

**Heritage impact assessment for the  
PROPOSED INSTALLATION OF A BULK WATER PIPELINE IN THE  
MOOIKLOOF REGION OF PRETORIA EAST, GAUTENG PROVINCE**

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**Prepared for:**  
Envirolution Consulting  
**Representative:** Ms K Mthombeni

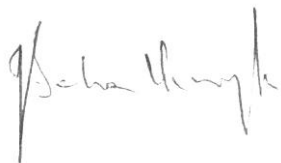
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**Declaration:**

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  
February 2015

## EXECUTIVE SUMMARY

### **HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED INSTALLATION OF A BULK WATER PIPELINE IN THE MOOIKLOOF REGION OF PRETORIA EAST, GAUTENG PROVINCE**

Envirolution Consulting (Pty) Ltd has been requested to submit a proposal to conduct a Basic Assessment for the proposed Mooikloof bulk water management pipes for City of Tshwane.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by **Envirolution** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where the development is planned.

The cultural landscape qualities of the region is made up of a pre-colonial element consisting of limited Stone Age and Iron Age occupation, as well as a much later colonial (farmer) component, which gave rise to an urban component.

- A stone walled site dating to the Late Iron Age was identified.
  - Fortunately, this site is on the opposite side of the road where the proposed pipeline is to pass through and would therefore not be impacted on by the proposed development.
- An informal cemetery was identified next to the road. It was determined that the proposed pipeline would pass right through this feature.
  - If at all possible, the burial site should be avoided by rerouting the pipeline and that it is fenced off with danger tape during construction of the pipeline. If that is not possible, the graves must be relocated after the proper procedure has been followed.

Therefore, from a heritage point of view we recommend that the proposed development can continue if the proposed mitigation measures are accepted. We also recommend that if archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage consultant so that an investigation and evaluation of the finds can be made.



J A van Schalkwyk  
Heritage Consultant  
February 2015

**TECHNICAL SUMMARY**

<b>Property details</b>						
Province	Gauteng					
Magisterial district	Pretoria					
District municipality	City of Tshwane					
Topo-cadastral map	2528CD					
Closest town	Pretoria					
Farm name	Rietfontein 375JR					
Coordinates	End points (approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 25.83014	E 28.31848	2	S 25.88180	E 28.34402

<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	Yes
Construction of bridge or similar structure exceeding 50m in length	No
Development exceeding 5000 sq m	No
Development involving three or more existing erven or subdivisions	No
Development involving three or more erven or divisions that have been consolidated within past five years	No
Rezoning of site exceeding 10 000 sq m	No
Any other development category, public open space, squares, parks, recreation grounds	No

<b>Development</b>	
Description	Installation of a bulk water supply pipeline
Project name	Mooikloof Bulk Water Supply Line

<b>Land use</b>	
Previous land use	Agriculture
Current land use	Small holdings

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## **GLOSSARY OF TERMS AND ABBREVIATIONS**

### **TERMS**

**Study area:** Refers to the entire study area as indicated by the client in the accompanying Fig. 1 and 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
Late 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 FOR THE PROPOSED INSTALLATION OF A BULK WATER PIPELINE IN THE MOOIKLOOF REGION OF PRETORIA EAST, GAUTENG PROVINCE

## 1. INTRODUCTION

Envirolution Consulting (Pty) Ltd has been requested to submit a proposal to conduct a Basic Assessment for the proposed Mooikloof bulk water management pipes for City of Tshwane.

South Africa's heritage resources, also described as the 'national estate', comprise a wide range of sites, features, objects and beliefs. According to Section 27(18) of the National Heritage Resources Act (NHRA), Act 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 **Envirolution Consulting** to conduct a Heritage Impact Assessment (HIA) to determine if any sites, features or objects of cultural heritage significance occur within the boundaries of the area where the development is planned.

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 HIA, 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 water pipelines.

The scope of work for this study consisted of:

- Conducting of a desk-top investigation of the area, in which all available literature, reports, databases and maps were studied; and
- A visit to the proposed development area.

