

**Prepared for:
NATURE & BUSINESS ALLIANCE AFRICA (PTY) LTD**

**A PHASE I HERITAGE IMPACT ASSESSMENT STUDY
FOR WATER AND SEWAGE PIPELINE CORRIDORS NEAR
VANDERBIJLPARK IN THE GAUTENG PROVINCE OF
SOUTH AFRICA**

**Prepared by:
DR JULIUS CC PISTORIUS
Archaeologist &
Cultural Heritage Management Consultant
352 Rosemary Street
Lynnwood 0081
Pretoria**

**Tel and fax no 012 3485668
Cell 0825545449
juliuscc@absamail.co.za**

August 2007

Executive Summary

A Phase I Heritage Impact Assessment (HIA) study as required in terms of Section 38 of the National Heritage Resources Act (Act 25 of 1999) was done for a proposed new pipeline development project between Vanderbijlpark and Vereeniging in the Gauteng Province of South Africa. The aim of the HIA study was to establish whether any of the types and ranges of heritage resources ('national estate') as outlined in Section 3 of the National Heritage Resources Act (Act 25 of 1999) do occur in or near the proposed new Project Area.

The Phase I HIA study for the proposed new pipelines revealed the following types and ranges of heritage resources in the Project Area, namely:

- Two historical graveyards.
- A number of at least seven historical houses near Houtkop.
- Structures constructed with stone which have historical significance.
- Historical houses located between Hein Muller and Percy Sherwell Streets in Unitas Park.

The graveyards, historical houses near Houtkop and stone structures were geo-referenced and mapped (Figure 2; Tables 1-2). The historical houses between Heine Muller and Percy Sherwell Streets were not geo-referenced.

The significance of the graveyards, historical houses and stone structures is indicated as well as appropriate mitigation measures that have to be applied if any of these heritage resources are to be affected by the proposed new pipeline development.

The significance of the heritage resources that may be affected by the proposed pipeline development is based on stipulations from the National Heritage Resources Act (No 25 of 1999) and various other criteria:

All graves and graveyards can be considered to be of high significance as all graves are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are

exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

Stone walled sites qualify as archaeological sites which may date from the Historical Period. All archaeological (historical) and paleontological sites are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). This site may not be affected (demolished, altered, renovated, removed) before the Provincial Heritage Resources Authority (PHRA) has approved such alterations.

All buildings and structures older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999) and may not be affected (demolished, altered, renovated, removed) before the Provincial Heritage Resources Authority (PHRA) has approved such alterations.

Mitigation measures for any of the heritage resources that may be affected by the pipeline development are the following:

If one or both graveyards may be affected by the proposed pipeline corridors, they have to be mitigated. One of the following strategies may be followed:

- The graves or graveyard can be preserved *in situ*. The graves or graveyards can be demarcated with brick walls or with fences.
- Graves and graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

The stone structures may not be affected (altered, demolished, removed) by the pipeline development *prior* to these structures been subjected to a Phase II investigation by an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA). The stone walled structures must be mapped

and if archaeological deposits occur, test excavations of these deposits must be undertaken.

The archaeologist must acquire a permit from the Gauteng Provincial Heritage Resources Authority (Gauteng PHRA) *prior* to the stone walls been affected by the pipeline development and before the Phase II investigation of these remains occur.

The historical houses (at Houtkop and between Heine Muller and Percy Sherwell Streets) have significance and can only be affected (demolished, altered, renovated) after the Gauteng Provincial Heritage Resources Authority has issued a permit which would authorise any of these actions. A historical architect must recommend what actions should be taken with the houses and has to apply for a permit authorising this affect on any of the houses that may be affected by the pipeline development.

If any heritage resources of significance is exposed during this development project the South African Heritage Resources Authority (ASAPA) should be notified immediately, all construction activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

CONTENTS

	Executive Summary	2
1	INTRODUCTION	7
2	AIM OF THIS REPORT	9
3	METHODOLOGY	10
3.1	Approach and sources	10
3.2	Assumptions and limitations	10
3.3	Some remarks on terminology	11
4	THE PROJECT AREA	13
4.1	Location	13
4.2	The proposed pipeline corridors	13
5	CONTEXTUALISING THE PROJECT AREA	15
5.1	Prehistory and early history	15
5.2	Brief historical background to Vanderbijlpark	17
5.3	Heritage resources in Vereeniging	18
6	THE PHASE I HERITAGE IMPACT ASSESSMENT	21
6.1	The Graveyards	23
6.1.1	Graveyard 01	23
6.1.2	Graveyard 02	24
6.2	Historical Houses at Houtkop	25
6.3	Stone structures	26
6.4	Historical houses between Heine Muller and Percy Sherwell Streets	28

7	THE SIGNIFICANCE, MITIGATION AND MANAGEMENT OF THE HERITAGE RESOURCES	30
7.1	The significance of the heritage resources	30
7.1.1	The graveyards	30
7.1.2	Stone structures	31
7.1.3	Historical houses (at Houtkop and between Heine Muller and Percy Sherwell Streets)	31
7.2	Mitigating the heritage resources	31
7.2.1	The graveyards	31
7.2.2	Stone structures	32
7.2.3	The historical houses (at Houtkop and between Heine Muller and Percy Sherwell Streets)	32
8	CONCLUSION AND RECOMMENDATIONS	33
9	SELECT BIBLIOGRAPHY	36

1 INTRODUCTION

This document contains the report on the results of a Phase I Heritage Impact Assessment (HIA) study done for water and sewage pipeline corridors to the north-east of Mittal Steel and Vanderbijlpark in the Gauteng Province of South Africa. Ecologically speaking, the project area is located between savannah bush veldt further to the north and the north-west and the grass veldt of the Highveld further to the south.

