

**Heritage impact assessment for the
PROPOSED COAL MINING ACTIVITIES ON THE FARM VLAKFONTEIN
569JR, WITBANK MAGISTERIAL DISTRICT,
MPUMALANGA PROVINCE**



**HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED COAL MINING
ACTIVITIES ON THE FARM VLAKFONTEIN 569JR, WITBANK MAGISTERIAL
DISTRICT, MPUMALANGA PROVINCE**

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Declaration:

I, J.A. van Schalkwyk, declare that I do not have any financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services.



J A van Schalkwyk (D Litt et Phil)
Heritage Consultant
October 2009

EXECUTIVE SUMMARY

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED COAL MINING ACTIVITIES ON THE FARM VLAKFONTEIN 569JR, WITBANK MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

African Exploration Mining And Finance Corporation has been granted a prospecting right for the Vlakfontein coal mining project situated on the farm Vlakfontein 569JR west of Ogies in Mpumalanaga.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **SRK Consulting** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the mining activities.

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to develop the coal mining activities.

The following heritage sites were identified in the study area (see Appendix 3 for more detail):

- Three different informal cemeteries were identified. They range in size from containing 5 graves to probably as many as 100.
- A number of houses that were apparently built for the earlier mining activities on the site are still inhabited. They probably date to the late 1940s, early 1950s and are still sound in structure. They form a small village which include connecting roads and some elements of landscaping, e.g. planted vegetation.
- An old railway line that served the New Largo mine used to occur on the western edge of the study area. It was decommissioned, probably when the Wilge power station (1954-1987) and its staff quarters known as Voltargo and the New Largo mine were closed down. Only the embankment remains.

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a **Grade III** significance:

- The three different informal cemeteries are viewed to have a high significance on a local level.
- The old mine houses (known as the Venter houses) are viewed to have a medium significance on a regional level.
- The old railway line that served the New Largo mine is viewed to have a low significance on a regional level.

Analysis of the possible impact of the proposed development on the identified cultural heritage resources is based on the present understanding of the development.

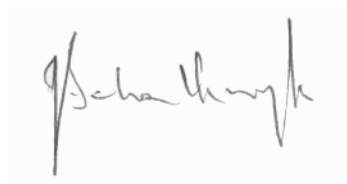
- **The impact of the mining activities can be judged to be high and permanent in nature for only one of the three identified cemeteries.**

Ideally, the three identified cemeteries should be retained in place. This might be possible as they are all located close to the border of the mining area. Should they be retained, they must be formalised by fencing them off, with a gate that allows for access. A buffer zone of at least 20 metres should be created around each of the sites. If it is decided to relocate the graves, the proper procedures should be followed – see Appendix 5 for more details.

- **The impact of the mining activities on the small mining village can be judged to be high and permanent in nature.**

The chances of mining taking place here is apparently very small. However, if it does take place at some time in the future the whole area, including the houses, outbuildings, infrastructure, gardens, etc. should be documented (mapped and photographed) before the houses can be demolished.

Based on what was found and this evaluation, it is recommended that the proposed development can continue in the area, on condition of acceptance of the above recommendations. However, we request that if archaeological sites or graves are exposed during mining activities, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.



J A van Schalkwyk
Heritage Consultant
October 2009

TECHNICAL SUMMARY

Property details						
Province	Mpumalanga					
Magisterial district	Witbank					
Topo-cadastral map	2528DD, 2529DD, 2628BB, 2629AA					
Closest town	Ogies					
Farm name	Vlakfontein 569JR (old number = 50)					
Portions/Holdings	3, 10 & 20					
Coordinates	Polygon					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 26.02440	E 28.96677	2	S 26.00611	E 28.96121
	3	S 25.99232	E 28.96897	4	S 25.99707	E 28.97639
	5	S 25.98544	E 28.98458	6	S 25.99141	E 28.99400

Development criteria in terms of Section 38(1) of the NHR Act	Yes/No
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	
Construction of bridge or similar structure exceeding 50m in length	
Development exceeding 5000 sq m	Yes
Development involving three or more existing erven or subdivisions	Yes
Development involving three or more erven or divisions that have been consolidated within past five years	
Rezoning of site exceeding 10 000 sq m	Yes
Any other development category, public open space, squares, parks, recreation grounds	

Development	
Description	Coal mining activities
Project name	Vlakfontein

Land use	
Previous land use	Farming/Mining
Current land use	Farming

Heritage sites assessment		
<i>Site type</i>	<i>Site significance</i>	<i>Site grading (Section 7 of NHRA)</i>
Cemetery (Site no. 3)	High on a local level	III
Impact assessment		
<i>Impact</i>	<i>Mitigation</i>	<i>Permits required</i>
Probable	Relocate if necessary	Dept. Health, SAHRA, Police

