

**Cultural heritage impact assessment for
THE PLANNED IMPROVEMENT OF THE NATIONAL ROUTE N2, KM 30
(VERZAMELING) TO KM 60.0 (LEIDEN), GERT SIBANDE DISTRICT
MUNICIPALITY, MPUMALANGA PROVINCE**

CULTURAL HERITAGE ASSESSMENT FOR THE PLANNED IMPROVEMENT OF THE NATIONAL ROUTE N2, KM 30 (VERZAMELING) TO KM 60.0 (LEIDEN), GERT SIBANDE DISTRICT MUNICIPALITY, MPUMALANGA PROVINCE

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October 2022

Submission of the report:

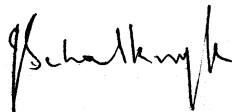
It remains the responsibility of the client to submit the report to the South African Heritage Resources Agency (SAHRA) or relevant Provincial Heritage Resources Agency (PHRA) by means of the online SAHRIS System.

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Specialist competency:

Johan A van Schalkwyk, D Litt et Phil, heritage consultant, has been working in the field of heritage management for more than 40 years. Originally 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 Province, Northern Cape Province, Botswana, Zimbabwe, Malawi, Lesotho and Swaziland. Based on this work, he has curated various exhibitions at different museums and has published more than 70 papers, most 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, roads, pipeline-, and power line developments, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.



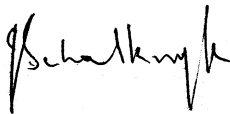
J A van Schalkwyk
Heritage Consultant
October 2022

SPECIALIST DECLARATION

I, J A van Schalkwyk, as the appointed independent specialist, in terms of the 2014 EIA Regulations (as amended), hereby declare that I:

- I act as the independent specialist in this application;
- I perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 (as amended) and any specific environmental management Act;
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting the specialist report relevant to this application, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I have no vested interest in the proposed activity proceeding;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I have ensured that information containing all relevant facts in respect of the specialist input/study was distributed or made available to interested and affected parties and the public and that participation by interested and affected parties was facilitated in such a manner that all interested and affected parties were provided with a reasonable opportunity to participate and to provide comments on the specialist input/study;
- I have ensured that the comments of all interested and affected parties on the specialist input/study were considered, recorded and submitted to the competent authority in respect of the application;
- all the particulars furnished by me in this specialist input/study are true and correct; and
- I realise that a false declaration is an offence in terms of regulation 48 and is punishable in terms of section 24F of the Act.

Signature of the specialist



J A van Schalkwyk
October 2022

EXECUTIVE SUMMARY

CULTURAL HERITAGE ASSESSMENT FOR THE PLANNED IMPROVEMENT OF THE NATIONAL ROUTE N2, KM 30 (VERZAMELING) TO KM 60.0 (LEIDEN), GERT SIBANDE DISTRICT MUNICIPALITY, MPUMALANGA PROVINCE

As part of on-going process, it is proposed to improve a section of the N2 national route in Mpumalanga Province. In order to comply with relevant legislation, the agency managing this road, SANRAL, commissioned an environmental impact assessment. This report deals with issues pertaining to heritage resources.

In accordance with Section 38 of the NHRA, an independent heritage consultant was therefore appointed by **Chameleon Environmental Consultants** to conduct a Heritage Impact Assessment (HIA). The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which the It is proposed to improve a section of the National Route N2, referred to as Section B, between Leiden (km 60.0) and Verzamelings (km 30,0) in the Gert Sibande District Municipality of Mpumalanga Province.

The cultural landscape qualities of the region essentially consist of two components. The first is a rural area in which the human occupation is made up of a limited pre-colonial (Stone Age and Iron Age) occupation and a much later colonial (farmer) component. The second component is an urban one consisting of a number of smaller towns, most of which developed during the last 150 years or less.

Identified sites:

- Burial sites:
 - (7.3.3.1 – 7.3.3.2) Two informal community burial sites, each of which contains at least more than 100 graves. These features are viewed to have high significance on a local level – Grade III.
- Old sandstone railway culverts:
 - (7.3.3.3 – 7.3.3.9) Seven old sandstone railway culverts were identified in close proximity of a section of the road. The culverts formed part of the original alignment of the railway line that was completed in 1911. The line fell into disuse when the new railway line was completed in 1975. These features are rated to have high significance on a regional level – Grade III.

Impact assessment:

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

- (7.3.3.1 – 7.3.3.2) Two informal burial sites. Both these sites are located at least 100 metres outside the border on the road reserve and it is therefore unlikely that it would be impacted on by the proposed improvement work
 - The significance weighting for the impact on the identified sites is rated as **low**.
 - If the burial places are retained, it should be fenced off for the duration of the road improvement, leaving a buffer zone of at least five metres from the outer edge of the graves. If the graves cannot be retained, it should be

relocated, but only on condition of following the correct procedures (see Appendix 5).

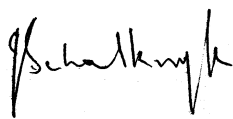
- (7.3.3.3 – 7.3.3.9) Old railway culverts. It is judged that some of these features, although located outside the road reserve fence, are located close enough to the road reserve that it might be impacted on if any work is undertaken in its vicinity. As this is a linear feature, it should be remembered that an impact on a single culvert is therefore an impact on the whole.
 - The significance weighting for the impact on the identified sites is rated as **low**.
 - It is recommended that these features are retained and that it is fenced off with danger tape if road improvement activities take place in its vicinity. If that is not possible and the culverts must be demolished, it should be documented in full prior to construction taking place.

Reasoned opinion as to whether the proposed activity should be authorised:

- From a heritage point of view it is recommended that the proposed development be allowed to continue, on condition of acceptance of the proposed mitigation measures.

Conditions for inclusion in the environmental authorisation:

- It is recommended that the burial sites are retained and it should be fenced off for the duration of the construction activities, leaving a buffer zone of at least five metres from the outer edge of the graves. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures.
- It is recommended that the sandstone culverts are retained and that it is fenced off with danger tape if road improvement activities take place in its vicinity. If that is not possible and a culvert must be demolished, it should be documented in full prior to construction taking place.
- Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.



J A van Schalkwyk
Heritage Consultant
October 2022

TECHNICAL SUMMARY

Property details						
Province	Mpumalanga					
Magisterial district	Ermelo					
District municipality	Gert Sibande					
Topo-cadastral map	2630CA, 2630CB					
Farm name	Various					
Closest town	Ermelo					
Coordinates	End points (Approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	-26.58801	30.08772	2	-26.73172	30.28571

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	Improvement of a section of the N2 national route, Mpumalanga
Project name	Improvement of N2 Section A: Leiden to Verzameling, Mpumalanga Province

