

**Cultural heritage impact assessment report for  
THE DEVELOPMENT OF THE PROPOSED ERMELO RING ROAD,  
MPUMALANGA PROVINCE**

**CULTURAL HERITAGE IMPACT ASSESSMENT REPORT FOR THE DEVELOPMENT OF THE PROPOSED ERMELO RING ROAD, MPUMALANGA PROVINCE**

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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  
January 2014

## **EXECUTIVE SUMMARY**

### **CULTURAL HERITAGE IMPACT ASSESSMENT REPORT FOR THE DEVELOPMENT OF THE PROPOSED ERMELO RING ROAD, MPUMALANGA PROVINCE**

The South African National Roads Agency SOC Limited, as the custodian of all national roads, proposes to construct a new ring road or bypass around the town of Ermelo in Mpumalanga Province, in order to improve the desired mobility and safety of the existing road network in Ermelo.

The town of Ermelo is located along three major national routes; the N2, N11, and N17. The N17 follows an east-west alignment through the town and links Gauteng (Johannesburg) in the west to Swaziland at the Oshoek border post in the east. The N11 follows a north-south alignment through the town and links with Ladysmith, New Castle (outside the district), Volksrust, Amersfoort, and Hendrina towards the N4. The N2 joins the town from the south east from Piet Retief and the KZN north coast, where it terminates and links up with either the N17 (east-west), or the N11 (north-south). SANRAL is responsible for maintaining, protecting and enhancing the functional integrity of these national routes as Class 1 mobility spines.

All the above routes are important freight corridors for the transportation of timber, agricultural produce and coal. They also carry commuters, private and tourism traffic. As a result of this traffic composition, and the increasing number of vehicles travelling on these roads through the town of Ermelo, the desired mobility and road safety can no longer be maintained. SANRAL is therefore investigating options to provide long-term mobility for through traffic within the context of the town's spatial planning, environmental constraints, the coal mining history and future planning.

AECOM SA (Pty) Ltd has been appointed by SANRAL to investigate these options and to come up with the most technically and environmentally feasible route around the town. In turn, Interdesign Landscape Architects (ILA) has been commissioned by AECOM on behalf of SANRAL to undertake the Environmental Impact Assessment Process for the proposed new Ermelo Ring Road in Ermelo, Mpumalanga Province.

In accordance with Section 38 of the NHRA, an independent heritage consultant was therefore appointed by Interdesign Landscape Architects 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 it is planned to develop the proposed ring road.

This study has revealed that a limited variety of heritage resources occur in the larger region as well as in the study area self. Therefore there is a possibility that the proposed development would have an impact on heritage resources.

- Alternative 3 (Green Route) will pass in close proximity what is known as the Brickyard Cemetery, located on the eastern side of town. This feature is viewed to have a high significance on a regional level and should be avoided.
- Alternative 1 (Red Route) will pass over the decommissioned railway line. This feature is viewed to have low significance and would not prevent the proposed development from going forward.
- Alternative 4 (Purple Route) will pass through the business district of Ermelo. There is therefore possibility that it might impact features that forms part of the cultural landscape, such as memorials, entrance gates, avenues of trees, as well as buildings.

Therefore, from a heritage point of view we recommend that the proposed development can continue, on condition of acceptance of the mitigation measures.

- We request 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  
January 2014

**TECHNICAL SUMMARY**

<b>Property details</b>	
Province	Mpumalanga
Magisterial district	Ermelo
District municipality	Gert Sibande
Topo-cadastral map	2629BD, 2629DB, 2630AC, 2630CA
Closest town	Ermelo
Farm name & no.	Various

<b>Development criteria in terms of Section 38(1) of the NHR Act</b>	<b>Yes/No</b>
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	Development of ring road to alleviate traffic congestion in the town of Ermelo
Project name	Ermelo Ring Road

<b>Land use</b>	
Previous land use	Farming (grazing; agricultural fields)/urban
Current land use	Farming (grazing; agricultural fields)/urban

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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
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
BP	Before Present
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 IMPACT ASSESSMENT REPORT FOR THE DEVELOPMENT OF THE PROPOSED ERMELO RING ROAD, MPUMALANGA PROVINCE**

## **1. INTRODUCTION**

The South African National Roads Agency SOC Limited, as the custodian of all national roads, proposes to construct a new ring road or bypass around the town of Ermelo in Mpumalanga Province, in order to improve the desired mobility and safety of the existing road network in Ermelo. This in line with one of its major functions, as provided in the South African National Roads Agency Limited and National Roads Act of 1998, to provide, establish, erect and maintain facilities on national roads for the convenience and safety of road users.

The town of Ermelo is located along three major national routes; the N2, N11, and N17. The N17 follows an east-west alignment through the town and links Gauteng (Johannesburg) in the west to Swaziland at the Oshoek border post in the east. The N11 follows a north-south alignment through the town and links with Ladysmith, New Castle (outside the district), Volksrust, Amersfoort, and Hendrina towards the N4. The N2 joins the town from the south east from Piet Retief and the KZN north coast, where it terminates and links up with either the N17 (east-west), or the N11 (north-south). SANRAL is responsible for maintaining, protecting and enhancing the functional integrity of these national routes as Class 1 mobility spines.

All the above routes are important freight corridors for the transportation of timber, agricultural produce and coal. They also carry commuters, private and tourism traffic. As a result of this traffic composition, and the increasing number of vehicles travelling on these roads through the town of Ermelo, the desired mobility and road safety can no longer be maintained. SANRAL is therefore investigating options to provide long-term mobility for through traffic within the context of the town's spatial planning, environmental constraints, the coal mining history and future planning.

