Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

A REPORT ON A HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED BENEFICATION PLANT AT KRIEL COLLIERY, MPUMALANGA PROVINCE

For:

SRK
PO Box 55291
Northlands
2116

REPORT: **AE01222V**

By:

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DISCLAIMER:

Although all possible care is taken to identify all sites of cultural importance during the survey of study areas, the nature of archaeological and historical sites are as such that it always is possible that hidden or subterranean sites could be overlooked during the study. Archaetnos and its personnel will not be held liable for such oversights or for costs incurred as a result thereof.

The South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report and clients are advised not to proceed with any action before receiving these. It is the responsibility of the client to submit this report to the relevant heritage authority.

EXECUTIVE SUMMARY

Archaetnos cc was appointed by SRK to conduct a cultural heritage study for the proposed benefication plant at the Kriel Colliery. This is located close to the town of Kriel in the Mpumalanga Province.

The benefication plant will include a discard facility close to current operations at the mine. The client indicated the area where the proposed development is to take place. The field survey was confined to this area.

The heritage survey was done to identify objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the property. These also needs to be assessed it terms of significance relating to archaeological, historical, scientific, social, religious, aesthetic and tourism value. Possible impact on these are to be described and recommend for suitable mitigation measures proposed.

Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity. Cultural significance is site-specific and relates to the content and context of the site.

The methodology for the survey included a survey of literature which was undertaken in order to obtain background information regarding the area. This was followed by a field survey. All sites, objects features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS). The information was added to the description in order to facilitate the identification of each locality. The evaluation of Heritage sites is done by giving a field rating of each.

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998). These are shortly discussed in the report.

During the survey one site of cultural heritage significance was located in the area to be developed. It is a grave yard belonging to the Historical Age. No Stone or Iron Age sites were identified. This is not surprising as the broader geographical area is not known for such sites.

The site found is a grave yard consisting of 14 graves. Graves always are regarded as having a **high** cultural significance. In this case there are two categories of graves being those older than 60 years and those of an unknown date. These are therefore all heritage graves. They are of a local significance and are therefore given a rating of Grade IIIB. It may however be mitigated.

The state of the graves that were identified is a large concern. The mine will have to take action to upgrade and restore the site except if it decided that it will be relocated.

The basic recommendation are as follows:

- From the available plans it seems that there will not be a direct impact on the site. Therefore option 1 is recommended. The graves should be fenced in and a management plan for the sustainable preservation thereof be written by a heritage expert.

- The graves also should be repaired as it in a bad state.

- It is possible that there is a direct impact on the site. If so, the mine needs to indicate this on their plans. Should this be the case option 2 will be recommended. This is the exhumation and relocation thereof.

- In such a process an archaeologist and undertaker is involved for heritage graves. Graves younger than 60 years only needs to be handled by an undertaker.

- A social consultation process will also be needed and the necessary permits needs to be obtained from SAHRA and the health authorities. This can all be handled by the undertakers and archaeologists.

- It should be remembered that due to the natural factors indicated in the report, it is possible that all cultural sites may not have been identified. Also the subterranean presence of archaeological and/or historical sites, features or artifacts are always a distinct possibility. Care should therefore be taken when development work commences that, if any more artifacts are uncovered, a qualified archaeologist be called in to investigate.

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1. INTRODUCTION

Archaetnos cc was appointed by SRK to conduct a cultural heritage study for the proposed benefication plant at the Kriel Colliery. This is located close to the town of Kriel in the Mpumalanga Province.

The benefication plant will include a discard facility close to current operations at the mine. The client indicated the area where the proposed development is to take place. The field survey was confined to this area.

2. TERMS OF REFERENCE, SCOPE & PURPOSE

The heritage survey was done to:

1. Identify objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the property (see Appendix A).

2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).

3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.

4. Recommend suitable mitigation measures to minimize possible negative impacts on the cultural resources by the proposed development.

5. Review applicable legislative requirements.

3. CONDITIONS, ASSUMPTIONS, UNCERTAINTIES & GAPS IN KNOWLEDGE

The following conditions and assumptions have a direct bearing on the survey and the resulting report:

1. Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity (Appendix A). These include all sites, structure and artifacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development. Graves and cemeteries are included in this.

2. The significance of the sites, structures and artifacts is determined by means of their historical, social, aesthetic, technological and scientific value in relation to their uniqueness, condition of preservation and research potential. The various aspects are not mutually exclusive, and the evaluation of any site is done with reference to any number of these aspects.

3. Cultural significance is site-specific and relates to the content and context of the site. Sites regarded as having low cultural significance have already been recorded in full and require no further mitigation. Sites with medium cultural significance may or may not require mitigation depending on other factors such as the significance of impact on the site. Sites with a high cultural significance require further mitigation (see Appendix C).