Land use	
Previous land use	Farming
Current land use	Road servitude

TABLE OF CONTENTS

	Page
SPECIALIST DECLARATION.....	III
EXECUTIVE SUMMARY	IV
TABLE OF CONTENTS	VII
LIST OF FIGURES.....	VII
GLOSSARY OF TERMS AND ABBREVIATIONS.....	VIII
COMPLIANCE WITH APPENDIX 6 OF THE 2014 EIA REGULATIONS (AS AMENDED)	IX
1. INTRODUCTION.....	1
2. TERMS OF REFERENCE	1
3. HERITAGE RESOURCES	2
4. STUDY APPROACH AND METHODOLOGY	3
5. SITE SIGNIFICANCE AND ASSESSMENT	5
6. PROJECT DESCRIPTION.....	7
7. DESCRIPTION OF THE AFFECTED ENVIRONMENT	8
8. MANAGEMENT MEASURES	14
9. RECOMMENDATIONS.....	15
10. REFERENCES.....	17
APPENDIX 1: INDEMNITY AND TERMS OF USE OF THIS REPORT	19
APPENDIX 2: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES	20
APPENDIX 3: RELEVANT LEGISLATION	22
APPENDIX 4: MANAGEMENT PLAN: BURIAL GROUNDS AND GRAVES, WITH REFERENCE TO GENERAL HERITAGE SITES.....	24
APPENDIX 5: CHANCE FIND PROCEDURES.....	29
APPENDIX 6: INVENTORY OF IDENTIFIED CULTURAL HERITAGE SITES.....	30
APPENDIX 7: CURRICULUM VITAE	35

LIST OF FIGURES

	Page
Fig. 1. Map indicating the track log of the field survey.....	4
Fig. 2. The location of the study area (green line) in regional context.....	7
Fig. 3. The location of the study area (blue line).....	8
Fig. 4. Views over the study area.....	8
Fig. 5. Development of the National Freeways by 1972.....	11
Fig. 6. Location of the identified sites along Section B of the N2 road.	12

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 1830 - 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

COMPLIANCE WITH APPENDIX 6 OF THE 2014 EIA REGULATIONS (AS AMENDED)

Requirements of Appendix 6 – GN R982	Addressed in the Specialist Report
1. (1) A specialist report prepared in terms of these Regulations must contain-	
a) details of-	
i. the specialist who prepared the report; and	Front page
ii. the expertise of that specialist to compile a specialist report including a curriculum vitae;	Page ii Addendum Section 7
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page iii
c) an indication of the scope of, and the purpose for which, the report was prepared;	Section 1
(cA) an indication of the quality and age of base data used for the specialist report;	Section 4
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 7
d) the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Section 4
e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 4
f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 7 Figure 6
g) an identification of any areas to be avoided, including buffers;	Section 7
h) a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Figure 6 Section 7
i) a description of any assumptions made and any uncertainties or gaps in knowledge;	Section 2
j) a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Section 7
k) any mitigation measures for inclusion in the EMPr;	Section 8 & 10
l) any conditions for inclusion in the environmental authorisation;	Section 10
m) any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 9
n) a reasoned opinion-	
i. whether the proposed activity, activities or portions thereof should be authorised;	Section 10
(iA) regarding the acceptability of the proposed activity or activities; and	Section 8, 10
ii. if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan;	
o) a description of any consultation process that was undertaken during the course of preparing the specialist report;	-
p) a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	-
q) any other information requested by the competent authority.	-
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	-

CULTURAL HERITAGE ASSESSMENT FOR THE PLANNED IMPROVEMENT OF THE NATIONAL ROUTE N2, KM 30 (VERZAMELING) TO KM 60.0 (LEIDEN), GERT SIBANDE DISTRICT MUNICIPALITY, MPUMALANGA PROVINCE

1. INTRODUCTION

As part of on-going process, it is proposed to improve a section of the N2 national route in Mpumalanga Province. In order to comply with relevant legislation, the agency managing this road, SANRAL, commissioned an environmental impact assessment. This report deals with issues pertaining to heritage resources.

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 therefore appointed by **Chameleon Environmental Consultants** 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 improve the section of the N2 road, referred to as Section B, between Leiden (km 60.0) and Verzamelings (km 30,0) in the Gert Sibande District Municipality of Mpumalanga Province.

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) as amended and is intended for submission to the South African Heritage Resources Agency (SAHRA).

2. TERMS OF REFERENCE

The aim of a full HIA investigation is to provide an informed heritage-related opinion about the proposed development by an appropriate heritage specialist. The objectives are to identify heritage resources (involving site inspections, existing heritage data and additional heritage specialists if necessary); assess their significances; assess alternatives in order to promote heritage conservation issues; and to assess the acceptability of the proposed development from a heritage perspective.

The result of this investigation is a heritage impact assessment report indicating the presence/ absence of heritage resources and how to manage them in the context of the proposed development.

Depending on SAHRA's acceptance of this report, the developer will receive permission to proceed with the proposed development, on condition of successful implementation of proposed mitigation measures.

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 the road is to be improved. This includes:

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

The objectives were to:

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

2.2 Limitations

The investigation has been influenced by the following factors:

- 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.
- 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 3). 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 6 below and illustrated in Figure 2.

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 – see list of references in Section 10.

- 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 field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible sites, objects and structures. The area that had to be investigated was identified by Chameleon Environmental Consultants by means of maps and .kml files indicating the development area. This was loaded onto a Nexus 7 tablet and used in Google Earth during the field survey to access the areas.

The area was visited on 17 September & 10 December 2016. The site was investigated by travelling the route of the proposed road upgrade in both directions – see Fig. 1 below.

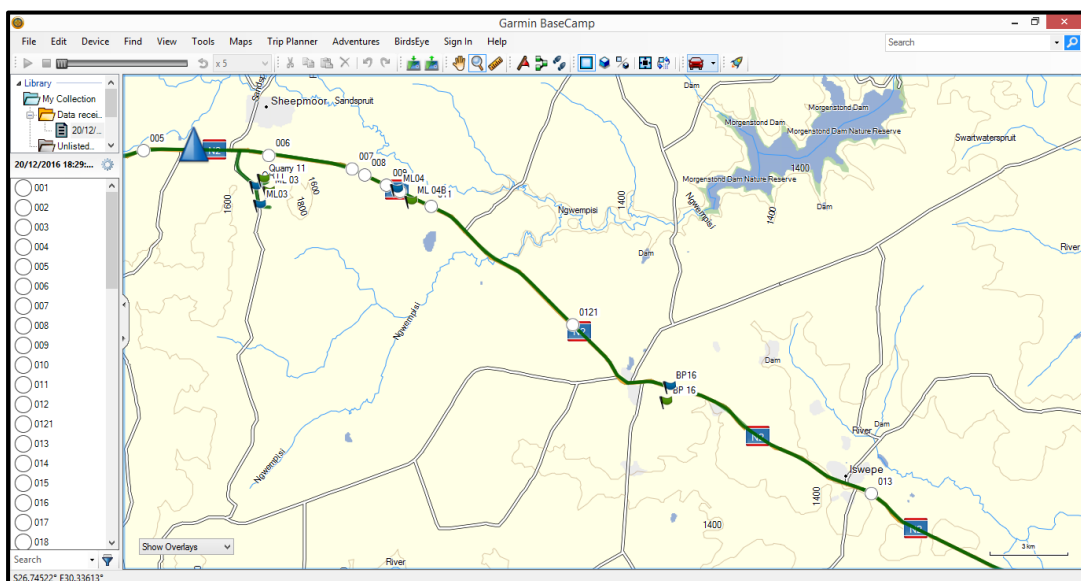


Fig. 1. Map indicating the track log of the field survey.

The following is relevant to the field survey:

- During the site visit the archaeological visibility was somewhat limited by the vegetation encountered after the recent good rains in the region.

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. SITE SIGNIFICANCE AND ASSESSMENT

5.1 Heritage assessment criteria and grading

The National Heritage Resources Act, Act no. 25 of 1999, stipulates the assessment criteria and grading of heritage sites. The following grading 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.

A matrix was developed whereby the criteria, as set out in Sections 3(3) and 7 of the NHRA, were applied for each identified site (see Appendix 1). This allowed some form of control over the application of similar values for similar sites.