AECOM SA (Pty) Ltd has been appointed by SANRAL to investigate these options and to come up with the most technically and environmentally feasible route around the town. In turn, Interdesign Landscape Architects (ILA) has been commissioned by AECOM on behalf of SANRAL to undertake the Environmental Impact Assessment Process for the proposed new Ermelo Ring Road in Ermelo, Mpumalanga Province.

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.

Therefore, in accordance with Section 38 of the NHRA, an independent heritage consultant was appointed by Interdesign Landscape Architects 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 it is planned to develop the proposed ring road.

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 ring road.

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;
- Recommend mitigation measures to ameliorate any negative impacts on areas of archaeological, cultural or historical importance.

### 2.2 Limitations

The investigation has been influenced by the following factors:

- The unpredictability of 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 2 & 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 – see the list of reference in Section 8 below.

- 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 (CS-G)* and the *National Archives of South Africa (NASA)* 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 was obtained from these sources.

#### 4.2.2 Field survey

The site survey was done on 1 & 2 February 2014. The area that had to be investigated was identified by **Interdesign Landscape Architects** by means of maps and .kmz files. The latter format files were first converted into .kml files and thereafter in .gpx files. This last format produced waypoints as well as tracks that were loaded onto a handheld GPS instrument and then used to determine the alternative routes during the field survey.

A surprisingly large section of the different alternative routes could be accessed by means of roads or farm tracks. In areas where these were not available, the track was completed on foot. As will be noted from the track log presented below (Fig. 1) a few areas were not accessed as it were fenced off and gates were locked, with warning signs not to enter these areas.

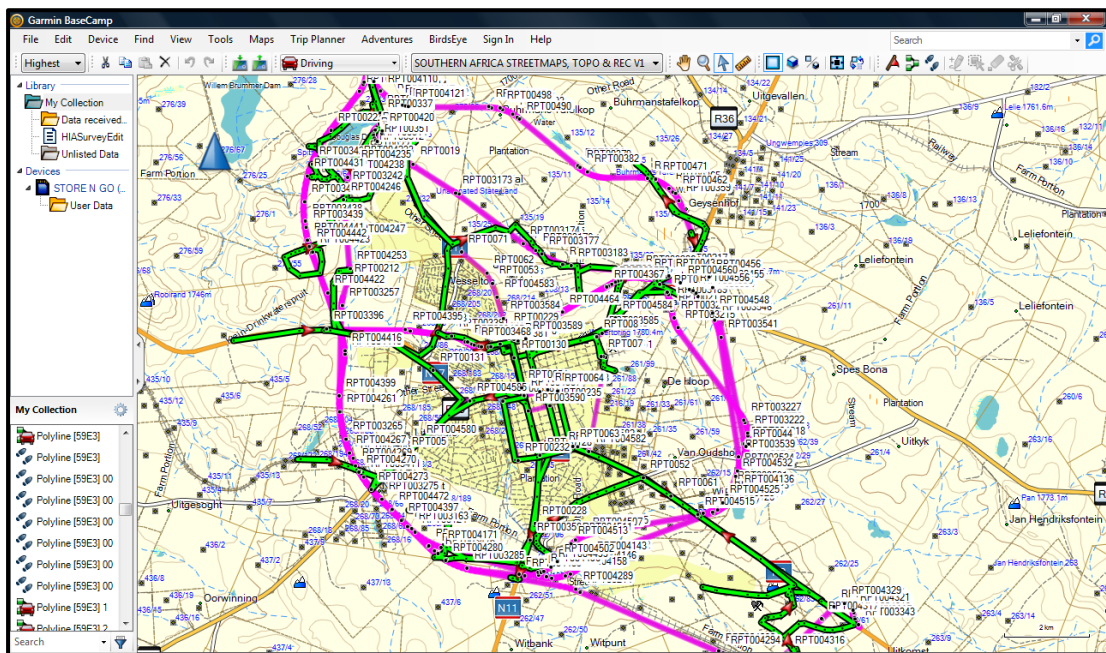


Fig. 1. Track log of the field survey.

#### 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. DESCRIPTION OF THE AFFECTED ENVIRONMENT

### 5.1 Project description

A complete ring road which excludes the north eastern link is SANRAL's preferred route (identified as Alternative 3). Alternative 3 is a complete ring combination of Alternatives 1 and 2 as explained below, but excludes the north-eastern link underlain by mining activities. The total length of the route is approximately 34 km. The western section from N11 North over N17 to N11 South is similar to Alternative 2. Route B of Alternative 3 is similar to Alternative 2 except that it continues over the N17 East and Road R65 to link up with the N2 on the eastern side of Ermelo. Slip lanes on N17 East provide limited access to the ring road, with an access interchange further to the west. A farm boundary is followed south of N17 East to reduce the impact on land divisions. The link between N2 and N11 South passes in between Nederland Park Extensions 32 and 34. This provides a more affordable bridge crossing over the Transnet Rail and Road System.



