

**CULTURAL HERITAGE IMPACT ASSESSMENT
OF THE PROPOSED, UPGRADE OF DISTRICT
ROAD 1269 (D1269) TO BLACKTOP SURFACE.
MSINGA LOCAL MUNICIPALITY, UMZINYATHI
DISTRICT MUNICIPALITY, KWAZULU-NATAL.**



ACTIVE HERITAGE cc.

For: Hanslab (PTY) Ltd

**Frans Prins
MA (Archaeology)**

P.O. Box 947
Howick
3290

activeheritage@gmail.com

Fax: 086 7636380

www.activeheritage.webs.com

1 August 2018

TABLE OF CONTENTS

1	BACKGROUND INFORMATION ON THE PROJECT.....	6
1.1.	Details of the area surveyed:	6
2	BACKGROUND TO ARCHAEOLOGICAL HISTORY OF AREA	7
3	BACKGROUND INFORMATION OF THE SURVEY	13
3.1	Methodology	13
3.2	Restrictions encountered during the survey	13
3.2.1	<i>Visibility</i>	13
3.2.2	<i>Disturbance</i>	13
3.3	Details of equipment used in the survey.....	14
4	DESCRIPTION OF SITES AND MATERIAL OBSERVED.....	14
4.1	Locational data	14
4.2	Heritage Sites Located during the Survey	14
4.2.1	<i>Background</i>	14
5	STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)	16
5.1	Field Rating.....	16
6	RECOMMENDATIONS	17
7	MAPS AND FIGURES.....	18
9	REFERENCES	22

APPENDIX 1. Paleontological Impact Assessment

LIST OF TABLES

Table 1.	Background information.....	6
Table 2.	Evaluation and statement of significance of identified heritage sites.....	17
Table 3.	Field rating of heritage sites.....	18

Declaration of Consultants independence

Frans Prins is an independent consultant to green Door Environmental and has no business, financial, personal or other interest in the activity, application or appeal in respect of which he was appointed other than fair remuneration for work performed in connection with the activity, application or appeal. There are no circumstances whatsoever that compromise the objectivity of this specialist performing such work.



Frans Prins

LIST OF ABBREVIATIONS AND ACRONYMS

EIA	Early Iron Age
ESA	Early Stone Age
HISTORIC PERIOD	Since the arrival of the white settlers - c. AD 1820 in this part of the country
IRON AGE	Early Iron Age AD 200 - AD 1000 Late Iron Age AD 1000 - AD 1830
LIA	Late Iron Age
LSA	Late Stone Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998 and associated regulations (2006).
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999) and associated regulations (2000)
SAHRA	South African Heritage Resources Agency
STONE AGE	Early Stone Age 2 000 000 - 250 000 BP Middle Stone Age 250 000 - 25 000 BP Late Stone Age 30 000 - until c. AD 200

EXECUTIVE SUMMARY

A cultural heritage survey of the proposed D 1269 road upgrade identified no heritage sites and graves on the footprint. The area is also not part of any known cultural landscape. In addition, no palaeontological material was observed within the underlying bedrock exposed along the route of the proposed development or adjacent to it (within 50 meters). The proposed road upgrade may proceed from a heritage point of view and no mitigation is needed. Attention is drawn to the South African Heritage Resources Act, 1999 (Act No. 25 of 1999) and the KwaZulu-Natal Heritage Act (Act no 4 of 2008) which, requires that operations that expose archaeological or historical remains should cease immediately, pending evaluation by the provincial heritage agency.

1 BACKGROUND INFORMATION ON THE PROJECT

Table 1. Background information

Consultants:	Frans Prins of Active Heritage cc conducted the general Heritage Impact Assessment study. Active Heritage cc was sub-consulted by Hanslab (PTY) Ltd. Mr. Gary Trower conducted the paleontological study of the project area (Appendix 1).
Type of development:	The KwaZulu-Natal Department of Transport (Applicant) are currently addressing the needs of previously disadvantaged rural areas by providing service delivery. The Department of Transport has initiated proposed projects for infrastructure development to ensure the safety of all road users within the rural community. The proposed project will include the upgrade of existing structures along the proposed route. The existing gravel road is 7.0km and currently consists of No. 5 water crossing points each containing existing structures. The current crossings are ineffective during periods of medium to heavy rainfall and therefore create hazardous conditions. Therefore, there is a need to replace the current structures which will mitigate the risk posed by rainfall and allow safe passage along the road way. The construction of the proposed upgrade will trigger a basic assessment application as per GNR 327 Listing Notice 1, Activity 12 of the EIA Regulations, 2014 (as amended 2017).
Rezoning or subdivision:	Not applicable
Terms of reference	To carry out a Heritage Impact Assessment.
Legislative requirements:	The Heritage Impact Assessment was carried out in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA) and following the requirements of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA) and the KwaZulu-Natal Heritage Act, 1997 (Act No. 4 of 2008)

