PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

for

Environmental Assurance (Pty) Ltd

for

The construction of a powerline to supply electricity to a Vodacom tower between Roossenekal and Mashishing, Mpumalanga

Author ©:

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September 2017

A Phase 1 Archaeological Impact Assessment for Environmental Assurance (Pty) Ltd for the construction of a powerline to supply electricity to a Vodacom tower between Roossenekal and Mashishing, Mpumalanga

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I, Tobias Coetzee, declare that –

- I act as the independent specialist;
- I am conducting any work and activity relating to the proposed powerline in an objective manner, even if this results in views and findings that are not favourable to the client;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have the required expertise in conducting the specialist report and I will comply with legislation, regulations and any guidelines that have relevance to the proposed activity;
- I have not, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- All the particulars furnished by me in this declaration are true and correct.

Date: 15 September 2017

Executive Summary

The author was appointed by Environmental Assurance (Pty) Ltd to undertake a Phase 1 Archaeological Impact Assessment for Eskom SOC Ltd on a portion of Portion 1 of the Farm Wanhoop 78 JT and a portion of Portion 6 of the Farm Goedehoop 79 JT between Mashishing and Dullstroom for the construction of a Vodacom tower with associated powerline connection. The proposed site is located about 35 km southwest of Mashishing and 20 km north of Dullstroom in the Mpumalanga Province. The aim of the study is to determine the scope of archaeological resources which could be impacted on by the proposed construction of a Vodacom tower and its associated powerline connection.

Four stone features that appear to be of little heritage value were identified and should be avoided by the proposed development. These sites, however, area located some distance from the proposed powerline and should therefore not be impacted. Subject to adherence of the recommendations and approval by SAHRA the construction of the Vodacom tower and its associated powerline connection may continue. Should skeletal remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage and Resources Act, 25 of 1999 section 36 (6)). Also, should culturally significant material be discovered during the course of the said development, all activities must be suspended pending further investigation by a qualified archaeologist.

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1. Project Background

1.1 Introduction

Environmental Assurance (Pty) Ltd appointed the author to undertake a Phase 1 Archaeological Impact Assessment for Eskom SOC Ltd on a portion of Portion 1 of the Farm Wanhoop 78 JT and a portion of portion 6 of the Farm Goedehoop 79 JT, Mpumalanga Province (**Figures 1 & 2**). The purpose of this study is to examine the demarcated study area in order to determine if any archaeological resources of heritage value will be impacted on by the proposed construction of a Vodacom tower and underground power cable, as well as to archaeologically contextualise the general study area. The aim of this report is to provide the developer with information regarding the location of heritage resources on the portion demarcated for development.

In the following report, I discuss the implication for development on the demarcated area of a portion of Portion 1 of the Farm Wanhoop 78 JT and a portion of portion 6 of the Farm Goedehoop 79 JT with regard to heritage resources. The legislation section included serves as a guide towards the effective identification and protection of heritage resources and will apply to any such material unearthed during development and construction phases on the demarcated study area.

1.2 Legislation

The South African Heritage Resources Agency (SAHRA) aims to conserve and control the management, research, alteration and destruction of cultural resources of South Africa and to prosecute if necessary. It is therefore crucially important to adhere to heritage resource legislation contained in the Government Gazette of the Republic of South Africa (Act No.25 of 1999), as many heritage sites are threatened daily by development. Conservation legislation requires an impact assessment report to be submitted for development authorisation that must include an AIA if triggered.

AIAs should be done by qualified professionals with adequate knowledge to (a) identify all heritage resources that might occur in areas of development and (b) make recommendations for protection or mitigation of the impact of the sites.

1.2.1 The EIA and AIA processes

Phase 1 Archaeological Impact Assessments generally involve the identification of sites during a field survey with assessment of their significance, the possible impact development might have and relevant recommendations.

All Archaeological Impact Assessment reports should include:

a. Location of the sites that are found;

b. Short descriptions of the characteristics of each site;

c. Short assessments of how important each site is, indicating which should be conserved and which mitigated;

d. Assessments of the potential impact of the development on the site(s);

e. In some cases a shovel test, to establish the extent of a site, or collection of material, to identify the associations of the site, may be necessary (a pre-arranged SAHRA permit is required); and

f. Recommendations for conservation or mitigation.

This AIA report is intended to inform the client about the legislative protection of heritage resources and their significance and make appropriate recommendations. It is essential to also provide the heritage authority with sufficient information about the sites to enable the authority to assess with confidence:

a. Whether or not it has objections to a development;

b. What the conditions are upon which such development might proceed;

c. Which sites require permits for mitigation or destruction;

d. Which sites require mitigation and what this should comprise;

e. Whether sites must be conserved and what alternatives can be proposed to relocate the development in such a way as to conserve other sites; and

f. What measures should or could be put in place to protect the sites which should be conserved.

When a Phase 1 AIA is part of an EIA, wider issues such as public consultation and assessment of the spatial and visual impacts of the development may be undertaken as part of the general study and may not be required from the archaeologist. If, however, the Phase 1 project forms a major component of an AIA it will be necessary to ensure that the study addresses such issues and complies with Section 38 of the National Heritage Resources Act.

