Prepared for:
METAGO ENVIRONMENTAL ENGINEERS

A PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR THE PROPOSED NEW UNITED MANGANESE OF KALAHARI (UMK) MINE ON THE FARMS BOTHA 313, SMARTT 314 AND RISSIK 330 NEAR HOTAZEL IN THE NORTHERN CAPE PROVINCE OF SOUTH AFRICA

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EXECUTIVE SUMMARY

This Phase I Heritage Impact Assessment (HIA) study for the proposed new United Manganese of Kalahari (UMK) mine on the farms Botha 313, Smartt 314 and Rissik 330 near Hotazel in the Northern Cape Province of South Africa was done in accordance with Section 38 of the National Heritage Resources Act (No 25 of 1999). The aim with the HIA study was to determine 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) occur in the project area (see Box 1) and, if so, to determine the significance of these resources and to propose mitigation measures should any of the heritage resources be affected by the proposed new development project.

The Phase I HIA survey of the proposed new UMK mine revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Remains of mining activities belonging to the Perth and the Smartt manganese mines which respectively operated on the farms Perth 276 and Smartt 314 in the project area.
- Occurrences of stone tools along the western bank of the Witleegte River to the north of the project area, in gravel deposits and in a gravel road to the north-west of the project area.

Some of the Perth mining remains and a number of stone tool occurrences were geo-referenced and tabulated (Figure 2, Tables 1 & 2).

Both the mining remains associated with the Perth and the Smartt mines occur in the project area and will be affected (destroyed) by the proposed new UMK mine.

The mining remains can be considered to be low or insignificant when considering criteria such as the following:

- The remains do not posses any 'uncommon, rare or endangered aspects of South Africa's natural or cultural heritage'.

- The remains do not have the ‘potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage’.
- The remains do not have any ‘importance in demonstrating a high degree of creative or technical achievement at a particular period’.
- The remains are not yet sixty years old while older manganese mining occurred elsewhere in the Northern Cape Province with possible remains of these activities still existing.

Both the mining remains associated with the Perth and the Smartt Mines therefore are insignificant from a heritage point of view and may be affected (destroyed) by the new mining development project.

(A significant geological phenomena close to the project area which warranted heritage status is the Black Rock manganese protrusion which has already been affected by mining activities).

The Stone Age occurrences to the north and north-west of the project area will not be affected by the proposed new UMK development project in the short term. However, these remains may be affected if mining activities are extended in the future. The stone tools therefore have to be collected when the UMK mine intends to expand its mining operations. The collection of the stone tools from the surface must be conducted by an archaeologists accredited with ASAPA who must acquire a permit from the Northern Cape Provincial Heritage Resources Authority (NCPHRA) which would authorise the surface sampling of artefacts. The collected stone tools must be conserved in the Kimberley Museum or in a local museum recommended by SAHRA.

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1 INTRODUCTION

This document contains the report on the results of a Phase I Heritage Impact Assessment (HIA) study that was done for a proposed new manganese mine to be established on the farms Smartt 314, Botha 313 and Rissik 330 near Hotazel in the Northern Cape Province of South Africa**.** The proposed new manganese mine will be established by United Manganese of Kalahari and has not yet been named. In this report reference therefore is made to the proposed new United Manganese of Kalahari (UMK) mine.

Focused archaeological research has been conducted in the Northern Cape Province for some decades. This research consisted of surveys and the excavation and recording of Stone Age and rock engraving sites. Late Iron Age and historical sites also occur. The Northern Cape Province therefore has a rich heritage comprised of remains dating from the pre-historical and from the historical (or colonial) periods of South Africa. These pre-historical and historical remains 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, 1999 [No 25 of 1999]) occur in the Northern Cape Province (see Box 1, next page).

