Phase 1 Cultural Heritage Impact Assessment:

HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF SECTION 13 OF THE N11 NATIONAL ROUTE NORTH OF MOKOPANE, LIMPOPO PROVINCE

Prepared for:
Chameleon Environmental: Mr P Bothma
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Prepared by:
J A van Schalkwyk (D Litt et Phil),
- Heritage Consultant: ASAPA Registration No.: 164 - Principal Investigator: Iron Age, Colonial Period, Industrial Heritage.
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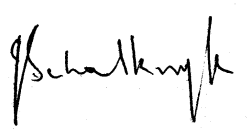
Report No: 2023/JvS/006
- Status: Final
- Date: January 2023
- Revision No: -
- Date: -

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.

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.



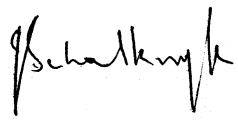
J A van Schalkwyk
Heritage Consultant
January 2023

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
January 2023

EXECUTIVE SUMMARY

Phase 1 Cultural Heritage Impact Assessment:
HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF SECTION 13 OF THE N11 NATIONAL ROUTE NORTH OF MOKOPANE, LIMPOPO PROVINCE

SANRAL propose to upgrade Section 13 of the N11, km 8,340 to km 24,280, from Mokopane northwards towards the Groblersbrug border post with Botswana, Mogalakwena Local Municipality, Limpopo Province.

A heritage survey of this section of the road was completed (Van Schalkwyk 2011) and submitted to SAHRA and the relevant PHRA, i.e., LIHRA. The latter accepted the report and its recommendations (see Fig 1 below). In May 2013 the Department of Environmental Affairs granted an Environmental Authorisation (EA) for the above development.

However, the EA has lapsed in 2021 and a new basic assessment (BA) process needs to be undertaken. As more than ten years has passed since the original heritage report was submitted, it was decided to do a follow-up survey to confirm the *status quo* of the heritage sites and features. An independent heritage consultant was appointed by *Chameleon Environmental* to re-survey the section of the road to determine if the upgrade would have any additional impacts on sites, features or objects of cultural heritage significance.

This report describes the methodology used, the limitations encountered, the heritage features that were identified and the recommendations and mitigation measures proposed relevant to this. The investigation consisted of a desktop study (archival sources, database survey, maps and aerial imagery) and a physical survey that also included the interviewing of relevant people. It should be noted that the implementation of the mitigation measures is subject to SAHRA/PHRA's approval.

Identified sites

During the survey the following sites, features and objects of cultural significance were identified.

- 7.3.1 – 7.3.3 Three cast concrete road bridges. According to available information on the bridges they date to the middle of the 1950s.
- 7.3.4: The old Gada Roller Mill. It was closed down when local communities were relocated and is now defunct.
- 7.3.5: An informal cemetery with a very large number of graves, probably more than 300.

Impact assessment and proposed mitigation measures

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

Site No.	**Site type**	**NHRA category**	**Field rating**	**Impact rating: Before/After mitigation**
7.3.1 – 7.3.3	Structures older than 60 years: Bridges	Section 34	Generally protected 4B: Medium significance	Medium (60) Low (16)
Mitigation: (2) Archaeological investigation: This option should be implemented when it is impossible to avoid impacting on an identified site or feature.				
Site No.	**Site type**	**NHRA category**	**Field rating**	**Impact rating: Before/After mitigation**
7.3.4	Structures older than 60 years: RollerMill	Section 34	Generally protected 4B: Medium significance	Medium (36) Low (16)

Mitigation: (1) Avoidance/Preserve: This site should be fenced off permanently by means of a wire fence, which, in this particular case, would be the road reserve boundary fence. This fence can be made more visible by the application of danger tape for the duration of construction activities.

Site No.	Site type	NHRA category	Field rating	Impact rating: Before/After mitigation
7.3.5	Graves, Cemeteries and Burial Grounds	Section 36	Generally protected 4A: High / Medium significance	Medium (36) Low (16)
Mitigation: (1) Avoidance/Preserve: The burial site should be fenced off permanently by means of a wire fence, which, in this particular case, would be the road reserve boundary fence. This fence can be made more visible by the application of danger tape for the duration of construction activities.				

- Makapan World Heritage Site

Plotting the project area in relation to the Makapan WHS, it can be seen that it is too far away to have any physical impact. By using Google Earth's elevation profile function, it can be seen that the project area would not have a visual impact on the WHS.

- It is therefore our viewpoint that no project-related mitigation measures are required as the upgrade of Section 13 of the N11 will not have any impact on the Makapan WHS.

Legal requirements

The legal requirements related to heritage specifically are specified in Section 3 and 9 of this report.

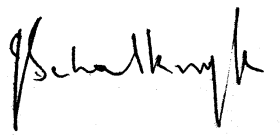
- For this proposed project, the assessment has determined that sites, features or objects of heritage significance occur in the project area. Therefore, if any impact will occur as a result of the proposed development, permits would be required from SAHRA or the PHRA.
- If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits.

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

- From a heritage point of view, it is recommended that the Proposed Project be allowed to continue on acceptance of the mitigation measures presented above and the conditions proposed below.

Conditions for inclusion in the environmental authorisation:

- The Palaeontological Sensitivity Map (http://www.sahra.org.za/sahris/map/palaeo) indicate that project area has for most part an insignificant to zero sensitivity of fossil remains to be found and therefore a palaeontological assessment is not required. However, a short to the north is indicated to have a very high sensitivity and therefore a field assessment is required.
- Should archaeological sites or graves be exposed during further construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. The appropriate steps to take are indicated in Section 9 of the report, as well as in the **Management Plan: Burial Grounds and Graves, with reference to general heritage sites**, in the Addendum, Section 12.4.



J A van Schalkwyk
Heritage Consultant
January 2023

TECHNICAL SUMMARY

Project description	
Description	Upgrading of a section of the N11 northwards from Mokopane in Limpopo Province
Project name	Upgrade Road N11, Section 13

Applicant
SANRAL

Environmental assessment practitioner
Mr P Bothma
Chameleon Environment

Property details						
Province	Limpopo					
Magisterial district	Waterberg					
Local Municipality	Mogalakwena					
Topo-cadastral map	Mokerong 2					
Closest town	Mokopane					
Coordinates	End points (approximate)					
	No	Latitude	Longitude	No	Latitude	Longitude
	1	S 24,12801	E 28,96394	2	S 23,99204	E 28,95932
	.kml files[1]					

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

Land use	
Previous land use	Road reserve
Current land use	Road reserve

[1] Left click on the icon to open the file in Google Earth, if installed on the computer. Alternatively, right click on the icon. In dialog box, select "Save Embedded File to Disk" and save to folder of choice.

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GLOSSARY OF TERMS AND ABBREVIATIONS

TERMS

Bioturbation: The burrowing by small mammals, insects and termites that disturb archaeological deposits.

Cumulative impacts: In relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to existing and reasonably foreseeable impacts eventuating from similar or diverse activities.

Debitage: Stone chips discarded during the manufacture of stone tools.

Factory site: A specialised archaeological site where a specific set of technological activities has taken place – usually used to describe a place where stone tools were made.

Historic Period: Since the arrival of the white settlers - c. AD 1830 - in this part of the country.

Holocene: The most recent time period, which commenced c. 10 000 years ago.

Iron Age (also referred to as **Early Farming Communities**)**:** 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 herded cattle, 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
Later Iron Age	AD 1300 - AD 1830

Midden: The accumulated debris resulting from human occupation of a site.

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

National Estate: The collective heritage assets of the Nation.

Pleistocene: Geological time period of 3 000 000 to 20 000 years ago.

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	2 500 000 - 250 000 Before Present
Middle Stone Age	250 000 - 40-25 000 BP
Later Stone Age	40-25 000 - until c. AD 200

Tradition: As used in archaeology, it is a seriated sequence of artefact assemblages, particularly ceramics.

ACRONYMS and ABBREVIATIONS

AD	Anno Domini (the year 0)
ASAPA	Association of Southern African Professional Archaeologists

BC	Before the Birth of Christ (the year 0)
BCE	Before the Common Era (the year 0)
BP	Before Present (calculated from 1950 when radio-carbon dating was established)
CE	Common Era (the year 0)
CRM	Cultural Resources Management
CS-G	Chief Surveyor-General
DMRE	Department of Mineral Resources and Energy
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Early Iron Age
EIA	Environmental Impact Assessment
EMPr	Environmental Management Programme
ESA	Early Stone Age
HIA	Heritage Impact Assessment
I & AP's	Interested and Affected Parties
ICOMOS	International Council on Monuments and Sites
LIA	Late Iron Age
LSA	Later Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NASA	National Archives of South Africa
NEMA	National Environmental Management Act 107 of 1998
NHRA	National Heritage Resources Act
PHRA	Provincial Heritage Resources Agency
SAHRA	South African Heritage Resources Agency
SAHRIS	South African Heritage Resources Information System
WUL	Water Use Licence

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 i Addendum Section 5
b) a declaration that the specialist is independent in a form as may be specified by the competent authority;	Page ii
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 17
g) an identification of any areas to be avoided, including buffers;	Section 8
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 17 Section 7 & 8
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; (iA) regarding the acceptability of the proposed activity or activities; and	Section 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;	Section 8, 9 & 10
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.	-

Phase 1 Cultural Heritage Impact Assessment:
HERITAGE IMPACT ASSESSMENT FOR THE PROPOSED UPGRADE OF SECTION 13 OF THE N11 NATIONAL ROUTE NORTH OF MOKOPANE, LIMPOPO PROVINCE

1. INTRODUCTION

1.1 Background

SANRAL propose to upgrade Section 13 of the N11, km 8,340 to km 24,280, from Mokopane northwards towards the Groblersbrug border post with Botswana, Mogalakwena Local Municipality, Limpopo Province.

A heritage survey of this section of the road was completed (Van Schalkwyk 2011) and submitted to SAHRA and the relevant PHRA, i.e. LIHRA. The latter accepted the report and its recommendations (see Fig 1 below). In May 2013 the Department of Environmental Affairs granted an Environmental Authorisation (EA) for the above development.

However, the EA has lapsed in 2021 and a new basic assessment (BA) process needs to be undertaken. As more than ten years has passed since the original heritage report was submitted, it was decided to do a follow-up survey to confirm the *status quo* of the heritage sites and features. An independent heritage consultant was appointed by *Chameleon Environmental* to re-survey the section of the road to determine if the upgrade would have any additional impacts on sites, features or objects of cultural heritage significance.

1.2 Terms and references

The aim of a full heritage impact assessment (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 HIA 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 may receive permission to proceed with the proposed development, on condition of successful implementation of proposed mitigation measures.

1.2.1 *Scope of work*

The aim of this study is to determine the cultural heritage significance of the area where the recent and historical developments took take place. This included:

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

The objectives were to:

- 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; and

- Provide guideline measures to manage any impacts that might occur during the proposed project's construction and implementation phases.

1.2.2 *Assumptions and Limitations*

The investigation has been influenced by the following:

- It is assumed that the description of the proposed project, provided by the client, is accurate;
- 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 HIA;
- It is assumed that the information contained in existing databases, reports and publications is correct;
- The unpredictability of buried archaeological remains;
- No subsurface investigation (i.e. excavations or sampling) were undertaken, since a permit from SAHRA is required for such activities;
- The vegetation cover encountered during a site visit can have serious limitations on ground visibility, obscuring features (artefacts, structures) that might be an indication of human settlement.

2. LEGISLATIVE FRAMEWORK

2.1 Background

HIAs are governed by national legislation and standards and International Best Practise. These include:

- South African Legislation
  - National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA);
  - Mineral and Petroleum Resources Development Act, 2002 (Act No. 22 of 2002) (MPRDA);
  - National Environmental Management Act 1998 (Act No. 107 of 1998) (NEMA); and
  - National Water Act, 1998 (Act No. 36 of 1998) (NWA).
- Standards and Regulations
  - South African Heritage Resources Agency (SAHRA) Minimum Standards;
  - Association of Southern African Professional Archaeologists (ASAPA) Constitution and Code of Ethics;
  - Anthropological Association of Southern Africa Constitution and Code of Ethics.
- International Best Practise and Guidelines
  - ICOMOS Standards (Guidance on Heritage Impact Assessments for Cultural World Heritage Properties); and
  - The UNESCO Convention concerning the Protection of the World Cultural and Natural Heritage (1972).

2.2 Heritage Impact Assessment Studies

South Africa's unique and non-renewable archaeological and palaeontological heritage sites are 'generally' protected in terms of the NHRA (Section 35) and may not be disturbed at all without a permit from the relevant heritage resources authority, subject to the provisions of Section 38(8) of the NHRA.