1.2.2 Legislation regarding archaeology and heritage sites

National Heritage Resource Act No.25 of April 1999

Buildings are among the most enduring features of human occupation, and this definition therefore includes all buildings older than 60 years, modern architecture as well as ruins, fortifications and Farming Community settlements. The Act identifies heritage objects as:

- objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects, meteorites and rare geological specimens;

- visual art objects;
- military objects;
- numismatic objects;
- objects of cultural and historical significance;
- objects to which oral traditions are attached and which are associated with living heritage;
- objects of scientific or technological interest;
- books, records, documents, photographic positives and negatives, graphic material, film or video or sound recordings, excluding those that are public records as defined in section 1(xiv) of the National Archives of South Africa Act, 1996 (Act No. 43 of 1996), or in a provincial law pertaining to records or archives;
- any other prescribed category.

With regards to activities and work on archaeological and heritage sites this Act states that:

"No person may alter or demolish any structure or part of a structure which is older than 60 years without a permit issued by the relevant provincial heritage resources authority." (34. [1] 1999:58)

and

"No person may, without a permit issued by the responsible heritage resources authority:

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites." (35. [4] 1999:58)

and

"No person may, without a permit issued by SAHRA or a provincial 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, 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;

(c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) and excavation equipment, or any equipment which assists in the detection or recovery of metals." (36. [3] 1999:60)

On the development of any area the gazette states that:

"…any person who intends to undertake a development categorised as:

(a) the construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;

(b) the construction of a bridge or similar structure exceeding 50m in length;

(c) any development or other activity which will change the character of a site-

i. exceeding 5000m² in extent; or

ii. involving three or more existing erven or subdivisions thereof; or

iii. involving three or more erven or divisions thereof which have been consolidated within the past five years; or

iv. the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;

(d) the re-zoning of a site exceeding 10000m² in extent; or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development." (38. [1] 1999:62-64)

and

"The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(a) The identification and mapping of all heritage resources in the area affected;

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;

(c) an assessment of the impact of the development on such heritage resources;

(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and

(g) plans for mitigation of any adverse effects during and after the completion of the proposed development." (38. [3] 1999:64)

Human Tissue Act and Ordinance 7 of 1925

The Human Tissues Act (65 of 1983) and Ordinance on the Removal of Graves and Dead Bodies (Ordinance 7 of 1925) protects graves younger than 60 years. These fall under the jurisdiction of the National Department of Health and the Provincial Health Departments. Approval for the exhumation and re-burial must be obtained from the relevant Provincial MEC as well as the relevant Local Authorities. Graves 60 years or older fall under the jurisdiction of the National Heritage Resources Act as well as the Human Tissues Act, 1983.

2. Study Area and Project Description

Location & Physical environment

The study area is located roughly 35 km southwest of Lydenburg, or Mashishing as it is now known, and 20 km north of Dullstroom within the Mpumalanga Province. The eastern half of the proposed development falls within the Thaba Chweu Local Municipality and the Ehlanzeni District Municipality, while the western half lies within the Emakhazeni Local Municipality and Nkangala District Municipality. The Vodacom tower will be constructed on Portion 6 and will be located approximately 260 m south of the R577 road between Mashishing and Roossenekal. The power cable's connection to the Roossenekal 11kV rural feeder will be approximately 450 m north of the R577 on Portion 1 of the Farm Wanhoop 78 JT.

According to Mucina & Rutherfords (2006) the study area falls within the Grassland Biome which is typically associated with summer rainfall regions. This Biome covers approximately 28% of South Africa. Locally the study area is classified as falling within Lydenburg Montane Grassland and stretches from Pilgrim's Rest in the north, southwards and westwards skirting Lydenburg and extending to Dullstroom, Belfast and Waterval Boven. Both the Steenkampsberg and Mauchberg are included in this vegetation unit. This type of vegetation is considered vulnerable and the conservation target is 27%. About 2.4% of this vegetation type is protected within reserves while about 13% is transformed by alien plantations. The average altitude for Lydenburg Montane Grassland ranges between 1260 and 2160 MASL (Mucina & Rutherfords 2006).

The study area falls within the summer rainfall region with an annual rainfall of about 664 mm. The annual average temperatures may vary between a maximum of 21.3 ºC in January and a minimum of 1.3 ºC in June (SA Explorer 2017).

In terms of topography the general study area slopes from the higher connection point with the Roossenekal 11kV feeder at 2239 MASL downslope to the proposed Vodacom tower at 2160 MASL.

The study area is divided by the Quarternary catchments B41F and B42F. B41F belongs to the Steelpoort River Catchment and B42F to the Spekboom Catchment. The closest river to the study area, the Waterval River, borders the Vodacom tower site and follows the proposed powerline a short distance. The Groot Dwars River, another perennial river, is located roughly 1.60 km northeast of the proposed connection with the Roossenekal 11kV feeder.

The current utilisation of the demarcated area of Portion 6 appears to be game farming. Currently no specific activity takes place on the demarcated area on Portion 1. The surrounding land uses include livestock farming and nature reserves.

