# HERITAGE IMPACT ASSESSMENT REPORT

# PROPOSED VELE COLLIERY WEIPE VHEMBE DISTRICT MUNICIPALITY: LIMPOPO

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#### **EXECUTIVE SUMMARY**

Coal of Africa proposes to develop the Vele Colliery west of Musina on the farms Semple 119MS, Almond 120MS, Overvlakte 125MS, Bergen op Zoom 124MS & Newmark 121MS.

This area is in close proximity to the Mapungubwe National Park and World Heritage Site which forms the core area of the Mapungubwe cultural landscape. The importance of this landscape is summarised as a landscape containing evidence for an important interchange of human values that led to far-reaching cultural and social changes in southern Africa between AD 900 and 1300.

A phase 1 heritage survey was undertaken of the demarcated area during which archaeological sites relating to the Mapungubwe cultural landscape were recorded. These are so-called commoner sites and most have been degraded by natural forces. None of the sites have been assigned a high significance grading and it is recommended that phase 2 assessments be undertaken in line with the provisions of section 38 of the National Heritage Resources Act (25 of 1999) should mining be implemented. It is argued that this work will add value to and further understanding of the existing information about the Mapungubwe cultural landscape. In addition, Stone Age material was observed and these must be assessed once mining operation commence due to their obscured subterranean occurrence.

# 1. INTRODUCTION AND TERMS OF REFERENCE

The proposed Vele Colliery is located approximately 50 km west of Musina on the farms Semple 119MS, Almond 120MS, Overvlakte 125MS, Bergen op Zoom 124MS and Newmark 121MS (Refer to map, South Africa 1:50 000 2229 BA).

The aim of the survey is to:

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

The application constitutes an activity, which may potentially be harmful to heritage resources that may occur in the demarcated area. The National Heritage Resources Act (NHRA - Act No. 25 of 1999) protects all structures and features older than 60 years (section 34), archaeological sites and material (section 35) and graves and burial sites (section 36). In order to comply with the legislation, the applicant requires information on the heritage resources, and their significance that may occur in the demarcated area. This will enable the applicant to take pro-active measures to limit the adverse effects that the development could have on such heritage resources.

#### In terms of the National Heritage Resources Act (1999) the following is of relevance:

#### Historical remains

**Section 34(1)** No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

#### Archaeological remains

Section 35(4) 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

#### Burial grounds and graves

Section 36 (3)(a) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

(c) 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; or

(b) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in detection or recovery of metals.

#### Culture resource management

Section **38(1)** Subject to the provisions of subsection (7), (8) and (9), any person who intends to undertake a development<sup>\*</sup> ...

must at the very earliest stages of initiating such development notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development.

\*'development' means any physical intervention, excavation, or action, other than those caused by <u>natural forces</u>, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including-

- (a) construction, alteration, demolition, removal or change of use of a place or a structure at a place;
- (b) carry out any works on or over or under a place\*;
- (e) any change to the natural or existing condition or topography of land, and
- (f) any removal or destruction of trees, or removal of vegetation or topsoil;

\*"place means a site, area or region, a building or other structure\* ..."

\*"structure means any building, works, device or other facility made by people and which is fixed to the ground ..."

The report thus provides an overview of the heritage resources, which occurs in the demarcated area where development is intended. The significance of the heritage resources was assessed in terms of criteria defined in the methodology section. The impact of the proposed development on these resources is indicated and the report recommends mitigation measures that should be implemented to minimize the adverse impact of the proposed development on these heritage resources.

# 2. MAPUNGUBWE NATIONAL PARK AND WORLD HERITAGE SITE

The Mapungubwe Cultural Landscape achieved world heritage status in 2003 based on the following criteria:

- This landscape contains evidence of an important interchange of human values that led to far-reaching cultural and social changes in southern Africa between AD 900 and 1300.
- The remains of this landscape are a remarkable complete testimony of the growth and subsequent decline of the Mapungubwe state which at its height was the largest kingdom in the African subcontinent.
- The establishment of Mapungubwe as a powerful state trading through the East African ports with Arabia and India was a significant stage in the history of the African subcontinent.
- The remains in the Mapungubwe cultural landscape graphically illustrate the impact of climate change and record the growth and then decline of the kingdom of Mapungubwe as a clear record of a culture that became vulnerable to irreversible change.

