

**Heritage impact assessment report for the  
PROPOSED EXTENSION OF THE EKANGALA BORROW PIT, CITY OF  
TSHWANE, GAUTENG PROVINCE**

**HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED EXTENSION  
OF THE EKANGALA BORROW PIT, CITY OF TSHWANE, GAUTENG PROVINCE**

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**Prepared for:**  
Royal HaskoningDHV

**Representative:** Ms. N Lerotholi  
**Postal Address:** PO Box 867, Gallo Manor 2052, South Africa  
**Tel:** 011 7986000  
**E-mail:** ntseketsi.lerotholi@rhdhv.com

**Prepared by:**  
J van Schalkwyk (D Litt et Phil), Heritage Consultant  
ASAPA Registration No.: 168  
**Principal Investigator:** Iron Age, Colonial Period, Industrial Heritage

**Postal Address:** 62 Coetzer Avenue, Monument Park, 0181  
**Mobile:** 076 790 6777  
**Fax:** 086 611 3902  
**E-mail:** jvschalkwyk@mweb.co.za

**Declaration:**

I, J.A. van Schalkwyk, declare that I do not have any financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services.



J A van Schalkwyk (D Litt et Phil)  
Heritage Consultant  
May 2013

**EXECUTIVE SUMMARY**

**HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED EXTENSION OF THE EKANGALA BORROW PIT, CITY OF TSHWANE, GAUTENG PROVINCE**

City of Tshwane is applying for a mining rights application for the extension of an existing borrow pit in the Ekangala region north of the town of Bronkhorstspuit in Gauteng Province.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **Royal HaskoningDHV** to conduct a Heritage Impact Assessment (HIA) to determine if the proposed extension of the borrow pit would have an impact on any sites, features or objects of cultural heritage significance.

The landscape qualities of the area which is very flat, with little resources such as hills, outcrops and open water, that usually drew people to settle a region and as a result it was very sparsely occupied in the past. In addition, due to farming and later large scale urbanization of the region over the past 30 to 40 years, as part of the former KwaNdebele homeland, any resources that might have occurred here would have been destroyed.

- As no sites, features or objects of cultural significance are known to exist in the study area, there would be no impact as a result of the proposed development.

Therefore, from a heritage point of view we recommend that the proposed development can continue on condition of acceptance of the above mitigation measure. We also recommend that if archaeological sites or graves are exposed during development activities, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.



J A van Schalkwyk  
Heritage Consultant  
May 2013

**TECHNICAL SUMMARY**

<b>Property details</b>	
Province	Gauteng
Magisterial district	Pretoria
District municipality	City of Tshwane
Topo-cadastral map	2528DA
Closest town	Bronkhorstspuit
Farm name & no.	Ekangala 620JR (Leeuwfontein 466JR)
Portions/Holdings	

<b>Development criteria in terms of Section 38(1) of the NHR Act</b>	Yes/No
Construction of road, wall, power line, pipeline, canal or other linear form of development or barrier exceeding 300m in length	
Construction of bridge or similar structure exceeding 50m in length	
Development exceeding 5000 sq m	Yes
Development involving three or more existing erven or subdivisions	
Development involving three or more erven or divisions that have been consolidated within past five years	
Rezoning of site exceeding 10 000 sq m	
Any other development category, public open space, squares, parks, recreation grounds	

<b>Development</b>	
Description	Extension of an existing borrow pit
Project name	Ekangala Borrow Pit

<b>Land use</b>	
Previous land use	Farming
Current land use	Vacant

**TABLE OF CONTENTS**

	Page
EXECUTIVE SUMMARY .....	II
TECHNICAL SUMMARY .....	III
TABLE OF CONTENTS .....	IV
LIST OF FIGURES.....	IV
GLOSSARY OF TERMS AND ABBREVIATIONS.....	V
1. INTRODUCTION.....	1
2. TERMS OF REFERENCE .....	1
3. HERITAGE RESOURCES.....	2
4. STUDY APPROACH AND METHODOLOGY .....	4
5. DESCRIPTION OF THE AFFECTED ENVIRONMENT .....	5
6. SITE SIGNIFICANCE AND ASSESSMENT .....	11
7. RECOMMENDATIONS.....	12
8. REFERENCES.....	13
APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES .....	14
APPENDIX 2. RELEVANT LEGISLATION .....	16

