



A Pelser Archaeological Consulting
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**A REPORT ON AN ARCHAEOLOGICAL IMPACT ASSESSMENT
FOR THE PROPOSED PHOENIX PLATINUM MINE TAILNGS DAM ON
PORTIONS 22 AND 23 OF THE FARM BUFFELSFONTEIN 465JQ,
CLOSE TO MOONOOI, NORTHWEST PROVINCE**

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SUMMARY

APelser Archaeological Consulting cc was appointed by Prescali Environmental Consultants (Pty) Ltd, to conduct an Archaeological Impact Assessment (AIA) for the proposed Phoenix Platinum Mine Tailings Dam on Portions 22 and 23 of the farm Buffelsfontein 465 JQ, near Mooinooi in the Northwest Province.

The area has been disturbed through some development including previous mining and agricultural activities (ploughing) in the recent past, while cattle grazing are still practiced in the area as well. Very little original vegetation still exists. Some Late Iron Age features, sites and material, as well as some recent structural remains associated with earlier mining activities, were identified and recorded in the area. The report discusses the results of the assessment and background research on the archaeology and history of the area, and provides recommendations regarding mitigation measures that might have to be implemented.

If the recommendations put forward at the end of this document are implemented, then, from an Archaeological point of view, there would be no objection to the continuation of the proposed development.

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1. INTRODUCTION

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The area has been disturbed through some development including previous mining and agricultural activities (ploughing) in the recent past, while cattle grazing are still practiced in the area as well. Very little original vegetation still exists. Some Late Iron Age features, sites and material, as well as some recent structural remains associated with earlier mining activities, were identified and recorded in the area.

The client indicated the extent/boundaries of the proposed development, and the assessment was to be confined to this area.

2. TERMS OF REFERENCE

The Terms of Reference for the survey were to:

1. Identify all objects, sites, occurrences and structures of a cultural heritage (historical and archaeological) nature located in the area of the proposed development.
2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value.
3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.
4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources, should this be applicable.
5. Review applicable legislative requirements.

3. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

3.1 The National Heritage Resources Act

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

- a. **Archaeological artifacts, structures and sites older than 100 years**
- b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
- c. Objects of decorative and visual arts
- d. Military objects, structures and sites older than 75 years

- e. Historical objects, structures and sites older than 60 years
- f. Proclaimed heritage sites
- g. Grave yards and graves older than 60 years
- h. Meteorites and fossils
- i. Objects, structures and sites of scientific or technological value.

The national estate includes the following:

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

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

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

Structures

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

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

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

Archaeology, palaeontology and meteorites

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

- a. destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or 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 that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

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

Human remains

Graves and burial grounds are divided into the following:

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

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

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

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

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated to) before exhumation can take place.

Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act (Act 65 of 1983 as amended)**.

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

3.2 The National Environmental Management Act

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

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

4. METHODOLOGY

4.1 Survey of literature

A survey of literature was undertaken in order to place the development area in an archaeological and historical context. The sources consulted in this regard are indicated in the bibliography.

4.2 Field survey

The assessment was conducted according to generally accepted AIA practices and was aimed at locating all possible objects, sites and features of archaeological significance in the area of the proposed development. If required, the location/position of any site is determined by means of a Global Positioning System (GPS), while photographs are also taken where needed.

The assessment was undertaken mainly by vehicle, as the new road basically follows an existing dirt track in the area. However, some sections were assessed on foot, while areas with the potential of containing archaeological and other sites were focused on during these foot assessments. This included rocky outcrops, erosion dongas and unnatural clumps of trees and other vegetation.

4.3 Oral histories

People from local communities are sometimes interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

4.4 Documentation

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

5 DESCRIPTION OF THE AREA

The proposed Phoenix Platinum Mine Tailings Dam is located on portions 22 and 23 of the farm Buffelsfontein 465 JQ, near the towns of Mooinooi in the Northwest Province. The topography of the area is relatively flat, although there are some low granite/norite outcrops in certain sections.

The area has been disturbed in the recent past in certain sections by agricultural activities including ploughing and cattle grazing. Earlier mining (dating to the 1970's and stopped in the 1980's according to the Phoenix Mine manager – Mr. Bertin Mcleod) has also impacted here and the remains of structures associated with these activities, as well as the opencast pits and dumps are located on a large portion of the properties.