Heritage sites assessment		
<i>Site type</i>	<i>Site significance</i>	<i>Site grading (Section 7 of NHRA)</i>
Historical settlements and townscapes (site no. 4)	Medium on a regional level	III
Impact assessment		
<i>Impact</i>	<i>Mitigation</i>	<i>Permits required</i>
Probable	Full documentation	SAHRA

TABLE OF CONTENTS

	Page
EXECUTIVE SUMMARY	II
TECHNICAL SUMMARY	IV
TABLE OF CONTENTS.....	V
LIST OF FIGURES.....	V
GLOSSARY OF TERMS AND ABBREVIATIONS.....	VI
1. INTRODUCTION.....	1
2. TERMS OF REFERENCE	1
3. HERITAGE RESOURCES.....	1
4. STUDY APPROACH AND METHODOLOGY	3
5. DESCRIPTION OF THE AFFECTED ENVIRONMENT	4
6. SITE SIGNIFICANCE AND ASSESSMENT	7
7. RECOMMENDED MANAGEMENT MEASURES.....	10
8. CONCLUSIONS.....	11
9. REFERENCES.....	13
APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES.....	15
APPENDIX 2. RELEVANT LEGISLATION	17
APPENDIX 3: SURVEY RESULTS	18
APPENDIX 4: ILLUSTRATIONS.....	24
APPENDIX 5: RELOCATION OF GRAVES	27

LIST OF FIGURES

	Page
Fig. 1. Location of the study area (yellow polygon) in regional context.....	4
Fig. 2. Location of the study area, outlined in yellow, showing the identified sites.....	18
Fig. 3. The large cemetery.....	19
Fig. 4. The unmarked graves.....	20
Fig. 5. The old cemetery located in the north of the mining area.....	21
Fig. 6. One of the old houses.....	22
Fig. 7. The alignment of the old railway line can clearly be seen crossing two of the pans. ...	23
Fig. 8. Aerial photograph of the study area.....	24
Fig. 9. View of the study area looking north.....	25
Fig. 10. The study area looking south west.....	25
Fig. 11. View of the southern section of the study area, looking towards the N12.....	26

GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Study area: Refers to the entire study area as indicated by the client in the accompanying Fig. 1 & 2.

Stone Age: The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

Early Stone Age	2 000 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Late Stone Age	30 000 - until c. AD 200

Iron Age: Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. These people, according to archaeological evidence, spoke early variations of the Bantu Language. Because they produced their own iron tools, archaeologists call this the Iron Age.

Early Iron Age	AD 200 - AD 900
Middle Iron Age	AD 900 - AD 1300
Late Iron Age	AD 1300 - AD 1830

Historical Period: Since the arrival of the white settlers - c. AD 1840 - in this part of the country

ABBREVIATIONS

ADRC	Archaeological Data Recording Centre
ASAPA	Association of Southern African Professional Archaeologists
CS-G	Chief Surveyor-General
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Later Stone Age
HIA	Heritage Impact Assessment
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED COAL MINING ACTIVITIES ON THE FARM VLAKFONTEIN 569JR, WITBANK MAGISTERIAL DISTRICT, MPUMALANGA PROVINCE

1. INTRODUCTION

African Exploration Mining And Finance Corporation has been granted a prospecting right for the Vlakfontein coal mining project situated on the farm Vlakfontein 569JR west of Ogies in Mpumalanga. Coal underlies the property and is considered to form part of the Witbank Coal Field. The 2 Seam was previously mined at shallow depths and the old workings formed part of the “Alpha strategic oil containers”. The container area effectively divides the property and potential resources into a northern and central block, which is linked along the eastern boundary. A southern block, on the south side of the N12 is unlikely to be exploited. A western block (Portion 20) is currently excluded from the mining plan. The total surface area of the site is approximately 587 ha.

South Africa’s heritage resources, also described as the ‘national estate’, comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **SRK Consulting** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the mining activities.

2. TERMS OF REFERENCE

The scope of work for this study consisted of:

- Conducting of a desk-top investigation of the area, in which all available literature, reports, databases and maps were studied;
- A visit to the proposed development area.

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

3. HERITAGE RESOURCES

3.1 The National Estate

The NHRA (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, including-
 - ancestral graves;
 - royal graves and graves of traditional leaders;
 - graves of victims of conflict;
 - graves of individuals designated by the Minister by notice in the Gazette;
 - historical graves and cemeteries; and
 - other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery in South Africa;
- movable objects, including-
 - objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - objects to which oral traditions are attached or which are associated with living heritage;
 - ethnographic art and objects;
 - military objects;
 - objects of decorative or fine art;
 - objects of scientific or technological interest; and
 - books, records, documents, photographic 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).