**LIST OF FIGURES**

	Page
Fig. 1. Map indicating the track log of the field survey.....	5
Fig. 2. Location of the study area (red outline) in regional context.....	6
Fig. 3. Aerial view of the study area.....	6
Fig. 4. Views over the study area.....	7
Fig. 5. Layout of the proposed development. ....	7
Fig. 6. View of the farmstead. ....	10
Fig. 7. The small farm cemetery. ....	10
Fig. 8. Layout of the development, showing known heritage sites (green dots).....	11

## **GLOSSARY OF TERMS AND ABBREVIATIONS**

### **TERMS**

**Study area:** Refers to the entire study area as indicated by the client in the accompanying Fig. 1 - 2.

**Stone Age:** The first and longest part of human history is the Stone Age, which began with the appearance of early humans between 3-2 million years ago. Stone Age people were hunters, gatherers and scavengers who did not live in permanently settled communities. Their stone tools preserve well and are found in most places in South Africa and elsewhere.

Early Stone Age	2 000 000 - 150 000 Before Present
Middle Stone Age	150 000 - 30 000 BP
Later Stone Age	30 000 - until c. AD 200

**Iron Age:** Period covering the last 1800 years, when new people brought a new way of life to southern Africa. They established settled villages, cultivated domestic crops such as sorghum, millet and beans, and they herded cattle as well as sheep and goats. As they produced their own iron tools, archaeologists call this the Iron Age.

Early Iron Age	AD 200 - AD 900
Middle Iron Age	AD 900 - AD 1300
Late Iron Age	AD 1300 - AD 1830

**Historical Period:** Since the arrival of the white settlers - c. AD 1840 - in this part of the country.

### **ABBREVIATIONS**

ADRC	Archaeological Data Recording Centre
ASAPA	Association of Southern African Professional Archaeologists
CS-G	Chief Surveyor-General
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Later Stone Age
HIA	Heritage Impact Assessment
MSA	Middle Stone Age
NASA	National Archives of South Africa
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency

## HERITAGE IMPACT ASSESSMENT REPORT FOR THE PROPOSED EXTENSION OF THE EKANGALA BORROW PIT, CITY OF TSHWANE, GAUTENG PROVINCE

### 1. INTRODUCTION

City of Tshwane is applying for a mining rights application for the extension of an existing borrow pit in the Ekangala region north of the town of Bronkhorstspuit in Gauteng Province.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. However, according to Section 27(18) of the National Heritage Resources Act (NHRA), No. 25 of 1999, no person may destroy, damage, deface, excavate, alter, remove from its original position, subdivide or change the planning status of any heritage site without a permit issued by the heritage resources authority responsible for the protection of such site.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **Royal HaskoningDHV** to conduct a Heritage Impact Assessment (HIA) to determine if the proposed extension of the borrow pit would have an impact on any sites, features or objects of cultural heritage significance.

This HIA report forms part of the Environmental Impact Assessment (EIA) as required by the EIA Regulations in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) and is intended for submission to the South African Heritage Resources Agency (SAHRA).

### 2. TERMS OF REFERENCE

This report does not deal with development projects outside of or even adjacent to the study area as is presented in Section 5 of this report. The same holds true for heritage sites, except in a generalised sense where it is used to create an overview of the heritage potential in the larger region.

#### 2.1 Scope of work

The aim of this assessment, broadly speaking, is to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where it is planned to develop the power lines and substations that would prevent the project from going to the next level of investigation.

This includes:

- Conducting a desk-top investigation of the area;
- A visit to the proposed development site,

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development areas;

- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

## 2.2 Limitations

The investigation has been influenced by the following factors:

- The unpredictability of archaeological remains occurring below the surface.

Table 1: Applicable category of heritage impact assessment study and report.

Type of study	Aim	SAHRA involved	SAHRA response
Heritage Impact Assessment	<p>The aim of a full HIA investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives are to identify heritage resources (involving site inspections, existing heritage data and additional heritage specialists if necessary); assess their significances; assess alternatives in order to promote heritage conservation issues; and to assess the acceptability of the proposed development from a heritage perspective.</p> <p>The result of this investigation is a heritage impact assessment report indicating the presence/ absence of heritage resources and how to manage them in the context of the proposed development.</p> <p>Depending on SAHRA's acceptance of this report, the developer will receive permission to proceed with the proposed development, on condition of successful implementation of proposed mitigation measures.</p>	Provincial Heritage Resources Authority	Comments on built environment and decision to approve or not
		SAHRA Archaeology, Palaeontology and Meteorites Unit	Comments and decision to approve or not

