



Archaetnos Culture & Cultural  
Resource Consultants  
BK 98 09854/23

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**A REPORT ON A CULTURAL HERITAGE IMPACT ASSESSMENT FOR THE  
CONSTRUCTION OF A SCHOOL AND ASSOCIATED WATER PIPELINE ON THE  
REMAINDER OF THE FARM GENERAALSDRAAI 429 JS AND THE REMAINDER  
OF PORTION 16 OF GENERAALSDRAAI 423 JS, WONDERFONTEIN,  
MPUMALANGA PROVINCE**

For:

**ADIENVIRONMENTAL  
PO Box 647  
Witbank  
1035**

**REPORT NO.: AE01706V**

By:

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Accredited member of ASAPA (Accreditation number: 166)  
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***10 March 2017***

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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.**

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**Any changes to the scope of a project will require an additional appointment.**

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## EXECUTIVE SUMMARY

### Purpose:

Archaetnos cc was requested by AdiEnvironmental CC to conduct a cultural heritage impact assessment (HIA) for the construction of a school and associated water pipeline on the Remainder of the farm Generaalsdraai 429 JS and the Remainder of portion 16 of the farm Generaalsdraai 423 JS. The proposed development currently is in the Basic Assessment phase.

### Project description:

Umsimibithi Mining (Pty) Ltd. intends to relocate Morelig Combined School to the indicated farm, close to the Afgri Silo's. Services (i.e. water, pipelines, boreholes, sewage, package plant, etc.) will be installed as part of the project.

### Methodology:

The methodology for the study includes a survey of literature and a field survey. The latter 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), 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. Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage.

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.

### Public consultation:

Public consultation was handled by AdiEnvironmental CC. Newspaper notices were placed on 10 February 2017. Site notices were placed on site on 10 February 2017.

### Findings:

During the survey no sites of cultural heritage significance were identified within the immediate project area.

### Recommendations:

- This report is seen as ample mitigation and the proposed development may thus continue, but only after the report had been approved by SAHRA.

- The developer should ensure that they steer clear of the Iron Age features that were noted towards the north and west of the project area.
- The sites may be mitigated if necessary. Mitigation is subject to a permit application lodged with the relevant heritage authority.
- However, impact is unlikely during construction and therefore the sites should just be left in situ.
- There is a possibility that the sites may be impacted in the future, post-development. However, the community is currently more or less at the same distance from these sites as they would be after the school has been built. Therefore, no additional impact is foreseen. It would however be good to implement an educational program at the school referring to these sites and its importance and teach the children how to value these and not damage it.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation it also is possible that some sites may only become known later on. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. 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.

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.

## CURRICULUM VITAE OF SPECIALIST: PROF 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

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

### Other

- Published 75 articles in scientific and popular journals on archaeology and history.
- Author and co-author of over 580 unpublished reports on cultural resources surveys and archaeological work. A list of reports can be viewed on [www.archætnos.co.za](http://www.archætnos.co.za)
- Published a book on the Military Fortifications of Pretoria.
- Contributed to a book on Mapungubwe.
- 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.
- Accredited professional member of Association for South African Professional Archaeologists.
- Accredited professional 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 2012-2019).

ASAPA Accreditation number: 166

SASCH Accreditation number: CH001

## 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: 10 March 2017

### LIST OF ACRONYMS:

AIA – Archaeological Impact Assessment  
CMP – Cultural Management Plan  
EAP – Environmental Assessment Practitioner  
EIA – Environmental Impact Assessment  
HIA – Heritage Impact Assessment  
PIA – Palaeontological Impact Assessment  
SAHRA –South African Heritage Resources Agency

