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A PHASE I HERITAGE IMPACT ASSESSMENT STUDY FOR THE EXTENSION OF LONMIN PLATINUM'S TAILINGS DAM ON THE FARM MIDDELKRAAL 466JQ NEAR MADIBENG IN THE CENTRAL BANKEVELD IN THE NORTH-WEST PROVINCE

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EXECUTIVE SUMMARY

A Phase I Heritage Impact Assessment (HIA) study as required in terms of Section 38 of the National Heritage Resources Act (No 25 of 1999) was done for Lonmin's proposed expansion of its existing Tailings Dam (TD6) on the farm Middelkraal 466JQ near Madibeng (Brits) in the North-West Province. The expansion of the existing Tailings Dams is referred to as the Lonmin Project whilst the areas (footprints) to be affected by the expansion of the Tailings Dams are referred to as the Lonmin Project Area.

The aims with the Phase I HIA study were the following:

- To establish whether any of the types and ranges of heritage resources ('national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur in the Lonmin Project Area and, if so to determine the significance of these heritage resources, and
- To make recommendations regarding the mitigation of significant heritage resources that may be affected by the Lonmin Project.

This study did not provide for any paleontological study.

The Phase I HIA revealed the following types and ranges of heritage resources in the Lonmin Project Area, namely:

- Stone walled sites which date from the Late Iron Age and the Historical Period.
- Graveyards.

All these heritage resources were geo-referenced and mapped (Figure 8, Tables 1 & 2). Their significance is indicated as well as mitigation measures for those heritage resources which will be affected by the Lonmin Project.

The Phase I HIA study is now briefly discussed whilst some of the heritage resources are illuminated with photographs.

Possible impact on the heritage resources

Some of the stone walled sites (notably No's 15-18, 26-29) and the graveyard (GY01) which are located in or which border on the Lonmin Project Area will be affected or be destroyed when the existing Tailings Dam is expanded. The significance of the heritage resources therefore is indicated according to stipulations derived from the National Heritage Resources

Act (No 25 of 1999) as well as by means of criteria relating to the types and ranges of heritage resources that will be affected by the Lonmin Project.

The significance of the heritage resources

The Late Iron Age and historical settlements

Late Iron Age and historical sites qualify as archaeological sites and are protected by Section 35 and Section 38 of the National Heritage Resources Act (No 25 of 1999). Other criteria which signify the medium significance of the stone walled sites are the following (Table 3):

- The stone walled sites in the north-east (No's 01 to 27) are part of a cultural landscape. Each site is unique as it contributes to the significance of the cultural landscape which served as a cultural-historical unit representing the life-ways, customs and cultures of the pre-historical and historical Tswana and other indigenous groups who lived in the Central Bankeveld three to four hundred years ago. The investigation of the settlements which are part of the cultural landscape can contribute to a better understanding of the region's pre-history and history as the landscape fall within the sphere of the influence of the Bakwena Bamôgale and the Bakwena Bamôgôpa clans who were subjugated by Mzilikazi's Ndebele during AD1827 to 1832.
- The stone walled site in the south-west (No 28) is well preserved and can be described as of medium significance with regard to its scientific, research, tourism and aesthetical value.

The impact assessment for the Late Iron Age and historical settlements is very high (Table 4).

The graveyard

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 2). Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

The impact assessment for the graveyard is very high (Table 5).

Mitigating the heritage resources

The Late Iron Age and historical remains

The Late Iron Age and historical remains have to be investigated by an archaeologist who is accredited with the Association for Southern African Professional Archaeologists (ASAPA) before these remains can be destroyed. The archaeologist has to obtain a permit from the South African Heritage Resources Authority (SAHRA) in order to conduct a Phase II archaeological investigation of these sites. The Phase II investigation will entail the documentation and excavation of these remains the results of which must be published in a report to SAHRA. After the Phase II investigation has been completed Lonmin must obtain a permit from SAHRA which would authorise the demolishing of these sites.

The graveyard

GY01 can be mitigated by means of exhumation and relocation. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. As the graveyard is probably older than sixty years the process also includes social consultation with a 60 days statutory notice period. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

General (disclaimer)

This Phase I HIA study may have missed other heritage resources in the Lonmin Project Area as heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance is exposed during the Lonmin Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

CONTENTS

1 INTRODUCTION

This document contains the report on the results of the Phase I Heritage Impact Assessment (HIA) study which was done for Lonmin's proposed expansion of its existing Tailings Dams on the farm Middelkraal 466JQ in the central Bankeveld near Madibeng (Brits) in the North-West Province.

Focused archaeological research has been conducted in the North-West Province for several decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as of the recording of rock art and historical sites in this area. The North-West Province has a rich heritage comprised of remains dating from the pre-historical and from the historical (or colonial) periods of South Africa. Pre-historical and historical remains in the North-West Province of South Africa form a record of the heritage of most groups living in South Africa today.

Various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' (as outlined in the National Heritage Resources Act [No 25 of 1999]) occur in the North-West Province (see Box 1, next page).

Box 1: Types and ranges of heritage resources (the national estate) as outlined in Section 3 of the National Heritage Resources Act, 1999 (No 25 of 1999).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of heritage resources that qualify as part of the National Estate, namely:

(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 natural features of cultural significance;
(e) geological sites of scientific or cultural importance;
(f) archaeological and palaeontological sites;
(g) graves and burial grounds including-
  (i) ancestral graves;
  (ii) royal graves and graves of traditional leaders;
  (iii) graves of victims of conflict;(iv) graves of individuals designated by the Minister by notice in the Gazette;
  (v) historical graves and cemeteries; and
  (vi) other human remains which are not covered by in terms of the Human Tissues Act, 1983 (Act No 65 of 1983);
(h) sites of significance relating to the history of slavery in South Africa;
(i) movable objects, including -
(i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
  (ii) objects to which oral traditions are attached or which are associated with living heritage;
  (iii) ethnographic art and objects;
  (iv) military objects;
  (v) objects of decorative or fine art;
  (vi) objects of scientific or technological interest; and
  (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value …'. These criteria are the following:

(a) its importance in the community, or pattern of South Africa's history;
(a) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
(b) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
(c) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
(e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
(g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h)
(h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
(i) sites of significance relating to the history of slavery in South Africa

2 AIMS WITH THIS REPORT

Lonmin intends to expand its existing Tailings Dam to incorporate Tailings Dam 8 (TD8) and Tailings Dam 9 (TD9) as well as additional areas with the existing Tailings Dam on the farm Middelkraal 466JQ in the Central Bankeveld in the North-West Province. The expansion of the existing Tailings Dam is referred to as the Lonmin Project whilst the additional areas (footprints) to be added to the existing Tailings Dam are referred to as the Lonmin Project Area. The incorporation of additional areas into the existing Tailings Dam (Lonmin Project) may have an influence on any of the types and ranges of heritage resources which are listed in Section 3 of the National Heritage Resources Act (No 25 of 1999) which may occur in the Lonmin Project Area.