## 3. HERITAGE RESOURCES

### 3.1 The National Estate

The NHRA (No. 25 of 1999) defines the heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations that must be considered part of the national estate to include:

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, including-



- ancestral graves;
- royal graves and graves of traditional leaders;
- graves of victims of conflict;
- graves of individuals designated by the Minister by notice in the Gazette;
- historical graves and cemeteries; and
- other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983);
- sites of significance relating to the history of slavery in South Africa;
- movable objects, including-
  - objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
  - objects to which oral traditions are attached or which are associated with living heritage;
  - ethnographic art and objects;
  - military objects;
  - objects of decorative or fine art;
  - objects of scientific or technological interest; and
  - books, records, documents, photographic 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).

### 3.2 Cultural significance

In the NHRA, Section 2 (vi), it is stated that “cultural significance” means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This is determined in relation to a site or feature’s uniqueness, condition of preservation and research potential.

According to Section 3(3) of the NHRA, a place or object is to be considered part of the national estate if it has cultural significance or other special value because of

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

A matrix was developed whereby the above criteria were applied for the determination of the significance of each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar identified sites.

## 4. STUDY APPROACH AND METHODOLOGY

### 4.1 Extent of the Study

This survey and impact assessment covers the area as presented in Section 5 and as illustrated in Figure 1 - 3.

### 4.2 Methodology

#### 4.2.1.1 Survey of the literature

A survey of the relevant literature was conducted with the aim of reviewing the previous research done and determining the potential of the area. In this regard, various anthropological, archaeological and historical sources were consulted – Cloete 2001; Küsel 2003; Van Schalkwyk 2003.

- Information on events, sites and features in the larger region were obtained from these sources.

#### 4.2.1.2 Data bases

The *Heritage Atlas Database*, the *Environmental Potential Atlas*, the *Chief Surveyor General* and the *National Archives of South Africa* were consulted.

- Database surveys produced a number of sites located in the larger region of the proposed development.

#### 4.2.1.3 Other sources

Aerial photographs and topocadastral and other maps were also studied - see the list of references below.

- Information of a very general nature were obtained from these sources

#### 4.2.2 Field survey

The area that had to be investigated was identified by **Royal HaskoningDHV** by means of maps (Fig. 2 & 3). The site was surveyed by walking two transects across it – see Fig. 1.

#### 4.2.3 Documentation

All sites, objects and structures that are identified are documented according to the general minimum standards accepted by the archaeological profession. Coordinates of individual localities are determined by means of the *Global Positioning System* (GPS) and plotted on a map. This information is added to the description in order to facilitate the identification of each locality.

Map datum used: Hartebeeshoek 94 (WGS84).

