

TO:

**SRK CONSULTING ENGINEERS AND SCIENTISTS
POTGIETERSRUST PLATINUMS MINE**

**A CULTURAL HERITAGE IMPACT ASSESSMENT FOR THE
PROPOSED NEW OPEN PIT FOR PPRust ON THE FARM
ZWARTFONTEIN 818LR IN THE NORTHERN PROVINCE OF
SOUTH AFRICA. AMENDMENT TO THE PPRust
ENVIRONMENTAL MANAGEMENT PROGRAMME REPORT
(EMPR)**

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EXECUTIVE SUMMARY

PPRust plans to develop a new open pit on the southern part of the farm Zwartfontein 818 LR, near Potgietersrust (Mokopane). The Zwartfontein South Project is part of PPRust's programme to expand its current open cast mining activities on the farms Vaalkop 819LR and Sandsloot 236KR in the Langa Ndebele tribal area (Ga Mapela) in the Potgietersrust (Mokopane) District of the Northern Province of South Africa. The Mokopane area is known for its rich and diverse range of heritage resources that cover the prehistoric period from the Stone Age to the Iron Age and the historical (colonial) period.

Heritage resources consisting of the ruins of dwellings and old abandoned mines were discovered in and near the proposed new open pit area on the southern part of Zwartfontein 818 LR. The early platinum mining dates from the 1920's but was not economically viable, and mining was soon abandoned. Approximately six sites with graves and the ruins of dwellings dating from the relatively recent past also occur in and near the open pit area. The status of some of the graves is in dispute. There may be other graves that may never be found. The graves were tabulated (Table 1).

The levels of significance of the graves, the ruins of the dwellings and the abandoned mining activities have been determined. The graves are highly significant, while the ruins of the dwellings have little (low) significance. The abandoned mining areas are historically significant in that they represent the origins of the PPRust Platinum Mine.

All these remains will be affected (destroyed) by the development of the open pit and associated infrastructure. Mitigation measures are recommended, namely that the graves be exhumed and relocated and that the abandoned mines be thoroughly documented before they are destroyed. Mitigation measures are also outlined for heritage resources not yet discovered during this investigation, but which may be uncovered during the construction and operation of the open pit and associated infrastructure (Table 2).

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1 TERMS OF REFERENCE

This document contains the report on the results of a cultural heritage impact assessment study done for SRK in the Northern Province of South Africa. Parts of the Northern Province, such as Pietersburg, Potgietersrus, Phalaborwa, the Blouberg Mountains, Louis Trichardt, the Steelpoort valley and areas to the north and south of the Soutpansberg have been explored for cultural heritage remains in the past. These explorations have shown that the Northern Province has a rich archaeological heritage, comprising remains dating from the prehistoric and the historical past. Prehistoric and historical remains in the Northern Province reflect the cultural heritage of most groups living in South Africa today.

PPRust intends to establish a new open pit on the southern part of the farm Zwartfontein 818LR in the Northern Province of South Africa. In order to comply with legislation, PPRust requires knowledge of the presence and the significance of any heritage resources that may occur in or near the open pit. The mine needs this information in order to take pro-active measures with regard to any heritage resources that may be affected by the new development, as such remains may be affected, damaged or destroyed by the new development. SRK therefore contracted the author to undertake a cultural heritage impact assessment study of the open pit area, with the aims

- to establish whether any heritage resources occur in or near to the open pit area and, if so, what the nature, the extent and the significance of these remains are;
- to determine whether such remains will be affected by the proposed development of the open pit; and
- to evaluate appropriate actions that could be taken to reduce the impact of development activities on such remains.

This report therefore provides an overview of the heritage resources and graves that were discovered in and near the proposed open pit and the level of significance of these remains. The report indicates that these remains will be affected by the development of the open pit and recommends mitigation measures that can be implemented to minimise the effects of the proposed development on the graves and remains of old mining activities. The mitigation measures proposed also apply to heritage resources not discovered during this survey, but which may be uncovered during the construction and operation of the open pit and associated infrastructure.

2 METHODOLOGY

2.1 Sources of information

The possible presence of heritage resources in and near the open pit area was determined by using evidence derived from maps, the grave census compiled by the survey department of PPRust and a survey on foot of the proposed open pit area.

The presence of old mines on Zwartfontein 818LR are indicated on the 1:50000 topographical map of Limburg 2328. Maps produced by the survey department of PPRust provide detail information regarding the nature and the extent of these mines. The surface infrastructure and activities associated with what seems to have been the abandoned Northern Prospect Platinum Mine have been mapped by PPRust's survey department.