In order to comply with heritage legislation, Lonmin's requires knowledge of the presence, relevance and the significance of any heritage resources that may be affected by the Lonmin Project. Lonmin needs this knowledge in order to take pro-active measures with regard to any heritage resources that may be affected, damaged or destroyed when the Lonmin Project is implemented. Consequently, Lonmin commissioned the author to undertake a Phase I HIA study for the Lonmin Project Area.

The aims with the Phase I HIA were the following:

- To establish whether any of the types and ranges of heritage resources ('national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur in the Lonmin Project Area and, if so, to determine the significance of these heritage resources.
- To make recommendations regarding the mitigation of significant heritage resources that may be affected by the Lonmin Project.

3 METHODOLOGY

This Phase I HIA study was conducted by means of the following activities:

3.1 Desktop study

Literature relating to the pre-historical and the historical unfolding of the Madibeng District was reviewed. This review provides a broad chronological overview of the region ranging from pre-historical times to the historical period including the development of platinum and chrome mining in the region. It also refers to Tswana clans who, together with the colonial Voortrekkers, were the most influential pre-historic and historical groups in the region. This contextual evidence contributes to a better understanding of the identity and meaning of heritage sites which may occur in and near the Project Area.

The desktop study also involved consulting heritage data banks maintained at institutions such as the North-West Provincial Heritage Resources Agency in Mafikeng, the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria and the national heritage resources register at the South African Heritage Resources Agency (SAHRIS) in Cape Town.

The Project Area was also studied by means of maps on which it appears, (2527CA Bapong; 1:50 000 topographical map; 2527 Pretoria; 1:250 000 map and Google imagery).

3.2 Fieldwork and research

The Project Area was surveyed with a vehicle and by means of pedestrian surveys. A track log which was registered with a mounted GPS instrument outlines the main route for the field survey from where pedestrian surveys were conducted. A number of photographs also outline the characteristics of the Project Area (see ‘Part 6.1 Fieldwork survey’, Figures 4 –7).

Figure 1- GPS track log registered with a mounted GPS instrument illuminates the track path followed during the survey from where pedestrian surveys were undertaken (above).

The author is not unacquainted with the Lonmin Project Area as he had done numerous heritage impact assessment studies as well as archaeological surveys in the general area during the past twenty five years. The Lonmin Project Area was also surveyed at least three times in the past before this fourth survey was completed for the final layout of the Tailings Dam, namely: (also see Part 8, 'Select Bibliography').

- Pistorius, J.C.C. 2000. A Phase I archaeological survey of portions of the farm Middelkraal 466JQ in the Central Bankeveld for Western Platinum Mine's proposed tailings dam. Unpublished report prepared for C. van der Westhuizen (Private geo-hydrologist) and for Western Platinum Mine.
- Roodt, F. 2005. Phase I Heritage Resources Impact Assessment. Lonmin Platinum Surface rights (WPL & EPL) and Tribal Land Marikana: North-West Province. Unpublished report prepared by R and R Cultural Resource Consultants.
- Pistorius, J.C.C. 2012 (a). A Phase I heritage impact assessment for the extension of Lonmin Platinum's Tailings Dam (site D6) on the farm Midelkraal

466JQ in the Central Bankeveld in the North-West Province. Unpublished report prepared for Lonmin Platinum.

- Pistorius, J.C.C. 2012 (b). A Phase I heritage impact assessment for the extension of Lonmin Platinum's Tailings Dam (site D6) to incorporate Tailings Dam 8 (T8) and Tailings Dam 9 (T(9) on the farm Midelkraal 466JQ in the Central Bankeveld in the North-West Province. Unpublished report prepared for Lonmin Platinum.

3.3 Assumptions and limitations

It is possible that this Phase I HIA study may have missed heritage resources in the Lonmin Project Area as heritage sites may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance is exposed during the Lonmin Project the South African Heritage Resources Authority (SAHRA) should be notified immediately, all development activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorization (permits) from SAHRA to conduct the mitigation measures.

3.4 Some remarks on terminology

Terms that may be used in this report are briefly outlined below:

- Conservation: The act of maintaining all or part of a resource (whether renewable or non-renewable) in its present condition in order to provide for its continued or future use. Conservation includes sustainable use, protection, maintenance, rehabilitation, restoration and enhancement of the natural and cultural environment.

- Cultural resource management: A process that consists of a range of interventions and provides a framework for informed and value-based decision-making. It integrates professional, technical and administrative functions and interventions that impact on cultural resources. Activities include planning, policy development, monitoring and assessment, auditing, implementation, maintenance, communication, and many others. All these activities are (or will be) based on sound research.

- Cultural resources: A broad, generic term covering any physical, natural and spiritual properties and features adapted, used and created by humans in the past and present. Cultural resources are the result of continuing human cultural activity and embody a range of community values and meanings. These resources are non-renewable and finite. Cultural resources include traditional systems of cultural practice, belief or social interaction. They can be, but are not necessarily identified with defined locations.

- Heritage resources: The various natural and cultural assets that collectively form the heritage. These assets are also known as cultural and natural resources. Heritage resources (cultural resources) include 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.

- In-Situ Conservation: The conservation and maintenance of ecosystems, natural habitats and cultural resources in their natural and original surroundings.

- Iron Age: Refers to the last two millennia and ‘Early Iron Age’ to the first thousand years AD. ‘Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the Historical Period.

- Maintenance: Keeping something in good health or repair.

- Pre-historical: 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 Project Area, to the first appearance or use of 'modern' Western writing brought to the Eastern Highveld by the first Colonists who settled here from the 1840's onwards.

- Preservation: Conservation activities that consolidate and maintain the existing form, material and integrity of a cultural resource.

- 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.

- Protected area: A geographically defined area designated and managed to achieve specific conservation objectives. Protected areas are dedicated primarily to the protection and enjoyment of natural or cultural heritage, to the maintenance of biodiversity, and to the maintenance of life-support systems. Various types of protected areas occur in South Africa.

- Reconstruction: Re-erecting a structure on its original site using original components.

- Replication: The act or process of reproducing by new construction the exact form and detail of a vanished building, structure, object, or a part thereof, as it appeared at a specific period.

- Restoration: Returning the existing fabric of a place to a known earlier state by removing additions or by reassembling existing components.

- Stone Age: Refers to the prehistoric past, although Late Stone Age peoples lived in South Africa 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).

- Sustainability: The ability of an activity to continue indefinitely, at current and projected levels, without depleting social, financial, physical and other resources required to produce the expected benefits.

- Translocation: Dismantling a structure and re-erecting it on a new site using original components.

- Project Area: refers to the area (footprint) where the developer wants to focus its development activities (refer to Figure 3).

- Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types and ranges of heritage resources in any given Project Area (excluding paleontological remains as these studies are done by registered and accredited palaeontologists).

- Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of human remains and the relocation of graveyards, etc. Phase II work involve permitting processes, require the input of different specialists and the co-operation and approval of SAHRA.