Project description

Multi Project Services intends to construct a new underground powerline starting at the Roossenekal 11kV rural feeder on Portion 1 of the Farm Wanhoop 78 JT to supply electricity to a Vodacom tower on Portion 6 of the Farm Goedehoop 79 JT (Table 1). The proposed power cable is 1.224 km in length, while the Vodacom tower site will roughly be 50 X 50 m (**Figure 2**).

Table 1: Property name & coordinates

Property	Portion	Map Reference (1:50 000)	Coordinates
Wanhoop 78 JT	Portion 1	2530AA	S: -25.234453 E: 30.139357
Goedehoop 79 JT	Portion 6	2530AA	S: -25.239747 E: 30.146882

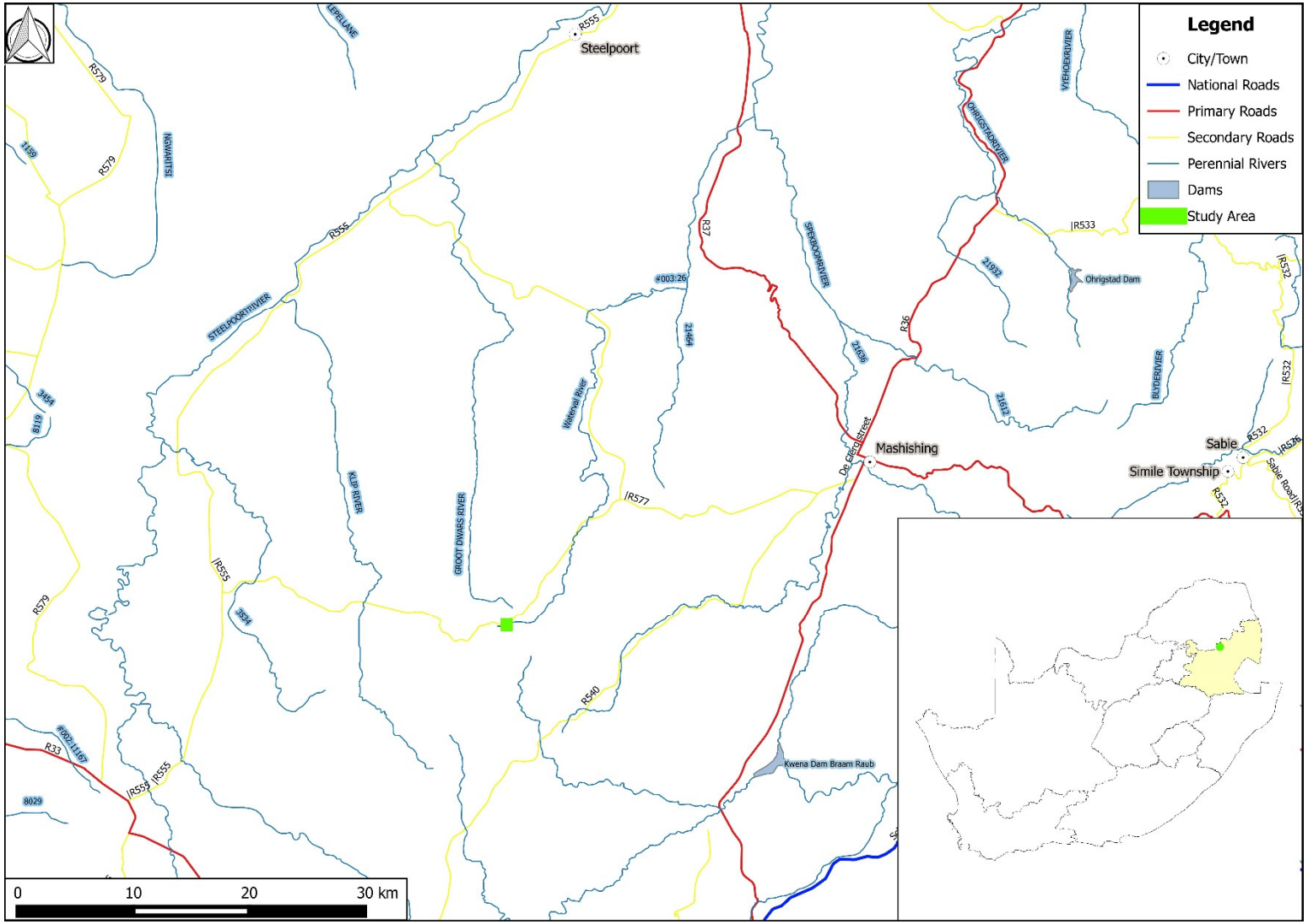

Figure 1: Regional and Provincial location of the study area.

