

Prepared for:

JACO- K CONSULTING

WONDERFONTEIN COLLIERY

**A REVISED PHASE I HERITAGE IMPACT ASSESSMENT
(HIA) STUDY FOR THE PROPOSED WONDERFONTEIN
COLLIERY NEAR BELFAST IN THE MPUMALANGA
PROVINCE OF SOUTH AFRICA**

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EXECUTIVE SUMMARY

This Phase I Heritage Impact Assessment (HIA) study was undertaken for Wonderfontein Colliery as required by Section 38 of the National Heritage Resources Act (No 25 of 1999).

The aims with the study were:

- To determine if any of the types and ranges of heritage resources (the 'national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur in the Wonderfontein Project Area and, if so, to establish the significance of these heritage resources.
- To establish whether these heritage resources will be affected by the proposed new mining development and, if so, to propose mitigation measures for those heritage resources that may be affected by the mining development project.

The Phase I HIA study for the proposed Wonderfontein Project Area 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:

- Formal and informal graveyards.
- Historical houses some associated with outbuildings.

No archaeological (pre-historical) remains were recorded. Neither was any paleontological study conducted by this specialist.

The graveyards and historical houses were geo-referenced and mapped (Figure 2; Tables 1-2). The significance of the heritage resources was determined by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and by means of various other criteria.

Mitigation measures are proposed for those graveyards and historical structures which may be affected by the proposed Wonderfontein Colliery.

The significance of the heritage resources

The significance of the heritage resources is indicated by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and specific criteria relating to the type of heritage resource that is evaluated.

The graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 1). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

The historical structures

Historical structures older than sixty years or structures which are approaching this age are protected by Sections 34 and 38 of the National Heritage Resources Act (No 25 of 1999). The significance of historical structures therefore has been indicated as HIGH (Table 2).

The significance of each and every historical structure (house, outbuilding, etc) can further be scrutinised by specialists such as historical architects whenever these structures are to be affected by the development project. Criteria according to which these structures can be evaluated include the following: the cultural-historical background of structures; their scientific or architectural value; their use in the field of tourism, museums or education as well as their aesthetic appearance; repeatability (scarcity), or their emotional (ideological) value.

Mitigating the heritage resources

It is likely that graveyards or historical structures in the Wonderfontein Project Area may be affected by the development project.

The following mitigation measures have to be followed whenever graveyards or historical structures are to be affected by the development project.

The graveyards

Graveyard can be mitigated by following one of the following strategies, namely:

- Graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged, accidentally, that the mine remains responsible for its future

- unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.
- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

Historical structures

Historical structures may not be affected (demolished, renovated, altered) by the mining development project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures been affected or altered (demolished, renovated) as a result of the mining development project.

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

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1 INTRODUCTION

This document contains the report on a Phase I Heritage Impact Assessment (HIA) study which was done for Wonderfontein Colliery situated to the south-west of Belfast in the Mpumalanga Province of South Africa.

The Mpumalanga Province of South Africa has a rich heritage comprised of remains dating from the pre-historic and from the historical (or colonial) periods of South Africa. Pre-historic and historical remains in the Mpumalanga Provinces 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 Section 3 of the National Heritage Resources Act, Act No 25 of 1999) occur in this province (see Box 1).

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

The National Heritage Resources Act (Act 25 of 1999, Section 3) outlines the following types and ranges of heritage resources that qualify as part of the national estate:

- (a) places, buildings structures and equipment of cultural significance;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds including-
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the Gazette;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered in terms of the Human Tissue Act (Act 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 palaeontological objects, 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 (Act 43 of 1996).

The National Heritage Resources Act (Act 25 of 1999, Sec 3) also distinguishes nine criteria for a place and/or object 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; and/or
- (i) its significance relating to the history of slavery in South Africa.

2 AIMS WITH THIS REPORT

The proposed new Wonderfontein Colliery, an open cast and underground mine, will be developed on parts of the farms Wonderfontein 428, Grootpan 456 and Klippan 452 to the south-west of Belfast in the Mpumalanga Province of South Africa. These mining activities may impact on any of the types and ranges of heritage resources that are distinguished in Section 3 of the National Heritage Resources Act (No 25 of 1999) (see Box 1) which may occur in the proposed new mining area. The mining development area is henceforth referred to as the Wonderfontein Project Area.

