



Archaetnos Culture & Cultural  
Resource Consultants  
BK 98 09854/23

---

**A REPORT ON AN ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE  
PROPOSED TUMELO COLLIERY PROJECT APPLICATION FOR AMENDMENT  
TO INCLUDE PARTIAL PILLAR EXTRCTION, MIDDELBURG, MPUMALANGA  
PROVINCE**

For:

**CABANGA CONCEPTS**  
***E-mail: jane@cabangaenvironmental.co.za***

**REPORT NO.: AE02019V**

By:

***Prof. A.C. van Vollenhoven (L.AKAD.SA.)***  
***Accredited member of ASAPA (Accreditation number: 166)***  
***Accredited member of SASCH (Accreditation number: CH001),***  
***Johan Smit, BA (Hons)***  
***&***  
***Daniël Viljoen , BA (Hons)***

***30 April 2020***

Archaetnos  
P.O. Box 55  
GROENKLOOF  
0027  
Tel: 083 291 6104  
Fax: 086 520 4173  
E-mail: antonv@archaetnos.co.za

Member: AC van Vollenhoven BA, BA (Hons), DTO, NDM, MA (Archaeology) [UP], MA (Culture History) [US], DPhil (Archaeology) [UP], Man Dip [TUT], D Phil (History) [US]

## **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 is as such that it always is possible that hidden or subterranean sites could be overlooked during the study. Archaetnos and its personnel will not be held liable for such oversights or for costs incurred as a result thereof.**

**Should it be necessary to visit a site again as a result of the above mentioned, an additional appointment is required.**

**Reasonable editing of the report will be done upon request by the client if received within 60 days of the report date. However, editing will only be done once, and clients are therefore requested to send all possible changes in one request. Any format changes or changes requested due to insufficient or faulty information provided to Archaetnos on appointment, will only be done by additional appointment.**

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

**©Copyright  
Archaetnos**

**The information contained in this report is the sole intellectual property of Archaetnos CC. It may only be used for the purposes it was commissioned for by the client.**

## EXECUTIVE SUMMARY

### Purpose:

Archaetnos cc was requested by Cabanga Environmental to conduct an archaeological impact assessment (AIA) for the proposed changes at Tumelo Colliery. The project entails the application for the amendment to include partial pillar extraction. The Tumelo Colliery is an existing coal mine, situated near the town of Pullens Hope within the Mpumalanga Province.

### Project description:

The approved Mining Right Area includes various portions of the farm Boschmanskop 154IS. However, mine infrastructure is largely limited to portions 6 and 10 (RE), with the exception of the access road which traverses portions 1 and 14 (RE).

The application for amendment relates to a change in mine plan to include the partial pillar extraction of the No. 2 seam on retreat (checkerboard layout). No additional surface infrastructure is proposed.

### 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:

General public consultation was done by Cabanga Environmental. The various specialist reports will be utilized for this purpose.

### Findings:

The survey of the indicated area was completed successfully. One site was identified.

The following is recommended:

- The cultural significance of site no. 1 (Farmhouse plot) is Low and a Field rating is 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, subject to the granting of Environmental Authorisation

- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. It is possible that some sites may only become known later on. In such cases a qualified archaeologist should be called in to investigate the occurrence.

In this regard the following 'Chance find Procedure' should be followed:

- *Upon finding any archaeological or historical material all work at the affected area must cease.*
- The area should be demarcated in order to prevent any further work there until an investigation has been completed.
- An archaeologist should be contacted immediately to provide advice on the matter.
- *Should it be a minor issue, the archaeologist will decide on future action. Depending on the nature of the find, it may include a site visit.*
- *SAHRA's APM Unit may also be notified.*
- If needed the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.
- The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.  
Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter.

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**

### **Prof. Anton Carl van Vollenhoven**

#### **PERSONAL INFORMATION**

- Born: 20 January 1966, Pretoria, RSA
- Address: Archaetnos, PO Box 55, Groenkloof, 0027
- Cell phone: 083 291 6104
- Nationality: RSA
- E-mail: antonv@archaetnos.co.za

#### **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.
- *2014-2015*: 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*: Extraordinary Professor of History at the Mahikeng campus of the Northwest University

#### **OTHER**

- Has published 35 peer-reviewed and 43 popular articles.
- Has written 11 books/book contributions/conference proceedings .
- Has been the author and co-author of over 973 unpublished reports on cultural resources surveys and archaeological work.
- Has delivered more than 75 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; 2018-

2020).

- Has been editor for the SA Journal of Cultural History 2002-2004.
- Editorial member of various scientific journals.
- Member of the Provincial Heritage Resources Agency, Gauteng's Council.
- Member of Provincial Heritage Resources Agency, Gauteng's HIA adjudication committee (Chairperson 2012-2020).

A list of reports can be viewed on [www.archaetnos.co.za](http://www.archaetnos.co.za).