Box 1: Types and ranges of heritage resources as outlined in the National Heritage Resources 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, 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;
(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
(c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
(d) 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) 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

The proposed new United Manganese of Kalahari (UMK) mine is planned on parts of the farms Botha 313, Smartt 314 and Rissik 339 near Hotazel in the Northern Cape Province of South Africa. Metago Environmental Engineers, the environmental company responsible for compiling the EIA report for the development, commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study for the proposed new UMK mine with the following aims:

- to establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur within the perimeters of the proposed new UMK mine and, if so;
- to determine the level (or degree) of significance of these heritage resources; and
- to make recommendations regarding the mitigation or the conservation of these heritage resources if they are to be affected by the proposed new UMK mine.

3 THE PROJECT AREA

3.1 Location

The proposed new UMK mine will be development on parts of the farms Botha 313, Smartt 314 and Rissik 330 near Hotazel in the Northern Cape Province of South Africa. The project area is bordered in the north by a short stretch of the Witleegte River which joins the Gamogara River further to the north-west. The eastern border is a railroad line. The project area is largely covered with Kalahari sands.

Two manganese mines, namely the Perth and the Smartt Mines were established on this piece of land in the past. Prospecting holes have been drilled along the length of the project area and dirt tracks roads criss-cross the project area (2722 BD Sutton; 1: 50 000 topographical map) (Figures 1 & 2).

Figure 1- The UMK mine's project area stretches across the farms Botha 313, Smartt 314 and Rissik 339 in the Northern Cape Province (above).

3.2 Brief context of the project area

3.2.1 Kuruman, Hotazel and Black Rock

The proposed new United Manganese of Kalahari (UMK) mine will be developed on the vast manganese fields that underlie the north-eastern part of the Northern Cape Province. The proposed new mine is situated to the south of Hotazel and Black Rock and to the north of Postmasburg, centres of early manganese mining in the Northern Cape Province. The project area is also located approximately 60km to the north-west of the town of Kuruman, 'the fount of Christianity in Africa'.

Conspicuous geographical features close to the project area include the low rising Kuruman Hills to the south and the only natural outcrop of the manganese ore body at Black Rock to the north of the project area.

Kuruman's name may be derived from the Khoi word 'kurwana' (gourd) or it may be traced to 'kludu' (tortoise). Other say the towns name originates from 'Khudumane' – the name of a San chief who once lived in the area but who was killed by the Bathlaping, a Tswana clan who lived in the Northern Cape and Orange Free State Provinces.

Kuruman is primarily known for its prodigious fountain, 'the Eye of Kuruman', which delivers more than 20 million litres of fresh water daily 'from a seemingly barren dolomitic rock'. The Tswana knew the spring as 'gasegonyana' (little calabash) from time immemorial. The spring attracted travellers, explorers, white migrating farmers and missionaries from as early as the late 18th century. The first attempt at evangelisation at Kuruman was abandoned when the missionary William Edwards representing the South African Missionary Society was killed by some servants in 1808. Robert and Mary Moffat established the London Missionary Society in 1824 from where they worked amongst the Tswana for the next fifty years. The church seated eight hundred people. Services were held in the right wing while a small

printing press on which he published his own version of the Bible that was translated in Tswana was housed in the left wing. The mission and surrounding Seoding valley were irrigated with two furrows that were built from the Kuruman spring.

The village of Kuruman was formally laid out on the western banks of the Kuruman River in 1887. Today the town is the hub of an extensive cattle and karakul sheep farming district. The district also boasts a mineral wealth as manganese, iron ore, limestone and semi-precious stones abound.

Hotazel is located 20km to the north of the project area and received its name from Dirk Roos and J.W. Waldeck when surveying and naming farms in the area during the extremely hot summer of 1917.

Black Rock is a small mining village named for the conspicuous surface protrusion of manganese in this part of the Kalahari.