The objectives were to

- Identify possible archaeological, cultural and historic sites within the proposed development area;
- Evaluate the potential impacts of construction, operation and maintenance of the proposed development on archaeological, cultural and historical resources; and
- 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:

- It is assumed that the description of the proposed project, provided by the client, is accurate.
- No subsurface investigation (i.e. excavations or sampling) were undertaken, since a permit from SAHRA is required for such activities.
- It is assumed that the public consultation process undertaken as part of the Environmental Impact Assessment (EIA) is sufficient and that it does not have to be repeated as part of the heritage impact assessment.
- Large sections of the regions in which the study areas are located have not yet been subjected to systematic archaeological surveys, creating huge gaps in available knowledge. Furthermore, most information that was generated in specific regions is based on impact assessments done for the purpose of development projects of some sort, with the result that it covers these regions only selectively.
- Sections of the proposed pipeline routes are densely vegetated by grass and exotic tree growth, limiting archaeological visibility.
- The unpredictability of buried archaeological remains.
- This report does not consider the palaeontological potential of the site.

## 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 Figures 3 and 4.

## 4.2 Methodology

### 4.2.1 Preliminary investigation

#### 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, historical sources and heritage impact assessment reports were consulted.

- Information of a very general nature was 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 adjacent areas.

#### 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 was obtained from these sources.

### 4.2.2 Field survey

The area that had to be investigated was identified by **Envirolution Consulting** by means of maps. The site was visited on 21 February 2015 and surveyed by following the proposed pipeline routes as close as possible (see Fig. 1).

The *kml* file indicating the routes of the pipelines was loaded onto a Nexus 7 tablet. This was used, in Google Earth, during the field survey to access the area.

### 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.

The track log and identified sites were recorded by means of a Garmin Oregon 550 handheld GPS device. Photographic recording was done by means of a Canon EOS 550D digital camera.

Map datum used: Hartebeeshoek 94 (WGS84).

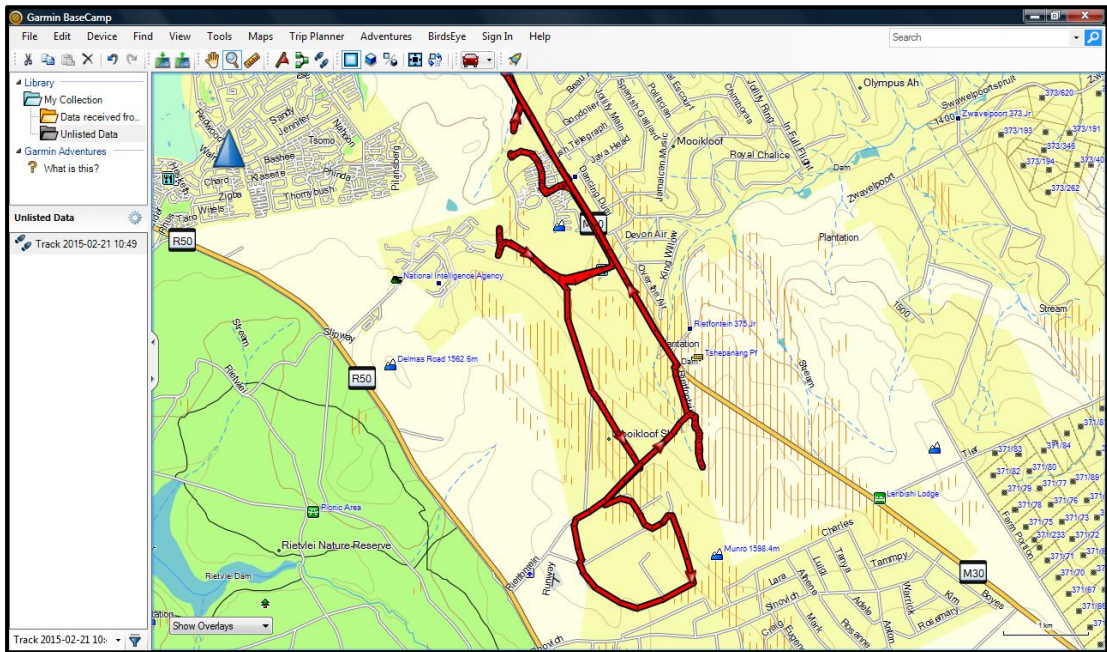


Fig. 1. Track log of the field survey.

### 5. PROJECT DESCRIPTION

Envirolution Consulting (Pty) Ltd has been requested to submit a proposal to conduct a Basic Assessment for the proposed Mooikloof bulk water management pipes for City of Tshwane. The proposed pipeline is estimated to be ± 1800m long, 450 mm Ø steel pipe.