In order to comply with legislation, Wonderfontein Colliery requires knowledge of the presence, relevance and the significance of any heritage resources that may occur in the Wonderfontein Project Area. Wonderfontein Colliery needs this information in order to take pro-active measures with regard to any heritage resources that may be affected by the proposed new mining development project. Jaco-K Consulting and Wonderfontein Colliery therefore commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study for the proposed new Wonderfontein Project Area.

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

- To determine if any of the types and ranges of heritage resources (the 'national estate') as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999) do occur in the Wonderfontein Project Area and, if so, to establish the significance of these heritage resources.
- To establish whether these heritage resources will be affected by the proposed new mining development and, if so, to propose mitigation measures for those heritage resources that may be affected by the mining development project.

3 METHODOLOGY

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

- Surveying the proposed Wonderfontein Project Area with a vehicle and sensitive spots on foot.
- Briefly surveying literature relating to the pre-historical and historical context of the Wonderfontein Project Area;
- Consulting maps of the proposed project area.
- Consulting archaeological (heritage) data bases.
- Consulting spokespersons regarding the possible presence of heritage resources such as graveyards.
- Synthesising all information obtained from the fieldwork survey, literature review, maps, heritage data bases and spokespersons into this report.

3.1 Fieldwork

The proposed new Wonderfontein Project Area was surveyed with a vehicle where access could be gained by means of roads into the central part of the area. Surveys were focussed where evidence for former farmsteads existed, such as plots and lanes with Blue Gum trees, dense concentrations of wattles and popular trees, patches of land with weed and other intruder plants in open grass veld and bald (open) spots with no or little vegetation.

Heritage resources such as the dilapidated remains of buildings, stone walls, formal graveyards demarcated with stone walls were obvious and clearly noticeable even where tall grass abounds.

Several surveys were done by the archaeologist over a two week period in July and August 2008 and large tracks of land were covered on foot. However, no GPS track log is available as the survey was done long before archaeologists were advised to geo-reference surveys.

3.2 Databases, literature survey and maps

Databases kept and maintained at institutions such as the Provincial Heritage Resources Agency and the Archaeological Data Recording Centre at the National Flagship Institute (Museum Africa) in Pretoria were consulted to determine whether any heritage resources of significance has been identified during earlier heritage surveys in or near the Wonderfontein Project Area.

Literature relating to the pre-historical and the historical unfolding of the project area where the proposed mining development project will take place was reviewed (see Part 5, 'Contextualising the Wonderfontein Project Area'). It is important to contextualise the pre-historical and historical background of the project area in order to comprehend the identity, meaning and significance of heritage resources that may occur in and near the Wonderfontein Project Area (see Parts 5 & 9).

In addition, the Wonderfontein Project Area was studied by means of maps on which the project area appears (2528 Pretoria; 1: 250 000).

3.3 Spokespersons consulted

Spokespersons living in the project area are usually intimately acquainted with the area, particularly if they were born there. Consequently, some spokespersons were therefore consulted with regard to the possible presence of graveyards and abandoned homesteads (see Part 9, 'Spokespersons consulted').

3.4 Mapping heritage resources

The most significant types and ranges of heritage resources found in the Wonderfontein Project Area were geo-referenced using a GPS instrument and thereafter mapped in Arch View (Figure 2; Tables 1-2).

3.5 Assumptions and limitations

It must be pointed out that heritage resources can be found in the most unexpected places. It must also be borne in mind that surveys may not detect all the heritage resources in a given project area. While some remains may simply be missed during surveys (observations), others may occur below the surface of the earth and may only be exposed once mining development commences.

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

3.6 Some remarks on terminology

Terms that may be used in this report are briefly outlined in Box 2.

Box 2- Terminology relevant to this report

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 25 of 1999 (see Box 1).

Heritage 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-historic' 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 South Shaft 3 Project Area, to the first appearance or use of 'modern' Western writing brought to the Eastern Transvaal Highveld by the first colonists who settled in this area after c. 1839.

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 may, however, be almost sixty years old and these may qualify as heritage resources in the near future.