3.2 Cultural significance

In the NHRA, Section 2 (vi), it is stated that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature’s uniqueness, condition of preservation and research potential.

According to Section 3(3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of

- its importance in the community, or pattern of South Africa's history;
- its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons;

- 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
- sites of significance relating to the history of slavery in South Africa.

4. STUDY APPROACH AND METHODOLOGY

4.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figures 1 & 2.

4.2 Methodology

4.2.1 Preliminary investigation

4.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted.

- A few publications dealing with aspects of history in the larger region were identified (Praagh 1906; Taylor 1979; Wadley & Turner 1987; Cloete 2000; Pelsler et al 2007), but none that deals with the study area specifically. In addition, some information was obtained from previous heritage impact assessment studies done in the region (Nkangala District Municipality 2004; Pistorius 2004; Van Schalkwyk 2002a, 2002b, 2004a, 2004b, 2006a, 2006b; Roodt 2008).

4.2.1.2 Data bases

The *Heritage Atlas Database*, the *Environmental Potential Atlas*, the *Chief Surveyor General (CS-G)* and the *National Archives of South Africa (NASA)* were consulted.

- Database surveys produced a number of sites located in the larger region of the proposed development.
- The original Title Deed of the farm was not located. A few references were found in NASA, all dealing with aspects of management of former mining activities in the study area.

4.2.1.3 Other sources

Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

- Information of a very general nature were obtained from these sources

4.2.2 Field survey

The area that had to be investigated was identified by **SRK Consulting** by means of maps and during a site visit. As the site consists largely of agricultural fields, only areas that were not ploughed were investigated.

4.3 Limitations

None at present.

5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

5.1 Site location and description

The site is an irregular piece of land located largely to the north of the N12 and west of the town of Ogies in the Witbank magisterial district of Mpumalanga (Fig. 1). For more information, please see the Technical Summary presented above.

The geology of the study area is made up of arenite, with tillite occurring to the north. All of this is overlain with sand. The original vegetation for the biggest part of the study area is classified as Moist Sandy Highveld Grassland, changing to Moist Cool Highveld Grassland in the northern section.

The area is very flat and most of this has been subjected to agricultural activities. No hills, outcrops or natural shelters that drew people to settle here, occur in the study area. A few natural pans occur in places, but their surroundings have been impacted on by ploughing activities.

The remains of previous mining activities are located on the western side of the study area. This includes an old railway line that crossed the area.