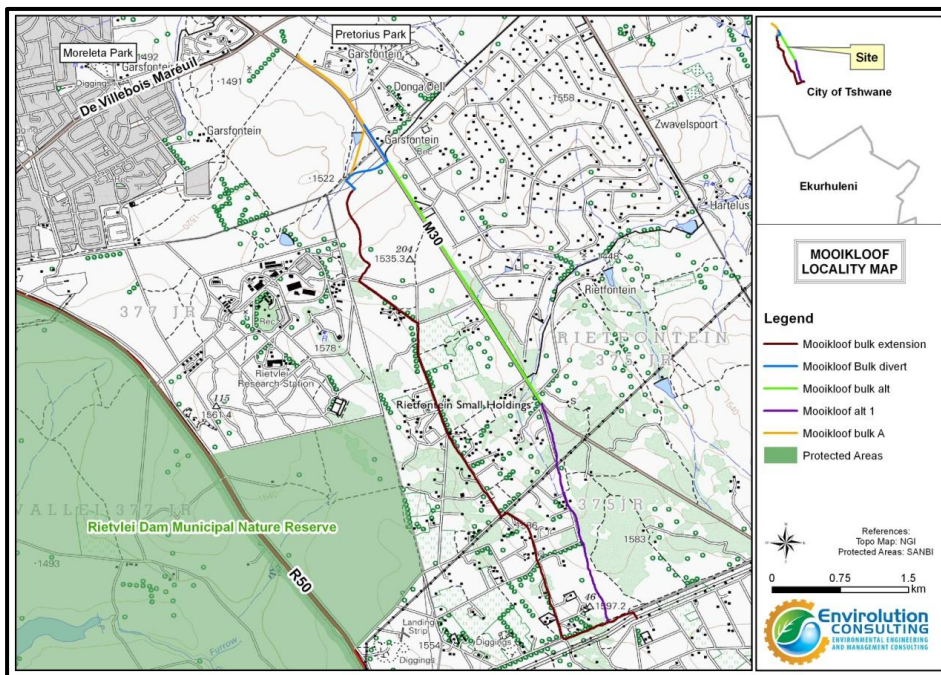


Fig. 2. Layout of the proposed development.

## 6. DESCRIPTION OF THE AFFECTED ENVIRONMENT

### 6.1 Site location and description

The project starts at Philadelphia Road at the Woodlands Mall entrance of Gartsfontein Road. It starts at the Rand Water connection RW4346 (approximate latitude 25°49'32.48"S and longitude 28°18'49.00"E) and ends at the Rietfontein/Grootfontein reservoir complex (approximate latitude 25°52'53.27"S and longitude 28°20'49.71"E). From RW4346 the pipeline route is along Garstfontein Road (M30) for the first ±900m where after it crosses the road and runs parallel to an existing sewer to the Mooikloof Ridge township. The existing pipeline is presumed to be located inside the 3m wide servitude over portion 279 Garstfontein 374 JR and portion 75 of Rietfontein 375 JR. The existing pump station is located just inside the Mooikloof Ridge township in the Augrabies Street road reserve (approximate latitude 25°50'20.27"S and longitude 28°19'8.08"E). The majority of the proposed route is located in road reserves or servitudes except for a 550m portion of the route south of Fisant Street. The urban edge ends at approximately Fisant Street also. The reservoir complex is located ±5.6km south of the pump station adjacent to a distribution power line servitude.

