

**TO:**

**METAGO ENVIRONMENTAL ENGINEERS**

**SA FERROCHROME & MINING (PTY) LTD (SAFC)**

**A HERITAGE IMPACT ASSESSMENT (HIA) FOR SA  
FERROCHROME'S NEW PROPOSED EXPANSION  
OPERATIONS IN BOSCHHOEK, NORTH OF RUSTENBURG IN  
THE NORTH-WEST PROVINCE OF SOUTH AFRICA**

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## EXECUTIVE SUMMARY

This document contains the report on the results of a HIA study done for SA Ferrochrome & Mining's (SA Chrome) new expansion project in Boshhoek north of Rustenburg in the North-West Province of South Africa. SA Chrome's study area was divided into three study (critical) areas, namely the northern irregular tip; the central large block and the southern near rectangular tip. Remains discovered in two of these three critical areas were a grave; the remains of at least one dwelling dating from the relatively recent past; contemporary cattle kraals and dwellings; a heap of stones and a stone feature in two clumps of trees (central large block) and older and younger remains of (chrome) mining activities (southern near triangular tip).

Only the grave and the older mining activities can be considered as being of significance as all the other remains date from the recent past. All graves are considered to be of significance whenever potentially endangered by development projects. The grave must be fenced in, even if it is not endangered by future mining activities. Access must be made available to relatives or friends who wanted to visit the grave if it is incorporated in the new mining premises. If SA Chrome cannot guarantee the continued safe existence of the grave, the remains of the deceased must be exhumed and reburied elsewhere. The exhumation of human remains requires permits from national and local governments (including SAHRA) and must be done by specialists, such as the Department of Anatomy of the University of Pretoria.

The older mining activities are significant when one considers criteria such as their age and the possibility that they may be the oldest chrome mining activities in the Rustenburg area. Mining activities might destroy these remains. However, their dilapidated state; unimpressive appearance; limited use/application even when restored, militate against the possibility of any indefinite preservation. It is therefore recommended that these remains be subjected to a Phase II study before their final destruction. This study will consist of the documentation (mapping, photographing and describing) of the old mining remains. This evidence must be supplemented with a literature review of the origins and history of the mine. A report detailing the origins, history and remains of this mine must then be added to SAHRA's database where it will be available for future reference to any individual or institution in need of information about the early history of mining in the Rustenburg district. SA Chrome must apply for a permit from the South African Heritage Resources Agency (SAHRA) for the destruction of the old mining remains.

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## **1 INTRODUCTION**

This document contains the report on the results of a Heritage Impact Assessment (HIA) study done for SA Ferrochrome & Mining's (hereafter-called SA Chrome) new proposed development in Boshhoek near Rustenburg in the Central Bankeveld of the North-West Province of South Africa.

The Bankeveld is located, ecologically speaking, between the Bushveld (to the north) and the Highveld (to the south). For the purposes of this report, this ecozone is divided into the Western Bankeveld, the Central Bankeveld and the Eastern Bankeveld. The Western Bankeveld is the area around Zeerust, Marico and Swartruggens in the far North-West. The Central Bankeveld includes the areas around Rustenburg, Marikana and Brits. The Eastern Bankeveld is the area to the east of Pretoria and includes the Middelburg district as far as Belfast and Roosenekal.

The Bankeveld as a whole has a rich archaeological heritage comprised of remains dating from the prehistoric and the historical (or colonial) periods of South Africa. Prehistoric and historical remains in the Bankeveld form a record of the cultural heritage of most groups living in South Africa today. Various types and ranges of heritage resources as outlined in the National Heritage Resources Act (Act No 25 of 1999) occur in this region (see Box 1, next page).