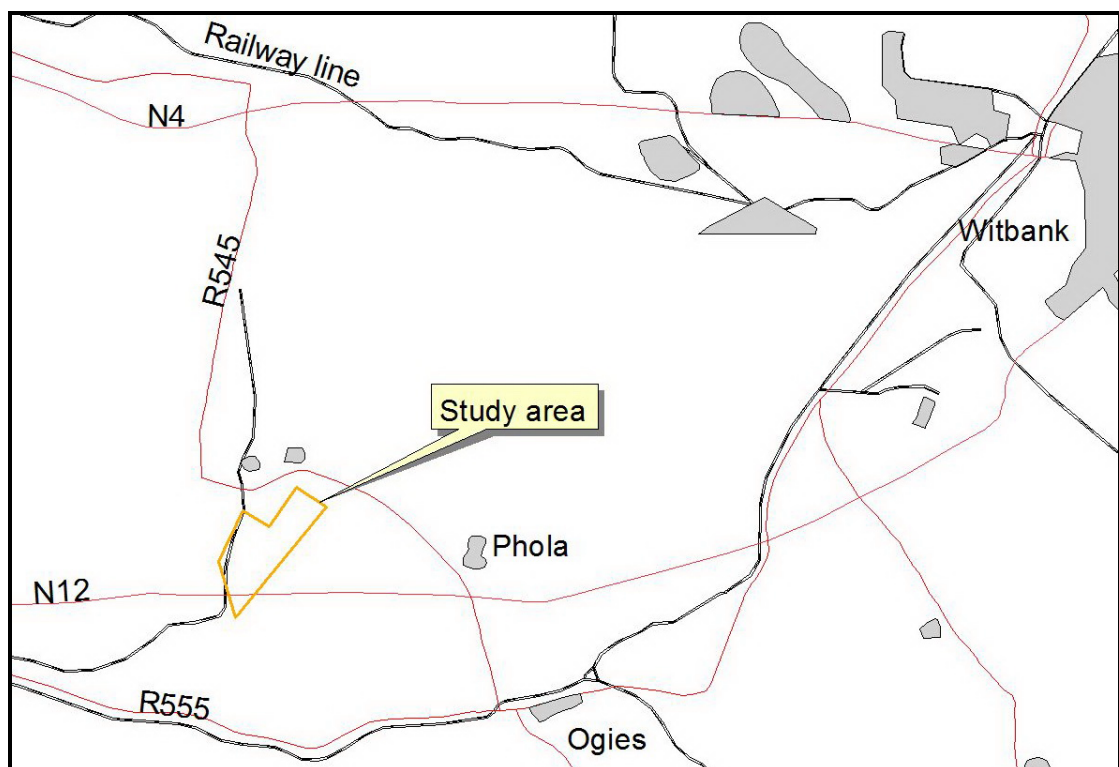


Fig. 1. Location of the study area (yellow polygon) in regional context.

5.2 Overview of the region

Stone Age

Very little habitation of the highveld area took place during Stone Age times. Tools dating to the Early Stone Age period are mostly found in the vicinity of larger watercourses, e.g. the Vaal River, or in sheltered areas such as the Magaliesberg. During Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), people became more mobile, occupying areas formerly avoided. The MSA is a technological stage characterized by flakes and flake-blades with faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. Open sites were still preferred near watercourses.

Late Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Some sites are known to occur in the region. These vary from sealed (i.e. cave) sites, located to the south of the study area (Wadley & Turner 1987), to open sites near the Vaal River. Also, for the first time we get evidence of people's activities derived from material other than stone tools. Ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments with incised markings are traditionally linked with the LSA. The LSA people have also left us with a rich legacy of rock art, which is an expression of their complex social and spiritual beliefs.

Iron Age

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known sites at Broederstroom south of Hartebeespoort Dam dating to AD 470. Having only had cereals (sorghum, millet) that need summer rainfall, Early Iron Age (EIA) people did not move outside this rainfall zone, and neither did they occupy the central interior highveld area. Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers for agricultural purposes, but also for firewood and water.

The occupation of the larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating condition that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the treeless plains of the Free State and the Mpumalanga highveld.

This wet period came to a sudden end sometime between 1800 and 1820 by a major drought lasting 3 to 5 years. The drought must have caused an agricultural collapse on a large, subcontinent scale.

This was also a period of great military tension. Military pressure from Zululand spilled onto the highveld by at least 1821. Various marauding groups of displaced Sotho-Tswana moved across the plateau in the 1820s. Mzilikazi raided the plateau extensively between 1825 and 1837. The Boers trekked into this area in the 1830s. And throughout this time settled communities of Tswana people also attacked each other.

As a result of this troubled period, Sotho-Tswana people concentrated into large towns for defensive purposes. Because of the lack of trees they built their settlements in stone. These stone-walled villages were almost always located near cultivatable soil and a source of water. Such sites are known to occur near Kriel (e.g. Pelsler, et al 2006) and to the south (Taylor 179).

Historic period

White settlers moved into the area during the first half of the 19th century. They were largely self-sufficient, basing their survival on cattle/sheep farming and hunting. Few towns were established and it remained an undeveloped area until the discovered of coal and later gold. The establishment of the NZASM railway line in the 1880s, linking Pretoria with Lourenço Marques and the world at large, brought much infra-structural and administrative development to the area. This railway line also became the scene of many battles during the Anglo-Boer

War and after the battle of Bakenlaagte (30 October 1901) the Clewer station served as hospital for the wounded British soldiers. A concentration camp was established near the Balmoral station, northwest of the study area (Cloete 2000). In line with the 'scorched earth' policy, most farmsteads were destroyed by the British during the latter part of the hostilities.

Coal mining occurred only sporadically in the area. However, with the discovery of the Witwatersrand gold fields, the need for a source of cheap energy became important, and coal mining developed on a large scale in various regions. By 1899, at least four collieries were operating in the Middelburg-Witbank¹ district, supplying the gold mining industry (Praagh 1906).

5.3 Identified sites

The following cultural heritage resources are known to exist or are expected to exist in the study area:

5.3.1 Stone Age

- **No sites, features or objects dating to the Stone Age were identified in the study area.**

5.3.2 Iron Age

- **No sites, features or objects dating to the Iron Age were identified in the study area.**

5.3.3 Historic period

Apart from farming activities, some earlier coal-mining activities also took place on the site. This was known as **Alpha Consolidated Collieries Ltd.**, which operated in the area from the late 1940s, early 1950s. The exact date for the commencement of this mine could not be determined, but from various documents found in National Archives of South Africa (NASA), it was determined that by 1952 they were in operation. The identified documents deals with the building of a hospital, issuing of liquor licences for the compound and some complaints about the quality of their coal (1952). After the abandonment of the coal mining activities, the underground areas were used for storing of oil. Currently, Transnet has got some pipeline facilities on different sections of the site.