The core area of the Mapungubwe cultural landscape is the Mapungubwe National Park. In line with the above SANParks (2006) emphasises these criteria as vital attributes underpinning the value proposition of the Park;

- The Mapungubwe Cultural Landscape exhibits an important interchange of human values, over the time period between AD 900 and 1300 in Southern Africa, on developments in technology, and town-planning, bearing a unique or at least exceptional testimony to a cultural tradition or to a civilisation which has disappeared from the Limpopo/Shashe area; it is an outstanding example of a type of architectural and technological ensemble and landscape which illustrates a significant stage in human history, and it represents an outstanding example of a traditional human settlement and land-use which is representative of a culture that became vulnerable under the impact of irreversible change.
- This is an organically evolved landscape, constituting both
  - a relict (or fossil) landscape in which an evolutionary process came to an end at some time in the past, either abruptly or over a period. Its significant distinguishing features are, however, still visible in material form; and
  - an associative cultural landscape by virtue of the powerful religious, artistic and cultural associations of the natural elements of the landscape rather than material cultural evidence, which may be insignificant or even absent.

The Mapungubwe cultural landscape is thus highly significant and would have stretched as far as east of Musina town, although limited surveys have been undertaken and little is known of the landscape east of the core area.

# 3. METHOD

# 3.1 Sources of information

The sources of for the baseline information are unpublished reports by Archaeological Resource Management of the Archaeological Department of the University of the Witwatersrand, the Mapungubwe Cultural Landscape World Heritage Nomination Dossier, academic dissertations, aerial photographs, and topocadastral maps. The author undertook a pedestrian survey of the demarcated area for detailed site information.

# 3.2 Limitations

The field survey was thorough in the non-cultivated areas and it is unlikely that any significant archaeological sites were overlooked. The cultivated area had been difficult to access and in most areas the surface was obscured by crops, orchards, or dense vegetation resulting in limited surface vision.

# 3.3 Categories of significance

The significance of archaeological sites is ranked into the following categories.

No significance: sites that do not require mitigation.
Low significance: sites that <i>may</i> require mitigation.
Medium significance: sites that require mitigation.
High significance: sites that must not be disturbed at all.

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 crucial aspect in determining the significance and protection status of a heritage resource is often whether or not 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 mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed. These are generally sites graded as of low or medium significance.

# 3.4 Terminology

- Early Stone Age: Predominantly the Acheulean hand axe industry complex dating to  $\pm$  1 Myr 250 000 yrs. before present.
- Middle Stone Age: Various lithic industries in SA dating from ± 250 000 yrs. 30 000 yrs. before present.
- Late Stone Age: The period from  $\pm$  30 000 yrs. to contact period with either Iron Age farmers or European colonists.
- Early Iron Age: Most of the first millennium AD.
- Middle Iron Age:  $10^{th}$  to  $13^{th}$  centuries AD.
- Late Iron Age: 14<sup>th</sup> century to colonial period. *The entire Iron Age represents the spread of Bantu speaking peoples.*
- Historical: Mainly cultural remains of western influence and settlement from AD 1652 onwards mostly structures older than 60 years in terms of Section 34 of the NHRA.
- 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.
- 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.

# 4. BACKGROUND INFORMATION

The study area falls within what is best known as the Mapungubwe Cultural Landscape. The core area of the Mapungubwe Landscape to the west has been intensively studied for decades. Until recently, up to about 1999, the emphasis was mainly on the core area on the farm Greefswald and to a certain extent the neighbouring farms Samaria and Schroda.

Mr. E.O.M. Hanish of the University of Venda, and formerly from the National Culture History Museum in Pretoria, has also systematically surveyed areas to the west and south of the Mapungubwe core area. Since 1999, the Archaeological Department of the University of the Witwatersrand engaged in an ongoing long-term project called "Origins of Mapungubwe", involving extensive surveys, test excavations and postgraduate studies into the ethno-archaeology and archaeology of rainmaking in the Limpopo Basin.

The Early Stone Age in the Limpopo Valley is currently being studied by Dr. Kuman of Wits, but the Middle Stone Age has not received extensive attention and the only source is that of Thakeray (1992). In the last two millennia the valley was occupied by the San hunter gatherers and Khoe herders/hunter gatherers who left behind their paintings and Stone Age implements. Eastwood and Cnoops (1998) addressed the rock art of the Limpopo Basin, while Hall and Smith (2000) attended to the interaction between Hunter-gatherers and farming communities during the first and early second millennia AD.