4. The latitude and longitude of any archaeological or historical site or feature, is to be treated as sensitive information by the developer and should not be disclosed to members of the public.

5. All recommendations are made with full cognizance of the relevant legislation.

6. It has to be mentioned that it is almost impossible to locate all the cultural resources in a given area, as it will be very time consuming. Developers should however note that the report should make it clear how to handle any other finds that might occur. In this particular case the vegetation cover in certain areas is dense making archaeological visibility difficult.

4. DETAILS & EXPERTISE OF PERSON WHO PREPARED THE REPORT

Dr. Anton Carl van Vollenhoven:

Tertiary education

- BA 1986, University of Pretoria
- BA (HONS) Archaeology 1988 (cum laude), University of Pretoria
- MA Archaeology 1992, University of Pretoria
- Post-Graduate Diploma in Museology 1993 (cum laude), University of Pretoria
- Diploma Tertiary Education 1993, University of Pretoria
- DPhil Archaeology 2001, University of Pretoria.
- MA Cultural History 1998 (cum laude), University of Stellenbosch
- Management Diploma 2007 (cum laude), Tshwane University of Technology
- DPhil History 2010, University of Stellenbosch

Relevant positions held

- *1988-1991:* Fort Klapperkop Military Museum - Researcher
- *1991-1999:* National Cultural History Museum. Work as Archaeologist, as well as Curator/Manager of Pioneer Museum (1994-1997)
- *1999-2002:* City Council of Pretoria. Work as Curator: Fort Klapperkop Heritage Site and Acting Deputy Manager Museums and Heritage.
- *2002*-2007: City of Tshwane Metropolitan Municipality. Work as Deputy Manager Museums and Heritage.
- *August 2007* – present – Managing Director for Archaetnos Archaeologists.
- *1988-2003*: Part-time lecturer in Archaeology at the University of Pretoria and a part-time lecturer on Cultural Resources Management in the Department of History at the

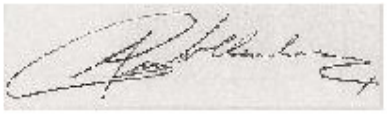
University of Pretoria.

Experience and professional affiliations

- Has published 71 articles in scientific and popular journals on archaeology and history.
- Has been the author and co-author of over 360 unpublished reports on cultural resources surveys and archaeological work.
- Has published a book on the Military Fortifications of Pretoria.
- Has delivered more than 40 papers and lectures at national and international conferences.
- Member of SAHRA Council for 2003 – 2006.
- Member of the South African Academy for Science and Art.
- Member of Association for South African Professional Archaeologists.
- Member of the South African Society for Cultural History (Chairperson 2006-2008).
- Has been editor for the SA Journal of Cultural History 2002-2004.
- Member of the Gauteng PHRA's HIA adjudication committee.

5. DECLARATION OF INDEPENDENCE

I, Anton Carl van Vollenhoven from Archaetnos, hereby declare that I am an independent specialist within the field of heritage management.



Signed Date: 26 April 2012

6. METHODOLOGY

6.1 Survey of literature

A survey of literature was undertaken in order to obtain background information regarding the area. Sources consulted in this regard are indicated in the bibliography.

6.2 Field survey

The survey was conducted according to generally accepted HIA practices and was aimed at locating all possible objects, sites and features of cultural significance in the area of proposed development. If required, the location/position of any site was determined by means of a Global Positioning System (GPS)[1], while photographs were also taken where needed.

The survey was undertaken by a physical survey via off-road vehicle and on foot.

[1] A Garmin Oregon 550 with an accuracy factor of a few meters.

6.3 Oral histories

People from local communities are interviewed in order to obtain information relating to the surveyed area. It needs to be stated that this is not applicable under all circumstances. When applicable, the information is included in the text and referred to in the bibliography.

6.4 Documentation

All sites, objects features and structures identified were documented according to the general minimum standards accepted by the archaeological profession. Co-ordinates of individual localities were determined by means of the Global Positioning System (GPS).The information was added to the description in order to facilitate the identification of each locality.

6.5 Evaluation of Heritage sites

The evaluation of heritage sites is done by giving a field rating of each (see Appendix C) using the following criteria:

- The unique nature of a site
- The integrity of the archaeological deposit
- The wider historic, archaeological and geographic context of the site
- The location of the site in relation to other similar sites or features
- The depth of the archaeological deposit (when it can be determined or is known)
- The preservation condition of the site
- Uniqueness of the site and
- Potential to answer present research questions.