Focused archaeological research has been conducted in the Gauteng Province for more than four decades. This research consists of surveys and of excavations of Stone Age and Iron Age sites as well as of the recording of rock art and historical sites in this area. The Gauteng Province has a rich heritage comprised of remains dating from the pre-historical and from the historical (or colonial) periods of South Africa. Pre-historical and historical remains in the Gauteng Province of South Africa form a record of the heritage of most groups living in South Africa today.

Various types and ranges of heritage resources that qualify as part of South Africa's 'national estate' (as outlined in the National Heritage Resources Act [No 25 of 1999]) occur in the Gauteng Province (see Box 1, next page).

Box 1: Types and ranges of heritage resources (the national estate) as outlined in Section 3 of the National Heritage Resources Act, 1999 (No 25 of 1999).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) outlines the following types and ranges of heritage resources that qualify as part of the National Estate, namely:

- (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 natural features of cultural significance;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds including-
 - (i) ancestral graves;
 - (ii) royal graves and graves of traditional leaders;
 - (iii) graves of victims of conflict;
 - (iv) graves of individuals designated by the Minister by notice in the Gazette;
 - (v) historical graves and cemeteries; and
 - (vi) other human remains which are not covered by in terms of the Human Tissues Act, 1983 (Act No 65 of 1983);
- (h) sites of significance relating to the history of slavery in South Africa;
- (i) movable objects, including -
 - (i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - (ii) objects to which oral traditions are attached or which are associated with living heritage;
 - (iii) ethnographic art and objects;
 - (iv) military objects;
 - (v) objects of decorative or fine art;
 - (vi) objects of scientific or technological interest; and
 - (vii) books, records, documents, photographs, positives and negatives, graphic, film or video material 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).

The National Heritage Resources Act (Act No 25 of 1999, Art 3) also distinguishes nine criteria for places and objects to qualify as 'part of the national estate if they have cultural significance or other special value ...'. These criteria are the following:

- (a) its importance in the community, or pattern of South Africa's history;
- (b) its possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage;
- (c) its potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage;
- (d) its importance in demonstrating the principal characteristics of a particular class of South Africa's natural or cultural places or objects;
- (e) its importance in exhibiting particular aesthetic characteristics valued by a community or cultural group;
- (f) its importance in demonstrating a high degree of creative or technical achievement at a particular period;
- (g) its strong or special association with a particular community or cultural group for social, cultural or spiritual reasons; (h)
- (h) its strong or special association with the life or work of a person, group or organisation of importance in the history of South Africa;
- (i) sites of significance relating to the history of slavery in South Africa

2 AIMS OF THIS REPORT

New water and sewage pipeline corridors are planned to the north-east of Mittal Steel and Vanderbijlpark in the Gauteng Province of South Africa. This proposed pipeline development may affect some of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (No 25 of 1999). Consequently, Nature & Business Alliance Africa (Pty) Ltd, the environmental company responsible for compiling an Environmental Impact Assessment (EIA) for the pipeline development, commissioned the author to undertake a Phase I Heritage Impact Assessment (HIA) study for the proposed new development. The aims with the Phase I HIA were the following:

- To establish whether any of the types and ranges of heritage resources as outlined in Section 3 of the National Heritage Resources Act (Act 25 of 1999) do occur in the proposed new pipeline corridors, and, if so, to establish the significance of these heritage resources.
- To establish whether such heritage resources will be affected by the proposed new pipeline development, and, if so, to determine the necessary mitigation measures that must be applied to these heritage resources.

3 METHODOLOGY

3.1 Approach and sources

This Phase I HIA study was conducted by means of the following activities:

- Surveying the Project Area at large and focusing on sensitive spots which were thoroughly surveyed on foot.
- Briefly surveying literature relating to the pre-historical and historical context of the Project Area.
- Consulting maps of the Project Area as well as of peripheral areas adjoining the Project Area.
- Consulting archaeological (heritage) data bases such as the ones kept at the Gauteng Provincial Heritage Resources Agency as well as at Museum Africa in Pretoria (Tshwane).
- Synthesising all information obtained from the literature survey, maps and data bases with the evidence derived from the fieldwork in this report.

3.2 Assumptions and limitations

It is possible that this Phase HIA study may have missed heritage resources in the Project Area as heritage remains may occur in thick clumps of vegetation while others may lie below the surface of the earth and may only be exposed once development commences.

If any heritage resources of significance is exposed during this development project the South African Heritage Resources Authority (ASAPA) should be notified immediately, all construction activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

3.3 Some remarks on terminology

Terminology that may be used in this report is outlined in Box 2 (below, next page).

Box 2: Some remarks on terminology

The Heritage Impact Assessment (HIA) referred to in the title of this report includes a survey of heritage resources as outlined in the National Heritage Resources Act, 1999 (Act No 25 of 1999) (See Box 1).

Heritage resources (cultural resources) include all human-made phenomena and intangible products that are the result of the human mind. Natural, technological or industrial features may also be part of heritage resources, as places that have made an outstanding contribution to the cultures, traditions and lifestyles of the people or groups of people of South Africa.

The term 'pre-historical' refers to the time before any historical documents were written or any written language developed in a particular area or region of the world. The historical period and historical remains refer, for the project area, to the first appearance or use of 'modern' Western writing brought to the Vanderbijlpark-Vereeniging area by the first Colonists who settled here after c. 1840.

The term 'relatively recent past' refers to the 20th century. Remains from this period are not necessarily older than sixty years and therefore may not qualify as archaeological or historical remains. Some of these remains, however, may be close to sixty years of age and may, in the near future, qualify as heritage resources.

It is not always possible, based on observations alone, to distinguish clearly between archaeological remains and historical remains, or between historical remains and remains from the relatively recent past. Although certain criteria may help to make this distinction possible, these criteria are not always present, or, when they are present, they are not always clear enough to interpret with great accuracy. Criteria such as square floor plans (a historical feature) may serve as a guideline. However, circular and square floors may occur together on the same site.