The first Early Iron Age farmers in this part of the Limpopo valley were of the Kalundu Tradition (the western stream of migration into South Africa); know as Happy Rest (find site on the southern foot of the Zoutpansberg at Schoemansdal) and dating back to the 5<sup>th</sup> – 7<sup>th</sup> centuries AD. From about AD 700 to 900 the climate became colder and drier and no Early Iron Age sites from this period have been recorded in the Shashe-Limpopo basin.

At about AD 900 when the climate improved at the beginning of the Mediaeval Warm Epoch the basin was again settled by the next Early Iron Age inhabitants who belonged to the Zhizo archaeological facies, a ceramic phase of the Nkope Branch of the central stream of migration. The Zhizo capital at Schroda, a central cattle pattern settlement, is the earliest Iron Age site in Southern Africa to yield a substantial amount of ivory objects and imported glass beads. It seems that the Shashe-Limpopo basin, through the Zhizo group, was probably the first area in the interior to be integrated directly with the Indian Ocean trade network.

According to the archaeological record, Schroda lost control of the interior portion of the trade at about AD 1000 to a new group of people known as Leopard's Kopje. They established their capital at K2 (on the farm Greefswald), also a central cattle pattern settlement, while commoner K2 sites are spread throughout the Basin. K2 produced a great number of ivory objects and an even greater quantity of glass beads showing that the Leopard's Kopje people had clearly taken over the interior portion of the east coast trade. The people at K2 melted down some of the imported beads in clay moulds and produced large cylindrical beads known as "garden rollers", which they in turn traded into the present day Botswana to where the Zhizo leadership had moved. The wide distribution of the "garden rollers" and limited distribution of other types of beads demonstrates the pivotal role K2 played in the trade network. Recent work by Calabrese at Little Muck indicates that the K2 chiefdom incorporated some Zhizo people who remained in the basin. The Zhizo derived pottery, called Leokwe, shows that they maintained their separate identity.

The great amount of trade goods at K2 shows that the trade had enhanced the leader's status. It was two to three times the size of the Zhizo capital at Schroda. The general population of the basin increased during K2 times. This increase, in combination with the control of the east coast trade, helped to intensify social ranking and contributed to the development of a bureaucratic class its associated worldview, which manifested itself at Mapungubwe.

At AD 1220 the K2 leader shifted the capital to the flat hill called Mapungubwe about 2 km from K2. Here the king moved to the hilltop while the majority of his people lived below. This led to the final transformation of the central cattle pattern into the Zimbabwe Pattern where the leader was physically separated from his followers.

It is now known that the Zimbabwe culture evolved in the Shashe-Limpopo basin and that Mapungubwe was the first Zimbabwe capital. Consequently, archaeologists divide the culture into three chronological periods named after the important capitals;

- (1) Mapungubwe (AD 1220-1290)
- (2) Great Zimbabwe (AD 1290-1450), and
- (3) Khami (AD 1450-1820

Mapungubwe is known for its gold objects although it is not clear how gold was first discovered. Presumably Swahili traders recognised alluvial gold in the basin as it washed down the Shashe River and placed a value on it. At the beginning of the trade, gold was probably more of a means to wealth than wealth itself. However, by AD 1220 gold objects had been locally manufactured and Mapungubwe produced unique items such as the golden Rhino's, sceptre and bowl that were made from thin sheet tacked onto wooden cores. Gold was also produced from reef mining as far as West Nicholson and Gwanda district of Zimbabwe.

Mapungubwe's power and territorial sovereignty grew and it controlled up to 30 000 km<sup>2</sup>. At its peak in the 13<sup>th</sup> century, Mapungubwe's own population was probably between 3 000 and 5 000 people making it the first urban centre and capital of the first state in Southern Africa.

At the end of the 13<sup>th</sup> century the climate throughout Southern Africa appears to have been affected by the spread of the Little Ice Age, and it became colder and drier in the interior. In some areas it was no longer possible to cultivate traditional grain crops. As a consequence, Mapungubwe was abandoned, the entire basin depopulated and the state disintegrated. Great Zimbabwe became Mapungubwe's economic, cultural and political successor.

Khami sites dating to after AD 1450 are found in the Basin. Prior to this and shortly after the demise of Mapungubwe, the first Sotho/Tswana people moved into this part of the interior from East Africa. This early facies of the pottery tradition is called lcon after the farm south-west of Mapungubwe. Icon pottery occurs on Khami sites north of the Zoutpansberg and similarly Khami pottery occurs on lcon sites south of the Zoutpansberg. Khami and lcon merge to form the Letaba style that is associated with Venda-speaking people today.

