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PHASE 1  
HERITAGE IMPACT ASSESSMENT

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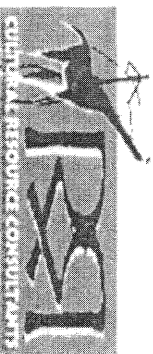
LEBOWA PLATINUM MINES: ATOK  
LEPELLE OPEN CAST MINE  
MERENSKY AND UG 2 REEFS  
LIMPOPO PROVINCE

FOR: SRK Consulting  
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## EXECUTIVE SUMMARY

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The Mine plans to develop new open pits along the Merensky and UG 2 reefs. A heritage survey of this area, combined with the results of the 1996 survey undertaken for the 1997 EMIPR, has detected a number of significant heritage resources. The determination of significance is based on criteria explained in the methodology section of the report. These specifically include four significant Early and Middle Iron Age sites, historical ruins and graves, as well as a significant scattering of Middle Stone Age material.

The development will have an adverse effect on these heritage resources. Little is known of the archaeological sequence and culture history of the Early and Middle Iron Age in this area, with the result that these archaeological sites also have high scientific value. This is equally true of the Stone Age.

After careful consideration, it is not recommended that any of the archaeological sites be avoided or protected from the development, but instead, it is recommended that phase 2 assessments be mitigated for the sites in order to extract sufficient information before they are destroyed.

Mitigation for the exhumation and relocation of graves that fall within the development area with the local community and relevant authorities is recommended as part of a social impact assessment.

From a heritage point of view, there is no objection with regard to the development on condition that the recommendations are implemented. This will result in no further significant impacts on the heritage resources through all the developmental phases.

## 1. INTRODUCTION

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The **Project Proposal** constitutes an activity for which an Environmental Management Programme is required - provided for by paragraph **2.13** of the AIDE – Memoir as a requirement of the Minerals Act, 1991. In addition, the National Heritage Resources Act (Act No. 25 of 1999), protects all archaeological, palaeontological and historical sites and graves, and requires heritage resources impact assessments in terms of Section 38. To satisfy the requirements of the above legislation, a Phase 1 Heritage Impact Assessment (scoping & evaluation) of the proposed mining area was undertaken. In order to comply with legislation, Lebowa Platinum Mines requires information on the heritage resources, and their significance that occur in the proposed mining area. This will enable the mine to take pro-active measures to limit the adverse effects that the development could have on such heritage resources.

The author was contracted by SRK to undertake a Phase 1 *Heritage Impact Assessment* of the surface area of the Merensky and UG 2 Reefs on the farm Zeekoegat 421KS (Refer to map, South Africa 1:50 000 2429 BD), where open cast mining has been proposed. The aim was to determine the presence of heritage resources such as archaeological and historical sites and features, graves and places of religious and cultural significance; to assess the impact of the proposed project on such heritage resources; and to submit appropriate recommendations with regard to the cultural resources management measures that may be required at affected sites / features. Due to the nature of the terrain, the focus has primarily been on archaeological remains.

The EMPPR of 1997 includes a list of archaeological sensitive sites surveyed by the author in 1996. Changing land conditions caused by deforestation for crop fields as well as erosion, and the inclusion of graves for this survey, results that a number of new sites are included in this report for the particular mining area. The report therefore includes a number of sites, namely, sites 5, 7, 8, 9, and 10 recorded during the 1996 with the current survey. A continuation of the numerical order was followed. Archaeological sites are indicated with a yellow dot, the historical site area is indicated with a pink dot, number 49 (the Stone Age site) is indicated with a green dot and the graves are indicated with a red symbol. Due to a generally better understanding of the pre-colonial Iron Age cultural traditions – especially the Early Iron Age – the status of some of the 1996 sites has changed.

The report thus provides an overview of the heritage resources and grave sites that were detected in or near the proposed mining area. The significance of the heritage resources was assessed in terms of criteria defined in the methodology section. It is indicated that these resources will be affected by the proposed development and the report recommends mitigation measures that should be implemented to minimise the adverse effect of the proposed mining activities on these heritage resources and graves. The mitigation measures also apply to heritage resources not detected during the survey, but which will in all probability be uncovered during excavations, construction of infrastructure and roads, and general mining activities.

## 2. METHOD

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### 2.1 Sources of information

The sources of information were predominantly the field reconnaissance, interviews with locals and the 1996 survey.