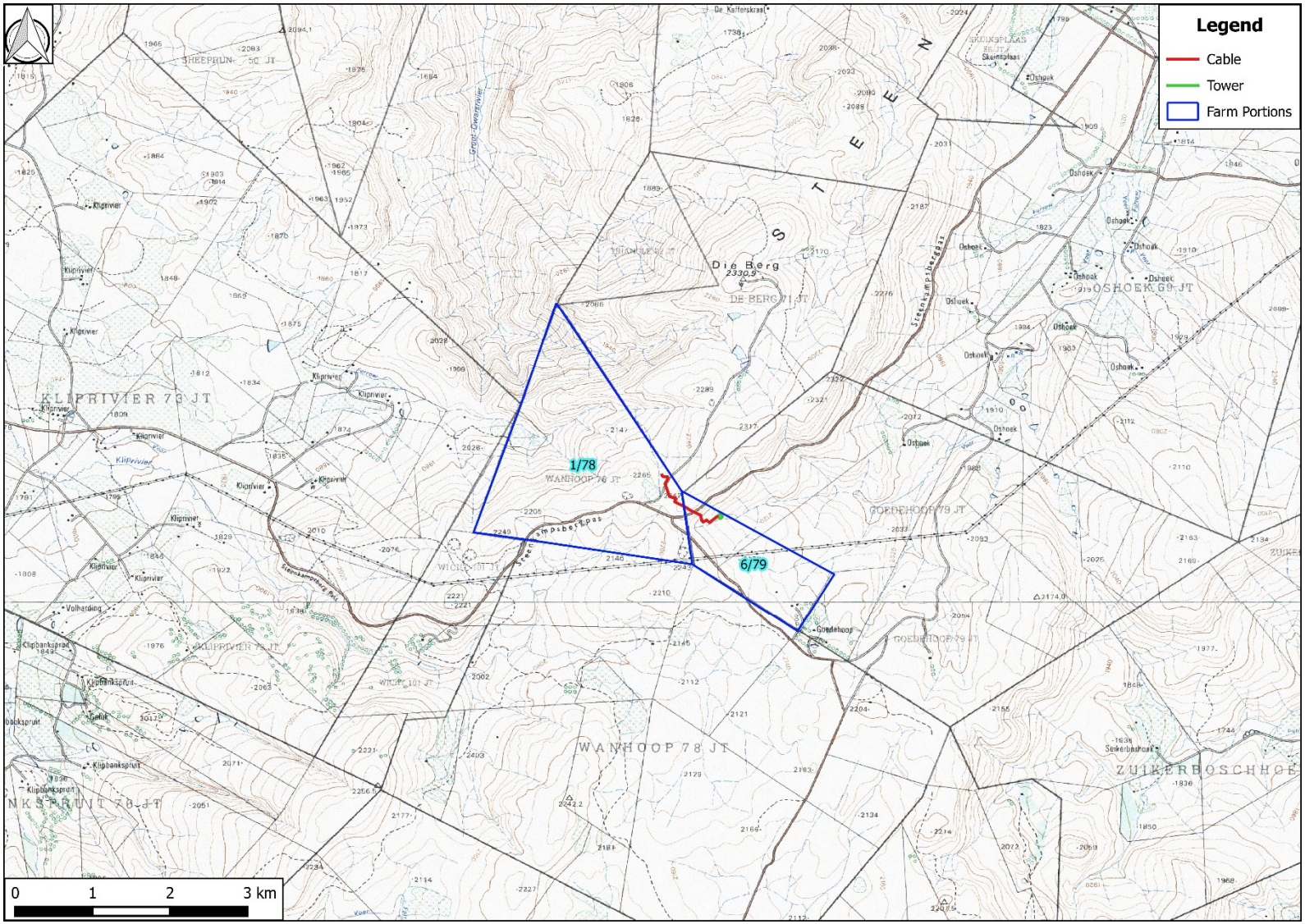

Figure 2: Segment of SA 1: 50 000 2530 AA indicating the study area.

2.1 Archaeological Background

Southern African archaeology is broadly divided into the Early, Middle and Later Stone Ages; Early, Middle and Later Iron Ages; and Historical or Colonial Periods. This section of the report provides a general background to archaeology in South Africa and also focuses on more site specific elements where relevant.

2.1.1 General Archaeological Context

The Stone Age

The earliest stone tool industry, the Oldowan, was developed by early human ancestors which were the earliest members of the genus *Homo,* such as *Homo habilis*, around 2.6 million years ago. It comprises tools such as cobble cores and pebble choppers (Toth & Schick 2007). Archaeologists suggest these stone tools are the earliest direct evidence for culture in southern Africa (Clarke & Kuman 2000). The advent of culture indicates the advent of more cognitively modern hominins (Mitchell 2002: 56, 57)

The Acheulean industry completely replaced the Oldowan industry. The Acheulian industry was first developed by *Homo ergaster* between 1.8 to 1.65 million years ago and lasted until around 300 000 years ago. Archaeological evidence from this period is also found at Swartkrans, Kromdraai and Sterkfontein. The most typical tools of the ESA are handaxes, cleavers, choppers and spheroids. Although hominins seemingly used handaxes often, scholars disagree about their use. There are no indications of hafting, and some artefacts are far too large for it. Hominins likely used choppers and scrapers for skinning and butchering scavenged animals and often obtained sharp ended sticks for digging up edible roots. Presumably, early humans used wooden spears as early as 5 million years ago to hunt small animals.