Huffman (2007) proposed the under-mentioned cultural sequence for the Mapungubwe cultural landscape in this general area.

- Zhizo (AD 750-1050)
- Leokwe (AD 1050-1220)
- K2 (AD 1000-1200)
- K2 Transitional (AD 1200-1250)
- Mapungubwe (AD 1250-1300)
- Great Zimbabwe (AD 1300-1700)
- Icon (AD 1300-1500)
- Khami (AD 1400-1820)

More broadly, Huffman's distribution sequences of the Iron Age in the study area **may** include the remains of the under-mentioned culture historical groups:

> Uruwe Tradition, originating in the Great Lakes area of Central Africa, was a

secondary dispersal centre for eastern Bantu speakers. It represents the eastern stream of migration into South Africa.

- Kwale Branch: Mzonjani facies (Broederstroom) AD 450 – 750 (Early Iron Age)
- Nkope Branch: Zhizo facies AD 750 – 1050 (Early Iron Age) Leokwe facies AD 1050 – 1220 (Middle Iron Age)
- Moloko (Sotho-Tswana) Branch (Late Iron Age) Icon facies AD 1300 – 1500: This pottery is associated with the first Sotho Tswana people entering the country.
- Kalundu Tradition, originating in the far North of Angola, was another secondary dispersal centre for eastern Bantu speakers and represents the western stream of migration into South Africa.
  - Benfica Sub-branch: Bambata facies AD 150 – 650 (Early Iron Age)
  - Happy Rest Sub-branch: Happy Rest facies AD 500 – 750 (Early Iron Age) Eiland facies AD 1000 – 1300 (Middle Iron Age) K2 & Transitional facies AD 1000 – 1250 (Middle Iron Age) Mapungubwe facies AD 1250 – 1300 (Middle Iron Age) Great Zimbabwe facies AD 1300 – 1700 (Late Iron Age) Khami facies AD 1430 – 1820 (Late Iron Age) Letaba facies AD 1600 – 1840 (Later Iron Age)

Archaeological sites of the Mapungubwe landscape have been recorded at Skutwater (Van Ewyk: 1987) and Bismarck (Roodt: 2001) adjacent farms immediately west of the study area.

# 5. ARCHAEOLOGICAL AND HISTORICAL REMAINS

#### 5.1 Stone Age Remains

The study area seems to fall within a region where evidence suggests that Early Stone Age, Middle Stone Age, and Late Stone Age occupations occurred in the area, with Middle Stone Age being most visible. No specific concentrations were recorded to date, but isolated and scattered Middle Stone Age material was found over most of the study area. No rock art sites were found.

On the farm Newmark 121 MS an incomplete Acheul hand axe was recorded at site 21 (*S22<sup>o</sup>* 11' 32.0" *E29<sup>o</sup>* 36' 11.0") where sheet erosion has exposed the gravels. An Acheul cleaver was recorded at site 22 (*S22<sup>o</sup>* 12' 28.4" *E29<sup>o</sup>* 36' 45.0") where it laid on the surface of an open area.

Site 20 (*S22<sup>o</sup>* 12' 23.4" E29<sup>o</sup> 34' 48.4") is a hilltop Stone Age site containing Late Stone Age and possibly some Middle Stone Age flakes. This particular hilltop will not be affected by the mining.

# 5.2 Iron Age Remains

A number of Iron Age sites were recorded in the study area. Many were identified only by a small number of pottery fragments and the particular open nature of the terrain, which was probably induced by human occupation. Others contain clear deposits and or grain bin stands.

**Site 1**. *S22<sup>o</sup> 08' 35.6" E29<sup>o</sup> 40' 45.0"*: An open area containing archaeological deposits, which includes diagnostic pottery fragments. The pottery is tentatively identified as belonging to the Happy Rest facies of the **Early Iron Age**. Significance: Medium.

**Site 2**. *S22<sup>o</sup> 08' 47.8" E29<sup>o</sup> 40' 53.3"*. A brackish fountain and although it is an ecological feature, it would have been used by Iron Age people especially for salt making and thus has cultural significance. Because of this, the area contains pottery fragments. Significance: Medium.

**Site 4**. *S22<sup>o</sup> 09' 45.7" E29<sup>o</sup> 37' 27.2"* – This is an extended Middle Iron Age site with the key feature being the grain bin stand found scattered over the area. The site is immediately northwest of the dam on Overvlakte 125 MS, and was probably disturbed during construction of the dam – some features may be below water level. The pottery is identified as Transitional K2 facies. Significance: Medium.