The term 'sensitive remains' is sometimes used to distinguish graves and cemeteries as well as ideologically significant features such as holy mountains, initiation sites or other sacred places. Graves in particular are not necessarily heritage resources if they date from the recent past and do not have head stones that are older than sixty years. The distinction between 'formal' and 'informal' graves in most instances also refers to graveyards that were used by colonists and by indigenous people. This distinction may be important as different cultural groups may uphold different traditions and values with regard to their ancestors. These values have to be recognised and honoured whenever graveyards are exhumed and relocated.

The term 'Stone Age' refers to the prehistoric past, although Late Stone Age peoples lived in South Africa well into the historical period. The Stone Age is divided into an Earlier Stone Age (3 million years to 150 000 thousand years ago) the Middle Stone Age (150 000 years to 40 000 years ago) and the Late Stone Age (40 000 years to 200 years ago).

The term 'Late Iron Age' refers to the period between the 17th century and the 19th century and can therefore include the historical period.

Mining heritage sites refer to old, abandoned mining activities, underground or on the surface, which may date from the pre-historical, historical or the relatively recent past.

The term 'project area' refers to the area where the developer wants to focus its development activities (refer to plan) while the peripheral area refers to the area which will not be affected by the proposed new development..

Phase I studies refer to surveys using various sources of data in order to establish the presence of all possible types of heritage resources in any given area.

Phase II studies include in-depth cultural heritage studies such as archaeological mapping, excavating and sometimes laboratory work. Phase II work may include the documenting of rock art, engraving or historical sites and dwellings; the sampling of archaeological sites or shipwrecks; extended excavations of archaeological sites; the exhumation of bodies and the relocation of

4 THE PROJECT AREA

4.1 Location

The proposed new pipeline development project is situated to the north-east of Mittal Steel between the towns (cities) of Vanderbijlpark and Vereeniging in the Gauteng Province of South Africa. The Vanderbijlpark-Vereeniging area is characterised by undulating, highveld grassland that is drained by the Riet River west of Vanderbijlpark and the Klip River and Suikerbosrand River further towards Vereeniging in the east. The southern border is the Vaal River. The Vereeniging-Vanderbijlpark area is situated approximately 1 500m above sea level. It has an annual summer rainfall of 650 mm per annum. Summer temperatures vary between 15° to 27° C and winter temperatures between 3° and 17° C.

The proposed development area (hereafter referred to as the Project Area) is located between the suburbs of Sonlandpark (north-east), Unitas Park (south-east), Steel Park (south) and Sebokeng (north-west). The Project Area stretches across a low range of hills towards the north-west and level land towards the south-east. Long stretches of the proposed new pipeline corridors will run along existing roads in the Project Area (2628CC Deneysville; 1: 50 000 topographical map).

The Project Area is generally referred to as 'Houtkop' which is a reference to the low series of kopjes and randjes in the area which are woody as they are covered with *acacia* trees and dense concentrations of low lavender shrubs.

4.2 The proposed pipeline corridors

The Town Council of Umfeleni intends establishing both water and sewage pipeline corridors in the Project Area. Both these pipelines have a proposed as well as an alternative corridor for each pipeline, namely:

- The proposed water pipeline corridor and its alternative corridor run between the Rand Water's reservoirs in the north-west and the crossing between the R23 and the R54 in the south-east.
- The proposed sewage pipeline corridor and its alternative corridor run from the Leeuwkop Dam in the south-east to Kwaggafontein in the north-west.



Figure 1- The low range of hills referred to as 'Houtkop' in the Project Area will be crossed by both the water as well as the sewage pipe line corridors. This view is from the Rand Water's reservoirs in the north towards the south (above).

5 CONTEXTUALISING THE PROJECT AREA

The following is a brief outline of the pre-historical and historical background of the Project Area with the aim to contextualise any possible heritage resources that may be found in the Project Area.

5.1 Prehistory and early history

According to archaeological research, the earliest ancestors of modern humans emerged some two to three million years ago. The remains of Australopithecine and Homo habilis have been found in dolomite caves and underground dwellings in the Bankeveld at places such as Sterkfontein and Swartkrans near Krugersdorp. Homo habilis, one of the Early Stone Age hominids, is associated with Oldowan artefacts, which include crude implements manufactured from large pebbles.

The Acheulian industrial complex replaced the Oldowan industrial complex during the Early Stone Age. This phase of human existence was widely distributed across South Africa and is associated with Homo Erectus, who manufactured hand axes and cleavers from as early as one and a half million years ago. Oldowan and Acheulian artefacts were also found four to five decades ago in some of the older gravels (ancient river beds and terraces) of the Vaal River and the Klip River in Vereeniging. The earliest ancestors of modern man may therefore have roamed the Vaal valley at the same time that their contemporaries occupied some of the dolomite caves near Krugersdorp.

Middle Stone Age sites dating from as early as two hundred thousand years ago have been found all over South Africa. Middle Stone Age hunter-gatherer bands also lived and hunted in the Orange and Vaal River valleys. These people, who probably looked like modern humans, occupied campsites near water but also used caves as dwellings. They manufactured a wide range of stone tools, including blades and points that may have had long wooden sticks as hafts and were used as spears.

The Late Stone Age commenced twenty thousand years ago or somewhat earlier. The various types of Stone Age industries scattered across the country are associated with the historical San and Khoi-Khoi people. The San were renowned as formidable hunter-gatherers, while the Khoi-Khoi herded cattle and small stock during the last two thousand years. Late Stone Age people manufactured tools that were small but highly effective, such as arrow heads and knives.

The Late Iron Age people were also known for their rock art skills. At least one rock engraving site exists near Vereeniging, at Redan.

Early Iron Age farming communities practised a mixed economy, consisting of plant cultivation and stock herding, in the interior of South Africa during the first half of the first millennium A.D. These Bantu-Negroid people, who interbred with the local San and Khoi-Khoi, were ironworkers of some repute and they established the first permanent villages south of the Limpopo River. These communities occupied the savanna of the Limpopo Province as well as the Eastern Lowveld and coastal regions of South Africa. No traces of their existence have as yet been found on the Highveld.