### 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: 30 April 2020

### 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

# CONTENTS

	Page
EXECUTIVE SUMMARY .....	3
CURRICULUM VITAE OF SPECIALIST .....	5
DECLARATION OF INDEPENDENCE .....	6
LIST OF ACRONYMS.....	6
CONTENTS .....	7
1. INTRODUCTION.....	8
2. TERMS OF REFERENCE.....	11
3. LEGISLATIVE REQUIREMENTS.....	12
4. METHODOLOGY .....	16
5. CONDITIONS AND ASSUMPTIONS .....	18
6. DESCRIPTION OF THE PHYSICAL ENVIRONMENT .....	19
7. RESULTS OF PUBLIC CONSULTATION AND STAKEHOLDER ENGAGEMENT .....	25
8. HISTORICAL CONTEXT.....	25
9. SITES IDENTIFIED DURING THE SURVEY.....	28
10.CONCLUSIONS AND RECOMMENDATIONS.....	31
11.REFERENCES.....	33
APPENDIX A – DEFENITION OF TERMS.....	35
APPENDIX B – DEFINITION/ STATEMENT OF SIGNIFICANCE .....	36
APPENDIX C – SIGNIFICANCE AND FIELD RATING .....	37
APPENDIX D – PROTECTION OF HERITAGE RESOURCES.....	39
APPENDIX E – HERITAGE/ ARCHAEOLOGICAL MANAGEMENT IMPACT ASSESSMENT PHASES.....	40

## 1. INTRODUCTION

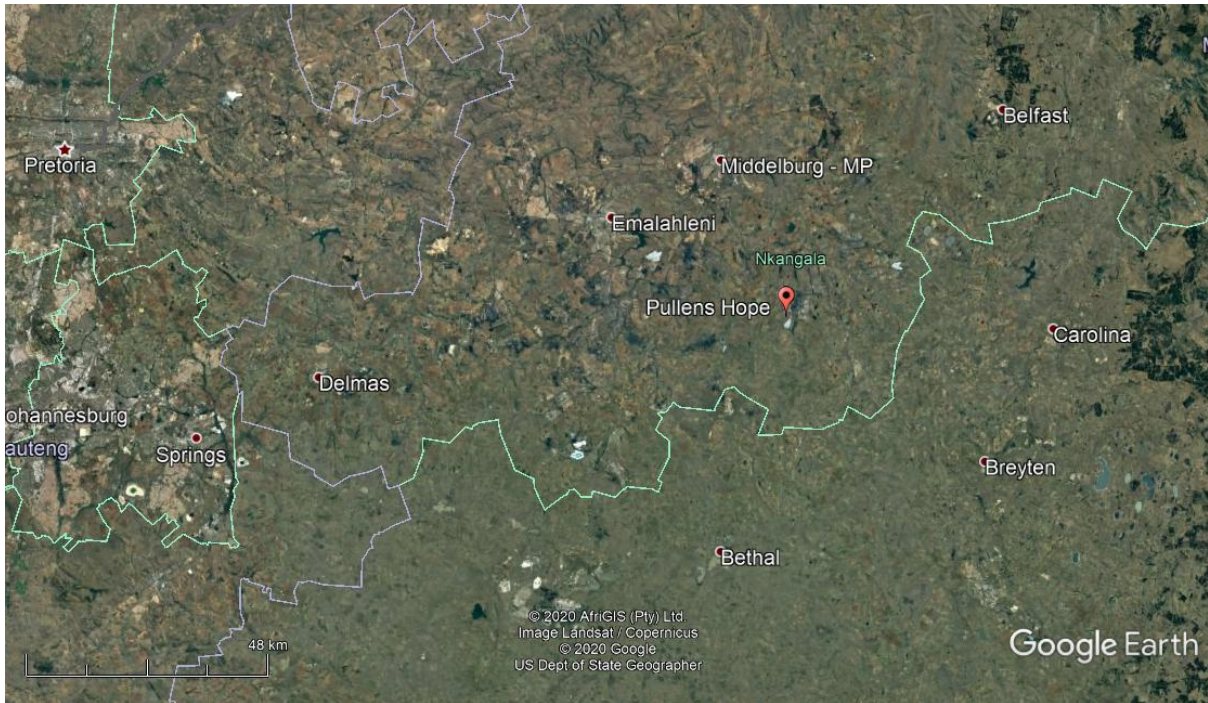
Archaetnos cc was requested by Cabanga Environmental to conduct an archaeological impact assessment (AIA) for the proposed project changes at Tumelo Colliery. The project entails the application for the amendment to include partial pillar extraction.

The approved Mining Right Area includes various portions of the farm Boschmanskop 154IS. The table below details the properties included in the Mining Right. However, mine infrastructure is largely limited to portions 6 and 10 (RE), with the exception of the access road which traverses portions 1 and 14 (RE).