PPRust's survey department also surveyed and mapped the presence of graves and the ruins of dwellings in and near the proposed open pit area. The co-ordinates for the sites with graves, the ruins of dwellings and mining infrastructure are part of a GIS database. Maps indicating the spatial occurrence and distribution of these features are therefore readily available when required.

The proposed open pit area was also subjected to a survey on foot. The survey confirmed the presence of old, abandoned mines, the ruins of dwellings and sites with graves. However, it also suggested that not all the sites with 'graves' may in fact be graves.

2.2 Assumptions and limitations

The survey on foot may have missed heritage resources and graves. The dense vegetation currently growing in or near the proposed open pit may cover some of these features. Graves may also have been covered by the large amount of waste material that has been dumped on this site over a long period of time. Heritage resources may occur below the surface of the earth. These remains may only be exposed after the development of the open pit has commenced. This Phase I survey, therefore, has to be seen in the light of the dynamic nature of EMPRs, which must be updated on a regular basis. The discovery of previously undiscovered heritage remains may require that further studies (Phase II work) be done (in collaboration with SAHRA or other state departments).

The position of graves in and near the proposed open pit area can be problematic with regard to a number of issues. Graves are not always clearly marked. Some markings merely consist of stone edgings or a few stones placed on a grave. Soil or vegetation covers graves that are unattended, while markings on some graves may have been disturbed over time. It is therefore not certain that all individual graves have been identified in the proposed open pit area.

The six sites with graves that have been recorded, however, vary in size between a cemetery containing 54 graves to a site that contains three graves. On one of the sites (No. 6), no graves are visible on the surface. The larger the number of graves in each cluster, the more likely it is that these sites are in fact graveyards, especially when the names of the deceased have also been recorded.

2.3 **Some remarks on terminology**

The cultural heritage assessment referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage Resources Act (Act No 25 of 1999).

Cultural heritage (or cultural resources) includes all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

The term 'pre-historic' generally refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the Potgietersrus area, to the first appearance or use of 'modern' Western writing brought to Potgietersrus (Mokopane) by the first Colonists who settled in this area c. 1845. The historical period for the Potgietersrus area therefore dates from c. 1845.

The term 'relatively recent past' refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.

It is not always possible, based on observations alone, to distinguish clearly between archaeological remains and historical remains, or between historical remains and remains from the relatively recent past. Although certain criteria may help to make this distinction possible, these criteria are not always present, or, when they are present, they are not always clear enough to interpret with great accuracy. Criteria such as square floor plans (a historical feature) may serve as a guideline. However, circular and square floors may occur together on the same site.

The term 'sensitive remains' is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from the recent past and do not have tombstones that are older than sixty years.

The term 'Stone Age' refers to the prehistoric past, although Late Stone Age peoples lived in the area well into the historical period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).

The term 'Late Iron Age' refers to the period between the 17th century and the 19th century and can therefore include the historical period.

The term 'study area' or 'project area' refers to the area where PPRust wants to focus its mining activities.

The 'peripheral area' refers to the area where PPRust does not intend to focus any mining activities in the near future, but which are in close proximity to the project area.

Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types of heritage resources in any given area.

Phase II studies include in-depth cultural heritage studies such archaeological mapping and excavating work, the documenting of rock art sites, engraving sites or historical dwellings and other architectural features and structures, the sampling of archaeological sites or shipwrecks, etc. Phase II work requires the co-operation and approval of SAHRA.

3 THE OPEN PIT STUDY AREA

3.1 Location

PPRust's proposed new open pit is oblong in shape, measuring approximately 2 kilometres from north to south and approximately 800 metres from east to west. The largest part of the open pit will be situated on the southern part of Zwartfontein with a smaller part extending onto the farm Sandsloot 819 LR. The northern part of the pit will be bisected by the dirt road between the PPRust platinum mine and Fonthane and other Mapela villages further to the north-west. The study or project area in this report is therefore referred to as the open pit area.

The open pit area is located approximately 1.3 km from the former Ga Pila village. The inhabitants of Ga Pila were resettled some years ago in order to make way for one of PPRust's rock waste dumps that encroached on and eventually buried the abandoned village. One of the dirt roads that gave one access to the former Ga Pila village bisects the proposed open pit area from north to south. A few smaller dirt roads and footpaths criss-cross the open pit area (Figure 1).