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## 1. INTRODUCTION

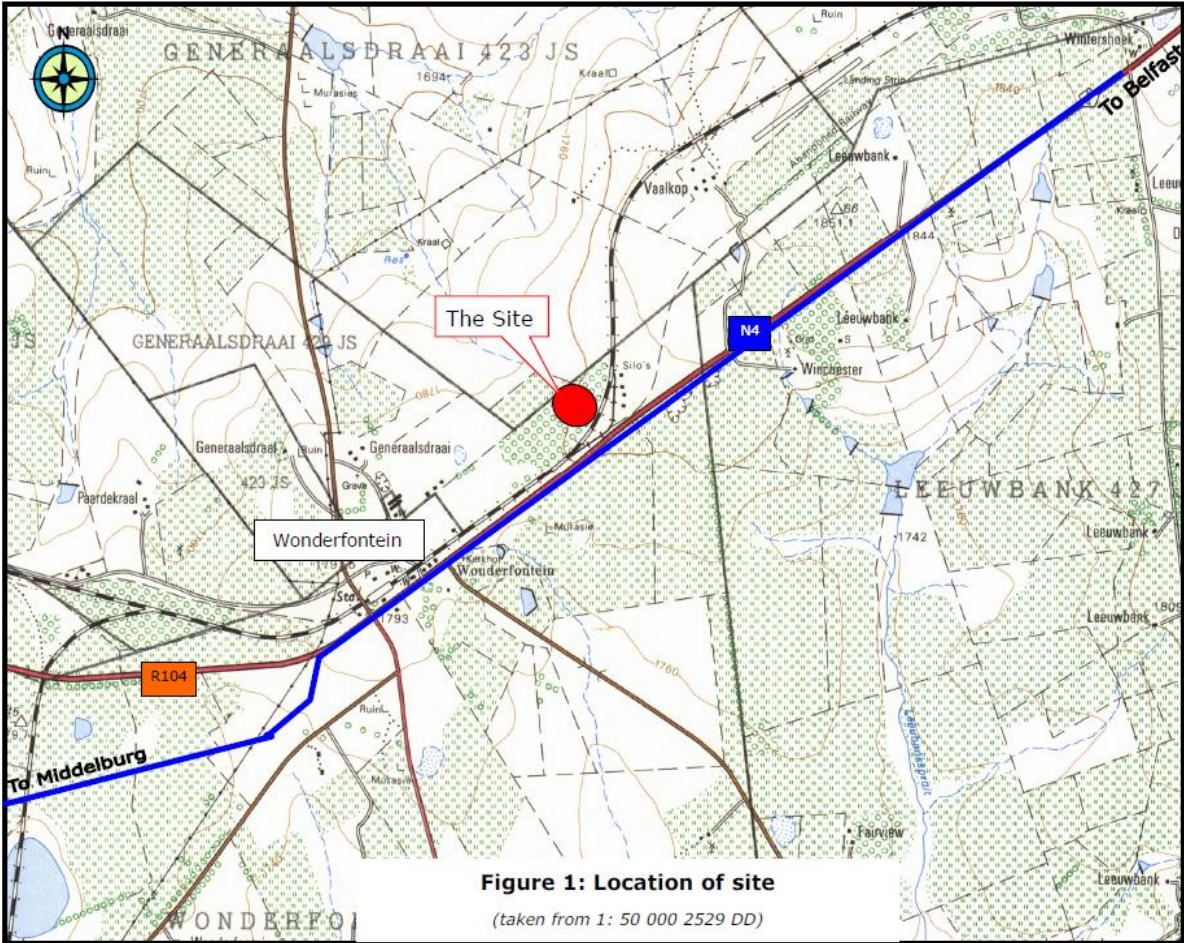
Archaetnos cc was requested by AdiEnvironmental CC to conduct a cultural heritage impact assessment (HIA) for the construction of a school and associated water pipeline on the Remainder of the farm Generaalsdraai 429 JS and the Remainder of portion 16 of the farm Generaalsdraai 423 JS. This is close to the town of Wonderfontein in the Mpumalanga Province (Figure 1-4).

The local municipality in which the site falls is Emakhazeni and the district municipality Nkangala. A central co-ordinate of the development is 25°47'37.73"S; 29°54'28.04"E. The 1:50 000 map sheet number is 2529DD.

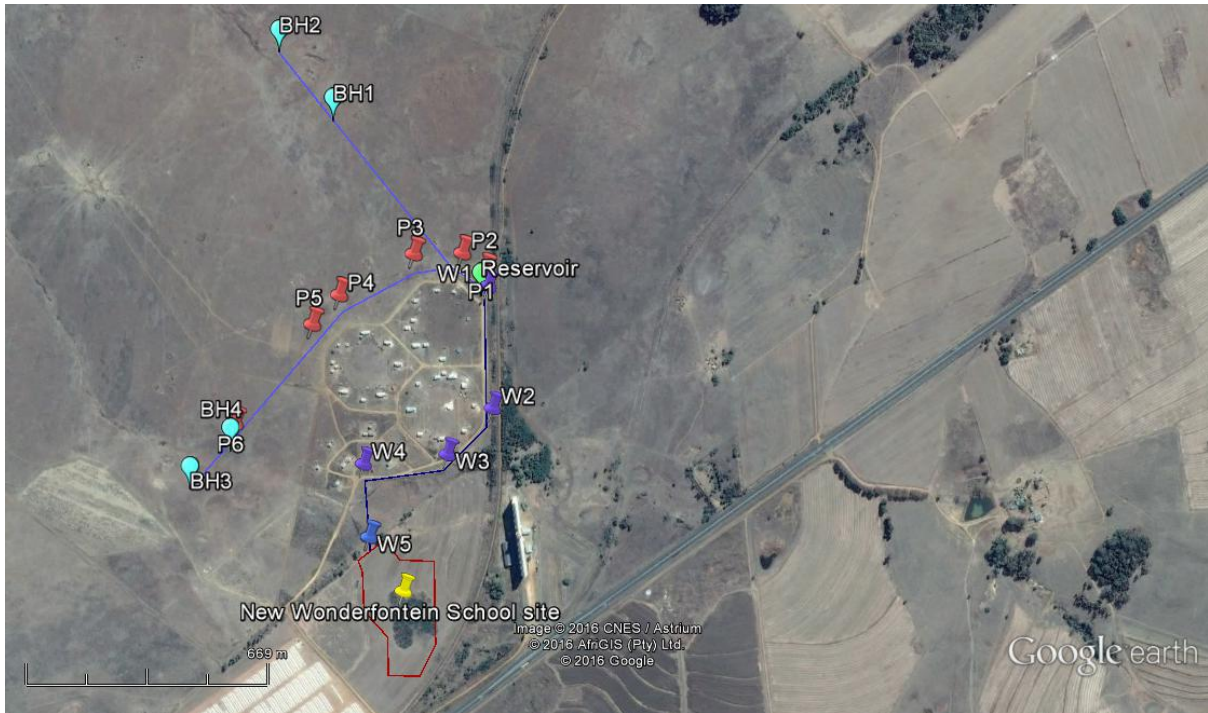
Umsimibithi Mining (Pty) Ltd. intends to relocate Morelig Combined School to the indicated farm, close to the Afgri Silo's. Services (i.e. water, pipelines, boreholes, sewage, package plant, etc.) will be installed as part of the project. The heritage study forms part of a Basic Assessment. A 'Notice of Intent to Develop' was submitted to SAHRA, who responded that an HIA and PIA needs to be undertaken. This report is the result of the HIA study.