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 headstones 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 'Iron Age' refers to the last two millennia and 'Early Iron Age' to the first thousand years AD. 'Late Iron Age' refers to the period between the 16th century and the 19th century and can therefore include the historical period.

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

The term 'mining area' ('critical area') refers to the area where the developer wants to focus development activities. The term 'peripheral area' refers to the area that will not be affected by the proposed new development activities.

The 'South Shaft 3 Project Area' refers to both the mining and peripheral areas.

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 cooperation and approval of SAHRA.

4 THE WONDERFONTEIN PROJECT AREA

4.1 Location

The proposed Wonderfontein Colliery is located to the south-west of Belfast in the Mpumalanga Province of South Africa. The Wonderfontein Project Area is located directly to the south of the N4 and between the roads that are running to Hendrina (west) and Carolina (east) further to the south. The proposed Wonderfontein Colliery primarily covers the farm Wonderfontein 428 in the north and portions of the farms Klippan 452 and Grootpan 456 further to the south (Pretoria 2528; 1: 250 000 map)(Figures 1 & 2).

4.2 The nature of the Wonderfontein Project Area

The Wonderfontein Project Area involves a piece of land that runs from a number of pans in the south northwards to close to the N4 where the Hendrina and Carolina roads join each other. The Wonderfontein Project Area stretches across an undulating piece of land which is dotted with a few farmsteads and which is covered with agricultural fields as well as with pieces of land which have not been affected by development activities in the past.

Wonderfontein Colliery intends to establish open cast as well as underground mining activities in the proposed Wonderfontein Project Area.

However, no mine plans or any footprint for the proposed new open cast and underground mining activities with associated infrastructure was available for conducting the heritage survey. Consequently, the Wonderfontein Project Area as outlined in Figure 3 was used as the study area as the future proposed development was to be undertaken in this demarcated area.

4.3 Within a cultural landscape

The Wonderfontein Project Area is part of a cultural landscape that is marked by heritage remains dating from the pre-historical into the historical (colonial) period. Stone Age sites, Iron Age remains and colonial remains therefore do occur in the broader area (see Part 5, 'Contextualising the Wonderfontein Project Area').



Figure 1– The proposed new Wonderfontein Colliery on the farm Wonderfontein 356JT is situated to the south-west of Belfast in the Mpumalanga Province of South Africa.

The project area is characterised by an undulating, outstretched piece of land that is dotted with a few farmsteads which are surrounded by agricultural fields (above).

The archaeological and historical significance of this landscape therefore must be described in more detail before the results of the Phase I HIA study is discussed.

5 CONTEXTUALISING THE WONDERFONTEIN PROJECT AREA

Contextual evidence that serves as background to the Wonderfontein Project Area includes the following: the Stone Age; the earliest farmers and stone builders; the arrival of the colonists; early coal mining and farm homesteads with graveyards from the recent past. This pre-historical and historical information helps to determine the significance of any heritage resources that may occur in the Wonderfontein Project Area.

5.1 Stone Age sites

Stone Age sites are marked by stone artefacts that 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 (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 (the period from 22 000 years ago to 200 years ago).

The Later Stone Age is also associated with rock paintings and engravings which were done by the San, KhoiKhoi and in more recent times by Iron Age farmers.

Heritage surveys up to now have recorded few outstanding Stone Age sites, rock paintings and engravings near the project area - primarily as a result of limited extensive archaeological surveys.

5.2 The earliest farmers

The Iron Age is associated with the first agro-pastoralists who lived in semi-permanent villages and who practised metal working during the last two millennia. The Iron Age is usually divided into the Early Iron Age (covers the

1st millennium AD) and the Later Iron Age (covers the first 880 years of the 2nd millennium AD).

The Eastern Highveld has probably not been occupied by Early Iron Age communities but was occupied by Late Iron Age farming communities such as the Sotho, Swazi and Ndebele who established settlement complexes that were built with stone walls. These sites are more common towards the eastern perimeters of the Eastern Highveld.

5.3 The colonists and the historical period

Historical towns closest to Wonderfontein Colliery include Middelburg and Belfast.