Visibility was fairly good, with sections having burnt recently, and although there were dense grass cover in portions, it was possible to identify a number of sites and features of archaeological origin in the area.

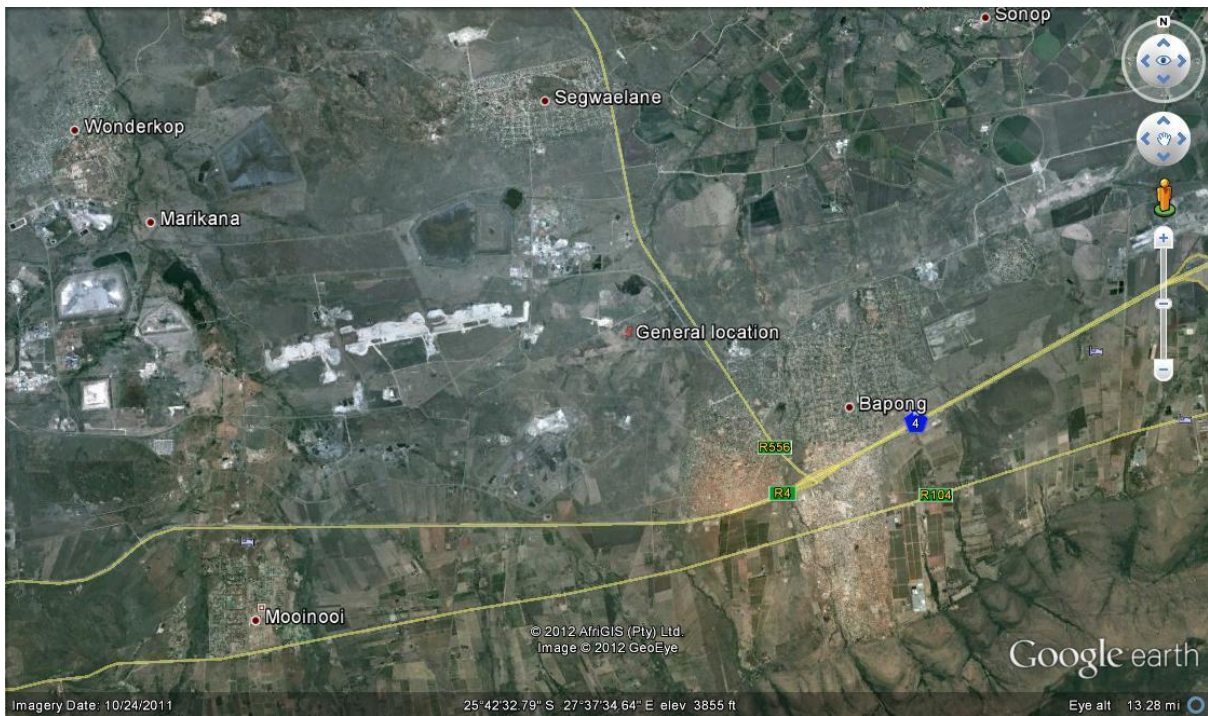


Figure 1: General location of area (Google Earth 2012 – Image date 10/24/2011).