During the Late Iron Age, farming was practised in the northern, central and eastern parts of the country. These farming communities built numerous stone walled settlements throughout the southern Highveld of the Orange Free State, on the Witwatersrand, in the Bankeveld and numerous other places in South Africa from the 17th century onwards. These sites are associated with the predecessors of the black ethnic groups living in South Africa. Some of these sites are also situated near the Vaal valley, but eastwards of Vereeniging and outside the Vaal Triangle. Stone walled sites are also spread out along the range of hills running from Randfontein in the west through Johannesburg to Heidelberg in the east. These sites are associated with the ancestors of the Sotho-Tswana peoples.

5.2 Brief historical background to Vanderbijlpark

Whilst towns on the Witwatersrand owed their development to the discovery of gold in the late 19th century, Vanderbilpark came into existence as a result of the expansion of the iron and steel industry in South Africa during the first half of the 20th century. During the early stages of the Second World War, the South African Iron and Steel Corporation Limited (Isacor) found that the Pretoria Works were approaching the limits of the site's capacity. In order to meet South Africa's demand for steel plate, the board of Isacor investigated other areas suitable for expansion. On the recommendation of Dr Hendrik van der Bijl, then chairman of Isacor, the corporation purchased nearly 10 000 hectares of barren land with an eight kilometre frontage along the Vaal River.

The town of Vanderbijlpark was planned in 1941 when the South African Iron and Steel Industrial Corporation (Isacor) began building steel works close to the Vaal River, downstream from the Vaal Dam. Isacor's work force was housed in Vanderbijlpark, envisaged as a garden industrial town with river frontage that would eventually house 200 000 people. The town was named after Dr H.J. van der Bijl (1887 to 1948), chairman of Isacor, one of South Africa's leading industrialists during the first half of the 20th century. The town became a municipality in 1952. Today Vanderbijlpark is part of the Vaal Triangle, one of the economic hubs of South Africa.

The first black township near Vanderbijlpark was proclaimed in 1949 and was named Bophelong. The second black township was named Boipatong. Sebokeng, to the north of Vanderbijlpark, and other black townships gradually developed around the Isacor Vanderbijlpark Works to supply the labour demands that grew from the expanding industrial nucleus that emerged around Isacor in Vanderbijlpark. Many of these labourers also worked in the neighbouring town, Vereeniging.

The town of Vanderbijlpark is unique in the history of urban development in South Africa due to the remarkable speed with which the town developed and

because most of the town was planned before the first sod of earth was turned. Vanderbijlpark (or the steel town) was the dream of an idealist, Dr Hendrik van der Bijl, after whom the town was named and founded in 1943.

The first railway link with Vanderbijlpark was a temporary private line laid in 1941 by Iscor between the Houtkop station and the plate mill. In 1946 the line was extended through Vecor's site to a number of temporary sidings used to offload building and other material for the development of the town.

4.3 Heritage resources in Vereeniging

In 1879 the pioneer geologist George W. Stow, who undertook geological explorations for the Orange Free State, discovered coal fields north of the Vaal River on the farm Leeukuil. This led to the establishment of the Zuid-Afrikaansche en Oranje Vrystaatsche Steenkool en Mineralen Mijn Vereeniging. The owners of this company were Samuel Marks and Isaac Lewis. The company commissioned Stow to purchase and to develop all the coal-bearing farms in the area. Mining began in 1879 and in 1882 the company applied to establish a township on Leeukuil. The town was named Vereeniging. The name was derived from the last word in the company's name. A bust of Stow can be seen in the Vereeniging library and a memorial in the Civic Center.

Since the late 19th century, quarrying operations in Vereeniging have revealed some fossiliferous sandstone outcrops in the area. Dr T. N. Leslie was one of the first to discover these plant fossils. The discoveries were made at places such as Leeukuil and the Central Colliery Mine as well as at other localities close to the Vaal River. Specimens are displayed at the Bernard Price Institute for Palaeontological Research (Leslie Collection), the Geological Museum in Johannesburg and in the Vereeniging Museum. The most common genera present are *Noeggerathiopsis*, *Gangamopteris* and *Glassopteris*.

The quarrying operations originally undertaken to mine for coal not only revealed the presence of plant fossils in these deposits but also the presence of numerous Stone Age sites along earlier or ancient banks of the Vaal River and the Klip River. Early and Middle Stone Age sites were discovered at several localities, such as Klipplaatdrift, the Klip River Quarry site, the Duncanville Archaeological Reserve (also known as the Van Riet Louw Archaeological Reserve). These sites contain thousands of stone tools.

A rock engraving site that was declared a national monument was also discovered at Redan. The Redan rock engraving site contains as many as 244 rock engravings done on an outcrop of rocks. Some of the engravings depicts animals, while others illustrate San (Bushmen) weapons. A large number of the engravings are geometric designs, such as circles and other symbolic figures.

The first railway line over the Vaal River linking the Orange Free State Republic and the Zuid-Afrikaanse or Transvaal Republic was officially opened on 21 May 1892 by President Reitz of the OFS and President Kruger of the ZAR. Pillars of the bridge carrying the old railway line can still be seen in the Vaal River.

Vereeniging achieved world prominence at the end of the Anglo-Boer war when the peace negotiations were held in Vereeniging from 15 to 31 May 1902. The site is indicated today by a sawn-off tree trunk near the Vereeniging Refractories' Recreation Hall.

The Peace of Vereeniging Monument was erected to commemorate the Peace of Vereeniging that ended the Anglo-Boer War in 1902. (The peace accord was signed in Pretoria). The following inscription is engraved on the monument: 'Gewond maar onoorwonne' ('Wounded but not vanquished').

A well-preserved British blockhouse still testifies to the Anglo-Boer War (1899-1902). It is located at Witkop, ten kilometres to the north of Meyerton on the main road to Johannesburg.