3.2.2 Manganese mining

3.2.2.1 A manganese mining heritage

The presence of manganese, iron ore and asbestos in the far Northern Cape was known, or at least expected, from as early as the 1870's. Teams of geologist from the British, Cape and South African governments as well as from private mining companies were sent to prospect in the region for the next seventy years. Mining for manganese near Postmasburg started in 1927. However, it was only with the start of the Second World War that the abundance of this mineral wealth was confirmed. The large-scale exploration for manganese commenced in the 1950's near the project area and several mines were established amonst others the Perth Mine and the Smartt Mine which are both located in or near the perimeters of the proposed new UMK mine..

3.2.2.2 Nature and extent

Manganese deposits can be classified into three major categories: hydrothermal, sedimentary and supergene. Sedimentary deposits are the most important type and carry the largest reserves worldwide. They occur throughout the geological record and can further be classified into volcanogenic and non-volcanogenic deposits.

South African manganese deposits are essentially confined to the Early Proterozoic Transvaal Supergroup, Northern Cape Province. They are grouped into two main categories: a karts fill type (which is Fe rich in dolomites) in the Postmasburg Fe-Mn field and syngenetic (carbonate rich in manganese deposits) as in the Kalahari Manganese Field.

The Kalahari Manganese Field (KMF) lies northwest of Kuruman and consists of five structurally preserved erosional relics of the Hotazel Formation. This formation consists of Superior-type iron formation with interbedded units of manganese ore. The Mamatwan-Wessels basin, also called the main Kalahari deposit, is the largest of the five deposits. It comprises a basin with a strike length of 41 km and varies in width between 5 km to 20 km. The surface area covered by the Kalahari deposit is approximately 425km^2.

The Hotazel and Landon Annex deposits, east of the main deposit, have virtually been mined out whilst the Avontuur and Leinster deposits, lying north of the main deposit, are smaller and of sub-economical grade.

3.2.2.3 Manganese mines in and near the project area

The manganese ore body of the KMF have been exploited at numerous localities. At least fifteen mines, some abandoned while others are still operating, can be distinguished. The Perth Mine used to exist on the border of the proposed new

UMK mine while the Smartt Mine is located in the central part of the UMK mine's project area.

3.2.3 Heritage sites in the larger project area

Some heritage sites of interest in the larger project area include:

- Two British forts, Denison and Brown, built during the Anglo Boer War and later used in the rebellion of 1914.
- The Moffat mission station was consecrated on 2 November 1838 and restored in 1938. This site was declared a national monument
- The Kuruman spring is a natural heritage site.
- A giant camel thorn tree ('the silent witness') bears testimony of the armistice which was negotiated between the rebellion force of General J. Kemp who 'invaded' Kuruman in 1914 on their way to support the German forces in South West Africa (Namibia).
- Stone Age sites with significance occur halfway between Kuruman and Daniëlskuil on the farm Wonderfontein. Stone tools and fine etchings on cave walls as well as on portable dolomite stones attest to the early presence of the San and their ancestors in these caves. Some of the engravings date back to 10 200 BP whilst some in upper layers of the cave are younger, namely 5 180 and 3 990 BP. The cave was one of a few that was occupied during the Acheulian period.
- A low hill composed of fine-grained jasper like gravel is located to the north-east of Kathu. Large numbers of stone tools are associated with this hill. These artefacts date back between 400 000 to 120 000 years ago.

4 METHODOLOGY

4.1 Method

This Phase I HIA study was conducted by means of a brief survey of literature on the pre-history and history of the larger project area; consulting archaeological data bases; doing a survey on foot of the project area; studying maps of the project area and by means of consulting a few spokespersons who knew the area well.

- A brief survey of literature on the pre-history, history and history of manganese mining in the larger project area was undertaken.
- Archaeological data bases kept at institutions such as the Kimberley Museum (provincial) and the South African Heritage Resources Authority in Cape Town (national) was consulted to establish if any heritage resources of significance occur in or near the project area.
- The UMK project area was surveyed on foot.
- The 1: 50 000 and 1: 250 000 maps were also used to study the project area.
- A geologist working for the proposed new UMK mine, a reverend living near the proposed new UMK mine and a former employee at Assmang were consulted regarding the abandoned mining remains in the project area.