4 THE LONMIN PROJECT AREA

4.1 Location

The Lonmin Project Area covers the central part of the farm Middelkraal 466JQ which is located between Madibeng (Brits) and Marikana in the Central Bankeveld in the North-West Province. The Lonmin Project Area covers a considerable surface area as the proposed extended Tailings Dam stretches from the north between the villages of Marikana (west) and Segwalaene (east to the south across a broad swath of land which incorporates the railway line and the tar road which links Marikana in the west with Lonmin's Western and Eastern Plantinum Mines. The Project Area mainly comprises relatively flat outstretched turf veld in the west whilst the north-eastern boundary of the Tailings Dam collates with a series of norite hills.

These hills are covered with stone walled settlements which date from the Late Iron Age and the Historical Period. These settlements occur at hills such as Thatswetla, Mamatshwele, Ysterkoppies and Wonderkop which culturally and historically constitute a cultural landscape of some proportions. Other historical beacons in close proximity occur to the north of the Lonmin Project Area and the tar road which links Segwalaene with Wonderkop. These settlements which all comprise norite hills include Kaditshwene and Vaalkop to the north of the Segwalaene/Wonderkop road (2527CA Bapong; 1:50 000 topographical map; 2527 Pretoria; 1:250 000 map and Google imagery) (Figures 1-3).

4.2 The nature of the Lonmin Project Area

The series of norite hills and kopjes which run from Pretoria in the east towards the Pilanesberg in the west drifts across the Lonmin Project Area. These hills and kopjes incorporate the pre-historical and historical settlements which have been referred to above. These stone walled settlements are the remnants of Tswana and to a lesser extend Ndebele speaking communities who occupied the Central Bankeveld from AD1600 onwards.

Figures 2 & 3- The Lonmin Project Area comprises flat, outstretched turf veld (foreground) which will be incorporated into the existing Tailings Dam (T6). Parts of the turf veld have been utilized for agricultural activities in the past. The outstretched turf veld holds less evidence for heritage resources than the norite hills on the eastern perimeter of the Project Area. Here, stone walled sites that date from the Late Iron Age and the Historical Period occur in abundance (below).

The Lonmin Project Area therefore is part of a regional cultural landscape which warrants a brief description to demonstrate its place in South Africa's cultural history (see Part 5, 'Contextualising the Project Area').

4.3 The nature of the Lonmin Project

Lonmin Platinum intends to expand its existing Tailings Dam on the farm Middelkraal 446JQ by incorporating Tailings Dam (T8) and Tailings Dam 9 (T9) as well as additional areas into the current footprint of the existing Tailings Dam in order to establish a proposed new expanded Tailings Dam.

Several proposals have been investigated for the expansion of the Tailings Dam, namely:

- The expansion of the current Tailings Dam into Tailings Dam 6 (T6).
- The expansion of the Tailings Dam by incorporating Tailings Dam 8 (T8) and Tailings Dam 9 (T9) into the current footprint of the Tailings Dam.
- The expansion of the Tailings Dam by incorporating parts of Tailings Dam 8 (T8) and Tailings Dam 9 (T9) as well as additional areas into the current footprint of the Tailings Dam.

All these expansion initiatives have been met with Phase I Heritage Impact Assessment studies (see 'Part 9, Select Bibliography').

5 CONTEXTUALISING THE PROJECT AREA

5.1 The Central Bankeveld

The Project Area is located in the Central Bankeveld of the North-West Province of South Africa. The Bankeveld is a narrow strip of land between the northern bush veldt savannah and the centrally situated Highveld (Horn 1996). The Central Bankeveld with its numerous centuries-old remains of ancient Tswana spheres of influence is important to this report.

The Central Bankeveld is covered by older grabbo penetrated by younger vulcanic magma which formed the series and chains of pyramid-shaped norite hills from the Pilanesberg in the north-west to Madibeng (Brits) in the east. These hills, as part of the Magaliesberg valley, represent a unique ecozone characterised by grassveld, savannah veld and near wooded valleys. The region has abundant surface water supplies. The Pienaar, the Moretele, the Hex and the Apies Rivers all drain their waters into the Crocodile River (Horn 1996).

5.2 Pre-historical context

The Project Area is located on a piece of land situated between the Magaliesberg in the south and the series of norite kopjes running from Ondestepoort (near Pretoria) in the north. This area is known for its rich and diverse range of heritage resources. Stone Age sites are scattered along the Magaliesberg and are also found in caves and rock shelters in the mountain. Rock engravings are located further towards Maanhaarrand and Rustenburg in the west. The most abundant heritage, however, are those that date from the Late Iron Age and which are associated with the numerous Tswana chiefdoms who occupied this region during the last four centuries(Carruthers 2000; De Beer 1975).

The interaction between the climate, geology, topography, and the fauna and flora of the Central Bankeveld established a milieu in which the first Tswana found a suitable living environment in order to practise herding, agriculture, metal working and trading. It was here that their chiefdoms flourished during AD1600 to 1840.

The settlements of these early Tswana chiefdoms are characterised by an impressive and elaborate stone-built tradition. Hundreds and perhaps thousands of sites were built along the bases of the norite hills. The most formidable of these chiefdoms were the Kwena Môgôpa and the Kwena Môgale (Bapô). Further to the west, closer to Rustenburg was the Fôkeng chiefdom while several Kgatla spheres of influence emerged further to the west near Madibeng (Breutz 1953, 1986; Mason 1986; Schapera 1952, 1976).

The norite hills that cover the eastern part of the Project Area were home to the sphere of influence of the Bakwena Bamogale (Bapô) and the Bakwena Bamogopa chiefdoms. Consequently, a brief history of these chiefdoms is provided as well as a sketch of the historical period when the first pioneers (colonists) settled in this area.

5.2.1 Brief history of the Bapô

The following is a brief outline of the Bapô's history describing their origins, some of their rulers and division of the Bapô into two tribes. The brief history follows the reigns of some of the most important rulers of the Bapô from AD1760 to AD1900.

The Sotho name Bapô is derived from the Nguni equivalent abaMbô. The tribe originated four generations after the first Ndebele chief, Musi, as a junior branch of the Ndebele of Valtyn. There is uncertainty about the identity of the first chief. He may have been Môgale Monyane. Other spokespersons say it was his son, Lotsane who, however, did not rule but Majaka who acted on his behalf.

The Bapô is derived from regiments of the Ndebele (of Mankopane/Makopane) who participated in a war between two Tswana tribes during c. 1670 to 1720. They were sent to assist the Bakwêna Bamôgôpa and after the war refused to return as they have married Tswana women.

At least five chiefs and regents initially lived at Makolokwe (Wolwekraal) where Moerane rose to prominence. He led the group to Thlôgôkgôlô (Wolhuterskop). During

the reign of Moerane (c. 1795 to 1815) the Bapô fought various battles such as the following, namely:

- Against the Bakwena Bamôgôpa over the possession of Bethanië (Mantabole) at Zandfontein east of the Bapô's villages. (The Magôpa was defeated and Sekane More was slain).
- Against the Bafokeng and killed four of chief Sekete's sons. (Hostilities between the Bamôgôpa and the Bafokeng continued during Moerane's reign).
- During 1817 to 1823 the Pedi under Malekutu (the eldest brother of Sekwati) raided the Bapô. At the time Moerane hide in the cave known as Phato in the Magaliesberg. Although the Bapô withstood the attack Malekutu's Pedi routed the women and children at the Bapô's villages on their return journey while Masite and most of Moerane's sons at his head wife were killed. His grandson Mogalemogale (born, c. 1810) returned with him. Moerane died in 1821/1822.