The Vereeniging concentration camp cemetery is located in the old municipal cemetery, off Beaconsfield Avenue near the abbatoir. A garden of remembrance also exists on the Makauvlei golf course, near the clubhouse. This feature was built to commemorate British soldiers who died during the Anglo-Boer War near the railway line that crosses the Vaal River.

The small Voortrekker Monument celebrating the 100 year anniversary of the Ossewatrek was erected in 1938 in the middle of Voortrekker road in Vereeniging, between Marklaan and Merrimanlaan.

Several coal mines were established on both sides of the Vaal River, such as the Cornelia and Springfield coal mines. A memorial for five miners who died in South Africa's first mining disaster in 1905 was erected at the Vereeniging cemetery. The previous National Monuments Council has unveiled a bronze plaque to commemorate the 100 year anniversary of the discovery of coal at Dickinson Park.

The extensive Makauvlei plantations near the town of Vereeniging consist of pines, oaks and apple trees and were initially established by August Pistorius. One of the first apple processing factories in South Africa was established at Makauvlei. Since 1912 a number of important industries have been established in the municipal industrial township known as Duncanville. These industries are involved in the manufacture of a wide range of iron and steel products, steel tubes, steel wire, bolts and nuts, electric cables, glass, bricks and tiles, etc.

6 THE PHASE I HERITAGE IMPACT ASSESSMENT

The Phase I HIA study for the proposed new pipelines revealed the following types and ranges of heritage resources in the Project Area, namely:

- Two historical graveyards.
- A number of at least seven historical houses near Houtkop.
- Structures constructed with stone which have historical significance.
- Historical houses located between Hein Muller and Percy Sherwell Streets in Unitas Park.

The graveyards, historical houses near Houtkop and stone structures were geo-referenced and mapped (Figure 2; Tables 1-2). The historical houses between Heine Muller and Percy Sherwell Street were not geo-referenced as it is not sure whether any of these houses may be affected when the pipelines are constructed. Most of these houses are also indicated on the 1:50 000 topographical map (2628CC Deneysville).

The significance of the graveyards, historical houses and stone structures is indicated as well as appropriate mitigation measures that have to be applied if any of these heritage resources are to be affected by the proposed new pipeline development.

The Phase I HIA study is now briefly discussed.

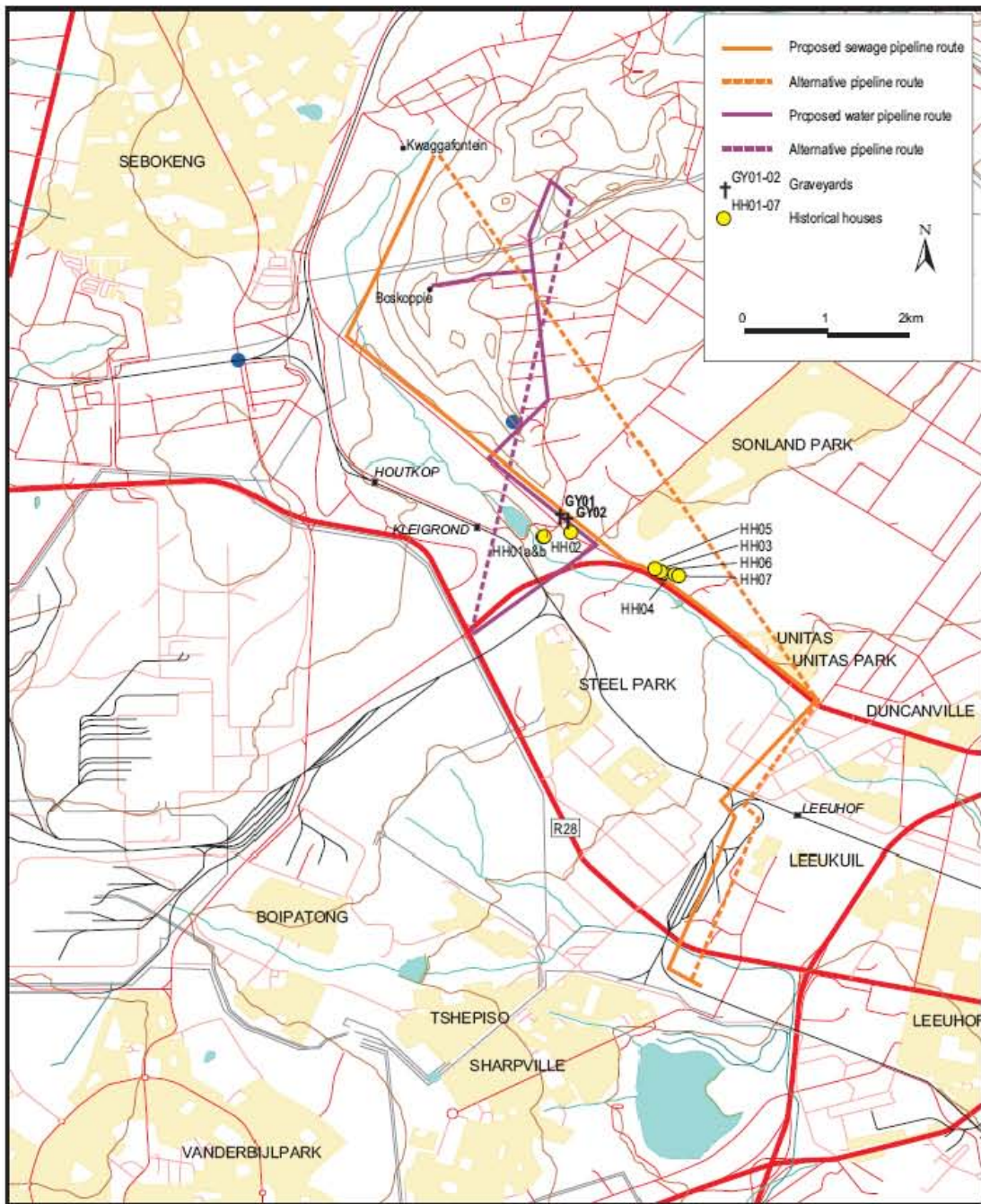


Figure 2- The pipeline Project Area at Houtkop, north-east of Mittal Steel between Vanderbijlpark and Vereeniging in the Gauteng Province of South Africa (above). Note the presence of graveyards, historical houses, historical stone structures and historical houses in Unitas Park in and near the Project Area.