Middle Stone Age artefacts started appearing about 250 000 years ago and replaced the larger Early Stone Age bifaces, handaxes and cleavers with smaller flake industries consisting of scrapers, points and blades. These artefacts roughly fall in the 40-100 mm size range and were, in some cases, attached to handles, indicating a significant technical advance. The first *Homo sapiens* species also emerged during this period. Associated sites are Klasies River Mouth, Blombos Cave and Border Cave (Deacon & Deacon 1999).

Although the transition from the Middle Stone Age to the Later Stone Age did not occur simultaneously across the whole of southern Africa, the Later Stone Age ranges from about 20 000 to 2000 years ago. Stone tools from this period are generally smaller, but were used to do the same job as those from previous periods; only in a different, more efficient way. The Later Stone Age is associated with: rock art, smaller stone tools (microliths), bows and arrows, bored stones, grooved stones, polished bone tools, earthenware pottery and beads. Examples of Later Stone Age sites are Nelson Bay Cave, Rose Cottage Cave and Boomplaas Cave (Deacon & Deacon 1999).

The Iron Age & Historical Period

The Early Iron Age marks the movement of farming communities into South Africa in the first millennium AD, or around 2500 years ago (Mitchell 2002:259, 260). These groups were agro-pastoralist communities that settled in the vicinity of water in order to provide subsistence for their cattle and crops. Archaeological evidence from Early Iron Age sites is mostly artefacts in the form of ceramic assemblages. The origins and archaeological identities of this period are largely based upon ceramic typologies. Some scholars classify Early Iron Age ceramic traditions into different "streams" or "trends" in pot types and decoration, which emerged over time in southern Africa. These "streams" are identified as the Kwale Branch (east), the Nkope Branch (central) and the Kalundu Branch (west). Early Iron Age ceramics typically display features such as large and prominent inverted rims, large neck areas and fine elaborate decorations. This period continued until the end of the first millennium AD (Mitchell 2002; Huffman 2007). Some well-known Early Iron Age sites include the Lydenburg Heads in Mpumalanga, Happy Rest in the Limpopo Province and Mzonjani in Kwa-Zulu Natal.

The Middle Iron Age roughly stretches from AD 900 to 1300 and marks the origins of the Zimbabwe culture. During this period cattle herding appeared to play an increasingly important role in society. However, it was proved that cattle remained an important source of wealth throughout the Iron Age. An important shift in the Iron Age of southern Africa took place in the Shashe-Limpopo basin during this period, namely the development of class distinction and sacred leadership. The Zimbabwe culture can be divided into three periods based on certain capitals. Mapungubwe, the first period, dates from AD 1220 to 1300, Great Zimbabwe from AD 1300 to 1450, and Khami from AD 1450 to 1820 (Huffman 2007: 361, 362).

The Later Iron Age roughly dates from AD 1300 to 1840. It is generally accepted that Great Zimbabwe replaced Mapungubwe. Some characteristics include a greater focus on economic growth and the increased importance of trade. Specialisation in terms of natural resources also started to play a role, as can be seen from the distribution of iron slag which tend to occur only in certain localities compared to a wide distribution during earlier times. It was also during the Later Iron Age that different areas of South Africa were populated, such as the interior of KwaZulu Natal, the Free State, the Gauteng Highveld and the Transkei. Another characteristic is the increased use of stone as building material. Some artefacts associated with this period are knife-blades, hoes, adzes, awls, other metal objects as well as bone tools and grinding stones.

The Historical period mainly deals with Europe's discovery, settlement and impact on southern Africa. Some topics covered by the Historical period include Dutch settlement in the Western Cape, early mission stations, Voortrekker routes and the Anglo Boer War. This time period also saw the compilation of early maps by missionaries, explorers, military personnel, etc. **Figure 3** indicates the rough location of the study area on a map compiled by Merensky in 1875.

Figure 3: Approximate location of study area (Extract from: A. Merensky, 1875).

Mashishing / Lydenburg Archaeo-History

The Mashishing / Lydenburg area has a rich history spanning from early to Historical times. Below is a brief account of earlier events in the Mashishing / Lydenburg area.

One of the more famous EIA sites in Mpumalanga is attributed to the Lydenburg Heads site which comprise seven hollow ceramic sculptures. Pieces of the Lydenburg Heads were discovered and collected by Ludwig von Bezing in the Sterkstroom Valley near Lydenburg in 1957. Over the years he collected the remains of seven heads and while studying medicine at the University of Cape Town brought his finds under the attention of Prof Ray Inskeep of the department of Archaeology. Under Prof Ray Inskeep's supervision two large heads and five small ones were reconstructed. The Lydenburg Heads are housed in the Iziko Museum in Cape Town. Prof Inskeep also arranged for the systematic excavation of the site. Excavations revealed that the site was occupied during two periods. The first period was dated to around AD 600 and the second from the 9th – 11th century AD. Because the Lydenburg Heads were removed from their context dating is difficult. Compared to ceramics found at the dated sites of Ndondonwane and Msuluzi near the KwaZulu-Natal coast, it is believed that the Lydenburg Heads date to the second period of occupation. These similarities reinforce the fact that EIA communities moved and interacted (Delius 2007: 53 – 55).