7. LEGISLATIVE REQUIREMENTS

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. These are the National Heritage Resources Act (Act 25 of 1999) and the National Environmental Management Act (Act 107 of 1998).

7.1 The National Heritage Resources Act

According to the above-mentioned act the following is protected as cultural heritage resources:

a. Archaeological artifacts, structures and sites older than 100 years
b. Ethnographic art objects (e.g. prehistoric rock art) and ethnography
c. Objects of decorative and visual arts
d. Military objects, structures and sites older than 75 years
e. Historical objects, structures and sites older than 60 years
f. Proclaimed heritage sites
g. Grave yards and graves older than 60 years
h. Meteorites and fossils
i. Objects, structures and sites or scientific or technological value.

The national estate (see Appendix D) includes the following:

a. Places, buildings, structures and equipment of cultural significance
b. Places to which oral traditions are attached or which are associated with living heritage
c. Historical settlements and townscapes
d. Landscapes and features of cultural significance
e. Geological sites of scientific or cultural importance
f. Archaeological and palaeontological importance
g. Graves and burial grounds
h. Sites of significance relating to the history of slavery
i. Movable objects (e.g. archaeological, palaeontological, meteorites, geological specimens, military, ethnographic, books etc.)

A Heritage Impact Assessment (HIA) is the process to be followed in order to determine whether any heritage resources are located within the area to be developed as well as the possible impact of the proposed development thereon. An Archaeological Impact Assessment only looks at archaeological resources.

The different phases during the HIA process are described in Appendix E. An HIA must be done under the following circumstances:

a. The construction of a linear development (road, wall, power line canal etc.) exceeding 300m in length
b. The construction of a bridge or similar structure exceeding 50m in length
c. Any development or other activity that will change the character of a site and exceed 5 000m^2 or involve three or more existing erven or subdivisions thereof
d. Re-zoning of a site exceeding 10 000 m^2
e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

Structures

Section 34 (1) of the mentioned act states that no person may demolish any structure or part thereof which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object, whether by way of structural or other works, by painting, plastering or the decoration or any other means.

Archaeology, palaeontology and meteorites

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. The act states that no person may, without a permit issued by the responsible heritage resources authority (national or provincial):

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 that assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
e. alter or demolish any structure or part of a structure which is older than 60 years as protected.

The above mentioned may only be disturbed or moved by an archaeologist, after receiving a permit from the South African Heritage Resources Agency (SAHRA). In order to demolish such a site or structure, a destruction permit from SAHRA will also be needed.

Human remains

Graves and burial grounds are divided into the following:

a. ancestral graves
b. royal graves and graves of traditional leaders
c. graves of victims of conflict
d. graves designated by the Minister
e. historical graves and cemeteries
f. human remains

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

a. destroy, damage, alter, exhume or remove from its original position of 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 or 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, or any equipment which assists in the detection or recovery of metals.

Unidentified/unknown graves are also handled as older than 60 until proven otherwise.

Human remains that are less than 60 years old are subject to provisions of the Human Tissue Act (Act 65 of 1983) and to local regulations. Exhumation of graves must conform to the standards set out in the **Ordinance on Excavations** (**Ordinance no. 12 of 1980**) (replacing the old Transvaal Ordinance no. 7 of 1925).

Permission must also be gained from the descendants (where known), the National Department of Health, Provincial Department of Health, Premier of the Province and local police. Furthermore, permission must also be gained from the various landowners (i.e. where the graves are located and where they are to be relocated) before exhumation can take place. Human remains can only be handled by a registered undertaker or an institution declared under the **Human Tissues Act** (**Act 65 of 1983 as amended**).

7.2 The National Environmental Management Act

This act (Act 107 of 1998) states that a survey and evaluation of cultural resources must be done in areas where development projects, that will change the face of the environment, will be undertaken. The impact of the development on these resources should be determined and proposals for the mitigation thereof are made.

Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitute the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

8. DESCRIPTION OF THE AREA

The Kriel Power Station and the area that was surveyed are situated to the south-west of the town of Kriel in the Mpumalanga Province. This is located on the farm Driefontein 69 IS (Figure 1-3).

The environment of the area is mostly disturbed by earlier farming and possible prospecting activities (Figure 4-7). It is currently mostly used for grazing. The grass cover in certain areas is quite low, but in others it is reasonably high making archaeological visibility difficult. Here and there a few foreign trees, perhaps part of a former plantation is visible.

The natural topography in the area falls from north to south where a river is situated. a few pans are also visible. The surveyed area is bordered by this river as well as by power lines and two power stations (Kriel and Matla).