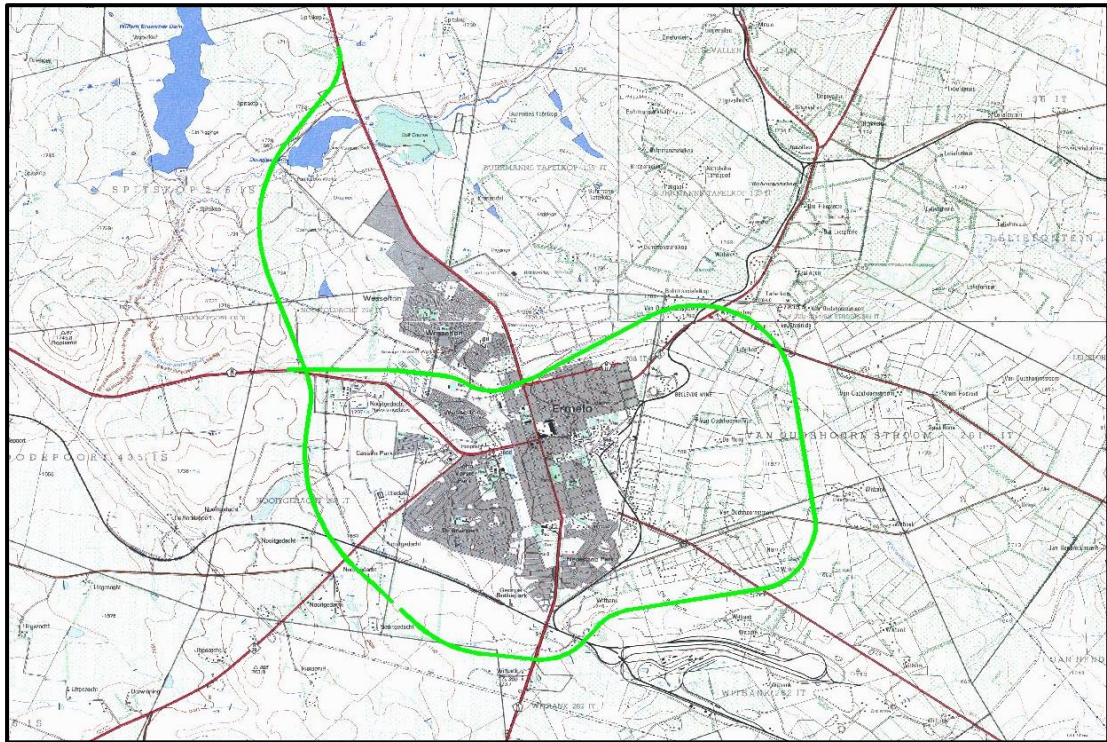


Fig. 2. Layout of Alternative 3.



Fig. 3. Views over Alternative 3.



Alternative 1: (consisting of Route A-2 and Route C, as indicated by the red alignment in Map 1) is a complete ring road around Ermelo measuring approximately 35 km in length. The ring provides a direct connection to the entire major networks such being the N11, N17, N2, and the R39 & R65. The ring commences at the N11 just to the north of the Ermelo Golf Course, it continues in a southerly direction passing below the Douglas dam and through the Phumula residential township. From there it continues southward crossing the N17, the railway line and the R39 before intersecting the N11 at the proposed George Botha Park. From here, the alignment shifts northwards and passes east of the Nederland Park residential extensions 32 and 34 before intersecting the N2. This route however requires an expensive skew bridge crossing over the Transnet Rail and Road system. This portion of the alignment makes up Route A-2. From here the ring skirts northward around the eastern boundary of Ermelo. It crosses the R65 before intersecting the N17 on the eastern side of Ermelo and continues northwards in close proximity to the north - eastern boundary of the Ermelo Airport. The ring is complete where it joins the N11 directly opposite of the Ermelo Golf course. The route section C between the N 11 North and N17 East is heavily underlain by previous coal mines at a depth of 30 – 60m. Department Mineral Resources require a safety factor of 2.0 before accepting new highways over undermined areas, which cannot be guaranteed for all the undermined areas around Ermelo. An alternative 15 km Route D, is shown between N11 and N17 and was investigated as a possible solution. Recent comments received from Golf View Mining however indicated that Route D is also crossing undermined areas as well as proposed mining concession areas, thereby rendering both routes C and D unviable.