4.2 Assumptions and limitations

It is possible that this HIA study may have missed heritage resources in the project area as heritage remains may be covered by low growing Kalahari bush while others may lie below the Kalahari sand and may only be exposed once development commences.

4.3 Some remarks on terminology

Terminology that may be used in this report is outlined in Box 2 (below, next page).

Box 2: Some remarks on terminology

The Heritage Impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999) (See Box 1).

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.

The term '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 Kuruman by the first Colonists in the late 18th century.

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

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

The term 'sensitive remains' is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from the recent past and do not have head stones that are older than sixty years. The distinction between 'formal' and 'informal' graves in most instances also refers to graveyards that were used by colonists and by indigenous people. This distinction may be important as different cultural groups may uphold different traditions and values with regard to their ancestors. These values have to be recognised and honoured whenever graveyards are exhumed and relocated.

The term '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).

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

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the pre-historical, historical or the relatively recent past.

The term 'project area' refers to the area where the developer wants to focus its development activities (refer to plan) while the peripheral area refers to the area which will not be affected by the proposed new development..

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 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 bodies and the relocation of graveyards, etc. Phase II work may require the input of specialists and requires the co-operation and approval of SAHRA.

5 THE PHASE I HERITAGE IMPACT ASSESSMENT (HIA) STUDY

5.1 Heritage resources in the project area

The Phase I HIA survey of the proposed new UMK mine revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Remains of mining activities belonging to the Perth and the Smartt manganese mines which respectively operated on the farms Perth 276 and Smartt 314 in the project area.
- Occurrences of stone tools along the western bank of the Witleegte River to the north of the project area, in gravel deposits and in a gravel road to the north-west of the project area.

Some of the Perth mining remains and a number of stone tool occurrences were geo-referenced and tabulated (Figure 2, Tables 1 & 2). Both the mining remains associated with the Perth and the Smartt mines occur in the project area and will be affected by the proposed new UMK mine.

The significance of these mining remains has been determined by means of various criteria.

Although the stone tools will not be affected by the proposed new UMK mine, mitigation measures for these artefacts have been put forward as more of these scattered stone tools may occur along the Witleegte River and further to the north, close to the Gamogara River. UMK mine's long term development may affect these resources.

