PREPARED FOR:

METAGO ENVIRONMENTAL ENGINEERS

A HERITAGE IMPACT ASSESSMENT (HIA) STUDY FOR AN EMP FOR THE VOORSPOED DIAMOND MINE NEAR KROONSTAD IN THE FREE STATE PROVINCE OF SOUTH AFRICA

PREPARED BY:

DR JULIUS CC PISTORIUS

Archaeologist and Heritage

Management Consultant

Member SA3

352 Rosemary Street

Lynnwood 0081

Pretoria

Tel/fax 012 3485668

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'The discovery of diamonds marked a milestone in South Africa's economic development. It attracted an influx of experienced prospectors and miners, as well as financiers, and paved the way for the later development of the Witwatersrand gold fields and other mineral deposits' (Viljoen and Reimold 1999:149).

EXECUTIVE SUMMARY

This Heritage Impact Assessment (HIA) study, as required in terms of the National Heritage Resources Act (Act 25 of 1999), was done as part of the EMP for the Voorspoed Diamond Mine in the Free State Province of South Africa. The HIA study revealed the presence of the following types and ranges of heritage resources in the critical area: scattered stone tools; a Historical Building (HB01); the Historical Voorspoed Diamond Mine; remains dating from the Relatively Recent Past (Site RRP01 to Site RRP03) and two Graveyards (GY01 and GY02). The co-ordinates for the Historical Building and the Graveyards were determined and these structures and features were mapped (Figure 1). (The co-ordinates for the Historical Voorspoed Diamond Mine and for the remains dating from the Relatively Recent Past have not been determined, as the mining features are still clearly visible in the landscape, while the remains from the Relatively Recent Past have no cultural heritage significance).

The significance of the various types and ranges of heritage resources has been rated as follows:

The scattered stone tools have been exposed by agricultural and other activities. These artefacts have no cultural heritage significance as they no longer occur in their original archaeological context. The stone tools are also limited in number and do not include any types of tools that have not been recorded previously. (Archaeological materials that occur out of context seldom have research value.)

The Historical Building (HB01) can be considered to be significant, considering criteria such as its cultural historical significance, research value and uniqueness. However, this structure is very dilapidated and it is doubtful that it can be restored to its former grandeur – even if it can be conserved. The Voorspoed Mine proposes to demolish this building to make way for the planned new expanding open pit. It is recommended that the building be subjected to a Phase II investigation before it is demolished to allow mining activities. Phase II (mitigation) reports are incorporated in SAHRA's data banks (registers) and they are required by the National Heritage Resources Act (Sec 38(3)(f)(g)). This work has to be done by a historical architect. The purpose of such a Phase II investigation is to document the house prior to its destruction. This information will be stored in SAHRA's databank (register) for future use in research projects.

The Historical Voorspoed Diamond Mine qualifies as part of the national estate, as the mine was one of the oldest diamond mines in the Free State and in South Africa. It is appropriate that De Beers should promote its role as a global producer of diamonds by protecting the roots of South African diamond mining – perhaps by preserving the remarkable history of the Historical Voorspoed Diamond Mine in a display and maintaining it in a museum in the Free State (for example, at the National Museum) or at any of De Beers' offices locally or internationally. The National Heritage Resources Act (Sec 5(7)) encourages the conservation and use of heritage resources for social and economic development, enjoyment, heritage education, etc. A display on the Historical Voorspoed Diamond Mine will contribute to De Beers' fulfilment of its social obligations and to the company's expression of its commitment (manifest) to the conservation of South Africa's natural and the man-made environment (heritage).

The Graveyards (GY01 and GY02) can be considered to be of outstanding significance. It seems as if the proposed expansions to the Voorspoed Diamond Mine will not have an impact on these Graveyards. However, the Graveyards will have to be relocated if the future expansion of mining activities threatens to affect these resources. The deceased must then be exhumed and relocated. This work must be done by forensic archaeologists, who will acquire all the permits that are necessary for the exhumations and the relocation of these Graveyards. Various laws, provincial regulations and administrative procedures regulate all exhumations and reburials.

The remains dating from the Relatively Recent Past (Site RRP01 to Site RRP03) are not considered to be significant and can therefore be demolished after the necessary permit to do so has been acquired from SAHRA.

CONTENTS

1 INTRODUCTION

This document contains the report on the results of a Heritage Impact Assessment (HIA) study done for the Voorspoed Diamond Mine on the farms Voorspoed 401, Voorspoed 2480, Morgenster 772 and Gelddenhuys 1477 in the Free State Province of South Africa.

The Free State Province of South Africa 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 Free State Province present 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' (outlined in the National Heritage Resources Act; [Act No 25 of 1999]) occur in this region (see Box 1).

BOX 1: Types and ranges of heritage resources as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999)

The National Heritage Resources Act (Act No 25 of 1999, Sec 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, Sec 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 OF THIS REPORT

De Beers Consolidated Mines Limited (De Beers) intends to re-open the original Voorspoed Diamond Mine located approximately 30km to the north of Kroonstad in the Free State Province of South Africa. Heritage resources in the Voorspoed Diamond Mining Area may be endangered by the new mining activities. Consequently, De Beers and Metago Environmental Engineers appointed the author to conduct a Phase I Heritage Impact Assessment (HIA) study of the Voorspoed Diamond Mining Area as De Beers has to obtain knowledge of the presence, relevance and the significance of any heritage resources that may occur in the Voorspoed Diamond Mining Area. De Beers has to take pro-active measures with regard to any heritage resources that may be affected, damaged or destroyed by the new mining activities.

The aims of this HIA study were:

- to establish whether any of the types and ranges of heritage resources as outlined in the National Heritage Resources Act (Act No. 25 of 1999) do occur in the Voorspoed Diamond Mining Area and if so, to determine the nature, the extent and the significance of these remains;

- to determine whether such remains will be affected by the proposed new mining activities; and

- to evaluate what appropriate actions could be taken to reduce the impact of the development activities on such remains.

3 METHODOLOGY

This HIA study was conducted by means of fieldwork, information derived from spokespersons, a survey of literature and maps and the consulting of archaeological (heritage) data bases.

3.1 Fieldwork

The Voorspoed Diamond Mining Area covers a considerable surface and was subjected to a survey with a vehicle while selected spots and areas which the archaeologist deemed necessary to investigate were subjected to a survey on foot. Although previous surveys have proven that clearly altered areas such as agricultural fields may still contain heritage resources such as stone tools and graveyards, the size of the project area did not allow for a total coverage of this area.

3.2 Spokespersons

A spokesperson living on Belmont 2390, Mr. George Leonard, was born and bred in the project area and provided important information which helped with the identification of the majority of graveyards in the Voorspoed Diamond Mining Area.

Mr Johan Looch, geologist and lecturer at the University of Bloemfontein also provided important leads for access to information on the Historical Voorspoed Diamond Mine. This information will be pursuit when further (Phase II) work on the Historical Voorspoed Diamond Mine is undertaken.

3.3 Databases, literature survey and maps

Databases kept and maintained at institutions such as the South African Heritage Resources Agency (SAHRA) in the Free State and the National Museum in Bloemfontein was consulted to determine whether any heritage resources have been

identified during earlier archaeological surveys in the broader study area in which the Historical Voorspoed Diamond Mine is located.

