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(No. 2002/007510/23)

Heritage Impact Assessment Report

Mining Right Application on the farm

BOSCHPOORT 211 IR

Ref. No. MP 30/5/1/2/2/504 MR

Prepared for:
Hoyohoyo Mining (Pty) Ltd

Date:
June 2011

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Executive summary

Hoyohoyo Mining (Pty) LTD is in the process of applying for a mining license to extract coal on the farm Boschpoort 211-IR IS: Portion 1 close to the town Delmas, Mpumalanga. GEM-Science CC was contracted to review the area and conduct the environmental impact assessment on their behalf. This heritage impact assessment forms part of the total impact assessment of the proposed mining activities.

The heritage assessment was conducted on the 7th of April 2011. The team consisted of an archaeological field expert and assistant. The aim of the survey was to determine the extent of cultural heritage within the boundaries of the area to be affected by the proposed mining activities.

Various sites of heritage significance were identified during the survey. Sites that were identified ranged from small informal cemeteries and a single grave to the remains of an old dilapidated cement dam. Outside of the perimeters of the study area a memorial for two fallen British soldiers was identified. These sites are all from the historical period and the significance of these sites vary from those sites of no significance, to those sites with a high significance, for example the cemeteries.

The proposed mining activities are based on extracting coal by making use of an open cast method. Mining activities will last for 18 months and the total lifespan of the mine will be 6.5 years. The result of this will be a large scale destruction of the identified heritage sites.

It is recommended that if mining in this area is approved and mining operations are to commence, that large scale social consulting should take place. Family members and the local community must become involved in the identification and decision making regarding individual graves and cemeteries in order to plan the mitigation process if the mining process do commence.

Disclosure

GEM-Science acts as an independent consultant in the Heritage Impact Assessment. All possible care was taken to identify all sites of cultural and archaeological importance during the investigation of the study areas. It is possible that hidden or sub-surface sites could be overlooked during the study. Neither GEM-Science nor its staff will be held liable for such oversights or for costs incurred as a result of such oversights.

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1 Background information on the project

1.1 Introduction

GEM-Science CC, an independent consultant, was contracted by Hoyohoyo Mining (Pty) LTD to conduct an Environmental Impact Assessment (EIA) and public participation process for the proposed mining activities on the farm Boschpoort 211-IR IS: Portion 1. This Heritage Impact Assessment forms part of the EIA produced for the client.

Hoyohoyo Mining (Pty) Ltd is in the process of applying for a mining license to extract coal on the farm Boschpoort 211-IR IS: Portion 1. This Heritage Impact Assessment was conducted to determine the extent of the heritage within the boundaries of the proposed mining area and how the proposed activities would impact on the heritage.

Mitigation methods and recommendations could be made as a result of the information gathered from the Mine Works Programme (MWP), field survey and desktop study.

1.2 Aim of the study

- To fulfill in the requirements of the South African Heritage Resources Act (Act nr. 25 of 1999) Section 38.
- To identify and describe sites of archaeological importance that would be affected by proposed development activities.
- To identify and describe sites of cultural heritage that would be affected by proposed development activities.
- To identify and describe the impacts of development activities on the identified sites.
- To evaluate the impacts of development activities on identified sites.
- To make recommendations regarding the conservation of identified sites.
- To recommend mitigation on the affected identified sites.
- To identify and propose management measures.

1.3 Overview of proposed mining activity

The Boschpoort Colliery mine plan comprises of an open pit mine.

The life of active production of this mine is 1½ years (18 months) and a total life of mine of 78 months or 6.5 years.