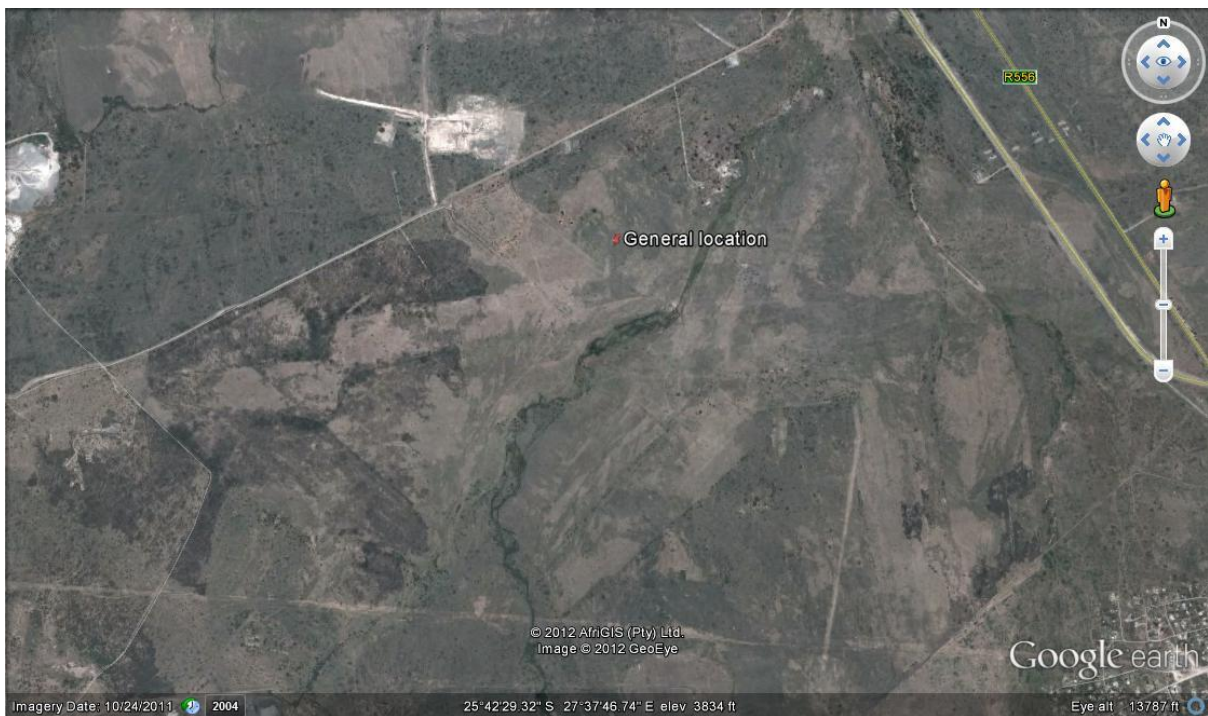


Figure 2: Closer view of area. Note the ploughed fields and mining activities (Google Earth 2012 – Image date 10/24/2011).



Figure 3: View of a section of the area.



Figure 4: Another view of the area.



Figure 5: View of area with remnants of mining activities visible.

DISCUSSION

A short, general, background to the archaeology and history of the area is given in the following section. It should be mentioned here that a 2008 Phase 1 HIA conducted in the area by Pistorius for the Phoenix Platinum Project did not reveal any sites of cultural heritage significance (Pistorius 2008: 2).

5.4 Stone Age

The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. The Stone Age is the period in human history when lithic (stone) material was mainly used to produce tools. In South Africa the Stone Age can be divided in basically into three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. A basic sequence for the South African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago

Middle Stone Age (MSA) less than 300 000 – 20 000 years ago

Later Stone Age (LSA) 40 000 years ago – 2000 years ago

It should also be noted that these dates are not a neat fit because of variability and overlapping ages between sites (Lombard et.al 2012: 125).

The closest known Stone Age sites in the vicinity of Mooinooi are known as the Magaliesberg Research Area. It consists of a number of sites including rock shelters in the Magaliesberg Mountain. These date back to the Middle and Later Stone Age and include rock engravings (Bergh 1999: 4 – 5).

Stone Age material is frequently found close to rivers or other watercourses. A single MSA flake (Site 6 on Google map) was identified and recorded in the area. If any more will be found in the area these will be single, scattered, stone tools as well.

5.5 Iron Age

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

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

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

Early Iron Age (EIA) 250 – 900 A.D.

Middle Iron Age (MIA) 900 – 1300 A.D.

Late Iron Age (LIA) 1300 – 1840 A.D.

Late Iron Age sites have been identified in the area around the town of Moinooi. In a band stretching roughly from Brits in the east to Zeerust in the west many Iron Age sites have been discovered previously (Bergh 1999: 7-8). These all belong to the Later Iron Age (Bergh 1999: 8-9). A copper smelting site was identified along the Hex River to the northwest of the surveyed area (Bergh 1999: 8). The closest Earlier Iron Age site is located at Broederstroom near Brits (Bergh 1999: 6).

During earlier times the area was settled by the Fokeng. In the 19th century this group inhabited this area with other Tswana groups including the Kwena and the Po (Bergh 1999: 9-10). During the *difaqane* these people moved further to the west, but they returned later on (Bergh 1999: 11).