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.

5.2 Methodology for the assessment of potential impacts

All impacts identified during the EIA stage of the study will be classified in terms of their significance. Issues were assessed in terms of the following criteria:

- The **nature**, a description of what causes the effect, what will be affected and how it will be affected;
- The physical **extent**, wherein it is indicated whether:
 - 1 - the impact will be limited to the site;
 - 2 - the impact will be limited to the local area;

- 3 - the impact will be limited to the region;
- 4 - the impact will be national; or
- 5 - the impact will be international;
- The **duration**, wherein it is indicated whether the lifetime of the impact will be:
 - 1 - of a very short duration (0–1 years);
 - 2 - of a short duration (2-5 years);
 - 3 - medium-term (5–15 years);
 - 4 - long term (> 15 years); or
 - 5 - permanent;
- The **magnitude** of impact, quantified on a scale from 0-10, where a score is assigned:
 - 0 - small and will have no effect;
 - 2 - minor and will not result in an impact;
 - 4 - low and will cause a slight impact;
 - 6 - moderate and will result in processes continuing but in a modified way;
 - 8 – high, (processes are altered to the extent that they temporarily cease); or
 - 10 - very high and results in complete destruction of patterns and permanent cessation of processes;
- The **probability** of occurrence, which describes the likelihood of the impact actually occurring and is estimated on a scale where:
 - 1 - very improbable (probably will not happen);
 - 2 - improbable (some possibility, but low likelihood);
 - 3 - probable (distinct possibility);
 - 4 - highly probable (most likely); or
 - 5 - definite (impact will occur regardless of any prevention measures);
- The **significance**, which is determined through a synthesis of the characteristics described above (refer formula below) and can be assessed as low, medium or high;
- The **status**, which is described as either positive, negative or neutral;
- The degree to which the impact can be reversed;
- The degree to which the impact may cause irreplaceable loss of resources; and
- The degree to which the impact can be mitigated.

The **significance** is determined by combining the criteria in the following formula:

$$S = (E+D+M) \times P; \text{ where}$$

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

The **significance weightings** for each potential impact are calculated as follows (Table 1 below):

Table 1: Significance ranking

Significance of impact					
Extent	Duration	Magnitude	Probability	Significance	Weight
-	-	-	-	-	-
Points	Significant Weighting	Discussion			
< 30 points	Low	where this impact would not have a direct influence on the decision to develop in the area			
31-60 points	Medium	where the impact could influence the decision to develop in the area unless it is effectively mitigated			
> 60 points	High	where the impact must have an influence on the decision process to develop in the area			

6. PROJECT DESCRIPTION

This report does not deal with development projects outside of or even adjacent to the study area as is presented in Section 6 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.

6.1 Site location

It is proposed to improve a section of the National Route N2, referred to as Section B, between Leiden (km 60.0) and Verzameling (km 30,0) in the Gert Sibande District Municipality of Mpumalanga Province (Fig. 2). For more information, see the Technical Summary on p. iv above.



Fig. 2. The location of the study area (green line) in regional context. (Maps: 2628, 2630 – Chief Surveyor-General)

6.2 Development proposal

It is proposed to improve a section of the National Route N2, referred to as Section B, between Leiden (km 60.0) and Verzameling (km 30,0) in the Gert Sibande District Municipality of Mpumalanga Province (Fig. 3). Apart from the fact that material will be sourced from a number of borrow pits and quarries, no further information was made available. The borrow pits and quarries will be addressed in separate reports.

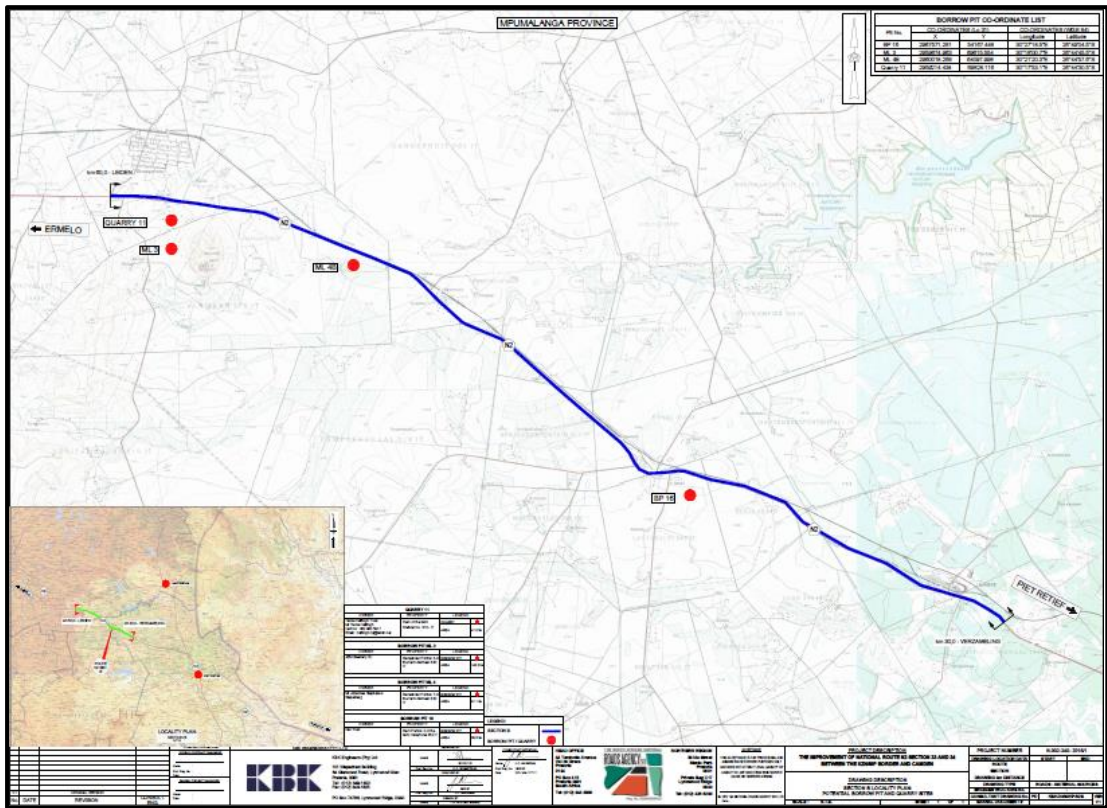


Fig. 3. The location of the study area (blue line)

7. DESCRIPTION OF THE AFFECTED ENVIRONMENT

7.1 Site description

The geology of the region is made up of mudstone, with a number of dolerite intrusions, which forms the higher ridges. The vegetation is made up of Moist Upland Grassland. The topography is described as irregular undulating lowlands with hills. Most of the region can be described as rural, with the main activities being farming and forestry (Fig. 3).



Fig. 4. Views over the study area.

7.2 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 essentially consist of a two components. The first is a rural area in which the human occupation is made up of a limited pre-colonial (Stone Age and Iron Age) occupation and a much later colonial (farmer) component. The second component is an urban one consisting of a number of smaller towns, most of which developed during the last 150 years or less.

Geology

Neither Viljoen & Reimold (1999) nor Norman & Whitfield (2006) report any sites or features of geological/palaeontological significance in the region of the study area.

Early history

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. 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.

Late 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 of the study area, is well-known for the fact that some San people occupied it up to 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.

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.