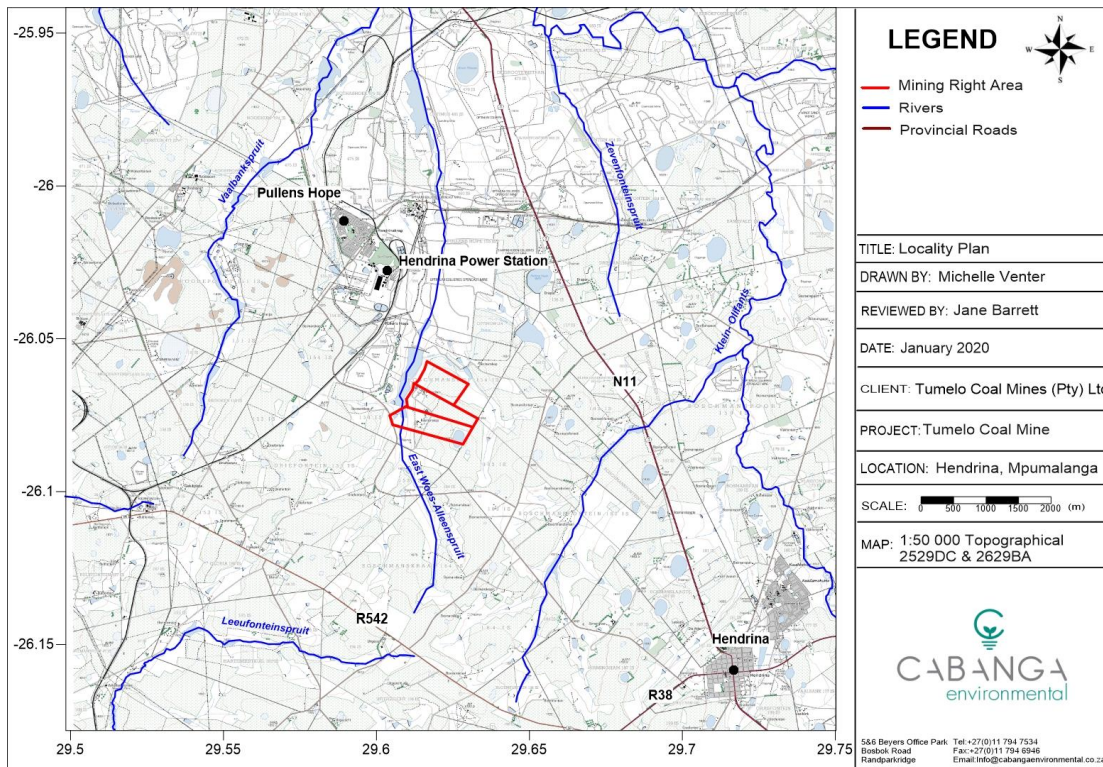
Farm Name	Portion	Surface Right Owner	SG Code	Property Extent (Ha)	Extent incl. in MR (Ha)
Boschmanskop 154 IS	10 (RE)	Tumelo Exploration (Pty) Ltd	T0IS00000000015400010	135.0015	135.0015
Boschmanskop 154 IS	6	Tumelo Coal Mines (Pty) Ltd	T0IS00000000015400006	161.6182	145.5447
Boschmanskop 154 IS	Portion 21 (of Portion 6)	Optimum Coal Mine (Pty) Ltd	T0IS00000000015400021	29.3884	0.2857
Boschmanskop 154 IS	14 (RE)	Tumelo Coal Mines (Pty) Ltd	T0IS00000000015400014	150.0259	150.0259
Boschmanskop 154 IS	Portion 23 (of Portion 14)	Optimum Coal Mine (Pty) Ltd	T0IS00000000015400023	30.4911	30.4911
Boschmanskop 154 IS	Portion 26 (of Portion 14)	Jan Hedrik Uys	T0IS00000000015400026	257.8224	0.8628
<b>Total Extent of Mining Right Area</b>					<b>462.2117 Ha</b>

The Tumelo Colliery is an existing coal mine, situated near the town of Pullens Hope within the Mpumalanga Province. The mine falls within the Steve Tshwete Local Municipality (MP313) of the Nkangala District Municipality. The 1: 50 000 topographic maps of the site are 2529DC and 2629BA (Figure 1-3). The central coordinate for the development is 26° 4'16.29"S; 29°37'7.96"E.

