

**Heritage Survey report for the  
DEVELOPMENT OF WATER PIPELINES FOR THE  
DROOGEHEUVEL AND MIDDELVLEI TOWNSHIPS,  
RANDFONTEIN, GAUTENG PROVINCE**

**THE PROJECT:**

Development of a water reticulation system.

**THIS REPORT:**

Heritage Survey report for the  
DEVELOPMENT OF WATER PIPELINES FOR THE DROEGEHEUVEL AND  
MIDDELVLEI TOWNSHIPS, RANDFONTEIN, GAUTENG PROVINCE

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## **EXECUTIVE SUMMARY**

### **HERITAGE SURVEY REPORT FOR THE DEVELOPMENT OF WATER PIPELINES FOR THE DROOGEHEUVEL AND MIDDELVLEI TOWNSHIPS, RANDFONTEIN, GAUTENG PROVINCE**

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of an area in which it is proposed to install a number of water pipelines.

Current activities in the study area consist of farming and urban development. Although some sites of cultural significance are located in the larger region, none were identified in the study area. However, the urban area, although much changed, dates back many years. Therefore the possibility exists that some hidden features might be exposed when the pipeline is trenched through the urban area.

Based on what was found and its evaluation, it is recommended that any development can continue in the study area, on condition of acceptance of the following recommendations:

- If archaeological sites are exposed, 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.

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**GLOSSARY OF TERMS AND ABBREVIATIONS****STONE AGE**

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

**IRON AGE**

Early Iron Age	AD 200 - AD 1000
Late Iron Age	AD 1000 - AD 1830

**HISTORIC PERIOD**

Since the arrival of the white settlers - c. AD 1840 in this part of the country

core - a piece of stone from which flakes were removed to be used or made into tools

ADRC	Archaeological Data Recording Centre
ASAPA	Association of Southern African Professional Archaeologists
EIA	Early Iron Age
ESA	Early Stone Age
LIA	Late Iron Age
LSA	Late Stone Age
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 SURVEY REPORT FOR THE INSTALLATION OF A NUMBER OF WATER PIPELINES IN THE RANDFONTEIN AREA, GAUTENG PROVINCE

### 1. INTRODUCTION

An independent heritage consultant was appointed by Synergistics Environmental Consultants to conduct a survey to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of an area in which it is proposed to install a number of pipelines for the transportation of water to two townships that is to be established in the Randfontein area.

Originally three pipeline routes were identified of which one (C, Fig. 1) would serve the Middelvlei Township and two (A and B) would serve the Droogeheuvel Township. In the latter case, a second route alternative was later identified (Fig. 2).

### 2. TERMS OF REFERENCE

The scope of work consisted of conducting a Phase 1 archaeological survey of the site in accordance with the requirements of Section 38(3) of the National Heritage Resources Act (Act 25 of 1999).

This include:

- 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.

### 3. DEFINITIONS AND ASSUMPTIONS

The following aspects have a direct bearing on the survey and the resulting report:

- *Cultural resources* are all non-physical and physical human-made occurrences, as well as natural occurrences that are associated with human activity. These include all sites, structures and artefacts of importance, either individually or in groups, in the history, architecture and archaeology of human (cultural) development.
- The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their 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.

- Sites regarded as having low significance have already been recorded in full and require no further mitigation. Sites with medium to high significance require further mitigation.
- The latitude and longitude of archaeological sites are to be treated as sensitive information by the developer and should not be disclosed to members of the public.

## 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.

### 4.2 Methodology

#### 4.1 Preliminary investigation

##### 4.1.1 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 - see the list of references below.

##### 4.1.2 Data bases

The *Heritage Sites Database* and the *Environmental Potential Atlas* was consulted. The relevant records at NASA were also consulted.

##### 4.1.3 Other sources

Topocadastral and other maps were also studied - see the list of references below.

#### 4.2 Field survey

The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The area that had to be investigated was identified by Synergistics by means of maps. As these are linear developments, it was surveyed by travelling the length of the various proposed pipelines.

#### 4.3 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)<sup>1</sup> 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).

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<sup>1</sup> According to the manufacturer a certain deviation may be expected for each reading. Care was, however, taken to obtain as accurate a reading as possible, and then to correlate it with reference to the physical environment before plotting it on the map.

#### 4.4 Limitations

The vegetation growth in the area of Pipeline B was very dense, limiting archaeological visibility.

## 5. DESCRIPTION OF THE AFFECTED ENVIRONMENT

### 5.1 Site location

The study area consists of three linear developments on the farms Middelvlei 255IQ, Droogeheuvlei 251IQ and the Randfontein CBD (see Fig. 1).