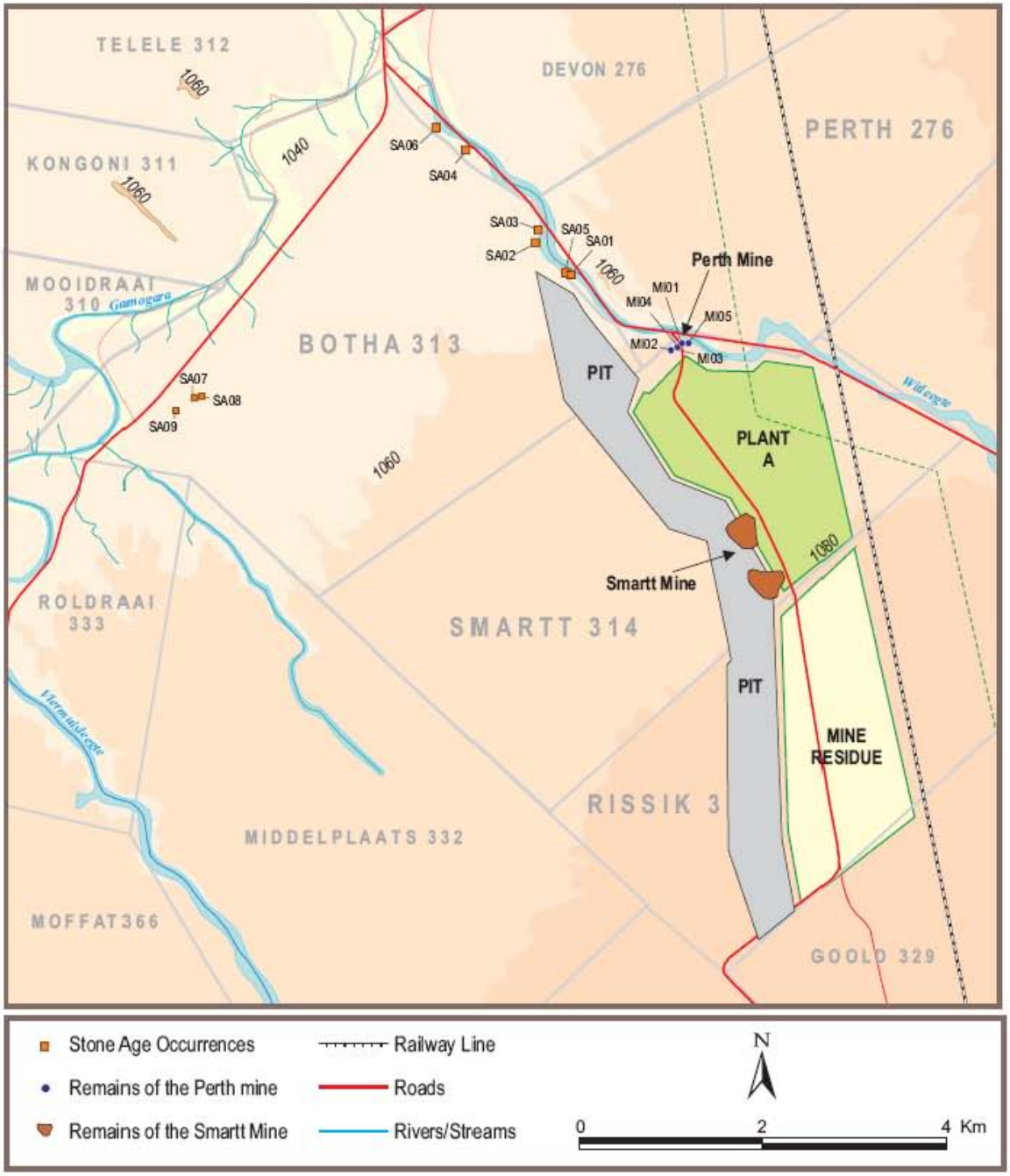


Figure 2- The United Manganese of Kalahari (UMK) mine's project area on parts of the farms Botha 313, Smartt 314 and Rissik 330 near Hotazel in the Northern Cape Province of South Africa. Note the presence of two abandoned manganese mines in the project area and stone tool occurrences to the north and north-west of the project area.

5.2 The mining remains in the project area

The remains of two manganese mines and their activities occur in the project area. These two mines were the Perth Mine and the Smartt Mine.

5.2.1 The Perth Mine

:

The Perth Mine started operations in the late 1975's and was closed in 1979. This mine was owned by Assmang and is located on the northern border of the project area in close proximity of the Witleegte River (Figure 2).

Less conspicuous remains such as the ruins and foundations of a compressor house, workshop and offices associated with this mine have been geo-referenced and tabulated (Table 1). The main features of the mine include waste rock dumps and an open cast pit (Figures 3 & 4).

5.2.1 The Smartt Mine

The Smartt Mine commenced with production after geophysical and drilling exploration work to the north and to the east of Hotazel was completed in 1951 and 1954. The mine was established where the Kalahari sand cover was not too thick and was followed with mining activities at Hotazel, York, Landon and Devon. The Smartt Mine was owned by Samancor and was closed in 1962. Mining was hereafter resumed and continued into the 1990's. This mine is located in the central part of the project area (Figure 2).

The remains which are associated with this mine are conspicuous (Figures 5 & 6) and have not been geo-referenced. The location of the mine is indicated in Figure 2.