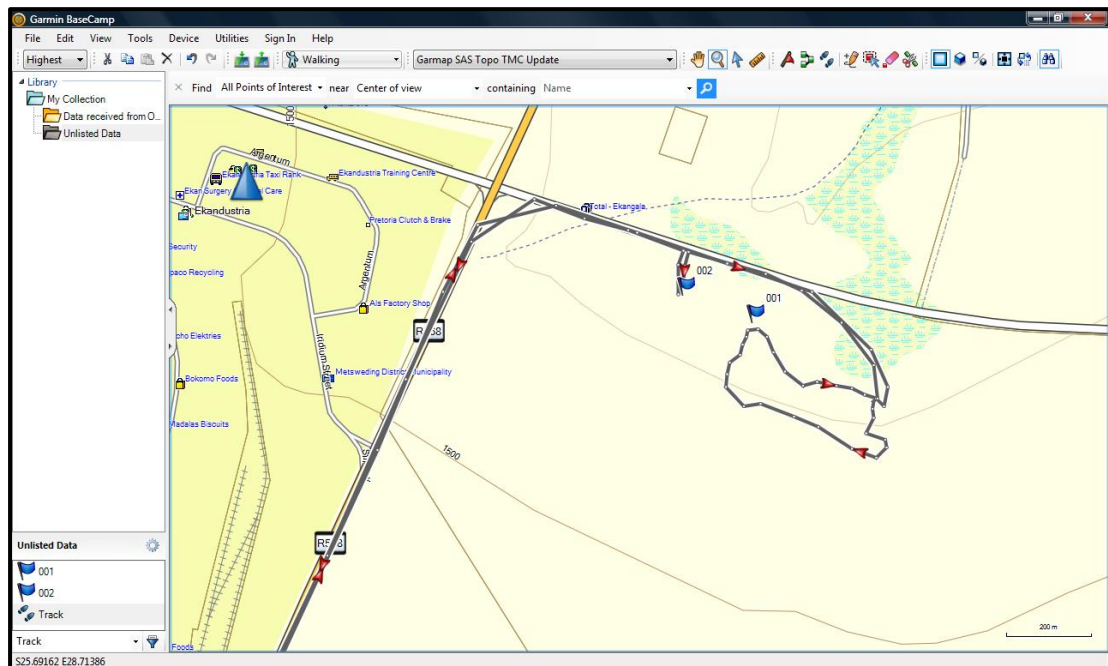


Fig. 1. Map indicating the track log of the field survey.

## 5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

### 5.1 Site location

City of Tshwane is applying for a mining rights application for the extension of an existing borrow pit in the Ekangala region north of the town of Bronkhorstspuit in Gauteng Province. For more information, please see the Technical Summary presented above (p. iii).

The geology is made up of tillite, with norite to the south of the study area. The topography of the area is described as slightly undulating plains and the original vegetation is classified a Rocky Highveld Grassland.

Large sections of the study area have already been impacted on by an existing borrow pit (Fig. 3).



Fig. 2. Location of the study area (red outline) in regional context.  
(Map 2528: Chief Surveyor-General)

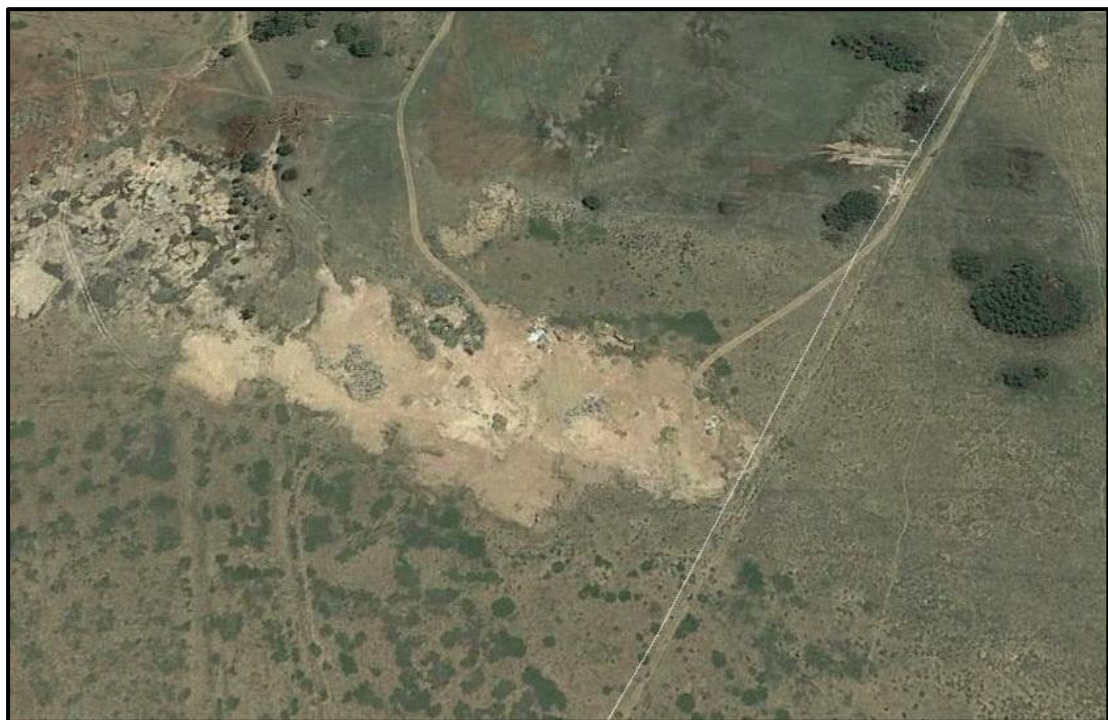


Fig. 3. Aerial view of the study area.  
(Photo: Google Earth)



Fig. 4. Views over the study area.

## 5.2 Development proposal

The development consists of expanding an existing borrow pit to obtain material for road rehabilitation in the region.