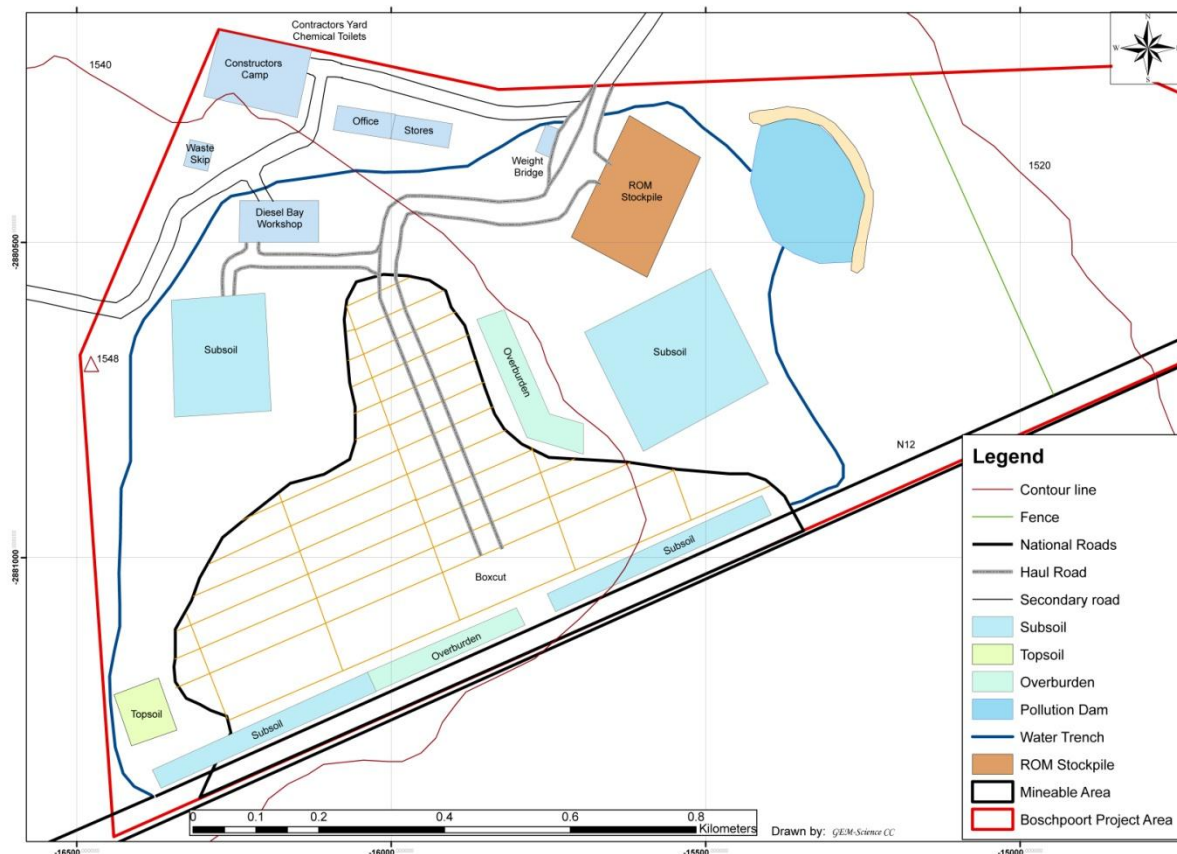


Figure 1. Proposed mine layout.

1.4 Environmental Approvals and Permits required for mining operations

According to South African Legislation, several permits/authorizations are required for the approval of the proposed mining activities to take place at the site. The Environmental Impact Assessment and Environmental Management Programme will elaborate on the requirements for these approvals, by giving the necessary recommendations for compliance. These permits/authorizations and the relevant authorities are listed in Table 1.

Table 1. Relevant permits/authorizations and relevant.

Relevant Legislation
Minerals and Petroleum Resource Development Act, Act 28 of 2002
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (c)
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (n)
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (s)
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 7
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 15
GNR 386 in Government Gazette No 28753 of 21 April 2006. Activity No 25
GNR 387 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (c)
GNR 387 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (g)
GNR 387 in Government Gazette No 28753 of 21 April 2006. Activity No 1 (p)
National Water Act, Act 36 of 1998, Section 21 (g)

1.5 Developer's, consultant's and owner's name and contact details

Project Name	Boschpoort Colliery	
Mining Right Applicant	Hoyohoyo Mining (Pty) LTD	
Contact Person	Mr Neel Shilubane	
Contact Details	Telephone nr:	+27 11 867 0584
	Fax number:	086 551 7811
	Postal address:	P.O. Box 90 349 Bertsham Johannesburg South Africa 2013
Consultant	GEM-Science CC	
Consultant contact details	Telephone nr:	Tel: 012 348 7760
	Fax number:	Fax: 086 684 0141
	Postal address:	P O Box 32748 Glenstantia 0010

1.6 Legislative requirements

The legislation, National Heritage Resources Act (Act No. 25 of 1999, section 35) requires that all objects of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance are protected. This includes, the protection of all these heritage components such as archaeology, shipwrecks, battlefields, graves and structures over 60 years, living heritage, and the collection of oral histories, historical settlements, landscapes, geological sites, paleontological sites and objects (SAHRA 2006).

The developer should take into consideration that the following legislation should be taken into account:

National Environmental Management Act (NEMA) Act 107 of 1998

National Heritage Resources Act (NHRA) Act 25 of 1999

Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

Development Facilitation Act (DFA) Act 67 of 1995

Sections referring directly to the identification, evaluation and assessment of cultural heritage resources in each Act are the following.

National Environmental Management Act (NEMA) Act 107 of 1998

Basic Environmental Assessment (BEA) – Section (23)(2)(d)

Environmental Scoping Report (ESR) – Section (29)(1)(d)

Environmental Impacts Assessment (EIA) – Section (32)(2)(d)

Environmental Management Plan (EMP) – Section (34)(b)

National Heritage Resources Act (NHRA) Act 25 of 1999

Protection of Heritage resources – Sections 34 to 36; and

Heritage Resources Management – Section 38

Minerals and Petroleum Resources Development Act (MPRDA) Act 28 of 2002

Section 39(3)

Development Facilitation Act (DFA) Act 67 of 1995

The GNR.1 of 7 January 2000: Regulations and rules in terms of the Development Facilitation Act, 1995. Section 31

2 BACKGROUND TO THE ARCHAEOLOGICAL HISTORY

2.1 Terminology

The following terminology is used when referring to cultural, historic and archaeological heritage:

Stone Age: The Stone Age began with the appearance of early humans. The Stone Age people were hunter-gatherers. Stone tools and rock art are found throughout South Africa. The Stone Age can be divided into the Early Stone Age (ESA) (2 000 000 – 150 000 Before Present); the Middle Stone Age (MSA) (150 000 – 30 000 BP) and the Late Stone Age (LSA) (30 000 until ca. AD 200).

Iron Age: This period covers the last 2000 years. Farming communities moved down from the eastern parts of Africa into the southern parts of Africa. These people settled permanently, practised agriculture and had domesticated animals. They introduced metal and mining to Southern Africa.

Historical period: This period falls into the last 300 years with the arrival of white settlers on the continent. These settlers moved into the interior of southern Africa to among other settle, farm and mine.

A Heritage Impact Assessment (HIA) is not limited to artefacts, historical buildings and graves; it is far more encompassing and includes intangible and invisible resources such as places, oral traditions and rituals. A heritage resource can be described as any place or object of cultural significance i.e. aesthetic, architectural, historic, scientific, social, spiritual, linguistic or technological value or significance.

2.2 Literature review

Various San rock art have been identified in the Carolina, Badplaas and Chrissiesmeer area, especially along rivers and rocky outcrops (Bergh 1998). This can be because of the easy access to water sources in the area. Mason (1962) refers to a number of settlements during the Prehistory of the Transvaal, whilst Maggs (1979) also comments on the Iron Age of the southern Highveld. In Bergh (1998) and Malan & Van Niekerk (1955) there is a referral to a Late Stone Age site Groenvlei close to Carolina. This site is one of a few in the area that dates to the past 2500 years and is associated with pottery and micro-lithic tools of the Late Stone Age hunters and herders (Korsman & Van der Ryst). Some Late Iron Age sites are found in the Badplaas area, north east of Carolina and towards the south west area close to Chrissiesmeer (Van der Ryst 1998).

