

#### DETAILS OF THE SPECIALIST, DECLARATION OF INTEREST AND UNDERTAKING UNDER OATH

	(For official use only)
File Reference Number:	
NEAS Reference Number:	DEA/EIA/
Date Received:	

Application for authorisation in terms of the National Environmental Management Act, Act No. 107 of 1998, as amended and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended (the Regulations)

#### **PROJECT TITLE**

Proposed additional infrastructure and areas identified during the Detail Design associated with the National Route N11 Section 13X, Mokopane Ring Road, Mogalakwena Local Municipality, Limpopo

#### Kindly note the following:

- 1. This form must always be used for applications that must be subjected to Basic Assessment or Scoping & Environmental Impact Reporting where this Department is the Competent Authority.
- 2. This form is current as of 01 September 2018. It is the responsibility of the Applicant / Environmental Assessment Practitioner (EAP) to ascertain whether subsequent versions of the form have been published or produced by the Competent Authority. The latest available Departmental templates are available at https://www.environment.gov.za/documents/forms.
- 3. A copy of this form containing original signatures must be appended to all Draft and Final Reports submitted to the department for consideration.
- 4. All documentation delivered to the physical address contained in this form must be delivered during the official Departmental Officer Hours which is visible on the Departmental gate.
- All EIA related documents (includes application forms, reports or any EIA related submissions) that are faxed; emailed; delivered to Security or placed in the Departmental Tender Box will not be accepted, only hardcopy submissions are accepted.

#### **Departmental Details**

#### Postal address:

Department of Environmental Affairs

Attention: Chief Director: Integrated Environmental Authorisations

Private Bag X447

Pretoria 0001

#### Physical address:

Department of Environmental Affairs

Attention: Chief Director: Integrated Environmental Authorisations

Environment House 473 Steve Biko Road

Arcadia

Queries must be directed to the Directorate: Coordination, Strategic Planning and Support at:

Email: ElAAdmin@environment.gov.za

# 1. SPECIALIST INFORMATION

Specialist Company Name:	Liesl Stegmann			
B-BBEE	Contribution level (indicate 1		Percentage	
	to 8 or non-compliant)		Procurement	
			recognition	
Specialist name:	Liesl Stegmann			
Specialist Qualifications:				
Professional	ASAPA			
affiliation/registration:				
Physical address:	54 Wildebeesfontein Polokwane			
Postal address:	PO Box 1230, Fauna Park, Polokw	/anr		
Postal code:	0787	Cell:	061457517	2
Telephone:		Fax:		
E-mail:	wildwindheritagefarm@gmail.com	•	<u> </u>	

### General declaration:

- I act as the independent specialist in this application
- I will 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
- 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 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; and
- All the particulars furnished by me in this form are true and correct.

All the particulars furnished by the in this form are true and correct.	
Signature of the specialist:	
Name of company (if applicable):	
27 11/18.  Date:	
Dog25046-7 WIO P.P. MOLOKO	
Signature of the Commissioner of Oaths for project/application:	
2018-11-27	
Date:	
WARRANT OFFICER.	
Designation:	

Official stamp (below)



# PHASE 1 HERITAGE RESOURCES SCOPING REPORT

PROPOSED NEW DIAMOND INTERCHANGE AND ON-RAMP-C, ADDITIONAL RESERVE FOR ROAD D3519 AND CONCRETE CAUSEWAY ON SERVICE ROAD A ALONG THE NEW N11 ROUTE, MOKOPANE, LIMPOPO

Royal HaskoningDHV (Pty) Ltd trading as Royal HaskoningDHV

Fountain Square, 78 Kalkoen Street, Monument Park Ext 2, 0181 PO Box 25302, Monument Park, 0105, Gauteng, South Africa

Att: S Govendor

F.E.Roodt and L Stegmann Under the supervision of Frans Roodt

October 2018

# SHASA HERITAGE CONSULTANTS

Not VAT registered

Tel: 078 618 6204 (Frans) 064 070 4454 **54** Wildebeestfontein, **P**olokwane

Email: wildwindheritagefarm@gmail.com

# **EXECUTIVE SUMMARY**

The author was contracted to conduct a Heritage Impact Assessment for the below mentioned sections, which are to be included with the project to re-align the N11 just outside of Mokopane.