Middelburg is one of the oldest towns that were established by the Voortrekkers in the previous Transvaal. The town was established on the farms of Klipfontein and Keerom on the banks of the KleinOlifantsRiver in 1859. It is generally accepted that Middelburg's name is derived from the fact that the TransvaalRepublic established the town midway between Pretoria and Lydenburg.

The choice for Middelburg's location was not well accepted by the inhabitants and it was moved to the farm Sterkfontein. Here, a town was established and named Nasaret (Nazareth). However, the name did not appeal to the local community and its original name was reinstated. Middelburg temporary served as the seat of the TransvaalRepublic after the siege of Pretoria during the Second Anglo Boer War.

Belfast was founded on 30 June 1890. Farmer Richard O' Neil bought the farm Tweefontein near where the expected railway line between Pretoria and Lourenço Marques in Mozambique would run. He set up a store and applied for permission to lay out a village. He named it Belfast in honour of the city in

Ireland from where his father had immigrated. The railway reached the village in 1894 and the first village council took office in 1902.

5.4 A coal mining heritage

Coal mining on the Eastern Highveld is older than one century. This region has become the most important coal mining centre in South Africa. Whilst millions of tons of high-grade coal are annually exported overseas more than 80% of the country's electricity is generated on low-grade coal in Eskom's power stations such as Duvha, Matla and Arnot situated near coalmines on the Eastern Highveld.

The earliest use of coal (charcoal) in South Africa was during the Iron Age (300-1880AD) when metal workers used charcoal, iron and copper ores and fluxes (quartzite stone and bone) to smelt iron and copper in clay furnaces.

Colonists are said to have discovered coal in the French Hoek Valley near Stellenbosch in the Cape Province in 1699. The first reported discovery of coal in the interior of South Africa was in the mid-1830 when coal was mined in Kwa Zulu/Natal.

The first exploitation for coal was probably in Kwa Zulu/Natal as documentary evidence refers to a wagon load of coal brought to Pietermaritzburg to be sold in 1842. In 1860 the coal trade started in Dundee when a certain Pieter Smith charged ten shillings for a load of coal dug by the buyer from a coal outcrop in a stream. In 1864 a coal mine was opened in Molteno. The explorer, Thomas Baines mentioned that farmers worked coal deposits in the neighbourhood of Bethal (Transvaal) in 1868. Until the discovery of diamonds in 1867 and gold on the Witwatersrand in 1886, coal mining only satisfied a very small domestic demand.

With the discovery of gold in the Southern Transvaal and the development of the gold mining industry around Johannesburg came the exploitation of the Boksburg-Spring coal fields, which is now largely worked out. By 1899, at least four collieries were operating in the Middelburg-Witbank district, also supplying the gold mining industry. At this time coal mining also has started in Vereeniging. The Natal Collieries importance was boosted by the need to find an alternative for imported Welsh anthracite used by the Natal Government Railways.

By 1920 the output of all operating collieries in South Africa attained an annual figure of 9,5million tonnes. Total in-situ reserves were estimated to be 23 billion tonnes in Witbank-Springs, Natal and Vereeniging. The total *in situ* reserves today are calculated to be 121 billion tonnes. The largest consumers of coal are Sasol, Iscor (Mittal) and Eskom.

5.5 A vernacular stone architecture

A unique stone architectural heritage was established in the Eastern Highveld during the second half of the 19th century well into the early 20th century. During this time period stone was used to build farmsteads and dwellings, both in urban and in rural areas. Although a contemporary stone architecture also existed in the Karoo and in the Eastern Free State Province of South Africa a wider variety of stone types were used on the Eastern Highveld. These included sandstone, ferricrete ('oukclip'), dolerite ('bloukclip'), granite, shale and slate.

The origins of a vernacular stone architecture in the Eastern Highveld may be ascribed to various reasons of which the ecological characteristics of the region may be the most important. The Eastern Highveld is generally devoid of any natural trees which could be used as timber in the construction of farmsteads, outbuildings, cattle enclosures and other structures while the scarcity of fire wood also prevented the manufacture (firing) of baked clay bricks. Stone therefore served as the most important building material on the Eastern Highveld.