Semetsa Botloko acted as regent for the minor Mogalemogale. He fought the Bathlakwana (probably Bataung) of Ramabutsetsa in 1823/1824 at Leeuwkop (Lokwane). After the Bathlakwana events, Botloko formed allies with Sebitwane's Bafokeng (who arrived from Basotholand) and with Ratsebe (who came from Kroonstad [Mokolamu]) as Mzilikazi was on his way to the Magaliesberg area. However, Botloko deserted his allies when he saw Mzilikazi advanced through Mpame Neck. Botloko fled to Trantsekwane where he was killed by his own people (who believed that he killed his brothers to open the way to the chieftaincy).

Moruri, who had brought up Mogalamogale became regent. During this period the Bapô was disorganized and dispersed and the Matabele seized the opportunity to kidnap Mzilikazi. They pierced his ears according to Zulu custom. The Bapô, however, succeeded in freeing Mogalemogale from the Matabele.

In about 1837/38 Mogalamogale became the 12th Bapô chief. He resided on the Mogale River, near the Ngakotse, a tributary of the Crocodile River. Mogale had twelve wives, three of whom he had married before he escaped from the Matabele.

After 1841 some Matabele lead by Gozane appeared again on their way to Zululand. However, they were slain with the aid of the Voortrekkers who maintained relationships with Mogalamogale.

A man called Rautiegabo Moerane told the Boers that Mogalemogale was hiding rifles in a cave. Before the Voortrekkers could take possession of the fire arms they were sent to chief Makapan/Mankopane in Mokopane. Soon afterwards a farmer was shot in Makapan's country and Mogalemogale summoned to appear before Veldkormet Gert Kruger and Hans van Aswegen. He did not obey the summons but fled to the mountains with his sons. His son Moruatona sided with the Voortrekkers against Makopane.

Mogalemogale fled to Basutoland (Lesotho) with many of his followers who went to work on farms in Kroonstad, Heidelberg and Potchefstroom. He was later joined by his wives and successor (son), Moruatona.

After the Senekal and Seqiti wars in Basotuland Mogale returned and bought the farm Boschfontein from a Mr. Orsmond 'because the kraals of his ancestors were situated there'. From 1862 Mogale lived at Boschfontein where he died at the age of 70 or 80 in 1869.

Mogalemogale was succeeded by Frederik Maruatona Mogale (born c. 1840/44). During his rule the Hermansburgse Lutheran Mission Station, Ebenezer, was established in 1874. The Bapô regiments Matlakana and Matsie participated with the ZAR in the Sekhukhune War of 1876. Frederik died about 1880.

George Rangane Mogale now acted on behalf of Darius Mogale until 1893. Darius Mogale became chief in 1893 but soon got into trouble with his people and behaved in such a way that the government deposed of him in 1908. He west to live in Heidelberg with his family and was allowed to return to the tribe in 1940.

The Bapô divided into two tribes as a dispute between Darius and his uncle Diederik Mogale in 1896 led to the departure of a part of the Bapô who went to live at Phorotlane (Bultfontein) near the Pilanesberg (Breutz. 1953, 1986).

5.2.2 Brief history of the Bakwena Bamôgôpa

The earliest known place where the Bakwena Bamôgôpa lived around AD1600 was Rathateng, a site located near the junction of the Crocodile River and the Marico River. The first chief of this branch of the Môgôpa was Setlhare who was succeeded by Môgôpa Tskokelele Dimolema who in turn was followed by Modise wa Môgôpa who lived during the middle of the 17th century.

Modise moved from Rathateng to Lokwadi (Zandrivierspoort 747) and from here to the foot of the Phalane mountain during the middle of the 17th century. This mountain was also known as Modise wa Môgôpa. Modise was succeeded by Radiphiri who possibly acted as regent. Sefikile followed Modise but did not live long for his younger brother Ramorola ruled after him as regent for Sefikele's son, Ditswe.

Ditswe Tlowodi succeeded in the first half of the 18th century when the clan lived in the Mabjanamatshwana hills between the Kgowe River (?) and the Legapane (?) River. Ditswe and members of the tribe were killed by the Bakgatla whilst hunting buffalo. His son More inherited his wives.

Ditswe's younger brother Mooketsi succeeded him as regent and handed the chieftainship to More because the rightful successor, Tskoku was still too young to rule. During More's reign which stretched over a long period there was continual fighting with the Bapô and the Bakgatla. More raised Tsoku with his own son, Segwati and provided both with wives.

When Tskoku became old enough to rule More handed him the chief's spear, axe and horn with the chief's ointment at a *pitso*. Tskoku became chief of the Kwena Môgôpa that remained with his uncle Mooketsi. More and his followers settled at Lengwatladi or Mangwatladi, west of the Pienaars River. Tskoku became known as an arrogant, ruthless and cruel ruler. Many of his followers left him to join the Môgôpa of More.

Due to a dwindling in the number of his followers and for greater safety Tsoku went to live with a Kgatla chief known as Mmusi a Tagane. However, this clan eventually burnt his kraal and made him fled with his regiment, Matshetshele ('the old men') to sought

refuge with More's section of the Môgôpa. Here, he was eventually killed by More and Segwati as a result of all his misdeeds.

During the last quarter of the 18th century More returned as chief to Mabjanamatswhana. He fought several wars and was feared by many tribes. He was initially on friendly terms with the Kgatla chief Mmusi but later settled at Kwate (Mmamogaleskraal) at the foot of the hill Thaba ya Morena in order to avoid conflict with Mmusi. During his old age he ruled with his son Segwati.

Around AD1820 a horde consisting of Bakgatla, Bawaduba, Bamoletlane, Bathlako and Baseabe came from the east and inflicted heavy losses on the Môgôpa Hereafter Mzilikazi's Ndebele invaded the country during 1829 to 1837. More fought the Ndebele at Kutata (Silkaatsnek) but suffered heavy losses and eventually succumbed to the Ndebele's attack together with his son Segwati. The Môgôpa now acknowledged Mzilikazi as chief.

Segwati's two sons Motsile and Tedie Mmamogale were now in charge of the remnants of the Môgôpa. Motsile resided at Ramotlotlwe near Soutpan and some Môgôpa went to Makapanstad. The Môgôpa that remained under Mzilikazi were under the leadership of Mogajana.

Motsiele died around AD1834-36. Mmamogale was 60 years old and was recognised as supreme chief of the Mogopa. They lived in peace with the Ndebele until Shaka's (Zulu*) impi* arrived in the Brits area. In the ensuing battle the Zulu defeated the Ndebele and the Môgôpa.