- The new interchange at 2.9 km including the R101 overpass bridge on the N11-13X;
- Two additional pieces of land (on the same property as the 2.9 km interchange, i.e. Planknek 43KS Rem) is required at the 0.0km interchange (N1 / R101) to accommodate the Phase 1 ramps (On-ramp C) to the N1; and
- An additional reserve at the D3519 (5.786 km) is required now as the future phase of the project i.e. Phase 2 will be implemented at this crossing. The at-grade intersection of the N11 and the D3519 would have been in between two interchanges and it would have provided direct access onto the N11. This direct access will in the future not be upgradeable to an access interchange due to the spacing between the interchanges (before and after) being insufficient. The detail design therefore makes provision for an overpass instead of an intersection on the D3519 and an additional maximum reserve width of approximately 26m and length of 400m is required on Farm Amatava 41KS, Ptn 10.
- Causeway, concrete drift on Service road A, The vented drift / causeway along Service Road A consists of a 5 cell x 0.9m x 0.9m precast concrete portal culvert. The culverts have a minimum 75mm thick concrete bedding layer and a 150mm thick concrete distribution slab on top of the portals. Standard bollards along both edges of the causeway will be incorporated as a vehicle/pedestrian barriers. The causeway has a clear roadway width between bollards of 7.66m and a total width of 8.46m including bollards. The approaches have 2m long wingwalls at each of the four corners of the causeway. The culverts and wingwalls will be secured into bedrock with Y20 dowels.

This area was not earmarked for development during the original surveys for re-alignment in June 2008 (Roodt *et al*: 2008). Further surveys by the author took place in March 2017 and May 2017 for various borrow pits and a bridge as the development has been refined over the years.

A paleontological study has been conducted by Prof Chris Jones, original section fell with a grey area on SAHRIS Paleontological map, however sections of the borrow pit are located within an blue coloured sector and require a protocol of finds, included in the palaeontological report.

Generally protocol will include reporting any materials unearthed to the heritage authority and for a recognised palaeontologist to go to site to appropriately manage any materials found. Prof Jones

	igation is requ	illeu, with rega	rds archaeologio	zai matemais.	

#### INDEMNITY AND CONDITIONS RELATING TO THIS REPORT

The findings, results, observations, 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 Shasa Heritage reserves the right to modify aspects of the report including the recommendations if and when new information becomes available from ongoing research or further work in this field, or pertaining to this investigation. Although Shasa Heritage exercises due care and diligence in rendering services and preparing documents, Shasa Heritage accepts no liability, and the client, by receiving this document, indemnifies Shasa Heritage against all actions, claims, demands, losses, liabilities, costs, damages and expenses arising from or in connection with services rendered, directly or indirectly by Shasa Heritage 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.

#### **COPYRIGHT**

Copyright on all documents, drawings and records, whether manually or electronically produced, which form part of the submission and any subsequent report or project document, shall vest in Shasa Heritage. The client, on acceptance of any submission by Shasa Heritage and on condition that the client pays to Shasa Heritage the full price for the work as agreed, shall be entitled to use for its own benefit:

- The results of the project;
- The technology described in any report; and
- Recommendations delivered to the client.

Should the applicant wish to utilise any part of, or the entire report, for a project other than the subject project, permission must be obtained from Shasa Heritage to do so. This will ensure validation of the suitability and relevance of this report on an alternative project.

	CONTENTS
3	1 Introduction and terms of Reference
4	2 Method 2.1 Sources of information and methodology 2.2 Limitations 2.3 Categories of significance
6	2.4 Terminology
8	3 Description of the proposed development and terrain
8	4 Results of the scoping survey and discussion 4.1. Intangible Heritage and Social consultation 4.2 Recent Historical Period 4.3. Graves 4.4. Iron Age remains 4.5. Stone Age remains
10	5 Background information
13	6 Evaluation and statement of significance
15	7 Discussion and recommendations
15	8 Bibliography
8 8 8	List of figures Fig 1. View of interchange area Fig 2. View of interchange and ramp area Fig 3. View of D3519 area Fig 4. View of causeway area
13 13 14 15	Close up of area- Diamond Interchange Close view of area- On-ramp C Close view of D3519 Causeway

# 1. INTRODUCTION AND TERMS OF REFERENCE

**Application purpose:** To establish a new interchange and On-ramp C for the N11 re-alignment, as well as the extension to the road reserve for road D3519, and a concrete causeway on access road A

Interchange and ramp is located on the remainder of the farm Planknek 43 KS

Road reserve extension for D3519 is located on portion 10 of the farm Amatavia 41 KS.