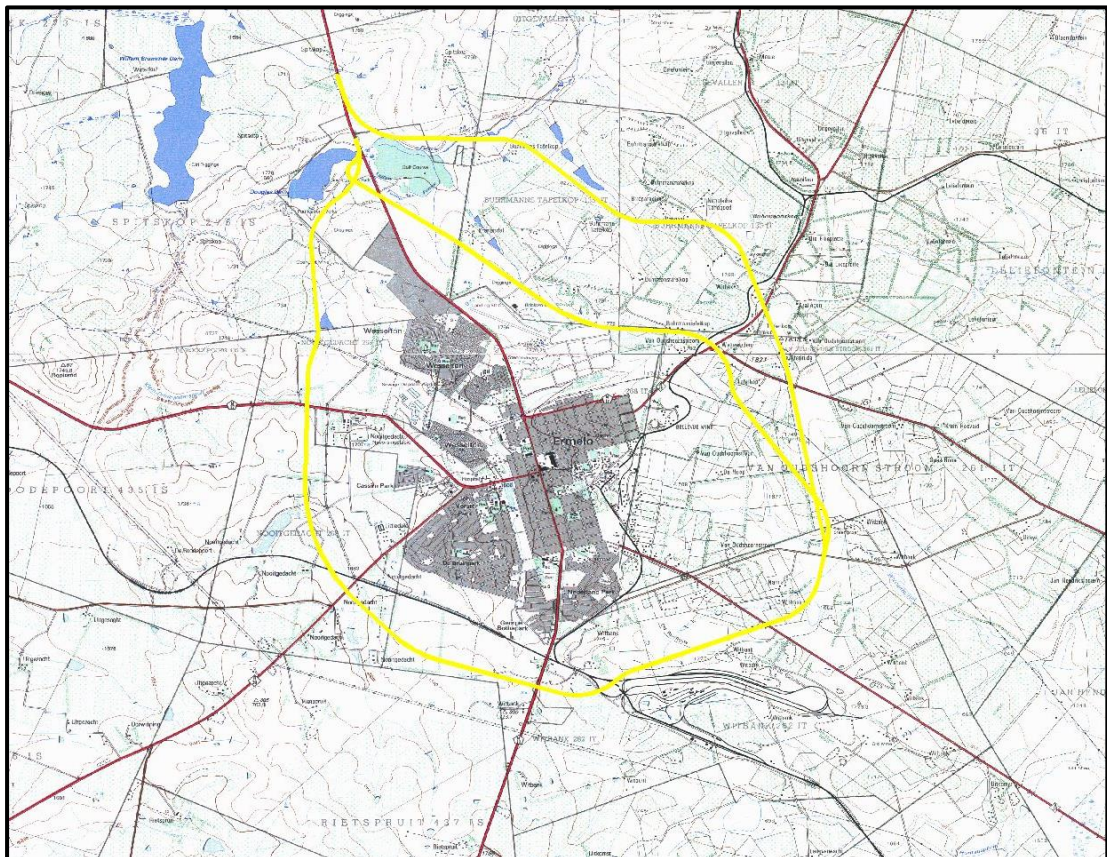


Fig. 4. Layout of Alternative 1.



Fig. 5. Views over Alternative 1.

Alternative 2: (consists of Route A-1, in conjunction with A-3 and Route B, as indicated by the blue alignment in Map 1. This alternative measures 31 km and provides a western alignment similar to the A-2 alignment in Alternative 1. However, this western alignment is longer and does not pass through the Phumula and Nederland Park X32 and X34 residential townships. The western bypass commences at the N11 north of the Ermelo Golf course. It then continues in a southerly direction toward the N17 but following an alignment, which passes the Douglas dam to the north. It intersects the N17 continuing southward intersecting the railway line and R39. After it passes through the proposed George Botha Park, it intersects the N11, and then continues in an easterly direction close to the existing railway alignment to link up with the N2. This alternative does not provide an eastern by pass, but Route B provides access into Ermelo through the N17 East-West link. This link passes through the town directly north of Ermelo central continuing westward through the Wesselton township to intersect the N17 to the west of the town directly north-west of the research farm. No direct link to the R65 is provided in this proposal.



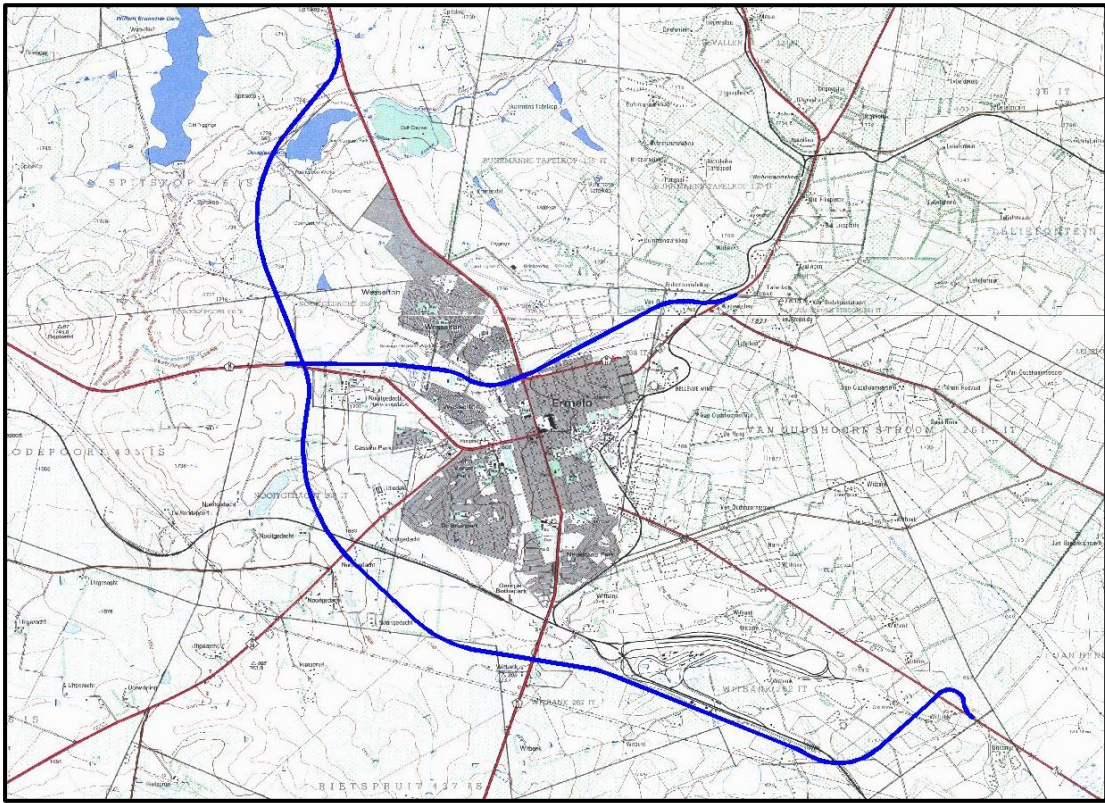


Fig. 6. Layout of Alternative 2.



Fig. 7. Views over Alternative 2.



A fourth alternative (Alternative 4) proposed by Interested and Affected Parties (I&APs) involves the upgrade of the existing road network to accommodate through traffic in Ermelo. As shown in the map below, three variations are being considered, which include: maintaining the existing routes with only minor improvements at key intersections to enhance traffic flow; redefining the N11 to run along Border Street so that through traffic is directed around the CBD; or developing one-way street pairs in the north/south direction as an alternative to the current routing of the N11, using a combination of Church Street, Kleynhans Street and Border Street. No major road upgrading or new road links are considered as part of Alternative 4. Traffic counts and operational analyses of critical intersections will be conducted to assess the impact of the possible rerouting of through traffic and to provide clarity on the viability and prioritisation of the variations that have been developed thus far. Havenga Road between N17 East via N2 up to N11 South already exists as a limited truck bypass on the eastern side of Ermelo.