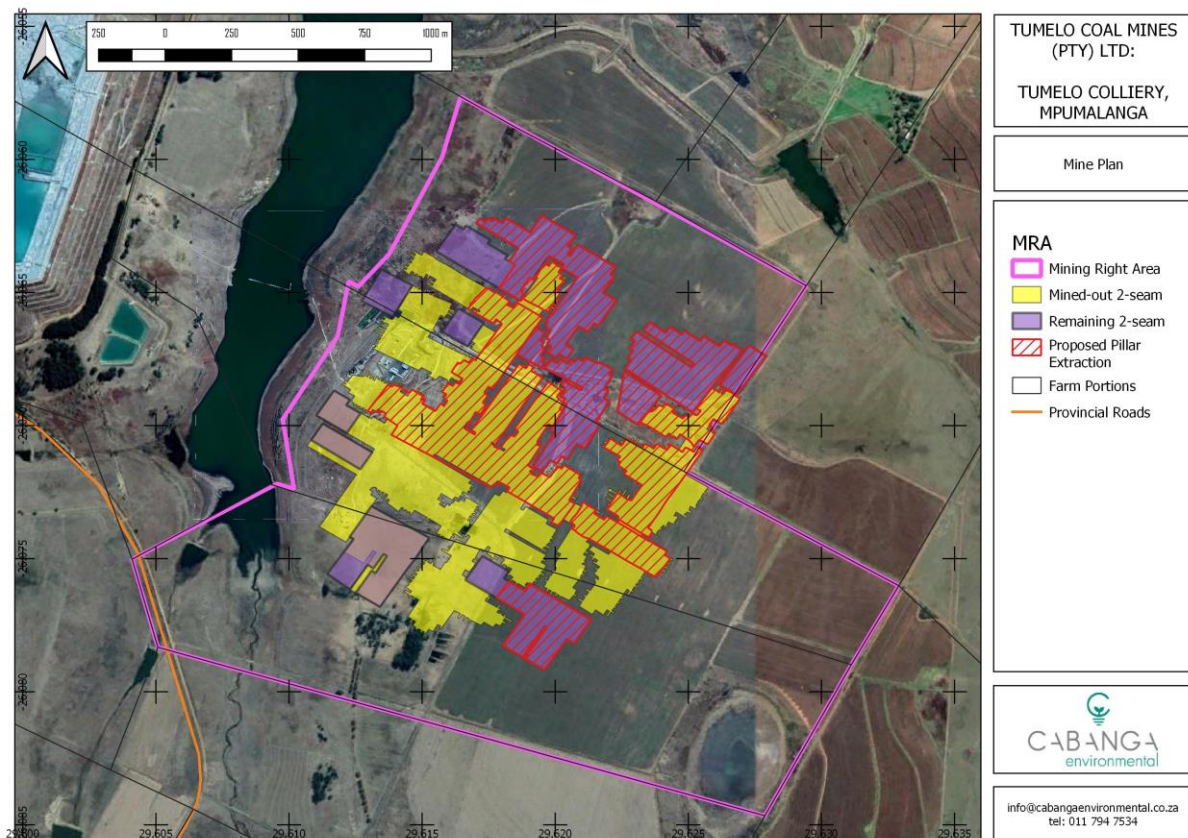




**FIGURE 1: LOCATION OF MIDDELBURG AND PULLENS HOPE IN THE MPUMALANGA PROVINCE.**



**FIGURE 2: SITE LOCATION (CABANGA ENVIRONMENTAL).**



**FIGURE 3: MINE PLAN INDICATING THE UNDERGROUND WORKINGS IN RELATION TO THE OVERALL MINING RIGHT AREA (CABANGA ENVIRONMENTAL).**

The application for amendment relates to a change in mine plan to include the partial pillar extraction of the No. 2 seam on retreat (checkerboard layout). No additional surface infrastructure is proposed. Thus, no new Listed Activities in terms of NEMA and or NEM:WA are triggered by the proposed project changes. Thus a part 2 Amendment as per Regulation 31 of the EIA Regulations, 2014 (as amended) is therefore relevant to the application. The Amendment Report has been compiled and is currently out for public review.

Tumelo Colliery has an approved Mining Right (MP30/5/1/2/2/10115MR) and Environmental Management Plan (EMP) in terms of the Mineral and Petroleum Resources Development Act, Act 28 of 2002 (MPRDA). Further to this, Tumelo has Environmental Authorisation (EA) issued in terms of Section 24G of NEMA (Ref. 17/2/10/24G NK03/2014) for auxiliary activities associated with the mining operations, including the construction and operation of a package sewage plant.

The approved EMP addressed the underground mining (bord-and-pillar) of the reserves associated with the No.2 Seam. Upon further assessment of the resource, Tumelo Coal Mines (Pty) Ltd (“Tumelo”) now wish to amend the mine plan to include the partial pillar extraction of the No.2 Seam (to be conducted in a checkerboard

layout, on retreat). The Mine is operational, and no new development or infrastructure is required for the proposed project change.

The underground workings are accessed via a box-cut decline. Coal is conveyed to surface where it is crushed and screened on site before being trucked off site. Supporting infrastructure on site, includes:

- Access and haul roads;
- Workshop area incl. stores, fuel storage and waste management areas;
- Administrative complex incl. change house and lamproom;
- Sewage package plant;
- Crushing and Screening Plant;
- Coal stockpile area;
- Weighbridge;
- Clean and dirty water diversion drains;
- Pollution control dam (PCD);
- Overburden stockpile;
- Erikson Dam;
- Substation; and
- Pump station.