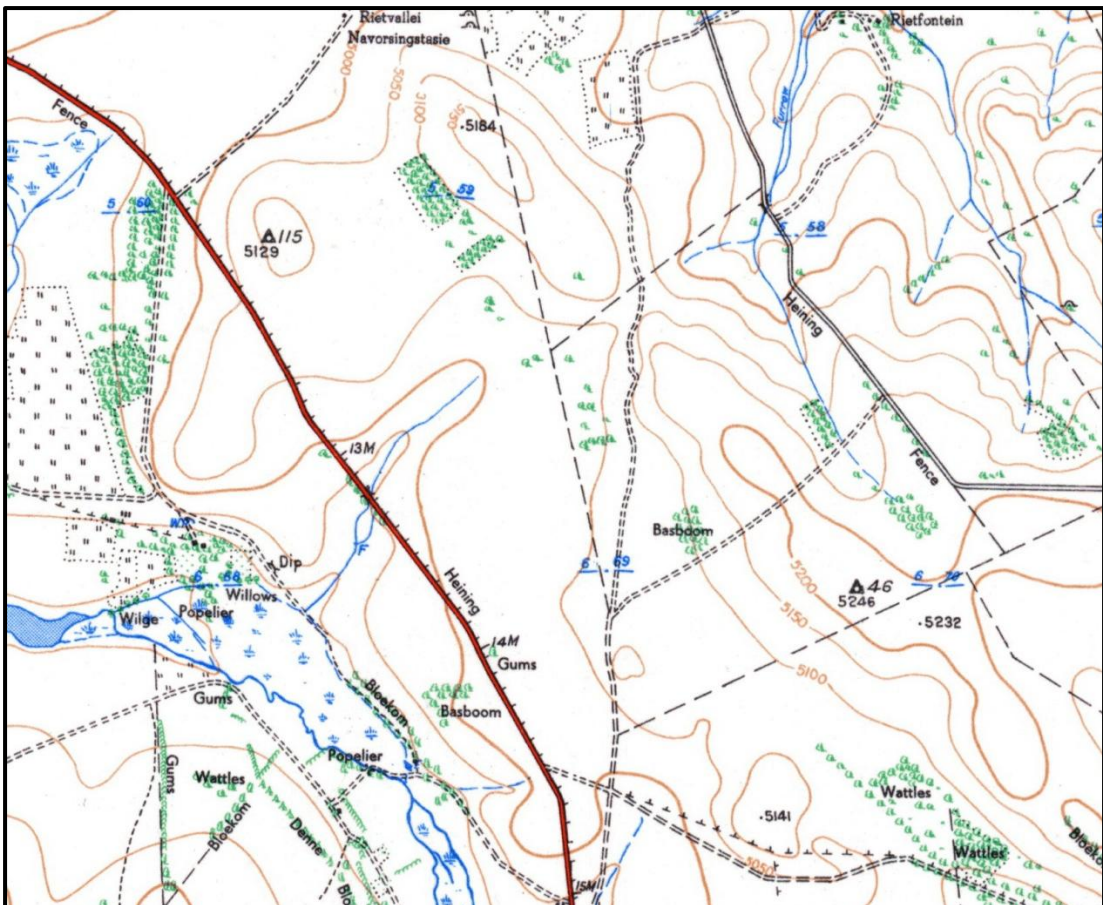


Fig. 3. The study area as indicated on the 1939 version of the 1:50 000 cadastral map. (Map 2528CD: Chief Surveyor-General)

The study area is located on the western side of the Bronberge, a low ridge running from northwest to southeast past Pretoria. This ridge, for some unknown reason, has been

subdivided by giving it specific names. In the region of the study area, it is known as Zwavelpoortrant. The ridge as well as the larger area is made up of quartzite. The original vegetation is classified as Moist Cool Highveld Grassland. Some previous development has taken place on the site - the western lowland section has been developed with houses and gardens.

From the 1939 topocadastral map it can be seen that very little development existed in the region of the study area (Fig. 3). The implication is that no structures older than 60 years exist on the properties.



Fig. 4. Views over the study area.

From the Google Earth image below (Fig. 5), dated to 2008, it can be seen that the invasive black wattle trees on a section of the site were removed by mechanical means. This would have destroyed any heritage features that might have occurred here.