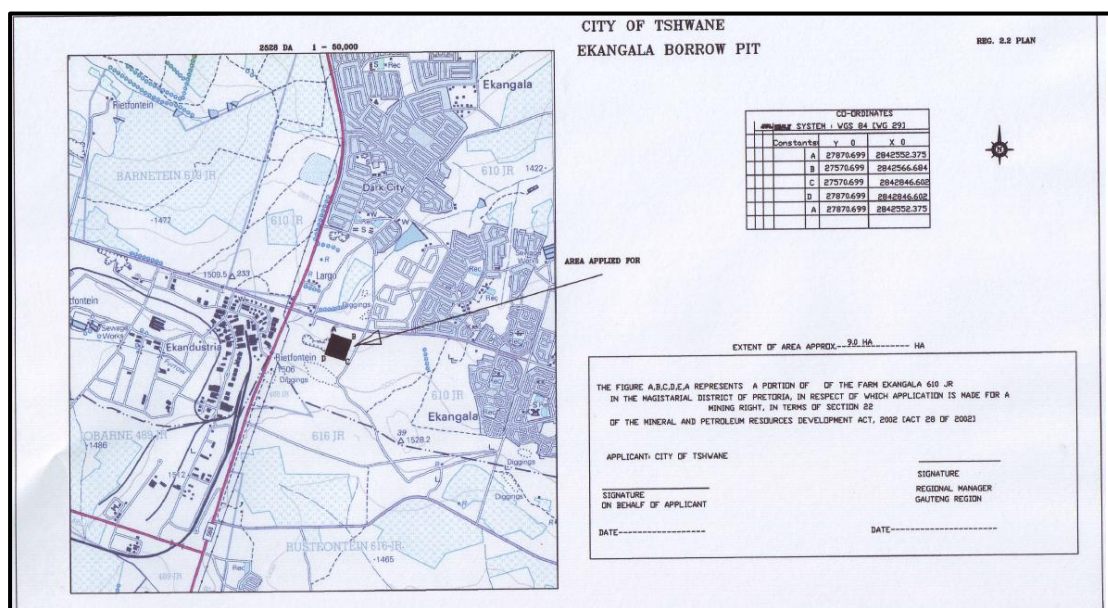


Fig. 5. Layout of the proposed development.  
(Map supplied by Royal Haskoning DV)

## 5.3 Overview of the region

The aim of this section is to present an overview of the history of the larger region in order to eventually determine the significance of heritage sites identified in the study area, within the context of their historic, aesthetic, scientific and social value, rarity and representivity – see Section 3.2 and Appendix 1 for more information.

### Stone Age

The larger region has been inhabited by humans since Early Stone Age (ESA) times. Tools dating to this period are mostly, although not exclusively, found in the vicinity of watercourses. During Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), people became more mobile, occupying areas formerly avoided. Open sites were still preferred near watercourses. These people were adept at exploiting the huge herds of animals that passed through the area, on their seasonal migration. As a result, tools belonging to this period also mostly occur in the open or in erosion dongas. Similar to the ESA material, artefacts from these surface collections are viewed not to be in a primary context and have little or no significance.

Late Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Also, for the first time we now get evidence of people's activities derived from material other than stone tools. Ostrich eggshell beads, ground bone arrowheads, small bored stones and wood fragments with incised markings are traditionally linked with the LSA.

LSA people preferred, though not exclusively, to occupy rock shelters and caves and it is this type of sealed context that make it possible for us to learn much more about them than is the case with earlier periods.

### Iron Age

Iron Age people started to settle in southern Africa c. AD 300, with one of the oldest known site at Silver Leaves south east of Tzaneen dating to AD 270. The oldest local EIA site is located at Broederstroom south of Hartebeestpoort Dam and has a radio carbon date of AD 470. Having only had cereals (sorghum, millet) that need summer rainfall, Early Iron Age (EIA) people did not move outside this rainfall zone, and neither did they occupy the central interior highveld area. Because of their specific technology and economy, Iron Age people preferred to settle on the alluvial soils near rivers for agricultural purposes, but also for firewood and water.

The occupation of the larger geographical area (including the study area) did not start much before the 1500s. To understand all of this, we have to take a look at the broader picture. Towards the end of the first millennium AD, Early Iron Age communities underwent a drastic change, brought on by increasing trade on the East African coast. This led to the rise of powerful ruling elites, for example at Mapungubwe.

By the 16th century things changed again, with the climate becoming warmer and wetter, creating condition that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the Witwatersrand and the treeless, windswept plains of the Free State and the Mpumalanga escarpment.

