

**Cultural heritage assessment for the
PROPOSED RIETSPRUIT OUTFALL SEWER PIPELINE, CITY OF TSHWANE
LOCAL MUNICIPALITY, GAUTENG PROVINCE**

**CULTURAL HERITAGE ASSESSMENT FOR THE PROPOSED RIETSPRUIT
OUTFALL SEWER PIPELINE, CITY OF TSHWANE LOCAL MUNICIPALITY,
GAUTENG PROVINCE**

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Prepared for:
Delta Built Environment Consultants (Pty) Ltd

Representative: Ms J Steyn
Postal Address: P O Box 35703, Menlo Park, 0102
Tel: 012 368 1850
E-mail: jana.steyn@deltabec.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 2015

EXECUTIVE SUMMARY

**CULTURAL HERITAGE ASSESSMENT FOR THE PROPOSED RIETSPRUIT
OUTFALL SEWER PIPELINE, CITY OF TSHWANE LOCAL MUNICIPALITY,
GAUTENG PROVINCE**

City of Tshwane Service and Infrastructure Department: Water and Sanitation Division propose the upgrading of the existing Rietspruit Outfall Sewer pipeline west of Pretoria.

In accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by Delta Built Environment Consultants to conduct a cultural heritage assessment to determine if the proposed development would have an impact on any sites, features or objects of cultural heritage significance within the area of the proposed upgrading of the Rietspruit Outfall Sewer Pipeline.

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

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

- 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 heritage consultant so that an investigation and evaluation of the finds can be made.



J A van Schalkwyk
Heritage Consultant
May 2015

TECHNICAL SUMMARY

Property details						
Province	Gauteng					
Magisterial district	Pretoria					
District municipality	City of Tshwane					
Topo-cadastral map	2528CC					
Closest town	Pretoria					
Farm name & no.	Zwartkop 383JR; Brakfontein 419JR; Olievenhoutbosch 389JR					
Portions/Holdings	-					
Coordinates	End points (approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 25.82309	E 28.09027	2	S 25.92198	E 28.11597

Development criteria in terms of Section 38(1) of the NHR Act	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

Development	
Description	Upgrading of the Rietspruit Outfall sewer pipeline
Project name	Rietspruit Outfall Sewer Pipeline

Land use	
Previous land use	Agriculture/urban
Current land use	Urban/vacant

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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 - 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

CULTURAL HERITAGE ASSESSMENT FOR THE PROPOSED RIETSPRUIT OUTFALL SEWER PIPELINE, CITY OF TSHWANE LOCAL MUNICIPALITY, GAUTENG PROVINCE

1. INTRODUCTION

City of Tshwane Service and Infrastructure Department: Water and Sanitation Division propose the upgrading of the existing Rietspruit Outfall Sewer pipeline west of Pretoria.

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 Delta Built Environment Consultants to conduct a cultural heritage assessment to determine if the proposed development would have an impact on any sites, features or objects of cultural heritage significance.

This 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 study 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 upgrade the Rietspruit Sewer Outfall Pipeline.

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 Assumptions and 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.
- An important concept in the management of heritage resources is that it is non-renewable: damage to or destruction of most resources, including that caused by bona fide research endeavours, cannot be reversed or undone. Accordingly, management recommendations for heritage resources in the context of development are as conservative as possible.
- This report does not consider the palaeontological potential of the site.
- The unpredictability of buried archaeological remains.
- Long sections of the proposed pipeline route are densely vegetated by tall grass and exotic tree growth, limiting archaeological visibility.

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.

- 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 site was visited on 1st and 2nd May 2015 – see Fig. 1 below. The *kmf* file indicating the alignment of the pipeline route was loaded onto a Nexus 7 tablet. This was used in Google Earth during the field survey to access the area.

Long sections with dense vegetation cover were encountered, diminishing archaeological visibility (Fig. 2).