Some literature relating to the geological origin of diamonds and South Africa's diamond mining heritage was briefly reviewed. The Historical Voorspoed Diamond Mine's history was also briefly researched. This background information was necessary to contextualise the Historical Voorspoed Diamond Mine in the project area as well as in the wider study area (see Parts 4 & 8).

The 1: 50 000 topographical map of the Voorspoed Diamond Mining Area (2727AC Rustig) was used to study the project area. Metago Environmental Engineers supplied several digitized maps and an aerial photograph of the study area to the various specialists involved with the EMP report.

3.4 Mapping and criteria used to determine levels of significance

The coordinates for the Graveyards and for the Historical Building (HB01) were determined with a GPS instrument and these features and structures were mapped (Figure 1). The coordinates for the Historical Diamond Mine (Open Pit and other features) and for the remains dating from the Relatively Recent Past were not determined as the mining structures are dominant on the landscape while the remains dating from the Relatively Recent Past (Site RRP01 to RRP03) has no significance.

3.5 Assumptions and limitations

It must be made aware that heritage resources at times appear in the most unexpected places. It must also be kept in mind that 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.

3.6 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 (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 Kroonstad area, to the first appearance or use of 'modern' Western writing brought to Kroonstad by the first Colonists who settled in this town in the 1840's.

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 250 000 thousand years ago) the Middle Stone Age (250 000 years to 22 000 years ago) and the Late Stone Age (22 000 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 'study area', 'project area' or 'Voorspoed Diamond Mining Area' refers to the area where the Voorspoed Diamond Mine wants to focus its development activities (refer to plan).

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.

4 THE STUDY AREA

4.1 Location

The Voorspoed Diamond Mining Area is situated on the farms Voorspoed 401, Voorspoed 2480, Morgenster 772 and Gelddenhuys 1477, approximately 30km to the north of Kroonstad in the Free State Province of South Africa (2727AC; Rustig [1:50 000]) (Figure 1).

The Voorspoed Diamond Mining Area is spread out over a level stretch of land that is largely covered with agricultural fields or with smaller pieces of undisturbed grass veldt. The Historical Voorspoed Diamond Mine and associated waste dumps are situated in the south-eastern corner of the project area.

Few trees occur in the project area, the majority of which are Blue Gums which in some instances may be associated with old farm homesteads (and graveyards) as they were planted by the first colonists who settled in the area. Historically, Blue Gum trees also served as shelter for domestic stock, as hedges demarcating farms, as a supply for wood and as protection for farm homesteads and graveyards against the elements.

4.2 Contextualising the project area

The following brief overview of archaeological (pre-historical) and historical information will help to contextualise the Historical Voorspoed Diamond Mining Area.

4.2.1 Stone Age sites

Stone Age sites are areas where stone artefacts are found scattered on the surface of the earth or as parts 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 period from 250 000 years ago to 22 000 years ago;

and the Late Stone Age is the period from 22 000 years ago to 2 000 years ago. These Stone Ages can be divided into different 'cultural' periods, each of which is characterised by specific hominids, artefact types and lifestyles. These cultural periods did not occur simultaneously across the whole of South Africa and similar cultural periods in different regions of the country may have existed under different climatic conditions.

No heritage surveys that have been done in the wider study area where the Voorspoed Diamond Mine is located so far have revealed significant numbers of Stone Age sites from any of the different periods identified for the Stone Age above. This fact that there is so little information about Stone Age sites in this area can be attributed partly 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.

4.2.2 Late Iron Age remains

What is now the Free State Province was not occupied by the Early Iron Age Bantu-Negroid people who lived in the Limpopo, Mpumalanga and the KwaZulu-Natal Provinces of South Africa during the third to the ninth centuries AD. The earliest Iron Age settlers who moved into the Orange Free State were Sotho-speaking groups such as the Fokeng, Kwena, Kgatla and Kubung, who entered the region from the north, the south, the east and the west. These Sotho clans settled throughout the larger part of what later became the Free State Province. They built stone walled settlements that were scattered along the lower slopes of mountains and along the ridges where stone for building material was abundant. In their choice of location, these Sotho settlers also took advantage of the sweet grass veldt and water courses – these Late Iron Age farmers lived in relatively large communities and kept growing numbers of large and small livestock. The stone walled sites were characterised by different settlement layouts and other distinctive features and artefacts. Archaeologists refer to these settlement types as N-, V-, Z- and R-type sites.

The Late Iron Age settlers in the Free State Province were cattle herders and agriculturists and they lived in the region from the 17th century onwards. These people were the predecessors of many of the Sotho-speaking people who still live in the Free State Province today. The Taung were responsible for the construction of some of the V-type settlements; the Kubung built the Z-type settlements. The N-type settlements were built by the Fokeng and Kwena, while the Khoi Khoi, who lived near the Riet River, built R-type sites.

The Kubung, an offshoot from the Rolong in what is now the North-West Province, built Z-type settlements. The stone walled sites that have been identified near Kroonstad constituted mainly Z-type settlements. These types of settlement also occurred along the lower reaches of the Renoster River. Large concentrations of V-type settlements are found along the upper reaches of the Renoster and Vals Rivers, to the east of the Voorspoed Diamond Mining Area.

It seems that Renosterkop, to the south of the Voorspoed Diamond Mining Area, may not have been covered during an earlier archaeological survey done to record Late Iron Age sites in the Free State Province. According to local spokespersons, stone walled sites do occur in this mountain range which, however, falls outside the Voorspoed Diamond Mining Area.

4.2.3 Historical remains

The farm Voorspoed and its surrounds in the Free State Province used to be part of an area that was referred to as the 'Riemland' – a part of the western Free State the boundaries of which are demarcated by Bethlehem, Reitz, Heilbron and Kroonstad. The name originated from the practice of hunting large herds of antelope (springbok, blesbok and gnu) in this area in the 19th century. The animals were hunted mainly for their meat, but their skins were used to manufacture 'rieme' (leather straps and thongs). These items were traded for clothes and foodstuffs from traders who moved through the area. Hunting eventually depleted the herds of antelope. It has been

recorded that more than 152 000 blesbok and gnu skins were exported by one company from Kroonstad in 1866 alone.

Today the flats of the 'Riemland' serve as an agricultural heartland where maize, wheat, sunflowers and sorghum are grown. A variety of soft fruit and vegetables are also planted there, and cattle and sheep farming also make an important contribution to the local economy.

The largest town closest to Voorspoed is Kroonstad, which was named after a horse called 'Kroon'. Kroon belonged either to the Voortrekker leader Sarel Cilliers or to Adriaan de la Rey (the father of General Koos de la Rey, the 'Lion of the Western Transvaal'). Kroon drowned in a pothole in a stream in the place where the town was later established. The stream was called Kroonspruit.