6.1 The Graveyards

Two graveyards occur close to the proposed sewage pipe line corridor. These graveyards are located next to the road that runs to Rand Water's reservoirs further to the north.

Both the graveyards are older than sixty years and therefore qualify as historical graveyards.

6.1.1 Graveyard 01

This graveyard is located closest to the road and contains more than seventy graves, some of considerable age. The graveyard is severely neglected and has been vandalised in the past.

GY01 contains some of the most extraordinary and magnificent tomb stones that this author has observed in the former Transvaal Province.

A variety of tombstone types were used. These included slate which is the oldest, marble, granite and cement. A few of the tombstones include motifs such as the 'wurbel', doves, flowers and trees that were incised on the tombstones.

Inscriptions on a few of the tombstones read as follow:

- 'Ter gedachtenis van Machel Catharina van der Merwe echgenoot van Jacobus C van der Merwe Geboren te Zwellindam Kaap Kolonie op den 21 Mei 1824 Overleden te Hout Kop op den 12 April 1883 In den ouderdom van 58 jaren 10 maanden 22 dagen'
- Getruida Elizabeth Marneweck Geboren Februarie 1831 Overleden 23 September 1893 Openbaring 14 Vers 13. Zalig jijn de doode die in de Here sterven van nu aan, ja, zeg de Geest opdat zij rusten mogen van hunnen arbeid'

- ‘Hier rus on liewe dogtertjie Helena J Marx Geb 22 Des 1908 Oorl 21 Mei 1912 Ges 20:9’



Figure 3- GY01 contains a large number of historical graves dating from the nineteenth century (above)

6.1.2 Graveyard 02

GY02 is located directly to the east, further away from the road than GY01. This graveyard contains as many as fifty graves. Most of the graves are covered with piles of stone. A limited number is fitted with tomb stones.

It is highly likely that this graveyard was used for farm workers and labourers in service of the first colonials (Voortrekkers) who settled at Hout Kop during the first half of the 19th century and who were buried in GY01.

Inscriptions on some of the tombstones read as follow:

- 'Our mother Eva Muller Born ?? 1905 Died 11-04-1953 R.I.P.'
- 'Auspan Mashinini'
- 'Christina Muller Gebore 1849 Overleden 1923'
- 'Ons dierbare vader Andries Muller *11-06-1893 †26-06-1972 Van u seun Petrus Skoondogter ?'

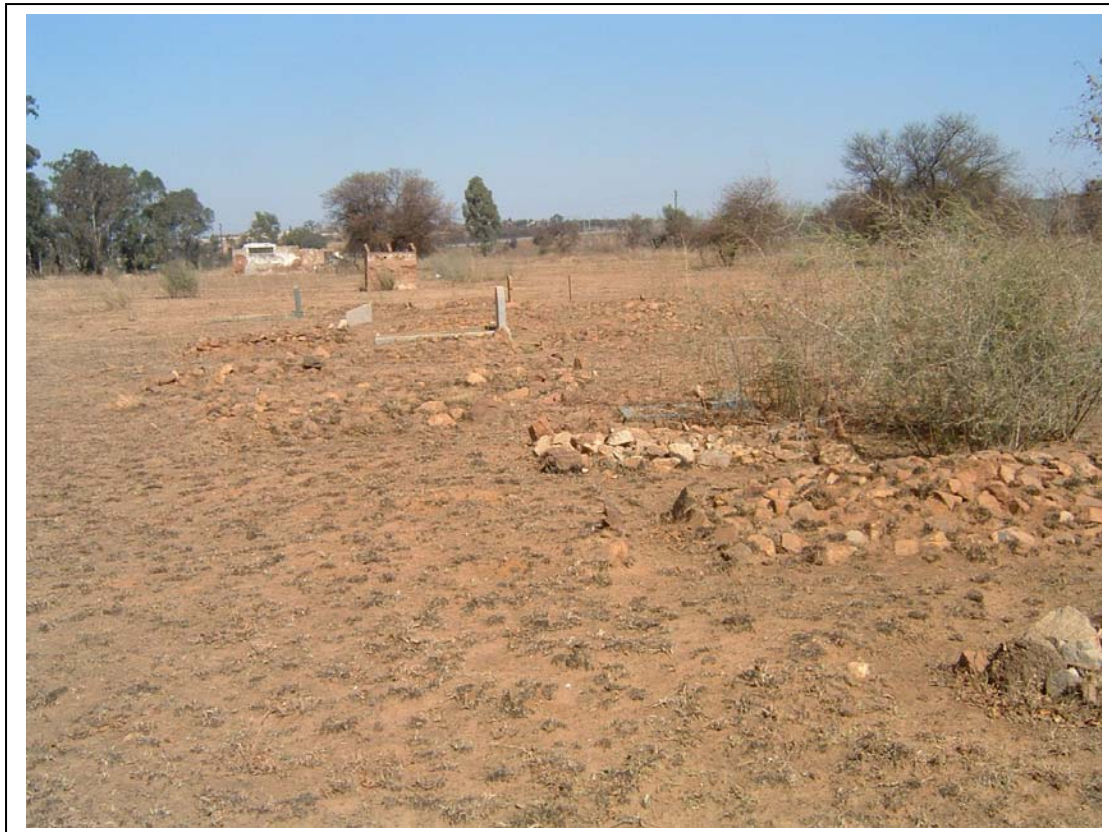


Figure 4- GY02 is a second historical graveyard with at least fifty graves, most of which are merely covered with piles of stone.