As a result of these two types of activities, the following heritage sites were identified in the study area (see Appendix 3 for more detail):

- **Three different informal cemeteries were identified. They range in size from containing 5 graves to probably as many as 100 – Fig. 3 to 5. Some might be farming related, while others might be of mine workers.**
- **A number of houses that were apparently built for the earlier mining activities on Portion 20 are still inhabited and are privately owned by the Venter family (Bronlaw Properties) (Fig. 6). They probably date to the late 1940s, early 1950s and are still sound in structure. They form a small village which include connecting roads and some elements of landscaping, e.g. planted vegetation. Some farming related structures (e.g. sheds and barns) were added later.**

¹ Witbank was established only after 1903.

- **An old railway line that served the New Largo mine used to occur on the western edge of the study area. It was decommissioned, probably when the Wilge power station (1954-1987) and its staff quarters known as Voltargo and the New Largo mine were closed down. Only the embankment remains (Fig. 7).**

6. SITE SIGNIFICANCE AND ASSESSMENT

6.1 Heritage assessment criteria and grading

According to the NHRA, No. 25 of 1999, Section 2(vi), the *significance* of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential.

A matrix was developed whereby the above criteria, as set out in Sections 3(3) and 7 of the NHRA, No. 25 of 1999, were applied for each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar sites.

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I:** Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II:** Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III:** Other heritage resources worthy of conservation, on a local authority level.

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the application of mitigation measures would allow the development activities to continue.

6.2 Statement of significance

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a

- **Grade III significance with**
 - The three different informal cemeteries are viewed to have a high significance on a local level.
 - The old mine houses (Venter houses) are viewed to have a medium significance on a regional level.
 - The old railway line that served the New Largo mine is viewed to have a low significance on a regional level.

6.3 Impact assessment

Impact analysis of cultural heritage resources under threat of the proposed development, are based on the present understanding of the development.

Impact 1: Loss of gravesites at location 1 and 2 as a result of mining activities (there is no mining or any other related activities that will take place at this location of the site)

Likelihood		Consequence			
Frequency of activity	Freq of impact	Benefit/Severity of impact	Spatial/Population scope	Duration	Rating
4	1	3	3	5	Low-medium
life of operation	Almost never / almost impossible	Significant / slightly harmful	Local area (within 5 km of the mine boundary)	Post closure / permanent	
Score	5	11			55

Post mitigation (fencing)

Likelihood		Consequence			
Frequency of activity	Freq of impact	Benefit/Severity of impact	Spatial/Population scope	Duration	Rating
4	1	1	3	5	Low
life of operation	Almost never / almost impossible	Insignificant / non-harmful	Local area (within 5 km of the mine boundary)	Post closure / permanent	
Score	5	9			45

Impact 2: Loss of graves at location 3 (this is located within the northern mining site and will probably be affected by mining)

Likelihood		Consequence			
Frequency of activity	Freq of impact	Benefit/Severity of impact	Spatial/Population scope	Duration	Rating
4	5	4	3	5	High
life of operation	highly likely / definitely	Great / harmful	Local area (within 5 km of the mine boundary)	Post closure / permanent	
Score	9	12			108

Post mitigation (relocation of graves)

Likelihood		Consequence			
Frequency of activity	Freq of impact	Benefit/Severity of impact	Spatial/Population scope	Duration	Rating
4	5	1	3	5	Medium-high
life of operation	highly likely / definitely	Insignificant / non-harmful	Local area (within 5 km of the mine boundary)	Post closure / permanent	
Score	9	9			81

Impact 3a: Alternative use of old houses as a result of mining activities (assuming no mining in the western block but mine uses houses for offices etc)

Likelihood		Consequence			
Frequency of activity	Freq of impact	Benefit/Severity of impact	Spatial/Population scope	Duration	Rating
4	2	2	4	4	Low-medium
Weekly / life of operation / regularly / likely	Very seldom / highly unlikely	Small / potentially harmful	Regional	Life of operation	
Score	6	10			60

Post mitigation: (mapping and documentation)

No impact reassessment required

Impact 3b: Demolition of houses as a result of mining activities (assuming mining of western block)

Likelihood		Consequence			
Frequency of activity	Freq of impact	Benefit/Severity of impact	Spatial/Population scope	Duration	Rating
4	5	3	4	5	High
Weekly / life of operation / regularly / likely	Daily / highly likely / definitely	Significant / slightly harmful	Regional (Greater Lubumbashi area)	Post closure / permanent	
Score	9	12			108