The NHRA, Section 38, contains requirements for Cultural Resources Management and prospective developments:

"38 (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as:

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of a site:
(i) exceeding 5 000 m^2 in extent; or
(ii) involving three or more existing erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within he past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
(d) the re-zoning of a site exceeding 10 000 m^2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development."

And:

"38 (3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:
(a) The identification and mapping of all heritage resources in the area affected;
(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
(c) an assessment of the impact of the development on such heritage resources;
(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;
(e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
(g) plans for mitigation of any adverse effects during and after the completion of the proposed development."

LIHRA

LIMPOPO HERITAGE RESOURCES AUTHORITY

71 Biccard str
Postnet suite 21
P/Bag x9307
Polokwane
0700

Tel: (015) 291 3708
Fax: (015) 291 5628
Cel: 072 311 6685
e-mail: lihra@lantic.net

REF: 10/09/1032

ENQ: Nemauluma N.N

DATE: 30/07/2013

PERMIT: 2003/009/44

RE: Proposed construction of a N11 Section 13 in **Mokopane a distance of** 24km inducing borrow pits and hard rock Quarry along the route, Limpopo Province

APPLICANT: ROYAL HASKONINGDHV (PTY) LTD TRADING AS ROYAL HASKONINGDHV.

The above matter refers,

Guided by the heritage impact assessment report, the LIHRA concurs with the findings laid by the heritage specialist that the development must go ahead.

However, experience taught that some heritage resources are often found during excavations and digging that takes places during construction. It is for this reason that we advices that should you during construction unearth objects of cultural significance, the LIHRA should be informed.

Our review team established that four bridges mentioned in HIA are more than 60 years, in terms of section 34 of NHRA, 25. 1999; such bridges may not be destroyed or disturbed without a valid permit from the Provincial Heritage Resources. This authorization does not give applicant the right to destroy or deface the identified heritage resources or bridges. Instead, the developer must ensure that the proposed work must be guided in the manner that would not cause or lead to any destruction of the identified heritage resources or bridges.

It is recommended that the identified graves should be fenced or clearly marked with danger tape during the entire duration of the project and 30 buffer zone must be allowed around the grave. The planning team should ensure that access to the grave is not limited in any way.

This memo serves to inform that from a heritage management point of view the LIHRA has no objection to the alteration of the bridges as long as all recommendations' made by Heritage Specialist are adhered to.

We trust that you will find the above matters in order.

30/07/13

HERITAGE SPECIALIST LIHRA: ADVISORY COMMITTEE DATE

Figure 1. Communication from LIHRA regarding their acceptance of the original heritage report and the proposed recommendations

3. HERITAGE RESOURCES

3.1 The National Estate

The NHRA 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 (see Section 2 of Addendum) was developed whereby the above criteria were applied for the determination of the significance of each identified site. This allowed some form of control over the application of similar values for similar identified sites.

4. PROJECT DESCRIPTION

4.1 Site location

The study area includes a section of the N11 from the northern side of Mokopane (Potgietersrus). It runs for a short section through townships that formed part of the old Lebowa homeland, northwards towards the Groblersbrug border post with Botswana (Fig. 2). For more information, see the Technical Summary on p. V above.

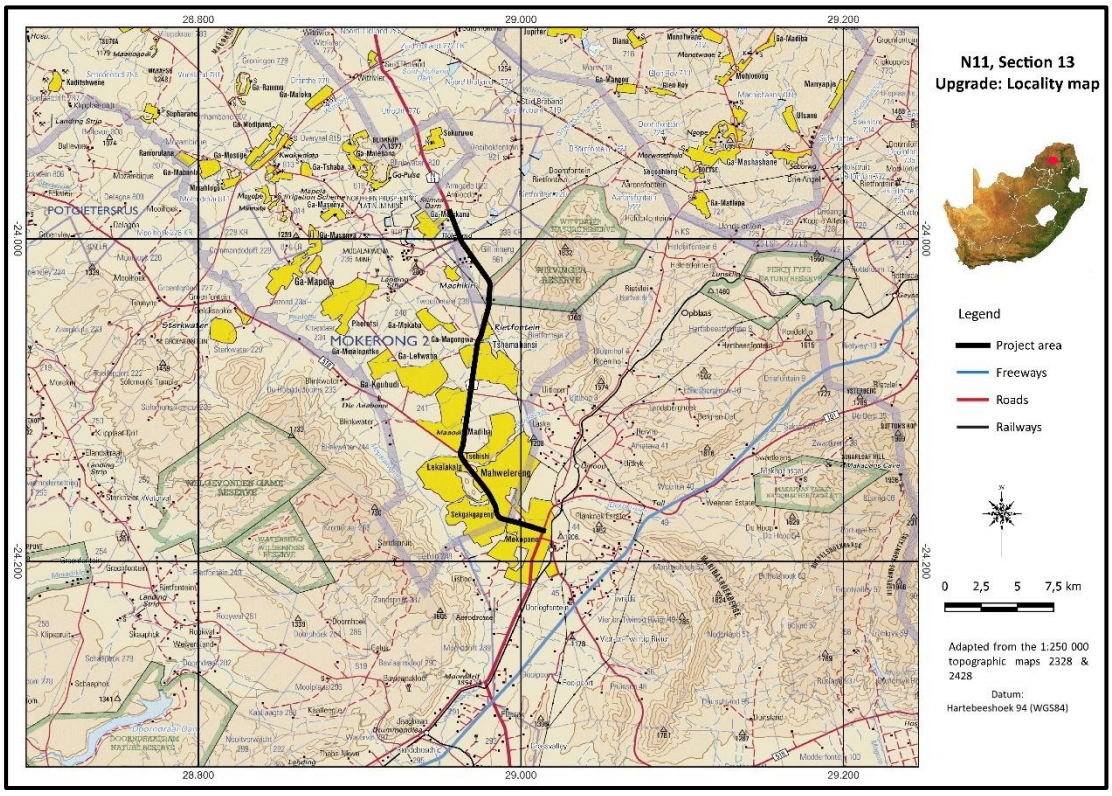


Figure 2. Location of the project area in regional context

4.2 Development proposal

The following information taken from documents supplied by *Chameleon Environmental*:

The project was originally designed as part of the rehabilitation and upgrading of National Route N11 Section 13 from Mokopane (km 1,310) to the Grootsandsloot River (km 24,0), but it was decided to split the original project into two contracts. This contract (also referred to as Contract 1) entails the rehabilitation and upgrading of the second part of the original project, stretching from the R518

Intersection (km 8,345) to the Grootsandsloot River (km 24,0) over a distance of approximately 15,7 km. A portion of the road between km 19,171 and km 20,204 is omitted from the N11-13 Rehabilitation Contract as it will form part of the proposed new Mokopane Bypass project (design undertaken by Royal Haskoning DHV). Short-term rehabilitation measures for this section of the road are however included in this project to serve as a holding action until the Bypass is constructed. The original road reserve width of 100 Cape feet (approximately 30m) will be increased to 40m minimum over the total length of this contract. The project is located in the Mogalakwena Local Municipality of the Waterberg District Municipality in the Limpopo Province of South Africa. Refer to Appendix 1 in clause C4.14: Appendices, for a Locality Plan of the project.

The existing road is a single carriageway surfaced road with varying width stretching through areas that can be classified as urban, semi-urban and rural. The area from km 14,160 to km 15,820 (Tshamahansi) can at this stage already be classified as semi-urban to urban, while the remaining areas up to km 16,540 are developing fast into semi-urban areas. Only the area from km 16,540 onwards can still be regarded as predominantly rural. From km 8,345 up to the existing mine access road at km 23,360, the existing single carriageway road is to be widened to a 12,4m minimum surfaced width. Between km 13,0 and km 15,2 the road centre line was moved to the right-hand side of the travelled way to avoid affecting several existing properties and improvements situated on the RHS of the road. Paved sidewalks of 1,8m wide are specified over some sections of the road between km 8,345 and km 16,620. The existing road width is retained from km 23,360 up to the end of construction at km 24,0.

Anglo-Platinum requested negotiations with SANRAL for the construction of a new interchange at the junction of Road D4380 with N11-13 at km 23,360 (access to Anglo-Platinum mining activities), where only an at-grade intersection is planned at this stage. Agreement was reached that the interchange will not form part of this contract and construction of the N11-13 will continue as originally planned. The design of the interchange will be done by Anglo-Platinum's consultants (as approved by SANRAL) to tie in with the existing design, and construction of the interchange will be a separate contract partly funded by Anglo-Platinum.

The core strategies of the project are the following:

- Implementing measures to improve the safety of pedestrians and the general public:
  - Upgrading of intersections to provide bus/taxi bays and pedestrian crossings.
  - Construction of paved sidewalks through built-up areas.
  - Erection of a welded steel mesh high security fence along road in built-up areas.
  - Installation of street lighting along main road through built-up areas.
- Improving the general geometry of the road to increase capacity and safety:
  - New vertical alignment to raise existing road levels for improved drainage and to fit in with the pavement strengthening strategy.
  - Upgrading and widening of surfaced width of the single carriageway road.
  - Upgrading of all intersections and junctions.
- Formalising access to adjacent properties by means of local access roads, replacing direct access onto main road. These access roads will be constructed under a specific Community Development Project (CDP) forming part of this Contract 1 (km 8,345 – km 24,0). The CDP includes construction of all the local access roads from km 1,310 at Mokopane to km 24,0 at the Grootsandsloot River, i.e. also including the local access roads situated on the future Contract 2 from Mokopane (km 1,310) to the R518 intersection (km 8,345).
- Constructing a new road pavement and strengthening the existing pavement structure for a 20 year life cycle by adding new pavement layers (450mm to 750mm).
- Improving the surface- and cross-drainage of the road by a raised vertical alignment (higher road levels) and upgrading/replacing all drainage culverts.
- Replacing one existing bridge structure due to hydraulic inadequacies.

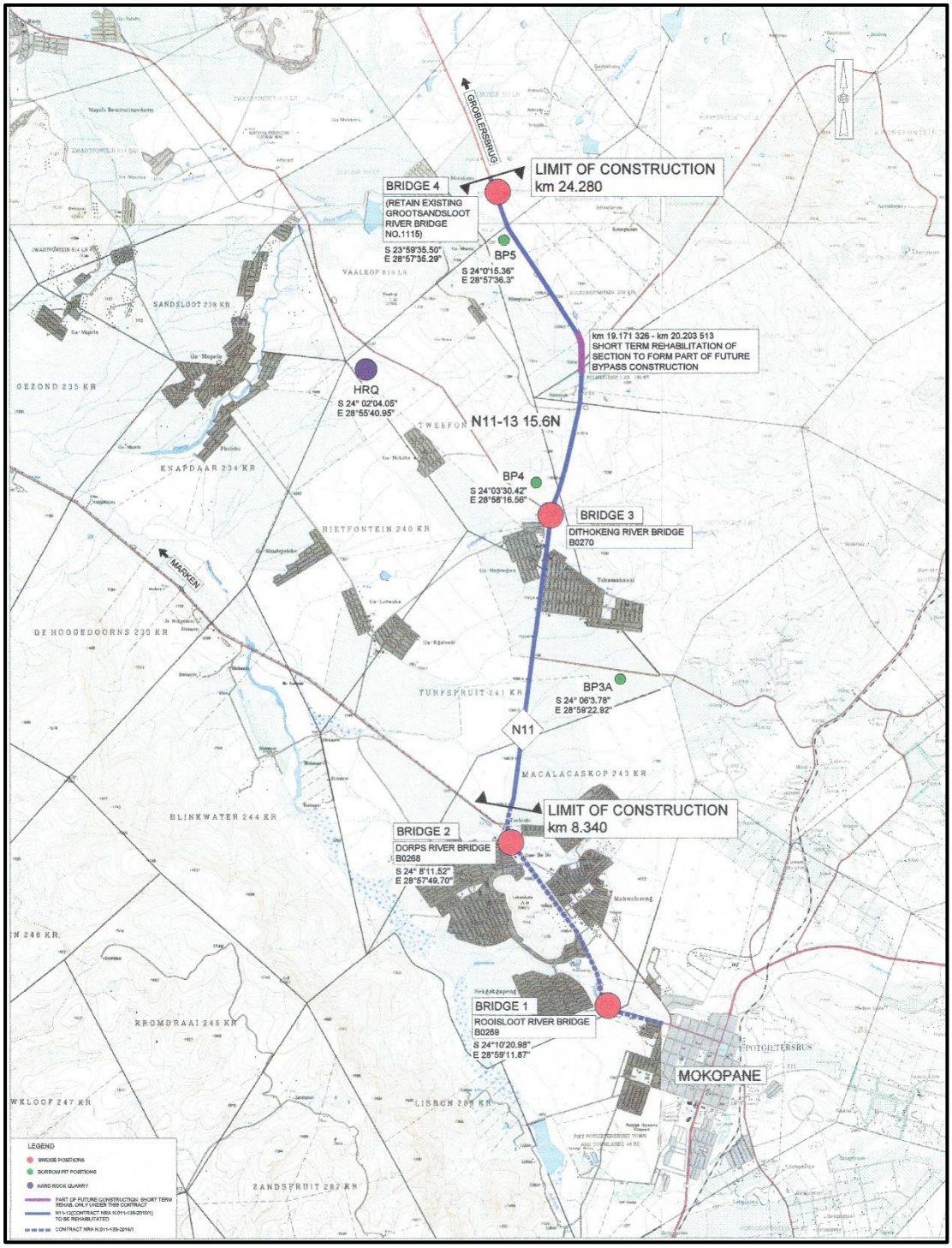


Figure 3. Layout of the project
(Map supplied)

5. STUDY APPROACH AND METHODOLOGY

5.1 Extent of the Study

This survey and impact assessment cover all facets of cultural heritage located in the project area as presented in Section 4 above and illustrated in Figures 1 - 3.