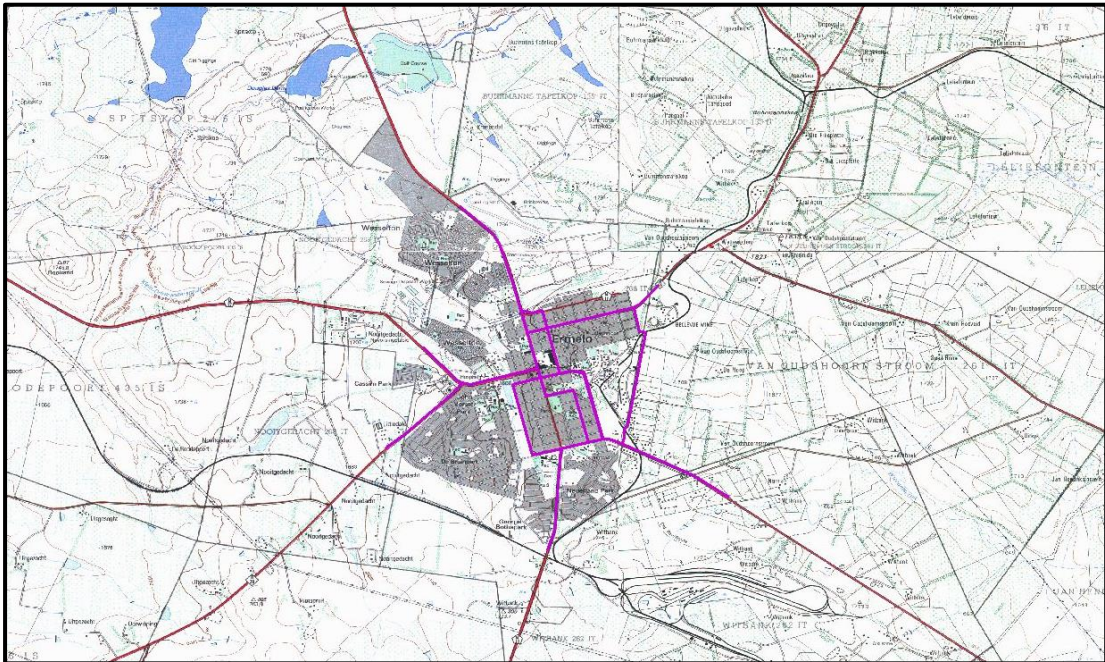


Fig. 8. Layout of Alternative 4.





Fig. 9. Views over Alternative 4.

## 5.2 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 larger region essentially consist of two components. The first is a rural area in which the human occupation is made up of a pre-colonial (Stone Age and Iron Age) and the second is a much later colonial (farmer) and urban component.

### 5.2.1 Prehistoric period

#### *Stone Age*

Very little habitation of the highveld area took place during Stone Age times. Tools dating to the Early Stone Age period are mostly found in the vicinity of larger watercourses, e.g. the Vaal River, or in sheltered areas such as the Magaliesberg or down in the Lowveld areas where the climate was warmer. During Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), people became more mobile, occupying areas formerly avoided. The MSA is a technological stage characterized by flakes and flake-blades with faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. Open sites were still preferred near watercourses.

Later Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Some sites are known to occur in the region. These are small rock shelters found in the sandstone cliffs near rivers and are located to the east and north of the study area. Some of these even contain rock paintings (Van Schalkwyk 2003a, 2003b). The region surrounding Chrissiesmeer, to the north-east of the study area, is well-known for the fact that some San people occupied it up to historic times (Potgieter 1955). Similarly, San people used to occupy small rock shelters in valleys north of the town of Breyten.

Although small quantities of stone tools are found in some of these shelters, some also contain iron implements, indicating their continued use possibly into early historic times.

The low density of occupation of the region during Stone Age times can probably be attributed to the cold winters that are common in the region, as well as the lack of suitable rock shelters that could be used for staying in.

In addition, in the Ermelo region the geology is made up of arenite, with some dolerite intrusions. Neither of these two rock types (respectively sedimentary and mafic in origin) are suitable for the making of stone tools, limiting occupation to areas close to rivers where more suitable material that were washed down, could be obtained.

### *Iron Age*

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

The occupation of the larger geographical area (including the study area) did not start much before the 1500s. By the 16th century things changed, with the climate becoming warmer and wetter, creating condition that allowed Late Iron Age (LIA) farmers to occupy areas previously unsuitable, for example the treeless plains of the Free State and the Mpumalanga highveld.

This wet period came to a sudden end sometime between 1800 and 1820 by a major drought lasting 3 to 5 years. The drought must have caused an agricultural collapse on a large, subcontinent scale.

This was also a period of great military tension. Military pressure from Zululand spilled onto the highveld by at least 1821. Various marauding groups of displaced Sotho-Tswana moved across the plateau in the 1820s. Mzilikazi raided the plateau extensively between 1825 and 1837. The Boers trekked into this area in the 1830s. And throughout this time settled communities of Tswana people also attacked each other.

As a result of this troubled period, Sotho-Tswana people concentrated into large towns for defensive purposes. Because of the lack of trees they built their settlements in stone. These stone-walled villages were almost always located near cultivatable soil and a source of water. Such sites are known to occur near Kriel (e.g. Pelsler, et al 2006) and to the south (Taylor 1979). An excellent example is the stone walled sites located on Tafelkop located to the northwest of Ermelo.