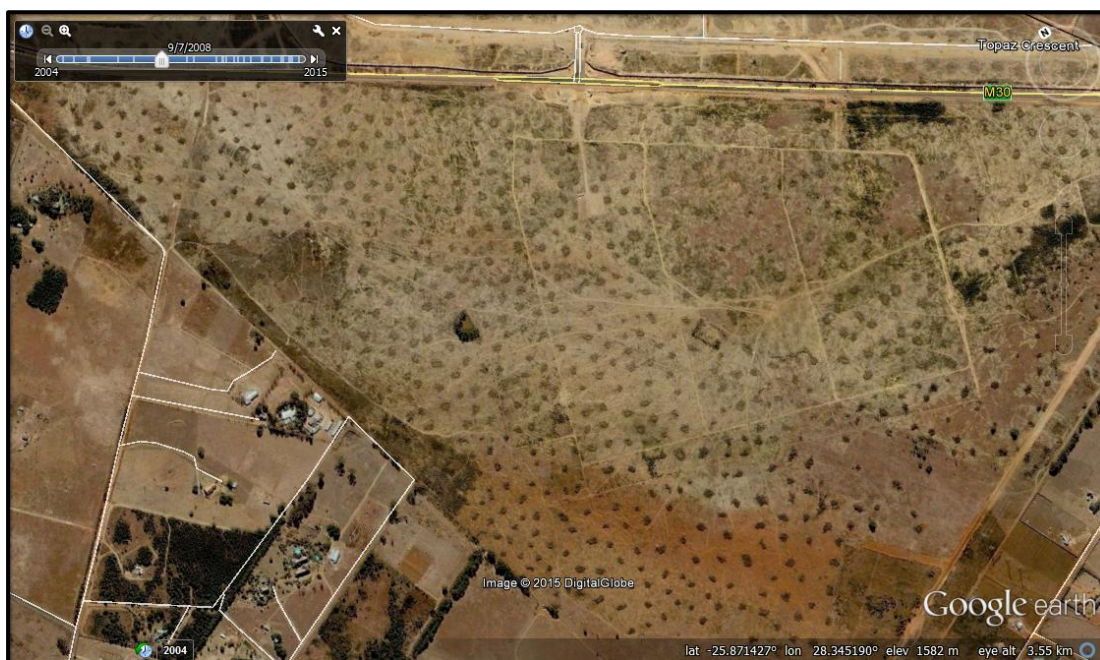


Fig. 5. Aerial view of the site in 2008.  
(Photo: Google Earth)

### 6.3 Regional overview

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.

The cultural landscape qualities of the region is made up of a pre-colonial element consisting of limited Stone Age and Iron Age occupation, as well as a much later colonial (farmer) component, which gave rise to an urban component.

#### 6.3.1 Stone Age

Stone tools dating to the various phases of the Stone Age occur in some areas of the larger region. Stone Age tools associated with the Early and Middle Stone Age are common, especially along the spruits and rivers where they cut through ridges and at the lower parts of the ridges and larger outcrops. These are viewed as find spots rather than sites per se. That means that as most of these are surface finds, they are viewed to be out of context and do not have any significance. Only a few stratified sites are known in the Magaliesberg range, but even these have little significance as the deposits have either eroded away, or have been impacted upon by later occupants of the shelters.

#### 6.3.2 Iron Age

Although the Early Iron Age dates back to c. AD 200, such sites are not known from the larger region. The closest one is the famous Broederstroom site located to the south of Hartebeestpoort dam in North West Province.

Sites dating to the Late Iron Age are found all over the region as well as the study area. Some of them can be related to the Tswana-speakers, whereas others to the Ndebele-speakers and possibly a few also to the Ndebele of Mzilikazi (see Van Schalkwyk et al 1996; Van Schalkwyk et al 1999 & Van Vuuren 2006).

The Iron Age sites tend to cluster in the Bronberg as well as on the more open flatlands, especially in areas where outcrops (dolorite, etc.) occur. It is possible, although not yet proven, that this distinction can be linked to the difference between the Sotho and Ndebele settlement preference referred to above.

### 6.3.3 Historical period

Early white farmers selected farms (such as Zwavelpoort) and then provided a description of the farm to the local landdrost, who noted the detail in a registration book and gave the claimant a copy. Claimed land was then inspected before a title and deed were issued. Since the registration of land entailed registration costs and annual land taxes, it was often delayed as long as possible. As a result, the registration of land claimed on the basis of burgher rights continued well into the 1890s.

The government of the Transvaal Boer republic (ZAR) granted the original farm Zwavelpoort 323JR to J.G.S. Bronkhorst in September 1859. By 1899 it had already been subdivided into the current farm portions.

Of course, this was also the area over which the British troops advanced during the 2<sup>nd</sup> Anglo-Boer War, before engaging in battle, on 11 and 12 June 1900, that was later to become known as the "Battle of Diamond Hill" or, the "Slag van Donkerhoek". It was one of the largest battles that took place during the war and the remains of gun placements, trenches and fortifications can still be found, however, mostly to the east and north of the study area (Van Vollenhoven & Van den Bos 1997).

Since its founding in 1855, urban development of Pretoria remained concentrated in the central area around Church Square. Elsewhere, settlement was mainly agricultural, characterized by the subdivision of the original farms to accommodate children. During the 1940-1950 era there was a large increase in the urban population and many new suburbs were developed on the periphery of the urban area.

Parallel with urban development was the development and settlement of smallholdings around the urban centres. Agricultural smallholdings developed in the Transvaal after World War I, but a real increase in the number of smallholdings only took place between 1935 and 1939. Smallholdings, such as Montana, Olympus and Willow Glen, eventually grew into proper residential suburbs. On Zwavelpoort and adjacent farms such as Kleinfontein, Mooiplaats, Boschkop and Rietfontein, more smallholdings sprung up in the 1960s, falling under the jurisdiction of the Transvaal Peri-Urban Areas Health Board (De Jong 2008).