A number of Anglo Boer War skirmishes occurred in the greater area. According to the SA Wargraves committee “Major Francis Charles Minshull-Ford, D.S.O., South African Constabulary (late Bethune’s M.I., and formerly 2nd Batt. Highland Light Infantry), was killed in action at Mooline Tagesfontein, Transvaal, on October 18th, 1901.” The only remains of the battle are the memorial situated adjacent to the study area. Major F.C. Minshull-Ford was the oldest son of the late Capt. J.R. Minshull-Ford, 8th The King’s (now the Liverpool) Regt., of Llwyngwern, Montgomeryshire, and Mrs Minshull-Ford, of Shorncliffe Road, Folkestone. Major Minshull-Ford was born 1870 and entered the Highland Light Infantry in 1892, was promoted lieut. 1894 and was voluntarily placed on the Reserve of Officers’ List in 1897.

2.3 Reference used

A number of HIA’s have been conducted in the southern part of Mpumalanga, the SAHRA database (2009) was used to find these assessments.

3 Description of the property of affected environment

3.1 Location of surveyed area

The proposed Boschpoort Colliery is situated in the Victor Khanye Local Municipality in the Nkangala District Municipality, close to the town of Delmas, Mpumalanga, South Africa (.

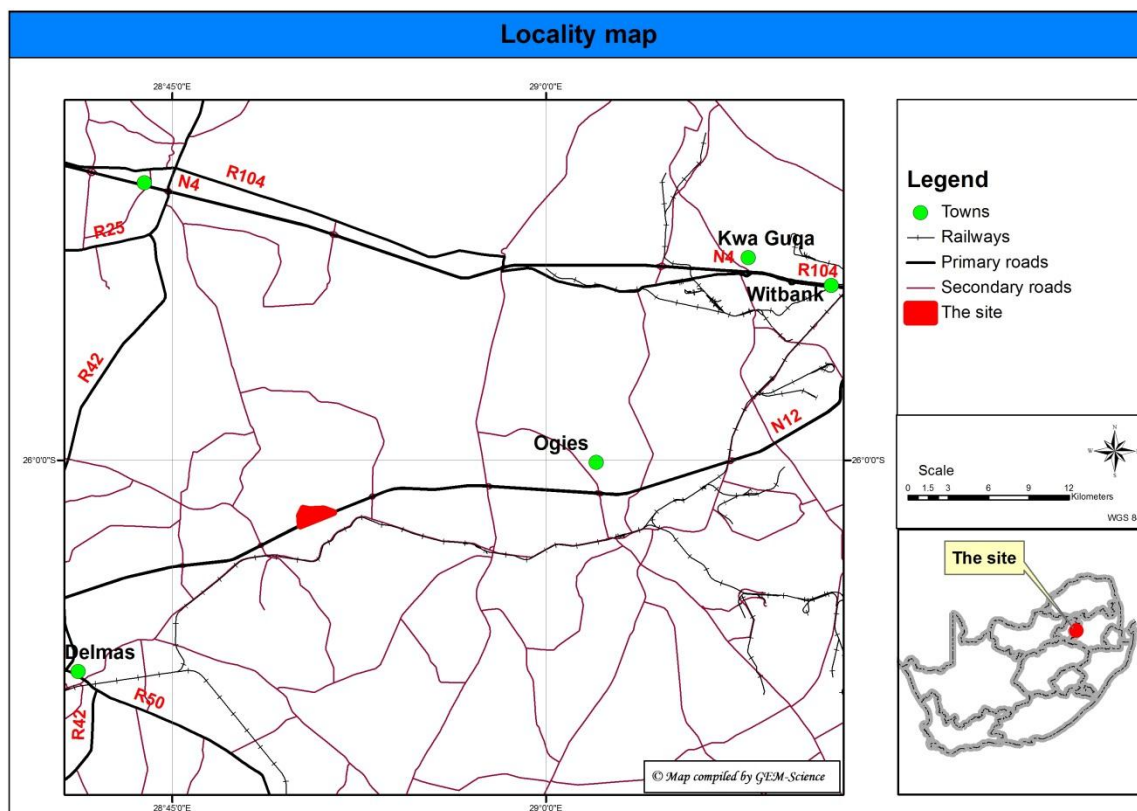


Figure 2. Location of the proposed mining right area

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The proposed area for the mining operation is primarily utilized for agricultural activities such as maize production and grazing. The remaining area comprises of grassland, wetlands riparian areas and small ridges/outcrops. The proposed mining site falls within the Grassland Biome and are classified as Eastern Highveld Grassland according to Mucina & Rutherford (2006).

There are farm roads and housing structures found on the site. Various primary and secondary roads, telephone lines and power lines cut through the site.