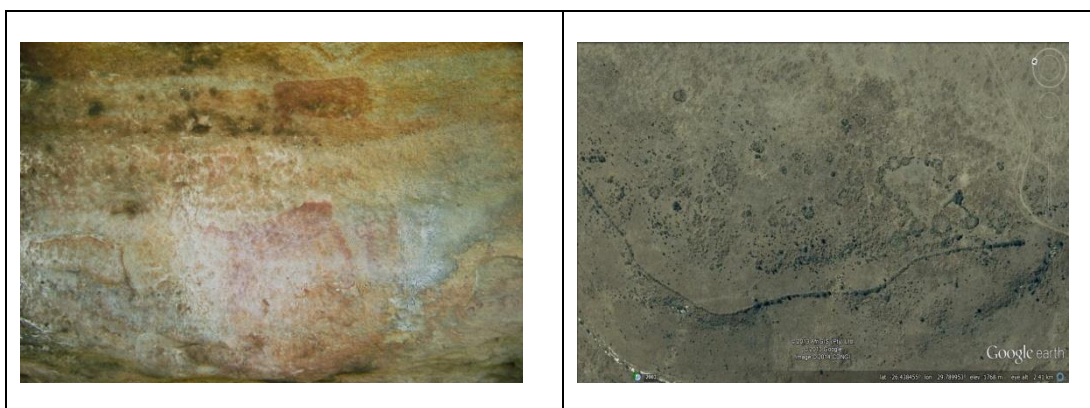


Fig. 10. Rock art north and Late Iron Age sites west of the study area.



### 5.2.2 Historic period

White settlers moved into the area during the first half of the 19<sup>th</sup> century. They were largely self-sufficient, basing their survival on cattle/sheep farming and hunting. Few towns were established and it remained an undeveloped area until the discovered of coal and later gold. The establishment of the NZASM railway line in the 1880s, linking Pretoria with Lourenço Marques (Maputo) and the world at large, brought much infra-structural and administrative development to the area. This railway line also became the scene of many battles during the Anglo-Boer War and after the battle of Bakenlaagte (30 October 1901) the Clewer station served as hospital for the wounded British soldiers. Closer to the study area, the Battle of Lake Chrissie took place on 6 February 1901. A line of block houses were erected along what was to become the R65 road, as this was the preferred route towards the coast.

The town of Ermelo was established in 1879 on the farm Nooitgedacht. This was the result of the fact that the region has become a big stopover for people travelling between the coast and the gold fields in on the Witwatersrand. Later it was decided to establish a church in the region, which quickly led to the development of the town. The area also became known for the agricultural research station, named Nooitgedacht, where, for example, the Nooitgedachter horse breed was bred for the first time.

During the Anglo-Boer War (1899-1902) the town of Ermelo was burned down by the British forces. Apart from the various churches and government buildings, only one house was left standing (Praagh 1906).

The railway line from Johannesburg eastward was completed up to Ermelo 1905 and from there eastwards towards Piet Retief in 1911.

### 5.4 Identified heritage sites

Based on the above sources and the field visit, the following heritage sites, features and objects of cultural significance were identified in the proposed development area (Fig. 13):

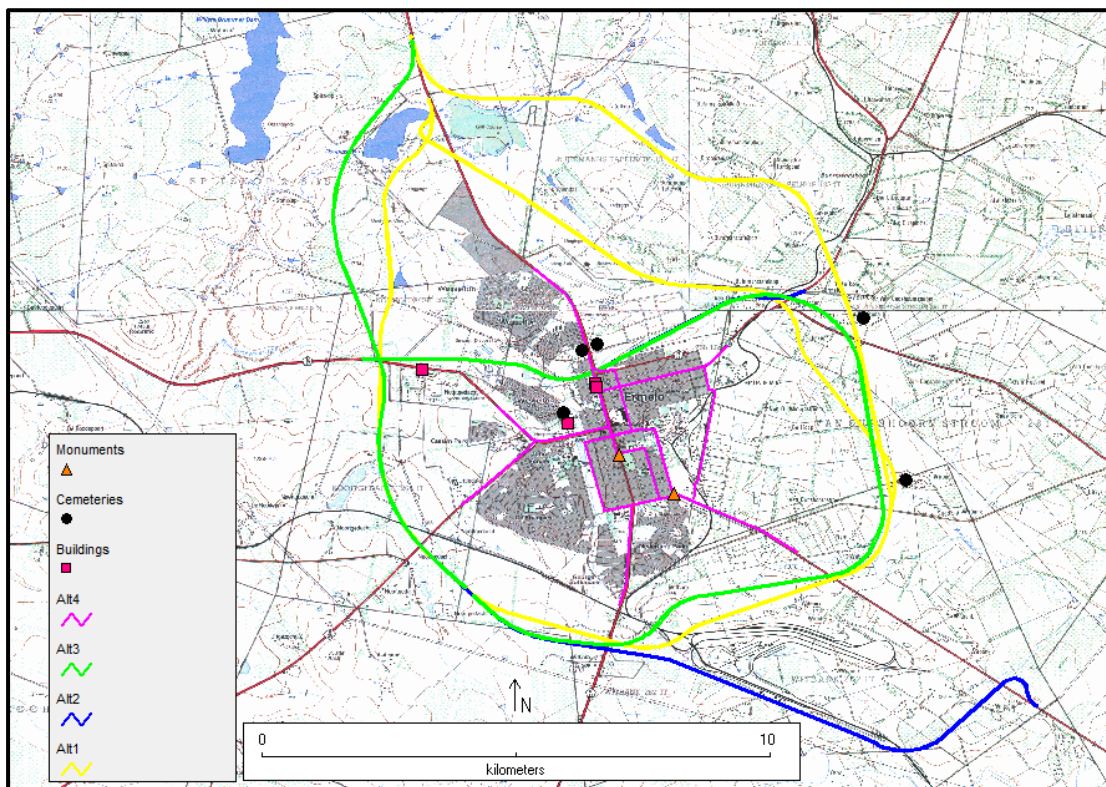


Fig. 11. Map indicating where sites are located.