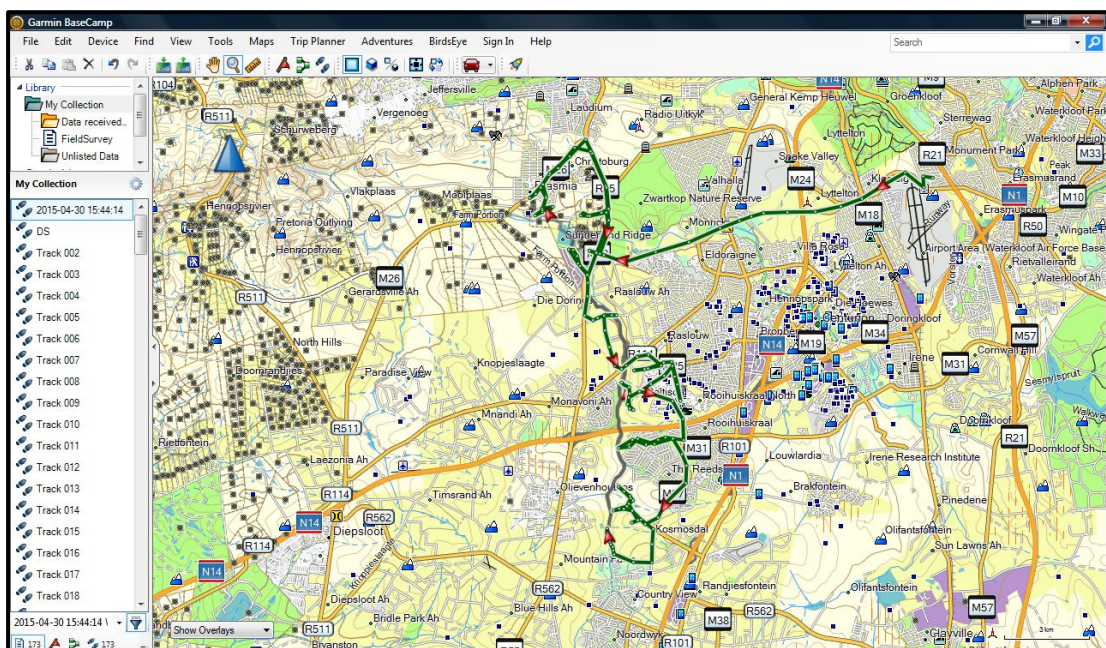


Fig. 1. Map indicating the track log of the field survey.



Fig. 2. Vegetation growth encountered during the site visit.

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).

5. PROJECT LOCATION AND DESCRIPTION

5.1 Site location

The pipeline crosses the farms Zwartkop 383JR, Brakfontein 419JR and Olievenhoutbosch 389JR located to the west of Pretoria and south of Laudium - see the map in Fig. 3 below. For more information please see the Technical Summary presented above (p. iii).