Late Iron Age communities who contributed to the Eastern Highveld's stone walled architecture were the Sotho, Ndebele and Swazi. The tradition set by these indigenous groups may have influenced the first settlers from Natal and the Cape Colony to utilize the same resources that their predecessors. Many farmers from Scottish, Irish, Dutch, German and Scandinavian descent, settled and farmed on the Eastern Highveld. They brought the knowledge of stone masonry from Europe which compensated for the lack of fire-wood which was necessary to fire clay bricks.

5.6 Farmsteads and graveyards from the recent past

Farm homesteads with outbuildings that date from the more recent past occur throughout the project area. Many of these farm homesteads hold little historical significance. However, buildings and other infrastructure which are part of these farm homesteads may be older than sixty years or may approach this age.

All, structures and buildings older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999).

Many of these farm homesteads are associated with formal and informal graveyards. Dwellings which have been used by farm labourers and which have disintegrated over time are in many instances associated with informal graves and sometimes with informal cemeteries. These informal graves and cemeteries may occur in the most unexpected places - such as in maize fields or in plantations such as the Belfast Forest.

6 THE PHASE I HERITAGE IMPACT ASSESSMENT

6.1 Types and ranges of heritage resources

The Phase I HIA study for the proposed Wonderfontein Project Area 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:

- Formal and informal graveyards.
- Historical houses some associated with outbuildings.

The graveyards and historical houses were geo-referenced and mapped (Figure 2; Tables 1-2). The significance of the heritage resources was determined by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and by means of various other criteria.

Mitigation measures are proposed for those graveyards and historical structures which may be affected by the proposed Wonderfontein Colliery.

The Phase I HIA study is now briefly discussed and illuminated with photographs.