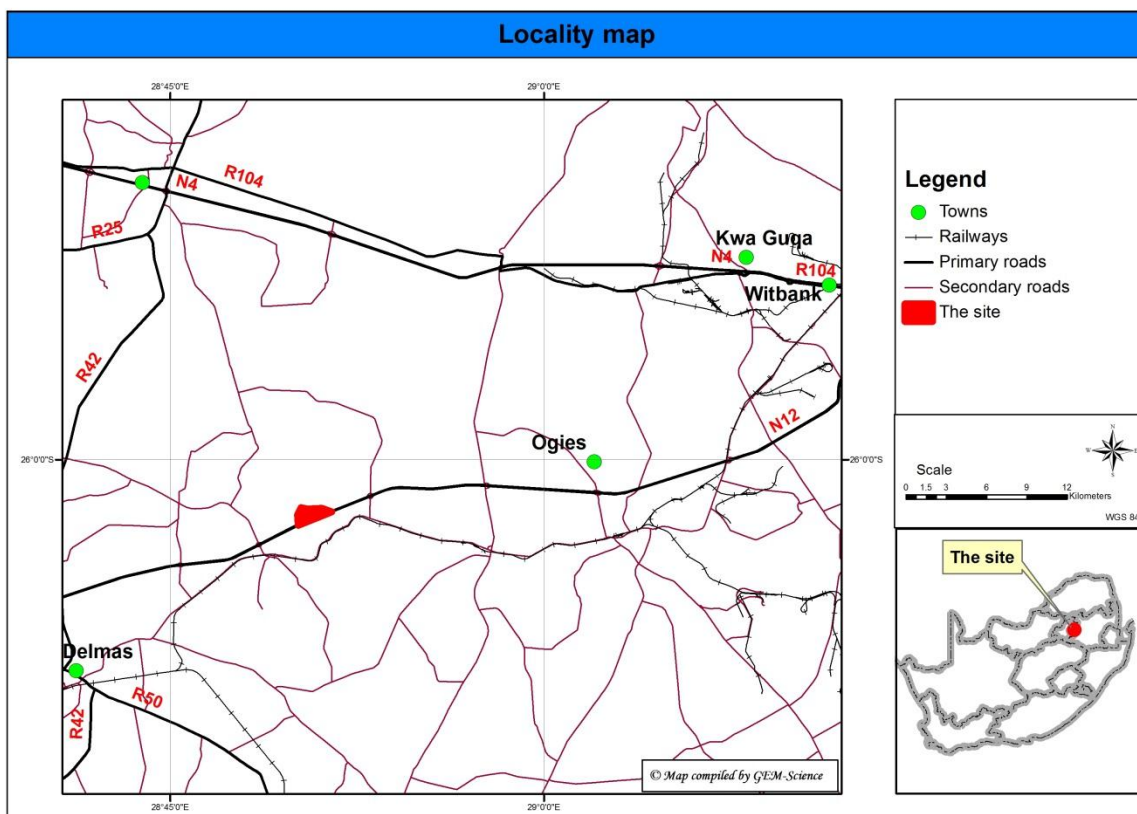


Figure 2. Location of the proposed mining right area

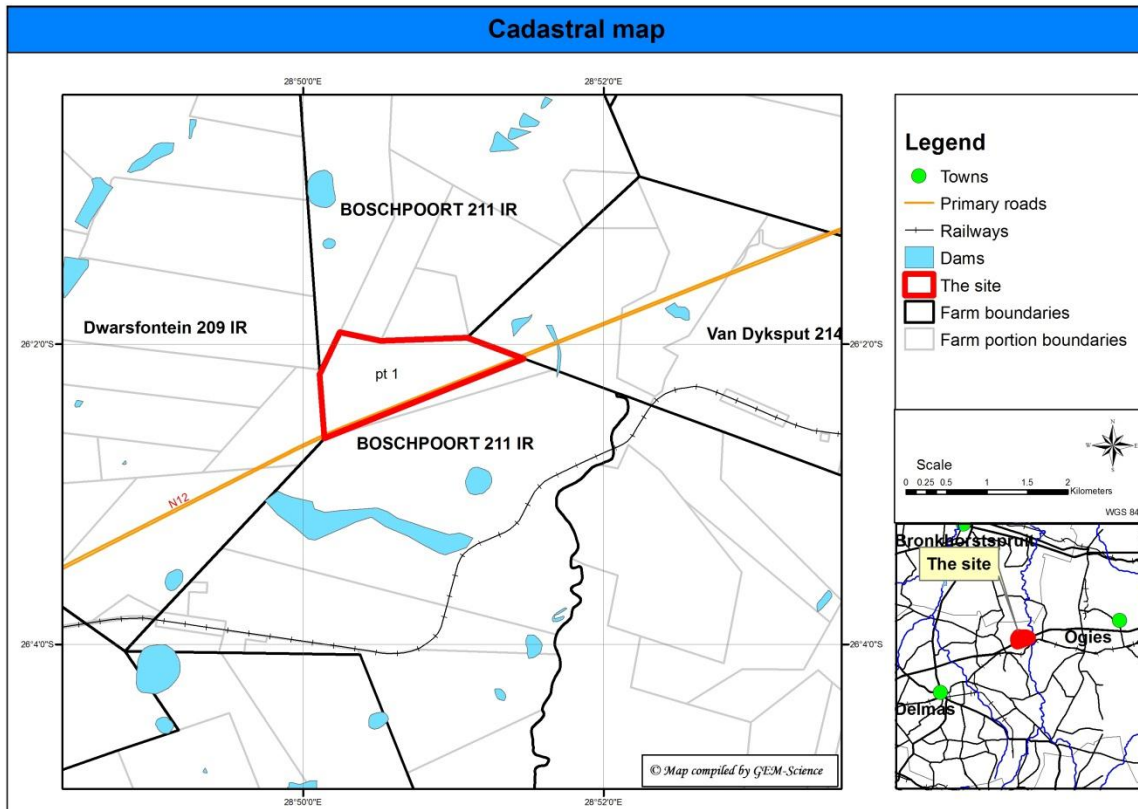


Figure 3. Cadastral map of the proposed mining area

3.2 Methodology

After the necessary permissions were obtained, a heritage assessment was conducted on the 7th of April 2011. The team consisted of an archaeological field expert and assistant. The aim of the survey was to determine the extent of archaeological and cultural heritage within the boundaries of the area to be affected by the proposed mining activities.

The team was initially guided to sites of heritage importance by the farm manager Mr Nico Kachelhoffer and farm labourers. Subsequent interviews with the farm workers were conducted. They pointed out some of the identified sites. The majority of the surveyed area is covered by open ploughed agricultural land, the survey was therefore conducted on foot and vehicle.

A GPS was used during the survey process to log all the relevant sites and finds. Photographs of all the relevant sites were taken. No sampling was done during the survey. The sites were

plotted using a Global Positioning System (GPS) (Garmin E-Trek Legend) and numbered accordingly.