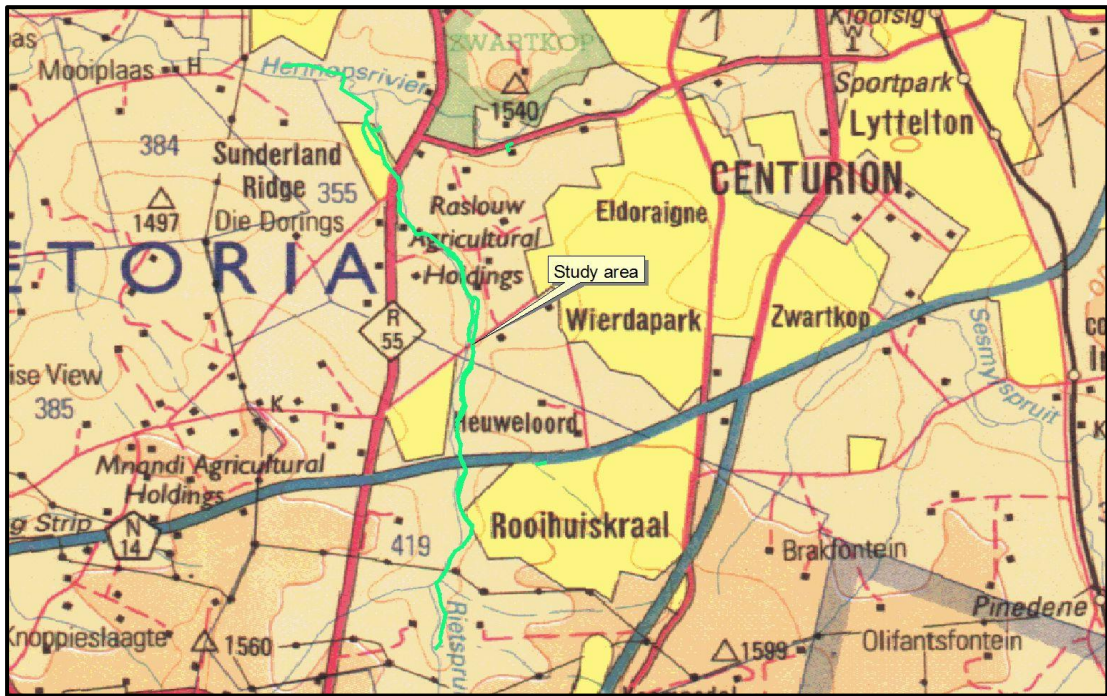


Fig. 3. Location of the study area in regional context.
(Map 2528: Chief Surveyor-General)

5.2 Project description

The proposed upgrade of the outfall sewer pipeline will run from Olievenhoutbos XT 19 parallel to the Rietspruit, draining into the Sunderland Ridge waste water treatment works. The total length of the pipeline is 11km.

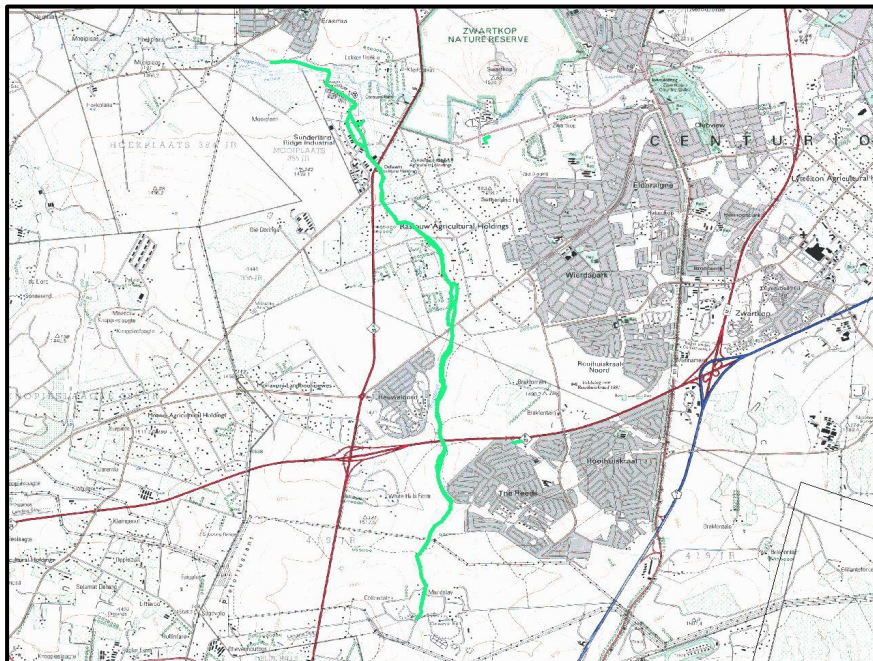


Fig. 4. Layout of the proposed development.
(Map 2528CC: Chief Surveyor-General)

6. DESCRIPTION OF THE AFFECTED ENVIRONMENT

6.1 The environment

The geology of the region is made up of granite in the south, changing to dolomite in the north. The topography is described as undulating hills and lowlands. One of the main topographical features in the region is the Rietspruit that flows from the south to north, joining with the Hennops River in the north. The original vegetation is classified as Rocky Highveld Grassland. However, over much of the region in general and in the study area specifically this has been changed due to farming activities and urbanisation. A large quarry exists in the southern section of the study area.





Fig. 5. Views over the study area.