Post mitigation: (mapping and documentation before demolition)

Likelihood		Consequence			
Frequency of activity	Freq of impact	Benefit/Severity of impact	Spatial/Population scope	Duration	Rating
4	5	2	4	5	Medium-high
life of operation	highly likely / definitely	Small / potentially harmful	Regional	Post closure / permanent	
Score	9	11			99

- **The impact of the mining activities can be judged to be high and permanent in nature for only one of the three identified cemeteries.**

Ideally, the three identified cemeteries should be retained in place. This might be possible for two of the sites as they are all located close to the border of the mining area. However, the third site on the northern end of the mine is likely to be affected by the mining and will need to be relocated. Should they be retained, they must be formalised by fencing them off, with a gate that allows for access. A buffer zone of at least 20 metres should be created around each of the sites. If it is decided to relocate the graves, the proper procedures should be followed – see Appendix 5 for more details.

- **The impact of the mining activities on the Venter houses can be judged to be high and permanent in nature.**

The chances of mining taking place here is apparently very small. However, if it does take place at some time in the future the whole area, including the houses, outbuildings, infrastructure, gardens, etc. should be documented (mapped and photographed) before the houses can be demolished.

7. RECOMMENDED MANAGEMENT MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

7.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during mining activities.

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during mining activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the mining activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

7.2 Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All residents and their visitors should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.

- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

8. CONCLUSIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to develop coal mining activities.

The following heritage sites were identified in the study area:

- Three different informal cemeteries were identified. They range in size from containing 5 graves to probably as many as 100.
- A number of houses that were apparently built for the earlier mining activities (known as the Venter houses) on the site are still inhabited. They probably date to the late 1940s, early 1950s and are still sound in structure. They form a small village which include connecting roads and some elements of landscaping, e.g. planted vegetation.
- An old railway line that served the New Largo mine used to occur on the western edge of the study area. It was decommissioned, probably when the Wilge power station (1954-1987) and its staff quarters known as Voltargo and the New Largo mine were closed down. Only the embankment remains.

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a **Grade III** significance:

- The three different informal cemeteries are viewed to have a high significance on a local level.
- The old mine houses are viewed to have a medium significance on a regional level.
- The old railway line that served the New Largo mine is viewed to have a low significance on a regional level.

Analysis of the possible impact of the proposed development on the identified cultural heritage resources is based on the present understanding of the development.

- **The impact of the mining activities can be judged to be high and permanent in nature for only one of the three identified cemeteries.**

Ideally, the three identified cemeteries should be retained in place. This might be possible for two of the sites as they are all located close to the border of the mining area. However, the third site on the northern end of the mine is likely to be affected by the mining and will need to be relocated. Should they be retained, they must be formalised by fencing them off, with a gate that allows for access. A buffer zone of at least 20 metres should be created around each of the sites. If it is decided to relocate the graves, the proper procedures should be followed – see Appendix 5 for more details.

- **The impact of the mining activities on the Venter houses can be judged to be high and permanent in nature.**

The chances of mining taking place here is apparently very small. However, if it does take place at some time in the future the whole area, including the houses, outbuildings, infrastructure, gardens, etc. should be documented (mapped and photographed) before the houses can be demolished.

Based on what was found and this evaluation, it is recommended that the proposed development can continue in the area, on condition of acceptance of the above recommendations. However, we request that if archaeological sites or graves are exposed during mining activities, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

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9.4 Maps and aerial photographs

1: 50 000 Topocadastral maps: 2528DD, 2529CC, 2628BB, 2629AA

Google Earth

APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES

Significance

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

1. Historic value					
Is it important in the community, or pattern of history					
Does it have strong or special association with the life or work of a person, group or organisation of importance in history					
Does it have significance relating to the history of slavery					
2. Aesthetic value					
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group					
3. Scientific value					
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage					
Is it important in demonstrating a high degree of creative or technical achievement at a particular period					
4. Social value					
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons					
5. Rarity					
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage					
6. Representivity					
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects					
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class					
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.					
7. Sphere of Significance			High	Medium	Low
International					
National					
Provincial					
Regional					
Local					
Specific community					
8. Significance rating of feature					
1.	Low				
2.	Medium				
3.	High				

Significance of impact:

- low where the impact will not have an influence on or require to be significantly accommodated in the project design
- medium where the impact could have an influence which will require modification of the project design or alternative mitigation
- high where it would have a “no-go” implication on the project regardless of any mitigation

Certainty of prediction:

- Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

Recommended management action:

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

- 1 = no further investigation/action necessary
- 2 = controlled sampling and/or mapping of the site necessary
- 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
- 4 = preserve site at all costs
- 5 = retain graves

Legal requirements:

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

APPENDIX 2. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) No person may, without a permit issued by the responsible heritage resources authority-

- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
- (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
- (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
- (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

In terms of cemeteries and graves the following (Section 36):

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

- (a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
- (b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

APPENDIX 3: SURVEY RESULTS

See Appendix 1 for an explanation of the conventions used in assessing the significance of the cultural remains.