Inclement weather and muddy roads initially impacted on the accessibility of the study area. The survey had to be postponed, but once the survey commenced no physical or other impediments had an impact on the survey. Data was acquired by using different databases, journal articles, HIA reports, interviews, maps and aerial photographs.

4 Significance and Recommended Rating

This section will deal with the significance and recommended rating of heritage sites. The following criteria were used to determine the significance of heritage sites.

- The unique nature of a site
- The amount/depth of the archaeological deposit and the range of features (stone walls, activity areas etc.)
- The wider historic, archaeological and geographic context of the site
- The preservation condition and integrity of the site
- The potential to answer present research questions

4.1 Site Significance

Site significance classification standards prescribed by the South African Heritage Resources Agency (2006) and approved by the Association for Southern African Professional Archaeologists (ASAPA) for the Southern African Development Community (SADC) region, were used for the purpose of this report.

Low or No Significance:

The constraint is absent, but in instances where present, poses a negligible significance on the proposed development in terms of heritage concerns.

Moderate Significance:

The constraint is present and poses a notable but not major significance on the proposed development in terms of heritage concerns. If the constraint can not be avoided, appropriate mitigation measures must be implemented to minimize the significance.

High Significance:

The constraint is present and poses a high significance on the proposed development in terms of heritage concerns. It is recommended that the constraint be avoided or appropriate mitigation measures must be implemented to minimize the significance.

4.2 Field Ratings

The following field ratings were used describing the significant archaeological heritage value of each site in term of the legislation NHRA, section 3 (3).

Table 2. Field rating

FIELD RATING	GRADE	SIGNIFICANCE	RECOMMENDED MITIGATION
National Significance (NS)	Grade 1	-	Conservation; National Site nomination
Provincial Significance (PS)	Grade 2	-	Conservation; Provincial Site nomination
Local Significance (LS)	Grade 3A	High Significance	Conservation; Mitigation not advised
Local Significance (LS)	Grade 3B	High Significance	Mitigation (Part of site should be retained)
Generally Protected A (GP.A)	Grade 4A	High / Medium Significance	Mitigation before destruction
Generally Protected B (GP.B)	Grade 4B	Medium Significance	Recording before destruction
Generally Protected C (GP.C)	Grade 4C	Low Significance	Destruction

4.3 Impact rating

Very High

These impacts would be considered by society as constituting a major and usually permanent change to the (natural and/or cultural) environment, and usually result in severe or very severe effects, or beneficial or very beneficial effects.

Example: The loss of a species would be viewed by informed society as being of *Very High* significance.

Example: The establishment of a large amount of infrastructure in a rural area, which previously had very few services, would be regarded by the affected parties as resulting in benefits with a *Very High* significance.

High

These impacts will usually result in long term effects on the social and /or natural environment. Impacts rated as *High* will need to be considered by society as constituting an important and usually long term change to the (natural and/or social) environment. Society would probably view these impacts in a serious light.

Example: The loss of a diverse vegetation type, which is fairly common elsewhere, would have a significance rating of *High* over the long term, as the area could be rehabilitated.

Example: The change to soil conditions will impact the natural system, and the impact on affected parties (e.g. farmers) would be *high*.

Moderate

These impacts will usually result in medium- to long-term effects on the social and/or natural environment. Impacts rated as *Moderate* will need to be considered by the public or the specialist as constituting a fairly unimportant and usually short term change to the (natural and/or social) environment. These impacts are real, but not substantial.

Example: The loss of a sparse, open vegetation type of low diversity may be regarded as *Moderately* significant.

Example: The provision of a clinic in a rural area would result in a benefit of *moderate* significance.

Low

These impacts will usually result in medium to short term effects on the social and/or natural environment. Impacts rated as *Low* will need to be considered by society as constituting a fairly important and usually medium term change to the (natural and/or social) environment. These impacts are not substantial and are likely to have little real effect.

Example: The temporary changes in the water table of a wetland habitat, as these systems are adapted to fluctuating water levels.

Example: The increased earning potential of people employed as a result of a development would only result in benefits of *Low* significance to people living some distance away.

No Significance

There are no primary or secondary effects at all that are important to scientists or the public.

Example: A change to the geology of a certain formation may be regarded as severe from a geological perspective, but is of *No Significance* in the overall context.

4.4 Certainty of Prediction

DEFINITE: More than 90% sure of a particular fact. Substantial supportive data exist to verify the assessment.

PROBABLE: Over 70% sure of a particular fact, or of the likelihood of an impact occurring.

POSSIBLE: Only over 40% sure of a particular fact, or of the likelihood of an impact occurring.

UNSURE: Less than 40% sure of a particular fact, or of the likelihood of an impact occurring.

4.5 Duration of impact

SHORT TERM: 0 – 5 years

MEDIUM: 6 – 20 years

LONG TERM: more than 20 years

DEMOLISHED: site will be demolished or is already demolished

4.6 Mitigation measures

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be classified as follows:

- **A** – No further action necessary
- **B** – Mapping of the site and controlled sampling required
- **C** – Preserve site, or extensive data collection and mapping required; and
- **D** – Preserve site