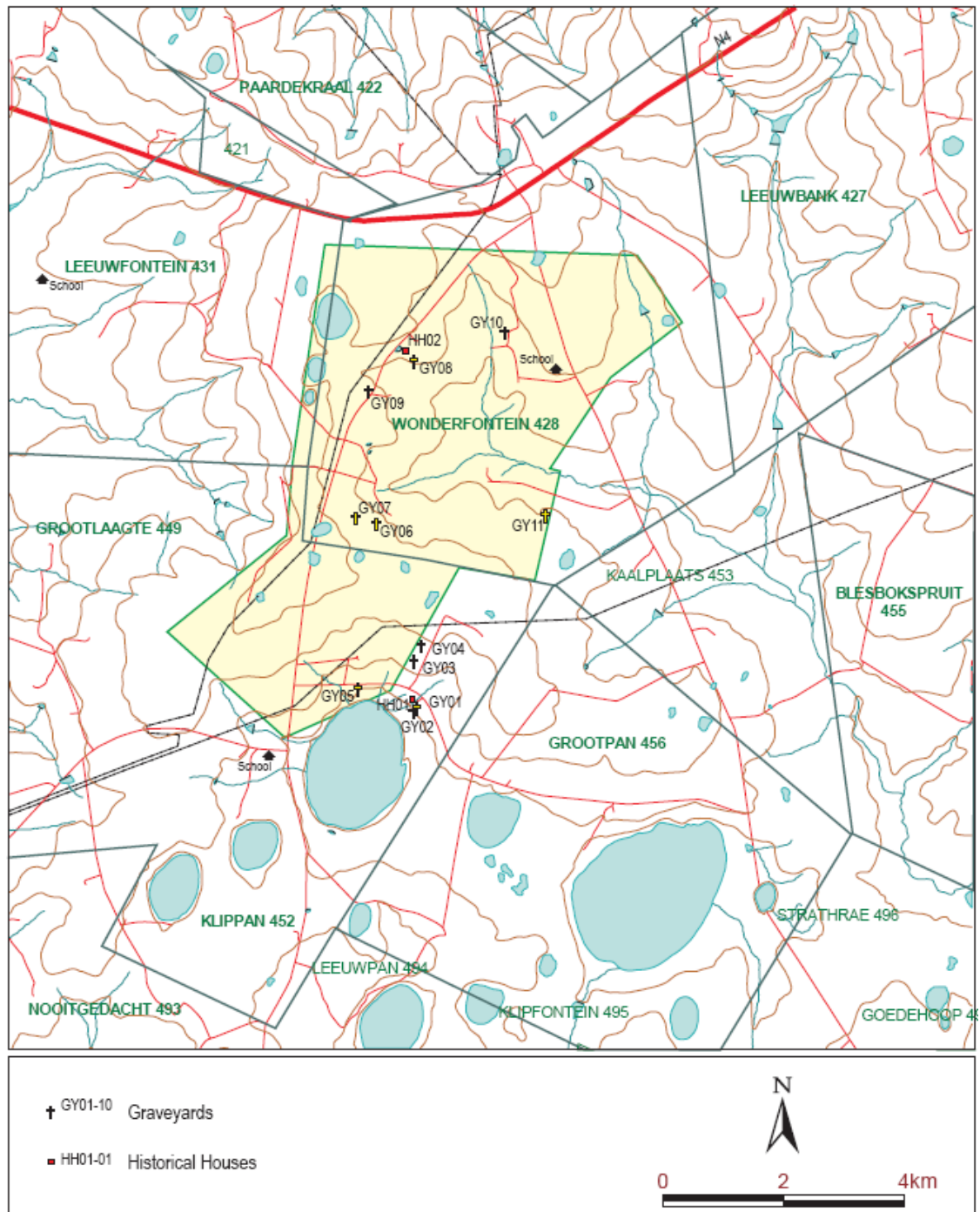


Figure 2- The Wonderfontein Project Area on the farms Wonderfontein 428, Grootpan 456 and Klippan 452 on the Eastern Highveld in South Africa. Note the presence of graveyards and historical structures in the project area (above).

6.1.1 Formal and informal graveyards

At least eleven formal and informal graveyards were observed in the Wonderfontein Project Area as well as on the perimeter of this area. Some of these graveyards are older than sixty years and therefore qualify as historical graveyards.

6.1.1.1 Graveyard 01

This historical graveyard (GY01) is located to the north of the Grootpan and contains the remains of three individuals. The graveyard is associated with an enclosure which was constructed with sandstone.

The three graves are respectively characterised by sandstone linings, a headstone which was carved from sandstone and the third by a pile of stones. A second headstone has fallen on its face. No inscriptions are visible on the two headstones.

6.1.1.2 Graveyard 02

This informal graveyard (GY02) is located to the north of Grootpan, near GY01 and the sandstone enclosure. It holds the remains of approximately thirty graves mostly edged with clay bricks or with stone. Many of the graves are filled-in with rubble or gravel.

6.1.1.3 Graveyard 03

GY03 is an informal graveyard which is located on the western shoulder of the dirt road running to the farm of Joon van Rooyen. It holds the remains of approximately thirty-five individuals, some of whom are fitted with cement headstones. Inscriptions on two of the headstones read as follow:

- 'LalaNgoxolo Josephina Tholo 1903,07-9-1983'

- 'Solomon Tholowabekwa 17-7-1959'
- 'Elizabeth wabekwa 1945'



Figure 3- GY01 is located to the north of Grootpan on Klippan 452. This historical graveyard can be associated with some of the first colonists who settled in this part of the Eastern Highveld (above).

6.1.1.4 Graveyard 04

GY04 is an informal graveyard which is also located on the western shoulder of the dirt road running to the farm of Joon van Rooyen. GY04 contains as many as seventeen graves most of which are covered with piles of stone.

6.1.1.5 Graveyard 05

Informal GY05 is located near an informal settlement to the north of Grootpan. It holds the remains of approximately thirty-seven individuals. Most of the graves are covered with piles of stone while a few are fitted with cement headstones.



Figure 4- GY02 is located to the north of Grootpan on Klippan 452. It contains the remains of approximately thirty individuals (above).

6.1.1.6 Graveyard 06

This historical graveyard is located in the midst of a maize field. The graveyard is demarcated with a dolerite wall and holds the remains of approximately five individuals.

Two of the graves are fitted with marble headstones while the remaining graves are fitted with granite headstones.

6.1.1.7 Graveyard 07

GY07 is an informal graveyard on the edge of a maize field. It consists of approximately five piles of stone.



Figure 5- GY06 is a historical graveyard within the confines of a dolerite enclosure. It contains the remains of approximately five individuals (above).

6.1.1.8 Graveyard 08

This historical graveyard is demarcated with a dolerite wall and holds the remains of approximately eleven individuals. Two of the graves are fitted with beautiful headstones carved from marble. The remaining graves are decorated with granite headstones and edged with granite strips. As many as eleven people may be interred in this graveyard.