## **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 project area.
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 project changes 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. It contains different specialist reports, including, but not limited to, archaeology, built environment, palaeontology, visual aspects etc.<sup>1</sup>

An Archaeological Impact Assessment (AIA) only looks at archaeological resources. A Palaeontological Impact Assessment (PIA) is an assessment of palaeontological

---

<sup>1</sup> Please consult SAHRA to determine which of these studies are needed.

heritage. Palaeontology is a different field of study, and although also sometimes required by the South African Heritage Resources Agency (SAHRA)<sup>2</sup> should be done by a professional palaeontologist.

The different phases during the HIA/AIA process are described in Appendix E. It 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.

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

---

<sup>2</sup> Please consult SAHRA to determine whether a PIA is necessary.

- 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 **National Health Act (Act 61 of 2003)**.

### **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 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**

On the existing SAHRA Database (SAHRIS) no heritage reports done at the site could be identified. Apparently such a report was done many years ago, probably before the existence of SAHRA ca. 2006, but it seems it was never submitted to SAHRA. however, many such reports were done in the wider Middelburg, Witbank and Pullens Hope area. A PIA was also commissioned by the client and done by Prof Marion Bamford from WITS.

In general graves, farm buildings and a few Iron Age occurrences have been identified. None of these are contextually linked to the project area (SAHRIS database; Archaetnos database). The SAHRIS database is an internet-based tool, updated constantly. No applicable information was found on the Archaetnos Database. The latter is a computer-based tool, updated constantly.

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

General public consultation was be done by Cabanga Environmental. The various specialist reports will be utilized for this purpose.

### **4.4 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>3</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 4).

Certain factors, such as accessibility, density of vegetation, etc. may however influence the coverage. In this instance the area with found to be reasonably disturbed.

---

<sup>3</sup> A Garmin Oregon 550 with an accuracy factor of a few meters.



The vegetation cover was mostly between low and medium in height and with dense under footing. The horizontal archaeological visibility was therefore good and the vertical archaeological visibility good as well. The size of the area is relatively small and flat with a slight incline to the west. One could see from one end to the other, North to South. Trees and buildings obscured the western side of the site. The overall Mining Right Area is 462 Ha, but the surveyed area was confined to the area to be affected by the pillar extraction itself, which is less than 130 Ha. The survey took 3 hours to complete.

#### **4.5 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.

#### **4.6 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.



**FIGURE 4: GPS TRACK OF THE SURVEY.**

## **5. CONDITIONS AND 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 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. Large sections of the surveyed area have been disturbed by recent human interventions (consisting largely of agricultural land) and therefore it is seen as low risk areas to reveal heritage sites.
8. The vegetation cover in certain areas was reasonably low and open consisting mostly of soya fields and open grasslands, which had a positive effect on archaeological visibility.

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

Regarding the geology of the area, the site is underlain by rocks of the Vryheid Formation, belonging to the Ecca Group of the lower Karoo Supergroup. This comprises mainly of a sedimentary succession of sandstone, siltstone, shale, mudstone, coal, diamictite and tillite.

The Mining Right Area is situated in the north eastern extremity of the Highveld Coal field separated by the pre-Karoo Smithfield ridge from the Witbank Coal field to the north. At places, sediments of the Vryheid Formation overlie the uneven Dwyka floor, which is controlled by the topography of the pre-Karoo platform upon which the Karoo sediments were deposited. The Vryheid Formation, which is present throughout the Witbank area, attains some 140 m at the thickest point and contains five major coal seams. Of these seams, the No. 4 Lower and No. 2 Lower seams have been identified as being potentially economically viable. However, currently only the No. 2 seam is targeted.