## 6.4 Identified sites

The following cultural heritage resources were identified in the study area (Fig. 6):

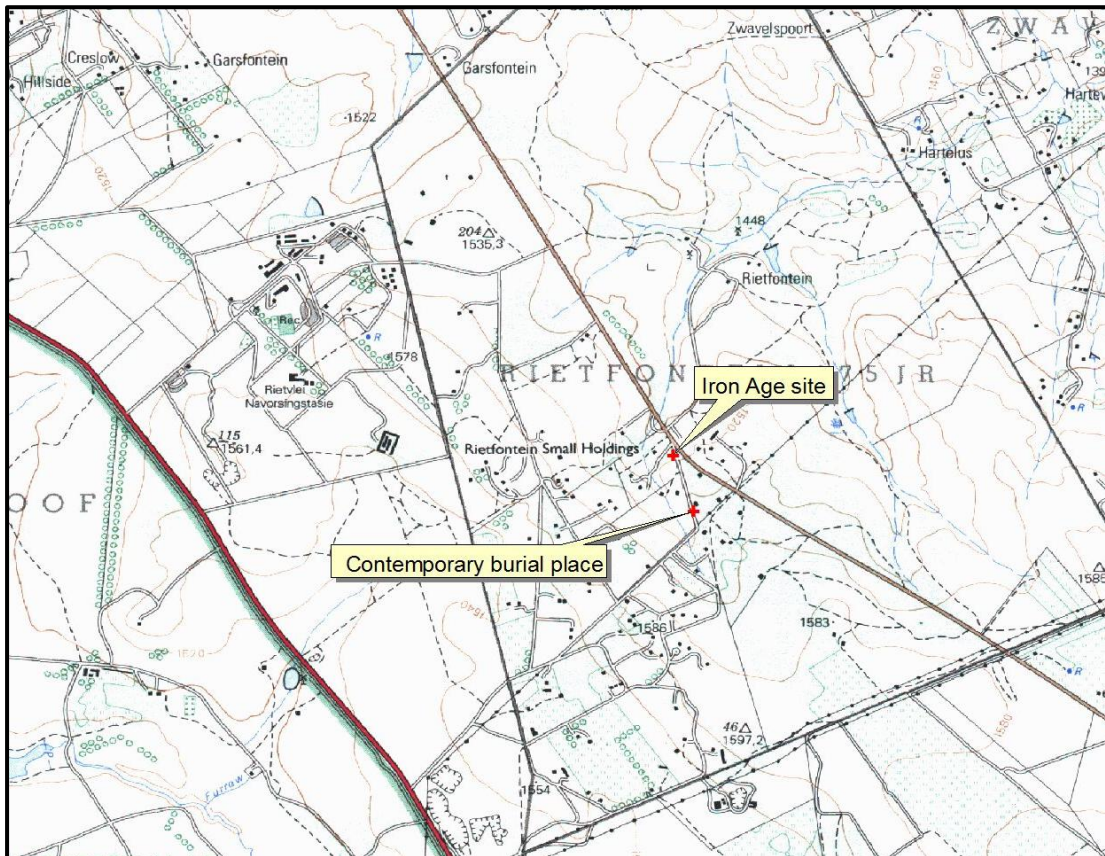


Fig. 6. The study area.  
(Map 2528CD: Chief Surveyor-General)

#### 6.4.1 Stone Age

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

#### 6.4.2 Iron Age

<b>Location</b>	Late Iron Age	Rietfontein 375JR	S 25.86139, E 28.33750
<b>Description</b>	Stone walling dating to the Late Iron Age (i.e. > AD 1600). Unfortunately this site has been 'reconstructed' by the land-owner, thereby compromising its integrity.		

<b>Significance of site/feature</b>	Medium on a regional level – Grade III
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<b>Impact assessment</b>	Based on available information, the proposed pipeline would by-pass this site as it is located on the western side of the road and behind an electrified fence.
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<b>Mitigation</b>	None
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<b>Requirements</b>
None

<b>References</b>
-



#### 6.4.3 Historic period

<b>Location</b>	Contemporary Burial Site	Rietfontein 375JR	S 25.86528; E 28.33889
<b>Description</b>			
Large informal burial place with possibly more than 20 graves. It is fenced in and the gate is wired shut. Some have headstones and names such as Mguni and Tsoba, to the middle part of the 20 <sup>th</sup> century. Unfortunately, the area is much overgrown with grass and little detail could be observed.			