Regarding the decorations of the Lydenburg Heads there is a striking similarity. Its form is elongated and bag-shaped orientated in order so that the mouth of the pot becomes the base of the neck of the head. Clay was added to form the eyes, ears, lips and scarification-like features. Patterns were also cut into the wet clay. Some societies typically carry out dental mutilation during initiation and might explain why the bigger heads are missing teeth and the smaller heads have gaps between the front teeth. The Lydenburg Heads may therefore have been used in pre-marital initiation schools. Also, it should be noted that some human remains dating to the Iron Age are missing front teeth, which reinforces the connection (Delius 2007: 55).

Later Iron Age activity are generally marked by stone walled enclosures. The numerous stone walled enclosures in Mpumalanga have long been the subject of identity disputes. Research into these sites were conducted by researchers such as Van Hoepen (1939), Mason (1962), Evers (1975), Marker & Evers (1976), Collett (1979), Maggs (2008), (Delius & Schoeman 2008), Delius, Maggs & Schoeman (2012). Research identified the area occupied by these stone walled enclosures stretching more or less from Carolina in the south to Ohrigstad in the north as Bokoni.

Oral traditions from Bokoni are scarce but some historical information from other groups such as the Pedi has been collected. Oral traditions from the Maroteng, who established a Pedi kingdom in the eastern Transvaal, indicate contact between them and the Koni when they crossed the Crocodile River around 1650. Thus the Koni were already established in the Crocodile River area by that time (Delius & Schoeman 2008: 142-143). Pedi oral traditions indicate that Bokoni was occupied from the 1500s to the mid-1800s (Delius & Schoeman 2008). This occupation phase, marked by a period of peace, was disrupted by episodes of prolonged violence. One of these, the *mfecane*, resulted in major shifts in Bokoni and a reconfiguration of the region.

Van Hoepen's research indicated that Pedi or Ndzundza groups settled in the study area while research by Evers (1975) and Collett (1979) drew on similarities between ceramics and settlement layout patters of modern Pedi communities. Later research done by Schoeman (1997) and Delius and Schoeman (2008) challenged the Pedi model.

Research by Marker and Evers (1976), which focused on settlement attributes, identified three different levels of settlement complexity in their study of stone walled enclosures in the eastern Transvaal. The first type is associated with smaller isolated settlements and consists of two concentric circles. The second settlement type is characterized by large central enclosures with two entrances on both sides and smaller stone circles which are found in association with these large enclosures. Whereas the first two types may be associated with terracing, the third type is not and consists of small stone walled enclosures grouped together.

Revil Mason (1962) conducted research on a larger scale and also employed aerial photographs. His study focused on the stone walled settlements of the Steelpoort, Crocodile, Komati and Sabi rivers where he located 1792 sites. Evers (1975) then covered the area between Lydenburg and Machadodorp also using aerial photography and identified 166 sites which, based on Mason's definition, is equivalent to 5000 sites.

3. Methodology

I conducted archaeological reconnaissance of the study area through a systematic pedestrian site survey of the footprint for the Vodacom tower and following the proposed route for the powerline. The transects were spaced roughly 50 m apart and possible sites were recorded via GPS (Global Positioning System) location (**Table 2 & Figure 4**) and photographic record. General site conditions were recorded via photographic record (**Figures 5 – 8**). Also, the site was inspected beforehand on Google as well as black and white aerial imagery in order to identify possible heritage remains. The transects stretched in a NNE-SSW direction. This was done in order to determine whether there are any heritage resources that might me impacted on by the proposed development. The total area surveyed was approximately 0.3 hectare for the Vodacom tower and 1.224 km for the powerline.

The reconnaissance of the area under investigation served a twofold purpose:

- To obtain an indication of heritage material found in the general area as well as to identify or locate archaeological sites on the area demarcated for the construction of the Vodacom tower and powerline. This was done in order to establish a heritage context and to supplement background information that would benefit developers through identifying areas that are sensitive from a heritage perspective.

- All archaeological and historical events have spatial definitions in addition to their cultural and chronological context. Where applicable, spatial recording of these definitions were done by means of a handheld GPS during the site visit.

Figure 4: Study area with survey transects.

Table 2: Site and Survey Points coordinates.

Site / Survey Point Name	Longitude	Latitude
D1	30.14078	-25.237775
D2	30.140741	-25.237883
D3	30.139446	-25.235154
D4	30.139446	-25.235230

Figure 5: Proposed site where the Vodacom tower is to be constructed.

Figure 6: General site conditions on Portion 6 in a southern direction.

Figure 7: General site conditions of Portion 1 in a northern direction.

Figure 8: Proposed site where the powerline is to join the Roossenekal 11 kV feeder.

3.1 Sources of information

At all times during the survey I followed standard archaeological procedures for the observation of heritage resources. As most archaeological material occurs in single or multiple stratified layers beneath the soil surface, I paid special attention to disturbances; both man-made such as roads and clearings, and those made by natural agents such as burrowing animals and erosion. I recorded locations of archaeological material remains by means of a Garmin Oregon 550 GPS and photographed these sites as well as general conditions on the terrain with a Sony Cyber-shot camera.