5.2 Methodology

5.2.1 Pre-feasibility assessment

The objectives of this review were to:

- Gain an understanding of the cultural landscape within which the project is located;
- Inform the field survey.

5.2.1.1 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 11.

- Information on events, sites and features in the larger region were obtained from these sources.

5.2.1.2 Survey of heritage impact assessments (HIAs)

A survey of HIAs done for projects in the region by various heritage consultants was conducted with the aim of determining the heritage potential of the area – see list of references in Section 11.

- Information on sites and features in the larger region were obtained from these sources.

5.2.1.3 Data bases

The *Heritage Atlas Database,* various SAHRA databases, the *Heritage Register*, the *Environmental Potential Atlas*, the *Chief Surveyor General* and the *National Archives of South Africa* were consulted.

- Database surveys produced several sites located in the larger region of the proposed development.

5.2.1.4 Other sources

Aerial photographs and topographic and other maps were also studied - see the list of references below.

- Information of a very general nature were obtained from these sources.

5.2.1.5 Results

The results of the above investigation are presented in Table 1 and Figure 4 below – see list of references in Section 11 – and can be summarised as follows:

- Sites containing stone tools dating to all phases of the Stone Age are known to occur sporadically over the larger region;
- Sites containing rock paintings occur in a number of places to the west and north;
- Sites dating to the Iron Age, more specifically the Late Iron Age, occur in various places. Many of these are stone walled sites located in defensible positions on top of hills;
- Iron Age mining and smelting sites are know from the area to the west;
- Historic structures, inclusive of buildings, monuments and bridges, occur sporadically all over the larger region;
- Mining and infrastructure features occur all over;
- Formal and informal burial sites occur sporadically throughout the region.

Based on the above assessment, the probability of cultural heritage sites, features and objects occurring in the project area is considered to be ***possible***.

Table 1: Pre-Feasibility Assessment

Category	Period	Probability	Reference
Natural			
Landscapes		Possible	Historic maps & aerial photographs
Early hominin	Pliocene – Lower Pleistocene		
	Early hominin	Low	Clarke & Partridge (2010); Dart (1957)
Stone Age	Lower Pleistocene – Holocene		
	Early Stone Age	Low	-
	Middle Stone Age	Possible	Heritage Atlas Database; Wadley *et al* (2016)
	Later Stone Age	Possible	Schoonraad & Beaumont (1968)
	Rock Art	Present	Heritage Atlas Database; Rudner & Rudner (1970); Schoonraad & Beaumont (1968); Van Schalkwyk (2021)
Iron age	Holocene		
	Early Iron Age	Possible	Huffman (1990; 2007)
	Middle Iron Age	Low	
	Late Iron Age	Possible	Bandama (2013}; Boeyens *et al* (2009); Esterhuysen (2010); Hall (1985); Heritage Atlas Database; Higgitt (2013); Huffman (2007); Van Schalkwyk (2005)
Colonial period	Holocene		
	Contact period/Early historic	Possible	Vig (2018); Trapido (1978); Heritage Atlas Database; Jackson (n.d.); Walker & Bothma (2005)
	Recent history	Possible	Higgitt (2013); Jackson (n.d.); Walker & Bothma (2005)
	Industrial heritage	Low	Heritage Atlas Database

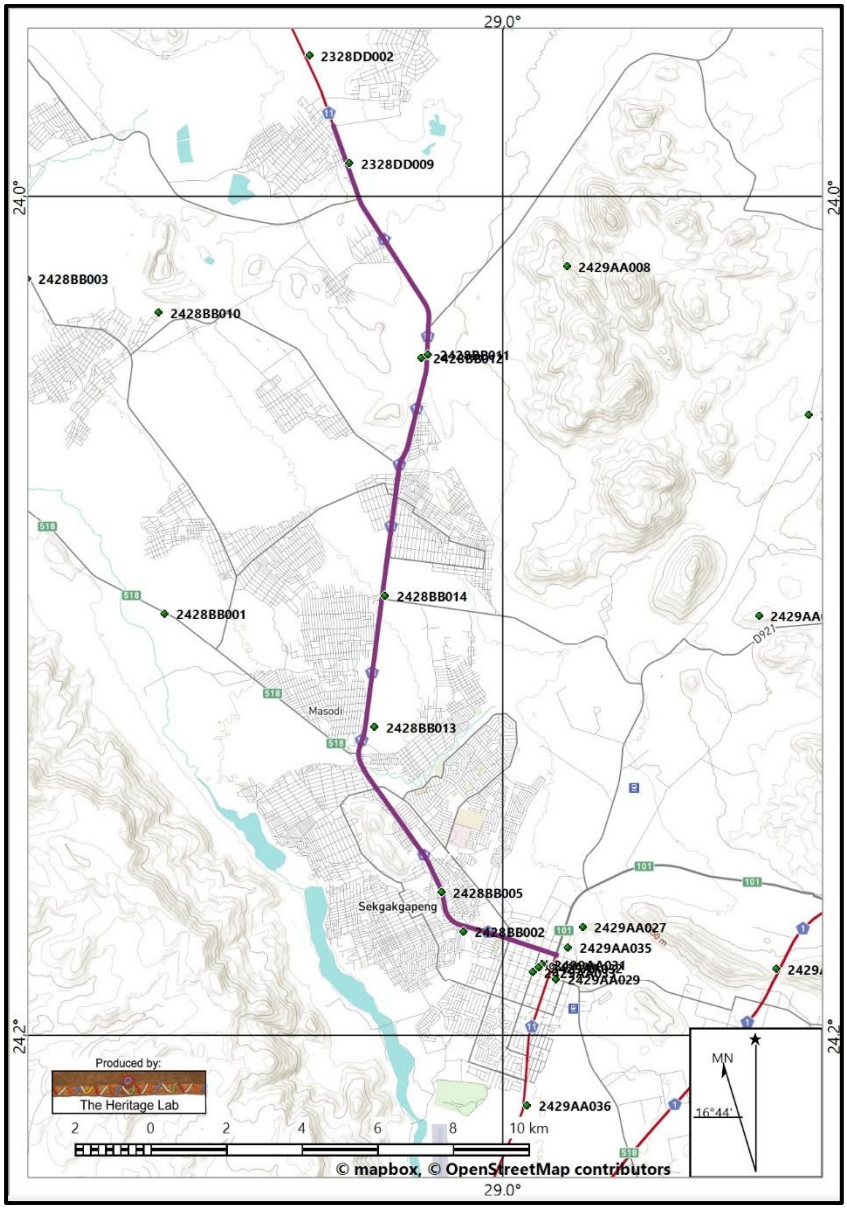


Figure 4. Location of known heritage sites and features in relation to the project area

5.2.2 *Field survey*

The field survey was done according to generally accepted archaeological practices, and was aimed at locating all possible heritage sites, objects and structures. The area that had to be investigated was identified by *Chameleon Environmental Consulting* by means of maps and .k*ml* files indicating the project area. This was loaded onto a Samsung digital device and used in Google Earth during the field survey to access the project area.

- The project area was investigated by travelling the relevant section of the road in both directions. Heritage sites and features identified during the original survey, as well as a number of other sites reported on in later HIA's done in the region, were inspected as to their location in terms of the proposed upgrade of the road.
    - It was determined that some sites that were previously reported on (Higgitt 2013), especially burial sites, have been relocated as part of new mining and other activities in the region.

5.2.3 *Documentation*

All sites, objects and structures that were 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 to facilitate the identification of each locality. Map datum used: Hartebeeshoek 94 (WGS84).

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. Geo-rectifying of the aerial photographs and historic maps was done by means of a professional software package: ExpertGPS.

6. DESCRIPTION OF THE AFFECTED ENVIRONMENT

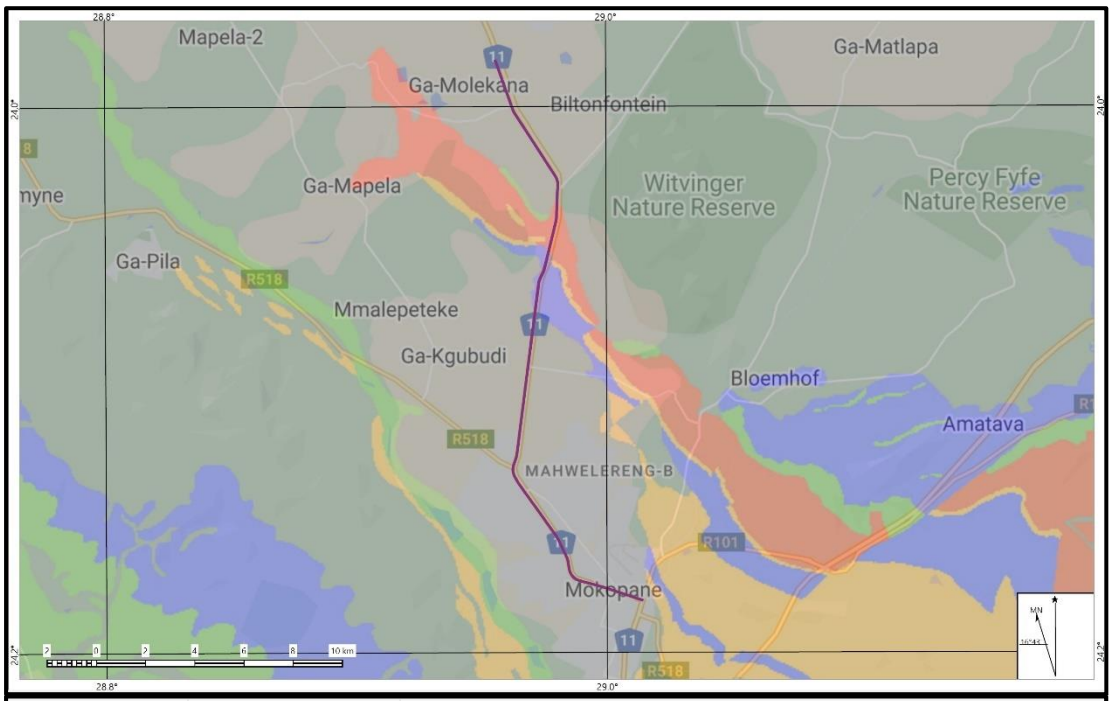
6.1 Natural Environment

The original vegetation is classified as Makhado Sweet Bushveld, a savanna biome forming part of the Central Bushveld Bioregion (Fig. 5).

Figure 5. Showing views of the road, travelling from south to north

The geology of the project area is made up of gabbro and norite of the Rustenburg Layered Suite of the Bushveld Complex. The topography is classified as table lands and several rivers and stream criss-cross the region.

The Palaeontological Sensitivity Map (http://www.sahra.org.za/sahris/map/palaeo) indicate that project area (Fig. 6) has for most part an insignificant to zero sensitivity of fossil remains to be found and therefore a palaeontological assessment is not required. However, a short to the north is indicated to have a very high sensitivity and therefore a field assessment is required.



Colour	Sensitivity	Required Action
RED	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Figure 6. The Palaeontological sensitivity of the project area

6.2 Cultural Landscape

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 project area, within the context of their historic, aesthetic, scientific and social value, rarity and representivity.

6.2.1 *Palaeontological sites*

Makapan Cave northeast of Mokopane is a palaeontological site of international significance and it is part of the serially declared *Fossil Hominid Sites of South Africa* World Heritage Site, together with the *Cradle of Humankind* and *Taung Fossil Site*. The Makapan Cave site consists of a number of limestone caves, such as Limeworks Cave, Cave of Hearths, Hyaena Cave and the Historic Cave.