1.1. Details of the area surveyed:

The D 1269 gravel road is situated approximately 15km to the south east of Pomeroy within the Msinga Local Municipality and Umzinyathi District Municipality, KwaZulu-Natal (Figs 1 & 2). The D 1269 is approximately seven kilometres (7.0km) in length and has existing structures along the route. A site assessment undertaken by Nankhoo Engineers

indicated that the current gravel road is eroded and the existing structures along the route are ineffective in conditions of moderate and heavy rainfall. There are no site alternatives that have been investigated in this report, as the existing gravel road will be upgraded to a black top surface. The area is rural with some Zulu homesteads scattered over the landscape and along the existing gravel road (Fig 4). The area is overgrazed with some evidence for small-scale subsistence farming. The upgrade of the track will allow for improved access for residents and minimize erosion along the track as a result of storm water run-off.

The GPS coordinates for the D 1269 are:

Start Point	28°40'43.62"S	30°31'16.05"E
Middle Point	28°41'41.74"S	30°32'31.65"E
End Point	28°42'55.92"S	30°33'15.53"E

2 BACKGROUND TO ARCHAEOLOGICAL HISTORY OF AREA

The archaeological history of the Province of KwaZulu-Natal (KZN) dates back to about 2 million years and possibly older, which marks the beginning of the Stone Age. The Stone Age in KZN was extensively researched by Professor Oliver Davies formerly of the Natal Museum. The Stone Age period has been divided in to three periods namely: Early Stone Age (ESA) dating between 2 million years ago to about 200 000 years ago, Middle Stone Age (MSA) dating between 200 000 years ago to about 30 000 years ago, and the Later Stone Age (LSA) which dates from 30 000 to about 2 000 year ago. The Stone Age period ends around approximately 2 000 years ago when Bantu speaking Age farmers from the north arrived in southern Africa. The Iron Age is also divided into three periods, namely: Early Iron Age (EIA) dating between AD 200 and AD 900, Middle Iron Age (MIA) dating between AD 900 and AD 1300, Late Iron Age (LIA) dating between AD 1 300 and 1 820.

2.1 Stone Age

2.1.1 Early Stone Age (ESA)

The ESA is considered as the beginning of the stone tool technology. It dates back to over 2 million years ago until 200 000 years ago. This period is characterised by Oldowan and Acheulean industries. The Oldowan Industry, dating to approximately between over 2

million years and 1.7 million years predates the later Acheulean. The Oldowan Industry consists of very simple, crudely made core tools from which flakes are struck a couple of times. To date, there is no consensus amongst archaeologists as to which hominid species manufactured these artefacts. The Acheulean Industry lasted from about 1.7 million years until 200 thousand years ago. Acheulean tools were more specialized tools than those of the earlier industry. They were shaped intentionally to carry out specific tasks such as hacking and bashing to remove limbs from animals and marrow from bone. These duties were performed using the large sharp pointed artefacts known as handaxes. Cleavers, with their sharp, flat cutting edges were used to carry out more heavy duty butchering activities (Esterhuysen, 2007). The ESA technology lasted for a very long time, from early to middle Pleistocene and thus seems to have been sufficient to meet the needs of early hominids and their ancestors. ESA tool occurrence has been reported in open air context on seven sites in the greater Weenen area. None of these sites occur on the actual footprint. Apart from stone artefacts, the ESA sites have produced very little as regards other archaeological remains. This has made it difficult to make inferences pointing to economical dynamics of the ESA people in this part of the world. The diet of ESA peoples has therefore had to be reconstructed on the basis of evidence from elsewhere that it comprised primarily of animal and plant foods (Mazel 1989).