When the Voortrekkers arrived Mmamogale and his followers left for Bechuanaland in 1840/1845. Shortly afterwards in 1868 they returned to Matlhare and soon afterwards to Makolokwe and Mantabole (Bethanie). Mmamogale probably reached an age of 110 years and died in 1884 (Breutz 1953, 1986).

5.3 Historical context

Some of the earliest Voortrekkers who moved across the Magaliesberg in the early 19th century established themselves on the farms Kafferskraal and Witpensfontein (today Rustenburg) and Schaapkraal near Marikana and the Project Area. Since the second half of the 19th century, farmers and workers have occupied the Madibeng and Rustenburg District (including Mooinooi, Marikana and the Hartebeespoort Dam areas) (Berg 1992; De Beer 1976; Carruthers 2000; Erasmus 1975).

Tobacco and citrus farming, together with cattle herding, became a subsistence pattern that has lasted to this day. Old farm homesteads, agricultural implements and other infrastructure such as tobacco drying sheds may still exist on farms adjacent to the study area.

During the Anglo Transvaal War (1899-1902) British blockhouses were built along the ridge of the Magaliesburg, from Pretoria in the east to Rustenburg in the west. Several of these structures are located in Kommandonek, Pampoennek and in Olifantsnek in the Magaliesberg.

After the discovery of the Merensky Reef in 1929, the economy of the area was gradually changed from farming into platinum and chrome mining. What started as small scale mining activities north of the Magaliesberg during the 20th century was soon eclipsed by the rise of the platinum mining complex near Rustenburg. The discovery of the Merensky Reef The discovery of the Merensky Reef and the accompanying platinum boom was soon followed by the establishment of numerous chrome and norite mines in the North-West Province (Viljoen & Reimold 1999; Wagner 1973).

6 THE PHASE I HERITAGE SURVEY

6.1 The heritage field survey

The Project Area was subjected to a survey with a vehicle and pedestrian surveys. Topographically the Project Area can be divided in the mountainous north-eastern part where several norite kopjes and protrusions occur and in the flat outstretched western area which is characterised by turf veld which is covered with a variety of bushveld trees and grassveld. The Maretlwane River and some of its tributaries run from the south to the north along the western border of the Lonmin Project Area.

A large portion of the central part of the Lonmin Project Area as well as strips of land to the north and south of the tar road that runs along the southern border of the project area are covered with agricultural fields. Relatively pristine vegetation are mostly confined to the opposite banks of the Maretlwane River.

Figure 4- The flat outstretched western part of the Lonmin Project Area (foreground) with norite kopjes towards the north-eastern perimeter (background) of the proposed expanded Tailings Dam (above).

Figures 5, 6 & 7- The outstretched turf veld that covers most of the Lonmin Project Area (top) and some of the norite kopjes along the north-eastern perimeter of the proposed new expanded Tailings Dam (middle and below).

6.2 Types and ranges of heritage resources

The Phase I HIA revealed the following types and ranges of heritage resources in the Lonmin Project Area, namely:

- Stone walled sites which date from the Late Iron Age and the Historical Period.
- Graveyards.

All these heritage resources were geo-referenced and mapped (Figure 8, Tables 1 & 2). Their significance is indicated as well as mitigation measures for those heritage resources which will be affected by the Lonmin Project.

The Phase I HIA study is now briefly discussed whilst some of the heritage resources are illuminated with photographs.

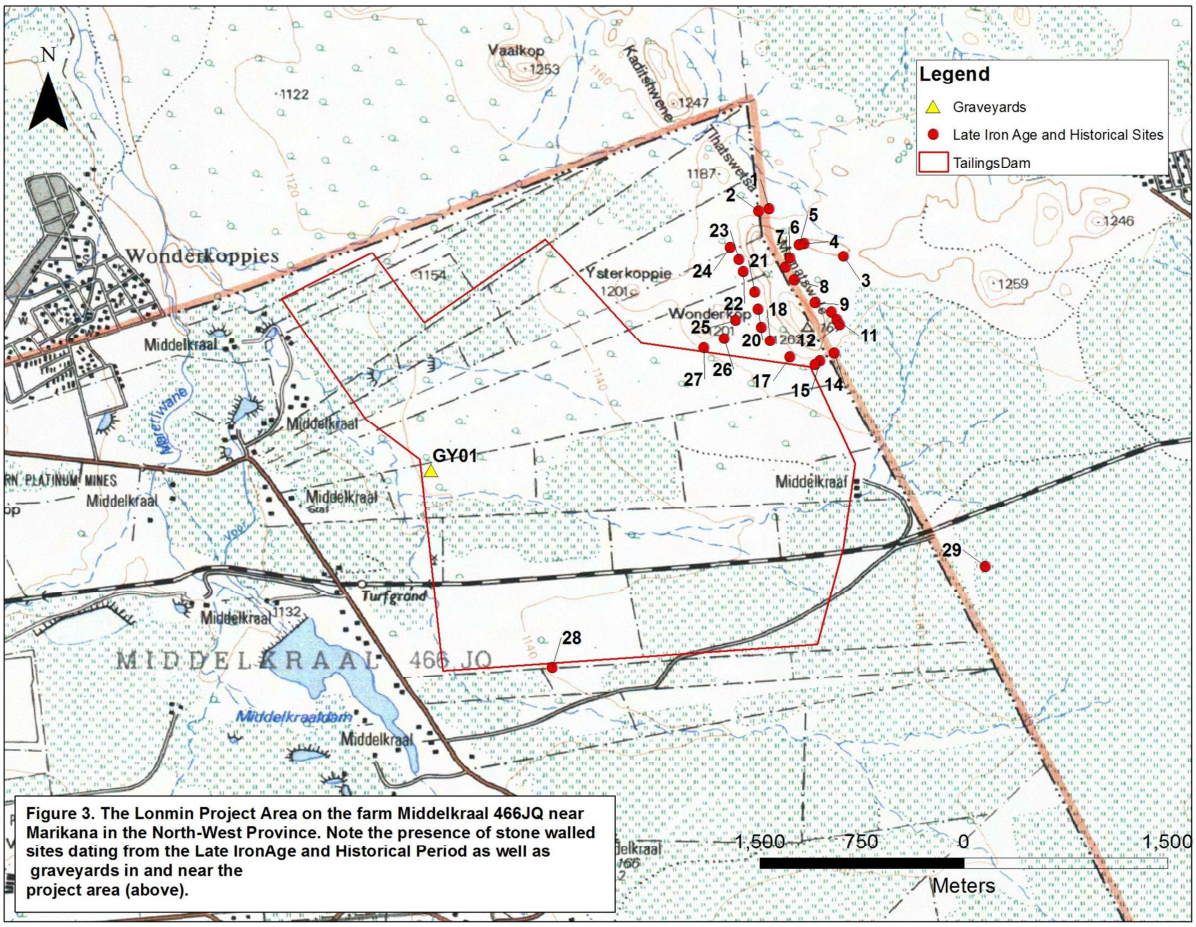


Figure 8- The Lonmin Project Area on the farm Middelkraal 466JQ in the Central Bankeveld in the North-West Province. Note the presence of Late Iron Age stone walled sites and a graveyard in and near the Lonmin Project Area (above).