Although collecting of fossil bones occurred sporadically from the early 1920s, it was only in 1945 that serious collecting started at the Makapan Caves. Inspired by the discoveries at Taung and Sterkfontein,

Phillip Tobias, a student of Raymond Dart, undertook an expedition in 1945 to Makapansgat to investigate the lime miners' dumps for possible evidence of fossil remains. In 1947 this search led to the discovery of a portion of the hominin skull, which Dart named *Australopithecus Prometheus*. Further exploration revealed, in addition to many more *Australopithecus* remains, also an incredible amount of fossils of a variety of animals. Dart believed that *Australopithecus* was responsible for this accumulation, as his perception was that the early hominins used the faunal remains as tools such as clubs and knives. Based on this he invented the term *Osteodontokeratic culture*, meaning bone, tooth and horn culture. However, since then it was determined that the accumulation of bone was the result of actions by hyaenas, porcupines and other animals (Clarke & Partridge 2010; Dart 1957).

It is estimated that the hominin remains date back between 4.5 million and 2.5 million years, with evidence of the controlled use of fire dating to 1.8 to 1 million years ago.

Figure 7. Interior views of Limeworks Cave and Makapan Cave (2005)

6.2.2 *Stone Age*

Occupation of the larger region has taken place since the Early Stone Age time. Various such sites occur in the larger region, some of which were excavated by Prof. Revil Mason (1969).

However, it was largely during the Middle Stone Age (MSA) times (c. 150 000 – 30 000 BP), when human activities increased. People became more mobile, occupying areas formerly avoided (Thackeray 1992). Open sites were still preferred near watercourses. These people were adept at exploiting the huge herds of animals that passed through the area, on their seasonal migration.

The MSA is a technological stage characterized by flakes, flake-blades and triangular points with faceted platforms, produced from prepared cores, as distinct from the core tool-based ESA technology. One example of several very interesting Middle Stone Age developments that have been identified is the so-called Pietersburg industry, with its large number of associated stone artefacts, of which a significant percentage consists of triangular points (Mason 1969) (Fig. 8).

Figure 8. Typical MSA Pietersburg Industry triangular points

Late Stone Age (LSA) people had even more advanced technology than the MSA people and therefore succeeded in occupying even more diverse habitats. Also, for the first time we now get evidence of people's activities derived from material other than stone tools. Ostrich eggshell beads, ground bone arrowheads, small, bored stones and wood fragments with incised markings are traditionally linked with the LSA. The LSA people have also left us with a rich legacy of rock art, which is an expression of their complex social and spiritual believes.

6.2.3 *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 closest known Early Iron Age sites occur to the west in the Waterberg region (Huffman 1990) and to the north in the Blouberg/Makgabeng area (Van Schalkwyk 1998, 2004).

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 Witwatersrand and the treeless plains of the Free State.

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 White settlers trekked into this area in the 1830s.

6.2.4 *Historic period*

By the early 19th century early European travellers started to enter the region, including David Hume, Cornwallis Harris and David Livingstone. Early voortrekkers such as Louis Trichardt and J van Rensburg also visited the area (Walker & Bothma 2005). But, by the late 19th century, white settlers also arrived on the scene, taking farms. However, for long the area was seen as a conservative backcountry area of the country (Vig 2018). This is certainly the case, as is evidenced by the well-known South African itinerant painter, Eric Mayer, who painted numerous scenes of Waterberg people using ox-wagons on hunting trips or to travel to town to attend Nagmaal at the church, camping along the way in tents as late as the 1940s.

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, with farming the most dominant economic activity. The Berlin Mission Society established a mission station, Makapanspoort, in the 1860 on the western outskirts of Mokopane (Potgietersrust).

Early on the area was surveyed and subdivided into farms. Several small towns were soon laid out, followed by the necessary infrastructure development. After the Second South African War (1899-1902), farmers from all over the old ZAR were encouraged to settle in the region and take up farms. This also was exploited by the new British controlled government who brought in a class of 'yeoman' British farmers who would displace the Boer farmers as the primary economic force in the countryside. It also presented possibilities to the land companies to unload large tracts of land onto the market (Trapido 1978:50).

The *Oceana Consolidated Company Limited*, one of the first early major South African Mining Houses, based in Johannesburg owned over 1 million acres of gold and other Mineral Rights in the South African Republic (ZAR), later the Transvaal Province. Early maps give a clear indication of the large number of farms in the Waterberg region on which this company held the mineral rights. Other companies such as the *Transvaal Consolidated Land & Exploration Company Limited* and the *African and European Investment Company* owned equally large mining rights in the region. Johannes Rissik, Surveyor-General of the ZAR was also director of the *Transvaal Land and Exploration Company* who owned several farms in the larger countryside, surely benefitted from this.

Figure 9. The parsonage at the old Makapanspoort Berlin Mission Station

6.2.4 *Ethno-history*

The following is a summary compiled from Van Warmelo (1944), De Beer (1986) and Jackson (n.d.).

The study area is located in the area of the Northern Transvaal Ndebele, consisting of the tribes of Kekana, Langa, Letwaba, Maraba and Seleka. The Kekana, Langa and Seleka can all be found in the Mokerong magisterial district, whereas the others live not only in Mokerong, but also in the Seshego and Thabamoopo magisterial districts.

The Transvaal Ndebele is usually divided into two groups, southern and northern, but claim a similar origin in the region of north western Natal. From here they moved, during the early 1600s, in two streams to the former Transvaal province. The first group, under chief Musi, settled in the vicinity of Pretoria, and over time subdivided into the Manala, Ndzundza, Hwaduba and Mathombeni. Of this latter group, one section eventually settled to the south west of Mokopane (Potgietersrust). A junior branch of this group came to be known as the Kekana of Mokopane and, in 1854, was responsible for the murder of a group of white Trekkers at Moorddrift. The punitive expedition against them had to dislodge them from the Makapansgat caves where they took refuge (Esterhuysen 2010)

The second group, under the leadership of Masebe I, after following a long and circuitous route, eventually settled at Fothane Hill in the Mokerong district. Similar to the Southern Ndebele, some subdivision took place over time. The Seleka section first settled near Rustenburg and, after a sojourn in Botswana, moved back to the Mokerong district in 1899. The Langa is also known as the Mapela, after one of their leaders, who died c. 1826 and was buried at Fothane Hill. They are also referred to as the baga Mankopane, with reference to one of their earlier leaders, who was also in 1854 responsible for the death of a number of white Trekkers at what was to become known as Moordkoppie. Later, as a result of a dispute over succession, the tribe broke into two, the Langa of Mapela and a more junior branch, the Langa of Bakenberg.

The Letwaba and Maraba share similar histories, and after long wanderings, settled, as different smaller tribes, in the region of Mokopane. Some of the groups are the Mašašane, the Letwaba of Eland and the Nkidikitlana. The Maraba sections are the Sekgopetšana and the Mapangula.

Figure 10. Typical Northern Ndebele-speakers' mural decorations

6.3 Site specific review

Although landscapes with cultural significance are not explicitly described in the NHRA, they are protected under the broad definition of the National Estate (Section 3): Section 3(2)(c) and (d) list "historical settlements and townscapes" and "landscapes and natural features of cultural significance" as part of the National Estate.

The examination of historical maps and aerial photographs help us to reconstruct how the cultural landscape has changed over time as is show how humans have used the land.

6.3.1 *General overview*

Based on a study of available aerial photographs and old maps (Fig. 11 – 13), it is clear that the area was until recent times largely used for agricultural purposes as this was still very much white owned land. However, during the last few decades, many more people settled in the surrounding areas, with the townships expanding at a tremendous pace. This increased population is also the result of a large number of new mines that opened up in the region, requiring a large workforce that needs to be housed.

It can also be seen that, probably as a result of this increased settlement, the old road towards Groblersbrug was shifted to the current alignment. This must have happened during the early 1960s as the 1952 aerial photograph still shows the old route (Fig. 12).

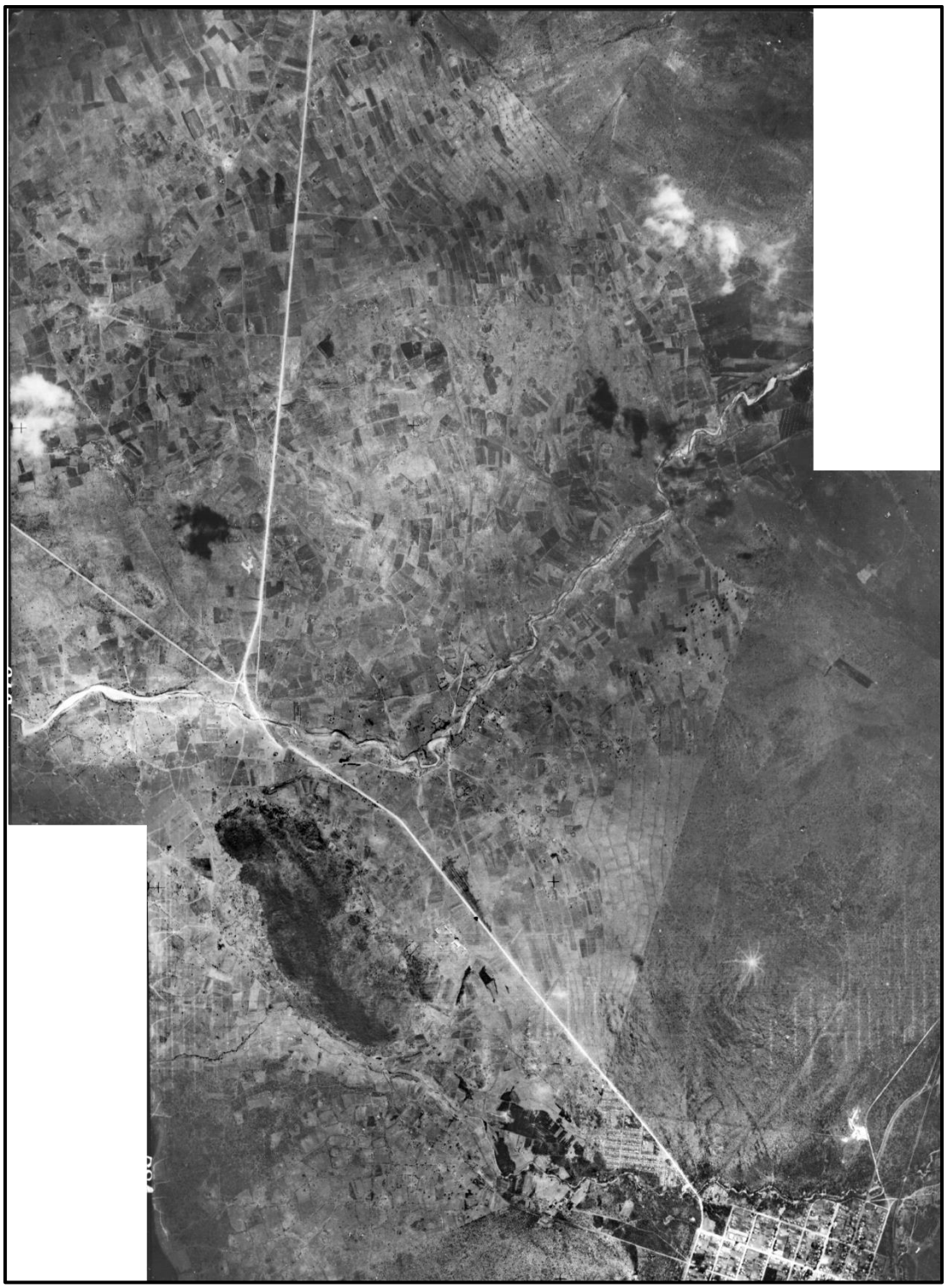


Figure 11. The southern section of the project area on the 1952 aerial photographs (NGI photographs: 323_005_00284 & 323_005_00284)