According to the research of Tom Huffman the following Iron Age traditions could be present in the area: (a) the Mzonjani facies of the Urewe tradition (Broederstroom) dating to AD450 – AD750 (b) Olifantspoort facies of the same tradition AD1500 – AD1700 (c) Uitkomst facies of Urewe AD1650 – AD1820 and (d) Buispoort facies of Urewe dating to around AD1700 - AD1840 (Huffman 2007: 127; 171; 191 & 203).

In 2007 Archaetnos was requested by International Ferrometals (SA)(PTY) Ltd to investigate a Late Iron Age stone walled settlement located on their Buffelsfontein Chrome Mine. This site was identified by Dr. Julius Pistorius, an archaeologist and Cultural Heritage Management Specialist, in May 2002 as part of an EIA done on the farm. Other Iron Age features and sites were also identified by Anton Pelsler recently in the area for the IFMSA Brits Moinooi Road Extension project (July 2012 – Prescali Environmental). These sites are located close to the development area assessed in October 2012 for the Phoenix Tailings Dam.

A number of Late Iron Age sites, features and artifacts were located during the assessment of the area and will be discussed later on in the report.

5.6 Historical Age

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. Early travelers have moved through this part of the Northwest Province. This included David Hume in 1825, Robert Scoon and William McLuckie in 1829 and Dr. Robert Moffat and Reverend James Archbell in 1829 (Bergh 1999: 12, 117-119).

Hume again moved through this area in 1830 followed by the expedition of Dr. Andrew Smith in 1835 (Bergh 1999: 13, 120-121). In 1836 William Cornwallis Harris visited the area. The well-known explorer Dr. David Livingstone passed through this area between 1841 and 1847 (Bergh 1999: 13, 119-122).

The area around Mooinooi, including the surveyed area was inhabited by white pioneers as early as 1839 (Bergh 1999: 15). From an old map obtained from the database of the Chief Surveyor General (www.csg.dla.gov.za), dated to 1903, it is clear that the whole of the farm Buffelsfontein was originally granted to one H.C. Jansen van Rensburg on the 7th of March 1861. No structures or other cultural features are shown on this map (**Document 10G2UM01**).