I conducted a literature study, which incorporated previous work done in the region, in order to place the study area into context from a heritage perspective.

3.1.1 Previous Studies

Dullstroom Country Lodge Residential Development, Dullstroom, Mpumalanga

A Heritage Impact Assessment was done for Landscape Dynamics on the farm Morgenzon 122 JT. This project area is located roughly 15 km south of the project concerned in this study and covers 200 ha. Findings include 2 informal graves, informal dwellings, a Late Iron Age or Historical site, as well as ruins of a historical farmstead (Pistorius 2005).

Coromandel Township Development, Lydenburg, Mpumalanga

The HIA done for the development of the Coromandel Township near Lydenburg, a township located approximately 20 km east of the proposed Vodacom tower site, was done by the National Cultural History Museum. The study revealed stone-walled sites dating to the Iron Age and mentions the possibility of Anglo Boer War and WWII Italian prisoner of war graves. One site dating to the historical period was identified (National Cultural History Museum 2004).

3.2 Limitations

The vegetation on the study area consists mainly of short and thick grasslands with fairly good visibility (surveyed August 2017). Some rocky outcrops exist on Portion 1 and some burnt areas on Portion 6.

4. Archaeological and Historical Remains

4.1 Stone Age Remains

I found no Stone Age archaeological remains on the area demarcated for the construction of the Vodacom tower and powerline.

The studies done by Pistorius (2005) and the National Cultural History Museum (2004) identified no Stone Age Remains in their studies.

Although I located no Stone Age archaeological remains, such artefacts may occur in area as is shown by other research in the area. These artefacts are often associated with rocky outcrops or water sources. **Figures 9 - 11** below are examples of stone tools often associated with the Early, Middle and Later Stone Age of southern Africa.

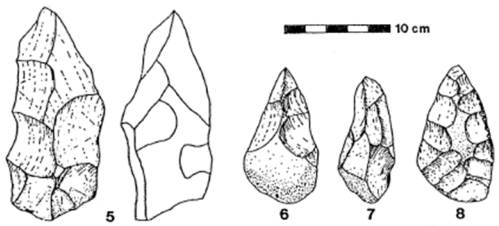

Figure 9: ESA artefacts from Sterkfontein (Volman 1984)

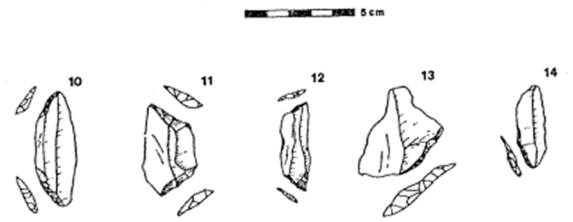

Figure 10: MSA artefacts from Howiesons Poort (Volman 1984)

Figure 11: LSA scrapers (Klein 1984)

4.2 Iron Age Farmer Remains

I found no Iron Age Farmer remains on the area demarcated for the construction of the Vodacom tower and powerline.

The HIA conducted by Pistorius (2005) indicates that one circular and one angular enclosure dating to the second half of the 19th Century were identified.

During the survey for the development of the Coromandel Township some stone-walled sites were identified. These sites, however, are disturbed as a result of the establishment of a wattle plantation and some of the material was used to construct houses (National Cultural History Museum 2004).

4.3 Historical Remains

I found no Iron Age Farmer remains on the area demarcated for the construction of the Vodacom tower and powerline.

The historical farmstead ruins identified by Pistorius (2005) dates to the late 19th or early 20th Century and is severely dilapidated. The farmstead was constructed with stone blocks and mortar, but only about 1 m in height of the walls remain.

The National Cultural History Museum (2004) identified one homestead dating to historical times, but appears not to be of significance.

4.4 Recent remains

I located four features that appear to be of recent origin (D1 - 4). Sites D1 & D2 consist are stone cairns located about 15 m from each other and 20 m from the proposed powerline (**Figure 12**). Sites D3 & D4 are located about 330 m to the north-northwest of D1 & D2. D3 & D4 consist of linearly stacked stones about 35 m from the proposed powerline with dimensions of about 3 X 1 m. Site D3 is oriented NE-SW and site D4 E-W (**Figure 13**). The reason for these sites are unknown and no material culture were observed in association with the sites.

Recent remains identified by previous studies include informal dwellings characterised by a contemporary Sotho /Ndebele architecture (Pistorius 2005).

Figure 12: Two stone cairns on Portion 1.

Figure 13: Two linear stone features on Portion 1.

4.5 Graves

I found no graves on the area demarcated for the construction of the Vodacom tower and powerline.

The study by Pistorius (2005) identified two informal graves associated with a nearby informal settlement. Both graves consist of stacked stones.

During the study for the Coromandel Township Development mention is made of Anglo Boer War and WWII Italian prisoner of war graves. Due to the dense vegetation cover, however, these grave could not be located (National Cultural History Museum 2004).

5. Evaluation

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A fundamental aspect in the conservation of a heritage resource relates to whether the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. There are many aspects that must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and if appropriate mitigated in order to gain data / information which would otherwise be lost. Such sites must be adequately recorded and sampled before being destroyed.