Inscriptions on two of the marble headstones read as follow:

- 'Hier rust my tedergeliefdevader Johan HendrikBreytenbachGeb 13 Feb 1847 Oorl 29 April 1933. Psalm 130 Vers 3'
- 'Hier rust my tedergeliefdeechtgenote en onzemoeder Elsie Magdalena Johanna BreytenbachGeb 7 Aug 1849 Overl 30 Junie 1928.
- 'Hierrus my geliefdeeggenote Elizabeth Maria Grobler GebBreytenbachGeb 17-11-1884 Oorl 17-11-1920'

6.1.1.9 Graveyard 09

This informal graveyard (GY09) is located in a clump of wattle trees near an informal dwelling. The graveyard holds at least fifty graves - but possibly more. Many graves are covered with piles of stone although a number is fitted with granite headstones.

6.1.1.10 Graveyard 10

GY10 is an informal graveyard located near a soil-walled dam. It holds approximately thirty graves. Most of the graves are covered with ferricrete stones. Some of the graves are edged with clay bricks and with cement.

6.1.1.11 Graveyard 11

GY11 is located on the eastern fringes of the project area.



Figure 6- Historical GY08 holds the remains of the Breytenbach clan. Note the two outstanding marble headstones associated with this graveyard (above).

6.2 Historical structures

Historical structures consisting of houses with outbuildings and a wagon shed were recorded in the project area. It is possible that more historical structures may occur as some of these structures may have been missed as access to all farmsteads was not possible.

6.2.1 Historical house 01

HH01 occurs in close proximity of Grootpan. This residence seems to date from the 1940's. It has been altered to some extent but used to consist of a four roomed house with a pitched corrugated iron roof.

6.2.2 Historical houses 02

These historical structures on Wonderfontein 428 consist of a main residence with a second residence and wagon shed. Other structures include a second dilapidated wagon shed and a cattle enclosure which was constructed with dolerite stone.

This historical complex is associated with the historical Breytenbach graveyard (GY08) and therefore constitutes a cultural landscape. This complex probably dates from the late 19th century into the early 20th century.

6.2.3 A wagon shed

A renovated wagon shed constructed with sandstone and with a pitched red corrugated iron roof occurs on the farm of the Bezuidenhout family on Wonderfontein 428.



Figures7 & 8- Main residence (above) and second residence (below) associated with a historical complex on Wonderfontein 428.



Graveyards	Coordinates	Significance
GY01. North of Grootpan. Three individuals	25° 53.220' 29° 52.761'	HIGH
GY02. North of Grootpan. Thirty individuals	25° 53.252' 29° 52.734'	HIGH
GY03. Western shoulder of dirt road. Thirty-five graves	25° 52.805' 29° 52.735'	HIGH
GY04. Western shoulder of dirt road. Seventeen graves	25° 52.657' 29° 52.813'	HIGH
GY05. Near informal settlement. Thirty-seven individuals	25° 53.050' 29° 52.231'	HIGH
GY06. Historical graveyard. Five individuals	25° 51.558' 29° 52.402'	HIGH
GY07. Five graves on edge of maize field	25° 51.506' 29° 52.216'	HIGH
GY08. Historical graveyard. Eleven individuals	25° 50.105' 29° 52.743'	HIGH
GY09. Graveyard in wattle bush. More than fifty graves.	25° 50.384' 29° 52.342'	HIGH
GY10. Graveyard near dam. Thirty graves	25° 49.849' 29° 53.548'	HIGH
GY11. Not observed by author	Eastern fringes of project area	HIGH

Table 1- Coordinates for formal and informal graveyards some with historical significance in the Wonderfontein Project Area. The significance of the graveyards is indicated (above).

Historical Houses	Coordinates	Significance
HH01	25° 53.147' 29° 52.655'	HIGH
HH02 with outbuildings	25° 50.012' 29° 52.645'	HIGH

Table 2- Coordinates for historical houses, some with outbuildings in the Wonderfontein Project Area. Their significance is indicated (above).

6.3 The significance of the heritage resources

The significance of the heritage resources is indicated by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and specific criteria relating to the type of heritage resource that is evaluated.