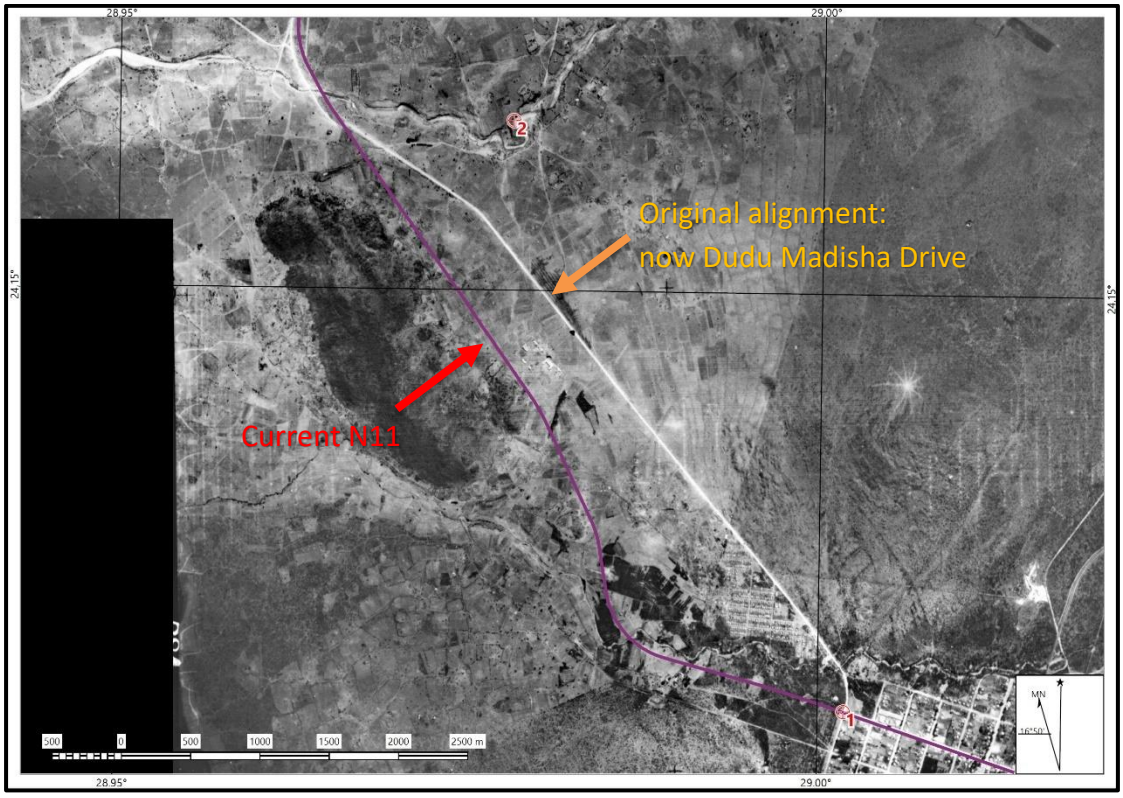


Figure 12. The old alignment vs. the new N11
(NGI photographs: 323_005_00284 & 323_005_00284) (red wheel-crosses = calibration points)

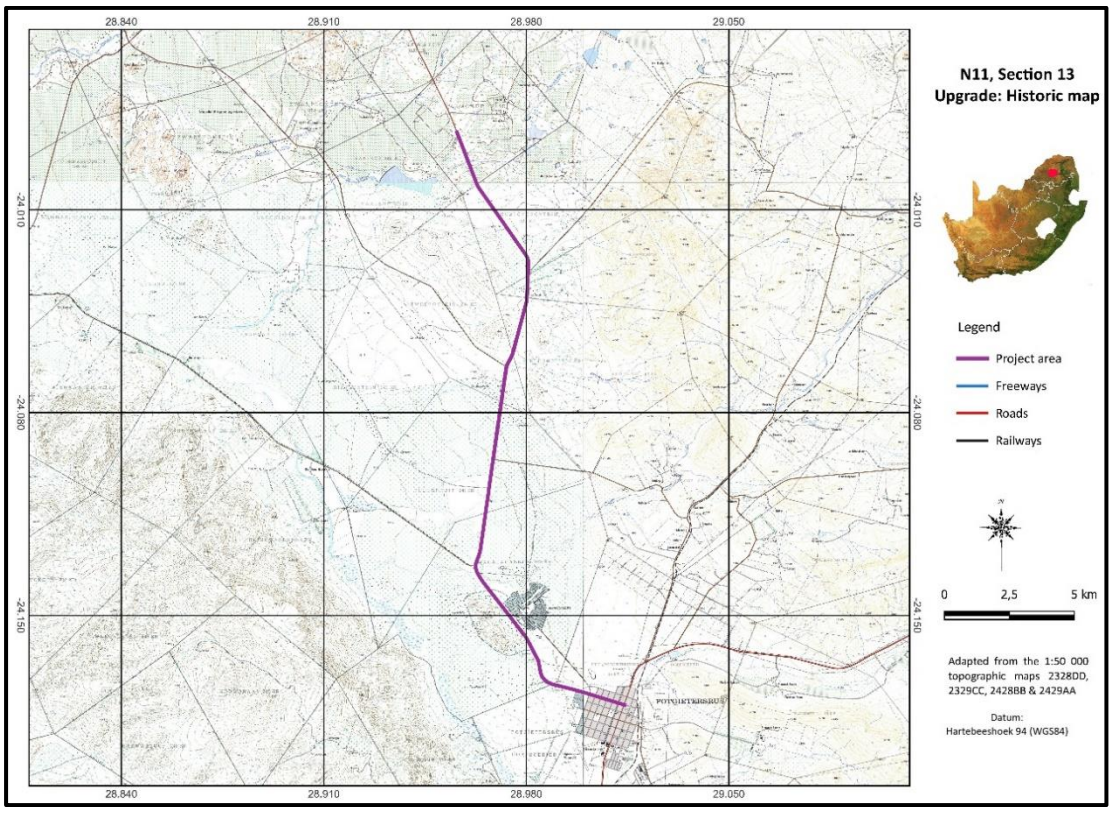


Figure 13. The project area on the 1968 Version of the 1:50 000 topographic map

6.3.2 *Makapan World Heritage Site*

The Makapan World Heritage Site (WHS) is a Grade I National Heritage Site. It is located, at its closest point, approximate 16km east of the project area (Fig. 14).

"The World Heritage Convention, for the protection of World's Cultural & Natural Heritage, recognises properties of 'Outstanding Universal Value' which are part of the "world heritage of mankind as a whole" and deserve "protection and transmission to future generations". Such properties are recognised through inscription on the World Heritage list by the World Heritage Committee" (https://www.icomos.org/world_heritage/HIA_20110201.pdf).

Within areas of OUV, the identification, description and protection of sites and artefacts are governed by the World Heritage Convention Act (Act 49 of 1999). In order to standardise this, the International Council on Monuments and Sites (ICOMOS) developed HIA guidelines to provide methodology for assessing the potential impact of change or development within an OUV property.

In the case of the Cradle of Humankind World Heritage Site (CHWHS) the following description, provided through http://whc.unesco.org, is used as baseline:

> "The Cradle of Humankind World Heritage Site (listed in 1999) is a serially listed site which together with the Makapan Valley and Taung (listed in 2005) form the Fossil Hominid sites of South Africa. Collectively these sites provide the most conclusive, not the oldest, fossilised evidence that Africa is the Cradle of Humankind, the place where the umbilical cord of our ancestors lies buried.

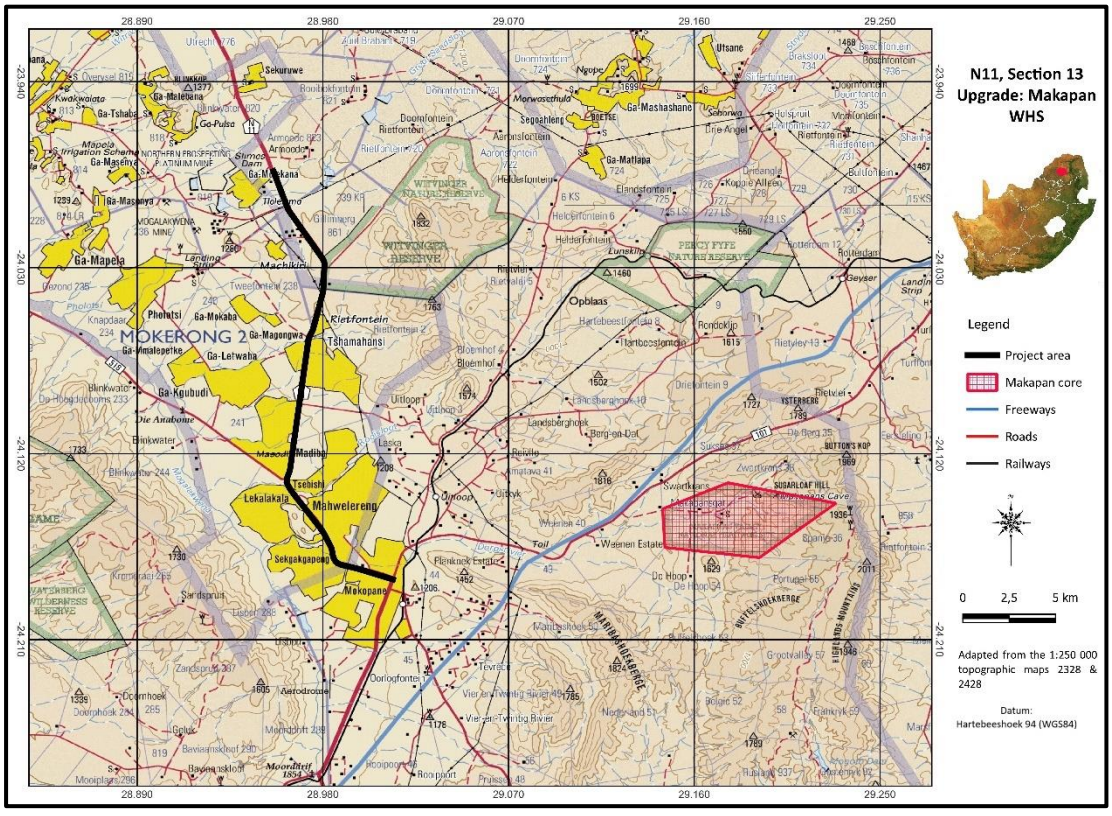


Figure 14. The project area in relation to the Makapan World Heritage Site core area

The proclaimed Makapan WHS core area is 2 220ha in size, with a buffer zone of 48 065ha around the site. (Unfortunately, a usable polygon in a computer usable format is not available, Fig. 15, from Government Gazette, No. 1197, 18 December 2007, No. 30590:3).

According to the Cradle of Humankind World Heritage Site Integrated Management Plan, 2021-2026, p. 6, the purpose of the buffer zone is:

> The buffer zone is an area where there are additional land uses and management controls to prevent damage to the Outstanding Universal Value of the site. To safeguard the OUV within the WHS and to counter any threatening processes or edge effects, a suitable buffer and appropriate land uses in this zone should be identified.

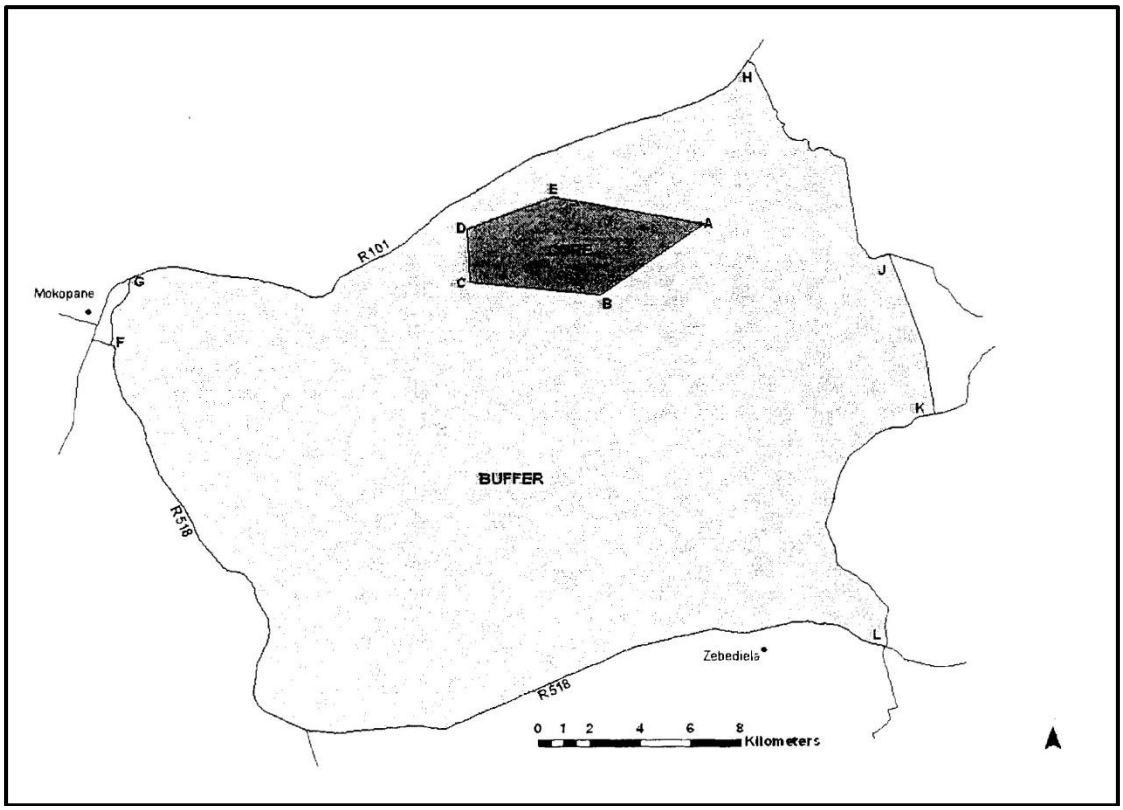


Figure 15. Diagram indicating the Makapan WHS buffer zone
(Government Gazette, No. 1197, 18 December 2007, No. 30590:3)

Plotting the project area in relation to the Makapan WHS, and by using Google Earth's elevation profile function, it can be seen that the project area would not have a visual impact on the WHS (Fig. 16).