**FIGURE 1: LOCATION OF WONDERFONTEIN CLOSE TO BELFAST IN THE MPUMALANGA PROVINCE.**



**FIGURE 2: LOCATION OF THE SITE (ADIENVIRONMENTAL).**



**FIGURE 3: GOOGLE EARTH IMAGE INDICATING THE SITE, PIPELINES AND BOREHOLES.**

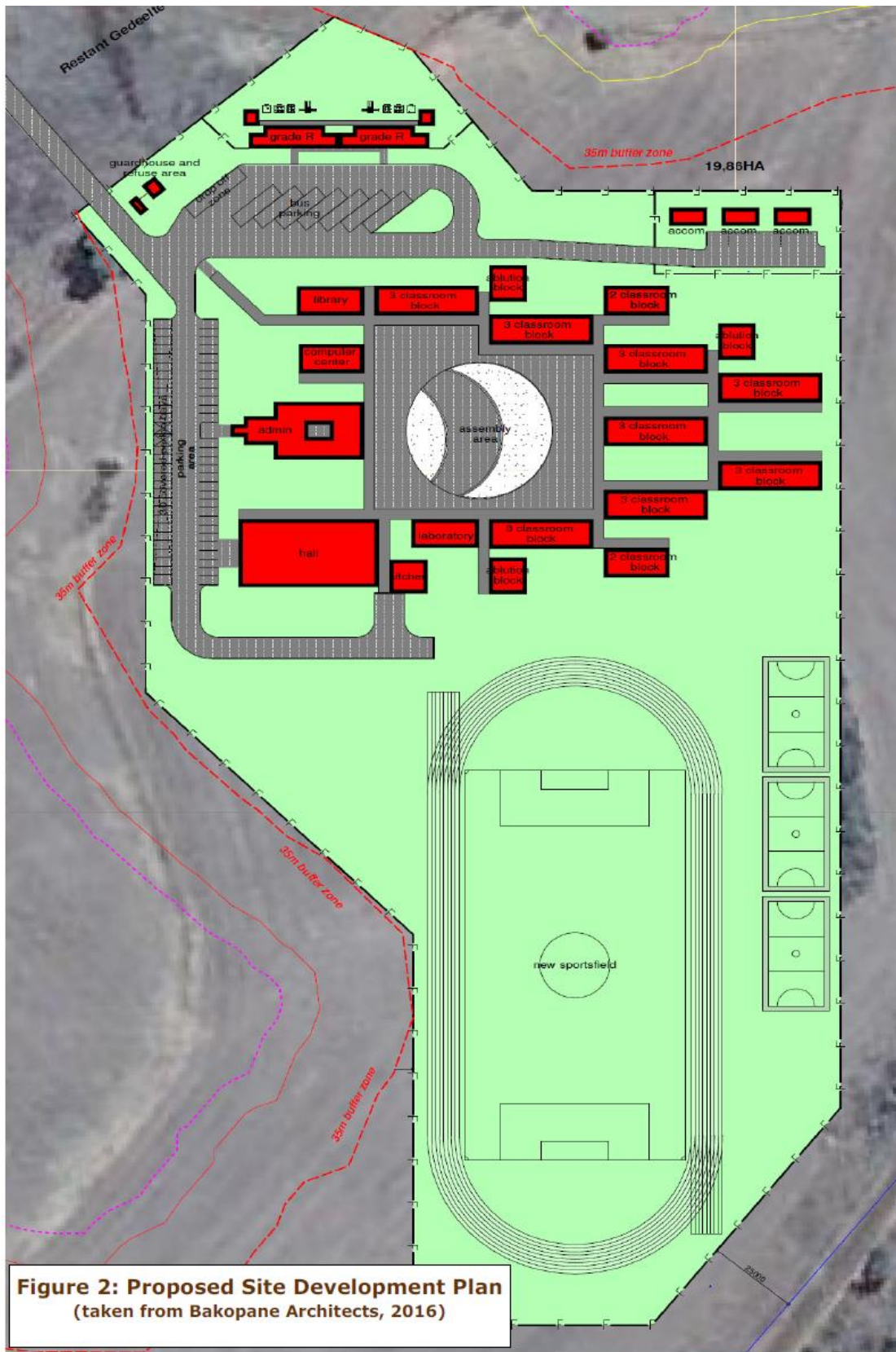
**P1-P5 – CO-ORDINATES FOR PUMPING MAINS**

**W1-W5 – CO-ORDINATES FOR WATERLINE**

**BH1-BH4 - BOREHOLES**

**————— - 90 WATERLINE**

**————— - 75 WATERLINE**



**FIGURE 4: SITE DEVELOPMENT PLAN (ADIENVIRONMENTAL).**

## **2. 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. Document the found cultural heritage sites according to best practice standards for heritage related studies.
3. Study background information on the area to be developed.
4. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value (see Appendix B).
5. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions.
6. Recommend suitable mitigation measures to minimize possible negative impacts on the cultural resources by the proposed development.
7. Review applicable legislative requirements.