Figures 3 & 4- The remains of a compressor house, offices and a workshop associated with the Perth Mine (above and below). These remains may be affected by the new mine development (above and below).

Figure 5 & 6- The abandoned Smartt Mine is associated with open pits and large waste dumps as well as other dilapidated infrastructure (above and below).

5.3 Stone tool occurrences

Stone tools were recorded in three locations outside the project area, namely to the north along the western banks of the Witleegte River, along a gravel road in the north-western part of the project area and to the south of this gravel road.

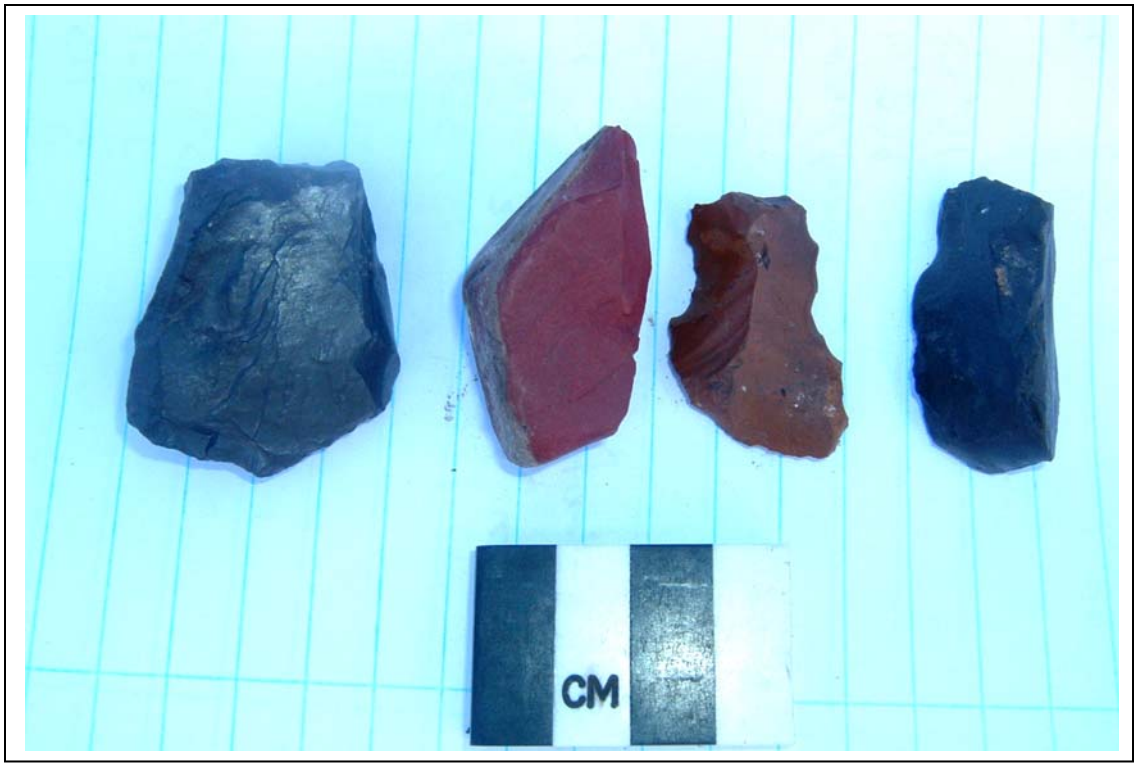
At least six occurrences of stone tools were geo-referenced to the north of the project area. These localities indicate the presence of five or more stone tools that are clustered in a confined space. Isolated, scattered stone tools along the western bank of the Witleegte River were not recorded. The stone tools follow the gravel and calcrete deposits along the western bank of the river and disappears where the Kalahari sands encroaches on the river's bank (Figure 7).