2.1.2 Middle Stone Age (MSA)

The MSA dates to between 200 000 and 30 000 years ago, coinciding with the emergence of modern humans. The MSA technology is therefore believed to have been manufactured by fully modern humans known as *Homo sapiens* who emerged around 250 000 years ago. While some of the sites belonging to this time period occur in similar contexts as those of ESA, most of the MSA sites are located in rock shelters. Palaeoenvironmental data suggest that the distribution of MSA sites in the high lying Drakensberg and surrounding areas was influenced by the climate conditions, specifically the amount and duration of snow (Carter, 1976). In general, the MSA stone tools are smaller than those of the ESA. Although some MSA tools are made from prepared cores, the majority of MSA flakes are rather irregular and are probably waste material from knapping exercises. A variety of MSA tools include blades, flakes, scrapers and pointed tools that may have been hafted onto shafts or handles and used as spearheads. Between 70 000 and 60 000 years ago new tool types appear known as segments and trapezoids. These tool types are referred to as backed tools from the method of preparation. Residue analyses on the backed tools from South African MSA sites including those in KZN indicate that these tools

were certainly used as spear heads and perhaps even arrow points (Wadley, 2007). A few sites with impressive MSA deposits have been excavated in KZN. Perhaps the best known ones are Sibudu Cave and Umhlatuzana Cave to the south east of the study area, and Border Cave to the north of the study area. All these sites provided impressive evidence for fine resolution data and detailed stratigraphy (Wadley & Jacobs, 2006). Fourteen Middle Stone Age sites have been recorded in the greater Msinga area. These, like the Early Stone Age sites, are mostly restricted on open air sites with little archaeological context remaining. None of the known Middle Stone Age sites occur on the footprint.

2.1.3 Late Stone Age (LSA)

Compared to the earlier MSA and ESA, more is known about the LSA which dates from around 30 000 to 2 000 (possibly later) years ago. This is because LSA sites are more recent than ESA and MSA sites and therefore achieve better preservation of a greater variety of organic archaeological material. The Later Stone Age is usually associated with the San (Bushmen) or their direct ancestors. The tools during this period were even smaller and more diverse than those of the preceding Middle Stone Age period. LSA tool technology is observed to display rapid stylistic change compared to the slower pace in the MSA. The rapidity is more evident during the last 10 000 years. The LSA tool sequence includes informal small blade tradition from about 22 000 – 12 000 years ago, a scraper and adze-rich industry between 12 000 – 8 000 years ago, a backed tool and small scraper industry between 8 000 – 4 000 years and ending with a variable set of other industries thereafter (Wadley, 2007). Adzes are thought to be wood working tools and may have also been used to make digging sticks and handles for tools. Scrapers are tools that are thought to have been used to prepare hides for clothing and manufacture of other leather items. Backed tools may have been used for cutting as well as tips for arrows. It was also during Later Stone Age times that the bow and arrow was introduced into southern Africa – perhaps around 20 000 years ago. Because of the bow and arrow and the use of traps and snares, Later Stone Age people were far more efficient in exploiting their natural environment than Middle Stone Age people. Up until 2 000 years ago Later Stone Age people dominated the southern African landscape. However, shortly after 2 000 years ago the first Khoi herders and Bantu-speaking agro pastoralists immigrated into southern Africa from the north. This led to major demographic changes in the population distribution of the subcontinent. San hunter-gatherers were either assimilated or moved off to more marginal environments such as the Kalahari Desert or some mountain ranges unsuitable

for small-scale subsistence farming and herding. The San in the coastal areas of KZN were the first to have been displaced by incoming African agro pastoralists. However, some independent groups continue to practice their hunter gatherer lifestyle in the foothills of the Drakensberg until the period of white colonialisation around the 1840's (Wright & Mazel, 2007). According to the KwaZulu- Natal Museum archaeological database there are fourteen Later Stone Age sites in the greater Msinga area. Also dating to the LSA period is the impressive Rock Art found on cave walls and rock faces. Rock Art can be in the form of rock paintings or rock engravings. The province of KZN is renowned for the prolific San rock painting sites concentrated in the Drakensberg. Rock art sites do occur outside the Drakensberg including the Msinga area, however, these sites have not been afforded similar research attention as those sites occurring in the Drakensberg. No known rock art sites occur near the footprint.