5 Description of sites identified, artefacts, other finds and features and burials grounds and graves.

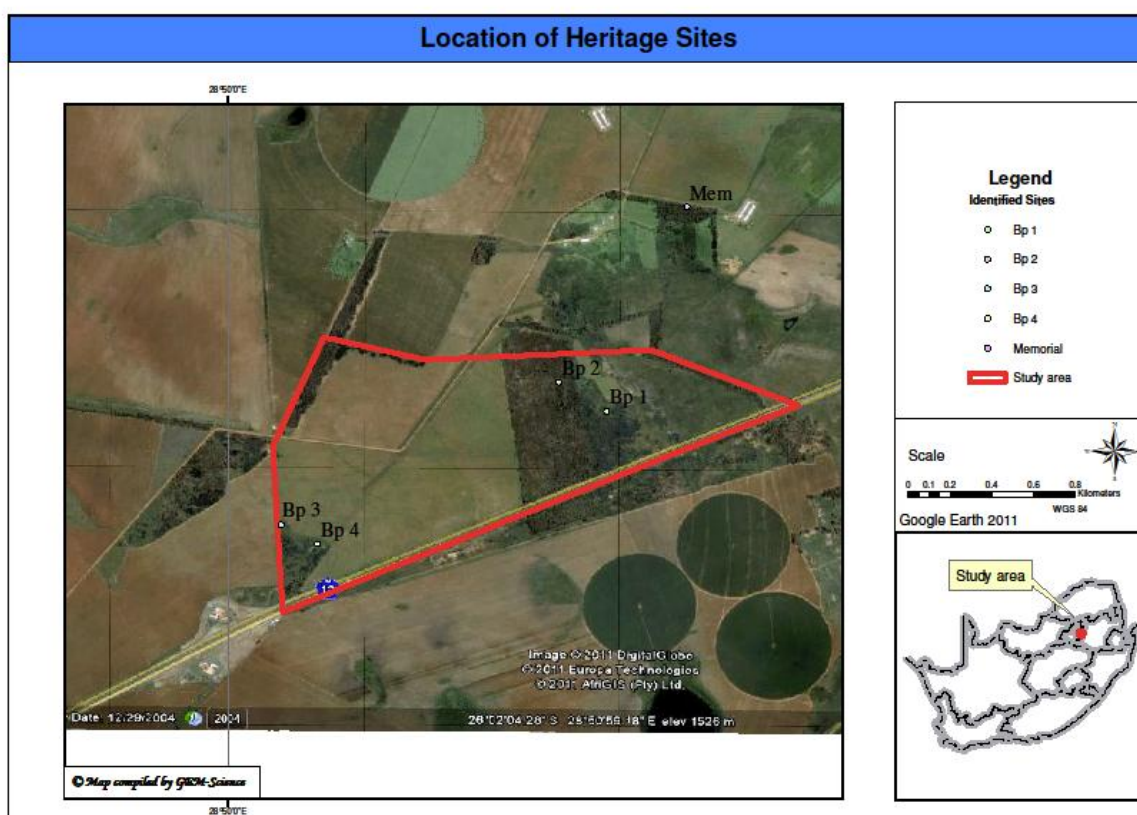


Figure 4. Location of Heritage Sites

5.1 Site BP 1

A small, informal cemetery with approximately 40 graves was identified here. The cemetery was situated approximately 30m to the north of a ploughed and planted maize field. The cemetery was identified in a wattle plantation. The graves were placed in six unequal lines next to each other and all were orientated from west to east. Some of the graves had rectangular shaped cement outlines as dressings with cement headstones. Some of the graves only had cemented headstones with informal mounds of packed rocks and soil as dressings. Some of these headstones were inscribed with names and dates which indicated that the majority of burials occurred during the 1940's up to the 1960's. The rest of the graves had informal dressings which consisted of elongated oval shaped mounds of packed rocks and soil. The cemetery was not maintained and the graves were overgrown with dense vegetation. The dense vegetation made the identification of the exact number of graves difficult and the number of graves was estimated to be approximately 40.

Site size: Approximately 30m x 20m.

Field Rating: Generally Protected A (4A)

Heritage Significance: High Significance

Impact: Very High

Certainty: Definite

Duration: Demolished

Mitigation: C – Preserve site, or data collection and mapping required



Figure 3: Site BP 1 A small informal cemetery



Figure 5. Site BP 1 A grave with cemented headstone in a small informal cemetery



Figure 6. A grave with cemented dressing in a small informal cemetery

5.2 Site BP 2

A single, informal grave was identified at this location. The grave was identified approximately 200m north-west of the small cemetery with approximately 40 graves (as described in site BP 1). The grave was found in a small clearing in the wattle plantation. The grave had an informal dressing which consisted of a large, elongated oval shaped mound of packed rocks and soil. The grave was orientated from west to east and was overgrown with vegetation. The grave had no headstone and it was not known when this individual was buried here.

Site size: Approximately 3m x 2m.

Field Rating: Generally Protected A (4A)

Heritage Significance: High Significance

Impact: Very High

Certainty: Definite

Duration: Demolished

Mitigation: C – Preserve site, or data collection and mapping required



Figure 7. Site BP 2 A single informal grave

5.3 Site BP 3

A small, informal cemetery with eight graves was identified here. The cemetery was situated approximately 20m from and on the eastern side of the western boundary fence of the property. The small cemetery was found in a ploughed and planted maize field. The graves were placed in two lines of four graves each and all were orientated from west to east. Two of the graves had formal cement and granite dressings with inscribed headstones. These two graves were placed here during the 1950's. The rest of the graves had informal dressings which consisted of elongated oval shaped mounds of packed rocks and soil. The cemetery was not maintained and the graves were overgrown with dense vegetation. One grave had a ceramic pot placed on it as grave goods.

Site size: Approximately 20m x 15m.

Field Rating: Generally Protected A (4A)

Heritage Significance: High Significance

Impact: Very High

Certainty: Definite

Duration: Demolished

Mitigation: C – Preserve site, or data collection and mapping required



Figure 8. Site BP 3 A small informal cemetery



Figure 9. Site BP 3 A grave with elongated oval mound packed with rocks in a small informal cemetery



Figure 10. Site BP 3 A grave with formal cement and granite dressing in a small informal cemetery

5.4 Site BP 4

The remains and foundations of an old circular cement dam were identified at this location. The remains consisted of brick and cement rubble which was left behind after the dam was demolished. Most of the other brick and cement rubble was already removed from this location. The original dam measured approximately 10m in diameter. It is not known when this dam was constructed, but it was most probably from within the last 60 years.

Site size: Approximately 10m in diameter.

