figure 35**) depicts a possible grave on portion 36 of the farm Witpunt 267 IT located close to the south-eastern boundary. A strong possibility exists that material from the close by secondary road is responsible for the grave-like stone cairn, but definite evidence could not be obtained.

Site 006 consists of a graveyard of 5 graves oriented in an east – west direction and is located towards the southern boundary of the remaining portion of the farm Holbank 265 IT. The graveyard is associated with Site 63 (homestead) as it is located in close proximity. According to the owner, the homestead is about 80 years old and therefore falls within the Historical period. No tombstones, however, are associated with the graveyard and no definite date could be obtained.

Figure 32: Graveyard on Holbank 265 IT (Site 007)

Figure 33: Graveyard on Holbank 265 IT (Site 007)

Figure 34: Shorter grave on Holbank 265 IT (Site 007)

Figure 35: Possible Grave site on Witpunt 267 IT (Site 003)

Table 3: Graves / graveyards in the study area

Site	Coordinates
Graves on other farm portions in the vicinity	
003	26°37'28.629" S 30°06'23.884"E
006	26°33'36.619" S 30°11'07.165"E
007	26°32'20.915" S 30°10'44.895"E
Graves on the portions marked for development	
U1	26°34'17.515" S 30°04'50.211"E

6. Evaluation & Recommendations

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A fundamental aspect in the conservation of a heritage resource relates to whether the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. There are many aspects that must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and if appropriate mitigated in order to

gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed.

6.1 Evaluation

All sites should include a field rating in order to comply with section 38 of the national legislation. The field rating and classification in this report is prescribed by SAHRA.

6.1.1 Field Rating

Rating	Field Rating/Grade	Significance	Recommendation
National	Grade 1		National site
Provincial	Grade 2		Provincial site
Local	Grade 3 A	High	Mitigation not advised
Local	Grade 3 B	High	Part of site should be retained
General protection A	4 A	High/Medium	Mitigate site
General Protection B	4 B	Medium	Record site
General Protection C	4 C	Low	No recording necessary

Sites: U2, U3, U4-1, U4-2, U5, U6, U7, U8, U9, U10, 04

Rating	Field Rating/Grade	Significance	Recommendation
General Protection C	4 C	Low	Record site should it be impacted upon

*** Note that the rating for these sites may change depending on further research which may influence its provenance**

Sites: 03, 004, 005

Rating	Field Rating/Grade	Significance	Recommendation
General Protection C	4 C	Low	No recording necessary

Sites: 63, 65 (Homesteads)

Rating	Field Rating/Grade	Significance	Recommendation
Local	Grade 3 A	High	Mitigation not advised

Sites: 006 (Graveyard associated with homestead 63), 007, 003, U1

Rating	Field Rating/Grade	Significance	Recommendation
Local	Grade 3 A	High	Mitigation not advised

6.1.2 Statement of significance

Sites: U2, U3, U4-1, U4-2, U5, U6, U7, U8, U9, U10, 04

The provenance of sites U2, U3, U4-1, U4-2, U5, U6, U7, U8, U9, U10 and 04 could not be determined, but the possibility exists that these structures may be of historical origin and relate to past mining activities. This stems from the indication on the 1:50 000 topographical map depicting a historical mine in close proximity to the river and graveyard on portion 9 of the farm Jan Hendriksfontein 263 IT. Although the exact location of the historical mine could not be determined, it can be assumed that it falls within the relative location as indicated by Figure 27. If these features are older than 60 years they will be protected under the National Heritage and Resources Act (25 0f 1999), which means that it needs to be properly recorded by a qualified archaeologist and a destruction permit obtained should the need for demolishment exist. It would, however, be necessary to establish the provenance of these sites prior to any alteration since it may hold valuable information regarding historical mining activities in the Ermelo area.

Sites: 03, 004, 005

Sites 03 and 005 were pre-plotted via satellite imagery since it appeared to resemble areas of archaeological importance. Visiting these sites revealed natural circular features with no material culture pertaining to past human activities. These sites are therefore not protected under the National Heritage and Resources Act (25 of 1999). Site 004, however, bears evidence of recent human activity and are therefore also not protected under the National Heritage and Resources Act (25 of 1999).

Sites: 63 and 65

The homesteads probably date to the Historical Period, although a definite date could not be obtained. If the structures are older than 60 years it is protected under the National Heritage and Resources Act (25 of 1999), which means that it needs to be properly recorded by a qualified archaeologist and a destruction permit obtained should the need exist to demolish the structures. It is also possible that the house structures may provide information regarding the history of the general area and it would therefore be worthy of conservation.

Sites: 006 (Graveyard associated with homestead 63), 007, 003, U1

The National Heritage Resources Act (25 of 1999) and the Human Tissues Act (65 of 1983) protect graves older than 60 years. Graves younger than 60 years, however, are protected by the Human Tissue Act (65 of 1983) and falls under Section 2 (1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance no. 7 of 1925). The exhumation of graves falls under the jurisdiction of the National Department of Health as well as the relevant Provincial Department of Health. Exhumation permission must also be obtained from the relevant local

or regional council where the grave is located, as well as from the relevant regional and local council to where the grave will be relocated.

6.2 Recommendations

The following recommendations are made in terms with the National Heritage Resources Act (25 of 1999) in order to avoid the destruction of heritage remains in areas demarcated for development (printed in bold). It should also be noted that recommendations are provided for the sites that fall outside of the area demarcated for development.