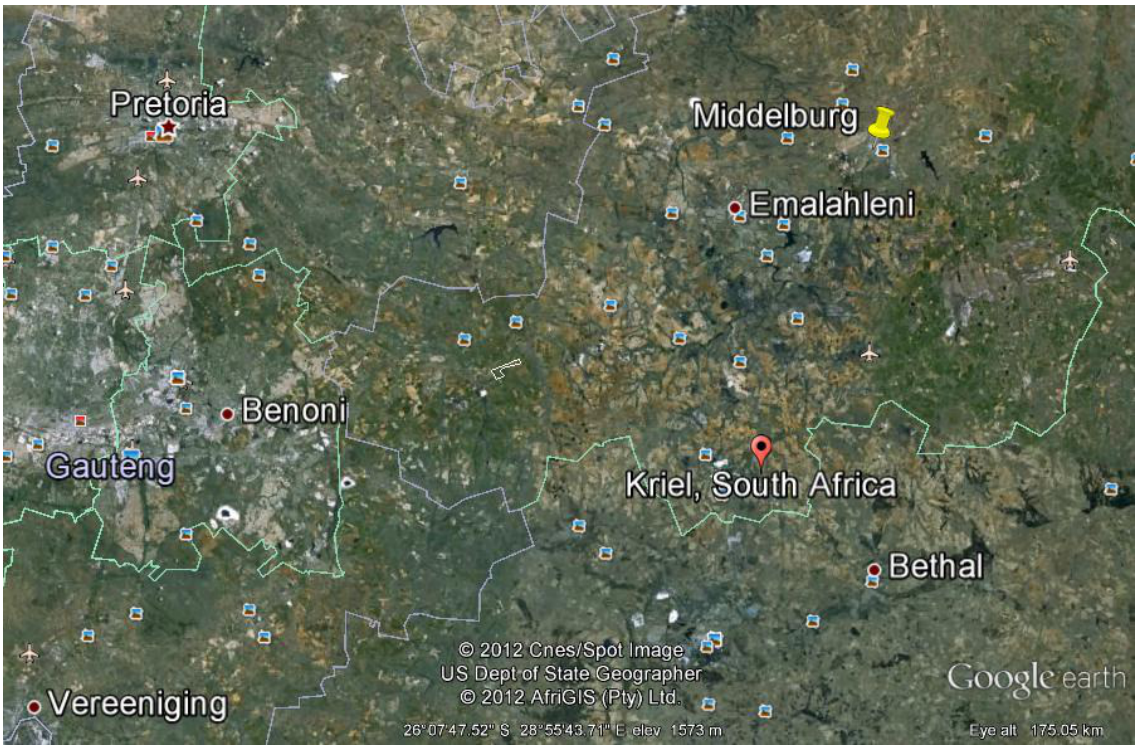


Figure 1 Location of the town of Kriel in Mpumalanga.