## **3. LEGISLATIVE REQUIREMENTS**

Aspects concerning the conservation of cultural resources are dealt with mainly in two acts. The first of these are the National Heritage Resources Act (Act 25 of 1999) which deals with the cultural heritage of the Republic of South Africa. The second is the National Environmental Management Act (Act 107 of 1998) which inter alia deals with cultural heritage as part of the Environmental Impact Assessment process.

### **3.1 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.

A Palaeontological Impact Assessment (PIA) is an assessment of palaeontological heritage. Palaeontology is a different field of study, and although also sometimes required by the South African Heritage Resources Agency (SAHRA)<sup>1</sup>, should be done by a professional palaeontologist.

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<sup>2</sup> or involve three or more existing erven or subdivisions thereof
- d. Re-zoning of a site exceeding 10 000 m<sup>2</sup>
- 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.

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<sup>1</sup> Please consult 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)**.

### **3.2 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.

### **3.3 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). Any 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 includes the possible maintenance of such sites in situ, or when not possible, 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, this 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 affected communities. Again professionals should carry out the work and adhere to the best available techniques.

Consultation with affected communities should be conducted. This entails that such communities should be granted access 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 affected 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.

## **4. METHODOLOGY**

### **4.1 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.

### **4.2 Reference to other specialist studies**

No relevant studies on the farm Generaalsdraai 423 JS or Generaalsdraai 429 JS, could be found on the SAHRIS database. Various studies was done on the nearby farm Wonderfontein, for the Wonderfontein Colliery.

This included an HIA done by JCC Pistorius in 2008, a revised HIA done by A Pelsler in 2013 and a Phase II architectural documentation done by S Miller. These indicated that many grave yards and a few historical farmsteads are to be found in the vicinity (SAHRIS database).

### **4.3 Public consultation and stakeholder engagement**

Newspaper notices were placed on 10 February 2017 in the Middelburg Observer. On the same date site notices were placed on site. See section 8 of this report for the necessary information.

### **4.4 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. In this case it was not done additionally since it would be covered by the Public consultation report.

### **4.5 Physical 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 regularly looks a bit wider than the demarcated area, as the surrounding context needs to be taken into consideration.

If required, the location/position of any site was determined by means of a Global Positioning System (GPS)<sup>2</sup>, 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 5a & 5b). As only one GPS unit was used, but two people did the survey, the track log only reflects the movement of one person. The second person covered the remaining areas, indicated as a separate track log.

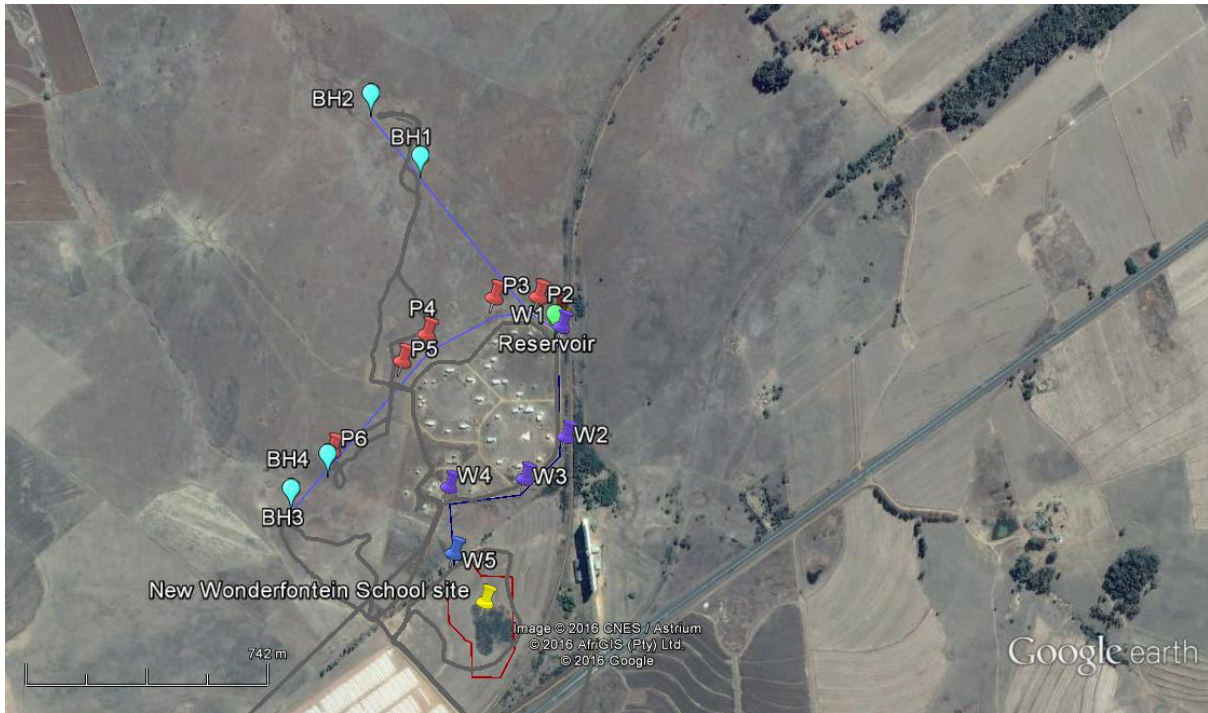
Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage. In this instance the under footing was extremely dense and the vegetation cover medium to high. Accordingly both the horizontal and the vertical archaeological visibility was influenced negatively. The size of the surveyed area is 4.8777 Ha and the length of proposed pipelines approximately 4 km. The survey took 5 hours to complete.