- **It is recommended that the following sites on portions three and nine of the farm Jan Hendriksfontein 263 IT be retained since it may be of historical origin: U2, U3, U4-1, U4-2, U5, U6, U7, U8, U9, U10, 04. Should these structures be impacted upon it is recommended that their provenance be determined and a conservation buffer of 100m be placed around a central point (U2) where the majority of structures are located in order to include associated material remains. A qualified archaeologist must also be on-site prior to any development to monitor possible impact on heritage resources. The possibility exists that the structures are older than 60 years and are therefore protected under the National Heritage Resources Act (25 of 1999).**

- **Sites 03, 004 and 005 are not protected under the National Heritage Resources Act (25 of 1999). No further action is recommended in terms of preservation of the features.**

- It is recommended that the homesteads on the remaining portion of the farm Holbank 265 IT be retained as they are older than 60 years and are consequently protected under the National Heritage and Resources Act (25 of 1999). A qualified archaeologist would also have to record these structures and obtain a destruction permit should the need for demolishment arise.

- **It is recommended that the graveyard located on portion nine of the farm Jan Hendriksfontein 263 IT (Site U1) be fenced off and a conservation buffer of 100m be placed around it. This stems from the fact that graves are protected under the Human Tissue Act (65 of 1983) and Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) while graves older than 60 years are protected under the National Heritage and Resources Act (25 of 1999).** The same laws apply to the other graves / graveyards on other farm portions in the vicinity (Sites 003, 006 and 007), but since these graves will not be impacted on by development it is not necessary to apply conservation buffers.

- **Because archaeological artefacts generally occur below surface, the possibility exists that other culturally significant material and skeletal remains may be exposed during development and construction phases, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist (See National Heritage and Resources Act, 25 of 1999 section 36 (6)). From a heritage point of view, development may proceed subject to the abovementioned conditions and recommendations.**

7. Addendum: Terminology

Archaeology:

The study of the human past through its material remains.

Artefact:

Any portable object used, modified, or made by humans; e.g. pottery and metal objects.

Assemblage:

A group of artefacts occurring together at a particular time and place, and representing the sum of human activities.

Context:

An artefact's context usually consist of its immediate *matrix* (the material surrounding it e.g. gravel, clay or sand), its *provenience* (horizontal and vertical position within the matrix), and its *association* with other artefacts (occurrence together with other archaeological remains, usually in the same matrix).

Cultural Resource Management (CRM):

The safeguarding of the archaeological heritage through the protection of sites and through selvage archaeology (rescue archaeology), generally within the framework of legislation designed to safeguard the past.

Excavation:

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and other material covering and accompanying it.

Feature:

An irremovable artefact; e.g. hearths or architectural elements.

Ground Reconnaissance:

A collective name for a wide variety of methods for identifying individual archaeological sites, including consultation of documentary sources, place-name evidence, local folklore, and legend, but primarily actual fieldwork.

Matrix:

The physical material within which artefacts is embedded or supported, i.e. the material surrounding it e.g. gravel, clay or sand.

Phase 1 Assessments:

Scoping surveys to establish the presence of and to evaluate heritage resources in a given area.

Phase 2 Assessments:

In-depth culture resources management studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required.

Sensitive:

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

Site:

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity.

Surface survey:

Two basic kinds can be identified: (1) unsystematic and (2) systematic. The former involves field walking, i.e. scanning the ground along one's path and recording the location of artefacts and surface features. Systematic survey by comparison is less subjective and involves a grid system, such that the survey area is divided into sectors and these are walked systematically, thus making the recording of finds more accurate.

8. References

Battis, W. 1949. Artists of the Rocks. Pretoria: Red Fawn Press.

Clarke, R. J. & Kuman, K. 2000. The Sterkfontein Caves Palaeontological and Archaeological Site. Johannesburg: University of the Witwatersrand.

Deacon, H. & Deacon, J. 1999. Human beginnings in South Africa. Cape Town: David Philip

Huffman, T.N. 2007. Handbook to the Iron Age. Pietermaritzburg: UKZN Press

Klein, R., G. (ed.) 1984. South African prehistory and paleoenvironments. Rotterdam: Balkema

Paulsen, C. H. & Stone, J., D. 2001. A venture into the unknown: The Challenge that was Ermelo Mines. Johannesburg: Ermelo Mine Services

Rasmussen, T. K. 1978. Migrant Kingdom: Mzilikazi's Ndebele in South Africa. Cape Town.

Schoonraad, M. 1965. Rock Paintings of the Eastern Transvaal. *Outlook* (16) 4.

Toth, N. & Schick, K. 2007. Handbook of paleoanthropology. Berlin: Springer.

Volman, T., P. 1984. Early Prehistory of southern Africa. In: Klein, R., G. (ed.) Southern African prehistory and paleoenvironments. Rotterdam: Balkema.

United Nations Educational, Scientific and Cultural Organistion (UNESCO) 2012. *Fossil Homonid Sites at Sterkfontein, Swartkrans, Kromdraai and Environs*. http://whc.unesco.org/en/list/915

Human Tissue Act No. 65 of 1983, Government Gazette, Cape Town

National Resource Act No.25 of 1999, Government Gazette, Cape Town

Removal of Graves and Dead Bodies Ordinance No. 7 of 1925, Government Gazette, Cape Town