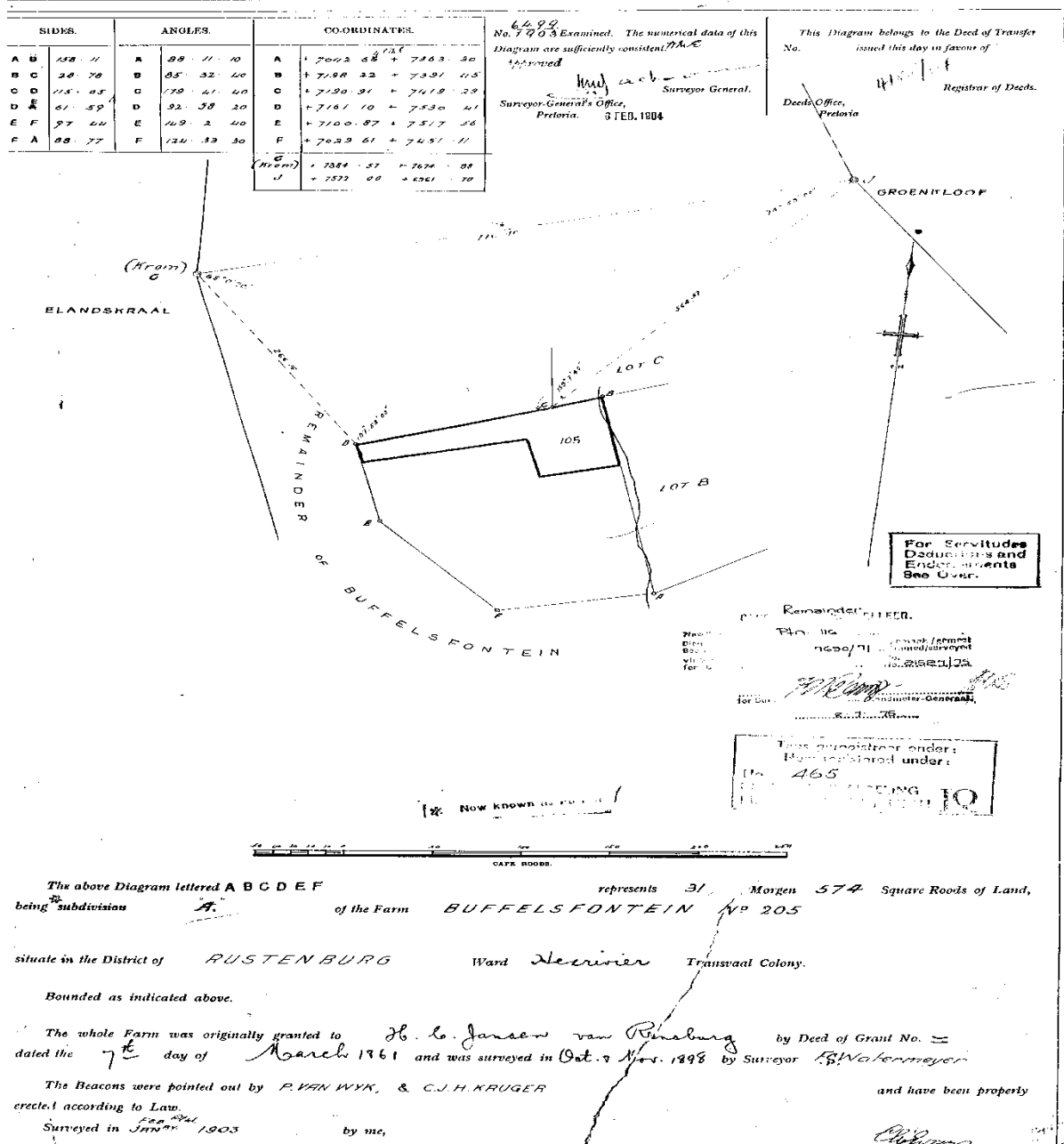


Figure 6: Old map of the farm Buffelsfontein (www.csg.dla.gov.za).

Results of fieldwork

Six sites (some more find spots than anything else) with LIA features and artifacts, as well as some remains of recent opencast mining and a single MSA stone tool, were identified in the area.

The most significant of these is Site 1 which is located at the low granite/norite outcrop and is similar to sites found during earlier surveys in the area (Pelser 2012: 16-18). Grinding surfaces are visible on the rocks, while a large amount of both decorated and undecorated pottery is located around the edges of and on top of the rock outcrop. The number of pottery fragments (representing various vessels) indicates that the site was used for a relatively

extensive period and this would warrant some archaeological investigation to determine the age and exact function of the sites' use.

GPS Location: **S25 42 16.3 E27 37 33.0**

Cultural Significance: Medium to High.

Heritage Significance: Grade III. Should be included in the heritage register and may be mitigated.

Field Ratings: General protection IV B. Sites should be recorded before destruction.

Mitigation: Map site, record features and limited Archaeological excavations.

The other sites or find-spots recorded during the assessment are all of low significance and no mitigation measures will be required. Site 2 is a single piece of undecorated pottery found close to the stream that runs through the area, while Sites 3 and 4 is further low rocky outcrops with evidence of grinding surfaces and some individual pieces of undecorated pottery in close proximity. Site 5 is the cement foundations of one of the recent mining related structures (there are a number of these around the area), while Site 6 is a single MSA flake.

GPS Locations:

Site 2: **S25 42 28.2 E27 37 42.1**

Site 3: **S25 42 20.4 E27 37 26.9**

Site 4: **S25 42 21.8 E27 37 16.4**

Site 5: **S25 42 24.0 E27 37 08.0**

Site 6: **S25 42 34.9 E27 37 17.2**

Cultural Significance: Low.

Heritage Significance: None.

Field Ratings: General protection C (IV C). Phase 1 is seen as sufficient recording and it may be demolished (low significance).

Mitigation: Recording during assessment seen as sufficient.



Figure 7: Site 1.



Figure 8: Grinding surface on rocks at Site 1.



Figure 9: Undecorated pottery at Site 1.



Figure 10: A decorated piece of pottery at Site 1.



Figure 11: A concentration of decorated pottery at Site 1.



Figure 12: One of the decorated pieces in the concentration.



Figure 13: Site 2 pottery fragment.