### **4.6 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.

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<sup>2</sup> A Garmin Oregon 550 with an accuracy factor of a few meters.



**FIGURE 5A: GPS TRACK OF THE SURVEYED AREA.<sup>3</sup> NORTH REFERENCE IS TO THE TOP.**

**P1-P5 – CO-ORDINATES FOR PUMPING MAINS**

**W1-W5 – CO-ORDINATES FOR WATERLINE**

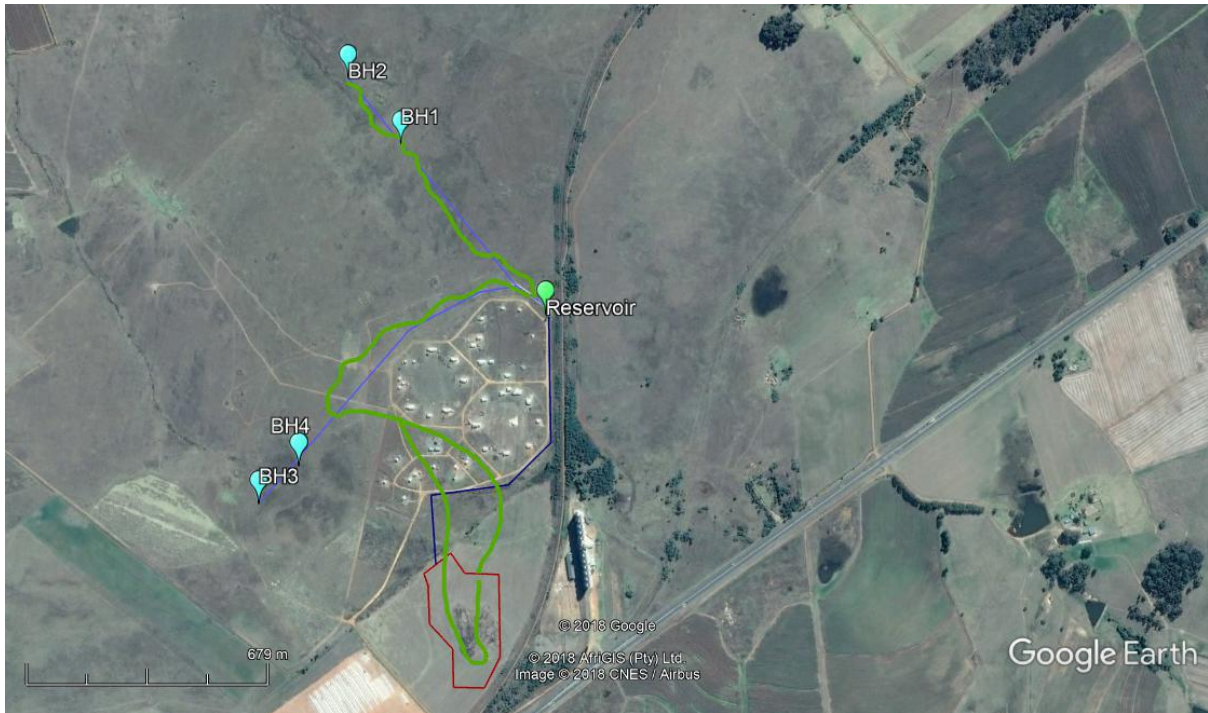
**BH1-BH4 - BOREHOLES**

**\_\_\_\_\_ - 90 WATERLINE**

**\_\_\_\_\_ - 75 WATERLINE**

**\_\_\_\_\_ - TRACK LOG**

<sup>3</sup> Two people, in radio contact, did the survey, but only one GPS unit was available.



**FIGURE 5B: TRACK OF SECOND PERSON IN THE SURVEYED AREA.<sup>4</sup> NORTH REFERENCE IS TO THE TOP.**

- BH1-BH4 - BOREHOLES**
- - 90 WATERLINE
  - - 75 WATERLINE
  - - TRACK LOG

#### 4.7 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.

<sup>4</sup> This track was hand-drawn as only one GPS unit was available.

## **5. ASSUMPTIONS, GAPS, RESTRICTIONS, CONDITIONS AND LIMITATIONS**

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 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.
7. In this particular case large parts of the surveyed area have been disturbed by mining and other activities. Accordingly these areas are seen as a low risk areas to reveal heritage sites due to it being almost entirely disturbed.
8. The vegetation cover in certain areas was extremely high and dense, which had a negative effect on both the vertical and the horizontal archaeological visibility.