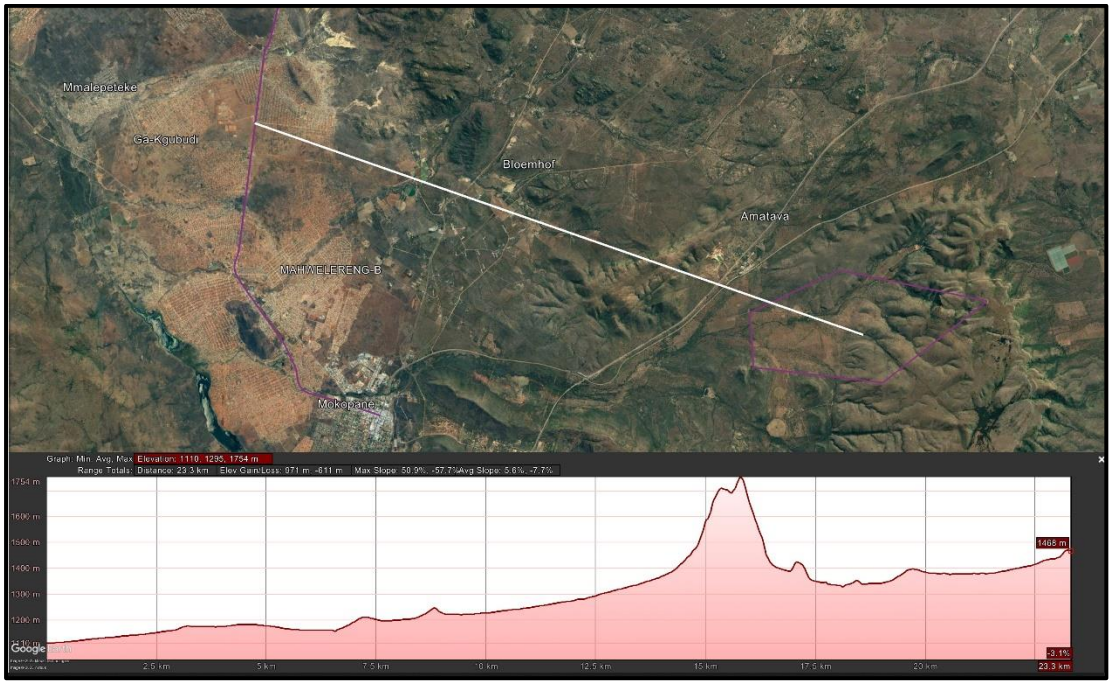


Figure 16. Presentation of the visual impact of the project on the Makapan WHS
(Image: Google Earth)

- It is therefore our viewpoint that no project-related mitigation measures are required as the upgrade of Section 13 of the N11 will not have any impact on the Makapan WHS.

7. SURVEY RESULTS

During the survey, the following sites, features and objects of cultural significance were identified in the project area (Fig. 17).

- Only sites falling inside the road reserve, bordering directly against it or are within 50m from the road reserve were subjected to an impact assessment.
  - A number of burial sites have been identified alongside the road, but all are more than 70m from the fence demarcating the road reserve. The possibility that the proposed road works would have an impact on them is therefore viewed to be very low.

7.1 Stone Age

- No sites, features or objects of cultural significance dating to the Stone Age were identified in the project area.

7.2 Iron Age

- No sites, features or objects of cultural significance dating to the Iron Age were identified in the project area.

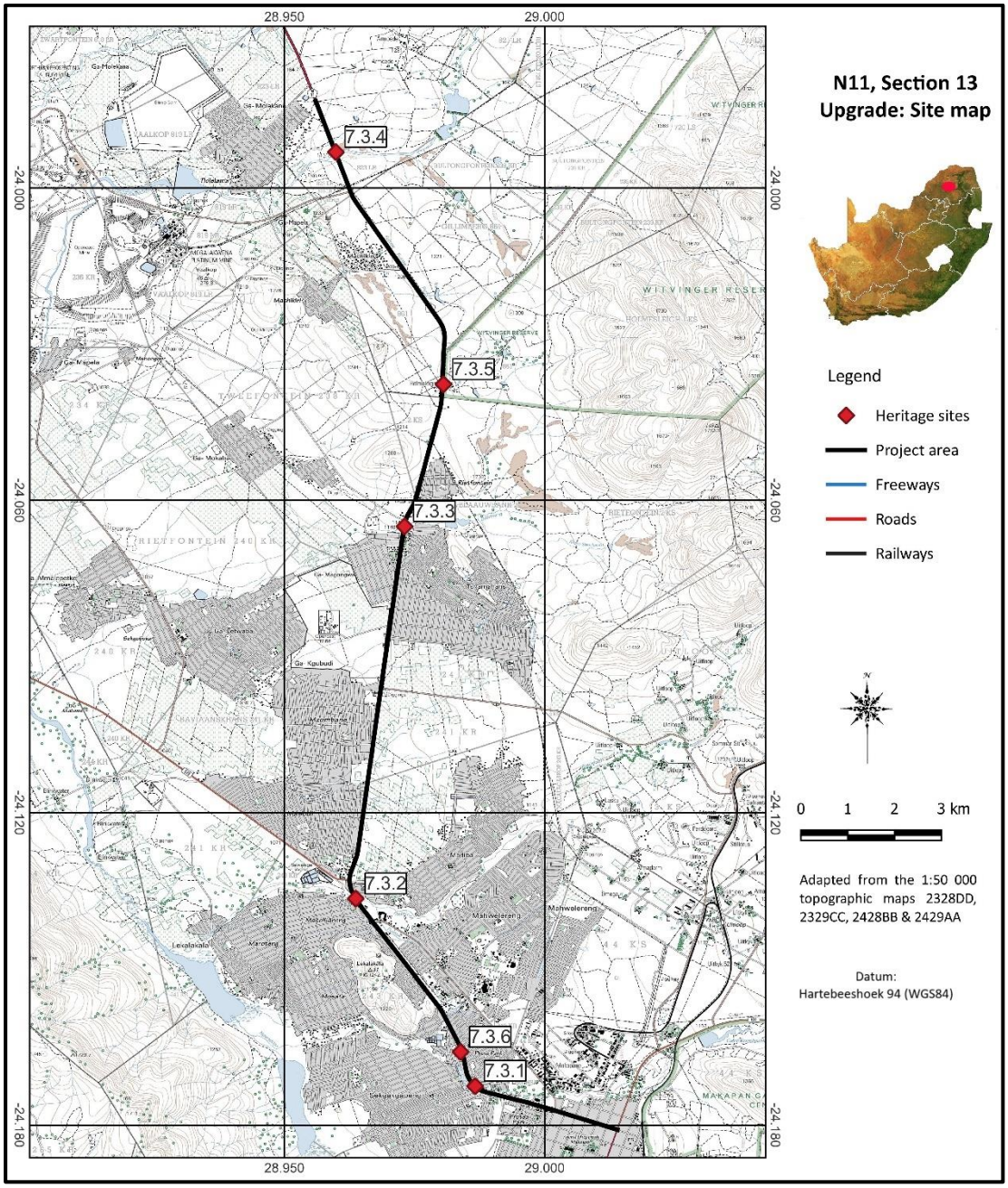


Figure 17. Location of heritage sites in the project area

7.3 Historic period

NHRA Category	**Structures older than 60 years - Section 34**
7.3.1. Type: Dorpsrivier Bridge. **Farm**: Macalacaskop 243KR. **Coordinates**: S 24,17251; E 28,98650	
Description: A two span bridge of cast concrete. The bridge deck is supported by a single concrete column. The abutment and wing walls are all of concrete. The original railings are still in place and are now supported by Armco barriers. According to a panel on the bridge it dates to 1958.	
Significance of site/feature	Medium on a regional level – Grade III.
Reasoned opinion: Although such features are not uncommon in the larger landscape, they are usually ignored and therefore knowledge regarding a particular technology that is becoming outdated, is usually lost.	

References:

Figure 18. Views of the bridge

7.3.2. Type: Rooisloot Bridge. **Farm**: Macalacaskop 243KR. **Coordinates**: S 24,23650; E 28,96373	
Description: A six span bridge of cast concrete. The bridge deck is supported by five concrete columns. The abutment and wing walls are all of concrete, although the upstream side of the walls have been strengthened with stone revetments that were cemented in. The railings are of prefabricated cement and were probably added at a later date. A date of 1953 was found on one of the pylons of the bridge.	
Significance of site/feature	Medium on a regional level – Grade III.
Reasoned opinion: Although such features are not uncommon in the larger landscape, they are usually ignored and therefore knowledge regarding a particular technology that is becoming outdated, is usually lost.	
References:	

Figure 19. Views of the bridge

7.3.3. Type: Dithokeng River Bridge. **Farm**: Tweefontein 240KR. **Coordinates**: S 24,06501; E 28,97309	
Description: A three span bridge of cast concrete. The bridge deck is supported by two concrete columns. The abutment and wing walls are all of concrete and some stone revetments were added to protect them from erosion. The original railings are still in place and are now supported by Armco barriers. A date of 1952 is painted on one of the abutment walls.	
Significance of site/feature	Medium on a regional level – Grade III.

Reasoned opinion: Although such features are not uncommon in the larger landscape, they are usually ignored and therefore knowledge regarding a particular technology that is becoming outdated, is usually lost.
References:

Figure 20. Views of the bridge

7.3.4. Type: Roller mill. **Farm**: Ceylon 311. **Coordinates**: S 28,9751; E 27,08916	
Description: Old Gada Roller Mill. It was closed down when local communities were relocated. Now defunct.	
Significance of site/feature	Generally protected 4A: High/medium significance - Should be mitigated before destruction.
Reasoned opinion: Such features were very rare in the larger landscape, and if destroyed knowledge regarding a particular technology that is becoming outdated, is usually lost.	
References: Staples (2006)	

Figure 22. Views of the old mill

NHRA Category	**Graves, Cemeteries and Burial Grounds - Section 36**
7.3.5. Type: Burial site. **Farm**: Ceylon 311. **Coordinates**: S 24,16594; E 28,98385	
Description: Informal cemetery with a very large number of graves, probably more than 300.	
Significance of site/feature	Generally protected 4A: High/medium significance - Should be mitigated before destruction.
Reasoned opinion: Burial sites are viewed as having high emotional and sentimental value. However, mitigation is possible if proper procedures have been followed.	
References: -	

Figure 23. View over the burial site and some of the graves

8. IMPACT ASSESSMENT RATINGS AND MITIGATION MEASURES

8.1 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.

Impact analysis of cultural heritage resources under threat of the proposed development, is based on the present understanding of the development and is summarised in Table 2 below:

Table 2: Impact assessment

7.3.1 – 7.3.3 Type: Bridges		
Impact assessment		
These sites are part of the proposed upgrading and therefore they will be impacted on by the roadworks activities.		
	Without mitigation	With mitigation
Extent	Site (1)	Site (1)
Duration	Permanent (5)	Permanent (5)
Intensity (Magnitude)	Moderate (6)	Minor (2)
Probability	Definite (5)	Improbable (2)
Significance	Medium (60)	Low (16)
Status (positive or negative)	Negative	Neutral
Reversibility	Non-reversible	Non-reversible
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated	Yes	
Cumulative impact: Loss of a limited number of similar features in the larger landscape.		

7.3.4 Type: Historic mill
Impact assessment
This site is located right on the boundary of the road reserve and therefore there is a slight possibility that it might be impacted on by the roadworks activities.

	Without mitigation	With mitigation
Extent	Site (1)	Site (1)
Duration	Permanent (5)	Permanent (5)
Intensity (Magnitude)	Moderate (6)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	Medium (36)	Low (16)
Status (positive or negative)	Negative	Neutral
Reversibility	Non-reversible	Non-reversible
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated	Yes	
Cumulative impact: Loss of a limited number of similar features in the larger landscape.		