Kroonstad came into being in July 1854, when the then Free State Republic ordered Joseph Orpen to establish a new town in the northern parts of the Republic. On 30 April 1855 the first erven were laid out on the banks of the Vals River with its many tributaries (streams or 'spruite'). The town also rapidly developed as an important resting place for travellers, due to its strategic location. The railway line from the Johannesburg goldfields reached the town on 20 February 1892. The town later served as the seat for the Free State government when it had to flee during the Second Anglo Boer War. A large concentration camp for women and children who had been removed from farms in the area was built in Kroonstad. Today, Kroonstad still serves as the main distribution centre for the north-eastern Free State.

4.2.4 A diamond mining heritage

Most of South Africa's diamond-bearing deposits (kimberlites) developed from the Jurassic to the Cretaceous ages, and they are now between about 80 million and 140 million years old. The kimberlites at Venetia (in the Limpopo Province) are approximately 500 million years old, while the Cullinan pipe near Pretoria is 1.2 billion years old. Occasional finds of diamonds in the sedimentary rocks of the Witwatersrand

Supergroup (these are 2.7 to 2.9 billion years old) suggest that it is possible that there are even older kimberlites.

Diamonds have been found in all South Africa's provinces, except Kwa Zulu–Natal. The Limpopo Province is the most important producer of diamonds, followed by the Northern Cape, Gauteng, Free State and North-West Provinces. South Africa ranks fifth in world in terms of its diamond production by volume, but third by value.

The diamondiferous deposits in the Republic of South Africa can be classified as follows:

- ancient conglomerates;
- volcanic kimberlite pipes and fissures; and
- alluvial or more recent gravels and boulder-beds of riverine or marine origin.

The following percentages of diamonds were retrieved from the different deposits in South Africa during 1972: (this was the 'youngest data available)

- Kimberlite pipes: 78,2%
- Kimberlite fissures 9,9%
- Alluvial deposits (marine) 9,0%
- Alluvial deposits (rivers) 2,9%

Kimberlite pipes occur over a wide area – from the Cape Province in the south-west to Tanzania in the north-east. They usually occur in groups. Throughout this area, they exhibit the same features and are petrographically practically identical. They are believed to have been extruded from a common magma and during the same geological period. Kimberlite occurrences are almost invariably clustered together in groups. The most important groups in the Republic of South Africa are those at Kimberley (G9), Pretoria (D13), Jagersfontein (H10), Koffiefontein (H10) and Postmasburg (G8).

Kimberlite is an unusual ultra-basic igneous rock that occurs as small volcanic pipes, dykes and sills. The chemical and mineralogical nature of kimberlites proves that they

originated at depths of over 120km below the surface, in the Earth's upper mantle. Diamonds are formed at high pressures, although, in most parts of the Earth, the temperature is too high for diamonds to be stable.

Kimberlite pipes are commonly ovoid in plan, although many irregular pipes occur. Diameters vary from 1,5km to less than 30m. In vertical section they are, for the most part, steep-sided funnels that are vertical or nearly so. (The Kimberly pipe has been worked to a depth of 1 037m). Their surfaces may be level with the surrounding soil, although they may sometimes be recognised by a slight depression in the surface (as at Du Toitspan) or a slight protuberance on the surface (at the Kimberley Mine).

Kimberlite and the material derived from it constitute the pipe rock proper. When a pipe is opened, it is usually composed (in descending order) of several types of soil :

- 'Yellow soil' extends from the surface to a depth of 35 to 140 feet. It consists of hydrated and oxidised kimberlite, kimberlite tuff and kimberlite breccia.
- 'Blue soil' is the same rock in a less altered and un-oxidised state below the limit of the oxidised zone.
- 'Hardebank' is the designation applied to relatively well-preserved kimberlite that does not disintegrate when it is exposed to the elements.

Kimberlite pipes are the result of successive kimberlite eruptions. The blue soil that is found in the various sections of a pipe can differ markedly in its appearance, properties and diamond content. These differences persist irrespective of depth and appear to be due to variations in the nature of the kimberlite from which the blue soil has been derived. Every eruption of kimberlite therefore gives rise to stones of distinctive character.

Diamonds, when they are preserved in the pipe matter, occur as well-formed crystals, broken crystals and cleavage fragments – the latter often in large quantities. Better diamonds are normally accompanied by 'bort', and such impure stones are classified as 'rubbish'. Larger diamonds are usually octahedral in form, and smaller ones are

dodecahedral. Cubes are very uncommon. Diamonds with rounded edges are the most common.

The size of diamonds varies between minute stones to the Cullinan diamond (3 025 carats or 0,605kg). The average size varies from mine to mine. In the more successful mines, the size varies from 29% to 65% over one carat in size (1 carat = 200mg).

The colour of stones varies greatly. White stones tinged with yellow are perhaps the most common. The valuable 'blue whites' are less common. All colours are occasionally found. The colouring matter of diamonds is, for the most part, restricted to the outside of the stones.

Diamond mining is usually done by means of open cast mining or an underground system of mining. Mining is begun on all pipes by open-cast work. The rock is broken in benches, the faces ranging from 40 feet to 100 feet in height. Blasting proceeds on a large scale. Deep chambered holes are used, from which five to six tons of ground are broken for each pound of dynamite used. Manual labour is used for drilling and loading.

The methods employed to treat and recover diamond deposits have remained unchanged for many years. This process takes advantage of the natural pulverisation that takes place in diamondiferous ground when it is exposed to the elements. This is preceded by successive stages of wet concentration to the final segregation of the precious stones. The stages of reduction are the following:

- The blue soil is weathered by spreading it out on prepared floors that may cover thousands of hectares. Natural processes such as ploughing, harrowing, rolling and even watering are used to pulverise a twelve inch layer of blue soil (at some mines this is supplemented by crushing the harder parts of the soil or the process is entirely superseded by stage crushing).
- Concentration occurs in rotary pans to ensure reduction to about one per cent of the original bulk. A rotary pan is a shallow iron pan with an outer diameter of 14 feet and an inner diameter of 6 feet leaving an annular space of 4 feet in which

the washing or concentration of the soil proceeds. This is effected by the rotation of the revolving arms which sweeps the puddle of soil. As the process continues, the heavier material is gradually forced towards the periphery, where it is extracted, while the lighter material is discharged in the inner rim. (This is replaced at some mines by coarse jigging).

- Treatment of the resulting concentrate after sizing by jigs effects a further reduction to about one-twelfth of the material received from the pans. The crushing sizing jigging and other operations are effected by the same machinery and in much the same way as in ore dressing plants generally.
- The jig concentrate is hand sorted. (This has been superseded by grease tables where diamonds – whose surface tension differs from that of worthless material – were trapped and collected). After recovery, the diamonds are cleaned and handed over for final sorting, valuation and shipment.

The soil is removed from the surface by hauling the soil up in tubs running on fixed wires over the edge of the hole and then it is carried down an incline by mechanical truck haulage (the incline may either be wholly within the mine itself or cut wholly or partially through the country rock).

The depths to which open cast mining can proceed depend primarily on the nature of the pipe walls. Depths attained in the open cast Kimberley group of pipes varied from 400 to 500 feet and at Jagersfontein a depth of 780 feet was attained.