A thorough survey of the proposed activity areas was undertaken on foot. Standard archaeological practices for observation were followed. 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 were recorded by means of a GPS (Garmin 12). Archaeological material and the general conditions on the terrain were photographed with a KODAK DC120 Digital camera.

Local informants knew nothing about archaeological sites and were vague on burial sites. This is understandable as archaeological sites that pre-date the colonial period generally fall beyond the scope of oral history and importantly, that there was not enough time to built the necessary trust.

## **2.2 Limitations**

Although the foot survey was very thorough, it is possible that certain archaeological sites and graves may have been missed. This is especially true with regard to the proposed road to the south of the proposed mining pit area. This road had not yet been clearly marked and crosses an area of dense vegetation thickets. Archaeological sites such as Early Iron Age sites, which seems to dominate the terrain, are often beneath soil surface and if undisturbed may not be detected. Inspecting the route once the initial clearing for the road has been done can solve this problem. The discovery of previously undetected heritage remains must be reported and may require further mitigation measures.

## **2.3 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, which *may* require mitigation.
- Medium significance: sites, which require mitigation.
- High significance: sites, which 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.*

## **2.4 Terminology**

**Middle Stone Age:** Various lithic industries in SA dating from ± 250 000 yr. - 30 000 yr. before present. In this area the Pietersburg Industry is dominant.

**Late Stone Age:** The period from ± 30 000-yr. to contact period with either Iron Age farmers or European colonists.

**Early Iron Age:** Most of the first millennium AD

**Middle Iron Age:** 10<sup>th</sup> to 13<sup>th</sup> centuries AD

**Late Iron Age:** 14<sup>th</sup> century to colonial period. *The entire Iron Age represents the spread of Bantu speaking peoples.*

**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 places such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

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## **3. RELEVANT LEGISLATION**

Two sets of legislation are relevant for this study with regard to protection of heritage resources and graves.

### **3.1 The National Heritage Resources Act (25 of 1999) (NHRA)**

This Act established the South African Heritage Resources Agency (SAHRA) and makes provision for the establishment of Provincial Heritage Resources Authorities (PHRA). The Act makes provision for the undertaking of heritage resources impact assessments for various categories of development as determined by Section 38. It also provides for the grading of heritage resources and the implementation of a three tier level of responsibilities and functions for heritage resources to be undertaken by the State, Provincial authorities and Local authorities, depending on the grade of the Heritage resources. The Act defines cultural significance, archaeological and palaeontological sites and material (Section 35), historical sites and structures (Section 34), graves and burial sites (Section 36) which falls under its jurisdiction. Archaeological sites and material are generally those resources older than a hundred years, while structures and

cultural landscapes older than 60 years, including gravestones, are also protected by Section 34. Procedures for managing grave and burial grounds are clearly set out in Section 36 of the NHRA. Graves older than a 100 years are legislated as archaeological sites and must be dealt with accordingly.

Section 38 of the NHRA makes provision for *developers to apply for a permit before any heritage resource may be damaged or destroyed.*

### **3.2 The Human Tissues Act (65 of 1983)**

This Act 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.

## **4. ARCHAEOLOGICAL REMAINS**

### **4.1 1996 SURVEY (E M P R)** See Map for locations.

These Iron Age sites were originally located during the 1996 survey, but are relevant for this study.

<b>SITES:</b>	<b>5</b>	Co-ordinates:	S24° 17' 01.1"	E29° 50' 58.9"
	<b>7</b>	Co-ordinates:	S24° 16' 53.6"	E29° 50' 54.8"
	<b>8</b>	Co-ordinates:	S24° 16' 48.6"	E29° 50' 31.7"
	<b>9</b>	Co-ordinates:	S24° 16' 34.5"	E29° 50' 01.5"
	<b>10</b>	Co-ordinates:	S24° 16' 38.1"	E29° 50' 03.5"

Sites 5, 7, 8 & 10 consist of a scattering of non-diagnostic and weathered pottery fragments, probably of Early and Middle Iron Age origin.

Site 9 is a significant Early Iron Age site, and although contaminated by later material, most of the deposit seems intact. It consists of an open clearing with midden remains. Burnt hut floor remains were located at the edge. The site has been identified by means of the pottery remains (everted rims) as being of the *Doomkop* cultural tradition – dating to ± 800AD. An ostrich eggshell bead as well as an iron bead was found on the site.