4.2 The disturbed (affected) nature of the study area

The proposed new open pit area is not an unaffected piece of land any longer. In the 1920's platinum mines were established where the new open pit is proposed. This mine, which in fact was the precursor of PPRust, was established on the Merensky Reef, locally known as the Platreef, on the southern part of Zwartfontein 818 LR. This early attempt to mine and to process platinum was not economically viable and it was soon abandoned. However, it left a mining heritage, in the form of trenches, waste dumps and other remains on the surface of the proposed new open pit. These early mining activities have scarred and disturbed the study area and any heritage remains that may have existed on this piece of land. These early activities included the digging of shafts and trenches, the building of mining infrastructure as well as accommodation (such as a hostel or compound) for workers, the dumping of rock waste, the building of slimes dams, etc.

Figure 1. The proposed new open pit on the southern part of the farm Zwartfontein 818 LR. The construction and operation of the open pit will affect several graves, abandoned mining activities and ruins of dwellings, all dating from the relatively recent past.

4.3 Heritage resources in a wider regional context

The open pit area is a restricted piece of land with regard to the surface area that it covers, as well as its geographical setting in the wider historically and culturally rich and diversified Potgietersrus area. Numerous types of heritage resources have been uncovered in the wider Potgietersrust area during the last few decades. The most important heritage resources discovered include:

- limestone caves near Potgietersrus where hominids (ape-man creatures) lived perhaps as long as 1 million years ago;
- Stone Age sites which may be associated with the San people and which date back hundreds of thousands of years;
- rock engraving and rock painting sites which date from the last 20 000 years;
- Early Iron Age sites occupied by the first Bantu-Negroid agriculturists, metal workers and possibly cattle herders which date back 1 500 years;
- Late Iron Age sites dating from the last 500 years;
- trade routes dating back centuries and wagon trails along which trade goods were moved between the interior of the country and the East Coast;
- remains dating from the previous century when the first Immigrant Boers settled at Potgietersrus, Lydenburg, Ohrigstad, Leydsdorp and other places from the 1840's onwards;
- block houses built by British troops on mountain ranges during the Anglo-Boer War (1899-1900);
- sensitive remains such as graves and graveyard sites dating from the pre-historic, historical and recent times; and
- numerous other, formal historical features (the Potgietersrust Museum, the Makapans Caves, the Pietersburg Museum with the Bakone Malapa, etc).

However, sources of information used including maps and the survey on foot confirmed only the presence of the following types of heritage resources and sensitive remains in and near the open pit area:

- graves;
- ruins of dwellings; and
- ruins of abandoned mines.

4 HERITAGE RESOURCES IN AND NEAR THE OPEN PIT AREA

The remains found in and near the proposed open pit area are graves and cemeteries, ruins of dwellings and abandoned mines.

4.1 Graves

The PPRust census of graves identified at least six localities with graves in or near the open pit area. These cemeteries are tabulated in Table I. The coordinates for the graves were not repeated in this report as they are incorporated in a GIS database maintained by PPRust.

4.2 Ruins of dwellings

The ruins of dwellings and other structures occur to the south-east, on the farm Vaalkop 819LR and to the north-east of the existing open pit area on Zwartfontein. These remains are mainly those of dwellings (to the south-east) and those of older mining structures (to the north-east). The dwellings were probably once situated on the outskirts (to the north) of the former Ga Pila village, before the inhabitants of the village were resettled. The square foundations further north may perhaps be associated with the Northern Prospecting Platinum Mine.

The dwellings include multi-component structures with square foundations, indicating that they date from the relatively recent past. Both the dwellings and the mining structures are dilapidated, as they have been destroyed and vandalised for building material. It is unlikely that all these structures are older than sixty years (hence they do not all qualify as historical structures).

The ruins of the dwellings cannot be considered to be of high significance in terms of their uniqueness, architectural style, age, aesthetic appearance, cultural historical significance or ideological meaning. The dwellings have also been largely demolished. (An assessment of the indigenous architecture of

dwellings in the Ga-Puka and Ga-Sekhaolelo towns has been recommended in the Overysel Swartfontein Project that runs concurrently with the Swartfontein South Project).