As mines grow deeper and the soil becomes harder and less amendable to weathering, there is a tendency to resort to more direct treatment in the form of stage crushing and washing, and the rotary pan is replaced (for other reasons) to a large extent by coarse jigging.

4.2.5 The Historical Voorspoed Diamond Mine

The first diamonds in South Africa were found in the late 1860's in alluvial gravels along the Vaal and Orange Rivers, in what is now the Northern Cape Province. A turning

point was the discovery, away from the alluvial diggings, of a 50 carat stone and its associated parent rock on the farm Jagersfontein in the then Orange Free State in 1870. This year became a watershed in the history of Southern Africa, as it ushered in an era of dramatic change, brought about by the discovery of first diamonds and then gold (1886) in the South African interior. The mining towns which mushroomed to exploit these mineral resources transformed the social, economic and political life of the subcontinent. Historians refer to this transformation as the 'mineral revolution'. The most important discoveries were made in 1871, in deposits that were to become the famous De Beers and Kimberley Mines, around which the diamond capital of the world, Kimberley, developed.

The kimberlite pipe on the farm Voorspoed was discovered by H. S. Harger in 1906 and it was worked on an extensive scale by the Voorspoed Diamond Mining Company Ltd for about five and a half years before it was closed on the grounds that it was not deemed profitable enough.

Near the surface, where the yellow soil had been enriched by natural concentration, results were highly profitable, but below the 40 feet (13.5m) level, there was a marked drop in yield – from 1910 onwards, operations were conducted at a loss. The mine was closed down on 3 August 1912 and an agreement was reached whereby De Beers Company acquired the property on the following terms: a payment of £20 000 in cash was made; from 1 July 1912, De Beers took over the debt of £000 owed by the Voorspoed Company; and De Beers paid cash at a rate of 12s 6d per Voorspoed share (there were 405,704 shares) bearing an interest of 4.5% per annum from January 1913 until the date of payment.

In 1914 De Beers had no intention of working the mine, declaring it to be unprofitable, although the officials of the Union Mines Department were of the opinion that the mine was worth exploiting. A commission of enquiry was then appointed by the Department of Mines to investigate whether or not a closure was justified. The findings of the Board, published in April 1914, were that to continue mining operations would result in a substantial loss to the owners (De Beers).

Apart from sampling operations carried out between 1965 and 1967 and in 1979, no mining activities have taken place at the Voorspoed Mine since 1912. It was recommended that mining operations recommence during mid-1980, but a drop in diamond prices around this time caused the project to be put on hold indefinitely. However, the mine has not been deproclaimed or abandoned, and in order to protect its interests in the mine, the Company still pays a monthly claims tax of R402 to the State.

The Voorspoed kimberlite pipe is an oval body with maximum dimensions of 490mx350m at the 30m level – the approximate average depth of the present open pit. Three types of kimberlite have been identified, but Types 2 and 3 kimberlite form only a small percentage of the total pipe area. Type 1 kimberlite is extremely hard and resistant to weathering.

The total area of the pit at this level is 12,5 hectares, but almost half of this area is taken up by a huge mass of barren basalt rock. The actual area of the kimberlite on the 30m level is 6,55 hectares.

The most outstanding geological feature of the pipe is the huge mass of lava which occupies the southern half of the pipe at the surface. This lava is of Stormberg age and is an enormous inclusion which slumped downwards along the southern edge of the pipe from higher (eroded) levels.

At present, very little of the country rock at Voorspoed is available. It has been ascertained that Karoo sediments overlie Ventersdorp lava at Voorspoed, but the depth and nature of the contact between the two are unknown.

Mining at Voorspoed was carried out by means of the open cast method from 1906 to 1912. A ramp of kimberlite was left to simplify hauling the loosened soil to the surface. Mining operations were not carried out across the entire pipe, since part of it is

occupied by large inclusions and other parts were found to be unprofitable. A summary of the production history of the mine is presented in the table below.

The figures with regard to output and yield to the end of 1911 were the following:

Period	**Loads washed**	**Carats found**	**Yield in Carats per 100 loads (cpht)**
Sept. 1906 to Dec. 1907	218, 760	46, 340	21.18
Year ended Dec. 1908	638, 048	105, 962	16.6
Year ended Dec. 1909	1, 835, 127	274, 785	14.9
Year ended Dec. 1910	1, 375, 182	228, 616	16.6
Year ended Dec 1911	1, 715, 884	242, 111	14.1

Grades of over 29 cpht were found down to the 12m level (the possible depth limit of weathered kimberlite) and thereafter the grades dropped considerably. Although this decrease in grade could be a result of decreased diamond content with depth, it is more likely that it is the result of a lower recovery rate from the harder lithology that is found below this depth.

Opinions expressed regarding the Voorspoed diamonds, both from the original workings and from the 1965-1967 sampling operations agree that they are generally of poor quality. Terms such as 'dull', 'lustreless', 'mostly small-sized' and 'mostly small' have been used to describe the diamonds from the mine.

No records of large, good quality diamonds from this mine could be found. However, an unconfirmed newspaper report allegedly states that a 245carat stone was once retrieved from the Historical Voorspoed Diamond Mine.

Figure 1- The proposed new Voorspoed Diamond Mining Area on the farms Voorspoed 401, Voorspoed 2480, Morgenster 772 and Gelddenhuys 1477 in the Free State Province of South Africa

The most important heritage resources discovered in the critical area of the Voorspoed Diamond Mining Area include scattered stone tools, a Historical Building (HB01), the Historical Voorspoed Diamond Mine, remains dating from the Relatively Recent Past and two historical Graveyards (GY01 and GY02). Only the HB01 and GY01 and GY02 have been mapped.

5 THE HERITAGE IMPACT ASSESSMENT STUDY (HIA)

5.1 Types and ranges of heritage resources in the critical and in the peripheral areas

This survey of the Voorspoed Diamond Mining Area (the critical area), as well as of the peripheral area (outside the critical area) has revealed several types and ranges of heritage resources, as outlined in the National Heritage Resources Act (Act 25 of 1999). These resources include the following.

- stone tools that date from the Stone Age;
- stone walled settlements that date from the Late Iron Age which can be associated with the predecessors of the Sotho-Tswana;
- remains associated with either the settlement of the earliest farmers (colonists) in the project area or with the Historical Voorspoed Diamond Mine, namely the Historical Building;
- remains associated with the Historical Voorspoed Diamond Mine;
- remains dating from the Relatively Recent Past, such as a facebrick building with its associated outbuildings, a compound for labourers and an explosives magazine; and
- six graveyards, of which at least four are historical.

Only the heritage resources in the Voorspoed Diamand Mining (critical) area are discussed in more detail, as some of these heritage resources will be affected by the proposed new diamond mining activities. (The graveyards in the peripheral area will not be affected by the proposed new development, but they are also briefly discussed [Section 5.3]).

5.2 Types and ranges of heritage resources in the critical area

The types and ranges of heritage resources discovered in the critical area in the Voorspoed Diamond Mining Area include the following:

- a few loosely scattered stone tools collected from disturbed spots in the project area;
- historical remains such as the Historical Building (HB01) that may have served as a police station at the time when the Historical Voorspoed Diamond Mine was operational;
- remains that can be associated with some of the earliest diamond mining activities in the Free State, namely the Historical Voorspoed Diamond Mine and its associated workings;
- remains dating from the Relatively Recent Past such as a facebrick residence with outbuildings, a compound for labourers and an explosives magazine (Sites RRP01 to RRP03); and
- two Graveyards which are both historical (GY01 and GY02).