6.3.1 The graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 1). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

6.3.2 The historical structures

Historical structures older than sixty years or structures which are approaching this age are protected by Sections 34 and 38 of the National Heritage Resources Act (No 25 of 1999). The significance of historical structures therefore has been indicated as HIGH (Table 2).

The significance of each and every historical structure (house, outbuilding, etc) can further be scrutinised by specialists such as historical architects whenever these structures are to be affected by the development project. Criteria according to which these structures can be evaluated include the following: the cultural-historical background of structures; their scientific or architectural value; their use in the field of tourism, museums or education as well as their aesthetic appearance; repeatability (scarcity), or their emotional (ideological) value.

6.4 Mitigating the heritage resources

It is likely that graveyards or historical structures in the Wonderfontein Project Area may be affected by the development project.

The following mitigation measures have to be followed whenever graveyards or historical structures are to be affected by the development project.

6.4.1 The graveyards

Graveyard can be mitigated by following one of the following strategies, namely:

- Graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged, accidentally, that the mine remains responsible for its future unaffected existence, maintenance and that controlled access must exist for any relatives or friends who wish to visit the deceased.
- Graveyards can also be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

6.4.2 Historical structures

Historical structures may not be affected (demolished, renovated, altered) by the mining development project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures been affected or altered (demolished, renovated) as a result of the mining development project.

7 CONCLUSION AND RECOMMENDATIONS

The Phase I HIA study for the proposed Wonderfontein Project Area 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:

- Formal and informal graveyards.
- Historical houses some associated with outbuildings.

No archaeological (pre-historical) remains were recorded. Neither was any paleontological study conducted by this specialist.

The graveyards and historical houses were geo-referenced and mapped (Figure 2; Tables 1-2). The significance of the heritage resources was determined by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and by means of various other criteria.

Mitigation measures are proposed for those graveyards and historical structures which may be affected by the proposed Wonderfontein Colliery.

The significance of the heritage resources

The significance of the heritage resources is indicated by means of stipulations derived from the National Heritage Resources Act (No 25 of 1999) and specific criteria relating to the type of heritage resource that is evaluated.

The graveyards

All graveyards and graves can be considered to be of high significance and are protected by various laws (Table 1). Legislation with regard to graves includes Section 36 of the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on

Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

The historical structures

Historical structures older than sixty years or structures which are approaching this age are protected by Sections 34 and 38 of the National Heritage Resources Act (No 25 of 1999). The significance of historical structures therefore has been indicated as HIGH (Table 2).

The significance of each and every historical structure (house, outbuilding, etc.) can further be scrutinised by specialists such as historical architects whenever these structures are to be affected by the mining development project. Criteria according to which these structures can be evaluated include the following: the cultural-historical background of structures; their scientific or architectural value; their use in the field of tourism, museums or education as well as their aesthetic appearance; repeatability (scarcity), or their emotional (ideological) value.

Mitigating the heritage resources

It is likely that graveyards or historical structures in the Wonderfontein Project Area may be affected by the development project.

The following mitigation measures have to be followed whenever graveyards or historical structures are to be affected by the development project.

The graveyards

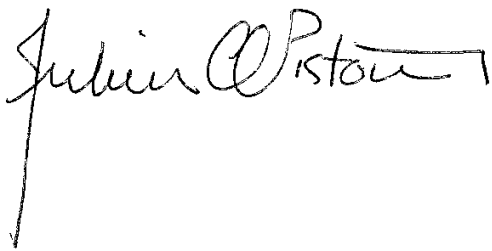
Graveyard can be mitigated by following one of the following strategies, namely:

- Graveyards can be demarcated with brick walls or with fences. Conserving graveyards *in situ* in mining areas create the risk and responsibility that they may be damaged, accidentally, that the mine remains responsible for its future unaffected existence, maintenance and

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

Historical structures

Historical structures may not be affected (demolished, renovated, altered) by the mining development project *prior* to their investigation by a historical architect in good standing with the South African Heritage Resources Agency (SAHRA). The historical architect has to acquire a permit from the South African Heritage Resources Authority (SAHRA) *prior* to any of these structures been affected or altered (demolished, renovated) as a result of the mining development project.



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