2.2 Iron Age

2.2.1 Early Iron Age (EIA)

Unlike the Stone Age people whose life styles were arguably egalitarian, Iron Age people led quite complex life styles. Their way of life of greater dependence on agriculture necessitated more sedentary settlements. They cultivated crops and kept domestic animals such as cattle, sheep, goats and dogs. Pottery production is also an important feature of Iron Age communities. Iron smelting was practised quite significantly by Iron Age society as they had to produce iron implements for agricultural use. However no smelting sites were discovered in the study area as it is the northern KZN that is rich in abandoned iron smelting sites (Maggs, 1989). Although Iron Age people occasionally hunted and gathered wild plants and shellfish, the bulk of their diet consisted of the crops they cultivated as well as the meat of the animals they kept. EIA villages were relatively large settlements strategically located in valleys beside rivers to take advantage of the fertile alluvial soils for growing crops (Maggs, 1989). The EIA sites in KZN date to around AD 500 to AD 900. Extensive research in the province, in the greater Weenen and Muden areas, of this period led to it being divided in the following time lines according to ceramic styles (Maggs, 1989; Huffman 2007):

- _ Msuluzi (AD 500);
- _ Ndongondwane (AD 700 – 800);
- _ Ntshekane (AD 800 – 900).

The archaeological data base of the KwaZulu-Natal Museum indicates that ten Early Iron Age sites occur in the Tugela Valley catchment area. Here they are situated at altitudes

below 1000m adjacent to the Mooi, Mhlopheni and Msuluzi Rivers. These sites occur to the south of the project area.

2.2.2 Late Iron Age (LIA)

The LIA is not only distinguished from the EIA by greater regional diversity of pottery styles but is also marked by extensive stone wall settlements. However, in this part of the world, stone walls were not common as the Nguni people used thatch and wood to build their houses. This explains the failure to obtain sites from the aerial photograph investigation of the study area. Trade played a major role in the economy of LIA societies. Goods were traded locally and over long distances. The main trade goods included metal, salt, grain, cattle and thatch. This led to the establishment of economically driven centres and the growth of trade wealth. Keeping of domestic animals, metal work and the cultivation of crops continued with a change in the organisation of economic activities. Evidence for this stems from the fact that iron smelting evidence was not found in almost every settlement (Maggs, 1989; Huffman 2007). Later Iron Age sites have been recorded in the greater Tugela Valley catchment area. The majority of these were most probably inhabited by early Nguni-speaking agropastoralists before the Shakan era in the beginning of the 19th century. However, despite the occurrence of numerous sites in this area they, in contrast with the Early Iron Age sites, have not been well researched. No known Later Iron Age sites occur near the project area.

2.3 Historic Period

Oral tradition is the basis of the evidence of historical events that took place before history could be recorded. This kind of evidence becomes even more reliable in cases where archaeology could be utilised to back up the oral records. Sources of evidence for socio political organization during the mid-eighteenth to early nineteenth century in the study area and the larger former Natal Province suggest that the people here existed in numerous small-scale political units of different sizes, population numbers and political structures (Wright & Hamilton, 1989). This period was largely characterised by rage and instability as political skirmishes broke due to the thirst for power and resources between chiefdoms. During the 2nd half of the eighteenth century, stronger chiefdoms and paramuncies emerged. However, these were not fully grown states as there was no proper formal central political body established. This changed in the 1780's when a shift towards a more centralized political state occurred. This shift was mainly characterized by

population growth and geographical expansion of states. The most important and largest and strongest states at the time were the Mabhudu, Ndwandwe and Mthethwa. However, other smaller states, also established themselves in the area. These included in the south the Qwabe, Bhaca, Mbo, Hlubi, Bhele, Ngwane and many others (Wright & Hamilton, 1989). The greater Msnga area was inhabited by the Thembu and Mcunu clans. The Zulu kingdom, established by King Shaka however remained the most powerful in the region in the early years of the 19th century. Shaka fought ruthlessly and often defeated his rivals and conquered their cattle, wives and even burnt their villages. These wars are often referred to as Difaqane and this period was characterised by rage and blood shedding. Shaka was assassinated in 1828 at which time he had transformed the nature of the society in the Natal and Zululand regions. He was succeeded by Dingaan (Wright & Hamilton, 1989). The location of the Tembu and Mcunu in the greater project area is a direct result of the expansionistic policies of the King Shaka. Colonial and Apartheid-era policies in more recent years contributed tremendously to the high incidence of faction fighting and interpersonal violence that his area has been experiencing (Clegg 1979).