Co-ordinates for the Graveyards and the Historical Building have been determined with the assistance of a Geographic Positioning System (GPS) instrument. These features and structures have also been mapped (see Figure 1).

The Voorspoed Diamond Mine's associated workings (the open pit and waste dumps) as well as the remains dating from the Relatively Recent Past were not geo-referenced due to the physical prominence of the mining features and the insignificance of the remains dating from the recent past.

A broad description of the heritage resources in the critical area (as well as the Graveyards in the peripheral area) – illustrated by means of photographs – is provided below. The heritage resources have been assigned a code and number to simplify the description of these resources.

5.2.1 Stone tools

A few scattered stone tools were observed in disturbed areas such as ploughed agricultural fields in the Voorspoed Diamond Mining Area (see Figure 2). At least one of

these tools dates from the Late Acheul, suggesting that it may be older than 250 000 years.

More stone tools from different periods of the Stone Age may occur in the project area, where some may be buried beneath the surface of the earth.

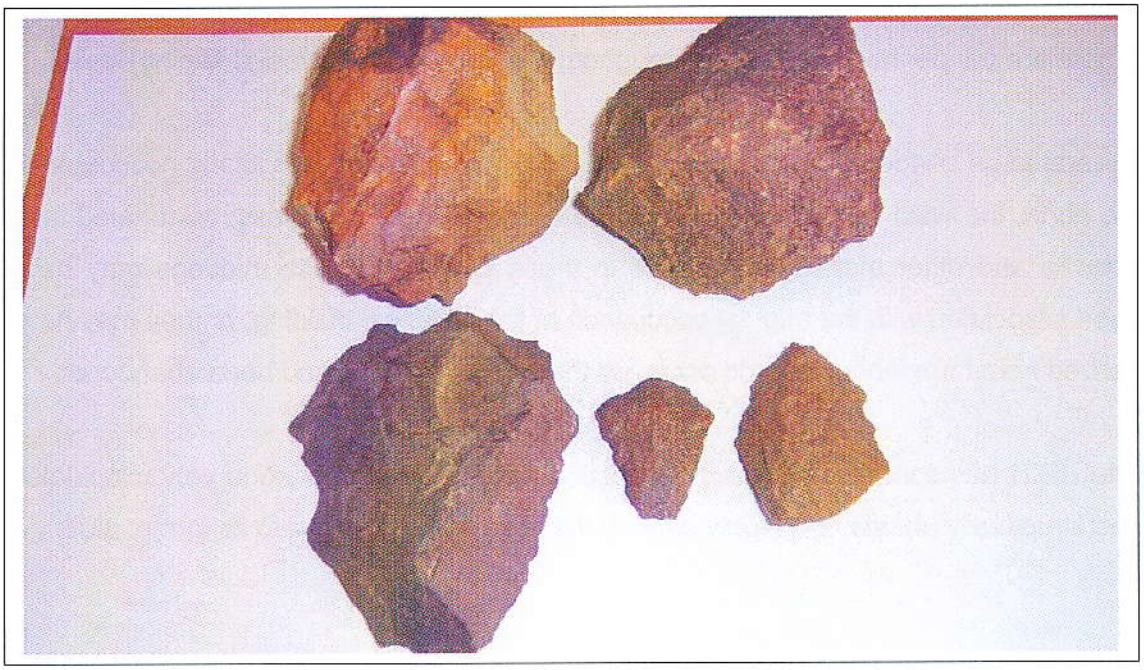


Figure 2- A few stone tools observed in agricultural fields and in disturbed spots in the Voorspoed project area (above)

5.2.2 The Historical Building (HB01)

A historical structure occurs on the perimeter of the 100m pit break back and the blast zone of the proposed new Voorspoed Diamond Mine. According to spokespersons, this structure served as a police station many years ago. The origins, history and architectural detail of this building can only be established by means of Phase II work.

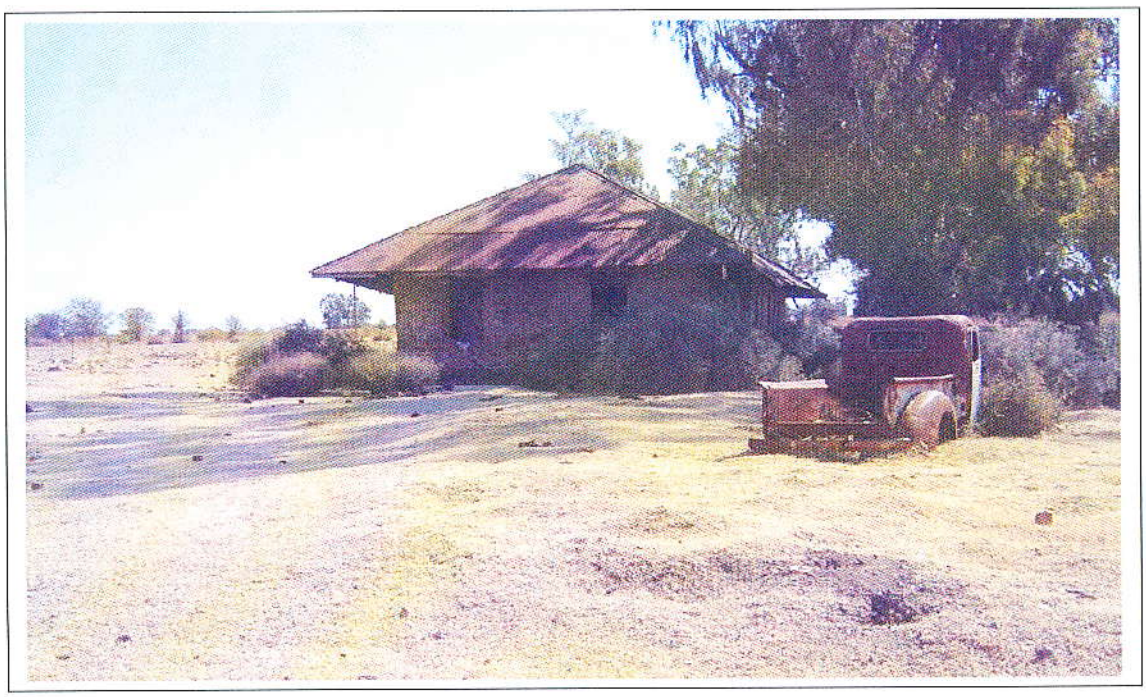
The Historical Building (HB01) is clearly older than sixty years and therefore qualifies as a historical structure. The building is oblong and contains two rows of six rooms

under a pitched corrugated iron roof. The lower foundation wall of the building was constructed using dressed dolerite, while the walls were built using red clay bricks and cement. The floor is cement (concrete) and the window frames and panes were made of wood. The ceiling was made of wooden planks.