Although small, these rivers and spruits could come down with devastating consequences. For example, the road bridge between Johannesburg and Pretoria was washed away during a flash flood in the 1880s (Fig. 6), prompting the ZAR Government to build a proper bridge over the Hennops River (also referred to as the Six Miles Spruit). This bridge, completed in October 1891 and known as the Wierda Bridge, is still in use today.

Experience therefore would have taught people not to build below the flood lines of the various rivers.

From the 1939 version of the 1:50 000 version of the topocadastral map it can be seen that very little development existed in the region at the time (Fig. 7).



Fig. 6. The stage coach crossing the Six Mile Spruit, prior to c. 1891

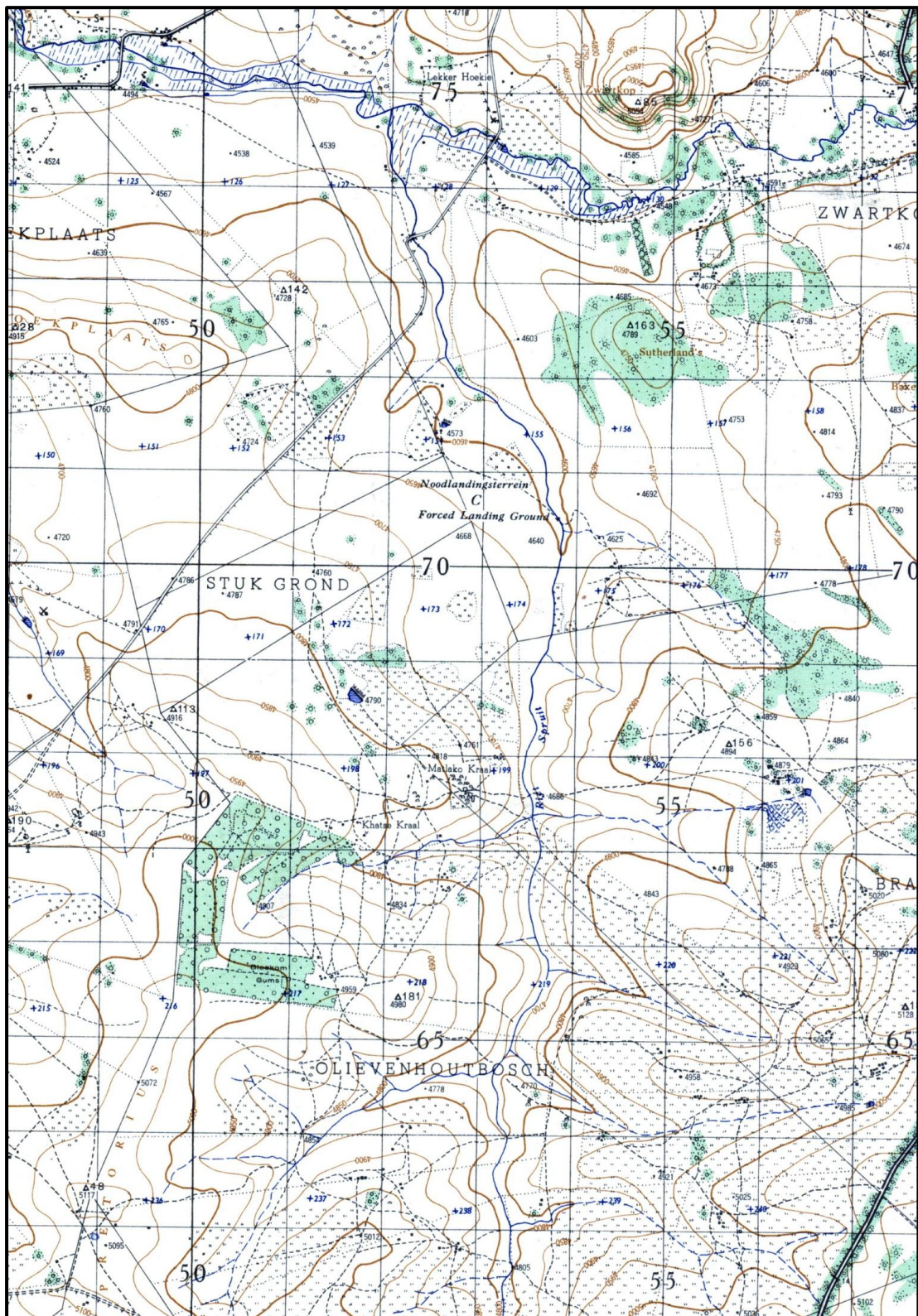


Fig. 7. The 1939 version of the 1:50 000 cadastral map (Map 2528CC: Chief Surveyor-General)

6.2 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.