Large numbers of stone-walled archaeological sites, which are dated to the Late Iron Age (c. AD 1640 - AD 1830s), are known from the larger study region. These sites are conventionally associated with Nguni-speaking people, although a second viewpoint is that it was built by Sotho-speakers. The alternative interpretation by a specific individual that these sites are of Hindu origin is discounted here.

From the air, these homesteads and towns are easily recognised and it is also possible to determine variations in smaller detail. Various researchers (Evers 1975, Marker & Evers 1976, Mason 1968 and Collet 1982) have attempted a classification of the stone walled sites on the Mpumalanga escarpment area. Of these, the work of Mason was the most extensive. However, he only focussed on homestead areas. By using site layout, he identified eight ruin classes. Collet (1982) subdivided the settlement units as:

- Simple ruins which consist of an isolated circular enclosure, and
- Complex ruins which consist of two or more contiguous circular or semi-circular enclosures.

Evers (1975) and Marker & Evers (1976) also considered other elements such as agricultural activities (terracing) and pathways (cattle track) as system of communication between settlements. According to Marker & Evers (1976:160) the combination between the three attributes forms a settlement. The current survey in the study area, have identified a fourth category of sites, namely initiation sites, which falls into a category of sites that are considered to have special meaning.

Ethno-history

Whereas it is impossible to correlate any living group of people to Early Iron Age communities, it is possible, by using ethnographic evidence, to identify some of the groups of people that entered the region in pre-colonial times (i.e. the Later Iron Age) and are currently settled in the larger region. The Tswana-speakers were located to the south and west in the study area, with the Ndzundza Ndebele (Nguni-speakers) to the north. The eastern section of the study area was occupied by Swazi-speakers, also of Nguni origin.

Historic period

White settlers moved into the area during the first half of the 19th 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. However, the area remained up till today, a largely farming orientated community. Much of the heritage potential of the study area is therefore located within the many farmsteads in the

area. Farmhouses and related structures (e.g. barns, sheds, etc.), as well as cemeteries dot the landscape. Equally important, are the homesteads, related structures and cemeteries of the farm labourers living on these farms.

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.

A railway line from Davel via Piet Retief and Paulpietersburg to Vryheid was completed in 1911. Although a number of roads linked the region to the coast and the interior, it was only during the 1970s that the section between Ermelo, via Piet Retief to Richards Bay was upgraded to National Road status (Floor 1985).

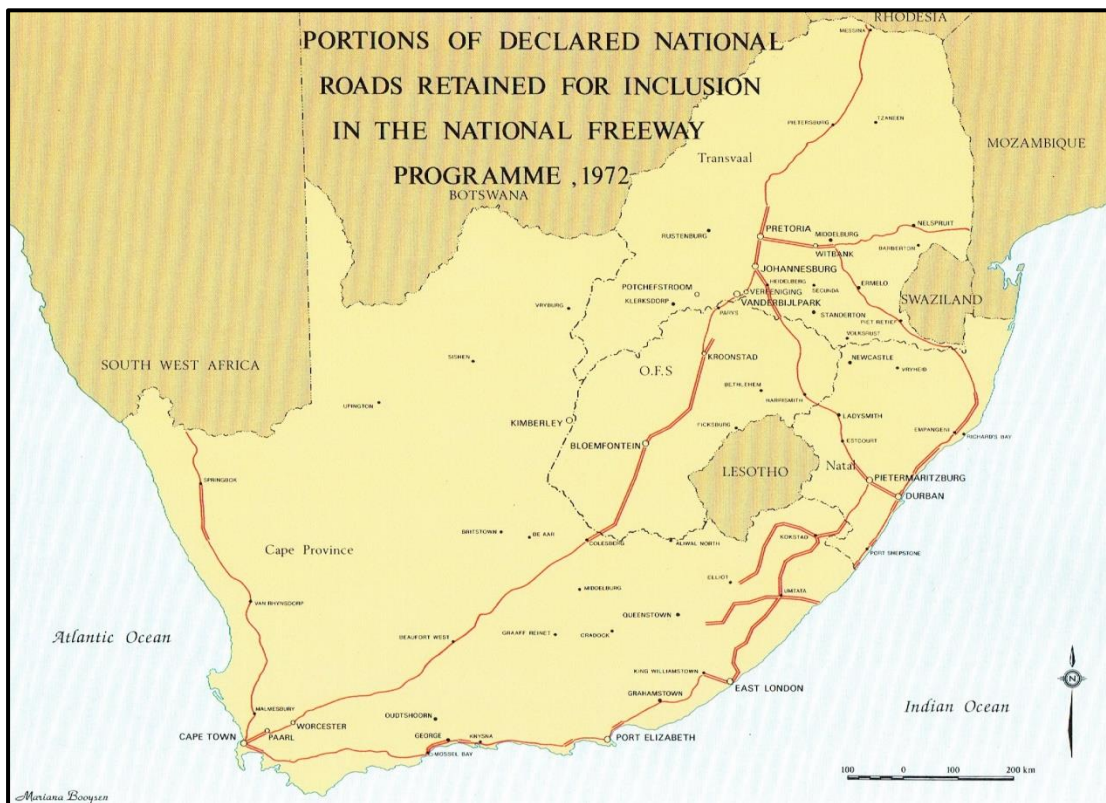


Fig. 5. Development of the National Freeways by 1972.
(After Floor 1985)

7.3 Identified sites

The following sites, features and objects of cultural significance were identified in the study area – see Appendix 6 for a detailed discussion of each individual site.

In terms of Section 7 of the NHRA, all the sites currently known or which are expected to occur in the study area are evaluated to have a grading as identified in the table below.

Table 2. Summary of identified heritage resources in the study area.

IDENTIFIED HERITAGE RESOURCES			
<i>NHRA category</i>	<i>Number</i>	<i>Coordinates</i>	<i>Impact rating</i>
Formal protections (NHRA)			
National heritage site (Section 27)	None	-	-
Provincial heritage site (Section 27)	None	-	-
Provisional protection (Section 29)	None	-	-
Listed in heritage register (Section 30)	None	-	-
General protections (NHRA)			
Structures older than 60 years (Section 34)	7.3.3.3	-26.73745, 30.33305	Low
	7.3.3.4	-26.73960, 30.33789	Low
	7.3.3.5	-26.74318, 30.34629	Low
	7.3.3.6	-26.74537, 30.35159	Low
	7.3.3.7	-26.75042, 30.36374	Low
	7.3.3.8	-26.79201, 30.42027	Low
	7.3.3.9	-26.84876, 30.53573	Low
Archaeological site or material (Section 35)	None	-	-
Palaeontological site or material (Section 35)	None	-	-
Graves or burial grounds (Section 36)	7.3.3.1	-26.73332, 30.30027	Low
	7.3.3.2	-26.81928, 30.47566	Low
Public monuments or memorials (Section 37)	None	-	-
Other			
Any other heritage resources (describe)	None	-	-