Dutch farmers unhappy with the British rule in Cape Town decided to explore into the interior of the country, away from British rule. Some groups remained in the Eastern Cape, others kept going and a few settled in the Orange Free State and the Transvaal. A great number, led by Piet Retief and Gerrit Maritz, crossed the Drakensberg into Natal.

Here they encountered the Zulus who lured them into a trap and brutally massacred many of them. This was only one of the many failures of the white settler expeditions in the frontier areas and when the shocking news reached the Cape, more groups were sent to the interior to revenge. A series of battles were fought but the most notable was the Battle of Blood River in 1838 where the Boers defeated the Zulus. This ended the Zulu threat to the white settlers and a permanent and formal settlement in Natal was established. However the Zulu kingdom remained independent for a couple of decades. The Republic of Natalia was annexed by the British in 1845 and in 1879 the Zulu kingdom was also invaded (Wright & Hamilton, 1989). The Anglo-Zulu War has been well recorded and an important occurrence took place at Keates Drift and Jamesons Drift, near the project area, when a few British soldiers attempted to cross the Tugela River after their defeat at the battle of Isandlwana. Although no relicts or artefacts survive from this encounter the surrounding landscape is still imbued with the meaning of this important period in the colonial history of KwaZulu-Natal. The town of Pomeroy that is situated to the immediate

north west of the project area was named after Sir George Pomeroy Volley who led the ill-fated British force during the Battle of Majuba Hill in 1881. It was initially established as the Gordon Memorial Mission in 1867 in memory of James Henry Hamilton-Gordon, the son of George Hamilton-Gordon the 5th Earl of Aberdeen. The Mission worked with the Zulu people of the area. The Bambata Rebellion of 1906 saw various incidents in the near vicinity of the project area. The most significant is perhaps the Bambata Rock Ambush that occurs approximately 30km to the south of the footprint.

3 BACKGROUND INFORMATION OF THE SURVEY

3.1 Methodology

A desktop study was conducted of the heritage databases housed in the KwaZulu-Natal Museum. In addition, the available archaeological and historical literature covering the greater Msinga area was also consulted. The SAHRIS website was consulted to obtain information on previous heritage surveys and site data near the study area.

A ground survey, following standard and accepted archaeological procedures, was conducted on 25 July 2018. A zone of 50m on either side of the proposed road upgrade was surveyed. In addition, the consultant also interviewed local residents regarding the potential occurrence of graves and other heritage sites adjacent to the proposed road upgrade.

The results of the paleontological ground survey is reported in Appendix 1.

3.2 Restrictions encountered during the survey

3.2.1 Visibility

Visibility was good

3.2.2 Disturbance

No disturbance of any heritage sites was noted.

3.3 Details of equipment used in the survey

GPS: Garmin Etrek

Digital cameras: Canon Powershot A460

All readings were taken using the GPS. Accuracy was to a level of 5 m.

4 DESCRIPTION OF SITES AND MATERIAL OBSERVED

4.1 Locational data

Province: KwaZulu-Natal

Town: Pomeroy

Municipality: Msinga Local Municipality, Umzinyathi District Municipality

4.2 Heritage Sites Located during the Survey

4.2.1 Background

A desktop survey of the greater Msinga area indicated that a wide range of heritage sites and features may occur in the area. These include stone age, iron age, rock art sites, historical period sites, and potential 'living heritage' sites. None of the known heritage sites, as indicated by the available data bases, occur on the footprint. The ground survey of the project area also did not locate any heritage sites and graves within 50m from the proposed road upgrade (Fig 6). Some isolated Zulu homesteads are located adjacent to the road but none of these had associated graves (Fig 4). The area is also not part of any known cultural landscape and no 'living heritage' sites were observed (Table 2). These observations were confirmed by local residents interviewed.