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 component which gave rise to an urban environment.

The affected area falls within a transitional environmental region in the province known as the Bankenveld, situated between the Highveld in the south and the Pyramid Hills in the north. As a result of peculiar geo-processes, in particular the formation of the Bushveld Complex, a landscape comprising a latitudinal series of hills and valleys came into existence, which fostered early human settlement and later accommodated a series of communities and cultures.

Subsequent to the formation of the Magaliesberg, a continuous process of weathering, erosion and faulting resulted in the formation of neks (such as Saartjiesnek) and poorts (such as Hartbeespoort). Hartbeespoort was considered ideal for the construction of a dam to store water for irrigation by early white farmers, which eventually led to the construction of the present dam in the early 1920s.

An abundance of water, lush natural vegetation, large numbers of game, mild climate and the presence of quartzite for making tools and weapons were factors that attracted Stone Age communities to the area about half a million years ago. Evidence of periodic occupation since the Early Stone Age is found at the Wonderboom Hand-Axe Site close to Wonderboom Nek in Pretoria. This site is one of the richest Early Stone Age depositories in South Africa. Signs of occupation by Middle Stone Age groups have also been found on the Magaliesberg and along river courses. The Late Stone Age is also well represented in the area, probably because Late Stone Age communities preferred to occupy rock shelters like caves and cliffs. During the latter part of the Late Stone Age the Hartbeespoort Dam area was probably occupied from time to time by the ancestors of the San (Bushman) people. The larger region is known for its Stone Age sites, such as Rissik, Jubilee Shelter, Silkaatsnek, Elizabeth Shelter, Cave James, Serpent Quarry, Xanadu, Hope Hill Shelter and Kloofendal Shelter (Wadley 1988).

The expansion of early farmers, who, among other things, cultivated crops, raised livestock, made ceramic containers (pots), mined ore and smelted metals, occurred in this area between AD 400 and AD 1100 and brought the Early Iron Age (EIA) to South Africa. They settled in semi-permanent villages. These communities migrated from the Lowveld and coastal areas to the higher regions in the interior (such as the Bankenveld) during the latter part of the EIA. An important early settlement site with evidence of iron smelting and working is located near Broederstroom (provincial heritage site) in the Brits area (Huffman 1993). Sites were found within 100m of water, either on a riverbank or at the confluence of streams.

New groups succeeded these Early Iron Age communities about 600 years ago, speaking Bantu languages like Nguni and Tswana-Sotho. By that time, groups of Tswana and Ndebele speaking people were moving into the area, occupying the different hills and outcrops, using the ample resources such as grazing, game and metal ores. These Late Iron Age farmers were moving to new farming areas like the Highveld and Bankenveld, where, as a result of climate changes, grasslands provided enough grazing. Because of a lack of trees in many

areas, settlements were built with natural stone, mud and thatch. Remains of such stonewalled settlements and kraals can be found all over the Magaliesberg.

In 1821 a Nguni group led by Mzilikazi left KwaZulu-Natal and moved to the regions north of the Vaal River. Their numbers increased when they absorbed other refugees and conquered some of the indigenous communities. This was the origin of the Matabele (Ndebele) empire. Having established themselves originally in Sekhukhuneland (Mpumalanga and Limpopo provinces), they relocated to the Tshwane region in the early 1830s and conquered the local Sotho-, Tswana and Ndebele-speaking communities. It is possible that Mzilikazi established a major settlement, known as eKungwini, near Wonderboompoort. The Matabele relocated again to the Marico region (North-West Province) in the mid-1830s.