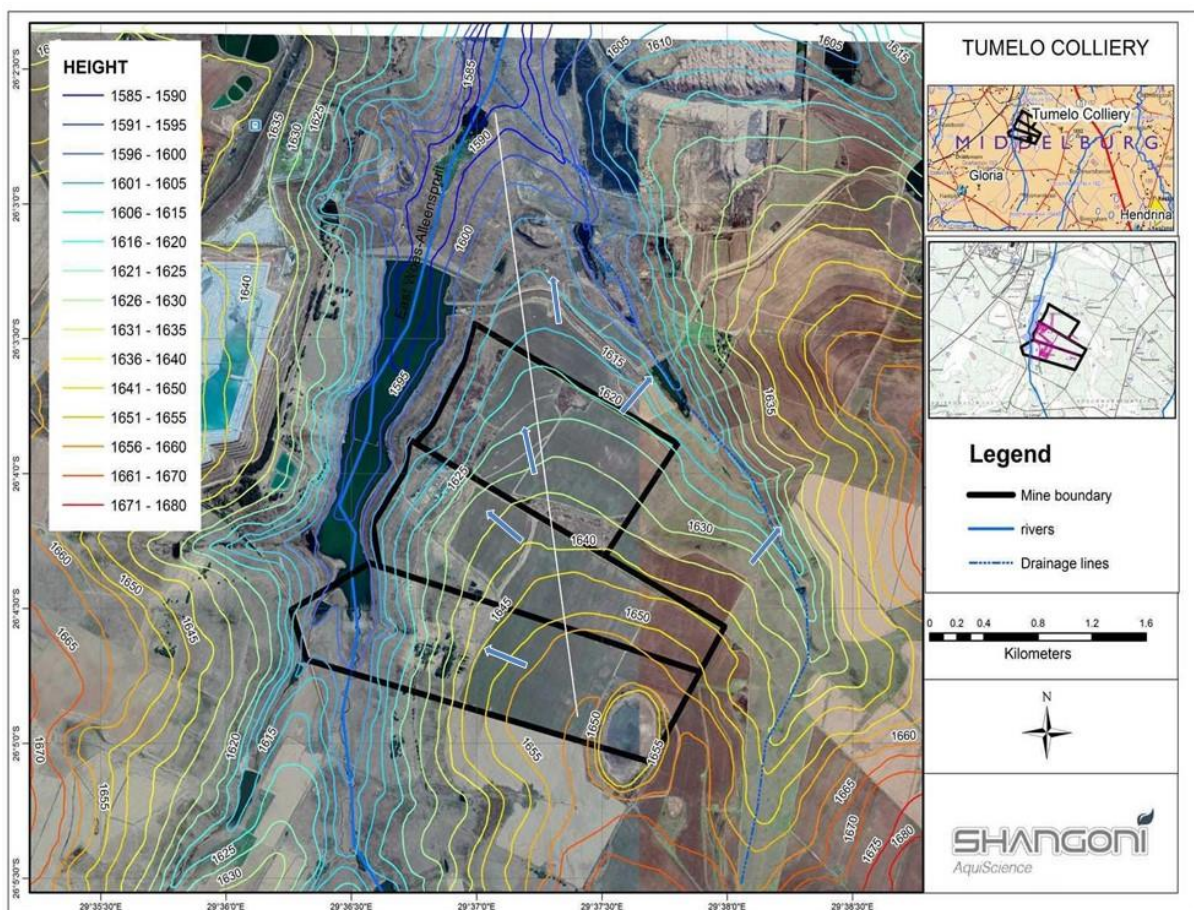
The Mining Right Area falls within the Bb4 land type. Bb4 land type comprises of plinthic soils (with subsurface accumulation of iron and manganese oxides due to fluctuating water table) with low to intermediate base status. It is expected that the dominant soils will be of the Avalon and Ruston forms.

A baseline assessment was completed in 2006 prior to commencement of the construction phase. Four soil forms were identified and mapped within the Mining Right Area namely Hutton, Clovelly, Avalon and Longlands. The majority of the pre-mining land capability was regarded as arable land (66%), with remaining area identified as grazing land (34%). The pre-mining land capability to a large degree

reflected the pre-mining land use, being grazing and maize cultivation (Cabanga Environmental).

The topography in the Mining Right Area (Figure 5) ranges from 1,605 metres above mean sea level (mamsl) on the western border, to 1,650 mamsl on the south-eastern border. Based on the surface contours in the Plan below Tumelo is located on a slight N-S water divide, and flow which will follow the contours perpendicularly from high to low, will be towards the Boschmanskop Dam and the drainage lines located to the immediate west and east of the Mining Right Area.

The surrounding landscape is associated with other surface water features such as wetlands and pans. Several man-made features are also of significance, the most obvious being the ash disposal dams associated with the Hendrina Power Station, immediately west of the Mine (Cabanga Environmental).



**FIGURE 5: TOPOGRAPHY OF THE MINING RIGHT AREA (SHANGONI AQUISCIENCE).**

The surveyed site consists of open fields and agricultural land (Figure 6-7). An old ruin of a farmhouse (younger than 60 years) and yard is located to the south west (Figure 8-9), occupied houses to the west (Figure 10) and mining infrastructure in the west (Figure 11).

The topography is reasonably flat with a slight fall towards the marshland and the dams in the north west and south east of the study area. The soil is loose and sandy in the cultivated areas and a mixture of clay and turf closer to the two bodies of water (Figure 12-13).



**FIGURE 6: GENERAL VIEW OF THE SURVEYED AREA.**



**FIGURE 7: SOYA FIELD IN THE SURVEYED AREA.**



**FIGURE 8: FARMHOUSE, YOUNGER THAN 60 YEARS.**



**FIGURE 9: LIVESTOCK ENCLOSURE AT FARM YARD.**



**FIGURE 10: HOUSES OCCUPIED BY WORKERS.**



**FIGURE 11: ABOVE GROUND MINING INFRASTRUCTURE.**



**FIGURE 12: VIEW OF THE SURVEYED AREA AND DAM IN THE NORTH WEST.**



**FIGURE 13: VIEW OF VEGETATION AND DAM IN THE NORTH WEST OF THE SURVEYED AREA.**



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

This is handled by the EAP. It is done in accordance with the EIA regulations and should anything related to heritage surface, the archaeologist will be contacted to address this.