### 5.2 Site description

The geology is made up of quartzite and the original vegetation of the area is classified as Rocky Highveld Grassland. No features (eg. hills, outcrops or rock shelters) that usually drew people to settle in its vicinity, occurs in the area. Most of the areas have been impacted on either by agricultural activities or urbanisation. Both of these activities would have had a negative impact on any heritage remains that might have occurred in the area.

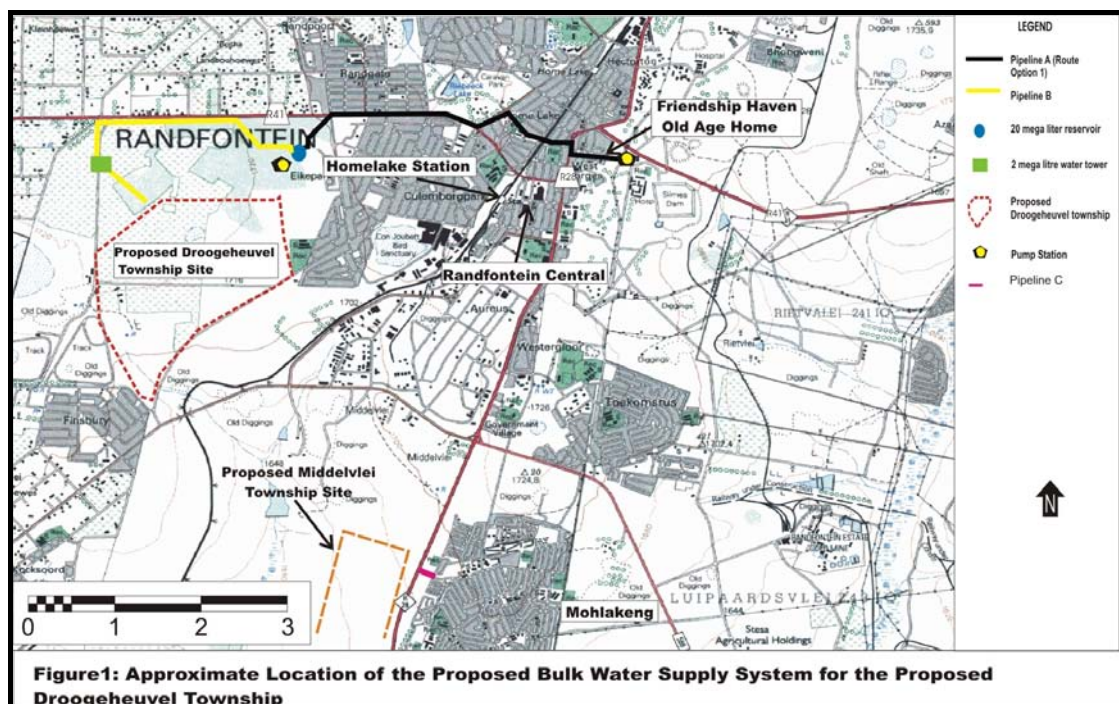


Fig. 1. Location of the different pipeline routes (Map 2627BA: Government Printer, Pretoria).