The other sites recorded here all probably fall into the same category, but have been destroyed in recent times by human activities such as field cultivation, and general degradation of the land resulting in erosion.

**Site 9 is of medium significance and requires mitigation before being destroyed.**

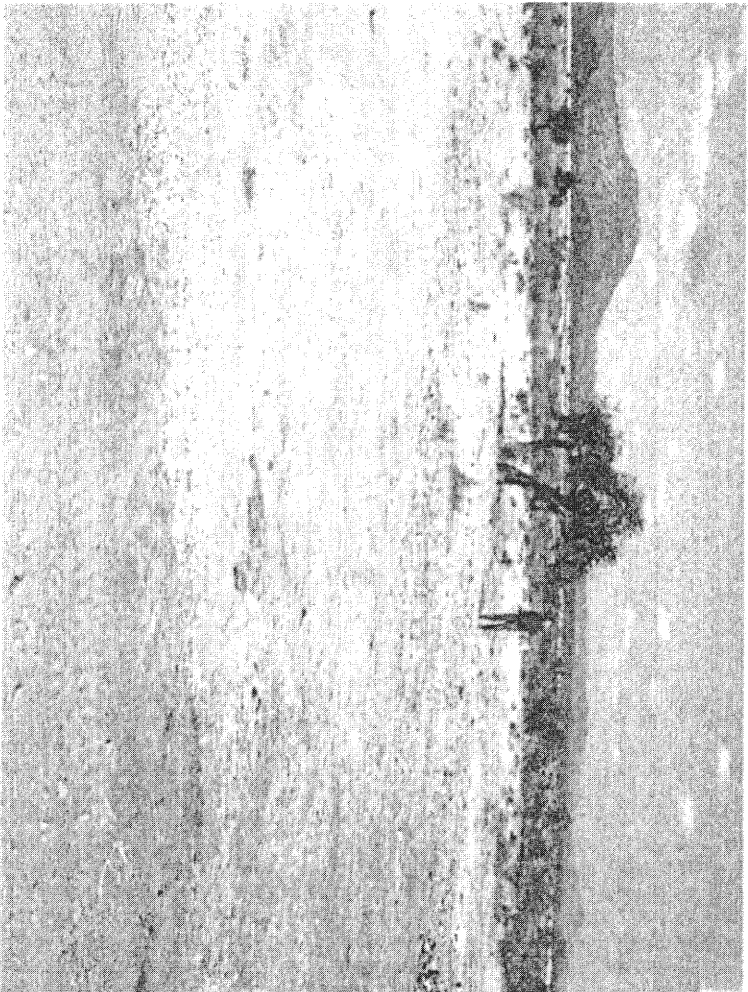


Figure 1. General view Site 9



Figure 2. *Doornkop* pottery fragments. Bottom: Note eggshell bead (left) and iron bead (right)



4.2 2002 SURVEY

4.2.1 IRON AGE REMAINS

- SITE 43: Co-ordinates: S24° 16' 19.1" E29° 49' 05.1"  
44: Co-ordinates: S24° 16' 16.4" E29° 49' 02.4"

These sites have been ploughed and the remains consist mainly of a scattering pottery fragments. The few diagnostic fragments found identifies the pottery as belonging to either the Early Iron Age *Doomkop* or the Middle Iron Age *Eiland* tradition, dating to between the 9<sup>th</sup> – 12<sup>th</sup> century AD. The two locations were probably originally one occupation site.

- SITE 45: Co-ordinates: S24° 15' 55.1" E29° 48' 50.5"  
46: Co-ordinates: S24° 15' 56.9" E29° 48' 55.6"

Site 45 is of significance here. Although the site had been ploughed, the layout and settlement pattern seems to be intact. At least six original floors in the shape of an arch could be identified. A number of upper grinders and pottery fragments were detected. The pottery has been identified as belonging to the Middle Iron Age *Eiland* tradition.

The *Eiland* pottery found at site 46 probably form part of the same occupational site as site 45.