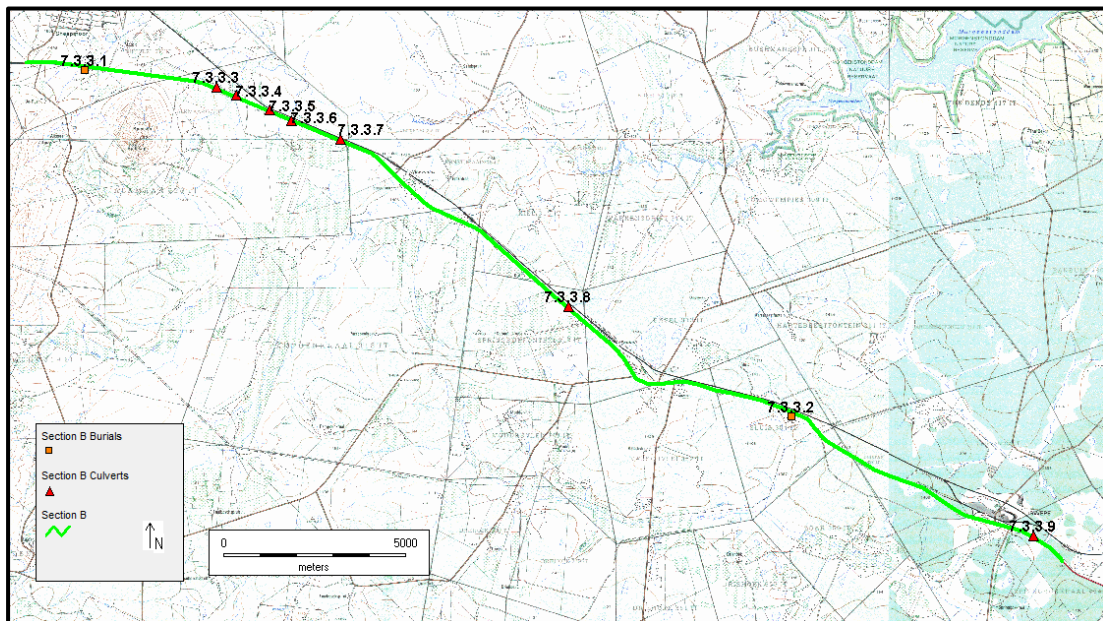


Fig. 6. Location of the identified sites along Section B of the N2 road. (Map 2630CB, 2630CD, 2630DC: Chief Surveyor-General)

7.3.1 Stone Age

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

7.3.2 Iron Age

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

7.3.3 Historic period

- Burial sites:
 - (7.3.3.1 – 7.3.3.2) Two informal community burial sites, each of which contains at least more than 100 graves.
 - These features are viewed to have high significance on a local level – Grade III.
- Old sandstone railway culverts:
 - (7.3.3.3 – 7.3.3.9) Seven old sandstone railway culverts were identified in close proximity of a section of the road. The culverts formed part of the original alignment of the railway line that was completed in 1911. The line fell into disuse when the new railway line was completed in 1975.
 - These features are rated to have high significance on a regional level – Grade III.

7.4 Impact assessment

Heritage impacts are categorised as:

- Direct or physical impacts, implying alteration or destruction of heritage features within the project boundaries;
- Indirect impacts, e.g. restriction of access or visual intrusion concerning the broader environment;
- Cumulative impacts that are combinations of the above.

Impacts can be managed through one or a combination of the following measures:

- Mitigation
- Avoidance
- Compensation
- Enhancement (positive impacts)
- Rehabilitation
- Interpretation
- Memorialisation

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

- (7.3.3.1 – 7.3.3.2) Two informal burial sites were identified. Both these sites are located at least 100 metres outside the border on the road reserve and it is therefore unlikely that it would be impacted on by the proposed improvement work.
 - The significance weighting for the impact on the identified sites is rated as **low**.
 - Mitigation: If the burial places are retained, it should be fenced off for the duration of the road improvement, leaving a buffer zone of at least five metres from the outer edge of the graves. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures (see Appendix 5 for an outline of this).

- (7.3.3.3 – 73.3.9) Old railway culverts. It is judged that some of these features, although located outside the road reserve fence, are located close enough to the road reserve that it might be impacted on if any work is undertaken in its vicinity. As this is a linear feature, it should be remembered that an impact on a single culvert is therefore an impact on the whole.
 - The significance weighting for the impact on the identified sites is rated as **low**.
 - It is recommended that these features are retained and that it is fenced off with danger tape if road improvement activities take place in its vicinity. If that is not possible and the culverts must be demolished, it should be documented in full prior to construction taking place.

8. MANAGEMENT MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

8.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the project boundary against vandalism, destruction and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during construction activities.

The following shall apply:

- Known sites should be clearly marked in order that they can be avoided during construction activities.
- The contractors and workers should be notified that archaeological sites might be exposed during the construction activities.
- Should any heritage artefacts be exposed during excavation, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
- Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological or palaeontological artefacts, as set out in the National Heritage Resources Act (Act No. 25 of 1999), Section 51. (1).

8.2 Control

In order to achieve this, the following should be in place:

- A person or entity, e.g. the Environmental Control Officer, should be tasked to take responsibility for the heritage sites and should be held accountable for any damage.
- Known sites should be located and isolated, e.g. by fencing them off. All construction workers should be informed that these are no-go areas, unless accompanied by the individual or persons representing the Environmental Control Officer as identified above.
- In areas where the vegetation is threatening the heritage sites, e.g. growing trees pushing walls over, it should be removed, but only after permission for the methods proposed has been granted by SAHRA. A heritage official should be part of the team executing these measures.

9. RECOMMENDATIONS

The aim of the survey was to locate, identify, evaluate and document sites, objects and structures of cultural significance found within the area in which it is proposed to improve a section of the National Route N2, referred to as Section B, between Leiden (km 60.0) and Verzamelings (km 30,0) in the Gert Sibande District Municipality of Mpumalanga Province.

The cultural landscape qualities of the region essentially consist of a two components. The first is a rural area in which the human occupation is made up of a limited pre-colonial (Stone Age and Iron Age) occupation and a much later colonial (farmer) component. The second component is an urban one consisting of a number of smaller towns, most of which developed during the last 150 years or less.

Identified sites:

- Burial sites:
 - (7.3.3.1 – 7.3.3.2) Two informal community burial sites, each of which contains at least more than 100 graves. These features are viewed to have high significance on a local level – Grade III.
- Old sandstone railway culverts:
 - (7.3.3.3 – 7.3.3.9) Seven old sandstone railway culverts were identified in close proximity of a section of the road. The culverts formed part of the original alignment of the railway line that was completed in 1911. The line fell into disuse when the new railway line was completed in 1975. These features are rated to have high significance on a regional level – Grade III.

Impact assessment:

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

- (7.3.3.1 – 7.3.3.2) Two informal burial sites. Both these sites are located at least 100 metres outside the border on the road reserve and it is therefore unlikely that it would be impacted on by the proposed improvement work
 - The significance weighting for the impact on the identified sites is rated as **low**.
 - If the burial places are retained, it should be fenced off for the duration of the road improvement, leaving a buffer zone of at least five metres from the outer edge of the graves. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures (see Appendix 5).

- (7.3.3.3 – 7.3.3.9) Old railway culverts. It is judged that some of these features, although located outside the road reserve fence, are located close enough to the road reserve that it might be impacted on if any work is undertaken in its vicinity. As this is a linear feature, it should be remembered that an impact on a single culvert is therefore an impact on the whole.
 - The significance weighting for the impact on the identified sites is rated as **low**.
 - It is recommended that these features are retained and that it is fenced off with danger tape if road improvement activities take place in its vicinity. If that is not possible and the culverts must be demolished, it should be documented in full prior to construction taking place.

Reasoned opinion as to whether the proposed activity should be authorised:

- From a heritage point of view it is recommended that the proposed development be allowed to continue, on condition of acceptance of the proposed mitigation measures.