An avenue of Blue Gum trees was planted directly to the east and to the north of the building. Pepper trees occur at random within the fence demarcating the yard of HB01. (There are pepper trees scattered throughout the Voorspoed Diamond Mining Area).

Several large middens are associated with HB01. These are particularly noticeable to the north, the west and to the south of the building. Pieces of glass, corrugated iron, bobwire and other material are visible in these deposits. These middens may have been associated with the original occupation of the historical building, or they may have derived from farm labourers who occupied the structure after it had been abandoned.

The HB01 has some historical significance. However, this structure is very dilapidated and structurally unsafe. It is highly unlikely that it could be restored to its former state.



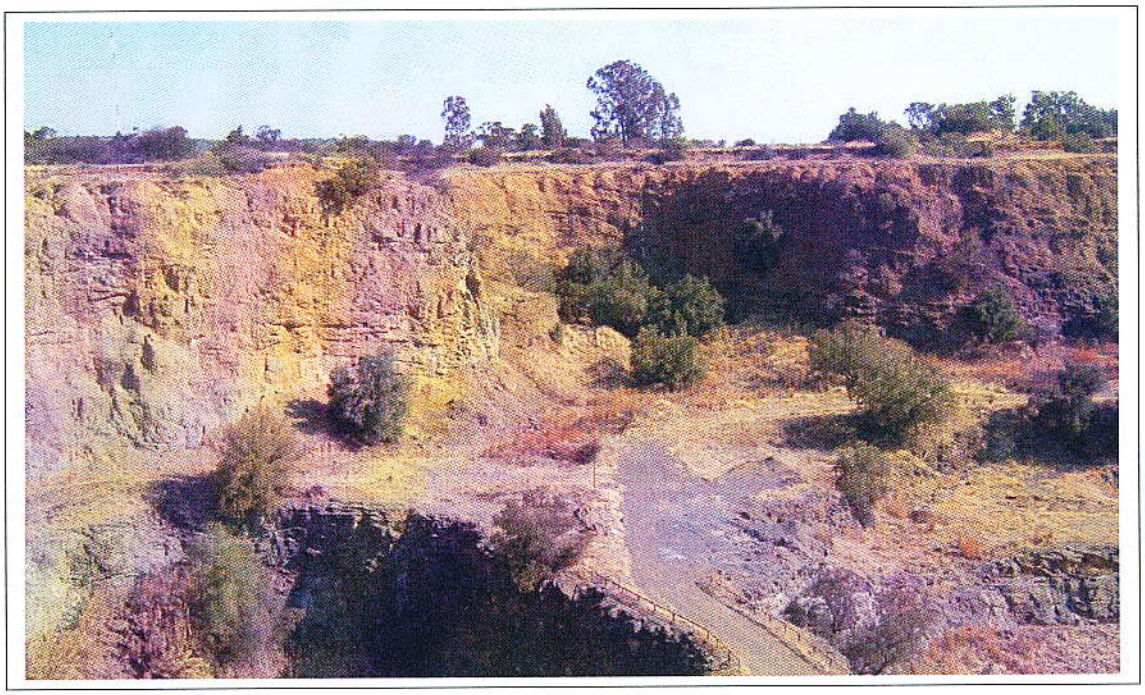
Figures 3 & 4- HB01 seen from the south (above). Note the middens and the Blue Gum and Pepper trees associated with this structure (below)

5.2.3 The Historical Voorspoed Diamond Mine

The Historical Voorspoed Diamond Mine's history has been outlined in this report (see Section 4.2.5). It is very clear that the mine and its workings qualify have historical significance, as they are associated with the earliest diamond mining activities in the Free State Province and in South Africa.

The historical mine today consists mainly of an open pit and several waste rock dumps. The open pit and some of the waste rock dumps are demarcated by an avenue of Blue Gum trees – probably planted at the time when mining operations commenced.

The Historical Voorspoed Diamond Mine's open pit and waste rock dumps will be completely altered by the proposed new Voorspoed Diamond Mine. These alterations will also include rebuilding part of the Renoster River dam wall, which was built at the time when the Historical Voorspoed Diamond Mine first became operational. The dam wall was partly destroyed after some heavy rainfall a number of years ago. (The Renoster River's dam wall is located some twenty kilometres to the north-east of the Voorspoed Diamond Mine).



Figures 4 & 5- The Historical Diamond Mine's open pit (above) and one of the waste rock dumps (below)

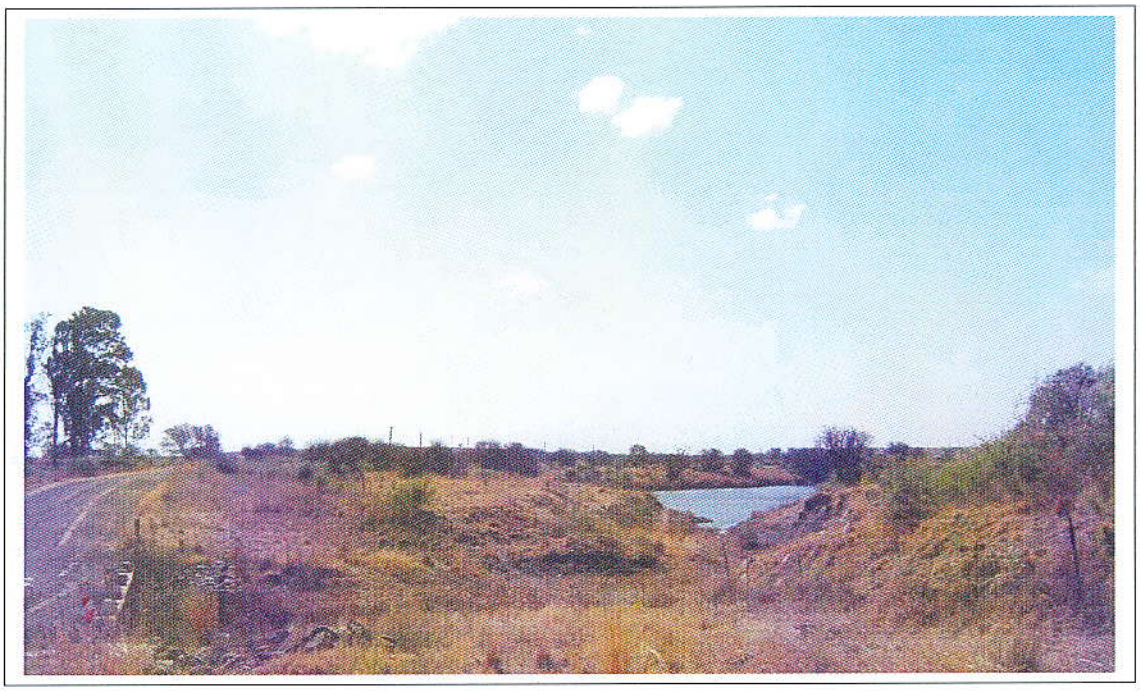


Figure 6- The damaged wall of the Renoster River which has to be reconstructed in order for the new diamond mine to commence with its operations (above)

5.2.4 Graveyards

A total of six graveyards were discovered in the critical and in the peripheral areas. Two of these graveyards are located in the critical area and four in the peripheral area. The two graveyards in the critical area are discussed below and depicted in photographs.