Concrete causeway along Service road A

Area: Mogalakwena District

#### Size of area surveyed on foot:

Interchange 6ha

On-ramp C 1ha- a larger area was surveyed

Road reserve D3519- <1ha

Causeway <1ha

#### GPS:

Interchange S24° 10′ 10.2" E29° 05′ 25.9"

Ramp: S24° 10′ 10.2" E29° 05′ 25.9" and S24° 10′ 16.7" E29° 05′ 26.8"

**Road reserve D3519**: S24° 08' 27.2" E29° 02' 35.1" **Causeway:** S24° 08' 54.4" E29° 03' 12.9"

#### Map reference number: 2429 AA

This report will enable the Applicant to take pro-active measures to limit the adverse effects that the development could have on heritage resources.

In terms of the National Heritage Resources Act (1999) the following is of relevance:

#### **Historical remains**

**Section 34(1)** No person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit issued by the relevant provincial heritage resources authority.

#### **Archaeological remains**

- **Section 35(4)** No person may, without a permit issued by the responsible heritage resources authority-
  - (a) destroy, damage, excavate, alter, deface, or otherwise disturb any archaeological or palaeontological site or any meteorite

#### **Burial grounds and graves**

**Section 36 (3)(a)** No person may, without a permit issued by SAHRA or a provincial heritage resources authority-

- (c) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
- **(b)** bring onto or use at a burial ground or grave referred to in paragraph (a) or (b) any excavation equipment, or any equipment which assists in detection or recovery of metals.

#### <u>Culture resource management</u>

Section **38(1)** Subject to the provisions of subsection (7), (8) and (9), any person who intends to undertake a development\* ...

must at the very earliest stages of initiating such development notify the responsible heritage resources authority and furnish it with details regarding the location, nature, and extent of the proposed development.

#### \*'development'

means any physical intervention, excavation, or action, other than those caused by <u>natural forces</u>, which may in the opinion of the heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including-

- (a) construction, alteration, demolition, removal or change of use of a place or a structure at a place:
- (b) carry out any works on or over or under a place\*;
- (e) any change to the natural or existing condition or topography of land, and
- (f) any removal or destruction of trees, or removal of vegetation or topsoil;
- \*"place means a site, area or region, a building or other structure\* ..."
- \*"structure means any building, works, device or other facility made by people and which is fixed to the ground, ..."

### 2. METHOD

#### 2.1 Sources of information and methodology

The source of information was primarily the field reconnaissance and referenced literary sources.

A pedestrian survey of the entire area was undertaken by Mr FE Roodt on 14 October 2018, during the middle of the day and by L Stegmann on 31 October 2018, during which standard methods of observation were applied. The area was carefully covered and traversed and special attention given to any areas displaying soil and or vegetative changes. As most archaeological material occur in single or multiple stratified layers beneath the soil surface, special attention was given to disturbances, both man-made such as roads and clearings, as well as those made by natural agents such as burrowing animals and erosion. Locations of heritage remains were recorded by means of a GPS (Garmin Etrex 10). Heritage material and the general conditions on the terrain were photographed with a Nikon Coolpix L25 Digital camera.



Survey Interchange - white



8



Limitations

2.2

The scoping survey was thorough, but limitations were experienced due to the fact that archaeological sites are subterranean and only visible when disturbed. Vegetation was moderate t. The area has already been impacted on by development of the N1 and R101 at the interchange and ramp.

#### 2.3 Categories of significance

The significance of archaeological sites is ranked into the following categories.

- No significance: sites that do not require mitigation.
- Low significance: sites, which *may* require mitigation.
- Medium significance: sites, which require mitigation.
- High significance: sites, which must not be disturbed at all.

The significance of an archaeological site is based on the amount of deposit, the integrity of the context, the kind of deposit and the potential to help answer present research questions. Historical structures are defined by Section 34 of the National Heritage Resources Act, 1999, while other historical and cultural significant sites, places and features, are generally determined by community preferences.