### Stone Age

- Areas of high sensitivity – none.

It is doubtful if any undisturbed sites or features dating to any phase of the Stone Age would be found within any of the proposed route alternatives. This evaluation is supported by the rareness of sites dating to the Stone Age in the larger region.

- Mitigation - should any sites, features or object of cultural significance be exposed during excavation activities, all work in the region of the find must stop immediately and a heritage consultant should be contacted to investigate and evaluate the finds.

### Iron Age

- Areas of high sensitivity – none.

It is doubtful if any undisturbed sites or features dating to the Iron Age would be found within any of the route alternatives. This evaluation is supported by rareness of sites dating to the Iron Age in the larger region.

- Mitigation - should any sites, features or object of cultural significance be exposed during excavation activities, all work in the region of the find must stop immediately and a heritage consultant should be contacted to investigate and evaluate the finds.

### Burial sites

- Areas of high sensitivity – sporadically all over.

Although some of these sites go right up to the outside border of the proposed route alternative 3 and 1, they are all clearly visible and can therefore easily be avoided.

- Mitigation – as burial places are highly sensitive areas, it is recommended that they are demarcated off with danger tape, allowing a sufficient large enough buffer zone (e.g. 5 metres from the outside of the burial place) around it and declaring that as a no-go zone.
- Mitigation - should graves be exposed during excavation activities, all work in the region of the find must stop immediately and a heritage consultant should be contacted to investigate and evaluate the finds.



Fig. 12. Formal cemeteries in town.

### Cultural landscapes

- Areas of high sensitivity – a number of features that forms part of the cultural landscape, such as memorials, entrance gates, avenues of trees occur sporadically all over.

Many of these features are located on the borders of the route alternatives. Fortunately, these features are clearly visible and it would be easy to avoid them. Alternative 1 and 3 would pass close to the area known as the brickyards. In 1955, the Witwatersrand Brick and Tile Co. Ltd. bought a piece of land and started the Ermelo Brick Quarries (Pty) Ltd (Lombard 1980:105). Although the brickyard is still operating, their labourers were all relocated to the formal township on the eastern outskirts of Ermelo town. From this it is deduced that the settlements are younger than 60 years and, as all of it has been demolished to ground level, it is viewed to have low significance.

- Mitigation - should any sites, features or object of cultural significance be exposed during excavation activities, all work in the region of the find must stop immediately and a heritage consultant should be contacted to investigate and evaluate the finds.
- Mitigation - surface features such as memorials, although illegal, should be respected and care should be taken to avoid damaging them. It is the easiest to demarcate them with danger tape, allowing a sufficient large enough buffer zone (e.g. 2 metres from the centre point) around it and declaring that as a no-go zone. If that is not possible, the feature must be photographed in situ, removed for the duration of construction to a safe storage facility and afterwards returned to its original position.



Fig. 13. Abandoned settlements in the Brickyard region.

### Built environment

- Areas of high sensitivity - the proposed Alternative 4 traverse the historic Ermelo town core.

The proposed route alternative might have an impact on heritage features such as pavements, water furrows, postal boxes, trees, etc. It is possible that some buried features may be uncovered during upgrading of the roads.

- Mitigation – upgrading of the road through the historic core of the town should be monitored by a heritage practitioner. Although this is not required on a full time basis, the project manager/ECO must be able to stop the work if anything such as refuse dumps, water furrows, etc. are uncovered in order to get a heritage consultant to investigate and evaluate the finds.







Fig. 14. Views over Alternative 4.

### Industrial heritage

- Areas of high sensitivity – old railway lines, telephone lines and power lines occur sporadically all over.

Many of these features, e.g. telephone lines, are located on the border of existing roads where the proposed route alternatives would cross. Alternative 3 and 1 would cross the original railway bed. Fortunately, very little remains of this feature as the sleepers and tracks have been removed when the new shunting yards were constructed in the 1970s. In fact, it is only the gravel bed that remains and the line is now only indicated on the old (1968) version of the 1:50 000 cadastral map. This feature is viewed to have low significance.

- Mitigation - if work is taking place in regions where such lines or bridges still exists, care should be taken to avoid causing damage.



Fig. 15. Nooitgedacht farm and the track of the old railway line.

## 6. SITE SIGNIFICANCE AND ASSESSMENT

### 6.1 Heritage assessment criteria and grading



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

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

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

## 6.2 Statement of significance

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. 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 (or Grade I – III).

- In terms of Section 7 of the NHRA, no sites that are classified by SAHRA as to be Grade I significance are known to occur in the study area or its immediate vicinity.
- In terms of Section 7 of the NHRA, all the sites which have previously been classified as National sites under the National Monuments Act, Act 28 of 1969, are now viewed as Provincial heritage sites and have Grade II significance. Fortunately, none of these are located within the road reserve.
- In terms of Section 7 of the NHRA, all other sites known to occur in the study area or its vicinity and which is not included in the above two categories, are viewed to be Grade III significance. Fortunately, none of these are located within the road reserve.