5.2.4.1 Graveyard 01 (GY01)

This informal graveyard is located in the southern part of the project area, near Renosterkop. It consists of two parts, namely a larger, more formal section, which is fenced in, and a second, smaller number of graves that are not demarcated by means of any fence. The two parts together may contain as many as 50 graves. The larger graveyard contains approximately 33 graves, and the smaller graveyard 13. Not all the graves are clearly visible. Several graves in the larger graveyard are overgrown with

turpentine bushes. The majority of the graves do not have any headstones. The few headstones that occur have either been made of cement or of granite. Some graves are marked with small pieces of corrugated iron with writing in paint to identify the deceased. The graves in the smaller section of the graveyard look very much alike, as they are all covered with stones. They differ in appearance (decoration and make-up) from those in the larger section of the graveyard.

Some of the headstones in the graveyard bear the following inscriptions:

Lebesele
Stephen
Khantsi
Born 10-1-1949
Died 28-7-1982

Daniel Dibula
Khantsi
*9-5-1980
†6-1981

Molefi Stephen
Pitso
* 1905
† 1979
Robala ka kgotso

Belina Pitso
1913-1973
Robela ka kgotso

Lucha Makhoro
O Hlahla
1905
A Hlokahala

Nankie
Lycha
O Hlahile
1961
A Hlokahala

Suzan Madule
B 4-7-1971
12-1-1973
R.I.P.

Figures 7 & 8- Graveyard 01 consists of two sections, separated by a fence. The graves to the west of the fence are merely covered by stones (above) while some of the graves to the east of the fence have headstones (below).

5.2.4.2 Graveyard 02 (GY02)

This informal graveyard contains five or six graves which are in a poor state of repair. The graveyard may have been vandalised – although its neglected state may be entirely attributed to its being about 110 years old.

At least two of the graves have 'Blinkblaar Wag-'n-Bietjie' trees (Ziziphus) growing on them, and it is likely that these have been planted on the graves. Both trees are very old and may have been planted soon after the deceased were buried. (The thorn branches of the 'Wag-'n-Bietjie' would have prevented the graves from being disturbed, for example, by animals).

There are five headstones in this cemetery. At least one consists of white marble (Johanna Botha). A second is merely an upright stone (Martha van den Heever), while a third was built using cement and constructed some time after the deceased was buried, as the marker has replaced an upright stone that is still intact on the grave (Cornelis Bothma). The last two headstones are made of sandstone and they have been placed on two children's graves (Susanna Meintjies and Hendrina Morkel).

The headstones on the graves bear the following inscriptions:

Johanna Catharina
Marie Botha (Geb Nel)
Geb 26 Feb 1888
Overl
19 Dec 1911
Rust en Jezus Armen

Martha THP
Van den Heever
Geb 1905
22 OCT OV AG

Hier rus ons liewe Vader
Cornelis Christoffel Bothma
Geb 26 Maart 1835
Oorlede 26 Oct 1894

Ges 43:1 Hoog omhoog het hart naar boven
Ter gedachtenis
Susanna Jacoba Meintjies
Geboren 29 Oct 1902
Overleden 30 Oct 1910
Veilig in Jezus Armen

Ter Gedachtenis Van
Hendrina Christina Morkel
Geb den 6de August 1910
Overleden 27 st Oct 1910
Laat de kinderkens tot my komen

Figure 9- The damaged Historical Graveyard (GY02) which may contain as many as six graves. The graves are barely recognisable next to the tree (below)

5.2.5 Remains from the Relatively Recent Past

Various spots or 'sites' that can be associated with human activities from the relatively recent past can be identified in the project area. These sites do not in all instances contain substantial remains and whenever such remains occur they are not necessarily of outstanding significance. Only those remains that are more conspicuous are highlighted in this part of the report. The most conspicuous remains from the Relatively Recent Past in the project area include the following:

- A facebrick building with a pitched roof and associated outbuildings are located to the west of the open pit. This complex of structures includes a main residence and other structures, either built using bricks and cement or corrugated iron. These remains have been designated Site RRP01. The facebrick building may be almost sixty years old, but is still relatively modern. Several hundred similar houses would still be found in Kroonstad today. This structure, as well as some of the other outbuildings which have been altered substantially in more recent times, have no outstanding architectural or historical significance.

- The remains of a large number of cement houses with pitched corrugated iron roofs used by labourers still stand to the north of the open pit. This site has been designated Site RRP02. These structures have no historical significance.

- Two face-brick buildings within a fenced-in area occur to the south-east of the open pit. Both buildings were built using light-brown clay bricks. One has a pitched corrugated iron roof, while the second is covered with a cement slab or roof. This structure has the words 'explosive magazine' painted on its door. The first building is barricaded with a thick cement wall and may also have served as an explosives magazine or as a room placed under high security. It is unlikely that these two structures were built at the time when the Historical Voorspoed Diamond Mine was operational, but rather some decades after the mine was closed. This site was designated Site RRP03.

Other less conspicuous and insignificant remains dating from the more recent past occur directly to the north of the open pit. Here, trenches were dug in which maize and leaves were stacked to ferment in order to be used as fodder for cattle. Broken cement floors are also visible in this area. Sisal bush indicates earlier human activity in this area. A large section of cracked concrete floor can be seen in the Blue Gum plantation to the north of the labourers' quarters. This structure may have been associated with the original Historical Voorspoed Diamond Mine.

These remains have not been mapped, as they do not have any historical or cultural significance any longer.

5.3 Graveyards in the peripheral area

A total of six graveyards were discovered in the critical and in the peripheral area. Four of these graveyards are located in the peripheral area and are discussed briefly below.

5.4 Possible impact on the heritage resources

Heritage resources in the critical area of the proposed new Voorspoed Diamond Mine which will be affected by the development of the new mine are the following:

- Scattered stone tools will be disturbed by the new development.
- The Historical Building (HB01) will be demolished to make way for the expanding open pit.
- The Historical Voorspoed Diamond Mine's open pit and waste rock dumps will be altered and replaced by the new Voorspoed Diamond Mine's expanding open pit and new waste rock dumps and infrastructure.
- Remains from the Relatively Recent Past, such as the face-brick residence and associated outbuildings, the compound used by labourers and the explosives magazine and associated buildings will be destroyed by the new development (Sites RRP01 to RRP03)

6 THE SIGNIFICANCE OF THE HERITAGE RESOURCES IN THE VOORSPOED DIAMOND MINING AREA

The heritage resources in the Voorspoed Diamond Mining Area that will be affected by the proposed new mining development project have been outlined in this report (Section 5.4).

The levels of significance of these heritage resources can be determined by means of criteria applicable to each of these types or ranges of heritage resource, namely:

6.1 The scattered stone tools

The scattered stone tools that were observed in the project area have been exposed by agricultural and other activities. These stone tools therefore do not occur in their original archaeological context any longer. The stone tools are also too limited in number to allow for classification (typology) which can be related to the various periods of the Stone Age. Archaeological remains which do not occur in their archaeological context no longer have research value.