6.2 Historical Houses at Houtkop

Approximately seven historical houses, one of which has disintegrated, occur near Houtkop. These houses resemble each other and were constructed together, probably when the railway line between Pretoria and the former Iscor was constructed during the early 1940's.

These houses are currently occupied by squatters and are in a dilapidated condition.

At least one of these houses is also associated with a shed and secondary outbuildings whilst a second house is associated with a rondavel. These outbuildings also have historical significance. The houses are elongated in shape and are covered with pitched corrugated iron roofs. The lower walls were constructed with stone and the upper parts with clay bricks.



Figure 5- One of the historical houses that may have been constructed when the railway line between the then Iscor and Pretoria was constructed during the 1940's (above).

6.3 Stone structures

An extensive structure constructed with large sandstone rocks occur near the alternative water pipe line corridor. This structure was probably used as cattle enclosures to which smaller enclosures were added to pen smaller stock such as sheep and goat.



Figures 6 & 7- A second historical house at Houtkop (above). The massive stone structure which probably dates from the Historical Period which was used as enclosures for small and large stock (below).



The stone structure's walls were constructed according to a building technique which originates from the Late Iron Age (AD1700 onwards) and which was used during the Historical Period (AD1850 onwards). Its square ground plan confirms that it was constructed after AD1850.

6.4 Historical houses between Heine Muller and Percy Sherwell Street

The last stretch of the sewage or alternative sewage pipelines will be constructed between these rows of historical houses which are located in Heine Muller and Percy Sherwell Streets which run parallel with each other in the Unitas Park suburb. It seems as if most of these houses are located on opposite sides of the proposed or alternative sewage pipeline corridors.

The suburb through which the pipeline is planned dates from the middle of the 20th century and has historical significance. Some of the houses in these two streets may be sixty years old, or are approaching this age. Many of these houses have been changed, renovated or extended but still contain their original historical core.



Figure 8- One of several historical houses in Heine Muller Street (above).



Figure 9- A second historical house in Heine Muller Street. Note the two Oak trees on opposite sides of the gate. These trees reaffirm the historical context of this dwelling (above).

	GRAVEYARDS	COORDINATES	SIGNIFICANCE
GY01	Large historical graveyard	26° 37.334'S; 27° 52.820'E	HIGH
GY02	2 nd large historical graveyard	24° 47.130'S; 30° 09.225'E	HIGH

Tables 1 & 2- Coordinates for two historical graveyards and for historical houses in and near the Project Area (above and below).

	HISTORICAL HOUSES	COORDINATES	SIGNIFICANCE
HH01	Associated with shed and other outbuildings	26° 37.465'S; 27° 52.713'E 26° 37.460'S; 27° 52.727'E	MED-HIGH
HH02	Associated with rondavel	26° 37.438'S; 27° 52.900'E	MED-HIGH
HH03	Severely dilapidated	26° 37.701'S; 27° 53.499'E	MED-HIGH
HH04	South Sotho wall decoration	26° 37.691'S; 27° 53.482'E	MED-HIGH
HH05	Disintegrated	26° 37.672'S; 27° 53.446'E	MED-HIGH
HH06	Relatively good condition	26° 37.712'S; 27° 53.575'E	MED-HIGH
HH07	Relatively good condition	26° 37.725'S; 27° 53.600'E	MED-HIGH

7 THE SIGNIFICANCE, MITIGATION AND MANAGEMENT OF THE HERITAGE RESOURCES

The Phase I HIA study for the Project Area revealed the following types and ranges of heritage resources in the project area, namely (Figure 2; Tables 1-2):

- Two historical graveyards.
- A number of at least seven historical houses near Houtkop.
- Structures constructed with stone which have historical significance.
- Historical houses located between Hein Muller and Percy Sherwell Streets in Unitas Park.

The significance of these heritage resources has to be determined as they may be affected by the proposed new pipeline development.

7.1 The significance of the heritage resources

The significance of the heritage resources that may be affected by the proposed pipeline development is based on stipulations from the National Heritage Resources Act (No 25 of 1999) and various other criteria:

7.1.1 The graveyards

All graves and graveyards can be considered to be of high significance as all graves are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

7.1.2 Stone structures

Stone walled sites qualify as archaeological sites which may date from the Historical Period. All archaeological (historical) and paleontological sites are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). This site may not be affected (demolished, altered, renovated, removed) before the Provincial Heritage Resources Authority (PHRA) has approved such alterations.

7.1.3 Historical houses (at Houtkop and between Heine Muller and Percy Sherwell Streets)

All buildings and structures older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999) and may not be affected (demolished, altered, renovated, removed) before the Provincial Heritage Resources Authority (PHRA) has approved such alterations.

7.2 Mitigating the heritage resources

Mitigation measures for any of the heritage resources that may be affected by the pipeline development are the following:

7.2.1 The graveyards

If one or both graveyards may be affected by the proposed pipeline corridors, they have to be mitigated. One of the following strategies may be followed:

- The graves or graveyard can be preserved *in situ*. The graves or graveyards can be demarcated with brick walls or with fences.
- Graves and graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures

and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

7.2.2 Stone structures

The stone structures may not be affected (altered, demolished, removed) by the pipeline development *prior* to these structures been subjected to a Phase II investigation by an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA). The stone walled structures must be mapped and if archaeological deposits occur, test excavations of these deposits must be undertaken.

The archaeologist must acquire a permit from the Gauteng Provincial Heritage Resources Authority (Gauteng PHRA) *prior* to the stone walls been affected by the pipeline development and before the Phase II investigation of these remains occur.

7.2.3 The historical houses (at Houtkop and between Heine Muller and Percy Sherwell Streets)

The historical houses have significance and can only be affected (demolished, altered, renovated) after the Gauteng Provincial Heritage Resources Authority has issued a permit which would authorise any of these actions. A historical architect must recommend what actions should be taken with the houses and has to apply for the permit authorising this affect on any of the houses that may be affected by the pipeline development.