7.3.1.5 Type: Burial site		
Impact assessment		
This site is located right on the boundary of the road reserve and therefore there is a slight possibility that it might be impacted on by the roadworks activities.		
	Without mitigation	With mitigation
Extent	Site (1)	Site (1)
Duration	Permanent (5)	Permanent (5)
Intensity (Magnitude)	Moderate (6)	Minor (2)
Probability	Probable (3)	Improbable (2)
Significance	Medium (36)	Low (16)
Status (positive or negative)	Negative	Neutral
Reversibility	Non-reversible	Non-reversible
Irreplaceable loss of resources?	Yes	No
Can impacts be mitigated	Yes	
Cumulative impact: Loss of a limited number of similar features in the larger landscape.		

8.2 Mitigation measures

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

- For the current study, as sites, features or objects of cultural significance were identified, the following mitigation measures are proposed.

7.3.1 Type: Dorpsrivier Bridge
Mitigation
(2) Archaeological investigation/Documentation: This bridge shows no interesting or unique technological or engineering features and no significant event or person could be linked to it. However, as it 60 years old, it enjoys general protection status under the Heritage Act. It is therefore recommended that it is documented (mapped and photographed) by a heritage specialist before it is upgraded.
Requirements
In the event of an impact occurring on the identified burial sites, a permit for mitigation and/or destruction must be obtained from SAHRA/PHRA prior to any work being carried out.

7.3.2 Type: Rooisloot Bridge
Mitigation
(2) Archaeological investigation/Documentation: This bridge shows no interesting or unique technological or engineering features and no significant event or person could be linked to it. However, as it 60 years old, it enjoys general protection status under the Heritage Act. It is therefore

recommended that it is documented (mapped and photographed) by a heritage specialist before it is upgraded.
Requirements
In the event of an impact occurring on the identified burial sites, a permit for mitigation and/or destruction must be obtained from SAHRA/PHRA prior to any work being carried out.

7.3.3 Type: Dithokeng River Bridge
Mitigation
(2) Archaeological investigation/Documentation: This bridge shows no interesting or unique technological or engineering features and no significant event or person could be linked to it. However, as it 60 years old, it enjoys general protection status under the Heritage Act. It is therefore recommended that it is documented (mapped and photographed) by a heritage specialist before it is upgraded.
Requirements
In the event of an impact occurring on the identified burial sites, a permit for mitigation and/or destruction must be obtained from SAHRA/PHRA prior to any work being carried out.

7.3.4 Type: Historic Mill
Mitigation
(1) Avoidance/Preserve: This is viewed to be the primary form of mitigation and applies where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources. • This site should be fenced off permanently by means of a wire fence, which, in this particular case, would be the road reserve boundary fence. This fence can be made more visible by the application of danger tape for the duration of construction activities.
Requirements
In the event of an impact occurring on the identified burial sites, a permit for mitigation and/or destruction must be obtained from SAHRA/PHRA prior to any work being carried out.

7.3.5 Type: Burial site
Mitigation
(1) Avoidance/Preserve: This is viewed to be the primary form of mitigation and applies where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources. • The burial site should be fenced off permanently by means of a wire fence, which, in this particular case, would be the road reserve boundary fence. This fence can be made more visible by the application of danger tape.
Requirements
In the event of an impact occurring on the identified burial site, a permit for mitigation and/or destruction must be obtained from SAHRA/PHRA prior to any work being carried out. • The appropriate steps to take are indicated in Section 9 of the report, as well as in the **Management Plan: Burial Grounds and Graves, with reference to general heritage sites**, in the Addendum, Section 13.5.

9. 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 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.

Sources of risk were considered with regards to development activities defined in Section 2(viii) of the NHRA that may be triggered and are summarised in Table 3A and 3B below. These issues formed the basis of the impact assessment described. The potential risks are discussed according to the various phases of the project below.

9.1 Objectives

- Protection of archaeological, historical and any other site or land considered being of cultural value within the Project Area 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, so 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 (ECO) 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 ECO 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 NHRA, Section 51(1).

9.2 Control

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

- A person or entity, e.g. the ECO, should be tasked to take responsibility for the heritage sites and 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 ECO 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.

Table 3A: Construction Phase: Environmental Management Programme for the project

Action required	Protection of heritage sites, features and objects		
Potential Impact	The identified risk is damage or changes to resources that are generally protected in terms of Sections 27, 28, 31, 32, 34, 35, 36 and 37 of the NHRA that may occur in the Project Area.		
Risk if impact is not mitigated	Loss or damage to sites, features or objects of cultural heritage significance		
Activity / issue	**Mitigation: Action/control**	**Responsibility**	**Timeframe**

1. Removal of Vegetation 2. Construction of required infrastructure, e.g. access roads, water pipelines	See discussion in Section 9.1 above	Environmental Control Officer	During construction only
Monitoring	See discussion in Section 9.2 above		

Table 3B: Operation Phase: Environmental Management Programme for the project

Action required	Protection of heritage sites, features and objects		
Potential Impact	It is unlikely that the negative impacts identified for pre-mitigation will occur if the recommendations are followed.		
Risk if impact is not mitigated	Loss or damage to sites, features or objects of cultural heritage significance		
Activity / issue	**Mitigation: Action/control**	**Responsibility**	**Timeframe**
1. Construction of additional required infrastructure, e.g. access roads, water pipelines	See discussion in Section 9.1 above	Environmental Control Officer	During construction only
Monitoring	See discussion in Section 9.2 above		

9.3 Legal requirements

The legal requirements related to heritage specifically are specified in Section 3 of this report. For this proposed project, the assessment has determined that sites, features or objects of heritage significance occur in the project area. Therefore, if any impact will occur as a result of the proposed development, permits would be required from SAHRA or the PHRA .

- If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits.

10. CONCLUSIONS AND RECOMMENDATIONS

SANRAL propose to upgrade Section 13 of the N11, km 8,340 to km 24,280, from Mokopane northwards towards the Groblersbrug border post with Botswana, Mogalakwena Local Municipality, Limpopo Province.

This report describes the methodology used, the limitations encountered, the heritage features that were identified and the recommendations and mitigation measures proposed relevant to this. The investigation consisted of a desktop study (archival sources, database survey, maps and aerial imagery) and a physical survey that also included the interviewing of relevant people. It should be noted that the implementation of the mitigation measures is subject to SAHRA/PHRA's approval.

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 pre-colonial (Stone Age and Iron Age) occupation and a much later colonial (farmer) component. The second component is an urban one, most of which developed during the last 150 years or less.

Identified sites

During the survey the following sites, features and objects of cultural significance were identified.

- 7.3.1 – 7.3.3 Three cast concrete road bridges. According to available information on the bridges they date to the middle of the 1950s.
- 7.3.4: The old Gada Roller Mill. It was closed down when local communities were relocated and is now defunct.
- 7.3.5: An informal cemetery with a very large number of graves, probably more than 300.

Impact assessment and proposed mitigation measures

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

Site No.	Site type	NHRA category	Field rating	Impact rating: Before/After mitigation
7.3.1 – 7.3.3	Structures older than 60 years: Bridges	Section 34	Generally protected 4B: Medium significance	Medium (60) Low (16)
Mitigation: (2) Archaeological investigation: This option should be implemented when it is impossible to avoid impacting on an identified site or feature.				

Site No.	Site type	NHRA category	Field rating	Impact rating: Before/After mitigation
7.3.4	Structures older than 60 years: Roller Mill	Section 34	Generally protected 4B: Medium significance	Medium (36) Low (16)
Mitigation: (1) Avoidance/Preserve: This site should be fenced off permanently by means of a wire fence, which, in this particular case, would be the road reserve boundary fence. This fence can be made more visible by the application of danger tape for the duration of construction activities.				

Site No.	Site type	NHRA category	Field rating	Impact rating: Before/After mitigation
7.3.5	Graves, Cemeteries and Burial Grounds	Section 36	Generally protected 4A: High / Medium significance	Medium (36) Low (16)
Mitigation: (1) Avoidance/Preserve: The burial site should be fenced off permanently by means of a wire fence, which, in this particular case, would be the road reserve boundary fence. This fence can be made more visible by the application of danger tape for the duration of construction activities.				

- Makapan World Heritage Site

Plotting the project area in relation to the Makapan WHS, it can be seen that it is too far away to have any physical impact. By using Google Earth's elevation profile function, it can be seen that the project area would not have a visual impact on the WHS.

- It is therefore our viewpoint that no project-related mitigation measures are required as the upgrade of Section 13 of the N11 will not have any impact on the Makapan WHS.

Legal requirements

The legal requirements related to heritage specifically are specified in Section 3 and 9 of this report.

- For this proposed project, the assessment has determined that sites, features or objects of heritage significance occur in the project area. Therefore, if any impact will occur as a result of the proposed development, permits would be required from SAHRA or the PHRA .
- If heritage features are identified during construction, as stated in the management recommendation, these finds would have to be assessed by a specialist, after which a decision will be made regarding the application for relevant permits.

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

- From a heritage point of view, it is recommended that the Proposed Project be allowed to continue on acceptance of the mitigation measures presented above and the conditions proposed below.

Conditions for inclusion in the environmental authorisation:

- The Palaeontological Sensitivity Map (http://www.sahra.org.za/sahris/map/palaeo) indicate that project area has for most part an insignificant to zero sensitivity of fossil remains to be found and therefore a palaeontological assessment is not required. However, a short to the north is indicated to have a very high sensitivity and therefore a field assessment is required.
- Should archaeological sites or graves be exposed during further construction work, it must immediately be reported to a heritage practitioner so that an investigation and evaluation of the finds can be made. The appropriate steps to take are indicated in Section 9 of the report, as well as in the **Management Plan: Burial Grounds and Graves, with reference to general heritage sites**, in the Addendum, Section 12.4.

11. REFERENCES

11.1 Data bases

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

11.2 Literature

Bergh, J.S. (red.). 1998. *Geskiedenisatlas van Suid-Afrika: die vier noordelike provinsies*. Pretoria: J.L. Schaik.

Clarke, R.J. & Partridge, T.C. 2010. *Caves of the Ape-men*. Johannesburg: Wits University Press.

Cradle of Humankind World Heritage Site Integrated Management Plan, 2021-2026.

Dart, R.A. 1957. The Osteodontokeratic Culture of Autralopithecus Prometeus. *Transvaal Museum Memoir* No. 10. Pretoria.

De Beer, F.C. 1986. Groepsgebondenheid in die Familie-, Opvolging- en Erfreg van die Noord-Ndebele. Ongepubliseerde D.Phil proefskrif. Pretoria: Universiteit van Pretoria.

Esterhuysen, A. B. 2010. Excavation at Historic Cave, Makanpans Valley, Limpopo. *South African Archaeological Bulletin* 65: 67 - 83.

Higgitt, N. 2013. *Heritage Impact Assessment for the Proposed Platreef Mining Project on the farms Bultongfontein 866 LR, Turfspruit 241 KR, Macalacaskop 243 KR and Rietfontein 2 KS in Mokopane, Limpopo Province*.

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

Huffman, T.H. 1990. The Waterberg research of Jan Aukema. *South African Archaeological Bulletin* 45:61-70.

Jackson, A.O. n.d. *The Ndebele of Langa*. Ethnological Publications No. 54. Pretoria: Government Printer.

Küsel, U.S. 2005. *Cultural heritage resources impact assessment on Malokong Hill*. Unpublished report. Pretoria: African Heritage Consultants cc.

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

Staples, C.O. 2006. *Mills of Southern Africa. Water, wind and horse*. Pretoria: Umdaus Press.

Thackeray, A.I. 1992. The Middle Stone Age south of the Limpopo River. *Journal of World Prehistory* 6(4):385-440.

Trapido, S. 1978. Landlord and Tenant in Colonial Economy: The Transvaal 1880-1910. *Journal of Southern African Studies* 5(1):26-58.

Van Schalkwyk, J.A. 1998. Archaeological investigation of the Beauley Early Iron Age site in the Blouberg, Northern Province. *Southern African Field Archaeology* 7:35-41.

Van Schalkwyk, J.A. 2004. Investigation of an Early Iron Age site in the Makgabeng area, Limpopo Province. *Research by the National Cultural History Museum* 13:16-27.

Van Schalkwyk, J.A. 2009. *Heritage impact scoping report for the proposed Vanmag Mining development, Mokerong magisterial district, Limpopo Province*. Pretoria: Unpublished report 2009/JvS/015.