The proposed upgrade of the road can also proceed from a paleontological point of view. No fossil material was observed within the underlying bedrock exposed along the route of the proposed development or adjacent to it (within 50 meters). (Appendix 1).

Table 2. Evaluation and statement of significance of identified heritage sites in the project area.

Significance criteria in terms of Section 3(3) of the NHRA		
	Significance	Rating
1.	Historic and political significance - The importance of the cultural heritage in the community or pattern of South Africa's history.	None.
2.	Scientific significance – Possession of uncommon, rare or endangered aspects of South Africa's cultural heritage.	None
3.	Research/scientific significance – Potential to yield information that will contribute to an understanding of South Africa's natural or cultural heritage.	None
4.	Scientific significance – Importance in demonstrating the principal characteristics of a particular class of South Africa's cultural places/objects.	None
5.	Aesthetic significance – Importance in exhibiting particular aesthetic characteristics valued by a community or cultural group.	None
6.	Scientific significance – Importance in demonstrating a high degree of creative or technical achievement at a particular period.	None
7.	Social significance – Strong or special association with a particular community or cultural group for social, cultural or spiritual reasons.	None
8.	Historic significance – Strong or special association with the life and work of a person, group or organization of importance in the history of South Africa.	None
9.	The significance of the site relating to the history of slavery in South Africa.	None.

5 STATEMENT OF SIGNIFICANCE (HERITAGE VALUE)

5.1 Field Rating

The SAHRA rating system (Table 2) does not apply as no heritage sites occur on the footprint.

Table 2. Field rating and recommended grading of sites (SAHRA 2005)

Level	Details	Action
National (Grade I)	The site is considered to be of National Significance	Nominated to be declared by SAHRA
Provincial (Grade II)	This site is considered to be of Provincial significance	Nominated to be declared by Provincial Heritage Authority
Local Grade IIIA	This site is considered to be of HIGH significance locally	The site should be retained as a heritage site
Local Grade IIIB	This site is considered to be of HIGH significance locally	The site should be mitigated, and part retained as a heritage site
Generally Protected A	High to medium significance	Mitigation necessary before destruction
Generally Protected B	Medium significance	The site needs to be recorded before destruction
Generally Protected C	Low significance	No further recording is required before destruction

6 RECOMMENDATIONS

The proposed development may proceed from a heritage point of view as no heritage sites or features, including paleontological material (Appendix 1), occur on the footprint. It must be noted, however, that the Provincial Heritage Act requires that operations exposing paleontological material, archaeological sites, historical residues, as well as graves, should cease immediately pending an evaluation by the heritage authorities.

7 MAPS AND FIGURES



Figure 1. Google Earth Imagery showing the location of the project area (Source: Hanslab).