6.2 The Historical Building and remains from the Relatively Recent Past

The levels of significance of the Historical Building (HB01) and the remains dating from the Relatively Recent Past (Site RRP01 to RRP03) have been determined by means of several criteria (see Table 2). The values accorded to each of these criteria varied between 1 (low significance), 2 (medium significance) and 3 (high significance). This scheme considers criteria such as the following:

Ideological (symbolic) significance

This category of significance refers to sites, structures or features that may have symbolic or ideological significance, for example, cattle kraals that may have been used as burial grounds, or stone cairns in initiation schools that symbolise the regiments (of men) moulded during these puberty ceremonies, etc. Burial grounds,

graves, cemeteries, churches or sacred places (such as mountains) and sites that are venerated would also score high on ideological significance.

Aesthetic significance

This category of significance refers to the beauty, craftsmanship or workmanship evident in sites, structures or features of historical and pre-historical sites. In this regard, one thinks of the spatial composition and layout of settlements, the spatial location of settlements on majestic or impressive mountains or kopjes, etc. Other aesthetic aspects include architectural style and the building features of historical structures, etc.

Unique(ness)

The uniqueness of sites, structures and features refers to the fact that such sites, structures or features may be scarce and may not be repeated in other sites or at other places.

Cultural historical significance

The cultural historical significance of sites refers primarily to the age and the cultural affiliation of sites. However, these criteria may include the aesthetics or appearance of sites, the uniqueness of sites and the association of particular sites with particular peoples (as well as individuals) and with important events in the past.

State of preservation

The state of preservation of sites, structures and features refers to the condition of remains which may be affected by development activities. Sites may be badly damaged or may still be in a pristine condition.

Research value

The research value of sites, structures and features refers to the knowledge that can be derived from these remains, through the documentation of, the excavation of or research done on these remains. Research has little value if the results are not published to the benefit of the community.

It is clear from these criteria that the Historical Building (HB01) can be considered to be of historical significance, while the remains dating from the Relatively Recent Past have no historical or cultural significance (see Table 2).

6.3 The Historical Voorspoed Diamond Mine

The Historical Voorspoed Diamond Mine qualifies as part of the national estate when one considers the criteria outlined in Section 3(2)(a) and Section 3(3) (a), (b), (c) and (f) listed in the National Heritage Resources Act (also see Box 1). These criteria are the following:

3(2)(a) places, buildings, structures and equipment of cultural significance;

3(3)(a) its importance in the community, or pattern of South Africa's history;

3(3)(b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;

3(3)(c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage; and

3(3)(f) its importance in demonstrating a high degree of creative or technical achievement at a particular period.

The Historical Voorspoed Diamond Mine therefore qualifies as part of South Africa's 'national estate'. This historical phenomenon could contribute to 'social and economic development' if the mine is developed and utilized in a heritage education programme, for example, as an open-air mine museum such as the Kimberley Museum (National Heritage Resources Act, Sec 5(7)). However, the transformation of the Historical Voorspoed Diamond Mine into a new sustainable diamond mine would surely bring economic and other benefits that will override the more limited

economic and social advantages which an open-air museum (or any other heritage facility) could provide.

6.4 The Graveyards

The Graveyards are of outstanding significance and need not be assessed according to any further criteria. Both GY1 and GY02 are older than 60 years and therefore qualify as historical cemeteries. Graveyards are protected by various laws, regulations and ordinances.

HERITAGE RESOURCES	Ideological/ symbolic significance	Aesthetic significance	Uniqueness	Cultural significance	State of preservation	Research value
Historical Building (HB01) 26° 02' 13" S; 29° 16' 11" E	2	1	2/3	2/3	1	2/3
Site RRP01 (Face-brick residence and outbuildings)	1	1	1	1	2	1
Site RRP02 (Labourers compound)	1	1	1	1	1	1
Site RRP03 (Explosive magazine and associated building)	1	1	1	1	2	1

Table 2- Levels of significance of the Historical Building (HB01) and the remains dating from the Relatively Recent Past discovered in the Voorspoed Diamond Mining Area

Low significance (1)

Medium significance (2)

High significance (3)

7 CONCLUSION AND RECOMMENDATIONS

The HIA study has revealed the presence of the following types and ranges of heritage resources in the critical area of the Voorspoed Diamond Mining Area: scattered stone tools; a Historical Building (HB01); the Historical Voorspoed Diamond Mine; remains dating from the Relatively Recent Past (Site RRP01 to RRP03) and two historical Graveyards (GY01 and GY02).

The scattered stone tools in the project area have been exposed to the elements by agricultural and other activities. These stone tools have no significance, as they do not occur in their original archaeological context any longer. The stone tools are also limited in number and do not represent any types not previously discovered.

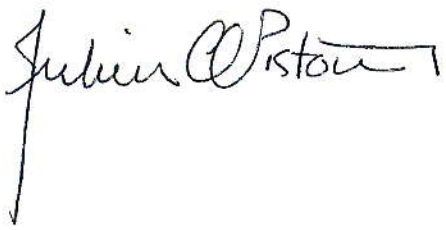
The Historical Building (HB01) can be considered to be of some significance, considering criteria such as its cultural historical significance, research value and uniqueness. However, this structure is very dilapidated and it is doubtful whether it can be restored to its former grandeur – even if it can be conserved. This building has to be demolished to make way for the proposed new expanding open pit. It is recommended that the building be subjected to a Phase II investigation before it is demolished by mining activities. Phase II (mitigation) reports are incorporated in SAHRA's data banks (registers) and are required by the National Heritage Resources Act (Sec 38(3)(f)(g)). This work has to be done by a historical architect.

The Historical Voorspoed Diamond Mine qualifies as part of the national estate, as the mine is one of the oldest diamond mines in the Free State and in South Africa. It is appropriate that De Beers should promote its role as a global producer of diamonds as well as its South African diamond mining roots – perhaps by preserving the remarkable history of the Historical Voorspoed Diamond Mine in a display that is maintained in a museum in the Free State (for example, the National Museum) or at any of De Beers' offices, locally or internationally.

The National Heritage Resources Act (Sec 5(7)) encourages the conservation and use of heritage resources for social and economic development, enjoyment, heritage education, etc. A display on the Historical Voorspoed Diamond Mine would contribute to De Beers' fulfilment of its social obligations and will help De Beers to honour its commitment (manifest) to the conservation of the natural and the man-made environment (heritage).

The Graveyards (GY01 and GY02) can be considered to be of outstanding significance. It seems as if the expanding Voorspoed Diamond Mine will not affect the graveyards. However, the graveyards will have to be relocated if expanding mining activities threaten to affect these resources. The deceased must then be exhumed and relocated. This work must be done by forensic archaeologists who will acquire all the necessary permits for the exhumations and the relocation of the graveyards. Various laws, provincial regulations and administrative procedures regulate this activity.

The remains dating from the Relatively Recent Past (Site RRP01 and Site RRP02) cannot be considered to be of outstanding significance and can be demolished after the necessary permit to do so has been acquired from SAHRA.



DR JULIUS CC PISTORIUS
Archaeologist and Heritage
Management Consultant
Member ASAPA

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