## **6. DESCRIPTION OF THE SOCIO-ECONOMIC ENVIRONMENT**

Morelig Combined School located near Wonderfontein needs to be relocated due to mining activities of Umsimibithi Mining (Pty) Ltd. The said site will be subdivided from

the overall farm and rezoned for institutional purposes. The school will be able to cater for 1000 students (from Grade R to Grade 12). It will consist of 29 classrooms, 3 ablution blocks, library, laboratory, kitchen, computer centre, administration block, hall, guardhouse, 3 accommodation blocks, sports field, 3 combi courts, parking and drop off zone for busses, 30 covered and 30 open parking bays.

Since the site is located outside an urban area, services (i.e. water, sewer, storm water management, access road, etc.) need to be provided as part of the project. According to the project engineers, groundwater will be utilized. New boreholes will be drilled, and the water will be piped to an existing high level reservoir from where it will be distributed to the school.

## **7. DESCRIPTION OF THE PHYSICAL ENVIRONMENT**

The area that was surveyed is located on the Mpumalanga Highveld and shows typical Highveld characteristics, including grassland with isolated trees. These species are foreign and therefore an indication of disturbance. The vegetation cover varies from areas with medium high but dense grass to areas with dense, very high vegetation (Figure 6-7). The latter of course has a negative effect on both the horizontal as the vertical archaeological visibility.

The surveyed site has been disturbed to a large extent by recent human activities. Apart from the foreign trees (Figure 8), the area also consists of old agricultural fields (Figure 9) and certain sections shows signs of being worked by large excavation equipment. The pipeline routes and positions of boreholes (Figure 10) mainly runs through areas which have been used for grazing and therefore is less disturbed.

A few houses are found adjacent to the surveyed area for the school. This is called the Generaalsdraai Village. Here some roads, a water tower (Figure 11) and other disturbances were noted.

The topography of the surveyed area is fairly flat. It does fall towards the west where some tributaries of larger rivers are present.



**FIGURE 6: GENERAL VIEW OF VEGETATION IN THE SURVEYED AREA WITHIN THE SCHOOL SITE.**



**FIGURE 7: GENERAL VIEW ALONG THE PIPELINE ROUTE CLOSE TO P5 IN THE SURVEYED AREA.**



**FIGURE 8: VEGETATION COVER IN AN AREA THAT USED TO BE AN AGRICULTURAL FIELD WITHIN THE SCHOOL SITE.**



**FIGURE 9: REMAINS OF FOREIGN TREE SPECIES IN THE SURVEYED AREA WITHIN THE SCHOOL SITE.**





**FIGURE 10: VIEW OF VEGETATION CLOSE TO THE SITE OF BOREHOLE 2.**



**FIGURE 11: VIEW ALONG ONE OF THE WATERLINE ROUTE BETWEEN W1 AND W2.**

## **8. RESULTS OF PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT**

No comments related to heritage were received.

## **9. HISTORICAL CONTEXT**

No sites of cultural heritage significance were located during the survey, neither on the pipeline routes nor in the school site. Some Iron Age stone circles were noted on Google Earth towards the north and west of the pipeline routes. Background information is given in order to place the surveyed area in a historical context and to contextualize possible finds that could be unearthed during construction activities.

### **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; and
- Late Stone Age (LSA) 40 000 years ago – 1850 - A.D.

The environment around Wonderfontein and Belfast is not one known for containing Stone Age sites. This may be a result of not much research having been done here. However, no Stone Age sites are 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 (Bergh 1999: 4-5).

The environment of the surveyed area is such that it does provide natural shelter, however likely at some distance away. It therefore is possible that Stone Age people did not settle inside of the surveyed area, but perhaps in nearby caves or rock shelters. They would definitely have been lured to the area due to an abundance of wild life as the occurrence of water and natural vegetation would have provided ample grazing. One may therefore find open air sites or occasional stone tools in the surveyed area.

### **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.; and

- 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.; and
- Late Iron Age (LIA) 1300 – 1840 A.D.

In an area around Wonderfontein and 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: 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. For instance, one Late Iron Age/ Historical site was found during a previous survey in the vicinity (Archaeos database). As indicated earlier, some Late Iron Age stone walling were noted on Google Earth images. The lies towards the north and west of the pipeline route.

The type of environment is suitable for human habitation as ample building material, water, grazing and fuel are available. One would therefore expect that Iron Age people may 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 19<sup>th</sup> century the Phuthing, a South Sotho group, stayed to the south of Wonderfontein. The Koni of Makopole stayed to the 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).

The first white traveler to visit these surroundings was Robert Scoon in 1836 (Bergh 1999: 13). The area around Wonderfontein and Belfast, stretching as far as the Kruger Park, Middelburg and Ohrigstad, was first traded from the Swazi in 1846. White farmers therefore only settled here after this date (Bergh 1999: 16, 133).

Wonderfontein remained merely a farm with a small industrial component. The nearby town of Belfast was established in 1890 and by the 1890's this area was inhabited by many white farmers (Bergh 1999: 21). Just to the south of the town, on the farm Wemmershuis, the remains of an old coach house were identified. This is on the old trade route between Middelburg and the far eastern Transvaal (Van Vollenhoven 2008: 14). A map from Bulpin (1974) shows that the eastern railway line went through Belfast and one can assume that this was an important stop for travelers. The reason is that the road forks here to the north in the direction of Ohrigstad and Lydenburg and to the east in the direction of Nelspruit.

During the Anglo-Boer War the area around Belfast saw much action. The last of the conventional military encounters between the British and Boer forces were that of the Battle of Bergendal, sometimes called the Battle of Dalmanutha. The battle took place between 21 and 27 August 1900.