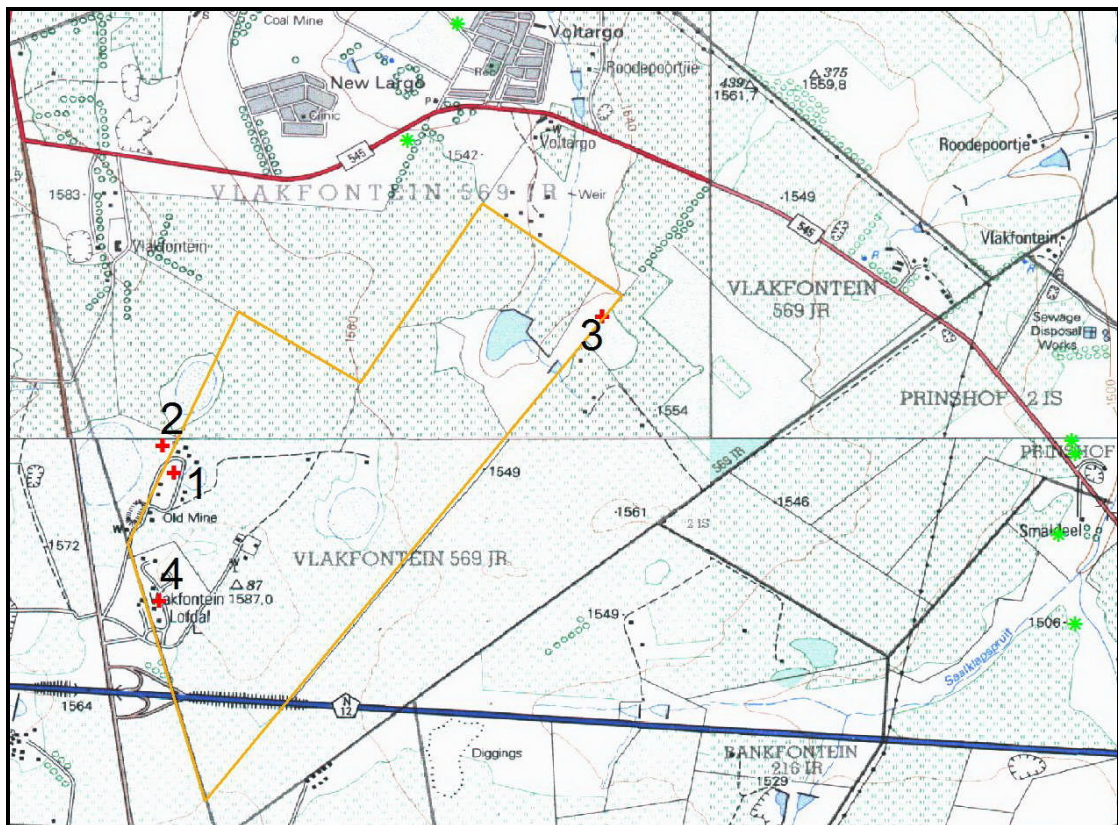


Fig. 2. Location of the study area, outlined in yellow, showing the identified sites. Red crosses are sites located in or close to study area; green stars are other known sites. (Maps 2528DD, 2529CC, 2628BB, 2629AA: Chief Surveyor-General).

Sites identified in the study area:

1. Location: Vlakfontein 569JR: S 26.00284; E 28.96474

Description: Large, informal cemetery with approximately 100 graves, most unnamed.

Discussion: There is no mining or any other related activities that will take place at this location of the site. However, it is recommended that the site is fenced off in order to protect the graves from any accidental damage.

Evaluation of significance: High on a local level

Significance of impact: Low

Certainty of prediction: Probable

Recommended management action: 5 = retain/relocate graves

Legal requirements: Consultation, notification, permits from police, Dept of Health.



Fig. 3. The large cemetery.

2. Location: Vlakfontein 569JR: S 26.00107; E 28.96398

Description: Small informal cemetery with five or six unmarked graves

Discussion: There is no mining or any other related activities that will take place at this location of the site. However, it is recommended that the site is fenced off in order to protect the graves from any accidental damage.

Evaluation of significance: High on a local level

Significance of impact: Low

Certainty of prediction: Probable

Recommended management action: 5 = retain/relocate graves

Legal requirements: Consultation, notification, permits from police, Dept of Health.