<b>Significance of site/feature</b>	High on a local level – Grade III
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<b>Impact assessment</b>
Based on available information, the proposed pipeline would pass through this burial site.

<b>Mitigation</b>
If at all possible, the burial site should be avoided by rerouting the pipeline and that it is fenced off with danger tape during construction of the pipeline. If that is not possible, the graves must be relocated after the proper procedure has been followed – see Appendix 3 for a basic outline of the procedure to follow.

<b>Requirements</b>
A valid permit for the relocation of the graves must be obtained from SAHRA, as well as other I & AP's such as the Dept. of Health, SAPS, etc.

<b>References</b>
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## 7. SITE SIGNIFICANCE AND ASSESSMENT

### 7.1 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.

### 7.2 Statement of significance

A matrix was developed whereby the above criteria, as set out in Sections 3(3) and 7 of the NHRA, No. 25 of 1999, were applied for each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar sites. Three categories of significance are recognized: low, medium and high. 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 a grading as identified in the table below.

Table 1. Summary of identified heritage resources in the study area.

<b>Identified heritage resources</b>	
<i>Category, according to NHRA</i>	<i>Identification/Description</i>
<b>Formal protections (NHRA)</b>	
National heritage site (Section 27)	None
Provincial heritage site (Section 27)	None

Provisional protection (Section 29)	None
Place listed in heritage register (Section 30)	None
<b>General protections (NHRA)</b>	
structures older than 60 years (Section 34)	None
archaeological site or material (Section 35)	None
palaeontological site or material (Section 35)	None
graves or burial grounds (Section 36)	Yes
public monuments or memorials (Section 37)	None
<b>Other</b>	
Any other heritage resources (describe)	None

### 7.3 Impact assessment

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

- A stone walled site dating to the Late Iron Age was identified.
  - Fortunately, this site is on the opposite side of the road where the proposed pipeline is to pass through and would therefore not be impacted on by the proposed development.
- An informal cemetery was identified next to the road. It was determined that the proposed pipeline would pass right through this feature.
  - If at all possible, the burial site should be avoided by rerouting the pipeline and that it is fenced off with danger tape during construction of the pipeline. If that is not possible, the graves must be relocated after the proper procedure has been followed.

## 8. CONCLUSIONS

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 the development is proposed.

The cultural landscape qualities of the region is made up of a pre-colonial element consisting of limited Stone Age and Iron Age occupation, as well as a much later colonial (farmer) component, which gave rise to an urban component.

- A stone walled site dating to the Late Iron Age was identified.
  - Fortunately, this site is on the opposite side of the road where the proposed pipeline is to pass through and would therefore not be impacted on by the proposed development.
- An informal cemetery was identified next to the road. It was determined that the proposed pipeline would pass right through this feature.
  - If at all possible, the burial site should be avoided by rerouting the pipeline and that it is fenced off with danger tape during construction of the pipeline. If that is not possible, the graves must be relocated after the proper procedure has been followed.

Therefore, from a heritage point of view we recommend that the proposed development can continue if the proposed mitigation measures are accepted. We also recommend that if archaeological sites or graves are exposed during construction work, it should immediately be reported to a heritage consultant so that an investigation and evaluation of the finds can be made.

## 9. 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

### 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.

De Jong, R.C. 2005. *Heritage scoping report: proposed development on Portions 101, 102, 109 and 110 of the farm Zwavelpoort 373JR, Kungwini local municipality*. Pretoria: Unpublished report.

De Jong, R.C. 2008. *Heritage scoping (basic assessment) report: proposed development located on Portion 106 of the farm Zwavelpoort 373JR, Kungwini local municipality, Gauteng province*. Pretoria: Unpublished report.

Holm, S.E. 1966. *Bibliography of South African Pre- and Protohistoric archaeology*. Pretoria: J.L. van Schaik.

Küsel, U.S. 2003. *Survey of cultural heritage resources on the Farm Rietfontein 375JR, Pretoria district*. Pretoria: Unpublished report.

Mason, R. 1968. *Prehistory of the Transvaal*. Johannesburg: Witwatersrand University Press.

Van Vollenhoven, A. & Van den Bos, J. 1997. *'n Kultuurhulpbronstudie van die Britse blokhuisstelsel van die Tweede Anglo-Boer oorlog (1899-1902) in die voormalige Transvaal (ZAR)*. Pretoria: Raad vir Geesteswetenskaplike Navorsing.