This period of consistently high rainfall started in about AD 1780. At the same time, maize was introduced from Maputo and grown extensively. Given good rains, maize crops yield far more than sorghum and millets. This increase in food production probably led to increased populations in coastal area as well as the central highveld interior by the beginning of the 19th century.

Due to their specific settlement requirements, Late Iron Age people preferred to settle on the steep slope of a mountain, possibly for protection, or for cultural considerations such as grazing for their enormous cattle herds. Because of the lack of trees they built their settlements in stone.

A number of stone-walled archaeological sites dating to the Late Iron Age (c. AD 1640 - AD 1830s), were identified in the larger region. These sites are conventionally associated with Tswana- as well as Ndebele-speaking people. These cover the area from Wallmannsthal to Roodeplaat dam and southwards across the N4 along the Pienaarsrivier. However, the greatest concentration is south of the N4. The most important site in the Dinokeng area is

called KoMjekejeke and is situated at the farm Downbern 494JR. Good sites have also been identified on the farm Elandshoek 337JR just southwest of Cullinan.

### *Historic period*

The first farmers started settling in the Dinokeng area in the 1840's. By 1850 the first farms were registered. These farms were laid out according to water sources and arable land. The Berlin Mission Society established Wallmannsthal in 1869 as a mission station. F. Grünberger was the first missionary. Knothe succeeded him in 1870. It became an important gathering site for displaced black people both of Tswana and Ndebele origin. Strong emphasis has been placed on education.

Currently the following towns are found in this area: Cullinan, Rayton and Bronkhorstspuit, all of which date latter half of the 19<sup>th</sup> century and each has its own history as each developed for a particular reason. As they were small and largely served farming communities, they did not expand rapidly. Consequently, all of them retained many buildings (shops, houses, churches, schools) and other features (cemeteries) of heritage significance. Their establishment was greatly facilitated by the development of the NZASM railway line that linked Pretoria and Lorenço Marques (Maputo). This operation, starting in the 1880s had a huge impact as it opened up the region. But it also left a huge legacy of heritage as a number of features, e.g. bridges, culverts, stations, good sheds, etc. still exist and still forms part of the railway line today.

During the 1920s the old national road (R104, now the N4) was built. Some of the bridges and culverts that formed part of this road still exist.

The various battles and skirmishes resulting from the conflict during the Anglo-Boer War (1899-1902) had a huge impact on heritage resources in the area, as many farms were burned down. Conversely, it also left a legacy of heritage sites scattered across the veld: fortifications and war cemeteries occur all over. Although most of the conflict centred on the railway line to Lorenço Marques (Maputo), incidents also took place in other areas, e.g. Donkerhoek/Diamond Hill (Cloete 2000).

The following sites have been identified in the region, but, as they are outside the area of the proposed development they would not be impacted on.

- Farmstead

<b>Location</b>	1	S 25.68820	E 28.72253
<b>Description</b>			
The remains of an old farmstead, much overgrown with tree and shrubs			
<b>Significance</b>	Low on a regional level – Grade III		
<b>Mitigation</b>			
This feature is located outside the area of development.			
<b>Recommendation:</b>			
No further action required.			



Fig. 6. View of the farmstead.

- Graves & Cemeteries

<b>Location</b>	1	S 25.68762	E 28.72100
<b>Description</b>			
An informal burial place with about 6 graves, 3 of which have headstones indicating that it is Pieterse family and they date to the 1930s			
<b>Significance</b>	High on a local level – Grade III		
<b>Mitigation</b>			
This feature is located outside the area of development.			
<b>Recommendation:</b>			
No further action required			



Fig. 7. The small farm cemetery.

#### 5.4 Identified sites

The following sites, features and objects of cultural significance were identified in the study area (Fig. 8 below):

##### 5.4.1 Stone Age

- No sites, features or objects dating to the Stone Age were identified in the study area