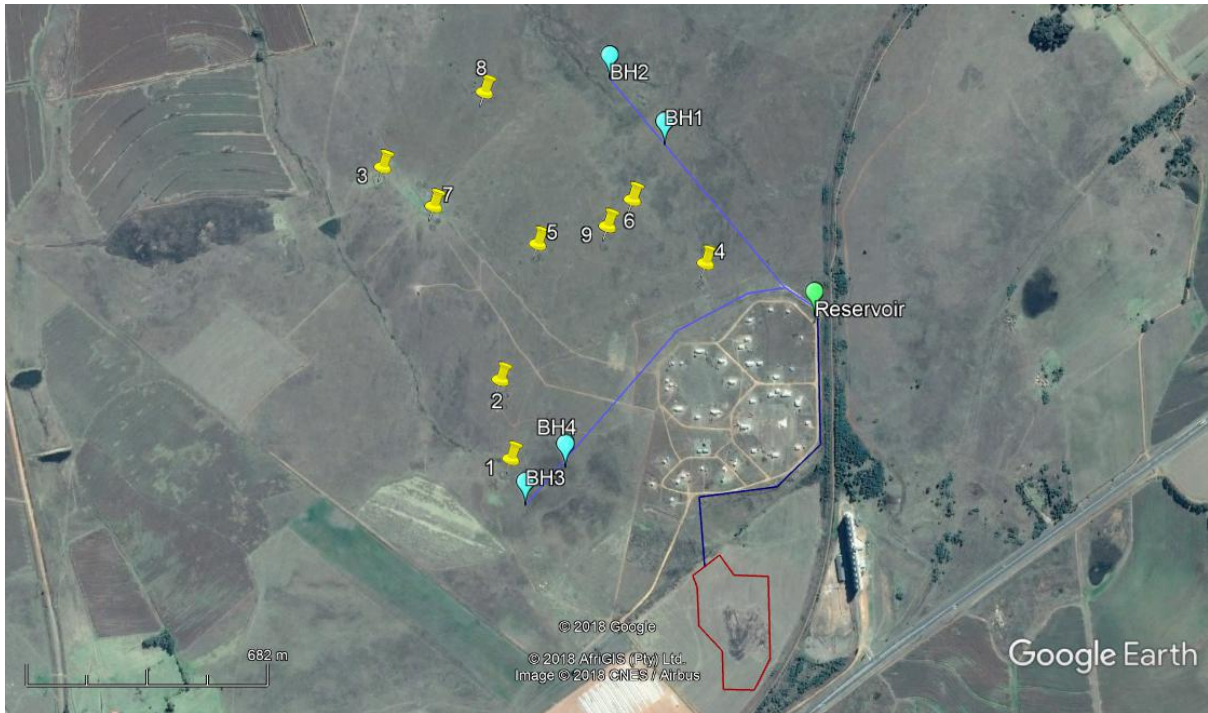
On 21-22 August skirmishes started on the farm Van Wyksvlei, to the south of Belfast. This was followed by an attack on 23 August by the British on the Boer forces on the farm Geluk. Later that day the Boers at Dalmanutha were also under attack. The final phase of the battle was at Bergendal on 27 August 1900 (Van der Westhuizen & Van der Westhuizen 2000: 218-220). The Boers retreated from the scene and the British could continue their advance to the Lowveld.

On 24 August 1900 the British occupied Belfast. In the town they had three concentration camps for Boer women and children (Van der Westhuizen & Van der Westhuizen 2000: 211-214). After the British reached Komatipoort on 24 September 1900, they erected blockhouses and other fortifications along the railway line in order to safeguard this from the Boers (Van Vollenhoven 1995: 86). The remains of two of these are found to the south of the railway line at Belfast (Van Vollenhoven 2008: 15). During the night of 7-8 January 1901 the Boers attacked Belfast and started against the blockhouses on Monument hill (Van der Westhuizen & Van der Westhuizen 2000: 217).

One may therefore expect to find farm buildings, structures and objects in the area. Many graveyards from this period in time have been identified in surrounding areas during past surveys. Historical graves have also been found at Wemmershuis, just to the south of Belfast previously (Archaetnos database). One should therefore be on the lookout for graves in the surveyed areas.

## **10. SITES IDENTIFIED**

As indicated above, some Late Iron Age/ Historical sites were identified via Google Earth after the field work was done. These 9 sites are assessed below (Figure 12).



**FIGURE 12: THE SITES IDENTIFIED VIA GOOGLE EARTH.**

At all 9 of the sites it seems circular stone walling are present, whereas at site no. 3 a rectangular stone wall (presumably a cattle kraal) is also present. The circular stone walling are typical of the Late Iron Age/ Historical period. In some cases, only one wall is visible, but in others multiple ones.