4.3 Ruins of the Northern Prospect Platinum Mine

The remains of abandoned mines are scattered over the proposed open pit area. They extend further to the north of the open pit area. These remains include waste rock dumps, slimes dams, trenches, concrete foundations, winches, borrowing and prospecting pits, etc. PPRust's survey department has mapped these remains, which can probably be traced back to the Northern Prospect Platinum Mine that started with the mining of platinum in the 1920's. Platinum mining was hereafter continued in the Rustenburg District and was only restarted in this region in the late 1980's with the rebirth of the Potgietersrust Platinum Ltd Mine.

The remains of the old mine have high historical significance as these remains represent the origins of PPRust. However, the mining infrastructure has been damaged. Most of this infrastructure has collapsed or has been demolished or vandalised during the years when the mine was abandoned. The most conspicuous remains are the waste rock dumps and the slimes dams. Trenches have collapsed or were filled in. It is unknown whether any shafts or underground infrastructure still exist.

If the original mining infrastructure, features and activities of this mine cannot be preserved or restored e.g. as a living mining museum, the demolished remains have little significance. The old mining complex can always be 'rebuilt' (or replicated) in order to serve an educational or tourism need.

A mine museum in the Limpopo Province could illustrate the development of the platinum industry in the Mokopane area. An early mining theme could be fruitfully exploited, given the fact that the first gold in the former Transvaal Province was mined in the 19th century, slightly further to the north, at Eerstegoud, close to Pietersburg.

5 THE IMPACT OF THE OPEN PIT DEVELOPMENT ON HERITAGE RESOURCES AND GRAVES

5.1 Heritage resources and levels of significance

The assessment of the proposed open pit study area indicated the presence of graves, the ruins of dwellings and the ruins of abandoned platinum mines in and around the open pit area. These remains are listed in Table 2. This table also outlines the level of significance of these remains and the degree of impact these remains have experienced in the past (past impact) and the magnitude of impact the remains will experience in the future (future impact).

Three levels of significance were used to grade the heritage resources and the graves, namely 'high', 'medium' and 'low'. These levels of significance were determined by considering criteria such as the ideological/symbolic and aesthetic values, uniqueness, cultural historical value, the state of preservation and the research value of the different types of heritage resources. The degree of impact on the remains in the past (mostly before the new heritage bill was promulgated) and in terms of future impact that will occur during the construction and the operation of the open pit is also indicated as 'high', 'medium' or 'low' (Table 2).

5.2 Legislation, mitigation and heritage resources

The status of the remains that exist in and near the open pit is determined by cultural heritage legislation. A synopsis of all legislation relevant to the heritage resources and the graves is provided below. It can be used as a guideline to manage the mitigation measures that have to be implemented for the heritage resources and the graves concerned.

Mitigation measures also have to be implemented whenever hitherto undiscovered heritage resources are (accidentally) discovered during the construction of the open pit or during its operation. Consequently, mitigation measures have been spelled out with regard to all possible ranges of heritage resources that may be encountered in or near the open pit area.

5.2.1 The National Heritage Resources Act (Act No 25 of 1999)

The National Heritage Resources Act (Act No 25 of 1999) requires all developers (including engineers, farmers [agriculturists] and mines, previously excluded from the bill) to undertake impact assessment studies whenever any development activities are undertaken. The law also provides guidelines for impact assessment studies to be done whenever heritage resources may be destroyed by development activities. Permits must be acquired from the South African Heritage Resources Agency (SAHRA) before a heritage site can be affected or destroyed during the course of development activities.

Archaeological impact assessment studies have therefore become a common procedure for all development activities, even if such development may be exempted in terms of the Environment Conservation Act.

The new law stipulates the types of remains that qualify as heritage resources (heritage). These cultural resources are classified into national, provincial and other cultural heritage resources. The law stipulates general principles for heritage resources management and involves all three levels of government in the management of the country's cultural heritage. The law also requires community participation in the protection of living heritage resources.

SAHRA establishes and maintains a national policy, strategy plans and standards for heritage resources management and monitors the system as a whole. Heritage authorities assist and co-operate with individuals and organisations concerned with the study, the conservation and the promotion and utilisation of national heritage resources. A National Heritage Resources Fund provides financial assistance for heritage projects.