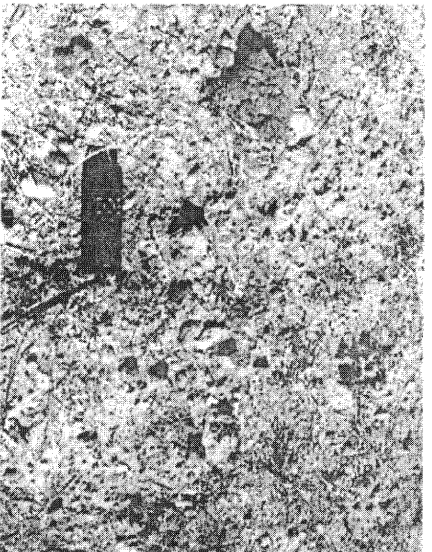


Figure 3. Floor debris, Site 45

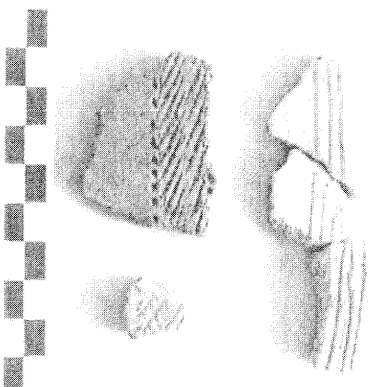


Figure 4. *Eiland* pottery, Site 45

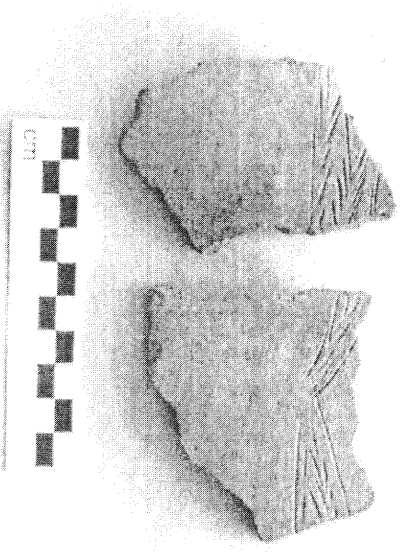


Figure 5. *Eiland* pottery, Site 46

Site 45 is of medium significance and requires mitigation before being destroyed.

**SITE 47:** Co-ordinates: S24° 16' 08.1" E29° 49' 26.5"

This site consists of a wide distribution of pottery fragments with intrusions of historical material. Recent graves, site 15, occur on it. The pottery found is of the Middle Iron Age *Eiland* tradition.

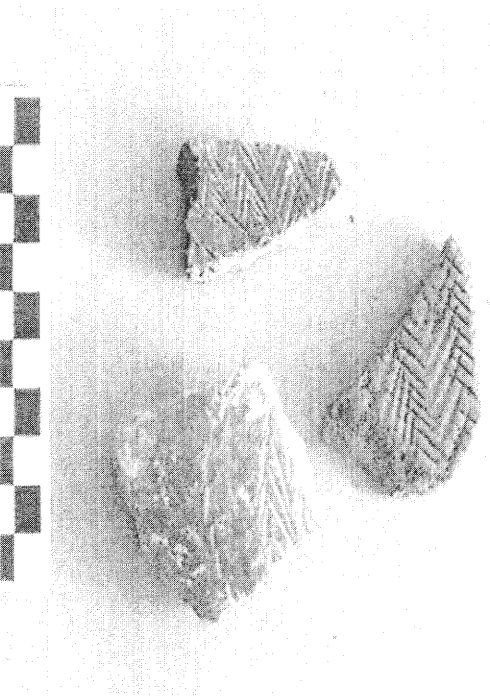


Figure 6. *Eiland* pottery site 47

**Site 47 is of low significance, but requires mitigation for sampling before being destroyed.**

**SITE 48:** Co-ordinates: S24° 16' 07.4" E29° 49' 35.1"

This site occurs in an erosion donga and has been destroyed, except for three fired floors. The pottery found on site has been identified as belonging to the Early Iron Age *Doomkop* tradition, dating to 800AD.



Figure 7. Mound representing eroded remains of a floor

Site 48 is of low significance, but requires mitigation for sampling before being destroyed.

#### 4.2.2 HISTORICAL REMAINS

SITE 49: Co-ordinates: S24° 16' 12.5" E29° 49' 44.2"

Site 49 represents a series of recent historical occupation sites along the slope of the mountain. This area may contain unmarked graves that were not detected during the survey. The area must be regarded as sensitive.