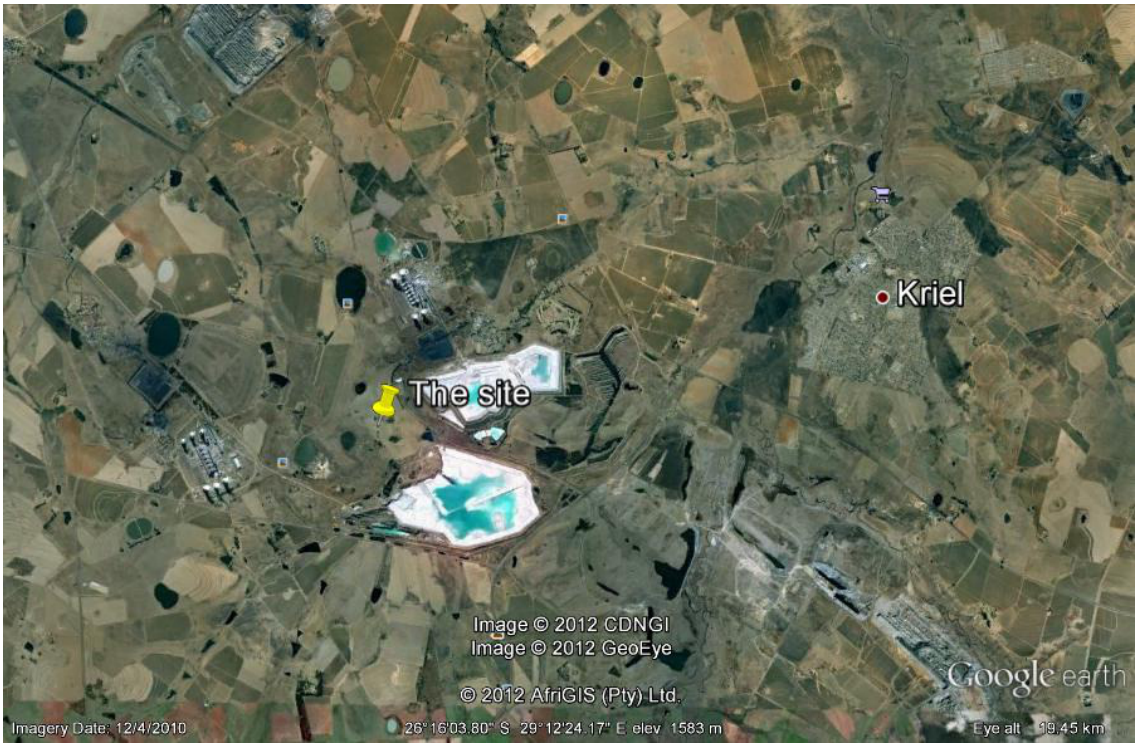


Figure 2 Location of the site in relation to Kriel.

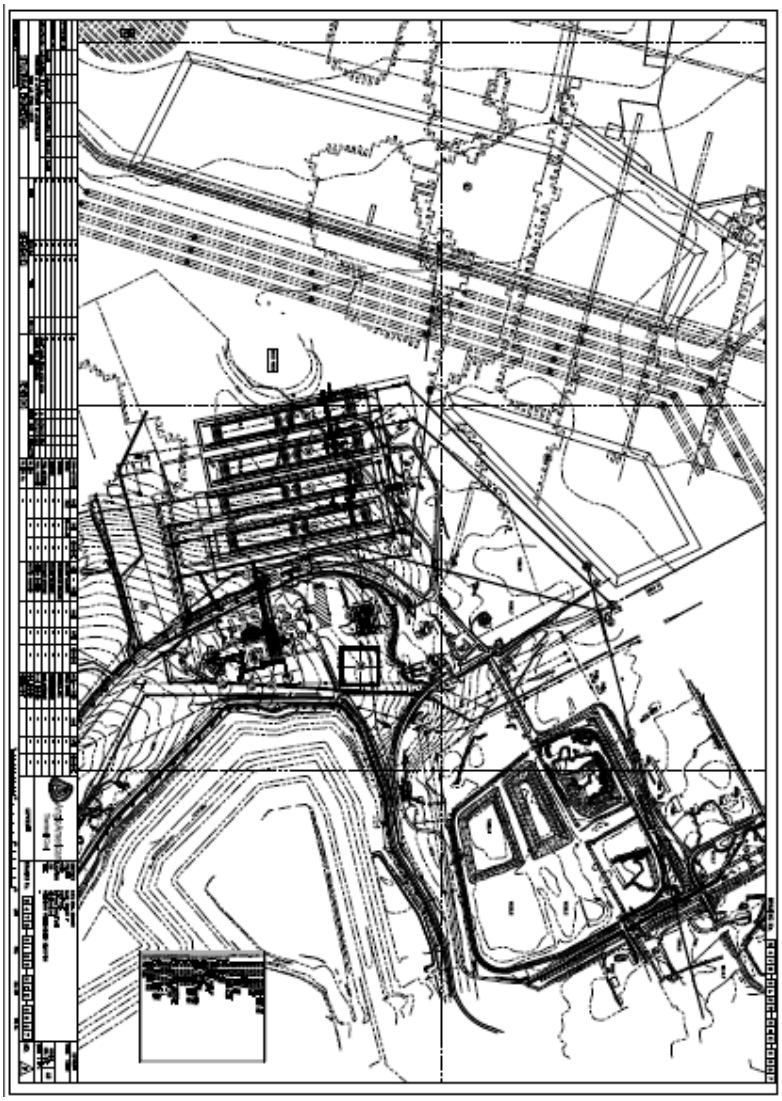


Figure 3 Mine plan indicating the proposed development.

Figure 4 General view of the surveyed area showing Matla Power Station and power lines in the background.

Figure 5 Another view of the surveyed area showing foreign trees and area that has been bulldozed.

Figure 6 View of grassland with the Kriel Power Station in the background.

Figure 7 Another view of the surveyed area, showing a slimes dam in the background.

9. HISTORICAL CONTEXT

During the survey one site of cultural heritage significance was located in the area to be developed. It is a grave yard belonging to the Historical Age.

However, there is always a possibility that more sites may become known later and that those need to be dealt with in accordance with the legislation discussed above. In order to enable the reader to better understand archaeological and cultural features, it is necessary to give a background regarding the different phases of human history.