5.2.2 Graves, the exhumation and relocation of human remains

Different legislation applies to different categories of graves, namely:

5.2.2.1 Graves younger than 60 years

Graves younger than 60 years are protected by Section 2(1) of the Removal of Graves and Dead Bodies Ordinance (Ordinance No 7 of 1925) as well as the Human Tissues Act (Act 65 of 1983). These graves fall under the jurisdiction of the National Department of Health and the relevant Provincial Department of Health. Approval for the removal of graves and bodies must be directed to the Office of the relevant Provincial Minister. (This function is usually delegated to the Provincial MEC for Local Government and Planning, or, in some cases, the MEC for Housing and Welfare). Authorisation for exhumation and re-interment must also be obtained from the relevant local or regional council where the grave is situated, as well as the local or regional council relevant to the area to which the grave is being relocated. All local and regional provisions, laws and by-laws must be adhered to. In order to handle and transport human remains, the institution conducting the relocation must have authorisation under Section 24 of Act 65 of 1983 (the Human Tissues Act).

5.2.2.2 Graves older than 60 years

Graves older than 60 years but younger than 100 years fall under Section 36 of Act 25 of 1999 (the National Heritage Resources Act) as well as the Human Tissues Act (Act 65 of 1983) and under the jurisdiction of the South African Heritage Resources Agency (SAHRA). The Procedure for Consultation Regarding Burial Grounds and Graves (Section 36[5] of Act 25 of 1999, National Heritage Resources Act) is applicable to graves older than 60 years which are situated outside a formal cemetery administered by a local authority. Graves in this category located inside a formal cemetery administered by a local authority also require the same authorisation as set out for graves younger than 60 years, over and above SAHRA authorisation. If the grave is not situated inside a formal cemetery but is to be relocated to one, permission from the local authority is required and all regulations, laws and by-laws set by the cemetery authorities must be adhered to. In order to handle and to transport human remains, the institution conducting the relocation needs authorisation under Section 24 of Act 65 of 1983 (the Human Tissues Act). Any alteration to a grave in this category or the relocation thereof must be supervised by an archaeologist accredited by SAHRA and the Cultural Resource Management Section of the South African Association for Archaeologists.

5.2.2.3 Graves older than 100 years

All graves older than 100 years are legislated as being archaeological and therefore protected under Act 25 of 1999 (the National Heritage Resources Act). SAHRA authorisation is required for all graves in this category, regardless of where they are located. Any alteration to a grave in this category or the relocation thereof must be supervised by an archaeologist accredited by SAHRA and the Cultural Resources Management Section of the South African Association of Archaeologists. If the grave is situated in a cemetery administered by a local authority, the authorisation as set out for graves younger than 60 years is also applicable, over and above SAHRA authorisation. At the discretion of SAHRA, the Procedure for Consulting Regarding Burial Grounds and Graves (Section 36[5] of the National Heritage Resources Act) might also be required. In order to handle and transport human remains, the institution conducting the relocation must have authorisation under Section 24 of Act 65 of 1983 (the Human Tissues Act).

5.2.2.4 Graves of victims of conflict

All graves of victims of conflict, regardless of how old they are or where they are situated, are protected by Act 25 of 1999 (the National Heritage Resources Act).

SAHRA authorisation is required for all graves in this category. Any alteration to a grave in this category or the relocation thereof must be supervised by an archaeologist accredited by SAHRA and the Cultural Resources Management Section of the South African Association for Archaeologists. If the grave is situated in a cemetery administered by a local authority, the authorisation as set out for graves younger than 60 years is also applicable, over and above SAHRA regulations. On the discretion of SAHRA, the Procedure for Consulting Regarding Burial Grounds and Graves (Section 36[5] of the Act 25 of 1999, the National Heritage Resources Act) might also be required. In order to handle and transport human remains, the institution conducting the relocation must have authorisation under Section 24 of Act 65 of 1983 (the Human Tissues Act).

6 RECOMMENDATIONS

From the regional contextual evidence, it is clear that the Mokopane area has a rich and diversified cultural heritage. This has been amply proven by the discovery of the ruins of dwellings and old mining infrastructure belonging to the Northern Platinum Prospecting Mine and graves in and near the proposed open pit area. The ruins of the dwellings and the abandoned mining infrastructure have been demolished in the past. All these remains, including the graves, will be affected (destroyed) when the new open pit is constructed and kept in operation.

Legislation requires mitigation whenever heritage resources or graves are to be affected by development activities. The relevant legislation includes the National Heritage Resources Act (Act No 25 of 1999), the Ordinance on Exhumations (Ordinance No 12 of 1980) and the Human Tissues Act (Act No 65 of 1983 as amended). Mitigation measures must therefore be implemented with regard to the graves and the old abandoned mines. It is also possible that heritage resources and graves not discovered during this study may be uncovered during the construction or operational phases of the open pit. These and other types of resources have to be subjected to the mitigation measures outlined in Table 3.