**Site 5**. *S22<sup>o</sup>* 10' 35.6" *E29<sup>o</sup>* 40' 29.1". An open area containing archaeological deposits, which includes diagnostic pottery fragments. The pottery is identified as belonging to the Mapungubwe facies of the Middle Iron Age. Significance: Medium.

**Site 9**. *S22<sup>o</sup> 09' 19.3" E29<sup>o</sup> 35' 35.3"*. A large open area containing a scattering of pottery fragments. Unidentified. Significance: Low.

**Site 10**. *S22<sup>o</sup> 08' 59.3" E29<sup>o</sup> 35' 13.8"*. A large site on a sandy plateau. Contains nondiagnostic pottery, mainly from disturbed warthog burrows. Significance: Medium.

**Site 11**. *S22<sup>o</sup> 08' 27.2" E29<sup>o</sup> 38' 54.6"*. A small kopje containing ashy deposits and K2 pottery. Already disturbed by the construction of a reservoir. Significance: Medium.

**Site 12**. *S22<sup>o</sup> 11' 24.8" E29<sup>o</sup> 38' 58.7"*. Small open area on an eroded calcrete outcrop containing non-diagnostic pottery fragments. Significance: Low.

**Site 13**. *S22<sup>o</sup> 11' 10.0" E29<sup>o</sup> 39' 00.4"*. Large open area containing a few non-diagnostic pottery fragments as well as two grain bin stands. Probably a K2 site. Significance. Low.

**Site 14**. *S22<sup>o</sup> 10' 44.2" E29<sup>o</sup> 39' 18.4"*. This site contained only an upper grinder. Significance: Low.

**Site 15**. *S22<sup>o</sup>* 10' 53.0" *E29<sup>o</sup>* 39' 20.2". This site contained pottery fragments, metal working depris, a hammer head, Iron Bangle remains and a piece of woven copper wire. The pottery is identified as **Khami** – and it seems to be a metal working site and not a living site. Erosion has disturbed much of the site. Significance: Medium.

**Site 16**. *S22<sup>o</sup> 10' 49.1" E29<sup>o</sup> 39' 51.2"*. This is a sheet eroded open ashy area with scattered pottery fragments and a grain bin stand. Probably K2. Significance: Low.

Site 17. S22<sup>o</sup> 10' 51.9" E29<sup>o</sup> 39' 47.9". This site is similar to site 16 above. Significance: Low.

**Site 18**. *S22<sup>o</sup> 10' 25.3" E29<sup>o</sup> 40' 19.4"*. This site consists of a large open area with a few non-diagnostic pottery shards. Evaluation here is inconclusive and therefore it must be given at least a medium significance rating.

**Site 19**. *S22<sup>o</sup>* 10' 25.4" E29<sup>o</sup> 40' 28.6". The site consists of an open area with clear ashy deposits, grain bin stand and an upper grinder. The pottery is non-diagnostic. Significance: Medium.

**Site 23**. *S22<sup>o</sup> 08' 32.3" E29<sup>o</sup> 40' 56.0"*. This site contains ashy deposits with nondiagnostic pottery. It also contains two stone circles of about 5 m. in diameter, but no historical rubble, meaning that it probably pre-dates the colonial period. Significance: Medium.

**Site 24**. *S22<sup>o</sup> 08' 56.0" E29<sup>o</sup> 41' 14.4"*. This site contains grain bin stands and ashy deposits with large number of pottery fragments identified as K2/Mapungubwe. Site has been subjected much sheet erosion. Significance: Medium.

Site 25. S22° 09' 03.6" E29° 41' 09.2". This site is near 24 above and is very similar. Significance: Medium.

**Site 26**. *S22<sup>o</sup> 08' 53.1" E29<sup>o</sup> 39' 22.4"*. This site contains a scattering of non-diagnostic pottery. Significance: Low.

#### 5.3 Recent Historical Remains

**Site 7**. *S22<sup>o</sup>* 12' 04.3" *E29<sup>o</sup>* 40' 27.4". This is an old mineshaft – age could not be determined. If older than 60 years, it is protected by section 34 of the National Heritage Resources Act. Significance: Low.

**Site 8**. *S22<sup>o</sup>* 12' 19.6" *E29<sup>o</sup>* 40' 01.4". This is the old farmhouse on Bergen Op Zoom, which may be older than 60 years and must be verified. A nearby antique water pump also has cultural significance.