9.1 Stone Age

The Stone Age is the period in human history when lithic material was mainly used to produce tools (Coertze & Coertze 1996: 293). In South Africa the Stone Age can be divided in three periods. It is however important to note that dates are relative and only provide a broad framework for interpretation. The division for the Stone Age according to Korsman & Meyer (1999: 93-94) is as follows:

Early Stone Age (ESA) 2 million – 150 000 years ago
Middle Stone Age (MSA) 150 000 – 30 000 years ago
Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

The greater geographical area is not known for Stone Age occurrences. No Stone Age sites are for instance indicated on a map contained in a historical atlas of this area (Bergh 1999: 4). The closest known Stone Age occurrences are Late Stone Age sites at Carolina and Badplaas, and rock painting sites close to Machadodorp, Badplaas and Carolina. Rock art is also found close to the Olifants River to the south of Witbank (Bergh 1999: 4-5).

The environment is such that it does not provide much natural shelter and therefore it is possible that Stone Age people did not settle here for long periods of time. They would have however been lured to the area due to an abundance of wild life as the natural vegetation would have provided ample grazing and there are plenty natural water sources. One may therefore find small sites or occasional stone tools.

9.2 Iron Age

The Iron Age is the name given to the period of human history when metal was mainly used to produce metal artifacts (Coertze & Coertze 1996: 346). In South Africa it can be divided in two separate phases according to Van der Ryst & Meyer (1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.
Late Iron Age (LIA) 1000 – 1850 A.D.

Huffman (2007: xiii) however indicates that a Middle Iron Age should be included. His dates, which now seem to be widely accepted in archaeological circles, are:

Early Iron Age (EIA) 250 – 900 A.D.
Middle Iron Age (MIA) 900 – 1300 A.D.
Late Iron Age (LIA) 1300 – 1840 A.D.

No Iron Age sites have been identified around the town of Witbank and Kriel, but again this may only indicate a lack of research. The closest known Iron Age occurrences to the surveyed area are Late Iron Age sites that have been identified to the west of

Bronkhorstspruit and in the vicinity of Bethal. In an area around Belfast, including Lydenburg, Nelspruit, Machadodorp and Badplaas a number of 1 792 Iron Age sites have been identified (Bergh 1999: 7). These all are dated to the Late Iron Age. Sites such as these are known for extensive stone building forming settlement complexes. No indication of metal smelting was identified at any of these sites (Bergh 1999: 7-8).

It is also known that the early trade routes did not run through this area (Bergh 1999: 9). However one should bear in mind that many of these areas may not have been surveyed before and therefore the possibility of finding new sites is always a reality.

The type of environment around Kriel definitely is suitable for human habitation. There is ample water sources and good grazing. It therefore is reasonable to expect that Iron Age people have utilized the area. This is the same reason why white settlers later on moved into this environment.

9.3 Historical Age

The historical age started with the first recorded oral histories in the area. It includes the moving into the area of people that were able to read and write. This era is sometimes called the Colonial era or the recent past.

Due to factors such as population growth and a decrease in mortality rates, more people inhabited the country during the recent historical past. Therefore and because less time has passed, much more cultural heritage resources from this era have been left on the landscape. It is important to note that all cultural resources older than 60 years are potentially regarded as part of the heritage and that detailed studies are needed in order to determine whether these indeed have cultural significance. Factors to be considered include aesthetic, scientific, cultural and religious value of such resources.

At the beginning of the 19th century the Phuthing, a South Sotho group, stayed to the east of the Matla area. The Koni of Makopole stayed tot eh north-east and the Ndzundza Ndebele to the west. During the Difaquane they fled to the south, south-west and north-west as Mzilikazi's impi moved in from the southeast. During this time the Swazi also moved into this area (Bergh 1999: 10-11; 109). They however did not settle here.

The first white people in this area were the party of the traveler Robert Scoon in 1836 (Bergh 1999: 13). White farmers only settled here after 1850 (Bergh 1999: 16). Buildings from this era may therefore be expected in the surveyed area.

During the Anglo-Boer War (1899-1902) four known skirmishes took place in the broader geographical area of Kriel (Bergh 1999: 54). These were the Battles of Bakenlaagte (30 October 1901) – which were the only influential battle in this area, Trigaardsfontein (10 December 1901), Klippan (18 February 1902) and Boschmanskop (1 April 1904) (Bergh 1999: 251).

Many grave sites, dating from the last 100 years, have however been found on neighbouring farms (Archaetnos database). Some of these were found on other areas that were surveyed within the broader Kriel Colliery setup. One can therefore expect to find such graves here.

10. DISCUSSION OF SITES IDENTIFIED DURING THE SURVEY

10.1 Site 1

This is a grave yard found in close proximity to some farm buildings. These buildings are not very old and therefore have no heritage value. The graves however are much older. The dates on the graves range between 1919 and 1928. There are 14 graves at the site of which only three have legible information. Surnames identified include Janse van Rensburg, Pretorius and Van der Merwe.