The mitigation measures for graves in and near the open pit area include actions such as the exhumation and reburial of human remains. Mitigation measures for the abandoned mining infrastructure would require that these activities be thoroughly documented with photographs and maps. A study of appropriate literature must also be undertaken to sketch a brief historical account of the earliest attempts at platinum mining in the Mokopane (Potgietersrust) District. This Phase II study (report) must be completed by an

archaeologist (according to the National heritage Resources Act) and be forwarded to SAHRA in order to obtain the necessary permit for the destruction of the old mining infrastructure.

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Table 1. Cemeteries in and near the proposed new open pit on Zwartfontein 818 LR and Vaalkop 819 LR. The Zwartfontein South Project will affect (destroy) these features.

	Clusters	No of graves	Farm	Visible on surface	Remarks
1	1 of 5	54 (8)*	Vaalkop	Yes	
2	2 of 5	9 (1)*	Zwartfontein	Yes	
3	3 of 5	5	Zwartfontein	Yes	
4	4 of 5	4 (1)*	Vaalkop	No (?)	Associated with ruins of dwellings
5	5 of 5	3	Zwartfontein	Yes	
6				No (?)	

* Graves of unidentified persons.

? These 'graves' may not contain human remains.

Table 2. The level of significance of the graves, the ruins of dwellings and the ruins of the abandoned Northern Prospecting Platinum Mine in and near the proposed open pit area. Note the degree of impact on these remains in the past as well as the degree of impact on these remains during the construction and operation of the open pit.

GRAVES AND CEMETERIES IN AND NEAR OPEN PIT	LEVEL OF SIGNIFICANCE	MAGNITUDE OF PAST IMPACT	MAGNITUDE OF FUTURE IMPACT
Graves 1 of 5	High	Low	High
Graves 2 of 5	High	Low	High
Graves 3 of 5	High	Low	High
Graves 4 of 5	High	Low	High
Graves 5 of 5	High	Low	High
Graves 6	High	Low	High
Ruins (of former dwellings)	Low	Damaged to affected	High
Ruins (of former mine)	High (historical)	Damaged to affected	High

Level of significance

High (3), Medium (2), Low (1)

Magnitude of future impact

High (3), Medium (2), Low (1)

Degree of past impact

Destroyed (non existent) (4), Damaged (altered) (3), Affected (recognisable) (2), Unaffected (pristine) (1)

Table 3: Heritage resources and sensitive remains that may exist in or near the proposed new open pit. Note the mitigation measures to be followed whenever any of these resources are discovered during the opening, operation and closure of the open pit.

HERITAGE RESOURCES	MITIGATION MEASURES	PROCEDURES	GENERAL REMARKS
Stone Age sites and scatterings of stone tools	<ul style="list-style-type: none"> • Collection from surface and donation to Potgietersrus or Pietersburg Museums • Test excavations if unique • Extended excavations if exceptionally unique 	<ul style="list-style-type: none"> • Permit from SAHRA and collaboration with archaeologist 	Stone Age tools may exist in dongas and in the Sandsloot and Mohlosane Rivers, outside the open pit area.
Early Iron Age sites	<ul style="list-style-type: none"> • Surveys and test excavations • Extended excavations if unique 	<ul style="list-style-type: none"> • Permit from SAHRA and collaboration with archaeologist 	It is highly unlikely that there are Early Iron Age sites in or near the open pit area.
Late Iron Age sites	<ul style="list-style-type: none"> • Survey and test excavations • Extended excavations if unique 	<ul style="list-style-type: none"> • Permit from SAHRA and collaboration with archaeologist 	It is highly unlikely that there are Late Iron Age sites in or near the open pit area.
Historical sites and structures (houses, farm homesteads, etc.)	<ul style="list-style-type: none"> • Documentation before destruction • Restoration and utilisation • Incorporation into new development schemes 	<ul style="list-style-type: none"> • Permit from SAHRA and collaboration with historical architect 	The ruins of mining infrastructure and dwellings have no historical significance. Mitigation measures for the abandoned mines include the thorough documentation of these remains before their destruction.
Graves and graveyards	<ul style="list-style-type: none"> • Incorporation of graveyards in development schemes • Relocation of graves and graveyards 	<ul style="list-style-type: none"> • Permits from SAHRA, national and provincial health departments. • Community consultation. • Collaboration with forensic archaeologists. 	There are at least six graves and graveyards in and near the open pit area.