Van Schalkwyk, J.A. 2011. *Heritage impact assessment for the proposed upgrade of a section of the N11 national route north of Mokopane, Limpopo Province.* Pretoria: Unpublished report 2011/JvS/065.

Van Schalkwyk, J.A. 2022. *Phase 1 Cultural Heritage Impact Assessment: The proposed Ga-Pila village water-borne sanitation sewer upgrade project, Mogalakwena Local Municipality, Limpopo Province*. Pretoria: Unpublished report 2022/JvS/039.

Van Warmelo, N.J. 1935. *A preliminary survey of the Bantu tribes of South Africa*. Ethnological Publications No. 5. Pretoria: Government Printer.

Van Warmelo, N.J. 1944. *The Ndebele of J. Kekana*. Ethnological Publictions No. 18. Pretoria: Government Printer.

Vig, P.S. 2018. *Hunters and After Riders: A History of Hunting and the Making of Race in the Waterberg, 1840s-Present*. PhD dissertation. University of Minnesota.

Bandama, F. 2013. *The Archaeology and Technology of Metal Production in the Late Iron Age of the Southern Waterberg, Limpopo Province, South Africa*. PhD University of South Africa.

Boeyens, J., Van der Ryst, M., Coetzee, F., Steyn, M. & Loots, M. 2009. From uterus to jar: the significance of an infant pot burial from Melora Saddle, an early nineteenth-century African farmer site on the Waterberg Plateau. *Southern African Humanities* 21:213-238.

Bulpin, T.V. 1956. *Lost Trails of the Transvaal.* Cape Town: Stephan Phillips Ltd. (2002).

Cloete, P.G. 2000. *The Anglo-Boer War: a Chronology*. Pretoria: JP van der Walt

Hall, S.L. 1985. Excavations at Rooikrans and Renosterkloof, Late Iron Age sites in the Rooiberg area of the Transvaal. *Annals of the Cape Provincial Museums (Human Sciences)* 1(5):131-210.

Huffman, T.N. 1990. The Waterberg research of Jan Aukema. *South African Archaeological Bulletin* 45(152):117-119.

Huffman, T.N. 2007. *Handbook to the Iron Age*. Scottsville: University of KwaZulu-Natal Press.

Jackson, A.O. n.d. *The Ndebele of Langa*. Ethnological Publications No. 54. Pretoria: Government Printer.

Küsel, U.S. 2006. *Cultural heritage resources impact assessment on the Farm Schrikkloof 428 KR Bela – Bela*. Pretoria: Unpublished report.

Küsel, U.S. 2007. *Cultural heritage resources impact assessment of remainder of Schrikkloof 428KR and Witfontein 430JR*. Pretoria: Unpublished report.

Mason, R.J. 1969. *Prehistory of the Transvaal*. Johannesburg: Witwatersrand University Press.

Muncina, L. & Rutherford, M.C. 2006. *The Vegetation Map of South Africa, Lesotho and Swaziland*. Pretoria: SANBI.

Natrass, G. 1989. The tin mines of the Waterberg (Transvaal), 1905-1914. *Contree* 26:5-12.

Rudner, J. & Rudner, I. 1970. *The Hunter and his art: A survey of rock art in Southern Africa*. Cape Town: C. Struik.
Schoonraad, M. & Beaumont, P. 1968. The North Brabant Shelter, North Western Transvaal. *South African Journal of Science* 64:319-331.

Van Schalkwyk, J.A. 2005. *Heritage impact assessment for the proposed Tholo Bush Estate development, Lephalale District, Limpopo Province*. Pretoria: Unpublished report 2005KH078.

Van Schalkwyk, J.A. 2011. *Heritage impact assessment for the proposed lodge development at Matswani Game Farm, Vaalwater region, Limpopo Province*. Pretoria: Unpublished report 2011/JvS/031.

Van Schalkwyk, J.A. 2015. *Cultural heritage assessment for the proposed development of a Piggery on Remainder of the Farm Wiets se Plek 790KR, Modimolle region, Limpopo Province*. Pretoria: Unpublished report 2015/JvS/048

Van Schalkwyk, J.A. 2021a. *Phase 1 Cultural Heritage Impact Assessment: remainder of Portion 1 and the Remainder of Portion 3 of the Farm Jacobsdal 79-KR and Portion 2 of the Farm Rhenosterfontein 212-KQ (Shakati Private Game Reserve), Lephalale Local Municipality, Vaalwater, Limpopo Province*. Pretoria: Unpublished report 2021/JvS/038.

Van Schalkwyk, J.A. 2021b. *Phase 1 Cultural Heritage Impact Assessment: the construction of dams on Portion 5 of the Farm Groot Nylsoog 447-KR, Bela-Bela Local Municipality, Limpopo Province*. Pretoria: Unpublished report 2021/JvS/042.

Van Schalkwyk, J.A. 2021c. Phase 1 Cultural Heritage Impact Assessment: Recent developments done without prior environmental authorisation, Nyati Wilderness, Lephalale Local Municipality, Limpopo Province. Pretoria: Unpublished report 2021/JvS/081.

Wadley, L. Murungi, M.L., Witelson, D., Bolhar, R., Bamford, M., Sievers, C., Val, A. and De la Peña, P. 2016. Steenbokfontein 9KR: a Middle Stone Age Spring site in Limpopo, South Africa. *South African Archaeological Bulletin* 71(204):130-145,

Walker, C. & Bothma, J. du P. 2005. *The Soul of the Waterberg*. Houghton: African Sky Publishing.

11.3 Archival sources, maps and aerial photographs

1: 50 000 Topographic maps
Google Earth
Aerial Photographs: Chief Surveyor-General

http://artefacts.co.za
http://www.sahra.org.za/sahris/map/palaeo

12. ADDENDUM

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.

2. Assessing the significance of heritage resources and potential impacts

A system for site grading was established by the NHRA and further developed by the South African Heritage Resources Agency (SAHRA 2007) and has been approved by ASAPA for use in southern Africa and was utilised during this assessment.

2.1 *Significance of the identified heritage resources*

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. SITE EVALUATION			
1.1 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			
1.2 Aesthetic value			
It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group			
1.3 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			
1.4 Social value			
Does it have strong or special association with a particular community or cultural group for social, cultural or spiritual reasons			
1.5 Rarity			
Does it possess uncommon, rare or endangered aspects of natural or cultural heritage			
1.6 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.			
2. Sphere of Significance	High	Medium	Low
International			
National			
Provincial			
Regional			
Local			
Specific community			
3. Field Register Rating			
1.	National/Grade 1: High significance - No alteration whatsoever without permit from SAHRA		
2.	Provincial/Grade 2: High significance - No alteration whatsoever without permit from provincial heritage authority.		
3.	Local/Grade 3A: High significance - Mitigation as part of development process not advised.		

4.	Local/Grade 3B: High significance - Could be mitigated and (part) retained as heritage register site	
5.	Generally protected 4A: High/medium significance - Should be mitigated before destruction	
6.	Generally protected 4B: Medium significance - Should be recorded before destruction	
7.	Generally protected 4C: Low significance - Requires no further recording before destruction	

2.2 *Significance of the anticipated impact on heritage resources*

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

Nature of the impact
A description of what causes the effect, what will be affected and how it will be affected.

Extent
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.

Duration
Here it should be indicated whether the lifespan 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 (where the impact will persist possibly beyond the operational life of the activity); or
- 5 - Permanent (where the impact will persist indefinitely).

Magnitude (Intensity)
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.

Probability
This 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).

Significance
The significance is determined through a synthesis of the characteristics described above (refer to the formula below) and can be assessed as low, medium or high:

S = (E+D+M) x P; where
S = Significance weighting

E = Extent
D = Duration
M = Magnitude
P = Probability

Significance of impact		
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.

Confidence
This should relate to the level of confidence that the specialist has in establishing the nature and degree of impacts. It relates to the level and reliability of information, the nature and degree of consultation with I&AP's and the dynamic of the broader socio-political context.

- High, where the information is comprehensive and accurate, where there has been a high degree of consultation and the socio-political context is relatively stable.
- Medium, where the information is sufficient but is based mainly on secondary sources, where there has been a limited targeted consultation and socio-political context is fluid.
- Low, where the information is poor, a high degree of contestation is evident and there is a state of socio-political flux.

Status

- The status, which is described as either positive, negative or neutral.

Reversibility

- The degree to which the impact can be reversed.

Mitigation

- The degree to which the impact can be mitigated.

Nature:		
	Without mitigation	With mitigation
Construction Phase		
Probability		
Duration		
Extent		
Magnitude		
Significance		
Status (positive or negative)		
Operation Phase		
Probability		
Duration		
Extent		
Magnitude		
Significance		
Status (positive or negative)		
Reversibility		
Irreplaceable loss of resources?		
Can impacts be mitigated		

3. Mitigation measures

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

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

- Avoidance
- Investigation (archaeological)
- Rehabilitation
- Interpretation
- Memorialisation
- Enhancement (positive impacts)

For the current study, the following mitigation measures are proposed, to be implemented only if any of the identified sites or features are to be impacted on by the proposed development activities:

- (1) Avoidance/Preserve: This is viewed to be the primary form of mitigation and applies where any type of development occurs within a formally protected or significant or sensitive heritage context and is likely to have a high negative impact. This measure often includes the change / alteration of development planning and therefore impact zones in order not to impact on resources. The site should be retained *in situ* and a buffer zone should be created around it, either temporary (by means of danger tape) or permanently (wire fence or built wall). Depending on the type of site, the buffer zone can vary from
    - 10 metres for a single grave, or a built structure, to
    - 50 metres where the boundaries are less obvious, e.g. a Late Iron Age site.

- (2) Archaeological investigation/Relocation of graves: This option can be implemented with additional design and construction inputs. This is appropriate where development occurs in a context of heritage significance and where the impact is such that it can be mitigated. Mitigation is to excavate the site by archaeological techniques, document the site (map and photograph) and analyse the recovered material to acceptable standards. This can only be done by a suitably qualified archaeologist.
    - This option should be implemented when it is impossible to avoid impacting on an identified site or feature.
    - This also applies for graves older than 60 years that are to be relocated. For graves younger than 60 years a permit from SAHRA is not required. However, all other legal requirements must be adhered to.
        - Impacts can be beneficial – e.g. mitigation contribute to knowledge

- (3) Rehabilitation: When features, e.g. buildings or other structures are to be re-used. Rehabilitation is considered in heritage management terms as an intervention typically involving the adding of a new heritage layer to enable a new sustainable use.
    - The heritage resource is degraded or in the process of degradation and would benefit from rehabilitation.
    - Where rehabilitation implies appropriate conservation interventions, i.e. adaptive reuse, repair and maintenance, consolidation and minimal loss of historical fabric.
        - Conservation measures would be to record the buildings/structures as they are (at a particular point in time). The records and recordings would then become the 'artefacts' to be preserved and managed as heritage features or (movable) objects.
        - This approach automatically also leads to the enhancement of the sites or features that are re-used.

- (4) Mitigation is also possible with additional design and construction inputs. Although linked to the previous measure (rehabilitation) a secondary though 'indirect' conservation measure would be to use the existing architectural 'vocabulary' of the structure as guideline for any new designs.
    - The following principle should be considered: **heritage informs design**.
        - This approach automatically also leads to the enhancement of the sites or features that are re-used.

- (5) No further action required: This is applicable only where sites or features have been rated to be of such low significance that it does not warrant further documentation, as it is viewed to be fully documented after inclusion in this report.
    - Site monitoring during development, by an ECO or the heritage specialist are often added to this recommendation to ensure that no undetected heritage/remains are destroyed.

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 of 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) an 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.

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.

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

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

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

- Notices of the intention to relocate the graves need to be put up at the burial site for a period of 60 days. This should contain information where communities and family members can contact the developer/archaeologist/public-relations officer/undertaker. All information pertaining to the identification of the graves needs to be documented for the application of a SAHRA permit. The notices need to be in at least 3 languages, English, and two other languages. This is a requirement by law.
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- 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.

6. 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
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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.

Latest publications
Van Schalkwyk, J.A. 2020. A cognitive approach to ordering of the world: some case studies from the Sotho- and Tswana-speaking people of South Africa. In Whitley, D.S., Loubser, J.H.N. & Whitelaw, G. (eds.) *Cognitive Archaeology. Mind, Ethnography, and the Past in South African and Beyond*. London: Routledge. Pp. 184-200.

Namono, C. & Van Schalkwyk, J.A. 2020. Appropriating colonial dress in the rock art of the Makgabeng plateau, South Africa. In Wingfield, C., Giblin, J. & King, R. (eds) *The pasts and presence of art in South Africa: Technologies, Ontologies and Agents*. University of Cambridge: McDonald Institute for Archaeological Research. Pp. 51-62.