A crucial aspect in determining the significance and protection status of a heritage resource is often whether or not the sustainable social and economic benefits of a proposed development outweigh the conservation issues at stake. Many aspects must be taken into consideration when determining significance, such as rarity, national significance, scientific importance, cultural and religious significance, and not least, community preferences. When, for whatever reason the protection of a heritage site is not deemed necessary or practical, its research potential must be assessed and mitigated in order to gain data / information which would otherwise be lost. Such

sites must be adequately recorded and sampled before being destroyed. These are generally sites graded as of low or medium significance.

#### 2.4 Terminology

**Early Stone Age:** Predominantly the Acheulean hand axe industry complex dating to + 1Myr

yrs – 250 000 yrs. before present.

Middle Stone Age: Various lithic industries in SA dating from ± 250 000 yr. - 30 000 yrs. before

present.

**<u>Late Stone Age:</u>** The period from ± 30 000-yr. to contact period with either Iron Age farmers

or European colonists.

**Early Iron Age:** Most of the first millennium AD

Middle Iron Age: 10<sup>th</sup> to 13<sup>th</sup> centuries AD

**Late Iron Age:** 14<sup>th</sup> century to colonial period. The entire Iron Age represents the spread of

Bantu speaking peoples.

Historical: Mainly cultural remains of western influence and settlement from AD1652

onwards – mostly structures older than 60 years in terms of Section 34 of the NHRA, though more recent remains can be termed historically significant should the remains hold social significance for the local

community.

**Phase 1 assessmen**t: Scoping surveys to establish the presence of and to evaluate heritage

resources in a given area

Phase 2 assessments: In depth culture resources management studies which could include

major archaeological excavations, detailed site surveys and mapping / plans of sites, including historical / architectural structures and features. Alternatively, the sampling of sites by collecting material, small test pit

excavations or auger sampling is required.

**Sensitive:** Often refers to graves and burial sites although not necessarily a heritage

place, as well as ideologically significant sites such as ritual / religious places. Sensitive may also refer to an entire landscape / area known for its

significant heritage remains.

# 3. DESCRIPTION OF THE PROPOSED DEVELOPMENT AND TERRAIN

**Vegetation**: Makhado Sweet Bushveld (SVcb 20) (Mucina et al. 2006)

**Terrain:** The terrain around the interchange can be considered disturbed by earthworks and

agriculture

Ramp c can be considered disturbed due to the building of the R101 and N1 in the

past.

The terrain is generally flatlands around the small area of the extended road

reserve for D3519.

Proposed development: Establish and extend the interchange and develop a new on ramp C for the N11 re-alignment and to extend the road reserve of the road D3519 for suture development.



Fig 1. View of new interchange area

Fig 2. View of ramp area



Fig 3: View of new D3519 road reserve area



Fig 4. View of causeway area

# 4. RESULTS OF THE SCOPING SURVEY AND DISCUSSION

#### 4.1 SOCIAL and/or RELIGIOUS INTANGIBLE HERITAGE

No areas designated for socio-religious activities were recorded on the site

Significance: None

#### 4.2 <u>HISTORICAL PERIOD</u>

No remains from the historical period were recorded.

Background historical information mainly relating to Makapansgat, In the Makapansgat World Heritage site- North east of the development:

In September 1854, 28 Boers were killed in what would later become the Northern Transvaal. These Boers were killed in separate incidents by an alliance of the Ndebele chiefdoms of Mokopane and Mankopane. In anticipation of a military retaliation, Mokopane and his followers retreated into some caves Now known as Makapansgat. Two Boer commandos and their Kgatla allies attacked the caves, but failed to overpower them or force the people out. The commandos laid siege to the caves.

The siege lasted about three weeks. By the end of the siege, between 1 000 and 3 000 people in the caves had died, and many others had been captured as prisoners of war and enslaved. In addition, the Boers took 6 300 cattle, 1 200 goats and 450 kg of ivory. On the Boer side, there were few deaths from the siege. A major casualty, however, was Piet Potgieter. He was shot from inside the cave. The number of deaths among the Kgatla allies are unknown. This event has come to play a central role in the development of Afrikaner nationalism. From the Boer perspective, African "savages," without any reason, had killed the Boers when all they were trying to do was to extend "civilisation." Indeed, the "murders" of Boers in this version are referred to as a "massacre."

Significance: None

#### 4.3 **GRAVES**

No formal or informal graves could be identified.