#### 5.4 Graves

**Site 3**. *S22<sup>o</sup> 09' 39.3" E29<sup>o</sup> 37' 02.0"* – An informal graveyard directly west of the existing dam on Overvlakte 125 MS. Six (6) graves were identified - probably Zimbabwean farm workers who were buried here recently. Significance: High.

**Site 6**. *S22<sup>o</sup>* 11' 14.6" *E29<sup>o</sup>* 41' 11.5". The site contains a stone cairn that may possibly be a grave near the foundations of a demolished structure. Significance: High if it is a grave and must be verified.

The probability that Iron Age archaeological sites may contain unmarked burials is >80%.

#### Landowner's Family Graves:

The Esterhuyse family graves consist of Natasha Betsy Willemse - died on 18 Feb 1994 and Barend Burk Esterhuyse – died on 6 August 1993 and are located on the farm Overvlakte.

# 6. POTENTIAL IMPACTS

There is one informal graveyard on Overvlakte and what appears to be an isolated grave on Bergen Op Zoom. The graveyard on Overvlakte will not be impacted by open cast mining and should not be affected by the development. The probable grave on Bergen Op Zoom must be verified through a social consultation process. Threatened graves will have to be re-located by means of a permit under section 36 of the National Heritage Resources Act or by authorisation in terms of the Human Tissues Act (1983) and regulation of the Provincial Department and Local Health Departments.

Subterranean gravel deposits containing Stone Age material will be impacted on by the mining. It is however, impractical to access such deposits before they are disturbed. Therefore it is recommended that a Stone Age specialist be allowed the opportunity to study this deposit when the topsoil is being removed to assess the significance of the material and if necessary, mitigate the further assessment required. The Late Stone Age site 20 will not be directly affected by the development.

This exercise confirms the presence of Iron Age sites in the study area including elements of the Mapungubwe cultural landscape. At least 18 sites were recorded with pottery scatterings in other parts as well. These sites are what generally became known as commoner sites. Open cast mining in the study area will definitely destroy all evidence of the existence of these Iron Age sites. In addition, the probability of obscured Iron Age sites existing in the areas of intensive farming on the Limpopo River floodplain is extremely high as was found to the west where the archaeology had been studied in more depth. Most of the floodplain area will, however, be utilized for underground mining.

None of the recorded archaeological sites have been assigned a high significance rating and therefore their destruction may be mitigated by means of a permit application under Section 35 of the National Heritage Resources Act. Phase 2 assessments will be required at all the affected Iron Age sites.

It is our view that the information gained from these assessments will add value and additional data to what is already known from work in the Mapungubwe core area and lead to a better understanding of the Mapungubwe cultural landscape.

# 7. **RECOMMENDATIONS**

Because of the destructive nature of the development, the management of the archaeological remains can only be done by extracting all possible information/data by means of Phase 2 assessments of the affected sites. It is thus recommended that:

- 1. The Early and Middle Stone Age bearing gravel deposit be assessed during the removal of the topsoil.
- 2. The affected Iron Age sites be assessed by means of Phase 2 assessments, which will included archaeological excavations.
- 3. The presence of a grave at Site 6 be verified by means of a social consultation process and that the appropriated legal processes be implemented.
- 4. The ritual and spiritual significance of the fountains to any displaced community be assessed.
- 5. The historical structures and features should not be directly impacted on by the development, but should future development threaten any of these the correct legal process in terms of the NHRA (Section 34) be implemented.

From a heritage resources management point of view we have no objection with regard to the development on condition that the management measures mentioned above are implemented.

# 8. **REFERENCES**

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Fig 1. Acheul cleaver - Site 22.



Fig 2. Middle Stone Age flakes – general.



Fig 3. Late Stone Age Site – Site 20.



Fig 4. Early Iron Age pottery – Site 1.



Fig 5. General view of the Early Iron Age site.



Fig 6. Mapungubwe Period pottery – Site 5.



Fig 7. Typical grain bin stand – Site 5.



Fig 8. Metal working debris – Site 15.



Fig 9. Khami period pot shard – Site 15.



Fig 10. General view of the Khami metal working Site 15.



Fig 11. Saline fountain - site 2.



Fig 12. Typical open area induced by past human occupation – Site 5.



Fig 13. General view of site 23 – note stone circle.



Fig 14. General view of site 24.



Fig 15. The old farmhouse on Bergen Op Zoom.



Fig 16. Grave on Overvlakte - Site 3.



Fig 17. Possible grave on Bergen Op Zoom – Site 6.



Fig 18. Old mine shaft on Bergen Op Zoom – Site 7.