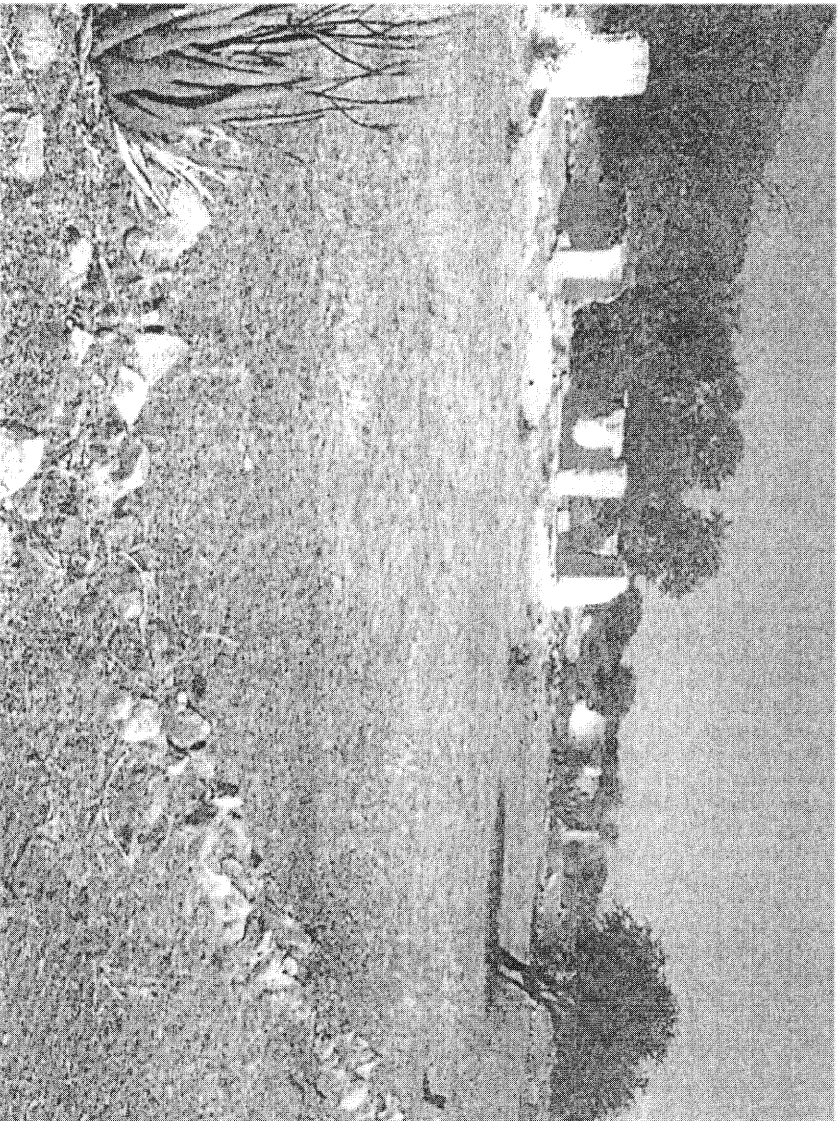


Figure 8. Example of one recent historical site at Site 49

**Significance: Sensitive for possible burials.**

#### 4.2.3 GRAVE SITES

SITE 50: Graveyard containing 11 graves with concrete slabs and modern granite gravestones: Co-ordinates: S24° 16' 11.0" E29° 49' 49.3"

51: Graveyard containing 21 graves with concrete slabs and modern granite gravestones: Co-ordinates: S24° 16' 09.0" E29° 49' 25.4"

- 52: Burial site containing 3 graves of concrete  
Co-ordinates: S24° 16' 18.0" E29° 49' 35.6"
- 53: Burial site containing 2 graves of concrete  
Co-ordinates: S24° 16' 26.3" E29° 49' 36.3"
- 54: Burial site containing 2 graves of modern granite gravestones with engraved names: Johana Ramatsemela & William Mamodiagane.  
Co-ordinates: S24° 16' 26.8" E29° 49' 38.5"
- 55: Burial site containing 3 graves of concrete  
Co-ordinates: S24° 16' 41.3" E29° 50' 28.5"