Significance: None

### 4.4 **IRON AGE REMAINS**

According to the most recent archaeological cultural distribution sequences by Huffman (2007), this area falls within the distribution area of various cultural groupings originating out of both the Urewe Tradition (eastern stream of migration) and the Kalundu Tradition (western stream of migration). The facies that may be present are:

Urewe Tradition: Kwale branch-

Moloko branch-

Mzonjani facies AD 450 – 750 (Early Iron Age) Icon facies AD 1300 - 1500 (Late Iron Age) Marateng facies AD 1650-1840 (Late IA)

Kalundu Tradition: Happy Rest sub-branch - Doornkop facies AD 750 - 1000 (Early Iron Age)

Eiland facies AD 1000 – 1300 (Middle Iron Age) Klingbeil facies AD 1000 - 1200 (Middle Iron Age) Letaba facies AD 1600 - 1840 (Late Iron Age) Marateng facies AD 1650-1840 (Late IA)

The Iron Age is also well documented in the wider area, with sites dating especially to the Letaba *facies* period.

No remains from the Iron Age were recorded.

Huffman and Steel (1996) executed salvage excavations on Planknek when the N1 was built. A Late Iron Age stone walled site was excavated. Moore (1980) also conducted his MA Thesis on the Kekana, Ndebele in the region. These are all stone walled Late Iron Age Sites, possibly belonging to the Southern Ndebele.

Significance: None

#### 4.5 **STONE AGE REMAINS**

No Stone Age remains were recorded. Drainage lines and rocky areas were searched for Stone Age materials but none were recorded.

Stone Age remains were recorded in drainage lines during the original 2008 survey, however these lines were to the north of the current areas under discussion and especial care was taken in survey to ensure none were missed in this area.

The below mentioned is generic background to the area adapted from Deacon and Deacon: 1999:

The Stone Age covers most of southern Africa and the earliest consist of the Oldowan and Acheul artefacts assemblages. Oldowan tools are regularly referred to as "choppers". Oldowan artefacts are associated with Homo *habilis*, the first true humans. In South Africa definite occurrences have been found at the sites of Sterkfontein and Swartkrans. Here they are dated to between 1.7 and 2 million years old. Bearing in mind the proximity of the Makapans Valley palaeontological site about 50km south-east of the project area it is possible that they may occur here. This was followed by the Acheulian technology from about 1.4 million years ago which introduced a new level of complexity. The large tools that dominate the Acheulian artefact assemblages range in length from 100 to 200 mm or more. Collectively they are called bifaces because they are normally shaped by flaking on both faces. In plan view they tend to be pear-shape and are broad relative to their thickness. Most bifaces are pointed and are classified as handaxes, but others have a wide cutting end and are termed cleavers. The Acheulian design persisted for more than a million years and only disappeared about 250 000 years ago. Here, too the Makapans Valley Site is referenced; especially the Cave of Hearths.

The change from Acheulian with their characteristic bifaces, handaxes and cleavers to Middle Stone Age (MSA), which are characterized by flake industries, occurred about 250 000 years ago and ended about 30 000 – 22 000 years ago. For the most part the MSA is associated with modern humans; Homo sapiens. MSA remains are found in open spaces where they are regularly exposed by erosion as well as in caves. Characteristics of the MSA are flake blanks in the 40 – 100 mm size range struck from prepared cores, the striking platforms of the flakes reveal one or more facets, indicating the preparation of the platform before flake removal (the prepared core technique), flakes show dorsal preparation – one or more ridges or arise down the length of the flake – as a result of previous removals from the core, flakes with convergent sides (laterals) and a pointed shape, and flakes with parallel laterals and a rectangular or quadrilateral shape: these can be termed pointed and flake blades respectively. Other flakes in MSA assemblages are irregular in form. The Cave of Hearths in the Makapans Valley Site is referenced.

The change from Middle Stone Age to Later Stone Age (LSA) took place in most parts of southern Africa little more than about 20 000 years ago. It is marked by a series of technological innovations or new tools that, initially at least, were used to do much the same jobs as had been done before, but in a different way. Their introduction was associated with changes in the nature of huntergatherer material culture. The innovations associated with the Later Stone Age "package" of tools

include rock art – both paintings and engravings, smaller stone tools, so small that the formal tools less that 25mm long are called microliths (sometimes found in the final MSA) and Bows and arrows. Rock art is an important feature of the LSA and is abundant in the Waterberg and the Makgabeng.