Field Rating: No significance

Heritage Significance: No significance

Impact: No significance

Certainty: Definite

Duration: Demolished

Mitigation: A – No further action required



Figure 11. Site BP 4 The remains of an old circular cement dam



Figure 12. Site BP 4 The remains of an old circular cement dam

5.5 Site BP 5

A memorial for two fallen British soldiers was identified at this location. This memorial falls outside of the study area and was shown by the farm manager Mr. Nico Kachelhoffer.

“St. Edwards Crown

In memory of Maj. I.C. Minshull-Ford and
Trp. M. Crampton of the SA Constabulary who
were killed in action on 17 October 1901
and buried near this spot and are now reinterred
at Rietfontein, Dist. Brits.
SA War Graves Board July 1972”

Field Rating: Generally Protected A (4A)

Heritage Significance: Moderate significance

Impact: Low

Certainty: Definite

Duration: Short term

Mitigation: A – No further action required



Figure 13. Site BP 5 A memorial for two fallen British soldiers

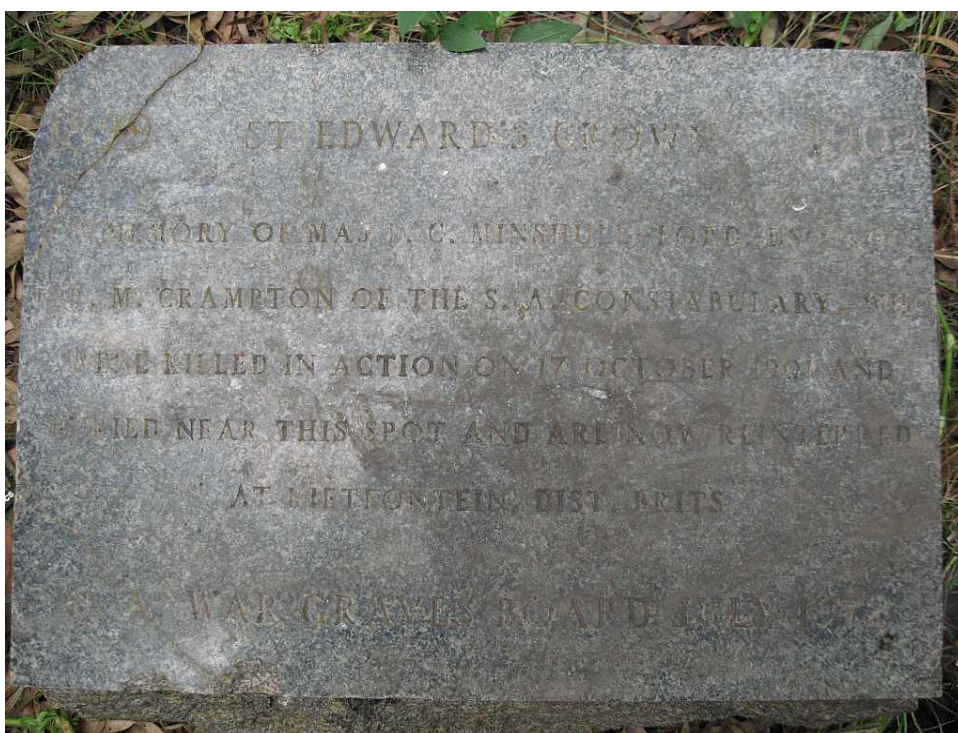


Figure 14. Site BP 5 A memorial for two fallen British soldiers

6 Recommendations

The following steps and measures are recommended regarding the investigated area:

6.1 Site BP 1, Site BP 2 and Site BP 3

The identified graves fell within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.

Graves older than 60 years (or presumed older) and not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves) younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.

The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.

If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:

- It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved.
- It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.
- It is advisable to fence the graves to prevent future mistakes.
- The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves.

- The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts.
- Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities.
- The planning team should ensure that access to the graves is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development.

If the above recommendations cannot be adhered to, further steps and measures should be taken to move the graves and relocate them to one of the official graveyards in the area. This should only be done as last resort if no other options deem to be possible. The following process is then required:

- A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the graves.
- Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law.

Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by professionals.

6.2 Site BP 4

The site is insignificant and most probably not older than 60 years. The cement dam was demolished and only rubble was left behind. No further work or mitigation measures are recommended.

6.3 Site BP 5

The site does not fall within perimeters of the proposed development area, and will therefore not be directly affected by the proposed mining activities. No further mitigation is necessary. It is however recommended that should development encroach into the vicinity of the memorial the necessary precautionary measures be followed:

If the developer decides to plan the development around the memorial and leave it undisturbed, adequate arrangements should be made to protect the memorial from the impact of the development. These should include the following:

- It is important to understand that the identified memorial could have significant heritage value to the relevant families and should therefore be preserved.
- It is recommended that the identified memorial should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the memorial.
- It is advisable to fence the memorial to prevent future mistakes.
- The relevant authorities should be informed about the proposed activities which could possibly affect the memorial.
- The proposed earth-moving/bush clearing activities should be altered and should be planned around this memorial in order to protect it from any damage or other negative impacts.
- Bush clearing crews should be made aware of the memorial in order that the memorial will not be damaged during the earth-moving activities.
- The planning team should ensure that access to the memorial is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the memorial next to the proposed development.

6.4 Loss of as yet unidentified archaeological and cultural heritage

Chance find procedures should be developed prior to construction and should be implemented in the event that chance finds are discovered during construction or operations.

Chance find procedures should include the following:

- Employees and contractors should be notified that archaeological sites might be exposed during the mining activities.

- Should any heritage artefacts and sites be exposed during excavation, work in the area where the artefacts and sites were discovered shall cease immediately and the relevant authorities 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 on advice from these specialists, the relevant authorities will determine the necessary actions to be taken.
- Under no circumstances shall any artefacts and sites be removed, destroyed or interfered with by anyone on the site.
- Contractors and workers shall be advised of the penalties associated with the unlawful removal and destruction of cultural, historical, archaeological or paleontological artefacts and sites, as set out in NHRA (Act 25 of 1999), Section 51(1).