**BOX 1: TYPES AND RANGES OF HERITAGE RESOURCES AS OUTLINED IN THE NATIONAL HERITAGE RESOURCES ACT (ACT 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 paleontological 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 Tissue Act, 1983 (Act No 65 of 1983)*
- (h) sites of significance relating to the history of slavery in South Africa;*
- (i) moveable objects, including -*
  - (i) objects recovered from the soil or waters of South Africa, including archaeological and paleontological 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,*

## 2 AIMS WITH THIS REPORT

SA Ferrochrome & Mining (Pty) Ltd (SA Ferrochrome) intends expanding its operations at its existing smelter complex in Boshhoek (north of road D1813) and developing a new opencast mining operation from the existing Bafokeng Chrome Holdings Boshhoek (BCHB) mine site (south of road D1813). The additional infrastructure associated with the expansion of the smelter complex will either be located at the existing smelter complex or at the BCHB mine site. The expansion program will therefore occur in a southerly direction over the farms Boschhoek 103JQ, Bultfontein 259JQ and Boekenhoutfontein 260JQ in the Rustenburg district of the North-West Province of South Africa (Figure 1).

In order to comply with legislation, SA Chrome requires knowledge of the presence, relevance and the significance of any heritage resources that may occur in the study area. SA Chrome needs this information in order to take pro-active measures with regard to any heritage remains that may be affected by the new development as such remains may be affected, damaged or destroyed when the various new power lines are build. SA Chrome and Metago therefore commissioned me to undertake a Heritage Impact Assessment (HIA) study of the study area to be affected by the proposed development. The aim of the HIA study is:

- to establish whether any heritage resources do occur in or near the proposed new development areas 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 new development project; and
- to evaluate what appropriate actions could be taken to reduce the impact of the new development on these remains.

### **3 METHODOLOGY**

#### **3.1 A survey on foot**

The three critical areas (northern irregular tip; large central block; southern near triangular tip) relevant to SA Chrome's development were subjected to a survey on foot. These three areas cover a large surface and selected spots were chosen (from the aerial photograph and from the topographical maps) that were surveyed on foot.

The survey on foot was supplemented with a survey with a vehicle where accessible routes existed.

#### **3.2 Databases and literature survey**

Information derived from databases kept and maintained at institutions such as the South African Heritage Resources Agency (SAHRA) and the National Cultural History Museum in Pretoria were used to determine whether any heritage remains have been identified in or near the critical areas.

A survey of literature relating to the cultural and historical context of the study area was also undertaken in order to establish whether any heritage remains of significance occur in or near the study area (see 'Historical Context', Part 4.3 and 'Selected Bibliography', Part 8).

#### **3.3 Assumptions and limitations**

It must be kept in mind that cultural heritage surveys may not detect all heritage resources in any given study area. While certain remains may simply be missed during surveys (observations), others may occur below the surface of the earth and may only be exposed once development (such as mining) commences.



The possible presence of heritage resources in the study area can therefore to a certain extent be predicted on the basis of the archaeologist's experience, gained through years of fieldwork, in this particularly area. However, heritage resources at times appear in the most unexpected places. It must also be kept in mind that heritage surveys may not detect all heritage resources in any given study area. While certain remains may simply be missed during surveys (observations), others may occur below the surface of the earth and may only be exposed once development (such as mining) commences.

The author of this report also has completed several impact assessment studies in the Rustenburg District and is therefore not totally unacquainted with the region in which the development is planned. Several impact assessment studies have been done close to where this study has been conducted (see 'Selected Bibliography', Part 8).

### 3.4 **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 Rustenburg area, to the first appearance or use of 'modern' Western writing brought to Rustenburg by the first

Colonists who settled in this area c. 1840. The historical period for the Rustenburg area therefore dates from c. 1840.

The term 'relatively recent past' refers to the 20<sup>th</sup> 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 17<sup>th</sup> century and the 19<sup>th</sup> century and can therefore include the historical period.

The term 'study area' or 'project area' refers to the area where SA Chrome wants to focus its development activities.

The 'critical areas' refer to the study areas that will be affected by SA Chrome's proposed development project.

The 'peripheral area' refers to the area where SA Chrome does not intend to focus its development activities, but which are in close proximity to the critical areas (or corridors).

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.