The graves all have cement dressings. Two types of headstones were identified being either cement or slate (Figure 8).

GPS: 26°16.575'S
29°10.296E

Figure 8 The graves at site no. 1.

Graves always are regarded as having a **high** cultural significance. In this case there are two categories of graves being those older than 60 years and those of an unknown date. These are therefore all heritage graves. They are of a local significance and are therefore given a rating of Grade IIIB. It may however be mitigated.

With graves there are always two possible options. The first option is not to relocate the graves. This usually comes into play when in cases where the impact is only secondary. The graves then needs to be fenced in and a management plan needs to be written by a heritage

expert. In this case the graves are in an extremely bad state of repair and this should be rectified.

The second option is to exhume the graves and relocate the human remains. This is done when there is a direct impact on the site. This involves a process of social consultation in order to involve possible affected communities.

The mine needs to indicate on final plans whether there will be a direct impact. At the moment it seems as if there will only be a secondary impact, meaning that option 1 is recommended.

11. POTENTIAL FATAL FLAWS AND SIGNIFICANT ISSUES OF CONCERN

As indicated it always is possible that some sites may have been missed, although it is quite unlikely in this case. It also is possible that archaeological material may be unearthed during construction work. In such a case an archaeologist should immediately be contacted to assess the find and make recommendations as to how it should be attended to.

The state of the graves that were identified is a large concern. The mine will have to take action to upgrade and restore the site except if it decided that it will be relocated.

12. CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the assessment of the area was conducted successfully. In the surveyed area one site (Figure 9) of cultural significance has been found.

Figure 9 Google map indicating the site located during the survey.

The final recommendations are as follows:

- The graves are of a high cultural significance. It may however be mitigated.

- From the available plans it seems that there will not be a direct impact on the site. Therefore option 1 is recommended. The graves should be fenced in and a management plan for the sustainable preservation thereof be written by a heritage expert.

- The graves also should be repaired as it in a bad state.

- It is possible that there is a direct impact on the site. If so, the mine needs to indicate this on their plans. Should this be the case option 2 will be recommended. This is the exhumation and relocation thereof.

- In such a process an archaeologist and undertaker is involved for heritage graves. Graves younger than 60 years only needs to be handled by an undertaker.

- A social consultation process will also be needed and the necessary permits needs to be obtained from SAHRA and the health authorities. This can all be handled by the undertakers and archaeologists.

- A risk management table (Table 1) compares the two options.

- It should be remembered that due to the natural factors indicated in the report, it is possible that all cultural sites may not have been identified. Also the subterranean presence of archaeological and/or historical sites, features or artifacts are always a distinct possibility. Care should therefore be taken when development work commences that, if any more artifacts are uncovered, a qualified archaeologist be called in to investigate.

Table 1 Risk management relating to graves

Risk factor	Fencing of site	Exhumation and Relocation of graves
Access	Descendants will need undisturbed access to graves (only if descendants are identified)	Descendants will have access to new grave yard (only if descendants are identified)
Compensation	Not needed	Descendants may want compensation, but it is advised that this be limited to a night vigil (only if descendants are identified)
Approval from descendants	Not needed	Needed and without it no relocation will be allowed (only if descendants are identified) – usually not a problem to obtain permission
Security risk	Potential yes, as descendants must get access (only if descendants are identified)	No, as access would be at new cemetery*
Management of sites	Yes, a sustainable management plan will be needed	No, as this will form part of an existing cemetery *
Monitoring of sites	Yes, an independent heritage expert to monitor management plan and maintenance once a year	No, as it will form part of an existing cemetery*
Upgrade and cleaning	Yes, site should be left by developer in a better state than before and it should be kept neat	No, as this will be dealt with as part of the existing cemetery*
Land claims	Yes, but only in case of a forced removal (only if descendants are identified)	Yes, but only in case of a forced removal (only if descendants are identified)
Finances	Less expensive over the short term	More expensive over the short term
Time frames	Less time consuming	More time consuming
Responsibility	Permanent liability and responsibility for the developer	The developer's responsibility and liability ends after the exhumation and relocation process*

- ***The developer may decide to start a new cemetery on their premises for this purpose. In such a case they will save the cost of grave plots etc. (as compared to purchasing additional land for this purpose). If the graves are located on mine property, the graves will then be a site they need to manage permanently meaning that it will need to be fenced and a management plan needs to be compiled and implemented.**