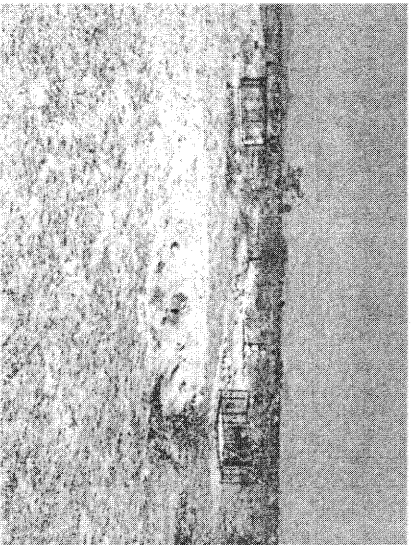


Figure 9. Graves at Site 51



Figure 10. graves at Site 52

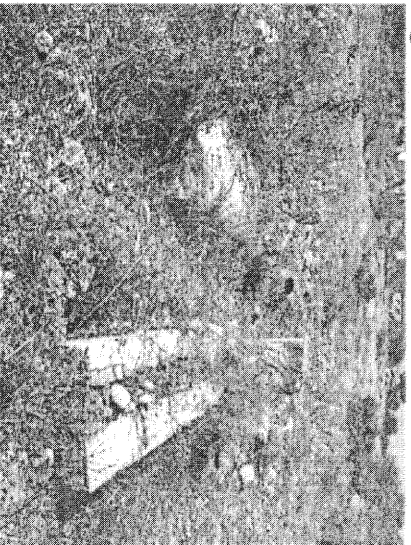


Figure 11. Graves at Site 53

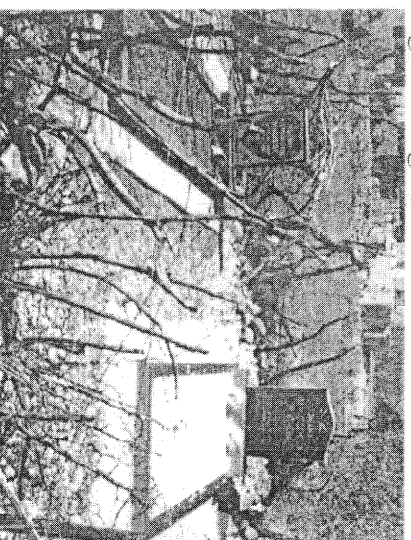


Figure 12. Graves at Site 54



Figure 13. Graves at Site 55

Significance: Highly sensitive with high local significance.

#### 4.2.4 MIDDLE STONE AGE

SITE 56: Co-ordinates: S24° 16' 38.2" E29° 50' 07.0"

Middle Stone Age (MSA) material in the form of cores and flakes are found abundantly scattered over the entire area. Site 56 was recorded as an example of MSA remains because of the relatively high concentration of flakes here. This is mainly due to sheet erosion exposing the particular depth in which the MSA material occurs.

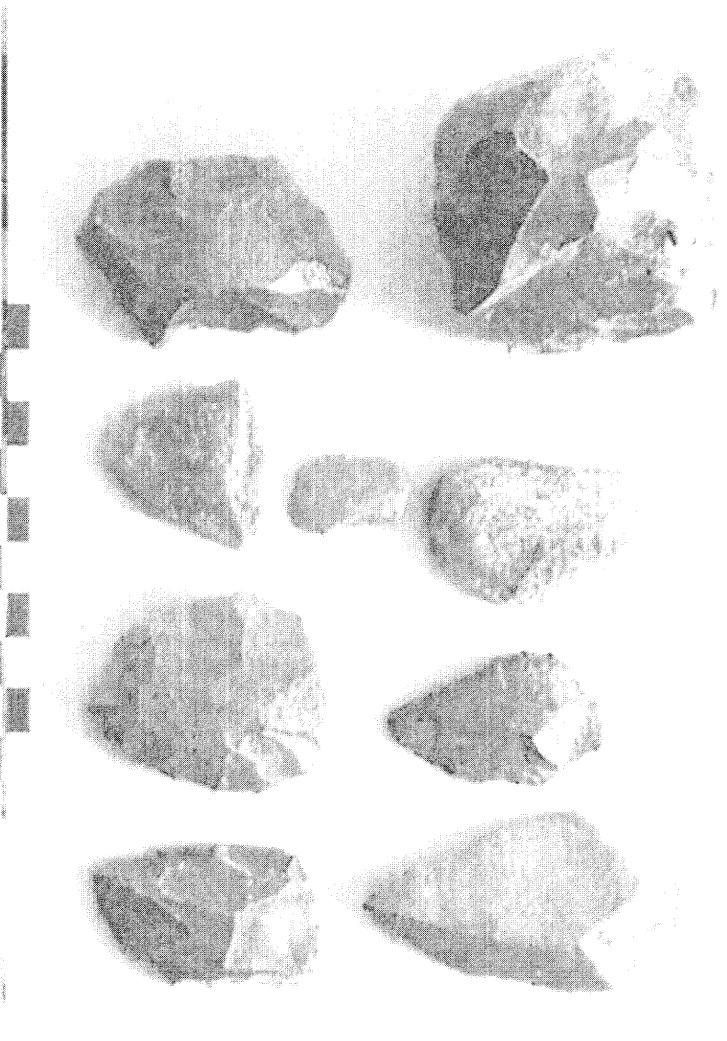


Figure 14. Middle Stone Age cores and flakes

Significance: Low, but MSA material should be systematically sampled to determine the specific MSA industrial assemblage