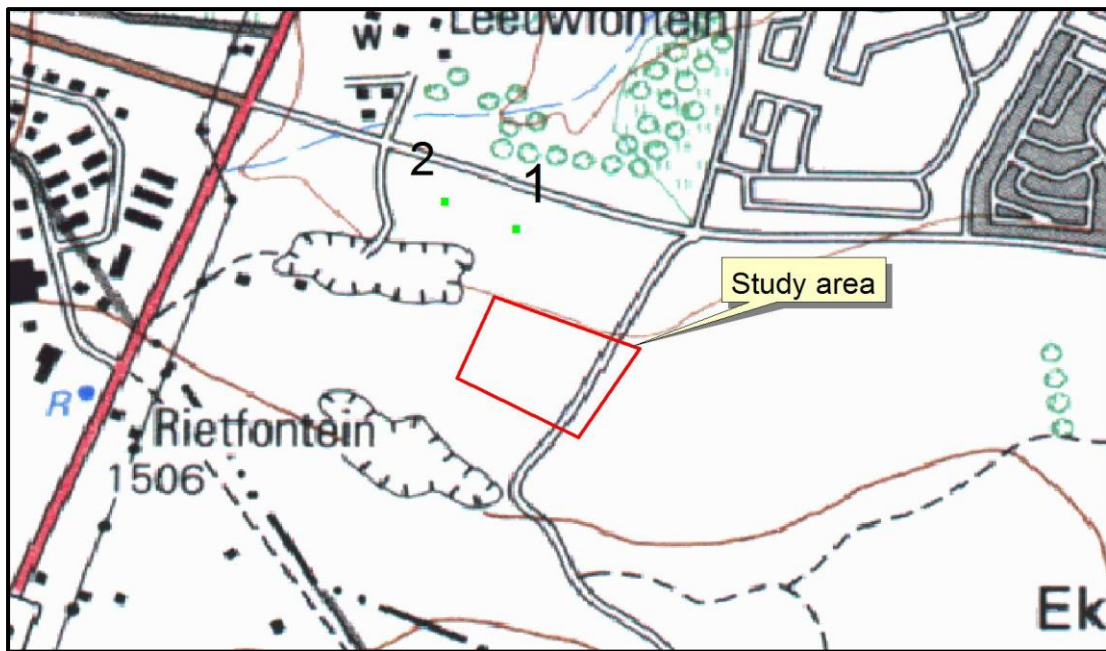


Fig. 8. Layout of the development, showing known heritage sites (green dots).

#### 5.4.2 Iron Age

- No sites, features or objects dating to the Iron Age were identified in the study area.

#### 5.4.3 Historic period

- No sites, features or objects dating to the historic period were identified in the study area.

## 6. SITE SIGNIFICANCE AND ASSESSMENT

### 6.1 Heritage assessment criteria and grading

The NHRA stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I:** Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II:** Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III:** Other heritage resources worthy of conservation, on a local authority level.

The occurrence of sites with a Grade I significance will demand that the development activities be drastically altered in order to retain these sites in their original state. For Grade II and Grade III sites, the applicable of mitigation measures would allow the development activities to continue.

## **6.2 Statement of significance**

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have Grade III significance.

## **7. RECOMMENDATIONS**

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to extend an existing borrow pit.

The landscape qualities of the area which is very flat, with little resources such as hills, outcrops and open water, that usually drew people to settle a region and as a result it was very sparsely occupied in the past. In addition, due to farming and later large scale urbanization of the region over the past 30 to 40 years, as part of the former KwaNdebele homeland, any resources that might have occurred here would have been destroyed.

- As no sites, features or objects of cultural significance are known to exist in the study area, there would be no impact as a result of the proposed development.

Therefore, from a heritage point of view we recommend that the proposed development can continue on condition of acceptance of the above mitigation measure. We also recommend that if archaeological sites or graves are exposed during development activities, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

## 8. REFERENCES

### 8.1 Data bases

Chief Surveyor General  
Environmental Potential Atlas, Department of Environmental Affairs and Tourism.  
Heritage Atlas Database, Pretoria.  
National Archives of South Africa

### 8.2 Literature

Acocks, J.P.H. 1975. *Veld Types of South Africa*. Memoirs of the Botanical Survey of South Africa, No. 40. Pretoria: Botanical Research Institute.

Cloete, P.G. 2000. *The Anglo-Boer War: a Chronology*. Pretoria: JP van der Walt.

Küsel, U.S. 2003. *Dinokeng project: cultural heritage resources*. Pretoria: Unpublished report.

Van Schalkwyk, J. 2003. *Heritage impact assessment for the proposed Clover Hill development, Bronkhorstspuit Dam, Gauteng Province*. Unpublished report 2003KH33. Pretoria: National Cultural History Museum.