Stone tools also occur as part of a gravel road to the north-west of the project area (Figure 8). These tools were transported with the gravel when the road was constructed. These tools therefore occur 'out of context' which indicates that they have little research value other than serving as museum pieces. The gravel from two quarries next to the dirt road may have been used to build this road.

Stone tools were also observed on the gravel surface to the south of the quarries supporting the assumption that the gravel removed from the quarries was used to construct the road. (These stone tools still occur in an archaeological context) (Figures 9 & 10).

The majority of stone tools observed date from the Middle Stone Age (250 000 years to 22 years ago). Smaller Late Stone Age (22 000 years to two hundred years ago) were also observed. Artefacts were manufactured from rock with a sedimentary origin such as jasper and chalcedony. Quartzite and banded iron stone cores and flakes also occur. Stone tool types primarily consisted of cores and flakes which included points and various types of scrapers.

Figures 7 & 8- Stone tools occur along the western bank of the Witleegte River outside the project area (above). A Late Acheulian hand axe manufactured from banded iron stone found on a gravel road (below).



Figures 9 & 10- Middle Stone Age and possibly Late Stone Age artefacts from the western bank of the Witleegte River (above). Two core artefacts: the pebble core (right) may have been used as a chopper (below).

6 THE SIGNIFICANCE OF AND IMPACT ON HERITAGE RESOURCES

6.1 Heritage resources in and outside the project area

The Phase I HIA survey of the proposed new UMK mine revealed the following types and ranges of heritage resources in and near the project area, namely (Figure 2):

- Remains of mining activities belonging to the Perth and the Smartt manganese mines in the project area.
- Occurrences of stone tools to the north and to the north-west of the project area.

6.2 The significance of the heritage resources

6.2.1 The mining remains

It is clear that only the mining remains associated with the Perth and Smartt mines will be affected (destroyed) by the proposed new mining development project. These remains can be considered to be of low significance when considering criteria such as the following:

- The remains do not posses any ‘uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage’.
- The remains do not have the ‘potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage’.
- The remains do not have any ‘importance in demonstrating a high degree of creative or technical achievement at a particular period’.
- The remains are not yet sixty years old while older manganese mining occurred elsewhere in the Northern Cape Province with possible remains of these activities still existing.

Both the mining remains associated with the Perth and the Smartt Mines therefore are insignificant from a heritage point of view and may be affected (destroyed) by the new mining development project.

(A significant geological phenomena close to the project area which warranted heritage status is the Black Rock manganese protrusion which has already been affected by mining activities).

Mine infra structure	Coordinates	Context and description	Level of significance	Magnitude of impact
MI01	27º 17.612' 22º 57.851'	Rectangular structure with several rooms and veranda. Dilapidated, no roof. Built with limestone.	**LOW**	**MEDIUM TO HIGH**
MI02	27º 17.660' 22º 57.777'	Long oval-shaped cement foundation	**LOW**	**MEDIUM TO HIGH**
MI03	27º 17.652' 22º 57.803'	Square-shaped cement foundation	**LOW**	**MEDIUM TO HIGH**
MI04	27º 17.631', 22º 57.817'	Long oval-shaped cement foundation	**LOW**	**LOW**
MI05	27º 17.612', 22º 57.881'	Circular structure such as reservoir built with limestone	**LOW**	**LOW**

Table 1- Coordinates for less conspicuous mining infrastructure associated with the Perth Mine (above).

6.2.1 The stone tool occurrences

The stone tool occurrences to the north and north-west of the project area will not be affected by the proposed new UMK development project in the short term.

However, these remains may be affected if mining activities are extended in the future.

The stone tools therefore have to be collected when the UMK mine intends to expand its mining operations. The collection of the stone tools from the surface must be conducted by an archaeologists accredited with ASAPA who must acquire a permit from the Northern Cape Provincial Heritage Resources Authority (NCPHRA) which would authorise the surface sampling of artefacts. The collected stone tools must be conserved in the Kimberley Museum or in a local museum recommended by SAHRA.