Significance: None

#### 4.6 PALAEONTOLOGICAL SENSITIVITY

The interchange are lies within an orange section of the SAHRIS map and the Road reserve for D3519 straddles a blue section. A palaeontological study is still currently underway by a specialist registered palaeontologist.

As part of a project for a Bulk Water supply line (SAHRIS website) that covers a wider area than this survey, Dr L. Rossouw, found that there would be a negligible possibility of unearthing paleoarchaeological heritage material (Rossouw: 2017).

A Palaeontological Study was conducted by Prof Chris Jones, see below for recommendations.

# 5. BACKGROUND ON THE AREA

According to SAHRA website, the nearest surveys to the proposed development are Case number 10484. A Bulk Water Supply line, by Jaco Van Der Walt. No heritage remains were recorded near the bridge area during their survey (Van Der Walt: 2017).

The Makapans World Heritage Site lies to the North East of the proposed development area, approximately 20km NE of the interchange. The unique importance of the Makapans World Heritage site should be noted due to its outstanding importance to not only palaeontological finds, but also it the cave's role during the historical period.

Though a Master's thesis, M Moore (1980) documents the time that Kekana, son of Musi, resided in the wider area.

# 6. EVALUATION AND STATEMENT OF SIGNIFICANCE

6.1	Significance	Rating
1	The importance of the cultural heritage in the community or pattern of South Africa's history (Historic and political significance)	
2	Possession of uncommon, rare or endangered aspects of South Africa's natural or cultural heritage (Scientific significance).	Low
3	Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage (Research/scientific significance	Low
4	Importance in demonstrating the principal characteristics	None

	of a particular class of South Africa's natural or cultural places or objects (Scientific significance)	
5	Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group (Aesthetic significance)	None
6	Importance in demonstrating a high degree of creative or technical achievement at a particular period (Scientific significance)	None
7	Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons (Social significance)	None
8	Strong or special association with the life and work of a person, group or organization of importance in the history of South Africa (Historic significance)	None
9	The significance of the site relating to the history of slavery in South Africa.	None

6.2 Section 38(3) (c) An assessment of the impact of the development on such heritage resources.

No resources were identified.

6.3 Section 38(3) (d) An evaluation of the impact of the development on heritage resources relative to the sustainable economic benefits to be derived from the development.

Low.

6.4 Section 38(3) (e) The results of consultation with the communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources.

Social consultative process is ongoing as part of EIA.

6.5 Section 38(3)(f) If heritage resources will be adversely affected by the proposed development the consideration of alternatives.

No Heritage resources identified.

6.6 Section 38(3)(g) Plans for mitigation of any adverse effects during and after the completion of the proposed development.

Refer to recommendations for mitigation measures.

# 7. DISCUSSION AND RECOMMENDATIONS

From an archaeological heritage resources management point of view, we have no objection with regard to the development.

The palaeontological recommendation is as follows (Jones:2018):

Bearing in mind the age and nature of the strata affected by the proposed development it is considered highly unlikely that any fossils will be encountered, save stromatolites. In mitigation it is recommended that a SACNASP accredited palaeontologist from a local institution such as the University of Limpopo makes one visit to the site during the excavation process to examine new outcrops.

The discovery of previously undetected subterranean heritage remains on the terrain must be reported to the Limpopo Heritage Authority or the archaeologist, and may require further mitigation measures. Palaeontological remains need to be reported to a registered palaeontologist, to adequately deal with any finds.

# 8. BIBLIOGRAPHY

**Deacon**, **HJ and Deacon**, **J.** 1999. *Human Beginnings in South Africa. Uncovering the Secrets of the Stone Age.* David Philip Publishers. Cape Town & Johannesburg.

**Huffman, T.N.** 2007. Handbook to the Iron Age. The Archaeology of Pre-colonial Farming Societies in Southern Africa. University of KwaZulu-Natal Press.

**Huffman T.N. & Steel R.N.** 1996. Salvage excavations at Planknek, Potgietersrus, Northern Province. *Southern African Field Archaeology* 5:5-56.

**Jones, C**. 2018. Palaeontological Assessment Of The N1 Sebetiela Toll Plaza Offramp Area, Mokopane. Impacts By Proposed Construction Of N1 / N11 Interchange And Associated Borrow pit.