The *difaqane* coincided with the penetration of the interior of South Africa: travellers and hunters such as Cornwallis Harris and Andrew Smith, traders Robert Schoon and Andrew McLuckie, and missionaries James Archbell and Robert Moffat (Carruthers 2007).

The Matabele conquest was followed by permanent occupation by white settler-farmers in the mid-1840s, and hence few traces of Iron Age occupation by earlier communities have been left behind. Voortrekker farmers established the farms that today form the area around Meerhof. These farms were subdivided many times over in more recent years and more farmsteads were established. Gradually the entire area was divided into farms. However, it was only since the 1880s that these farms were formally surveyed and mapped, and when not only their names but also the names of rivers and other features became permanent fixtures on maps.

Limestone and dolomite, which has a wide use in the building industry, as flux in smelting operations, for water treatment, etc. is quarried on commercial scale in the Dolomite Series of Precambrian age, on, for example the farms Doornkloof and Skruveplaats to the south of Pretoria (Coetzee 1972). From archival sources it can be determined that it was used at an early stage of Pretoria's history, in the forts, jails, magistrate and other government offices of the ZAR. Unfortunately, all these sources refer to farms other than Mooiplaats and Erasmia, e.g. Schurveberg, Doornkloof, Witkoppies, Groenkloof and Olifantsfontein. Many of the archival documents also refer to the requests for permission to prospect for lime on farms and un-proclaimed land. The operations on the farms Mooiplaats and Erasmia are probably the remains of small-scale operations going back to the late 19th and early 20th centuries (Fig. 8).



Fig. 8. An old lime furnace and a settlement site in the larger region of the study area

A second category of sites found in the study area is classified as housing features (Fig. 8). These vary from what probably was an old farmstead (based on its size) to a large number of farm labourer houses. If any of these are linked to the lime burning activities is uncertain at

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

6.3 2 Historic period

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

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

Based on current information regarding the identified sites as well as in the surrounding area

- All sites dating to the historic period are judged to have **Grade III significance** and therefore would not prevent the proposed development from continuing after the implementation of the proposed mitigation measures and its acceptance by SAHRA.

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

Identified heritage resources	
<i>Category, according to NHRA</i>	<i>Identification/Description</i>
Formal protections (NHRA)	
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
General protections (NHRA)	
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)	None
public monuments or memorials (Section 37)	None
Other	
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. The following heritage features were identified:

- As no site, 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.

8. RECOMMENDATIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area of the proposed upgrading of the Rietspruit Outfall Sewer Pipeline.

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

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

- 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 heritage consultant so that an investigation and evaluation of the finds can be made.

9. REFERENCES

9.1 Data bases

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Heritage Atlas Database, Pretoria.
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9.2 Literature

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9.3 Maps and aerial photographs

1: 50 000 Topocadastral maps: 2528CC

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

1. Historic value			
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			
2. Aesthetic value			
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			
3. Scientific value			
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			
4. Social value			
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			
5. Rarity			
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			
6. Representivity			
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.			
7. Sphere of Significance			
	High	Medium	Low
International			
National			
Provincial			
Regional			
Local			
Specific community			
8. Significance rating of feature			
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.

APPENDIX 3. SPECIALIST COMPETENCYJohan (Johnny) van Schalkwyk

J A van Schalkwyk, D Litt et Phil, heritage consultant, has been working in the field of heritage management for more than 30 years. Based at the National Museum of Cultural History, Pretoria, he has actively done research in the fields of anthropology, archaeology, museology, tourism and impact assessment. This work was done in Limpopo Province, Gauteng, Mpumalanga, North West Province, Eastern Cape, Northern Cape, Botswana, Zimbabwe, Malawi, Lesotho and Swaziland. Based on this work, he has curated various exhibitions at different museums and has published more than 60 papers, many in scientifically accredited journals. During this period he has done more than 2000 impact assessments (archaeological, anthropological, historical and social) for various government departments and developers. Projects include environmental management frameworks, road-, pipeline-, and power line developments, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.