Background Information Documents (BIDs) were compiled in English, Afrikaans and Zulu and were distributed via e-mail and post to all the identified stakeholders for whom contact information could be obtained. Hard Copies were hand delivered on 07 February 2020 to affected parties (land owners and users) where possible. In some cases, no one could be located on the property; in such a case the BID was attached to the property gate or left in a post box (when available).

A Newspaper advertisement (in Zulu and English) was published in the Witbank News on 07 February 2020, conveying the same information as the BID (albeit abbreviated). A2 posters, written in Zulu and English were placed on the site boundary fence and at other public locations; including:

- Pullenshope Public Library; and
- Nkangala District Municipality.

Further to this, the BID included a questionnaire for I&APs to complete which included aspects related to cultural and heritage sites in the area. A public meeting was held on the 4<sup>th</sup> March 2020, in the form of an Open Day. Registered I&APs were invited to attend.

## **8. HISTORICAL CONTEXT**

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. No sites have been identified during the survey. Some background information is given to place the surveyed area in a historical context and to contextualize possible finds that could be unearthed during construction activities.

Quite a large number of heritage reports were written in the Middelburg-Hendrina area. These however either indicated that nothing of heritage significance was found, or the sites that were found has no contextual link to the current surveyed area (SAHRIS database; Archaetnos' database).

Since it always is possible that more archaeological sites may become known later, the developer needs to note that such sites need to be dealt with in accordance with the legislation discussed above. Therefore in order to enable the reader to better understand possible archaeological and cultural features that may be unearthed during construction activities, it is necessary to give a background regarding the different phases of human history.

## 8.1 Stone Age

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

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

This geographical area is not known as an area containing prehistoric sites. No Stone Age sites are for instance indicated on a map contained in a historical atlas of this area (Bergh 1999: 4). The closest known Stone Age occurrence is a Late Stone Age site at Groenvlei, close to Carolina and that of rock art close to the Olifants River to the south of Witbank (Bergh 1999: 4-5). This may however only indicate a lack of research in the area.

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. One may therefore find small sites or occasional stone tools.

## 8.2 Iron Age

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

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

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

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

Iron Age sites have been identified to the south of the area, around Bethal which lies far to the south-east of the surveyed area (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.

The type of environment around Hendrina definitely is suitable for human habitation. There is ample water sources and good grazing. 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.

### **8.3 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.

At the beginning of the 19<sup>th</sup> century the Phuthing, a South Sotho group, stayed to the east of where Komati is situated. During the Difaquane they fled to the south as Mzilikazi's impi moved in from the southeast (Bergh 1999: 10-11; 109).

The first white traveler to visit these surroundings was Robert Scoon in 1829. The first Voortrekker groups of Hans van Rensburg and Louis Tregardt also passed close to this area in 1836 (Bergh 1999: 13-14). The first white farmers only settled here during the late 1850's (Bergh 1999: 18-20).

One may therefore expect to find remains of buildings as well as graves dating to this period in time. In fact, graves were identified on surrounding farms during previous surveys by Archaetos (Archaetos database) as was graves found close to Hendrina (Behrens & Esterhuysen 2010: 7). The latter report also identified a few historical sites, but these were of low cultural significance.

It is understood that construction of the operations at Tumelo Colliery commenced in 2008 prior to commencement of production in 2010. Tumelo Colliery was placed under care and maintenance at the end of February 2014 after contract renewal terms could not be agreed between Tumelo and the mining contractor. Activities recently resumed in the first quarter of 2019.

Surface activities and infrastructure associated with Tumelo Colliery are concentrated on Portions 6 and 10 (RE), as mining is undertaken by means of underground methods the remainder of the Mining Right Areas is largely utilised for agricultural purposes (grazing and cultivation).

Hendrina Power Station is located approximately 3km north-west of Tumelo Colliery. Pullens Hope is the nearest urban residential area to Tumelo Colliery and is located approximately 5km north-west of the mining right area. The area surrounding Tumelo is classified as rural in nature, with few urban informal residential areas located near the site (Cabanga Environmental).

## 9. SITES IDENTIFIED DURING THE SURVEY

One site was identified and is discussed below (Figure 14).

### 9.1 Site 1 – Farm yard

The farm yard is approximately 404 m x 346 m in size and contains several structures associated with farming (e.g. silos, barns and storage structures (Figure 9 and 16) and two farmhouses. The one is modern in design 31 m x 40m (Figure 8) and an older house 32 m x 11 m in size. The core of this farmhouse could be older than 60 years, but modern alterations have been done to the farmhouse and little remained of that core (Figure 15).