### 8.3 Maps and aerial photographs

1: 50 000 Topocadastral maps: 2528DA  
Google Earth

## APPENDIX 1: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES

### Significance

According to the NHRA, Section 2(vi) the **significance** of a heritage sites and artefacts is determined by it aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

<b>1. Historic value</b>				
Is it important in the community, or pattern of history				
Does it have strong or special association with the life or work of a person, group or organisation of importance in history				
Does it have significance relating to the history of slavery				
<b>2. Aesthetic value</b>				
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group				
<b>3. Scientific value</b>				
Does it have potential to yield information that will contribute to an understanding of natural or cultural heritage				
Is it important in demonstrating a high degree of creative or technical achievement at a particular period				
<b>4. Social value</b>				
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons				
<b>5. Rarity</b>				
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage				
<b>6. Representivity</b>				
Is it important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects				
Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class				
Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality.				
<b>7. Sphere of Significance</b>		High	Medium	Low
International				
National				
Provincial				
Regional				
Local				
Specific community				
<b>8. Significance rating of feature</b>				
1.	Low			
2.	Medium			
3.	High			

**Significance of impact:**

- low where the impact will not have an influence on or require to be significantly accommodated in the project design
- medium where the impact could have an influence which will require modification of the project design or alternative mitigation
- high where it would have a “no-go” implication on the project regardless of any mitigation

**Certainty of prediction:**

- Definite: More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- Probable: More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- Possible: Only more than 40% sure of a particular fact, or of the likelihood of an impact occurring
- Unsure: Less than 40% sure of a particular fact, or the likelihood of an impact occurring

**Recommended management action:**

For each impact, the recommended practically attainable mitigation actions which would result in a measurable reduction of the impact, must be identified. This is expressed according to the following:

- 1 = no further investigation/action necessary
- 2 = controlled sampling and/or mapping of the site necessary
- 3 = preserve site if possible, otherwise extensive salvage excavation and/or mapping necessary
- 4 = preserve site at all costs

**Legal requirements:**

Identify and list the specific legislation and permit requirements which potentially could be infringed upon by the proposed project, if mitigation is necessary.

## APPENDIX 2. RELEVANT LEGISLATION

All archaeological and palaeontological sites, and meteorites are protected by the National Heritage Resources Act (Act no 25 of 1999) as stated in Section 35:

(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.

(2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.

(3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.

(4) 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.

In terms of cemeteries and graves the following (Section 36):

(1) Where it is not the responsibility of any other authority, SAHRA must conserve and generally care for burial grounds and graves protected in terms of this section, and it may make such arrangements for their conservation as it sees fit.

(2) SAHRA must identify and record the graves of victims of conflict and any other graves which it deems to be of cultural significance and may erect memorials associated with the grave referred to in subsection (1), and must maintain such memorials.

(3) 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; or
- (c) bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.

(4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction or damage of any burial ground or grave referred to in subsection (3)(a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.

The National Heritage Resources Act (Act no 25 of 1999) stipulates the assessment criteria and grading of archaeological sites. The following categories are distinguished in Section 7 of the Act:

- **Grade I:** Heritage resources with qualities so exceptional that they are of special national significance;
- **Grade II:** Heritage resources which, although forming part of the national estate, can be considered to have special qualities which make them significant within the context of a province or a region; and
- **Grade III:** Other heritage resources worthy of conservation, and which prescribes heritage resources assessment criteria, consistent with the criteria set out in section 3(3), which must be used by a heritage resources authority or a local authority to assess the intrinsic, comparative and contextual significance of a heritage resource and the relative benefits and costs of its protection, so that the appropriate level of grading of the resource and the consequent responsibility for its management may be allocated in terms of section 8.

Presenting archaeological sites as part of tourism attraction requires, in terms 44 of the Act, a Conservation Management Plan as well as a permit from SAHRA.

(1) Heritage resources authorities and local authorities must, wherever appropriate, co-ordinate and promote the presentation and use of places of cultural significance and heritage resources which form part of the national estate and for which they are responsible in terms of section 5 for public enjoyment, education, research and tourism, including-

- (a) the erection of explanatory plaques and interpretive facilities, including interpretive centres and visitor facilities;
- (b) the training and provision of guides;
- (c) the mounting of exhibitions;
- (d) the erection of memorials; and
- (e) any other means necessary for the effective presentation of the national estate.

(2) Where a heritage resource which is formally protected in terms of Part I of this Chapter is to be presented, the person wishing to undertake such presentation must, at least 60 days prior to the institution of interpretive measures or manufacture of associated material, consult with the heritage resources authority which is responsible for the protection of such heritage resource regarding the contents of interpretive material or programmes.

(3) A person may only erect a plaque or other permanent display or structure associated with such presentation in the vicinity of a place protected in terms of this Act in consultation with the heritage resources authority responsible for the protection of the place.