6.2.1 Late Iron Age and historical settlements

Stone walled settlements occur in two localities in the Lonmin Project Area, namely settlements which are associated with the norite hills which occur along the north-eastern perimeter of the Lonmin Project Area and settlements which are located on the level outstretched flats further to the west

The majority of the stone walled sites are well preserved and are composed of outer scalloped walls (usually containing the remains of dwellings), centrally located enclosures (which were used to pen stock) and other smaller structures and features. These sites are also associated with middens which contain archaeological material such as animal bone waste remains, potsherds and other artefacts.

The following settlements which date from the Late Iron Age and the Historical Period (AD1600 to AD1850) were recorded in the Lonmin Project Area.

6.2.1.1 Stone walled sites along norite hills

A number of stone walled sites were recorded along the norite hills which are situated along the north-eastern border of the Lonmin Project Area (LIA01 to LIA27) (Figure 3, Table 1).

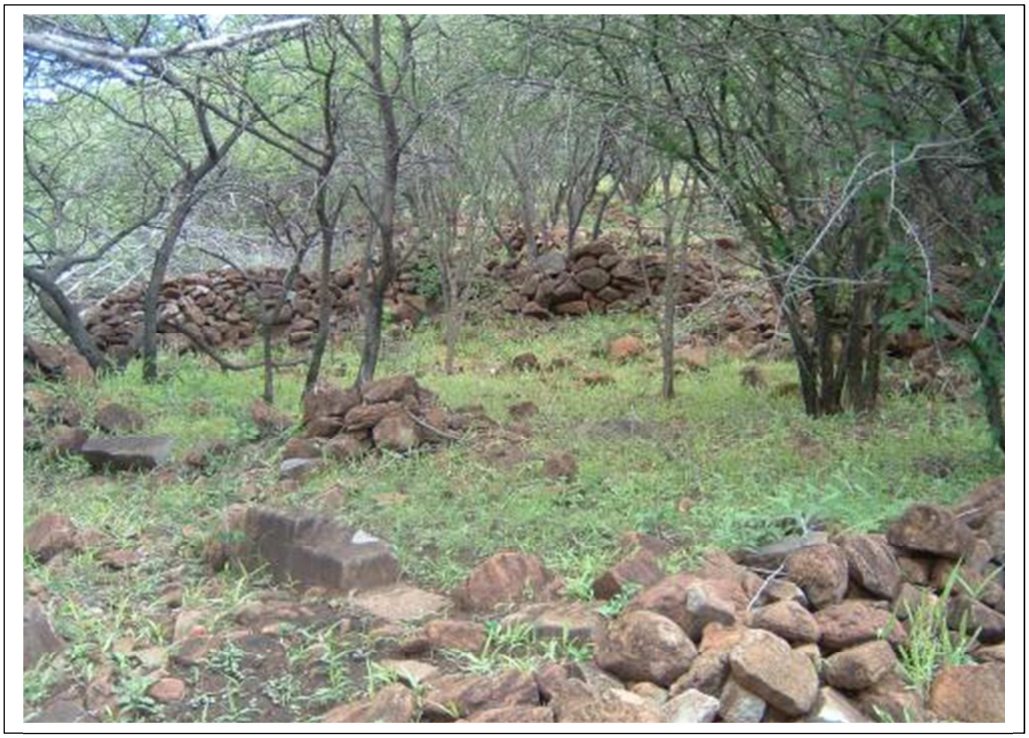
The majority of these settlements are well preserved and clearly represent Sotho-Tswana sites which are referred to as *dikgôrô* (*kgôrô*, singular). These sites were occupied by a few related family groups (*masika*) under the leadership of an elderly male (*dikgosana*).

The common *kgôrô* comprised of an outer scalloped wall in which the dwellings for the family groups were constructed according to their social standing within the group. The central part of the settlement housed the enclosures in which small and large stock such as cattle, goat and sheep were kept. An area in which the court (*kgotla*) was established also occurs near the centre of these villages and in close proximity of the dwelling complex of the ruler of the site.

These settlements (*dikgôrô*) are usually clustered together and the number of individual sites in a cluster may vary. Clusters of *dikgôrô* cover large surface areas and in fact constitute small or large cultural landscapes (townscapes).

Clusters of *dikgôrô* may constitute large villages known as *metse* (singular, *motse*) which falls under the supervision of a ruler (*kgosi*).

Figures 9 & 10. One of the stone walled site along the base of Mamatshwele along the north-eastern perimeter of the Lonmin Project Area (above). The stone walled sites consist of central enclosures which are surrounded by outer scalloped outer walls (below).



6.2.1.2 Stone walled site on the flats

At least one stone walled site was recorded on the flat outstretched turf veld in the south-western part of the Lonmin Project Area. This site (LIA28) is located on the northern shoulder of the road that runs between Marikana and the Western and Eastern Platinum Mines. Site LIA28 is composed of two components. This settlement clearly represents a Tswana *kgôrô* as it comprises of an outer scalloped wall which surrounds centrally located enclosures.

Figure 11- Site LIA28 is located in the midst of agricultural fields on flat, outstretched land in the south-western part of the Lonmin Project Area. This settlement is composed of two units (above).

6.2.2 Graveyard

At least one graveyard was recorded in the Lonmin Project Area. At least three others occur directly to the west of the Tailings Dam where it will not be affected when the Tailings Dam is expanded.

The following graveyard was recorded, namely:

6.2.2.1 Graveyard 01

This graveyard (GY01) is demarcated with a fence and is located in tall grass. It is located in close proximity of the south-western corner of the Tailings Dam.

GY01 holds three graves which are visible on the surface. One of the graves is marked with a small white cross. No headstones with inscriptions are present.

GY01 is probably older than sixty years.

Figure 13- GY03 is barely recognisable in tall grass in the Lonmin Project Area. It reveals the presence of at least three graves. More graves which are not visible on the surface may exist. Note the grave that is marked with a white cross (above).

6.3 Tables

The following tables outline the types and ranges of heritage resources recorded in and near the Lonmin Project Area with their coordinates and level of significance.