GPS Coordinates: 26°04'39.68"S 29°36'48.90"E



**FIGURE 14: LOCATION OF SITE 1.**



**FIGURE 15: OLD FARMHOUSE INDICATING MANY CHANGES DONE DURING THE RECENT PAST.**



**FIGURE 16: OUTBUILDING AT FARM YARD.**

**Cultural significance Table: Site 1**

<p><b>A place is considered to be part of the national estate if it has cultural significance because of -</b></p>	<p><b>Applicable or not</b></p>	<p><b>Rating: 1 - Negligible/ 2 -Low/ 3 - Low-Medium/ 4 - Medium/ 5 - Medium-High/ 6 - High/ 7 - Very High</b></p>
<p>Its importance in the community or pattern of South Africa's history</p>	<p>N</p>	
<p>Its possession of uncommon, rare, or endangered aspects of South Africa's natural or cultural history</p>	<p>N</p>	
<p>Its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage</p>	<p>Y</p>	<p>Negligible</p>
<p>Its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects</p>	<p>Y</p>	<p>Negligible</p>
<p>Its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group</p>	<p>N</p>	
<p>Its importance in demonstrating a high degree of creative or technical achievement at a particular period</p>	<p>N</p>	
<p>Its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons</p>	<p>N</p>	
<p>Its strong or special association with the life or work of a person, group or organization of</p>	<p>N</p>	

importance in the history of South Africa		
Sites of significance relating to the history of slavery in South Africa	N	
<b>Reasoned assessment of significance using appropriate indicators outlined above:</b>	1 – Negligible	

**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**

= 1(Negligible) x 2  
= 2

Field-rating: 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.

**10. CONCLUSION AND RECOMMENDATIONS**

The survey at the Tumelo Colliery was completed successfully. One site was identified (Figure 16).



**FIGURE 16: Indication of the location of the identified sites in relation to the underground mining activities.**

The following is recommended:

- The cultural significance of site no. 1 (Farm yard) is Low and a Field rating is Local Grade IIIC. The description in the phase 1 heritage report is seen as sufficient recording 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.
- It should be noted that the subterranean presence of archaeological and/or historical sites, features or artifacts is always a distinct possibility. It is possible that some sites may only become known later on. In such cases a qualified archaeologist should be called in to investigate the occurrence.

In this regard the following 'Chance find Procedure' should be followed:

- *Upon finding any archaeological or historical material all work at the affected area must cease.*
- The area should be demarcated in order to prevent any further work there until an investigation has been completed.
- An archaeologist should be contacted immediately to provide advice on the matter.
- *Should it be a minor issue, the archaeologist will decide on future action. Depending on the nature of the find, it may include a site visit.*
- *SAHRA's APM Unit may also be notified.*



- If needed the necessary permit will be applied for with SAHRA. This will be done in conjunction with the appointed archaeologist.
- The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.
- Work on site will only continue after the archaeologist/ SAHRA has agreed to such a matter.

## 11. REFERENCES

Archaetnos database.

Behrens, J. & Esterhuysen, A. 2010. **Zamokhule Substation, Hendrina, Mpumalanga Archaeological assessment.** (Unpublished report, UNISA & UWITS).

Bergh, J.S. (red.). 1999. **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** Pretoria: J.L. van Schaik.

Cabanga Environmental, 2020. Information provided related to the project.

Coertze, P.J. & Coertze, R.D. 1996. **Verklarende vakwoordeboek vir Antropologie en Argeologie.** Pretoria: R.D. Coertze.

Huffman, T.N. 2007. **Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa.** Scottsville: University of KwaZulu-Natal Press.

International Finance Corporation. 2012. **Overview of performance standards on Environmental and Social Sustainability. Performance Standard 8, Cultural Heritage.** World Bank Group.

Knudson, S.J. 1978. **Culture in retrospect.** Chicago: Rand McNally College Publishing Company.

Korsman, S.A. & Meyer, A. 1999. Die Steentydperk en rotskuns. Bergh, J.S. (red.). **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** Pretoria: J.L. van Schaik.

Republic of South Africa. 1980. Ordinance on Excavations (**Ordinance no. 12 of 1980**). **The Government Printer: Pretoria.**

Republic of South Africa. 2003. **National Health Act** (No 61 of 2003). The Government Printer: Pretoria.

Republic of South Africa. 1999. **National Heritage Resources Act** (No 25 of 1999). Pretoria: The Government Printer.

Republic of South Africa. 1998. **National Environmental Management Act** (no 107 of 1998). Pretoria: The Government Printer.

SAHRA's SAHRIS database.

Van der Ryst, M.M. & Meyer, A. 1999. Die Ystertydperk. Bergh, J.S. (red.). **Geskiedenisatlas van Suid-Afrika. Die vier noordelike provinsies.** Pretoria: J.L. van Schaik.

Van Vollenhoven, A.C. & Collins, Z. 2015. **A report on a walk-down archaeological heritage impact assessment for the proposed Eskom Hendrina-**

**Zamokhule project, Mpumalanga Province.** (Unpublished report, Groenkloof, Archaetnos).

## **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 41 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 31 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 30.

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/ARCHAEOLOGICAL 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.