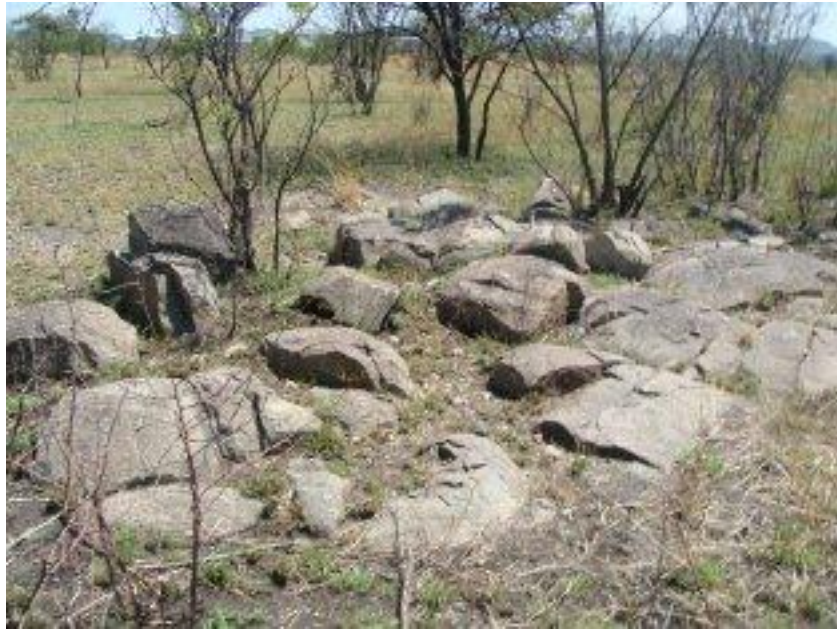


Figure 14: Site 3.



Figure 15: Site 4.



Figure 16: Site 4 pottery fragment.



Figure 17: Site 5.



Figure 18: More mining related remains in the area.



Figure 19: Stone tool at Site 6.



Figure 20: Aerial view of site distribution in the area (Google Earth 2012 – Image date 10/24/2011).

6 CONCLUSIONS AND RECOMMENDATIONS

In conclusion it is possible to say that the Archaeological Impact Assessment for the proposed Phoenix Platinum Mine Tailings Dam on portions 22 and 23 of the farm Buffelsfontein 465 JQ, near Moinooi in the Northwest Province, was conducted successfully. The area has been disturbed to a large degree in the recent past through agricultural activities (ploughing) and recent opencast mining, if any significant sites of archaeological nature did exist here in the past these would have been disturbed or destroyed. However, some Iron Age related sites, features and artifacts were recorded during the assessment and these sites might be negatively impacted by the proposed development. Some remains of structures related to the recent mining activities, and a single MSA stone tool were also recorded. These finds are however of low significance and no mitigation is required before destruction.

It is recommended that Site 1 be recorded through mapping and drawing and detailed photographic recording, as well as some limited archaeological excavations before the development continue.

It should also be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts are always a distinct possibility. Care should therefore be taken during any development activities that if any of these are accidentally discovered, a qualified archaeologist be called in to investigate. This would include the discovery of previously unknown graves.

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Aerial views of the area and site distribution: Google Earth 2012

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www.csg.dla.gv.za

APPENDIX A

DEFINITION OF TERMS:

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

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

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

- Historic value:** Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
- Aesthetic value:** Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
- Scientific value:** Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
- Social value:** Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
- Rarity:** Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
- Representivity:** Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province region or locality.

APPENDIX C

SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Low A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.
- Medium Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.
- High Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Heritage significance:

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

Field ratings:

- i. National Grade I significance should be managed as part of the national estate
- ii. Provincial Grade II significance should be managed as part of the provincial estate
- iii. Local Grade IIIA should be included in the heritage register and not be mitigated (high significance)
- iv. Local Grade IIIB should be included in the heritage register and may be mitigated (high/ medium significance)
- v. General protection A (IV A) site should be mitigated before destruction (high/ medium significance)
- vi. General protection B (IV B) site should be recorded before destruction (medium significance)
- vii. General protection C (IV C) phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

Formal protection:

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

Protected areas - An area surrounding a heritage site

Provisional protection – For a maximum period of two years

Heritage registers – Listing Grades II and III

Heritage areas – Areas with more than one heritage site included

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

General protection:

Objects protected by the laws of foreign states

Structures – Older than 60 years

Archaeology, palaeontology and meteorites

Burial grounds and graves

Public monuments and memorials

APPENDIX E

HERITAGE IMPACT ASSESSMENT PHASES

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