Fig. 4. The unmarked graves.

3. Location: Vlakfontein 569JR: S 25.99264; E 28.99275

Description: Small informal cemetery with six graves of former farm owners in the area.

Discussion: This site probably falls on the border of the mining area. It should be properly fenced, with a gate for access, to prevent damage during mining activities. If it is in the mining area, the graves should be relocated.

Evaluation of significance: High on a local level

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 5 = retain/relocate graves

Legal requirements: Consultation, notification, permits from police, Dept of Health.



Fig. 5. The old cemetery located in the north of the mining area.

4. Location: Vlakfontein 569JR: S 26.01132; E 28.96376

Description: A number of houses that were apparently built for the earlier mining activities on the site are still inhabited. They probably date to the late 1940s, early 1950s and are still sound in structure. They form a small village which include connecting roads and some elements of landscaping, e.g. planted vegetation. Some farming related structures (e.g. sheds and barns) were added later.

Discussion: The chances of mining taking place here is apparently very small. However, if it does take place at some time in the future the whole area, including the houses, outbuildings, infrastructure, gardens, etc. should be documented (mapped and photographed).

Evaluation of significance: Medium on a regional level

Significance of impact: High

Certainty of prediction: Uncertain

Recommended management action: 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary

Legal requirements: SAHRA permit



Fig. 6. One of the old houses.

4. Location: Vlakfontein 569JR: S 26.00039; E 28.96466

Description: An old railway line that served the New Largo mine used to occur on the western edge of the study area. It was decommissioned, probably when the Wilge power station (1954-1987) and its staff quarters known as Voltargo and the New Largo mine were closed down. Only the embankment remains.

Discussion: The chances of mining taking place here is apparently very small.

Evaluation of significance: Low on a regional level

Significance of impact: High

Certainty of prediction: Probable

Recommended management action: 1 = no further investigation/action necessary

Legal requirements: None



Fig. 7. The alignment of the old railway line can clearly be seen crossing two of the pans.
(Photo: Google Earth)

APPENDIX 4: ILLUSTRATIONS



Fig. 8. Aerial photograph of the study area.
(Google Earth).



Fig. 9. View of the study area looking north.



Fig. 10. The study area looking south west.



Fig. 11. View of the southern section of the study area, looking towards the N12.

APPENDIX 5: RELOCATION OF GRAVES

What follows below is a somewhat generic approach on the steps and procedures to follow if graves are to be relocated:

- If the graves are younger than 60 years, an undertaker can be contracted to deal with the exhumation and reburial. This will include public participation, organising cemeteries, coffins, etc. They need permits and have their own requirements that must be adhered to.
- If the graves are older than 60 years old or of undetermined age, an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. This is a requirement by law.
- SAHRA allows only archaeologists with an accreditation as Principal Investigator for the Relocation of Graves, to oversee such a process.

Once it has been decided to relocate particular graves, the following steps should be taken:

- Notices of the intention to relocate the graves need to be put up at the burial site for a period of 60 days. This should contain information where communities and family members can contact the developer/archaeologist/public-relations officer/undertaker. All information pertaining to the identification of the graves needs to be documented for the application of a SAHRA permit. The notices need to be in at least 3 languages, English, and two other languages. This is a requirement by law.
- Notices of the intention to relocate the graves needs to be placed in at least two local newspapers and have the same information as the above point. This is a requirement by law.
- Local radio stations can also be used to try contact family members. This is not required by law, but is helpful in trying to contact family members.
- During this time (60 days) a suitable cemetery need to be identified close to the development area or otherwise one specified by the family of the deceased.
- An open day for family members should be arranged after the period of 60 days so that they can gather to discuss the way forward, and to sort out any problems. The developer needs to take the families requirements into account. This is a requirement by law.
- Once the 60 days has passed and all the information from the family members have been received, a permit can be requested from SAHRA. This is a requirement by law.
- Once the permit has been received, the graves may be exhumed and relocated.
- All headstones must be relocated with the graves as well as any items found in the grave.

Information needed for the SAHRA permit application

- The permit application needs to be done by an archaeologist.
- A map of the area where the graves have been located.
- A survey report of the area prepared by an archaeologist.

- All the information on the families that have identified graves.
- If graves have not been identified and there are no headstones to indicate the grave, these are then unknown graves and should be handled as if they are older than 60 years. This information also needs to be given to SAHRA.
- A letter from the landowner giving permission to the developer to exhume and relocate the graves.
- A letter from the new cemetery confirming that the graves will be reburied there.
- Details of the farm name and number, magisterial district, and GPS coordinates of the gravesite.