## 6.3 Impact assessment

Based on current knowledge and understanding of the area, one can evaluate the heritage sites in the area as follows:

Environmental Parameter	<b>Pre-colonial: Stone Age sites</b> No sites or features dating to any phase of the Stone Age were identified in the study area
Issue/Impact/Environmental Effect/Nature	No sites known. Their potential and significance therefore unknown. The impact will be the physical disturbance of the material and its context. Impact will be focused on a particular node, i.e. if the trench cut through a site.
Extent	Local
Probability	Can occur
Reversibility	Irreversible
Magnitude	High
Duration	Permanent
Significance Rating	Sites have a medium significance on a region level – viewed as NHRA Grade III sites. Distinguish from find

	spots, which have low significance. Rock art sites are viewed to have high significance on a regional level – viewed as NHRA Grade II sites.
Mitigation measures	All of these sites should be avoided as far as possible. Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. Sites that cannot be avoided should be excavated in full by an archaeologist qualified in Stone Age archaeology.

Environmental Parameter	<b>Pre-colonial: Iron Age sites</b> No sites or features dating to any phase of the Iron Age were identified in the study area
Issue/Impact/Environmental Effect/Nature	No sites known. Their potential and significance therefore unknown. The impact will be the physical disturbance of the material and its context. Impact will be focused on a particular node, i.e. if the trench cut through a site.
Extent	Local
Probability	Can occur
Reversibility	Irreversible
Magnitude	High
Duration	Permanent
Significance Rating	Sites have a high significance on a region level – viewed as NHRA Grade III sites.
Mitigation measures	All of these sites should be avoided as far as possible. Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. Sites that cannot be avoided should be excavated in full by an archaeologist qualified in Iron Age archaeology.

Environmental Parameter	<b>Historic Period – farmsteads</b> No sites or features dating to the historic period were identified in the study area.
Issue/Impact/Environmental Effect/Nature	The various features are subject to damage. Easier to identify and therefore easier to avoid. Variety of interconnected elements makes up the whole. Impact on part therefore implies an impact on the whole
Extent	Local
Probability	Unusual but possible
Reversibility	Reversible with human intervention
Magnitude	Moderate
Duration	Medium term
Significance Rating	Sites have a medium significance on a region level – viewed as NHRA Grade III sites.
Mitigation measures	All of these sites should be avoided as far as possible. Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. In exceptional cases mitigation can be implemented after required procedures have been followed.

Environmental Parameter	<b>Historic Period - cemeteries</b> A number of such sites have been identified in the region. Fortunately, all are well-known and properly demarcated.
Issue/Impact/Environmental Effect/Nature	The various features are subject to damage. Easier to identify and therefore easier to avoid. Variety of interconnected elements makes up the whole. Impact on part therefore implies an impact on the whole
Extent	Local
Probability	Unusual but possible
Reversibility	Reversible with human intervention
Magnitude	Moderate
Duration	Medium term
Significance Rating	Sites have a medium significance on a region level – viewed as NHRA Grade III sites.
Mitigation measures	All of these sites should be avoided as far as possible. Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. In exceptional cases mitigation can be implemented after required procedures have been followed.

Environmental Parameter	<b>Historic Period – industrial heritage</b> A number of such sites have been identified in the region. Fortunately, all are well-known and properly demarcated.
Issue/Impact/Environmental Effect/Nature	Different features are subject to damage. Some might be unique – no alternatives or second examples. Easy to identify and therefore easy to avoid.
Extent	Site
Probability	Unusual but possible
Reversibility	Reversible with human intervention
Magnitude	Marginal loss of resources
Duration	Medium term
Significance Rating	Sites have a medium significance on a region level – viewed as NHRA Grade III sites.
Mitigation measures	All of these sites should be avoided as far as possible. Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. In exceptional cases mitigation can be implemented after required procedures have been followed, but only as last case scenario.

Environmental Parameter	<b>Historic Period – urban environment</b> A number of such sites have been identified in the region. Fortunately, all are well-known and properly demarcated.
Issue/Impact/Environmental Effect/Nature	Different features are subject to damage. Some might be unique – no alternatives or second examples. Easy to identify and therefore easy to avoid.
Extent	Site

Probability	Unusual but possible
Reversibility	Reversible with human intervention
Magnitude	Marginal loss of resources
Duration	Medium term
Significance Rating	Sites have a medium significance on a region level – viewed as NHRA Grade III sites.
Mitigation measures	All of these sites should be avoided as far as possible. Mitigation should take the form of isolating known sites and declare them as no-go zones with sufficient large buffer zones around them for protection. In exceptional cases mitigation can be implemented after required procedures have been followed, but only as last case scenario.

## 7. CONCLUSIONS

The South African National Roads Agency SOC Limited, as the custodian of all national roads, proposes to construct a new ring road or bypass around the town of Ermelo in Mpumalanga Province, in order to improve the desired mobility and safety of the existing road network in Ermelo.

In accordance with Section 38 of the NHRA, an independent heritage consultant was therefore appointed by Interdesign Landscape Architects 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 it is planned to develop the proposed ring road.

This study has revealed that a limited variety of heritage resources occur in the larger region as well as in the study area self. Therefore there is a possibility that the proposed development would have an impact on heritage resources.

- Alternative 3 (Green Route) will pass in close proximity what is known as the Brickyard Cemetery, located on the eastern side of town. This feature is viewed to have a high significance on a regional level and should be avoided.
- Alternative 1 (Red Route) will pass over the decommissioned railway line. This feature is viewed to have low significance and would not prevent the proposed development from going forward.
- Alternative 4 (Purple Route) will pass through the business district of Ermelo. There is therefore possibility that it might impact features that forms part of the cultural landscape, such as memorials, entrance gates, avenues of trees, as well as buildings.

Therefore, from a heritage point of view we recommend that the proposed development can continue, on condition of acceptance of the mitigation measures.

- We request 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.



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### **8.3 Maps and aerial photographs**

1: 50 000 Topocadastral maps  
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.