## 4 THE STUDY AREA

### 4.1 Location

SA Chrome's new development is located on the farms Boschhoek 103JQ, Bultfontein 259JQ and Boekenhoutfontein 260JQ, approximately 20km to the north of Rustenburg and in the great divide between the Magaliesberg mountain range (to the west) and the Thaba-ea-Maralla range of mountains (to the east). The Thaba-ea-Maralla range of mountains is host to hundreds of Late Iron Age sites mostly associated with the Iron Age Fokeng people who occupied this range of mountains, possibly from as early as the 17<sup>th</sup> century onwards (Sun City 2527AC and Rustenburg East 2527CB: 1: 50 000) (Figure 1).

### 4.2 The nature of the study area

The study area is situated near the eastern foothills of the Magaliesberg and the Pilanesberg in the north. The largest towns closest to the development project are Phokeng, Thlabane and Rustenburg, further to the south. Formal and informal settlements in the area include the town of Boshhoek directly to the west of the proposed smelter site and the towns of Bala and Chaneng further to the north-east.

The Boshhoek area is already a developed area. The most pronounced development consisted of the cultivation of land, which disturbed large areas of land. These activities were already common as early as 1961 (see 1:50 000 map of Sun City [2527CA] printed and published in 1964 by the Government Printer) on large parts of the study area. Platinum mining also commenced in the early 1920's and 1930's, which lead to the gradual alteration of the peripheral area's appearance. The study and peripheral areas therefore can no longer be described as unaffected pieces of land anymore.

Figure 1 – SA Chrome's new proposed development in the Rustenburg District of the North-West Province covers farms such as Boschhoek 103JQ, Bultfontein 259JQ and Boekenhoutfontein 260JQ. A solitary grave and old (chrome) mine activities were the only remains of significance observed in the three critical areas.

### 4.3 Brief historical context of SA Chrome's study area

Considering the range and types of heritage resources as listed in the National Heritage Resources Act, (Act No 25 of 1999, see Box 1) it is possible that the following types of heritage resources may exist in SA Chrome's study area, namely:

- stone tools from any of the Stone Age periods;
- remains dating from the Late Iron Age (AD 1600 to 1880);
- remains relating to the earliest mining activities in the Rustenburg area (1920's to 1930's); and
- remains dating from the more recent past such as dwellings or homesteads associated with single graves or with small cemeteries.

The following brief historical overview will help to contextualise SA Chrome's study area.

#### 4.3.1 Stone Age sites

Stone Age sites are usually associated with stone artefacts usually found scattered on the surface or as part of deposits in caves and rock shelters. The Stone Age is divided into the Early Stone Age, the Middle Stone Age and the Late Stone Age. The Early Stone Age covers the period from 2.5 million years ago to 250 000 years ago. The Middle Stone Age refers to the time period from 250 000 years ago to 22 000 years ago and the Late Stone Age is the period 22 000 years ago to 2 000 years ago. Each of these 'ages' are divided into different 'cultural' periods, which may differ chronologically or which may have existed roughly simultaneous in different regions and therefore under different climatic conditions in South Africa.

SA Chrome's study area is not known to contain significant numbers of Stone Age sites from any of the different periods identified for the Stone Age. This little information about Stone Age sites can partly be attributed to a lack of archaeological surveys done in this part of South Africa. Stone Age sites are numerous all over South Africa and tend to crop up even where the presence of humans in the past was not remotely expected.

#### **4.3.2 Late Iron Age sites**

The oldest legends state that the Fokeng entered the Transvaal through Tweedepoort, under the leadership of Nape, the earliest known Fokeng chief. This was before c. 1700 AD. The group moved south-eastwards and settled on the banks of the Elands River (Kgetleng). Fokeng groups detached them from the main branch and moved southwards on different occasions settling along the Thaba-ea-Maralla mountain range at various places such as Serutube, Marakana, Tsitsing (Kanana), Thekwane and Photsaneng (or Bleskop) when they arrived in the Rustenburg district, from as early as the 17<sup>th</sup> century. Simultaneously, other clans occupied Phôkeng, the original town lands of what later became Rustenburg and the foothills of the Magaliesberg. The Fokeng then gradually expanded their influence and presence over the great divide between the Magaliesberg in the west and the Thaba-ea-Maralla mountain range in the east.

Sotho-Tswana clans such as the Tlôkwa and Kgatla occupied the Pilanesberg further to the north while the Kwena Modimosasa chiefdoms of Mmatau and Ramanamela occupied the mega stone walled complexes known as Molokwane and Bôitsemagano to the west of the Magaliesberg.

SA Chrome's study area therefore may corresponds with the remains of Fokeng families and clans who lived scattered over the countryside, close to granite outcrops and mountains from as early as the Late Iron Age sites (17<sup>th</sup> century to the 19<sup>th</sup> century), during the historical period (second half of the 19<sup>th</sup> century to the 20<sup>th</sup> century) and during the more recent past (the last sixty years). The descendants of these early

Fokeng clans today still inhabit many of the 'modern' towns and townships that exist in the great divide between the Magaliesberg and the Thaba-ea-Maralla mountain range.

Numerous pre-*difaqane* and *difaqane* wars took place in the Central Bankeveld during the last quarter of the 18<sup>th</sup> century and the first three decades of the 19<sup>th</sup> century. These wars led to the displacement of large numbers of Tswana clans in the Bankeveld. Refugee sites occupied by *dislocados* became a common sight. The Matabele of Mzilikazi caused chaos and havoc in the Bankeveld. The Matabele established several settlement complexes in this region from whence they maintained a grip on the indigenous population. One of these Zulu/Nguni residences (*imisi*) and military kraals (*amakhanda*) was discovered during an archaeological survey in 1997 in the newly developed Thlabane-West suburb, north of Rustenburg. The Matabele must have intermarried with the Fokeng. One of Mzilikazi's sons, Nkulumane, was buried in Phôkeng. His grave is today wrongly indicated as 'Mzilikazi's grave' in Phôkeng's main street.

#### 4.3.3 Remains relating to mining heritage

The earliest historical mining activities conducted in South Africa by European Colonists was confined to the mining for salt, lead and limestone. Gold mining followed in the second half of the 19<sup>th</sup> century while the mining for other minerals followed after the discovery of platinum (and the Merensky Reef) in the late 19<sup>th</sup> century. Andries Lombaard's discovery of platinum nuggets in the Moopetsi River on the farm Maandagshoek in the Steelpoort area in 1924 can be considered the initial discovery of the Merensky Reef.

The Merensky Reef occurs, geographically, in the westerly and the easterly parts of the Bushveld Complex. These two limbs of the Complex are confined to the North-West Province and to the Northern and the Mpumalanga Provinces of South Africa. The Merensky Reef has been traced for a total distance strike extent of 283km, 138 kilometres of which is in the eastern limb and 145 kilometres in the western limb of the Bushveld Complex. Vertical depths of 1 900m have been registered along the Reef,



which also indicates its continuity. The eastern limb of the Reef is geologically less well known than the western limb, because mining activities in this part of the Reef have been limited.

During the great platinum boom of 1925 over fifty companies were started in the Union of South Africa to exploit the mineral resources of the Bushveld Complex and the Waterberg district. Oxidized ores were initially taken from the Merensky Reef. When these ores had been exhausted, they were replaced by sulphide ores. Chrome deposits also proved to be an important resource in the geology of Rustenburg and chrome mining activities accelerated during the last decades with the opening of several chrome mines in this area.

Remains associated with old platinum, chrome and other mining activities still exist in the Rustenburg District. These include shafts, headgear, infrastructure and even underground workings. Access to underground mines could be gained through incline shafts or adits dug into kopjes or into the level ground, at a slight angle.

The infrastructure of early 20<sup>th</sup> century platinum mines consisted mainly of cement and brick buildings covered with corrugated iron. Important plants included treatment plants, power plants as well as mills. Other conspicuous structures were the towering headgear of vertical shafts and incline shafts, some of which can still be seen between modern mining plants in the Rustenburg, Potgietersrust and Lydenburg areas.

#### **4.3.4 Remains from the historical period and from the recent past**

The discontinuous nature of the northern tip of the Magaliesberg mountain range, near the study area, was important for the movement of people such as traders between the Western Bankeveld and the Central Bankeveld. During the first half of the 19<sup>th</sup> century and decades thereafter, this part of the mountain served as a trail through which wagons passed on their way to Rustenburg and the eastern parts of the Central Bankeveld. Traders such as Schoon and McLuckie (1829), who were the first white people to visit the area north of the Magaliesberg, missionaries such as

Robert Moffat (1829), scientists such as Andrew Smith (1835) and the adventurer Cornwallis Harris (1836) trekked through the Magaliesberg (and over the farm Boshhoek) on their way to the eastern part of the Central Bankeveld, where some of them visited Mzilikazi of the Matabele (Ndebele), who occupied at least three village complexes in the region.

One of Mzilikazi's villages was discovered in the foothills of the Magaliesberg, opposite Thlabane-West in 1997. Charles Bell (one of the first white men to visit the former Transvaal) painted this village in 1835 when Andrew Smith's expedition moved along the foothills of the Magaliesberg through Rustenburg *on route* to the Crocodile River near Brits. This route along the western fringes of SA Chrome's study area served as the first route to be used by (white) traders (Schoon and McLuckie), missionaries (Robert Moffat), scientists (Andrew Smith) and hunters (Cornwallis Harris) who visited the central parts of the trans-Vaal before the Voortrekkers moved northwards during the second half of the 19<sup>th</sup> century.

The town of Phôkeng came into being when the Fokeng established them, according to oral tradition, at a place called 'Phôka' during the early decades of the 17<sup>th</sup> century. ('Phôka' is a type of wild grass the people ate during a time of famine). Later Fokeng rulers reigned between the Magaliesberg in the west and the Thaba-ea-Maralla range of mountains to the east.

Rustenburg is the third oldest town established by European Colonials (Voortrekkers) in the former Transvaal area during the first half of the 19<sup>th</sup> century. The governor of the Zuid-Afrikaanse Republiek proclaimed the town in September 1851. The Transvaal Volksraad met in the town in 1852. Other important decisions relating to the church and the state were also taken in this town. Rustenburg also served as the seat for the Zuid-Afrikaanse Republiek before Pretoria became the capitol.

Paul Kruger, who served as President of the Zuid-Afrikaanse Republiek, owned the farm Boekenhoutfontein, south of Boshhoek. His family occupied the farm during the

second half of the 19<sup>th</sup> century. The buildings on the farm were destroyed during the Anglo-Boer War. The farm was declared a national heritage site in 1936 and has been preserved by the Simon van der Stel Foundation until recently.

The town of Boshhoek's name is derived from that of the farm Boschhoek. The town is located along the railway line from Pretoria and was formerly a terminus. The town is known for its citrus and for the cultivation of Virginia tobacco. Several old houses and shops still stand along the sides of the town's main street. Farmers and workers have occupied the Boshhoek area without interruption since the 19<sup>th</sup> century. Remains dating from this historical (colonial and modern) period therefore exist in or near the study area. The character of the town has, however, gradually changed due to the expansion of platinum and chrome mining and the constant stream of visitors and tourists that passes through the town on their way to Sun City and the Pilansberg Game Reserve.

## **5 THE HERITAGE IMPACT ASSESSMENT (HIA) FOR SA CHROME**

In order to conduct the Heritage Impact Assessment (HIA) study, SA Chrome's study area was divided into the following pieces of land that were subjected to a survey on foot:

- The northern irregular tip
- The central large block
- The southern near triangular tip

### **5.1 The northern irregular tip**

This portion of land comprises the most northerly part of SA Chrome's study area and is the smallest of the three pieces of land subjected to the HIA. The northern irregularly tip has an irregular outline and is located directly to the south (adjacent) of the D1813 road between Boshhoek (in the west) and Rasimone (in the east). This site is where the proposed concentrator will be established and mainly comprises the Bafokeng Chrome Holdings Boshhoek (BCHB) mine site's premises (Figure 1).

The northern irregular tip of land has been scarred by mining activities and currently comprises an open cast mine where chrome ore is mined. This piece of land, therefore, is largely altered and not in a pristine condition anymore. It contains infrastructure and features such as: crushing equipment; plants; conveyor belts; an open pit, dirt roads; buildings, etc (Figure 2).

**Figure 2 – The northern irregular tip of SA Chrome’s study area mainly comprises the Bafokeng Chrome Holdings Boshhoek (BCHB) mine site’s premises (above and below) with mining infrastructure.**



## 5.2 The central large block

This part of SA Chrome's study area is situated directly to the south of the northern irregular tip. Its western border is the railway line and part of its north-eastern border corresponds with Eskom's power lines. Its southern part extends towards the east. The northern part of the central large block is relatively pristine while the southern part is largely disturbed by agricultural activities.

The survey on foot revealed the following remains in this piece of land: a grave; the remains of at least one dwelling dating from the relatively recent past; contemporary cattle kraals and dwellings; a heap of stones and a stone feature in two clumps of trees. (Only the grave can be considered to be of significance).

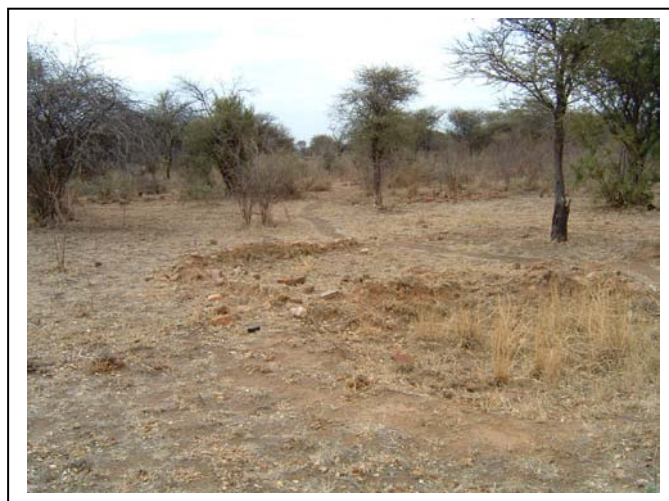
The solitary grave of a white male is located near the junction of Road D1813 and the railway line. It is edged with a cement frame and contains a headstone with an inscription indicating that the person died approximately 50 years ago at the age of 24 years (Figure 3):

**Figure 3 – The solitary grave of a white male in the north-western corner of the large central block.**



The foundation of a square structure such as a dwelling (dating from the recent past) was built with mud, pieces of cement, ferricrete stone and brick. It is associated with a midden and a depression from where soil was removed to built the house. These remains have no significance (Figure 4).

**Figure 4 – Remains of a dwelling from the recent past, which is associated with a depression (where soil was removed) and a midden.**



Cattle kraals that are used to shed the cattle currently grazing on SA Chrome's premises and temporary corrugated zinc houses also occur near the northern border of the central large block. These remains also do not have any significance.

A heap of stones and a stone features (measuring approximately 1,0 m in diameter) were observed in two clumps of trees near the centre of the large central block. These remains are also associated with scattered stones that occur between the respectively clumps of trees. It is possible that these remains may be associated with some form of earlier occupation of these two areas. However, no evidence for residential remains or any other refuse (potsherds, middens, etc) occur in these two clumps of trees. It is therefore possible that the two bushes may have been occupied, temporary in the past (Figure 6).



**Figure 5 – A stone structure in a clump of trees may be associated with human activities from the recent past, such as occupying temporary shacks for a brief period of time (below).**



**Figure 6 – The remains of relatively modern (chrome) mining activities in the southern near triangular tip of SA Chrome's study area (below).**





### 5.3 The southern near triangular tip

This part is the most southern part of SA Chrome's study area and is near triangular in shape. It is located directly to the east of the railway line and is the second smallest of the three critical areas (Figure 1).

The near triangular southern tip can be divided into two parts according to its physical appearance; a north-eastern part that is covered with agricultural fields and a south-western part that is bordering on the railway line and which has been affected by earlier mining activities. The following activity zones, two of which are associated with earlier mining activities, can be distinguished (from the south to the north) in this study area: a most southerly tip that is still partly covered with indigenous bush; a zone containing relatively modern, abandoned mining features such as a large open pit that is surrounded by large dumps of soil (Figure 6); an open piece of land (old agricultural field) that is followed by a stretch of thick sisal bush; a second occurrence of abandoned mining activities that are older than the first mining occurrence (Figures 7 – 10) and, lastly, a piece of relatively pristine veldt.