Conditions for inclusion in the environmental authorisation:

- It is recommended that the burial sites are retained and it should be fenced off for the duration of the construction activities, leaving a buffer zone of at least five metres from the outer edge of the graves. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures.
- It is recommended that the sandstone culverts are retained and that it is fenced off with danger tape if road improvement activities take place in its vicinity. If that is not possible and a culvert must be demolished, it should be documented in full prior to construction taking place.
- Should archaeological sites or graves be exposed during construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made.

10. REFERENCES

10.1 Data bases

Chief Surveyor General
Environmental Potential Atlas, Department of Environmental Affairs and Tourism.
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National Archives of South Africa
SAHRA Archaeology and Palaeontology Report Mapping Project (2009)
SAHRIS database

10.2 Literature

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10.3 Maps and aerial photographs

1: 50 000 Topocadastral maps
Google Earth

APPENDIX 1: INDEMNITY AND TERMS OF USE OF THIS REPORT

The findings, results, conclusions and recommendations given in this report are based on the author's best scientific and professional knowledge as well as available information. The report is based on survey and assessment techniques which are limited by time and budgetary constraints relevant to the type and level of investigation undertaken and the author reserve the right to modify aspects of the report including the recommendations if and when new information may become available from ongoing research or further work in this field, or pertaining to this investigation.

Although all possible care is taken to identify all sites of cultural importance during the investigation of study areas, it is always possible that hidden or sub-surface sites could be overlooked during the study. The author of this report will not be held liable for such oversights or for costs incurred as a result of such oversights.

Although the author exercises due care and diligence in rendering services and preparing documents, he accepts no liability and the client, by receiving this document, indemnifies the author against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by the author and by the use of the information contained in this document.

This report must not be altered or added to without the prior written consent of the author. This also refers to electronic copies of this report which are supplied for the purposes of inclusion as part of other reports, including main reports. Similarly, any recommendations, statements or conclusions drawn from or based on this report must make reference to this report. If these form part of a main report relating to this investigation or report, this report must be included in its entirety as an appendix or separate section to the main report.

APPENDIX 2: 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 3: 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 4: MANAGEMENT PLAN: BURIAL GROUNDS AND GRAVES, WITH REFERENCE TO GENERAL HERITAGE SITES

1. Background

Burial grounds and graves are viewed as having high emotional and sentimental value and accordingly always carry a high cultural heritage significance rating. Best practice principles dictate that they should preferably be preserved *in situ*. It is only when it is unavoidable and the site cannot be retained, that the graves should be exhumed and relocated after all due processes had been successfully implemented.

For retaining the burial sites and graves, the SAHRA Burial Grounds and Graves (BGG) unit requires a detailed Heritage Management Plan (HMP) clearly outlining a grave management plan that provides details of grave management and access protocols. In addition, the HMP should also provide detailed change finds protocol or procedures in the case of the identification human remains.

The primary aim of the Burial Grounds and Graves Management Plan therefore is to assist in the implementation of mitigation measures to reduce potential negative impacts through the modification of the proposed project development design.

2. Legal Implications

South Africa's unique and non-renewable archaeological and palaeontological heritage sites, inclusive of burial grounds and graves, are 'generally' protected in terms various laws and by-laws:

- Nationally: National Heritage Resources Act, No. 25 of 1999;
- Provincially: KwaZulu-Natal Heritage Act, No. 4 of 2008.

In addition, the following also refer specifically to burial grounds and graves:

- Human Tissue Act, No. 65 of 1983;
- Section 46 of the National Health Act, No. 61 of 2003;
- Removal of Graves and Dead Bodies Ordinance (Ordinance No. 7 of 1925)
- By-laws:
 - R363 of 2013: Regulations Relating to the Management of Human Remains
 - Local Authorities Notice 34 of 2017, Cemeteries, Crematoria and Funeral Undertakers By-Laws as per Provincial Gazette of 7 April 2017 No. 2800.

In terms of the National Heritage Resources Act, No. 25 of 1999, graves and burial grounds are divided into the following categories:

- 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);

For KwaZulu-Natal, the KwaZulu-Natal Heritage Act No. 4 of 2008, graves and burial grounds are divided into the following categories:

- Clause 34: Clause 34 seeks to generally protect, against damage or alteration, graves of victims of conflict.
- Clause 35: Clause 35 seeks to generally protect, against damage or alteration, traditional burial places.

- Clause 40: Clause 40 seeks to give special protection to graves of members of the Royal Family listed in the schedule.

In terms of Section 36(3) of the National Heritage Resources Act, no person may, without a permit issued by the relevant heritage resources authority:

- 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;
- Destroy, damage, alter, exhume or 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
- Bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation, or any equipment which assists in the detection or recovery of metals.

Marked graves younger than 60 years do not fall under the protection of the NHRA (Act No. 25 of 1999) with the result that exhumation, relocation and reburial can be conducted by a register undertaker. This will include logistical aspects such as social consultation, purchasing of plots in cemeteries, procurement of coffins, etc.

Marked graves older than 60 years are protected by the NHRA (Act No. 25 of 1999) and as a result an archaeologist must be in attendance to assist with the exhumation and documentation of the graves. Unmarked graves are by default regarded as older than 60 years and therefore also falls under the NHRA (Act No. 25 of 1999, Section 36).

For graves in KwaZulu-Natal permission is required as follows:

- Clause 34: Approval of the Council must first be sought;
- Clause 35: Approval of the Council must first be sought;
- Clause 40: Nothing is stated in the Act.

3. Management Plan

3.1 Definitions

Heritage Site Management: Heritage site management is the control of the elements that make up physical and social environment of a site, its physical condition, land use, human visitors, interpretation, etc. Management may be aimed at preservation or, if necessary, at minimizing damage or destruction or at presentation of the site to the public. A site management plan is designed to retain the significance of the place. It ensures that the preservation, enhancement, presentation and maintenance of the place/site is deliberately and thoughtfully designed to protect the heritage values of the place (from: *SAHRA Site management plans: guidelines for the development of plans for the management of heritage sites or places*).

Mitigation: means to anticipate and prevent negative impacts and risks, then to minimise them, rehabilitate or repair impacts to the extent feasible.

3.2 Heritage management plan (HMP)

3.2.1 Phase 1: Site identification and verification

This part of the process usually take place during the Phase 1 heritage impact assessment and is discussed in Section 7 of the main body of the HIA.

Locality and identification:

- The location of the identified site (e.g. farm name, GPS coordinates) is given;
- Determination of the number of graves and the date range of the burials.

The physical condition of the site is also described in terms of:

- The condition of the burial grounds and graves, e.g. has the headstones been pushed over;
- The approximate number of graves and the date range of the graves;
- Is the site fenced off;
- Is there access to the site, in the case it is fenced off;
- Has the site recently been visited by next of kin or other individuals;
- The status of the vegetation cover on the site.

3.2.2 Phase 2: Determination of the potential impact on the identified sites

Identified impacts on the graves and burial sites are calculated and discussed in Section 8.1 of the main body of the HIA.

The second phase consists of information that should be collected in order to develop the conservation management plan. This includes:

- The needs of the client;
- External needs, i.e. the next of kin;
- Requirements for the maintenance of the cultural significance.

From the above an evaluation is made of the impact of the proposed development project on the status of each of the identified burial grounds and graves.

3.2.3 Phase 3: Mitigation measures

Proposed mitigation measures for each identified burial ground or graves are developed and is discussed in the main body of the HIA (Section 8.2).

The main aim of the mitigation measures, as far as is feasible, is to remove any physical, direct impacts on the burial grounds and graves.