*01 Very well preserved LIA site along the eastern foot of Kaditshwene.	25° 39.822's 27° 34.437'e
*02 Very well preserved LIA site along the eastern foot of Kaditshwene.	25° 39.830's 27° 34.396'e
03 Small LIA site along western foot of long low mountain	25° 40.010's 27° 34.732'e
04 Two LIA hut foundations consisting of low stone walls with associated enclosures on high level	25° 39.959's 27° 34.576'e
05 Line of stones on a rock's surface probably from the LIA	25° 39.962's 27° 34.556'e
*06 Large LIA site with scalloped walls and centrally located enclosures along the eastern foot of Kaditswene	25° 40.017's 27° 34.521'e
*07 Second large LIA site with scalloped walls site with centrally located enclosures.	25° 40.054's 27° 34.502'e
*08 Third scalloped LIA stone walled site with centrally located enclosures	25° 40.103's 27° 34.537'e
09 LIA site with rudimentary stone walls	25° 40.192's 27° 34.619'e
*10 Very well preserved LIA scalloped wall site	25° 40.230's 27° 34.685'e
*11 Extension of site nr 10 or possible new site	25° 40.259's 27° 34.706'e
12 Site from the recent past. Close to south-eastern foot of kopje with trig beacon, dirt road and power line. Straight and square walls. Square and elongated foundations. Tin plate and glass	25° 40.280's 27° 34.717'e
*13 Well preserved LIA site with extensive stone walls along the southern foot of mountain with trigonometrically beacon	25° 40.395's 27° 34.697'e
*14 Well preserved LIA stone walled site with extensive stone walls	25° 40.395's 27° 34.697'e
*15 Well preserved LIA site along south-western foot of mountain. Outer wall with scallops and small enclosures. Central part with structures. Walls may have been robbed?	25° 40.426's 27° 34.639'
16 Large, single central located enclosure from LIA with few loosely arranged	25° 40.426's

scallops. May be part of Site 15.	27° 34.639'e
*17 Well preserved LIA site. Centrally located enclosures which are linked together. Outer wall composed of scallops and small enclosures	25° 40.410's 27° 34.519'e
*18 Site with inconspicuous low stone walls and prominent middens	25° 40.345's 27° 34.441'e
*19 Absolutely well preserved LIA site with outer scalloped walls and centrally located enclosures	25° 40.291's 27° 34.406'e
20 Site with large upright stones in rows demarcating various spatial units	25° 40.219's 27° 34.395'e
*21 LIA site with outer scalloped wall and central enclosures. Extensive middens	25° 40.151's 27° 34.382'e
*22 Massive outer wall with double row of foundation stones. Covered with thick vegetation	25° 40.072's 27° 34.336'e
*23 LIA site with outer scalloped wall and central enclosures. Excellent preserved	25° 40.024's 27° 34.318'e
*24 LIA site with outer scalloped wall and central enclosures. Excellent preserved	25° 39.973's 27° 34.283'e
*25 LIA site with loosely arranged outer wall (scallops) and central enclosures. Corridors between spatial components	25° 40.262's 27° 34.305'e
*26 Closely linked with and perhaps part of Site 25	25° 40.335's 27° 34.260'e
27 Site which probably was adapted in the recent past. Not pristine any longer. Enclosures with rectangular plan forms	25° 40.374's 27° 34.179'e
28 LIA site with two components in maize fields on the flats.	25° 41.642's 27° 33.577'e

Table 1- Coordinates for Late Iron Age and historical stone walled sites and structures in and near the Lonmin Project Area (above).

Graveyards	**Coordinates**	**Significance**
GY01	25º 40.861's 27º 33.098'e	HIGH (According to legislation)

Table 2- Coordinates for graveyard in the Lonmin Project Area and its level of significance (above).

7 THE SIGNIFICANCE AND MITIGATION OF THE HERITAGE RESOURCES

Some of the stone walled sites (notably No's 15-18, 26-29) and the graveyard (GY01) which are located in or which border on the Lonmin Project Area will be affected or be destroyed when the existing Tailings Dam is expanded. The significance of the heritage resources therefore is indicated according to stipulations derived from the National Heritage Resources Act (No 25 of 1999) as well as by means of criteria relating to the types and ranges of heritage resources that will be affected by the Lonmin Project.

7.1 The significance of the heritage resources

7.1.1 The Late Iron Age and historical settlements

Late Iron Age and historical sites qualify as archaeological sites and are protected by Section 35 and Section 38 of the National Heritage Resources Act (No 25 of 1999). Other criteria which signify the medium significance of the stone walled sites are the following (Table 3):

- The stone walled sites in the north-east (No's 01 to 27) are part of a cultural landscape. Each site is unique as it contributes to the significance of the cultural landscape which served as a cultural-historical unit representing the life-ways, customs and cultures of the pre-historical and historical Tswana and other indigenous groups who lived in the Central Bankeveld three to four hundred years ago. The investigation of the settlements which are part of the cultural landscape can contribute to a better understanding of the region's pre-history and history as the landscape fall within the sphere of the influence of the Bakwena Bamôgale and the Bakwena Bamôgôpa clans who were subjugated by Mzilikazi's Ndebele during AD1827 to 1832.
- The stone walled site in the south-west (No 28) is well preserved and can be described as of medium significance with regard to its scientific, research, tourism and aesthetical value.

The impact assessment for the Late Iron Age and historical settlements is given in Table 4.

Significance rating	Criteria for significance rating	Mitigation/Management Measures
High (3)	National/provincial value Educational, research, aesthetical conservation value Future use	Conserve unaffected for posterity (preferably) *in situ*
Medium (2)	**Provincial value** **Medium educational, research, aesthetical conservation value** **Limited future use**	**Phase II investigation before demolishing. Permitting required**
Low (1)	Local and site specific value Low educational, research, aesthetical conservation value No future use	Document during Phase I HIA Demolish during construction. No permitting required

Table 3- Significance rating for Late Iron Age and historical remains in the Lonmin Project Area (above).

7.1.2 The graveyard

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 2). Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

The impact assessment for the graveyard is given in Table 5.

7.2 The significance of the impact on the heritage resources

The significance of potential impact on the heritage resources was determined using a ranking scale, based on the following:

- Occurrence

- Probability of occurrence (how likely is it that the impact may/will occur?), and
- Duration of occurrence (how long may/will it last?)

- Severity
  - Magnitude (severity) of impact (will the impact be of high, moderate or low severity?), and
  - Scale/extent of impact (will the impact affect the national, regional or local environment, or only that of the site?)

Each of these factors has been assessed for each potential impact using the following ranking scales:

Probability: 5 – Definite/don't know 4 – Highly probable 3 – Medium probability 2 – Low probability 1 – Improbable 0 – None	Duration: 5 – Permanent 4 - Long-term (ceases with the operational life) 3 - Medium-term (5-15 years) 2 - Short-term (0-5 years) 1 – Immediate
Scale: 5 – International 4 – National 3 – Regional 2 – Local 1 – Site only 0 – None	Magnitude: 10 - Very high/don't know 8 – High 6 – Moderate 4 – Low 2 – Minor

The environmental significance of each potential impact was assessed using the following formula:

Significance Points (SP) = (Magnitude + Duration + Scale) x Probability

The maximum value is 100 Significance Points (SP). Potential environmental impacts are rated as very high, high, moderate, low or very low significance on the following basis:

- More than 80 significance points indicates VERY HIGH environmental significance.

- Between 60 and 80 significance points indicates HIGH environmental significance.
- Between 40 and 60 significance points indicates MODERATE environmental significance.
- Between 20 and 40 significance points indicates LOW environmental significance.
- Less than 20 significance points indicates VERY LOW environmental significance.