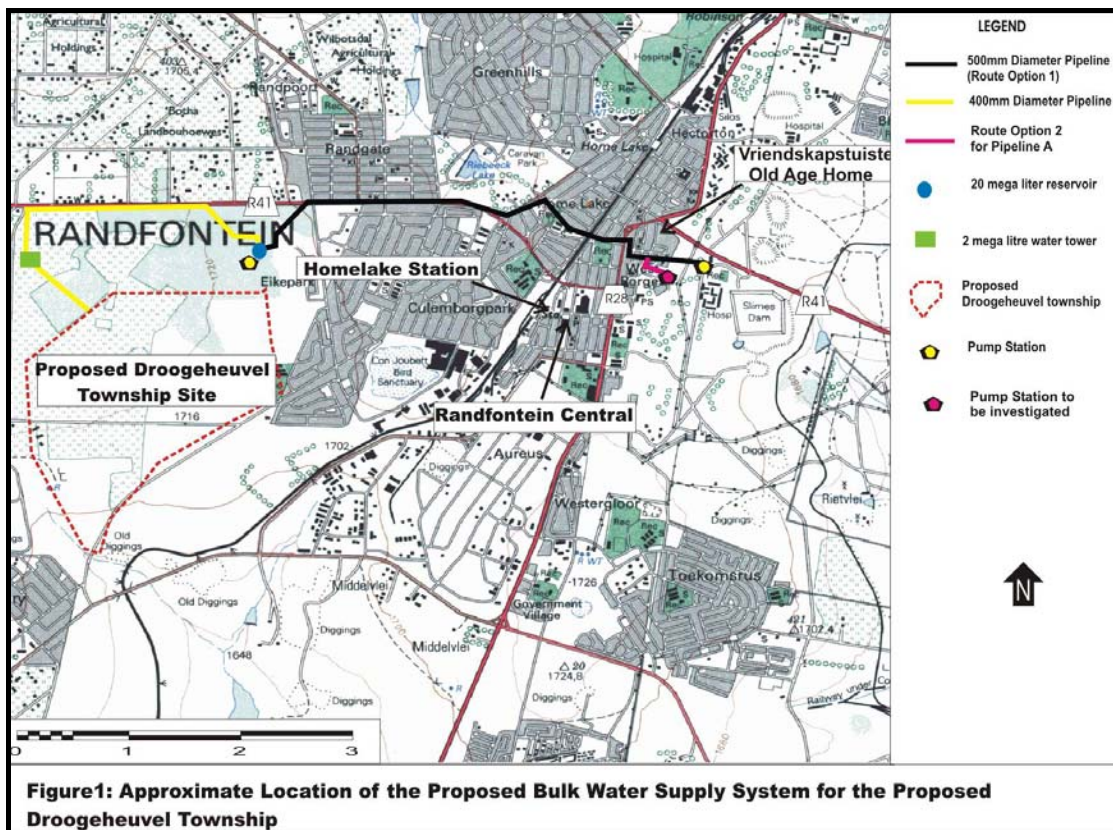


Fig. 2. Location of the alternative routes for the Droogeheuveld Township (Map 2627BA: Government Printer, Pretoria).

### 5.3 Identified sites in the study area

#### 5.3.1 Stone Age

No sites, features or objects dating to the Stone Age were identified.

#### 5.3.2 Iron Age

No sites, objects or features dating to the Iron Age were identified.

#### 5.3.3 Historic period

The town Randfontein was laid out in 1890 and became a municipality in 1929. Sections of the CBD are therefore older than 60 years. The areas through which the pipeline is to be installed dates to the 1940s and 1950s. It was indicated that the section of pipeline through the CBD area would follow the road reserve and therefore no building or other features would be impacted on.



Fig. 3. The study area in the vicinity of the reservoir for Pipeline A.

## 6. SITE SIGNIFICANCE AND ASSESSMENT

Impact analysis of cultural resources under threat of the proposed development, are based on the present understanding of the development.

The **significance** of a heritage site and artefacts is determined by its historical, social, aesthetic, technological and scientific 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.

Sites regarded as having low significance are viewed as being recorded in full after identification and would require no further mitigation. Impact from the development would therefore be judged to be low. Sites with a medium to high significance would therefore require mitigation. Mitigation, in most cases the excavation of a site, is in essence destructive and therefore the impact can be viewed as high and as permanent.

**No sites, objects or features of cultural significance that would be impacted on were identified in the study areas.**

## 7. IDENTIFICATION OF RISK SOURCES

A Heritage Impact Assessment is focused on two phases of a proposed development: **the construction and operation phases**. However, from a cultural heritage perspective, this distinction does not apply. Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted, can be written into the management plan, whence they can be avoided or cared for in the future.

The following project actions may impact negatively on archaeological sites and other features of cultural importance. The actions are most likely to occur during the construction phase of a project.

### Construction phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Construction work
Anticipated risks	
- looting of sites	Curious workers

### Operation phase:

Possible Risks	Source of the risk
Actually identified risks	
- damage to sites	Not keeping to management plans
Anticipated risks	
- damage to sites - looting of sites	Unscheduled construction/developments Visitors removing objects as keepsakes

## 8. RECOMMENDATIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural importance found within the boundaries of an area in which it is proposed to install a number of water pipelines.

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Based on what was found and its evaluation, it is recommended that any development can continue in the study area, on condition of acceptance of the following recommendations:

- If archaeological sites are exposed, 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.

## 9. REFERENCES

### 9.1 Data bases

Heritage Sites Database, Pretoria.

Environmental Potential Atlas, Department of Environmental Affairs and Tourism.

### 9.2 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.

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Van Vuuren, C.J. 2005. *Survey report of sites of cultural significance in the Mogale City Municipal area, Gauteng*. Unpublished Report. Pretoria: African Centre for Arts, Culture and Heritage Studies, University of South Africa.

### 9.3 Maps

1: 50 000 Topocadastral maps – 2627BA

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

### Significance

The *significance* of the sites and artefacts are determined by means of their historical, social, aesthetic, technological and scientific value in relation to their 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.

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.