13. CONCLUSIONS AND RECOMMENDATIONS FOR NEXT PHASES OF STUDY

Impact 1: **CH1. Grave sites close to planned infrastructure that is considered heritage graves.**

Phase	Severity	Spatial extent	Duration of impact	Duration of activity	Frequency of impact	Result pre-mitigation	Result post-mitigation
Construction	**4**	**2**	**4**	**5**	**4**	**90**	**90**
Operation	**4**	**2**	**4**	**5**	**4**	**90**	**90**
Decommissioning	**2**	**2**	**4**	**4**	**3**	**70**	**70**
Proposed mitigation	**Unknown graves and those older than 60 years are considered heritage graves and need exhuming or need a fence and management plan (controlled access to be granted to families). Site should also be repaired, maintained and preserved.** **Ratings are based on the above mentioned. However, should graves be exhumed and relocated the rating post-mitigation as well as during Operation and Decommissioning will fall to 0.** **If graves need to be relocated, there is a process with regulated timeframes that needs to be followed for permits – approximately 4 – 6 months depending on authorities.**							
Cumulative impact	**None**						

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APPENDIX A

DEFINITION OF TERMS:

Site: A large place with extensive structures and related cultural objects. It can also be a large assemblage of cultural artifacts, found on a single location.

Structure: A permanent building found in isolation or which forms a site in conjunction with other structures.

Feature: A coincidental find of movable cultural objects.

Object: Artifact (cultural object).

(Also see Knudson 1978: 20).

APPENDIX B

DEFINITION/ STATEMENT OF HERITAGE SIGNIFICANCE:

Historic value:	Important in the community or pattern of history or has an association with the life or work of a person, group or organization of importance in history.
Aesthetic value:	Important in exhibiting particular aesthetic characteristics valued by a community or cultural group.
Scientific value:	Potential to yield information that will contribute to an understanding of natural or cultural history or is important in demonstrating a high degree of creative or technical achievement of a particular period
Social value:	Have a strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.
Rarity:	Does it possess uncommon, rare or endangered aspects of natural or cultural heritage.
Representivity:	Important in demonstrating the principal characteristics of a particular class of natural or cultural places or object or a range of landscapes or environments characteristic of its class or 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.

APPENDIX C

SIGNIFICANCE AND FIELD RATING:

Cultural significance:

- Low — A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings.

- Medium — Any site, structure or feature being regarded less important due to a number of factors, such as date and frequency. Also any important object found out of context.

- High — Any site, structure or feature regarded as important because of its age or uniqueness. Graves are always categorized as of a high importance. Also any important object found within a specific context.

Heritage significance:

- Grade I — Heritage resources with exceptional qualities to the extent that they are of national significance

- Grade II — Heritage resources with qualities giving it provincial or regional importance although it may form part of the national estate

- Grade III — Other heritage resources of local importance and therefore worthy of conservation

Field ratings:

- National Grade I significance	should be managed as part of the national estate
- Provincial Grade II significance	should be managed as part of the provincial estate
- Local Grade IIIA	should be included in the heritage register and not be mitigated (high significance)
- Local Grade IIIB	should be included in the heritage register and may be mitigated (high/ medium significance)
- General protection A (IV A)	site should be mitigated before destruction (high/ medium significance)
- General protection B (IV B)	site should be recorded before destruction (medium significance)
- General protection C (IV C)	phase 1 is seen as sufficient recording and it may be demolished (low significance)

APPENDIX D

PROTECTION OF HERITAGE RESOURCES:

Formal protection:

National heritage sites and Provincial heritage sites – grade I and II
Protected areas - an area surrounding a heritage site
Provisional protection – for a maximum period of two years
Heritage registers – listing grades II and III
Heritage areas – areas with more than one heritage site included
Heritage objects – e.g. archaeological, palaeontological, meteorites, geological specimens, visual art, military, numismatic, books, etc.

General protection:

Objects protected by the laws of foreign states
Structures – older than 60 years
Archaeology, palaeontology and meteorites
Burial grounds and graves
Public monuments and memorials

APPENDIX E

HERITAGE IMPACT ASSESSMENT PHASES

1. Pre-assessment or scoping phase – establishment of the scope of the project and terms of reference.
2. Baseline assessment – establishment of a broad framework of the potential heritage of an area.
3. Phase I impact assessment – identifying sites, assess their significance, make comments on the impact of the development and makes recommendations for mitigation or conservation.
4. Letter of recommendation for exemption – if there is no likelihood that any sites will be impacted.
5. Phase II mitigation or rescue – planning for the protection of significant sites or sampling through excavation or collection (after receiving a permit) of sites that may be lost.

Phase III management plan – for rare cases where sites are so important that development cannot be allowed.