7.2.1 The Late Iron Age and historical settlements

LIA and Historical Settlements (No. 1-28	Probability of impact	Magnitude of impact	Duration of impact	Scale of impact	Significance points	Significance rating
No's 1-28	**5**	**10**	**5**	**1**	**90**	**VERY HIGH**

Table 4: Significance of potential impact on Late Iron Age and historical settlements on the border of the Project Area (above).

7.2.2 The graveyard

Grave-yard	Probability of impact	Magnitude of impact	Duration of impact	Scale of impact	Significance points	Significance rating
GY01	**5**	**10**	**5**	**1**	**90**	**VERY HIGH**

Table 5: Significance of potential impact on graveyard in the Project Area (above).

7.3 Mitigating the heritage resources

7.3.1 The Late Iron Age and historical settlements

The Late Iron Age and historical remains have to be investigated by an archaeologist who is accredited with the Association for Southern African Professional Archaeologists (ASAPA) before these remains can be destroyed. The archaeologist has to obtain a permit from the South African Heritage Resources Authority (SAHRA) in order to conduct a Phase II archaeological investigation of these sites. The Phase II investigation will entail the documentation and excavation of these remains the results of which must be published in a report to SAHRA. After the Phase II investigation has been completed Lonmin must obtain a permit from SAHRA which would authorise the demolishing of these sites.

7.3.2 The graveyard

GY01 can be mitigated by means of exhumation and relocation. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. As the graveyard is probably older than sixty years the process also includes social consultation with a 60 days statutory notice period. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

8 CONCLUSION AND RECOMMENDATION

The Phase I HIA revealed the following types and ranges of heritage resources in the Lonmin Project Area, namely:

- Stone walled sites which date from the Late Iron Age and the Historical Period.
- Graveyards.

All these heritage resources were geo-referenced and mapped (Figure 8, Tables 1 & 2). Their significance is indicated as well as mitigation measures for those heritage resources which will be affected by the Lonmin Project.

The Phase I HIA study is now briefly discussed whilst some of the heritage resources are illuminated with photographs.

Possible impact on the heritage resources

Some of the stone walled sites (notably No's 15-18, 26-29) and the graveyard (GY01) which are located in or which border on the Lonmin Project Area will be affected or be destroyed when the existing Tailings Dam is expanded. The significance of the heritage resources therefore is indicated according to stipulations derived from the National Heritage Resources Act (No 25 of 1999) as well as by means of criteria relating to the types and ranges of heritage resources that will be affected by the Lonmin Project.

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indigenous groups who lived in the Central Bankeveld three to four hundred years ago. The investigation of the settlements which are part of the cultural landscape can contribute to a better understanding of the region's pre-history and history as the landscape fall within the sphere of the influence of the Bakwena Bamôgale and the Bakwena Bamôgôpa clans who were subjugated by Mzilikazi's Ndebele during AD1827 to 1832.

- The stone walled site in the south-west (No 28) is well preserved and can be described as of medium significance with regard to its scientific, research, tourism and aesthetical value.

The impact assessment for the Late Iron Age and historical settlements is given in Table 4.

The graveyard

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 2). Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

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Mitigating the heritage resources

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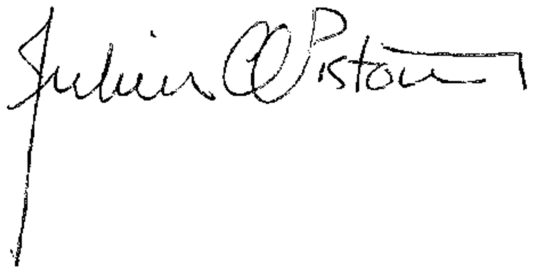

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APPENDIX A: DETAILS OF THE SPECIALIST

Profession: Archaeologist, Museologist (Museum Scientists), Lecturer, Heritage Guide Trainer and Heritage Consultant

Qualifications:

BA (Archaeology, Anthropology and Psychology) (UP, 1976)

BA (Hons) Archaeology (distinction) (UP, 1979)

MA Archaeology (distinction) (UP, 1985)

D Phil Archaeology (UP, 1989)

Post Graduate Diploma in Museology (Museum Sciences) (UP, 1981)

Work experience:

Museum curator and archaeologist for the Rustenburg and Phalaborwa Town Councils (1980-1984)

Head of the Department of Archaeology, National Cultural History Museum in Pretoria (1988-1989)

Lecturer and Senior lecturer Department of Anthropology and Archaeology, University of Pretoria (1990-2003)

Independent Archaeologist and Heritage Consultant (2003-)

Accreditation: Member of the Association for Southern African Professional Archaeologists. (ASAPA)

Summary: Julius Pistorius is a qualified archaeologist and heritage specialist with extensive experience as a university lecturer, museum scientist, researcher and heritage consultant. His research focussed on the Late Iron Age Tswana and Lowveld-Sotho (particularly the Bamalatji of Phalaborwa). He has published a book on early Tswana settlement in the North-West Province and has completed an unpublished manuscript on the rise of Bamalatji metal workings spheres in Phalaborwa during the last 1 200 years. He has written a guide for Eskom's field personnel on heritage management. He has published twenty scientific papers in academic journals and several popular articles on archaeology and heritage matters. He collaborated with environmental companies in compiling State of the Environmental Reports for Ekhurhuleni, Hartebeespoort and heritage management plans for the Magaliesberg and Waterberg. Since acting as an independent consultant he has done approximately 800 large to small heritage impact assessment reports. He has a longstanding working relationship with Eskom, Rio Tinto (PMC), Rio Tinto (EXP), Impala Platinum, Angloplats (Rustenburg), Lonmin, Sasol, PMC, Foskor, Kudu and Kelgran Granite, Bafokeng Royal Resources etc. as well as with several environmental companies.

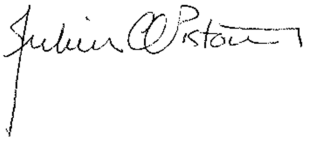
APPENDIX B: DECLARATION OF INDEPENDENCE

I, Julius CC Pistorius, declare that:

•I act as the independent environmental practitioner in this application
•I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
•I declare that there are no circumstances that may compromise my objectivity in performing such work;
•I have expertise in conducting environmental impact assessments, including knowledge of the National Heritage Resources Act (No 25 of 1999) and any guidelines that have relevance to the proposed activity;
•I will comply with the Act, regulations and all other applicable legislation;
•I will take into account, to the extent possible, the matters listed in regulation **8** of the regulations when preparing the application and any report relating to the application;
•I have no, and will not engage in, conflicting interests in the undertaking of the activity;
•I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
•I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
•I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
•I will keep a register of all interested and affected parties that participated in a public participation process; and
•I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
•all the particulars furnished by me in this form are true and correct;
•will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
•I realise that a false declaration is an offence in terms of regulation 71 and is punishable in terms of section 24F of the Act.

Disclosure of Vested Interest

I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2010.



Private Consultant

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24 April 2013

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Signature of the Commissioner of Oaths:

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Date:

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Designation: