



Archaetnos Culture & Cultural
Resource Consultants
BK 98 09854/23

**REPORT ON A HERITAGE IMPACT ASSESSMENT RELATED TO THE R50
REALIGNMENT PROJECT NEAR DELMAS IN THE MPUMALANGA PROVINCE**

For:

**GCS
PO Box 2597
Rivonia
2128**

GCS Project no.:15-070

REPORT NO.: AE01545V

By:

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SUBMISSION OF REPORT

Please note that the South African Heritage Resources Agency (SAHRA) or one of its subsidiary bodies needs to comment on this report.

It is the client's responsibility to do the submission via the SAHRIS System on the SAHRA website.

Clients are advised not to proceed with any action before receiving the necessary comments from SAHRA.

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. Access to certain areas is also sometimes limited. Archaetnos and its personnel will not be held liable for such oversights or for costs incurred as a result thereof. Any additional sites identified can be visited and assessed afterwards and the report amended, but only upon receiving an additional appointment.

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EXECUTIVE SUMMARY

Archaetnos cc was requested by GCS to conduct a cultural heritage impact assessment for the R50 road alignment. This is at the Exxaro Leeuwpan Colliery, close to the town of Delmas in the Mpumalanga Province.

The proposed development impacts on the following properties: portions 1, 9 and 36 of the farm Goedgedacht 228 IR, portion 3 of Leeuwpan 246 IR, portions 2, 4, 12, 13 and 16 of Moabsvelden 248 IR, the remainder and portions 1, 2, 8, 13 and 14 of Rietkuil 249 IR, the remainder of De Denne 256 IR, the remainder of Kenbar 257 IR and portion 9 of Weltevreden 227 IR.

The development entails two new road alignments. The first is the so-called North Road and is planned as a new access road to the mine as the current one will be mined out. The second is the re-alignment of a section of the R50 provincial road, called the south road as the mining operations will also encroach on the existing road.

The Terms of Reference for the survey were 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. Study background information on the area to be developed.
3. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
4. Recommend suitable measures to manage the cultural resources in future.
5. Review applicable legislative requirements.

Cultural Resources are all non-physical and physical man-made occurrences, as well as natural occurrences associated with human activity. 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.

Cultural significance is site-specific and relates to the content and context of the site. 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.

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 and would come at a large cost. The heritage report therefore represents merely a sample of the surveyed area and of heritage resources identified there, based on experience of the location of such sites. Developers should however note that this report should make it clear how to handle any other finds that might occur. Should the archaeologists need to visit the site again, a new appointment would therefore be needed.

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).

According to the National Heritage Resources 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 of scientific or technological value.

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 (AIA) only looks at archaeological resources. Both a HIA and an AIA exclude a Palaeontological Impact Assessment (PIA) since the latter is a totally different science.¹

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 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- e. Any other category provided for in the regulations of SAHRA or a provincial heritage authority

¹ Enquiries should be made to SAHRA to determine whether a PIA is necessary.

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.

Section 35(4) of this act deals with archaeology, palaeontology and meteorites. This may only be disturbed or moved by an archaeologist/ palaeontologist/ geologist, 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.

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

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).

The National Environmental Management 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.

The International Finance Corporations' performance standard for cultural heritage recognizes the importance of cultural heritage for current and future generations. It aims to ensure that clients protect cultural heritage in the course of their project activities.

The following methodology has been utilized for this survey:

Survey of literature
Field survey
Oral histories
Documentation

The evaluation of heritage sites is done by giving a field rating of each 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.

A large part of the environment of the surveyed area is disturbed by recent human activities. At the North Road this mainly consist of mining activities. At the South Road the area is disturbed by farming activities, mostly agriculture.

The topography of the area is reasonably flat. The Bronkhorstspuit runs through the area from south to north, but does not seem to have much of an influence on the topography.

This geographical area is not well-known as one containing many prehistoric sites. One however has to realize that this most likely only indicates that not much research has been done here before. On the existing SAHRA Database no such sites are indicated here.

During the survey three sites of cultural heritage significance were located. Two of these are close to the South Road and one close to the North Road.

Site 1 – Grave yard

This is a single grave with a cement headstone and border. The surname on the grave is Thokazabinde and the person died in 1986.

Site 2 – Grave yard

This is a large grave yard found in close proximity to a blue gum plantation. It consists of at least 63 graves. The graves have all kinds of grave dressings or borders and headstones – cement, stone, brick and granite.

Site 3 – Grave yard

The site consists of at least 25 graves, but access to the site could not be obtained due to a high fence and locked gate. Most of the graves have cement dressings and headstones and some are stone packed.

As far as Gaps in Knowledge are concerned the biggest problem is that there is no comprehensive database with information of the history and archaeology of South Africa. The South African Heritage Resources Agency (SAHRA) has a system, called SAHRIS, where all heritage related reports are being stored. Although this does create some sort of a database it only contains information since 2012. Older information are however gradually been introduced to SAHRIS.

It is impossible to survey an entire area, especially with large developments. It would be extremely costly. Although the aim is to identify as much as possible, a heritage survey therefore always may not identify everything of heritage value in an area.

This Phase 1 heritage impact assessment needs to be approved by SAHRA which will advise regarding the way forward. It is likely that the document will be approved, meaning that the recommendations given below should be implemented.

The implementation will either result in the relocation of grave sites or in writing and implementing a management plan therefore. The latter is the most likely. Such a management plan will include the monitoring of these sites.

It is concluded that the survey of the indicated area was completed successfully. The following is recommended:

- Three sites of cultural heritage significance were identified during the survey. These are all grave sites.
- Two possibilities exist in dealing with graves:
 - The first option would be to fence the graves in and have a management plan drafted for the sustainable preservation thereof. This should be compiled by a heritage expert. This usually is done when the graves are in no danger of being damaged, but where there will be a secondary impact due to the activities of the development.
 - The second option is to exhume the mortal remains and then to have it relocated. This usually is done when the graves are in the area to be directly affected by the development. For this a specific procedure should be followed which includes social consultation. For graves younger than 60 years only an undertaker is needed. For those older than 60 years and unknown graves an undertaker and archaeologist is needed. Permits should be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.
- In the case of site no. 2, the graves will not be impacted on directly by the development (South Road). Since there always is a secondary impact due to the activities on site, Option 1 is recommended. However, this site may be relocated should that be the only solution, provided that the correct procedures are followed.
- It is very likely that sites no. 1 (South Road) and 3 (North Road) will be impacted on directly. If at all possible, the proposed routes for the roads should be changed so that a buffer zone of at least 20 m is created. In this case Option 1 should be implemented. However, if not possible to change the plans, Option 2 may be implemented. This has to be motivated to the Burial Grounds and Graves Unit (BGG) of SAHRA.

- It is extremely important that the management plans for these sites be drafted as there will be a definite secondary impact on this. In fact, site no. 3 has already been impacted on by mine dust and this needs to be rectified.
- In cases where grave sites are already fenced in these will need to be maintained.
- After implementation of the mitigation measures indicated, the development may continue. Proof of implementation will have to be provided to SAHRA.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. The state of the environment also makes it possible that not all sites were identified. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence and adapt this report.
- It is also important to take cognizance that it is the client's responsibility to do the submission of this report via the SAHRIS System on the SAHRA website. No work on site may commence before receiving the necessary comments from SAHRA.

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1. INTRODUCTION

Archaetnos cc was requested by GCS to conduct a cultural heritage impact assessment for the R50 road alignment. This is at the Exxaro Leeuwpan Colliery, close to the town of Delmas in the Mpumalanga Province.

The proposed development impacts on the following properties: portions 1, 9 and 36 of the farm Goedgedacht 228 IR, portion 3 of Leeuwpan 246 IR, portions 2, 4, 12, 13 and 16 of Moabsvelden 248 IR, the remainder and portions 1, 2, 8, 13 and 14 of Rietkuil 249 IR, the remainder of De Denne 256 IR, the remainder of Kenbar 257 IR and portion 9 of Weltevreden 227 IR (Figure 1-3).

The client indicated the area to be surveyed. The field survey was confined to this area.

The development entails two new road alignments. The first is the so-called North Road and is planned as a new access road to the mine as the current one will be mined out. The second is the re-alignment of a section of the R50 provincial road, called the south road as the mining operations will also encroach on the existing road.

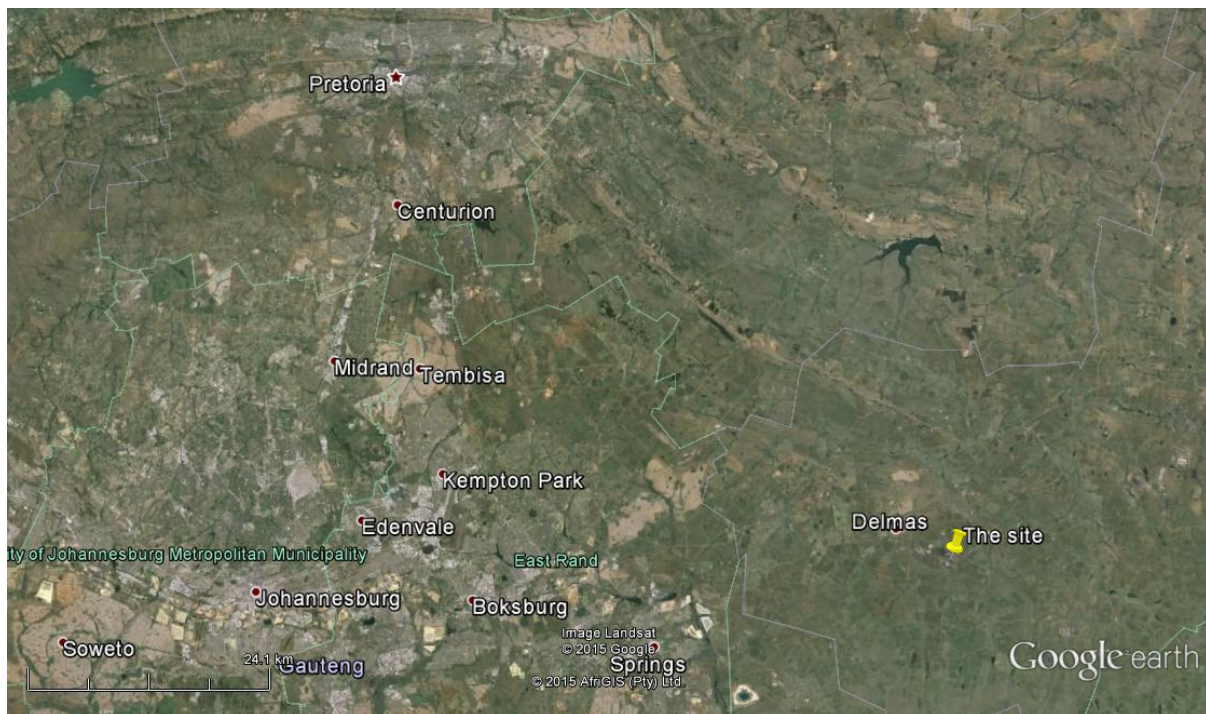


Figure 1: Location of the surveyed site in the Mpumalanga Province. North reference is to the top.

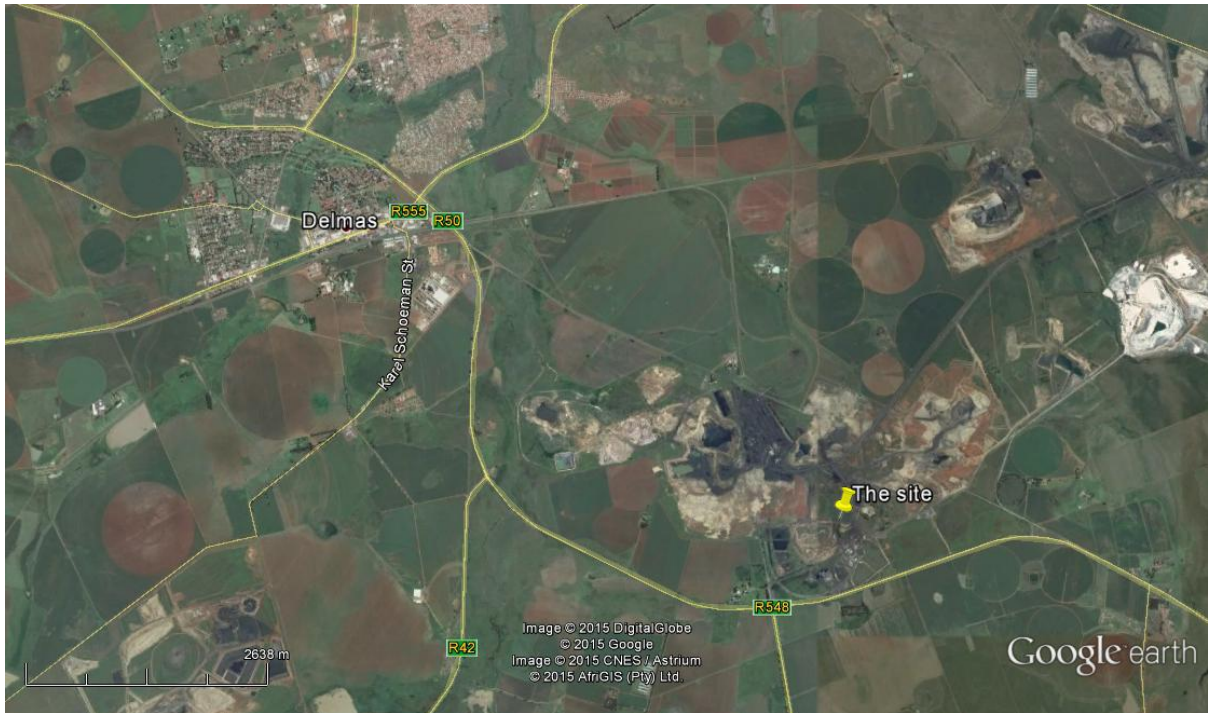


Figure 2: Location of the site in relation to Delmas. North reference is to the top.

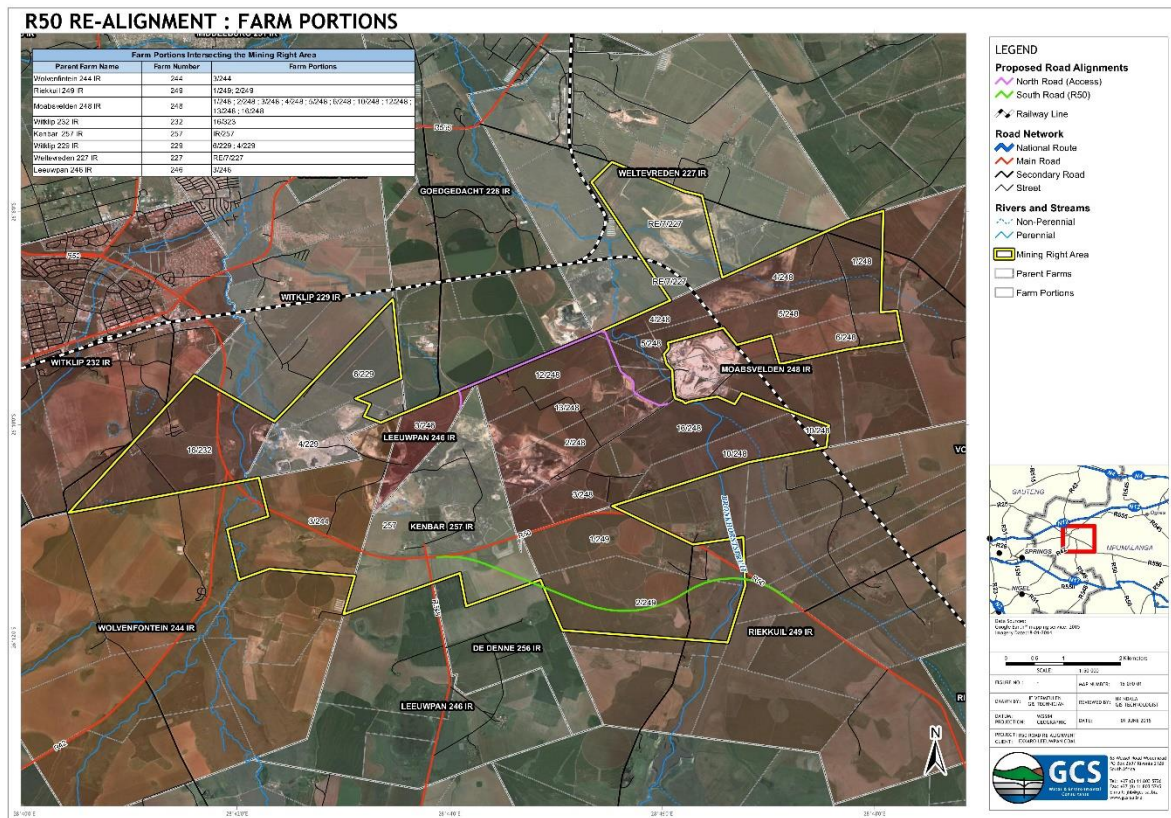


Figure 3: Map of the surveyed area. The purple line indicates the North Road and the green one the South Road.

2. DETAILS AND EXPERTISE OF THE SPECIALIST WHO PREPARED THE REPORT

CURRICULUM VITAE

Prof. Anton Carl van Vollenhoven

PERSONAL INFORMATION

- Born: 20 January 1966
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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

EMPLOYMENT HISTORY

- *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.
- *Since 2014*: Part-time lecturer for the Honours degree in Museum Sciences in the Department of History and Heritage Studies at the University of Pretoria
- *Since 2015*: Appointed extraordinary Professor in History at the Mafikeng Campus of the University of Northwest

OTHER

- Has published 76 articles in scientific and popular journals on archaeology and history.
- Has been the author and co-author of over 580 unpublished reports on cultural resources surveys and archaeological work.

- Has published a book on the Military Fortifications of Pretoria.
- Contributed to a book on Mapungubwe.
- Has delivered more than 50 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; 2012-2014).
- Has been editor for the SA Journal of Cultural History 2002-2004.
- Member of the Provincial Heritage Resources Agency, Gauteng’s Council.
- Member of Provincial Heritage Resources Agency, Gauteng’s HIA adjudication committee (Chairperson 2012-2015).

3. TERMS OF REFERENCE

The Terms of Reference for the survey were 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. Study background information on the area to be developed.
3. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
4. Recommend suitable measures to manage the cultural resources in future.
5. Review applicable legislative requirements.

4. CONDITIONS & ASSUMPTIONS

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, structures 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 impacts 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 and would come at a large cost. The heritage report therefore represents merely a sample of the surveyed area and of heritage resources identified there, based on experience of the location of such sites. Developers should however note that this report should make it clear how to handle any other finds that might occur. Should the archaeologists need to visit the site again, a new appointment would therefore be needed.
7. The density and height of the vegetation cover is the main influence on both the vertical as the horizontal archaeological visibility in surveyed areas. In this case there were certain areas that were inaccessible due to the mining operations as well as areas where the vegetation cover was reasonably dense and the height between medium and high, which had a negative effect on archaeological visibility. It needs to be stated however that these areas are well-disturbed and that the risk of locating heritage resources here are minimal.

5. 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).

5.1 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 of 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 paleontological importance
- g. Graves and burial grounds
- h. Sites of significance relating to the history of slavery
- i. Movable objects (e.g. archaeological, paleontological, 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 (AIA) only looks at archaeological resources. Both a HIA and an AIA exclude a Palaeontological Impact Assessment (PIA) since the latter is a totally different science.²

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 000m² or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m²
- 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.

² Enquiries should be made to SAHRA to determine whether a PIA is necessary.

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 paleontological site or any meteorite;
- b. destroy, damage, excavate, remove from its original position, collect or own any archaeological or paleontological 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 paleontological material or object, or any meteorite; or
- d. bring onto or use at an archaeological or paleontological site any excavation equipment or any equipment that assists in the detection or recovery of metals or archaeological and paleontological 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 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 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)**.

5.2 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.

6. THE INTERNATIONAL FINANCE CORPORATIONS' PERFORMANCE STANDARD FOR CULTURAL HERITAGE

This standard recognizes the importance of cultural heritage for current and future generations. It aims to ensure that clients protect cultural heritage in the course of their project activities.

This is done by clients abiding to the law and having heritage surveys done in order to identify and protect cultural heritage resources via field studies and the documentation of such resources. These need to be done by competent professionals (e.g.

archaeologists and cultural historians). Possible chance finds, encountered during the project development, also needs to be managed by not disturbing it and by having it assessed by professionals.

Impacts on the cultural heritage should be minimized. This include the possible maintenance of such sites in situ, or when impossible, the restoration of the functionality of the cultural heritage in a different location. When cultural historical and archaeological artifacts and structures need to be removed is should be done by professionals and by abiding to the applicable legislation. The removal of cultural heritage resources may however only be considered if there are no technically or financially feasible alternatives. In considering the removal of cultural resources, it should be outweighed by the benefits of the overall project to the effected communities. Again professionals should carry out the work and adhere to the best available techniques.

Consultation with affected communities should be engaged in. This entails that access to such communities should be granted to their cultural heritage if this is applicable. Compensation for the loss of cultural heritage should only be given in extra-ordinary circumstances. Critical cultural heritage may not be impacted on. Professionals should be used to advise on the assessment and protection thereof. Utilization of cultural heritage resources should always be done in consultation with the effected communities in order to be consistent with their customs and traditions and to come to agreements with relation to possible equitable sharing of benefits from commercialization.

7. METHODOLOGY

7.1 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.

7.2 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. One sometimes looks a bit wider than the demarcated area, as the surrounding context needs to be taken into consideration.

The survey was done in August 2015. This is during the winter when the vegetation cover as a rule is relatively low making archaeological visibility reasonably good.

Where required, the location/position of any site was determined by means of a Global Positioning System (GPS)³, while photographs were also taken where needed. The survey was undertaken by doing a physical survey via off-road vehicle and on foot and covered as much as possible of the area to be studied (Figure 4). Certain factors,

³ A Garmin Oregon 550 with an accuracy factor of a few meters.

such as accessibility, density of vegetation, etc. may however influence the coverage. The length of the two proposed roads are approximately 4,5 km for the North Road and 6,5 km for the South Road. The surveyed took 5 hours to complete.



Figure 4: GPS track route of the R50 survey⁴. North reference is to the top.

7.3 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.

7.4 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.

7.5 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:

⁴ Two people did the survey, using one GPS unit. They were in radio contact with each other.

- 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.

8. DESCRIPTION OF THE ENVIRONMENT

A large part of the environment of the surveyed area is disturbed by recent human activities. At the North Road this mainly consist of mining activities. The planned road runs through existing mine property which have been mined already, resulting in a barren landscape. The vegetation cover here, where it does exist is reasonably long and dense and therefore have a negative effect on both the vertical and horizontal archaeological visibility (Figure 5-9). However the plant growth is secondary due to the disturbance of the area and not much is expected here from a heritage perspective.

At the South Road the area is disturbed by farming activities, mostly agriculture. A large area of the here is presumably used for grazing, but during the time of the survey the grass was mostly short and therefore the archaeological visibility was good (Figure 10-12).

The topography of the area is reasonably flat. The Bronkhorstspruit runs through the area from south to north, but does not seem to have much of an influence on the topography.



Figure 5: Mine dump and long grass along the North Road.



Figure 6: Mine road along which a short section of the proposed North Road will run.



Figure 7: Vegetation cover in certain sections of the mine.



Figure 8: General view of the mining area.



Figure 9: Another view of the mining area.



Figure 10: Bare field in the area where the South Road is planned.



Figure 11: Short grass along the proposed South Road.



Figure 12: Maize field along the proposed South Road.

9. HISTORICAL CONTEXT (BASELINE CONDITIONS)

The proposed realignment of the R50 road is proposed as a result of planned increasing of coal mine activities of the Exxaro Leeuwpan Coal Mine. This is situated to the east of the town of Delmas in the Mpumalanga Province. The project area

includes the following farms: Weltevreden 227 IR, Goedgedacht 228 IR, Leeuwpan 246 IR, Kenbar 257 IR, Moabsvelden 248 IR, De Denne 256 IR and Rietkuil 249 IR.

This geographical area is not well-known as one containing many prehistoric sites. One however has to realize that this most likely only indicates that not much research has been done here before. On the existing SAHRA Database no such sites are indicated here.

The closest Stone Age occurrence found to the Delmas area is the Late Stone Age site at Fort Troje, close to Cullinan (Bergh 1999: 4). This probably only indicates a lack of research as the area definitely is suitable for human occupation.

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.

Bergh (1999: 7) does indicate that Late Iron Age sites have been identified in the Delmas area, but gives no additional detail. Other known Iron Age occurrences to the surveyed area are Late Iron Age sites that have been identified to the west of Bronkhorstspuit and in the vicinity of Bethal (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).

During the Difaquane (1832) the Zulu moved through this area in order to attack the Ndebele (Bergh 1999: 11). This indicates that Iron Age people probably utilized this environment in the past.

The good grazing and access water in the area would have provided a good environment for Iron Age people although building material seem to be reasonably scarce. However the area has been changed by recent human interventions such as farming and mining and such sites may therefore have been destroyed.

The first early traveler who visited this area was Robert Scoon who passed through during 1836. In 1847 Dr. David Livingstone also visited the area during his travels. The parties of the Voortrekkers Louis Tregardt and Hans van Rensburg also moved through here during 1836 (Bergh 1999: 13-14). White farmers only settled in the study area between 1841 and 1850 (Bergh 1999: 15).

Delmas was laid out in 1907 on the farm Witklip ('white stone') which was divided into 192 residential stands, 48 smallholdings of 4 ha each and a commonage of 138ha. The farm belonged to Frank Dumat who originated from France where his grandfather had a small farm. He named the town Delmas which is derived from 'mas' which means a small farm in a southern dialect of French. In 1909 the government added another 5 500 ha to Frank Dumat's original rural settlement (Pistorius 2007: 18).

One may therefore expect sites associated with the first white farmers. However again the interventions mentioned earlier may already have destroyed such sites. Such a building complex was identified by Pistorius (2007: 29-30) as well as some houses (Pistorius 2007: 31-33).

Many grave sites, dating from the last 100 years, have however been found on neighbouring farms (Archaetnos database). One can therefore expect to also find such graves here. During an assessment in 2006, Van Schalkwyk indeed identified two grave sites on the farm Moabsvelden (Van Schalkwyk 2006: 16). In 2007 Pistorius found five graveyards. One of these were next to the R555, one on the farm Moabsvelden (which may be one of those found by Van Schalkwyk) and two on the farm Rietkuil where the location of the fifth site is indicated in a blue gum plantation (Pistorius 2007: 24-28).

During a survey of the surrounding area, done in 2012, Van Vollenhoven identified 15 sites of which only 5 are fairly near to the proposed development. The site numbers of the 2012 report are: Graves at site no. 1 (which is site no. 2 in this report), site no. 2, site no. 5 (which is site no 3 in this report) and site no. 7 as well as an old farm house, site no 15.

Site no. 2 from the 2012 report is about 600 m away from the proposed development, site no 7 is about 300 m away and site no 15 about 350 m away. They were therefore too far away from the surveyed route and were therefore not identified again. The other sites, no 1 and 5 were identified again due to them being much closer to the proposed route (within 200 m). They were allocated new numbers, being sites no. 2 and 3 respectively, with a new site being identified and numbered no 1.

10. DESCRIPTION OF HERITAGE SITES FOUND DURING THE SURVEY (ENVIRONMENTAL IMPACT ASSESSMENT)

During the survey three sites of cultural heritage significance were located. Two of these are close to the South Road and one close to the North Road.

10.1 Site 1 – Grave yard

This is a single grave with a cement headstone and border (Figure 13). The surname on the grave is Thokazabinde and the person died in 1986.

GPS: 26° 11' 28.46" S
28° 46' 30.22" E



Figure 13: The grave at site no. 1.

Graves are divided into three categories, being unknown, heritage (older than 60 years) and younger than 60 years. Graves are always regarded as having a high cultural significance. The field rating is Local Grade IIIB. It should be included in the heritage register and mitigation measures must be implemented if any mining or mining related activities takes place in its vicinity.

Two possibilities exist. The first option would be to fence the graves in⁵ and have a management plan drafted for the sustainable preservation thereof. This should be compiled by a heritage expert. This option is relevant when the graves are in no danger of being damaged or destroyed by the development (direct impacts). Secondary impact⁶ due to the development activities may still exist and must be managed.

The second option is to exhume the mortal remains and to have it relocated. This usually is relevant when the graves will be directly affected (damaged or destroyed) by the development. In this case specific procedures should be followed which includes social consultation. Graves younger than 60 years may be exhumed only by an undertaker. For those older than 60 years, and unknown graves, an undertaker and archaeologist should be appointed. Permits must be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.

⁵ It is standard protocol to fence in sites in order to clearly demarcate it and assist with the management and preservation thereof.

⁶ Secondary impact refers to any mining activity that may impact on the graves indirectly. It is impossible to give a full list, but it will include issues like dust pollution, blasting impacts and the limitation of access to descendants to the graves.

The better option is, however, not to relocate the graves and rather preserve it *in situ*. Option 1 is therefore recommended. Although the site is very close to the proposed road alignment, it most likely will be possible to change so that a buffer of at least 20 m is created. However, should it be impossible to change the road alignment, the site may be relocated. This has to be motivated to the Burial Grounds and Graves Unit (BGG) of SAHRA.

10.2 Site 2 – Grave yard (site no 1 from the 2012 report)

This is a large grave yard found in close proximity to a blue gum plantation. It consists of at least 63 graves (Figure 14). The graves have all kinds of grave dressings or borders and headstones – cement, stone, brick and granite.

GPS: 26°11'25.00"S
28°46' 17.07"E



Figure 14: Some of the graves at site no. 2.

Many of the graves have no legible information meaning that it has an unknown date of death. Those with dates seem to range between 1972 and 2005. Some of the surnames identified include Mtsweni, Sithole, Masilela, Mabena and Kgomo.

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

There are two options when dealing with graves. The first would be to fence it in and write a management plan for the preservation thereof. This option will come into play if there is no direct impact on the graves. It should be kept in mind that there always is a secondary impact on graves since families may not have access thereto once a development has been concluded.

The second option is to have the graves exhumed and the bodies reburied. This option is preferred when graves cannot be avoided by the development. Before exhumation can be done a process of social consultation is needed in order to find the associated families and obtain permission from them. For graves younger than 60 years only an undertaker is involved in the process, but for those older than 60 years or with an unknown date of death, an undertaker and archaeologist should be involved.

Although the site is close to the South Road alignment, it seems far enough for a buffer zone of at least 20 m to be created. The better option would therefore be not to relocate the graves and rather preserve it *in situ*. Option 1 is therefore recommended.

If needed the graves may be relocated (Option 2), but it seems unlikely to be necessary. If needed, this has to be motivated to the Burial Grounds and Graves Unit (BGG) of SAHRA.

10.3 Site 3 – Grave yard (site no 5 from the 2012 report)

The site consists of at least 25 graves, but access to the site could not be obtained due to a high fence and locked gate (Figure 15). Most of the graves have cement dressings and headstones and some are stone packed.

Graves are divided into three categories, being unknown, heritage (older than 60 years) and younger than 60 years. No dates could be identified as access could not be gained. Therefore also no surnames could be identified.

GPS: 26°09'43.18"S
28°45'43.93"E

Graves are always regarded as having a high cultural significance. The field rating is Local Grade IIIB. It should be included in the heritage register and mitigation measures must be implemented if any mining or mining related activities takes place in its vicinity.



Figure 15: Some of the graves at site no. 3.

Two possibilities exist. The first option would be to fence the graves in⁷ and have a management plan drafted for the sustainable preservation thereof. This should be compiled by a heritage expert. This option is relevant when the graves are in no danger of being damaged or destroyed by the development (direct impacts). Secondary impact⁸ due to the development activities may still exist and must be managed.