The older mining activities consist of residential remains and mining activities that are geographically separated from each other. The residential remains consist of dwellings that were built with concrete and with bricks. None of these houses have roofs anymore. Some of these structures were circular (rondavel-types) or square. In some instances square and circular structures were linked together to create houses with several rooms. Most of the houses are severely dilapidated and vandalised. Miners probably occupied these dwellings when the old mine was still operational.

The old mining infrastructure includes two massive dilapidated square pillars built with concrete, cement bricks and ferricrete stone and a single round cement pillar. Other remains include smaller concrete structures with unknown functions, a small quarry and a soil dam (Figures 7-10).



**Figures 7 & 8 – Old concrete pillars and other cement structures that were part of earlier (chrome) mining activities in the southern near triangular study area (above and below).**





**Figures 9 & 10 – Part of an old soil dam (left), a quarry (right, not visible) (above) and remains of old residences (below) probably used by miners in the near triangular study area.**



## **6 REMAINS DISCOVERED IN SA CHROME'S STUDY AREA**

It was noted that possible Stone Age and Late Iron Age sites, remains relating to mining heritage as well as remains dating from the historical period or from the recent past may occur in SA Chrome's study area (Part 4.3). Remains that were eventually discovered in SA Chrome's three critical areas were the following:

### **6.1 Ranges and types of heritage resources discovered in the study area**

#### **6.1.1 The northern irregular tip**

No heritage resources of significance were observed in the northern irregular tip of SA Chrome's study area.

#### **6.1.2 The central large block**

Remains that were discovered in the central large block of SA Chrome's study area mainly include remains that date from the recent past, namely: a grave; the remains of at least one dwelling dating from the relatively recent past; contemporary cattle kraals and dwellings; a heap of stones and a stone feature in two clumps of trees.

#### **6.1.3 The southern near triangular tip**

The southern near triangular tip of SA Chrome's study area revealed mining activities that differ in chronological age, namely activities that date from the recent past (in the south) and mining activities that date from the more distant past (to the north). The mining activities that date from the more recent past may have been part of the Boekenhoutfontein Chrome Mine's activities

## **6.2 Levels of significance of the remains discovered in the study area**

The remains discovered in the three study areas have not been tabulated as only the grave and the older mining activities can be considered to be of any significance as all the other remains date from the recent past.

All graves are considered to be of high significance particularly when such remains may be affected by any development project.

The older mining activities may be significant when one considers criteria such as their age and the fact that these remains may be the oldest chrome mining activities in the Rustenburg area. However, the dilapidated state of these remains; their unattractive (unimpressive) appearance; limited use/application value even when these remains are restored, militate against their preservation. As these remains might be destroyed by SA Chrome's activities it is suggested that these mining activities be subjected to a Phase II study before their final destruction.

## 7 CONCLUSION AND RECOMMENDATIONS

The remains that were discovered in SA Chrome's critical areas mainly consist of remains dating from the recent past that has no cultural or historical (heritage) value.

The only remains of significance are the grave and the remains from old mining activities that may have relevance to the first chrome mining activities in the area. It is therefore recommended that:

- The grave is fenced in, even if it is not endangered by future mining activities. Access must be made available to relatives or friends who wanted to visit the grave if it is incorporated in the new mining premises. If SA Chrome cannot guarantee the continued safe existence of the grave, the remains of the deceased have to be exhumed and reburied elsewhere. The exhumation of human remains requires permits from national and local government departments and must be done by specialists, such as the Department of Anatomy of the University of Pretoria.
- The old mining remains must be subjected to a Phase II study. This study will consist of the documentation (mapping, photographing and describing) of the mining remains and a literature study regarding the origins and history of the mine. This report must be added to SAHRA's database where it will be available for future reference to any individual or institution in need of information about the early history of mining in the Rustenburg district. SA Chrome must apply for a permit for the destruction of the old mining remains from SAHRA.

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