- A minimum buffer of 20m must be established around known burial grounds and graves for the duration of the mining/construction phase. This is relevant where the burial site has been static for a considerable period of time and has already been fenced off;
- In cases the burial site is still in use and might expand in the future and is not fenced off, a minimum buffer of 100m should be implemented;
- In the case where blasting takes place during mining activities, the buffers should increase correspondingly to 200m;
- The buffers must be clearly demarcated, and signage placed during the construction/mining period;
- Access to the graves should be allowed to the descendants. However, they should adhere to the managing authorities' conditions regarding permissions, appointments, health, environment and safety.
- The areas with graves should be kept clean and the grass short so that visitors may enter it without any concerns.
 - However, this might create problems as in many cases not all graves are well-marked, carrying the possibility that they might inadvertently be damaged and therefore contractors/land-owners might not be will to accept this responsibility. The descendants should therefore be held responsible for the maintenance of the site.
- Sites that are located close to access/haul roads might need additional mitigation. All personnel and especially drivers of heavy haul vehicles should be informed where these sites are, and they should keep to the speed limits (usually 30km/h on mining sites);
- Any change in the development layout, future development plans, condition of the grave sites and individual graves should immediately be reported to the heritage inspector/SAHRA for guidance;

- Relevant strategies should be put in place for the managing of the burial grounds and graves after the closure of the mine or the completion of the project. It needs to be stated that the land-owner or developer always will be responsible for the preservation of the site. Therefore, measures should be put in place to ensure that the site is handled appropriately after closure, which, in essence would entail the continuation measures already put in place;

3.3 Management strategy

A general approach to this is set out in Section 9 of the main body of the HIA report and is equally applicable to general heritage sites and feature as well as to burial grounds and graves.

A strategy for the implementation of the conservation plan is developed:

- A heritage practitioner should be appointed to develop a heritage induction program and conduct training for the ECO, as well as team leaders, in the identification of heritage resources and artefacts;
- Known sites must be demarcated and fenced off and signage placed during the construction/mining period;
- This management strategy should be applicable to the construction, operation as well as the post operation phases of the development/mining activities.
- Relevant strategies should be put in place for the managing of the burial grounds and graves after the closure of the mine or the completion of the project. It needs to be stated that the land-owner or developer always will be responsible for the preservation of the site. Therefore, measures should be put in place to ensure that the site is handled appropriately after closure, which, in essence would entail the continuation measures already put in place;
- The managing authority should be able to regularly inspect the sites in order to ensure that construction and other such activities do not damage the graves;
 - SAHRA and the relevant PHRA are the competent authorities responsible for the regulation of the HMP in terms of the national legislative framework. The NHRA states:

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 the necessary arrangement for their conservation as they see fit.

4. Relocation of graves

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.

5. Defining next of kin

An extensive Burial Grounds and Graves Consultation process must be implemented in accordance with NHRA Regulations to identify bona fide next of kin and reach agreement regarding relocation of graves.

Anthropologically speaking three type of kin are distinguished: patrilineal (called *agnates*), maternal (*uterine* kin) and kin by marriage (*affines*). All three categories have their important part to play in social life.

In terminologies used in the west the close-knit group of family members is clearly marked off from other kin - family terms, such as 'father', 'mother', 'brother' and 'sister' are never used for aunts, uncles and cousins.

In many non-western societies this is not the case and the family is merged with the wider group of kin and the family terms are applied much more widely. Next of kin for the Southern Bantu-language speakers is based on a classificatory system where a man uses a term to refer to three significant relatives – his father, his father's brother and his mother's brother.

For example, a man (A) may call his father's brother (i.e. uncle) also a father. All of that latter person's children will then also be called his (A) brothers and sisters, prohibiting him from marrying any of them (however, *vide* preferred marriages). In Anthropology this system is referred to as the Iroquois system (with reference to the North American Indian tribe where it was first described). When a man calls his father's brother 'father' a suffix is usually added to indicate whether he is an elder or junior brother (e.g. *(ra)mogolo* = elder brother; *(ra)ngwane* = junior brother; also *(ra)kgadi* = younger sister; *(ma)lome* = mother's brother)(SePedi terminology is used).

Consultants having to relocate graves might find it confusing if they do not have insight into this complex system of kinship, where, for example a single individual can have more than one father or mother.

APPENDIX 5: CHANCE FIND PROCEDURES

A general approach to this is set out in Section 9 of the main body of the HIA report and is equally applicable to general heritage sites and features as to burial grounds and graves.

- A heritage practitioner should be appointed to develop a heritage induction program and conduct training for the ECO, as well as team leaders, in the identification of heritage resources and artefacts;
- An appropriately qualified heritage consultant should be identified to be called upon if any possible heritage resources or artefacts are identified;
- Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated, and construction activities be halted;
- The qualified archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and impact on the heritage resource;
- The contractor therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the material and data are recovered;
- Should the heritage consultant conclude that the find is a heritage resource protected in terms of the NHRA (1999) Sections 34, 35, 37 and NHRA (1999) Regulations (Regulation 38, 39, 40), he or she should notify SAHRA and/or the relevant PHRA;
- Based on the comments received from SAHRA and/or the PHRA, the heritage consultant would present the relevant terms of reference to the client for implementation;
- Construction/Operational activities can commence as soon as the site has been cleared and signed off by the archaeologist.

APPENDIX 6: INVENTORY OF IDENTIFIED CULTURAL HERITAGE SITES

Location	No. 7.3.3.1	Burial place	Km reading: N2-34; 58,4N S 26.73332, E 30.30027
Description			
Large informal burial place with probably more than 100 graves, most of which are only marked with stone cairns.			

Significance of site/feature	High on a local level – Grade III
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Impact assessment
This site is located approximately 100 metres outside the road reserve fence on the southern side of the road (180° true) and it is highly unlikely that they would be impacted on by the proposed road improvement.

Significance of impact					
Extent	Duration	Magnitude	Probability	Significance	Weight
1	5	4	2	20	Low

Mitigation
If the burial place is retained, it should be fenced off for the duration of the road improvement, leaving a buffer zone of at least five metres from the outer edge of the graves. This demarcation with danger tape should be done in consultation with the local community. If the graves cannot be retained, it should be relocated, but only on condition of following the correct procedures (see Appendix 5).

Requirements
As some of these graves might be older than 60 years, a valid permit for their relocation must be obtained from SAHRA. This is in addition to all other requirements – see Appendix 5.

References
1: 50 000 topocadastral map



Location	No. 7.3.3.2	Burial place	S 26.81928, E 30.47566
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Description
 A large informal cemetery containing more than 150 graves occurs in the Sluis settlement. The site probably acts as central burial site for the community. The burials are generally marked by elongated stone cairns and some graves bear small name plaques. Some graves have marked headstones.

Significance of site/feature | High on a local level – Grade III

Impact assessment
 This site is located approximately 150 metres outside the road reserve fence on the southern side of the road (209° true) in an existing village and it is highly unlikely that they would be impacted on by the proposed road improvement.

Significance of impact

Extent	Duration	Magnitude	Probability	Significance	Weight
1	5	4	2	20	Low

Mitigation
 As this site is located inside a village and very far from the road reserve, it is highly unlikely that it would be impacted on by the proposed development. No mitigation action is required.