Van Schalkwyk, J.A. 2002. *A survey of cultural resources for the construction of a sewer pipeline, Mooikloof area, Pretoria district, Gauteng Province*. Unpublished report 2002KH042. Pretoria.

Van Schalkwyk, J.A. 2003. *Heritage resources in the western section of the Kungwini Local Municipality, Gauteng province*. Unpublished report 2003KH10. Pretoria: National Cultural History Museum.

Van Schalkwyk, J.A. 2004. *Heritage impact assessment of a section of Road D781, Pretoria District, Gauteng Province*. Unpublished report 2004KH27. Pretoria: National cultural History Museum.

Van Schalkwyk, J.A. 2006. *Heritage scoping assessment: Zwavelpoort Portion 69*. Unpublished report 2006KH067. Pretoria: National cultural History Museum.

Van Schalkwyk, J.A. 2010a. *Heritage impact assessment for the proposed development on Portion 332 of the farm Zwavelpoort 373JR, Gauteng Province*. Pretoria: Unpublished report 2010/JvS/038.

Van Schalkwyk, J.A. 2010b. *Heritage impact assessment for the proposed development on Portion 105 of the farm Zwavelpoort 373JR, Gauteng Province*. Pretoria: Unpublished report 2010/JvS/038.

Van Schalkwyk, J.A. & Pelser, A.J. 1999. *A survey of archaeological and historical sites in the Bronberg conservation area, Pretoria*. Unpublished report 1999KH03. Pretoria: National Cultural History Museum.

Van Schalkwyk, J.A., Pelser, A., & Van Vuuren, C.J. 1996. Investigation of Late Iron Age sites on the farm Hatherley 331JR, Pretoria district. *Research by the National Cultural History Museum* 5:45-56.

Van Vuuren, C.J. 2006, Ndebele place names and settlement in Pretoria. *South African Journal of Cultural History* 20(1):78-124.

### **9.3 Maps and aerial photographs**

1: 50 000 Topocadastral maps: 2528CC  
Google Earth

## APPENDIX 1: CONVENTIONS USED TO ASSESS THE SIGNIFICANCE OF HERITAGE RESOURCES

### Significance

According to the NHRA, Section 2(vi) the **significance** of heritage sites and artefacts is determined by its 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			

## 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.



### **APPENDIX 3. RELOCATION OF GRAVES**

If the graves are younger than 60 years, an undertaker can be contracted to deal with the exhumation and reburial. This will include public participation, organising cemeteries, coffins, etc. They need permits and have their own requirements that must be adhered to.

If the graves are older than 60 years old or of undetermined age, an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. This is a requirement by law.

Once it has been decided to relocate particular graves, the following steps should be taken:

- Notices of the intention to relocate the graves need to be put up at the burial site for a period of 60 days. This should contain information where communities and family members can contact the developer/archaeologist/public-relations officer/undertaker. All information pertaining to the identification of the graves needs to be documented for the application of a SAHRA permit. The notices need to be in at least 3 languages, English, and two other languages. This is a requirement by law.
- Notices of the intention needs to be placed in at least two local newspapers and have the same information as the above point. This is a requirement by law.
- Local radio stations can also be used to try contact family members. This is not required by law, but is helpful in trying to contact family members.
- During this time (60 days) a suitable cemetery need to be identified close to the development area or otherwise one specified by the family of the deceased.
- An open day for family members should be arranged after the period of 60 days so that they can gather to discuss the way forward, and to sort out any problems. The developer needs to take the families requirements into account. This is a requirement by law.
- Once the 60 days has passed and all the information from the family members have been received, a permit can be requested from SAHRA. This is a requirement by law.
- Once the permit has been received, the graves may be exhumed and relocated.
- All headstones must be relocated with the graves as well as any items found in the grave.

#### **Information needed for the SAHRA permit application**

- The permit application needs to be done by an archaeologist.
- A map of the area where the graves have been located.
- A survey report of the area prepared by an archaeologist.
- All the information on the families that have identified graves.
- If graves have not been identified and there are no headstones to indicate the grave, these are then unknown graves and should be handled as if they are older than 60 years. This information also needs to be given to SAHRA.
- A letter from the landowner giving permission to the developer to exhume and relocate the graves.
- A letter from the new cemetery confirming that the graves will be reburied there.
- Details of the farm name and number, magisterial district and GPS coordinates of the gravesite.