8 CONCLUSIONS AND RECOMMENDATIONS

The Phase I HIA study for the proposed new pipelines revealed the following types and ranges of heritage resources in the Project Area, namely:

- Two historical graveyards.
- A number of at least seven historical houses near Houtkop.
- Structures constructed with stone which have historical significance.
- Historical houses located between Hein Muller and Percy Sherwell Streets in Unitas Park.

The graveyards, historical houses near Houtkop and stone structures were geo-referenced and mapped (Figure 2; Tables 12). The historical houses between Heine Muller and Percy Sherwell Streets were not geo-referenced.

The significance of the graveyards, historical houses and stone structures is indicated as well as appropriate mitigation measures that have to be applied if any of these heritage resources are to be affected by the proposed new pipeline development.

The significance of the heritage resources that may be affected by the proposed pipeline development is based on stipulations from the National Heritage Resources Act (No 25 of 1999) and various other criteria:

All graves and graveyards can be considered to be of high significance as all graves are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (No 25 of 1999) whenever graves are older than sixty years. The act also distinguishes various categories of graves and burial grounds. Other legislation with regard to graves includes those which apply when graves are exhumed and relocated, namely the Ordinance on Exhumations (No 12 of 1980) and the Human Tissues Act (No 65 of 1983 as amended).

Stone walled sites qualify as archaeological sites which may date from the Historical Period. All archaeological (historical) and paleontological sites are protected by Section 35 of the National Heritage Resources Act (No 25 of 1999). This site may not be affected (demolished, altered, renovated, removed) before the Provincial Heritage Resources Authority (PHRA) has approved such alterations.

All buildings and structures older than sixty years are protected by Section 34 of the National Heritage Resources Act (No 25 of 1999) and may not be affected (demolished, altered, renovated, removed) before the Provincial Heritage Resources Authority (PHRA) has approved such alterations.

Mitigation measures for any of the heritage resources that may be affected by the pipeline development are the following:

If one or both graveyards may be affected by the proposed pipeline corridors, they have to be mitigated. One of the following strategies may be followed:

- The graves or graveyard can be preserved *in situ*. The graves or graveyards can be demarcated with brick walls or with fences.
- Graves and graveyards can be exhumed and relocated. The exhumation of human remains and the relocation of graveyards are regulated by various laws, regulations and administrative procedures. This task is undertaken by forensic archaeologists or by reputed undertakers who are acquainted with all the administrative procedures and relevant legislation that have to be adhered to whenever human remains are exhumed and relocated. This process also includes social consultation with a 60 days statutory notice period for graves older than sixty years. Permission for the exhumation and relocation of human remains have to be obtained from the descendants of the deceased (if known), the National Department of Health, the Provincial Department of Health, the Premier of the Province and the local police.

The stone structures may not be affected (altered, demolished, removed) by the pipeline development *prior* to these structures been subjected to a Phase II investigation by an archaeologist accredited with the Association for Southern African Professional Archaeologists (ASAPA). The stone walled structures must be mapped and if archaeological deposits occur, test excavations of these deposits must be undertaken.

The archaeologist must acquire a permit from the Gauteng Provincial Heritage Resources Authority (Gauteng PHRA) *prior* to the stone walls been affected by the pipeline development and before the Phase II investigation of these remains occur.

The historical houses (at Houtkop and between Heine Muller and Percy Sherwell Streets) have significance and can only be affected (demolished, altered, renovated) after the Gauteng Provincial Heritage Resources Authority has issued a permit which would authorise any of these actions. A historical architect must recommend what actions should be taken with the houses and has to apply for the permit authorising this affect on any of the houses that may be affected by the pipeline development.

If any heritage resources of significance is exposed during this development project the South African Heritage Resources Authority (ASAPA) should be notified immediately, all construction activities must be stopped and an archaeologist accredited with the Association for Southern African Professional Archaeologist (ASAPA) should be notify in order to determine appropriate mitigation measures for the discovered finds. This may include obtaining the necessary authorisation (permits) from SAHRA to conduct the mitigation measures.

8 SELECT BIBLIOGRAPHY

Anonymos, 1964. Vanderbijlpark 21 years of progress. Johannesburg: Felstar Publishers.

Bergh, J.S. 1992. Die vestiging van die Voortrekkers noord van die Vaalrivier tot 1840. *Historia*, 37(2), 38-42.

Le Roux, S.F. s.a. The fossil floras of the Vereeniging district. Unpublished Paper. Vaal Technorama.

Le Roux, S.F. & Anderson, H.M. 1977. A review of the localities and flora of the lower Permian Karoo strata at Vereeniging, South Africa. *Palaeontr.afr.*, 20, 27-42.

Maggs, T.M. 'O C. 1976. *Iron Age communities of the Southern Highveld*. Pietermaritzburg: Natal Museum

Mason, R.J. 1962. *The prehistory of the Transvaal*. Johannesburg: Witwatersrand University Press.

Mason, R.J. 1986. *Origins of black people of Johannesburg and the Southern Western Central Transvaal AD 350-1880*. Archaeological Research Unit. Occasional Paper No 16. University of the Witwatersrand.

Standard Encyclopaedia of Southern Africa. Volume 6 (HUN-LIT) 1970. Cape Town: Nasionale Opvoedkundige Uitgewery.

Standard Encyclopaedia of Southern Africa. Volume 11 (TUR-ZWE) 1970. Cape Town: Nasionale Opvoedkundige Uitgewery.

TNAD 1905. *Short history of the native tribes of the Transvaal*. Pretoria: Government Printer.

Van Riet Lowe, C. 1952. The Vaal River Chronology. An Up-to-date Summary. *South African Archaeological Bulletin*, 8(28): 1-15.

Wadley, L. 1987. *Later Stone Age Hunters and Gatherers of the Southern Transvaal: Social and Ecological Interpretations*. Oxford: British Archaeological Reports International Series 380.