The second option is to exhume the mortal remains and to have it relocated. This usually is relevant when the graves will be directly affected (damaged or destroyed) by the development. In this case specific procedures should be followed which includes social consultation. Graves younger than 60 years may be exhumed only by an undertaker. For those older than 60 years, and unknown graves, an undertaker and archaeologist should be appointed. Permits must be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.

The better option is, however, not to relocate the graves and rather preserve it *in situ*. Although the graves are very close to the proposed North Road, it might be possible to ensure at least a 20 m buffer from it. Option 1 is therefore recommended. Although the site is already fenced in, one should ensure that the fence is properly maintained.

⁷ It is standard protocol to fence in sites in order to clearly demarcate it and assist with the management and preservation thereof.

⁸ Secondary impact refers to any mining activity that may impact on the graves indirectly. It is impossible to give a full list, but it will include issues like dust pollution, blasting impacts and the limitation of access to descendants to the graves.

The state of the site currently however is a concern as it has been affected by mining activities. It therefore is impeccable that a management plan be drafted to ensure the preservation of the site.

Should it not be possible to allow a 20 m buffer, the site may be relocated. This has to be motivated to the Burial Grounds and Graves Unit (BGG) of SAHRA

11. KNOWLEDGE GAP ANALYSIS

The biggest problem is that there is no comprehensive database with information of the history and archaeology of South Africa. The South African Heritage Resources Agency (SAHRA) has a system, called SAHRIS, where all heritage related reports are being stored. Although this does create some sort of a database it only contains information since 2012. Older information are however gradually been introduced to SAHRIS.

It is impossible to survey an entire area, especially with large developments. It would be extremely costly. Although the aim is to identify as much as possible, a heritage survey therefore always may not identify everything of heritage value in an area.

12. MONITORING PLAN

This Phase 1 heritage impact assessment needs to be approved by SAHRA which will advise regarding the way forward. It is likely that the document will be approved, meaning that the recommendations given below should be implemented.

The implementation will either result in the relocation of grave sites or in writing and implementing a management plan therefore. The latter is the most likely. Such a management plan will include the monitoring of these sites.

13. CONCLUSION AND RECOMMENDATIONS

As indicated, three sites of cultural heritage importance were identified during the survey (Figure 16-17). The survey of the indicated area was completed successfully.

Site no. 1 is 15 m away from the development and site no. 2 is 190 m away (South road). Site no. 3 is 30 m away from the development (North road). The measurements are based on layout provided by the GIS Department of GCS and not on engineer designs.



Figure 16: Google image indicating the sites identified during the survey.



Figure 17: Google image indicating the sites identified in relation to the development. Site no. 1 is 15 m away from the development and site no. 2 is 190 m away (South road). Site no. 3 is 30 m away from the development (North road).

The following is recommended:

- Three sites of cultural heritage significance were identified during the survey. These are all grave sites.
- Two possibilities exist in dealing with graves:
 - The first option would be to fence the graves in and have a management plan drafted for the sustainable preservation thereof. This should be compiled by a heritage expert. This usually is done when the graves are in no danger of being damaged, but where there will be a secondary impact due to the activities of the development.

- The second option is to exhume the mortal remains and then to have it relocated. This usually is done when the graves are in the area to be directly affected by the development. For this a specific procedure should be followed which includes social consultation. For graves younger than 60 years only an undertaker is needed. For those older than 60 years and unknown graves an undertaker and archaeologist is needed. Permits should be obtained from the Burial Grounds and Graves unit of SAHRA. This procedure is quite lengthy and involves social consultation.
- In the case of site no. 2, the graves will not be impacted on directly by the development (South Road). Since there always is a secondary impact due to the activities on site, Option 1 is recommended. However, this site may be relocated should that be the only solution, provided that the correct procedures are followed.
- It is very likely that sites no. 1 (South Road) and 3 (North Road) will be impacted on directly. If at all possible, the proposed routes for the roads should be changed so that a buffer zone of at least 20 m is created. Site no. 1 currently is only 15 m from the development, but site no. 3 is 30 m away. In this case Option 1 should be implemented. However, if not possible to change the plans, Option 2 may be implemented. This has to be motivated to the Burial Grounds and Graves Unit (BGG) of SAHRA.
- It is extremely important that the management plans for these sites be drafted as there will be a definite secondary impact on this. In fact, site no. 3 has already been impacted on by mine dust and this needs to be rectified.
- In cases where grave sites are already fenced in these will need to be maintained.
- After implementation of the mitigation measures indicated, the development may continue. Proof of implementation will have to be provided to SAHRA.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. The state of the environment also makes it possible that not all sites were identified. Care should therefore be taken when development commences that if any of these are discovered, a qualified archaeologist be called in to investigate the occurrence and adapt this report.

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

APPENDIX F

ENVIRONMENTAL IMPACT ASSESSMENT TABLES