7 Summary of findings

Table 3. Summary of findings

Identified sites	Field rating	Heritage Significance	Impact	Certainty	Duration	Mitigation Measures
Small informal cemetery (site BP 1), single informal grave (site BP 2), Small informal cemetery (site BP 3)	Generally protected A (4A)	High significance	Very high	Definite	Demolished	<p>C – Preserve site, or data collection and mapping required.</p> <p>The identified graves fall within the area intended for development, and the developer should take note of the location and recommendations regarding these graves.</p> <p>Graves older than 60 years (or presumed older) and not in a municipal graveyard are protected in terms of the National Heritage Act (No. 25 of 1999). Human remains (graves) younger than 60 years may only be handled by a registered undertaker or institution declared under the Human Tissues Act.</p> <p>The developer is required to follow the process described in the legislation (section 36 and its associated regulations) if he wants to develop in an area where there are graves older than 60 years.</p> <p>If the developer decides to plan the development around the graves and leave them undisturbed, adequate arrangements should be made to protect the graves from the impact of the development. These should include the following:</p> <ul style="list-style-type: none"> ▪ It is important to understand that the identified graves could have significant heritage value to the relevant families (if identified) and should therefore be preserved. ▪ It is recommended that the identified graves should be clearly marked with danger tape during the entire duration of the project and

						<p>especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the graves.</p> <ul style="list-style-type: none"> ▪ It is advisable to fence the graves to prevent future mistakes. ▪ The relevant families should be identified (if possible) and should be informed about the proposed activities which could possibly affect their graves. ▪ The proposed earth-moving/bush clearing activities should be altered and should be planned around these graves in order to protect them from any damage or other negative impacts. ▪ Bush clearing crews should be made aware of the graves in order that the graves will not be damaged during the earth-moving activities. ▪ The planning team should ensure that access to the graves is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the graves next to the proposed development. <p>If the above recommendations cannot be adhered to, further steps and measures should be taken to move the graves and relocate them to one of the official graveyards in the area. This should only be done as last resort if no other options deem to be possible. The following process is then required:</p> <ul style="list-style-type: none"> ▪ A process of consultation with the affected families and communities, if identified, should then be initiated to start the relocation of the graves. ▪ Various applications to various Departments should be put into motion to obtain the necessary permissions and permits to perform the relocation of the graves. These applications and permits are required by law. <p>Only after all the required permissions and permits have been obtained, can the relocation of the graves continue as performed by</p>
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						professionals.
Remains of an old circular cement dam	No significance	No significance	No significance	Definite	Demolished	A – No further action required
Memorial for two fallen British soldiers	Generally protected A (4A)	Moderate Significance	Low	Definite	Short term	<p>A – No further action required</p> <p>The site does not fall within perimeters of the proposed development area, and will therefore not be directly affected by the proposed mining activities. No further mitigation is necessary. It is however recommended that should development encroach into the vicinity of the memorial the necessary precautionary measures be followed:</p> <p>If the developer decides to plan the development around the memorial and leave it undisturbed, adequate arrangements should be made to protect the memorial from the impact of the development. These should include the following:</p> <ul style="list-style-type: none"> ▪ It is important to understand that the identified memorial could have significant heritage value to the relevant families and should therefore be preserved. ▪ It is recommended that the identified memorial should be clearly marked with danger tape during the entire duration of the project and especially during earth-moving/bush clearing activities and a 10m - 20m buffer zone must be allowed around the memorial. ▪ It is advisable to fence the memorial to prevent future mistakes. ▪ The relevant authorities should be informed about the proposed activities which could possibly affect the memorial. ▪ The proposed earth-moving/bush clearing activities should be altered and should be planned around this memorial in order to protect it from any damage or other negative impacts. ▪ Bush clearing crews should be made aware of the memorial in order that the memorial will not be damaged during the earth-moving

						<p>activities.</p> <ul style="list-style-type: none"> ▪ The planning team should ensure that access to the memorial is not limited in any way. A small management plan should be set up to ensure the future safety, access and maintenance of the memorial next to the proposed development.
Loss of as yet unidentified archaeological and cultural heritage						<p>Chance find procedures should be developed prior to construction and should be implemented in the event that chance finds are discovered during construction or operations.</p> <p>Chance find procedures should include the following:</p> <p>Employees and contractors should be notified that archaeological sites might be exposed during the mining activities.</p> <p>Should any heritage artefacts and sites be exposed during excavation, work in the area where the artefacts and sites were discovered shall cease immediately and the relevant authorities shall be notified as soon as possible.</p> <p>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 on advice from these specialists, the relevant authorities will determine the necessary actions to be taken.</p> <p>Under no circumstances shall any artefacts and sites be removed, destroyed or interfered with by anyone on the site.</p> <p>Contractors and workers shall be advised of the penalties associated with the unlawful removal and destruction of cultural, historical, archaeological or paleontological artefacts and sites, as set out in NHRA (Act 25 of 1999), Section 51(1).</p>

8 Conclusion

The heritage survey intended to locate, identify, evaluate and document sites, objects and structures of heritage, cultural and archaeological importance found within the proposed development area. The study intended to assess to what extent the proposed development would impact on the identified sites.

A number of sites dating to the historic period have been identified that would be impacted on by the proposed development.

The identified sites will all be impacted on by the proposed mining activities, but legislation requires mitigation measures to be implemented. The impacts on the sites will be permanent and destructive due to the nature of the proposed activities.

It is recommended that the proposed development can continue in the area, on condition of the acceptance and implementation of the recommendations and mitigation measures for each identified site before development takes place.

The developer should keep in mind that archaeological sites and graves might be exposed during the mining activities. If anything is noticed during the development, work in that area should be stopped and the occurrence should immediately be reported to the necessary authorities or to a heritage consultant. Further investigation should then commence.

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