Heritage resources	**Coordinates**	**Context and description**	**Level of significance**	**Magnitude of impact**
NORTH	**OUTSIDE**	**PROJECT**	**AREA**	
SA01	27º 17.154' 22º 57.128'	Along river bank	**MED -HIGH**	**LOW**
SA02	27º 16.960' 22º 56.895'	Along river bank	**MED -HIGH**	**LOW**
SA03	27º 16.879' 22º 56.912'	Along river bank	**MED -HIGH**	**LOW**
SA04	27º 16.362' 22º 56.454'	Along river bank	**MED -HIGH**	**LOW**
SA05	27º 17.152' 22º 57.123'	Along river bank	**MED -HIGH**	**LOW**
SA06	27º 16.213' 22º 56.257'	Along river bank	**MED -HIGH**	**LOW**
WEST	**OUTSIDE**	**PROJECT**	**AREA**	
SA07	27º 17.970' 22º 54.671'	Part of gravel in road	**MED -HIGH**	**LOW**
SA08	27º 17.951' 22º 54.726'	Hand axe in road	**MED –HIGH**	**LOW**
SA09	27º 18.060' 22º 54.568'	Next to quarry and gravel road	**MED –HIGH**	**LOW**

Table 2- Coordinates for stone tool occurrences along banks of the Witleegte River, in gravel deposits and in a gravel road outside the project area.

7 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA survey of the proposed new UMK mine revealed the following types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999), namely:

- Remains of mining activities belonging to the Perth and the Smartt manganese mines which respectively operated on the farms Perth 276 and Smartt 314 in the project area.
- Occurrences of stone tools along the western bank of the Witleegte River to the north of the project area, in gravel deposits and in a gravel road to the north-west of the project area.

Some of the Perth mining remains and a number of stone tool occurrences were geo-referenced and tabulated (Figure 2, Tables 1 & 2).

Both the mining remains associated with the Perth and the Smartt mines occur in the project area and will be affected (destroyed) by the proposed new UMK mine.

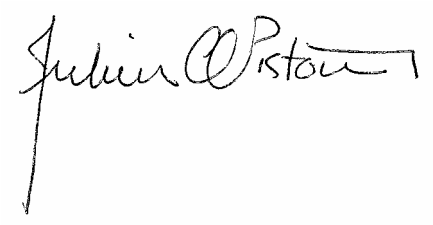
The mining remains can be considered to be low or insignificant when considering criteria such as the following:

- The remains do not posses any ‘uncommon, rare or endangered aspects of South Africa’s natural or cultural heritage’.
- The remains do not have the ‘potential to yield information that will contribute to an understanding of South Africa’s natural or cultural heritage’.
- The remains do not have any ‘importance in demonstrating a high degree of creative or technical achievement at a particular period’.
- The remains are not yet sixty years old while older manganese mining occurred elsewhere in the Northern Cape Province with possible remains of these activities still existing.

Both the mining remains associated with the Perth and the Smartt Mines therefore are insignificant from a heritage point of view and may be affected (destroyed) by the new mining development project.

(A significant geological phenomena close to the project area which warranted heritage status is the Black Rock manganese protrusion which has already been affected by mining activities).

The Stone Age occurrences to the north and north-west of the project area will not be affected by the proposed new UMK development project in the short term. However, these remains may be affected if mining activities are extended in the future. The stone tools therefore have to be collected when the UMK mine intends to expand its mining operations. The collection of the stone tools from the surface must be conducted by an archaeologists accredited with ASAPA who must acquire a permit from the Northern Cape Provincial Heritage Resources Authority (NCPHRA) which would authorise the surface sampling of artefacts. The collected stone tools must be conserved in the Kimberley Museum or in a local museum recommended by SAHRA.



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9 SPOKESPERSONS CONSULTED

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Mr. Eben Antonissen. Reverend, farmer and owner of the farm Perth.

Mr. Marius Botha. Former production manager at Assmang.