**Mucina**, **L** and Rutherford, M.C. 2006. The Vegetation of South Africa, Lesotho and Swaziland. South African National Biodiversity Institute, Pretoria.

**Moore M.P.J.** 1981. The Iron Age of the Makapan Valley Area, Central Transvaal. Unpublished M.A Dissertation, University of the Witwatersrand: Johannesburg.

**Roodt, F, Roodt, F.E. and Stegmann, L**. 2008. Phase 1 Heritage Resources Scoping Report, Amended, N 11 Realignment, Mokopane, Limpopo Province.

**Rossouw, L.** 2017. Palaeontological desktop study of the proposed new Bakenberg and Tshamahanzi water pipelines near Mokopane, Limpopo Province.

**Van Der Walt, J**. 2017. Heritage Impact Assessment for the proposed bulk water supply line from Piet-sekop reservoir to Tshamahansi and Witrivier/Phafola to Bakenberg, Limpopo Province.

Liesl Stegmann BA Hons Archaeology Unisa,

Frans Ellington Roodt BA Hons Archaeology Unisa

Sooolt

FRANS ROODT (BA Hons, MA Archaeology, Post Grad. Dip. Museology; UP) Principal Investigator for SHASA Heritage Consultants



Map 1. Close view interchange



Map 2. Wide view interchange ramp



18



Criteria	Description			
EXTENT	National (4)	Regional (3)	Local (2)	Site (1)
	The whole of South	Provincial and parts	Within a radius of 2	Within the
	Africa	of neighbouring provinces	km of the construction site	construction site
DURATION	Permanent (4)	Long-term (3)	Medium-term (2)	Short-term (1)
	Mitigation either by	The impact will	The impact will last	The impact will either
	man or natural process	continue or last for the	for the period of the	disappear with mitigation
	will not occur in such a	entire operational life of	construction phase, where	or will be mitigated
	way or in such a time	the development, but will	after it will be entirely	through natural process in
	span that the impact can	be mitigated by direct	negated	a span shorter than the
	be considered transient	human action or by natural		construction phase
		processes thereafter. The		
		only class of impact which		
		will be non-transitory		
INTENSITY	Very High (4)	High (3)	Moderate (2)	Low (1)
	Natural, cultural	Natural, cultural and	Affected environment	Impact affects the
	and social functions and	social functions and	is altered, but natural,	environment in such a way
	processes are altered to	processes are altered to	cultural and social	that natural, cultural and
	extent that they	extent that they	functions and processes	social functions and
	permanently cease	temporarily cease	continue albeit in a modified way	processes are not affected
PROBABILIT	Definite (4)	Highly Probable (3)	Possible (2)	Improbable (1)
YOF	Impact will	Most likely that the	The impact may	Likelihood of the
OCCURRENCE	certainly occur	impact will occur	occur	impact materialising is
		· F · · · · · · · · · · · · · · · · · ·		very low

Impact is of Low probability, contained within the site. As no heritage materials were recorded, all criteria listed above are LOW

**Class** Description

	Class	Description
+ Any value		Any positive / beneficial 'impact', i.e. where no harm will occur due to the activity being undertaken.
	Low impact (4 -6 points)	A low impact has no permanent impact of significance. Mitigation measures are feasible and are readily instituted as part of a standing design, construction or operating procedure.
	Medium impact (7 -9 points)	Mitigation is possible with additional design and construction inputs.
_	High impact (10 -12 points)	The design of the site may be affected. Mitigation and possible remediation are needed during the construction and/or operational phases. The effects of the impact may affect the broader environment.
	Very high impact (12 - 14 points)	Permanent and important impacts. The design of the site may be affected. Intensive remediation is needed during construction and/or operational phases. Any activity which results in a "very high impact" is likely to be a fatal flaw.
Status		Denotes the perceived effect of the impact on the affected area.
Positive	e (+)	Beneficial impact.
Negativ	ve (-)	Deleterious or adverse impact.
Neutral (/)		Impact is neither beneficial nor adverse.
It is important to note that the status of an impact is assigned based on the <i>status quo</i> – i.e. should the project not proceed. Therefore not all negative impacts are equally significant.		

In terms of Heritage resources- the development has a neutral impact as no heritage materials were recorded.