Requirements
 None

References
 1: 50 000 topocadastral map



Location	No. 7.3.3.3	Railway culvert	Km reading: N2-34; 55,2N S 26.73745, E 30.33305
	No. 7.3.3.4	Railway culvert	Km reading: N2-34; 54,6N S 26.73960, E 30.33789
	No. 7.3.3.5	Railway culverts	Km reading: N2-34; 53,8N S 26.74318, E 30.34629
	No. 7.3.3.6	Railway culverts	Km reading: N2-34; 53,2N S 26.74537, E 30.35159
	No. 7.3.3.7	Railway culverts	Km reading: N2-34; 51,8N S 26.75042, E 30.36374
	No. 7.3.3.8	Railway culverts	Km reading: N2-34; 44,4N S 26.79201, E 30.42027
	No. 7.3.3.9	Railway culverts	Km reading: no immediate marker, west of N2-34; 30,0N S 26.84876, E 30.53573

Description

Seven old railway culverts that formed part of the original railroad alignment which was constructed in 1911. This route was abandoned when the new alignment was finished in 1975 to accommodate larger and longer trains to export resources (coal and iron ore) through Richards Bay harbour.

The culverts vary in size and length. They were originally constructed with dressed sandstone, but some were later repaired with concrete.

The original iron tracks and sleepers have been removed and only the gravel bed remains in the areas between the culverts.

Significance of site/feature	Medium on a regional level – Grade III
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Impact assessment

In some cases these features borders within 15 metres of the road reserve fence and it is possible that some of them might be impacted on during the road improvement.

Possibility of impact – distance from road reserve

No. 7.3.3.3	42 metres north of fence
No. 7.3.3.4	30 metres north of fence
No. 7.3.3.5	14 metres north of fence
No. 7.3.3.6	20 metres north of fence
No. 7.3.3.7	16 metres north of fence
No. 7.3.3.8	20 metres north of fence
No. 7.3.3.9	15 metres north of fence

Significance of impact

Extent	Duration	Magnitude	Probability	Significance	Weight
3	5	6	2	28	Low

Mitigation

It is recommended that these features are avoided. It should be remembered that this is a linear feature – an impact on a single culvert is therefore an impact on the whole.

Requirements

As these features are older than 60 years, a valid permit for their destruction must be obtained from SAHRA. This will only be issued after the various features have been satisfactorily documented (mapped and photographed) in full.

References

1: 50 000 topocadastral map



7.3.3.3



7.3.3.4



7.3.3.5



7.3.3.6



7.3.3.7

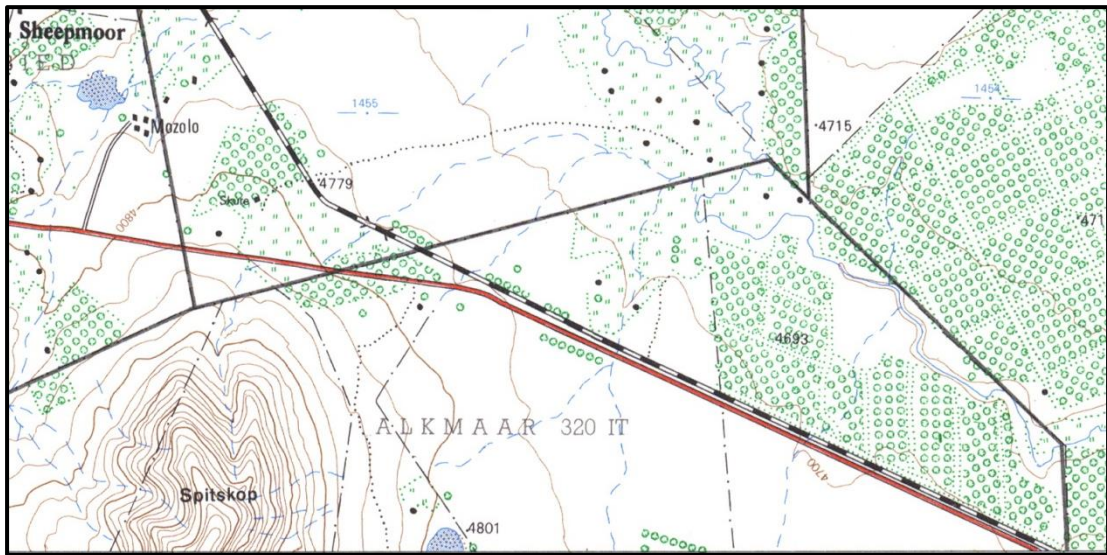


7.3.3.8



7.3.3.9





The original railroad alignment across the farm Alkmaar on the 1969 edition of the 1:50 000 cadastral map.

APPENDIX 7: CURRICULUM VITAE**Johan Abraham van Schalkwyk****Personal particulars**

Date of birth: 14 April 1952
Identity number: 520414 5099 08 4
Marital status: Married; one daughter
Nationality: South African

Current address: home

62 Coetzer Ave, Monument Park, Pretoria, 0181
Mobile: 076 790 6777; E-mail: jvschalkwyk@mweb.co.za

Qualifications

1995 DLitt et Phil (Anthropology), University of South Africa
1985 MA (Anthropology), University of Pretoria
1981 BA (Hons), Anthropology, University of Pretoria
1979 Post Graduate Diploma in Museology, University of Pretoria
1978 BA (Hons), Archaeology, University of Pretoria
1976 BA, University of Pretoria

Non-academic qualifications

12th HSRC-School in Research Methodology - July 1990
Dept. of Education and Training Management Course - June 1992
Social Assessment Professional Development Course - 1994
Integrated Environmental Management Course, UCT - 1994

Professional experience

Private Practice
2017 - current: Professional Heritage Consultant

National Museum of Cultural History

1992 - 2017: Senior researcher: Head of Department of Research. Manage an average of seven researchers in this department and supervise them in their research projects. Did various projects relating to Anthropology and Archaeology in Limpopo Province, Mpumalanga, North West Province and Gauteng. Headed the Museum's Section for Heritage Impact Assessments.
1978 - 1991: Curator of the Anthropological Department of the Museum. Carried out extensive fieldwork in both anthropology and archaeology

Department of Archaeology, University of Pretoria

1976 - 1977: Assistant researcher responsible for excavations at various sites in Limpopo Province and Mpumalanga.

Awards and grants

1. Hanisch Book Prize for the best final year Archaeology student, University of Pretoria - 1976.
2. Special merit award, National Cultural History Museum - 1986.
3. Special merit award, National Cultural History Museum - 1991.
4. Grant by the Department of Arts, Culture, Science and Technology, to visit the various African countries to study museums, sites and cultural programmes - 1993.
5. Grant by the USA National Parks Service, to visit the United States of America to study museums, sites, tourism development, cultural programmes and impact assessment programmes - 1998.
6. Grant by the USA embassy, Pretoria, under the Bi-national Commission Exchange Support Fund, to visit cultural institutions in the USA and to attend a conference in Charleston - 2000.

7. Grant by the National Research Foundation to develop a model for community-based tourism - 2001.

8. Grant by the National Research Foundation to develop a model for community-based tourism - 2013. In association with RARI, Wits University.

Publications

Published more than 70 papers, mostly in scientifically accredited journals, but also as chapters in books.

Conference Contributions

Regularly presented papers at conferences, locally as well as internationally, on various research topics, ranging in scope from archaeology, anthropological, historical, cultural historical and tourism development.

Heritage Impact Assessments

Since 1992, I have done more than 2000 Phase 1 and Phase 2 impact assessments (archaeological, anthropological, historical and social) for various government departments and developers. Projects include environmental management frameworks, roads, pipeline-, and power line developments, dams, mining, water purification works, historical landscapes, refuse dumps and urban developments.