#### 5. EVALUATION

The archaeological remains detected on the proposed mining terrain have probably been extensively damaged through years of recent human activities. Little is however known about the occurrence and distribution of the Early Iron Age *Doomkop* and Middle Iron Age *Eiland* cultural traditions in this particular area. It pre-dates the Late Iron Age Sotho-Tswana speakers whose descendants now occupy the area. As a result of this, the scientific significance of the sites must bear considerable weight. Mitigation for phase 2

archaeological assessments are essential in order to extract sufficient and adequate data from selected sites. Sites 9, 43, 45 and 48 are particularly significant in this respect.

The significant Iron Age sites have been evaluated as of low or medium significance and none as of high significance. This is due to the fact that they have all had a varying degree of damage. Furthermore, it is impractical to mitigate protection status for these sites because of the nature of the mining development, and the fact that the local community do not regard them as significant as they have no ancestral links with these sites. Neither the Local nor Provincial Authorities have the capacity to enforce and monitor their protection. From a cultural resources management point of view, we are of the opinion that in this instance, the extraction of sufficient data / information must be done now while it is still available. We are also of the opinion that the socio-economic benefits of the project outweigh the conservation value of the heritage sites and therefore recommend mitigation measures to allow for the destruction of the Iron Age archaeological resources.

The Middle Stone Age remains are significant and require systematic collection and analysis for assessment.

It should also be noted that unmarked graves and burials may occur at the recorded archaeological and historical sites, and that human remains may be exposed during earth works (refer to Extract from the National Heritage Resources Act).

All the recorded historical graves have local significance. The grave issue needs to be addressed as part of the social impact assessment. Graves for possible relocations must be identified at the earliest stage possible to allow adequate time for negotiation and approval from the relevant authorities. Human remains must be treated with sensitivity.

## **6. RECOMMENDATIONS**

In view of the above it is recommended:

1. That phase 2 archaeological assessments be mitigated for Sites 9, 43, 45 and 48.
2. That a systematic collection of Middle Stone Age material be undertaken to salvage it from the mining activity and to enable the identification and assessment of the particular MSA assemblage.
3. That the southerly access road be inspected for re-evaluation and assessment once clearing has been undertaken.
4. That grave sites which may be in the way of mining activities be identified as soon as possible to be dealt with in the social impact assessment and in consultation with the archaeologists when re-location is inevitable.

## **7. CONCLUSION**

This study places much emphasis on the archaeological resources, as they are most likely to be threatened by the proposed development. The demarcated area is rich in significant archaeological material dating from the Early Iron Age, as well as Stone Age remains. There unfortunately exists a general lack of data for the Iron Age sequence and culture history of this particular area.

The entire demarcated area is regarded as a sensitive landscape with regard to heritage resources. The surface land is, however, held in trust by the State for the local community and it is therefore extensively utilised by the community. For this reason, and including the nature of the mining operations and activities, it is highly unlikely that any protection measures could be implemented successfully. These resources will thus eventually deteriorate into oblivion even if the development is relocated away from the sites. We therefore rather recommend phase 2 assessments of certain identified sites to enable the extraction of sufficient scientific data to assist in our understanding of the archaeology of the area. This data could be used for educational purposes and a heritage awareness programme at a later stage.

Should the above mentioned recommendations be implemented, the impacts of the development on the heritage resources during all phases, i.e. construction, operational, decommissioning and residual impacts after closure, will be negligible.

Extracts from:  
The National Heritage Resources Act (Act No. 25 of 1999).

Archaeology, palaeontology and meteorites

Subsection 35. (3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority or museum, which must immediately notify such heritage resources authority.

Subsection 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

Subsection 36. (b) Subject to the provision of any law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority-

- (a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
- (b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-interment of the content of such grave or, in the absence of such person or community, make any such arrangement as it deems fit.

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