The fact that these are visible on Google Earth probably indicates that the walling is in a reasonable condition. It may also suggest that more such sites are one the landscape, but probably with much more deteriorated walls. The distance of the sites from the development are as follows:

- Site 1 – 110 m
- Site 2 – 250 m
- Site 3 – 1 km
- Site 4 – 80 m
- Site 5 – 400 m
- Site 6 – 360 m
- Site 7 – 720 m
- Site 8 – 870 m
- Site 9 – 370 m

The GPS co-ordinates for the sites are as follows:

Site 1 - 25°47'29.36"S  
29°54'08.54.0"E

Site 2 - 25°47'22.10"S  
29°54'07.43.0"E

Site 3 - 25°47'02.25"S  
29°53'55.05"E

Site 4 - 25°47'11.44"S  
29°54'28.36"E

Site 5 - 25°47'09.57"S  
29°54'11.24"E

Site 6 - 25°47'05.50"S  
29°54'20.95"E

Site 7 - 25°47'05.98"S  
29°54'00.43"E

Site 8 - 25°46'55.26"S  
29°54'05.64"E

Site 9 - 25°47'09.97"S  
29°54'18.39"E

**Cultural significance Table: Iron Age/ Historical stone walling sites**

<b>A place is considered to be part of the national estate if it has cultural significance because of -</b>	<b>Applicable or not</b>	<b>Rating: 1 - Negligible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High</b>
Its importance in the community or pattern of South Africa's history	Y	H
Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history	Y	M
Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage	Y	M
Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects	Y	M

Its importance in exhibiting particular aesthetic characteristics valued by a community cultural group	N	-
Its importance in demonstrating a high degree of creative or technical achievement at a particular period	Y	M
Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons	Y	M
Its strong or special association with the life or work of a person, group or organization of importance in the history of South Africa	N	-
Sites of significance relating to the history of slavery in South Africa	N	-
<b>Reasoned assessment of significance using appropriate indicators outlined above:</b>		4,3 – Medium

**Integrity scale:**

- 1 – Bad state of preservation, but no contextual information
- 2 – Bad state of preservation and includes contextual information
- 3 – Reasonable state of preservation, but no contextual information
- 4 – Reasonable state of preservation and includes contextual information
- 5 – Good state of preservation, but no contextual information
- 6 - Good state of preservation and includes contextual information
- 7 – Excellent state of preservation, but no contextual information
- 8 – Excellent state of preservation and includes contextual information

**Field-rating = Cultural significance x Integrity**

$$= 4,3 \text{ (Medium)} \times 5$$

$$= 21,5$$

The field rating for these sites are Local Grade IIIB. It should be included in the heritage register and may be mitigated (high/ medium significance). Mitigation is subject to a permit application lodged with the relevant heritage authority.

However, impact is unlikely during construction and therefore the sites should just be left in situ. There is a possibility that the sites may be impacted in the future, post-development. However, the community is currently more or less at the same distance from these sites as they would be after the school has been built. Therefore, no

additional impact is foreseen. It would however be good to implement an educational program at the school referring to these sites and its importance and teach the children how to value these and not damage it.

## **11. CONCLUSION AND RECOMMENDATIONS**

The survey of the indicated area was completed successfully. As indicated no sites of cultural heritage significance were identified within the proposed project area, that is the school site, nor were any found on the pipeline routes or at the borehole sites. Late Iron Age circles were identified towards the north and east of the waterline route, but these are more than 50 m away and should therefore not be affected by the development.

The following is recommended:

- This report is seen as ample mitigation and the proposed development may thus continue, but only after the report had been approved by SAHRA.
- The developer should ensure that they steer clear of the Iron Age features that were noted towards the north and west of the project area.
- The sites may be mitigated if necessary. Mitigation is subject to a permit application lodged with the relevant heritage authority.
- However, impact is unlikely during construction and therefore the sites should just be left in situ.
- There is a possibility that the sites may be impacted in the future, post-development. However, the community is currently more or less at the same distance from these sites as they would be after the school has been built. Therefore, no additional impact is foreseen. It would however be good to implement an educational program at the school referring to these sites and its importance and teach the children how to value these and not damage it.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. Due to the density of vegetation it also is possible that some sites may only become known later on. Operating controls and monitoring should therefore be aimed at the possible unearthing of such features. 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.

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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:**

- Negligible – The site has no heritage significance, although it may be older than 60 years.
- Low - A cultural object being found out of context, not being part of a site or without any related feature/structure in its surroundings. A site with minimal importance which is decreased by its bad state of decay.
- Low-Medium - A site of lesser importance, which is increased by a good state of preservation and contextual importance (e.g. a specific community).
- 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.
- Medium-High - A site that has high importance due to its age or uniqueness, but which decreases due to its bad state of decay.
- High - Any site, structure or feature regarded as important because of its age or uniqueness. Also any important object found within a specific context.
- Very High - A site of exceptional importance due to its age, uniqueness and good state of preservation.

#### **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: The site should be managed as part of the national estate, should be nominated as Grad I site, should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score above 50.

Provincial Grade II significance: The site should be managed as part of the provincial estate, should be nominated as Grade II site, should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score between 40 and 50.

Local Grade IIIA: The site should be included in the heritage register and not be mitigated (high significance), should be maintained in situ with a protected buffer zone and a CMP must be recommended. Score between 36 and 40.

Local Grade IIIB: The site should be included in the heritage register and may be mitigated (high/ medium significance). Mitigation is subject to a permit application lodged with the relevant heritage authority. Score between 6 and 35.

Local Grade IIIC: The description in the phase 1 heritage report is seen as sufficient recording (low significance) and it may be granted destruction at the discretion of the relevant heritage authority without a formal permit application, subjected to the granting of Environmental Authorisation. Score below 5.

## **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.