5.1 Field Rating

All sites should include a field rating in order to comply with section 38 of the National Heritage Resources Act (Act No. 25 of 1999). The field rating and classification in this report is prescribed by SAHRA.

Table 3: Field Rating

Rating	Field Rating/Grade	Significance	Recommendation
National	Grade 1		National site
Provincial	Grade 2		Provincial site
Local	Grade 3 A	High	Mitigation not advised
Local	Grade 3 B	High	Part of site should be retained
General protection A	4 A	High/Medium	Mitigate site
General Protection B	4 B	Medium	Record site
General Protection C	4 C	Low	No recording necessary

Table 4: Individual site rating

Site / Survey Point Name	Type	Rating	Field Rating/Grade	Significance	Recommendation
D1	Stone cairn	General Protection C	4 C	Low	No recording necessary
D2	Stone cairn	General Protection C	4 C	Low	No recording necessary
D3	linear stone feature	General Protection C	4 C	Low	No recording necessary
D4	linear stone feature	General Protection C	4 C	Low	No recording necessary

6. Statement of Significance & Recommendations

6.1 Statement of significance

The demarcated area for the construction of the Vodacom tower and powerline

I observed no material of heritage importance within the demarcated study area. A strong possibility exists that the four stone features are not of heritage value. However, caution should still be exercised in terms of development within close proximity of these features. Additionally these sites are located some distance from the proposed powerline and should therefore not be impacted.

The general Mashishing area is rich in archaeological evidence which include Stone Age, Iron Age and historical remains. The proposed site, however, is isolated in terms of known heritage resources and no material culture of heritage importance were observed close to the planned development.

6.2 Recommendations

The archaeological and historical landscape around Mashishing infers a rich and diverse cultural horizon. Therefore, the following recommendations are made in terms with the National Heritage Resources Act (25 of 1999) in order to avoid the destruction of heritage remains in areas demarcated for development:

- Because archaeological artefacts generally occur below surface and because the associated sites are covered by dense vegetation, the possibility exists that culturally significant material may be exposed during the development and construction phases, in which case all activities must be suspended pending further archaeological investigations by a qualified archaeologist. Also, should skeletal remains be exposed during development and construction phases, all activities must be suspended and the relevant heritage resources authority contacted (See National Heritage Resources Act, 25 of 1999 section 36 (6)).

- Should the need arise to expand the development beyond the surveyed area mentioned in this study, the following applies: a qualified archaeologist must conduct a full Phase 1 Archaeological Impact Assessment (AIA) on the sections beyond the demarcated areas which will be affected by the development, in order to determine the occurrence and extent of any archaeological sites and the impact development might have on these sites.

- It is recommended that the four stone features located on Portion 1 of the Farm Wanhoop 78 JT be left intact and not be disturbed.

- From a heritage point of view, the construction of the Vodacom tower and associated powerline may proceed on the demarcated portions, subject to the abovementioned conditions, recommendations and approval by the South African Heritage Resources Agency.

7. Addendum: Terminology

Archaeology:

The study of the human past through its material remains.

Artefact:

Any portable object used, modified, or made by humans; e.g. pottery and metal objects.

Assemblage:

A group of artefacts occurring together at a particular time and place, and representing the sum of human activities.

Context:

An artefact's context usually consist of its immediate *matrix* (the material surrounding it e.g. gravel, clay or sand), its *provenience* (horizontal and vertical position within the matrix), and its *association* with other artefacts (occurrence together with other archaeological remains, usually in the same matrix).

Cultural Resource Management (CRM):

The safeguarding of the archaeological heritage through the protection of sites and through selvage archaeology (rescue archaeology), generally within the framework of legislation designed to safeguard the past.

Excavation:

The principal method of data acquisition in archaeology, involving the systematic uncovering of archaeological remains through the removal of the deposits of soil and other material covering and accompanying it.

Feature:

An irremovable artefact; e.g. hearths or architectural elements.

Ground Reconnaissance:

A collective name for a wide variety of methods for identifying individual archaeological sites, including consultation of documentary sources, place-name evidence, local folklore, and legend, but primarily actual fieldwork.

Matrix:

The physical material within which artefacts is embedded or supported, i.e. the material surrounding it e.g. gravel, clay or sand.

Phase 1 Assessments:

Scoping surveys to establish the presence of and to evaluate heritage resources in a given area.

Phase 2 Assessments:

In-depth culture resources management studies which could include major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit excavations or auger sampling is required.

Sensitive:

Often refers to graves and burial sites although not necessarily a heritage place, as well as ideologically significant sites such as ritual / religious places. *Sensitive* may also refer to an entire landscape / area known for its significant heritage remains.

Site:

A distinct spatial clustering of artefacts, features, structures, and organic and environmental remains, as the residue of human activity.

Surface survey:

There are two kinds: (1) unsystematic and (2) systematic. The former involves field walking, i.e. scanning the ground along one's path and recording the location of artefacts and surface features. Systematic survey by comparison is less subjective and involves a grid system, such that the survey area is divided into sectors and these are walked ally, thus making the recording of finds more accurate.

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