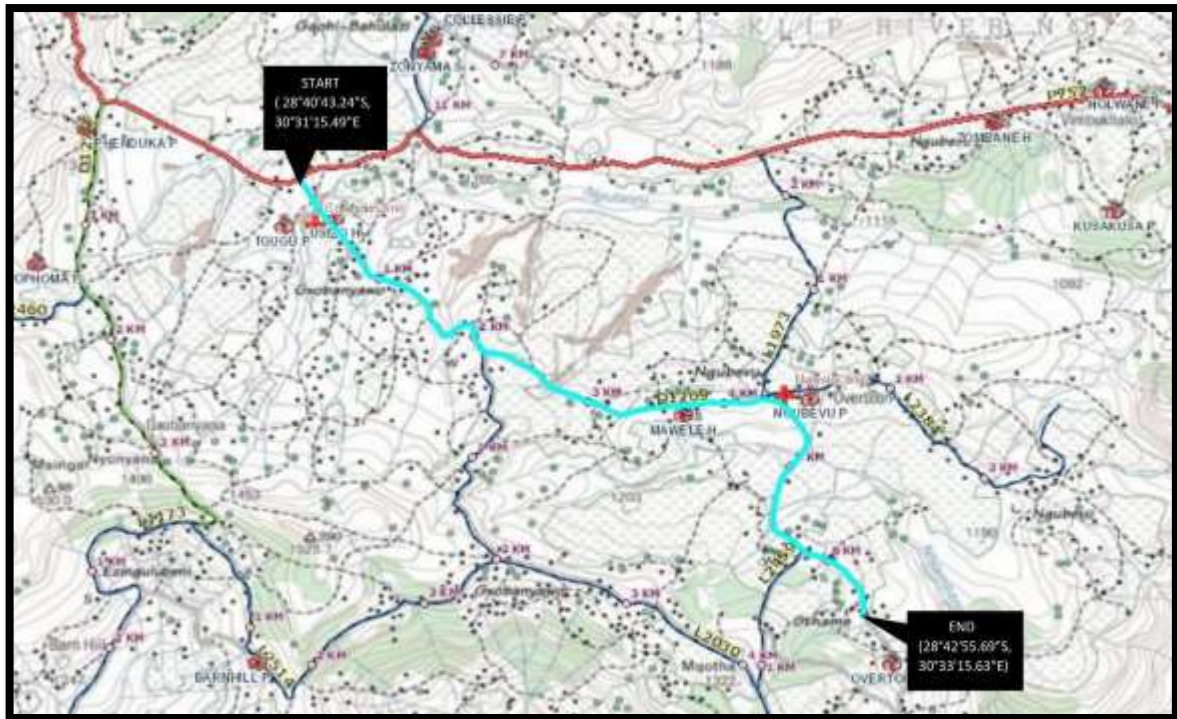


Figure 2. Topographical Map showing the location of the D 1269 in Msinga (Source: Hanslab).



Figure 3. *The start of the D 1269 – an existing gravel road.*



Figure 4. *The D 1269 is a gravel road flanked by rural dwellings and evidence for small-scale subsistence farming.*



Figure 5. All the existing structures adjacent to the D 1269 are younger than 60 years old and do not have any heritage value.



Figure 6. Local residents thought that potential graves occur in the bushes (indicated by the blue arrow). However, investigations by the consultant indicated that the actual graves are situated more than 50m from the D 1269 and these are not threatened by the proposed development

9 REFERENCES

- Carter, P.L. 1976. 'The Effect of Climatic Change on Settlement in Eastern Lesotho during the Middle and Later Stone Age.' *World Archaeology*, 8, 198 – 206.
- Clegg, J. 1979. *Ukubuyisa Isidumbu - Bringing Back the Body": An Examination into the Ideology of Vengeance in the Msinga and Mpofana Rural Locations. (1882-1944)* University of the Witwatersrand, African Studies Institute. African Studies Seminar Paper.
- Clegg, J. 1979. *Ukubuyisa Isidumbu – bring back the body. An examination into the ideology of vengeance in the Msinga and Mpofana Rural Locations (1882 -1944)*. African Studies Seminar. University of the Witwatersrand, African Studies Institute. Seminar paper.
- Cousins, B et al 2011. *Living Law of Land in Msinga*. Unpublished paper.
- Esterhuysen, A., 2007. The Earlier Stone Age. In Bonner, P., Esterhuysen, A., Jenkins, T. (eds.): *A Search for Origins: Science, History and South Africa's 'Cradle of Humankind'*. Johannesburg: Wits University Press. Pg 110 -121.
- Fowler, K. 2006. The Zulu Ceramic tradition in Msinga, South Africa. *SAHJ* (2)2
- Guest, B.(eds). 1989 *Natal and Zululand: From Earliest Times to 1910 – A new history: 49 – 82*. University of KwaZulu-Natal Press.
- Huffman, T. 2007. *Handbook to the Iron Age: The Archaeology of Pre-Colonial Farming Societies in Southern Africa*. University of KwaZulu-Natal Press, Pietermaritzburg.
- Jolles, F. 1993. Traditional Zulu Beadwork in the Msinga area. *African Art* 26(1):42-53, 101-102.
- Maggs, T. 1989. The Iron Age farming communities. In Duminy. A. & Guest, B.(eds). *Natal and Zululand: From Earliest Times to 1910 – A New History: 28 - 48*. University of KwaZulu-Natal Press.
- Maggs T & Ward, V. 1984. Early Iron Age sites in the Muden area of Natal. *Annals of the Natal Museum*. 26(1): 105-144
- Mazel, A. 1989. The Stone Age peoples of Natal. In Duminy, A & Guest, B.(eds). *Natal and Zululand: From Earliest Times to 1910 – A New History: 1 - 27*. University of KwaZulu-Natal Press.
- SAHRA, 2005. *Minimum Standards for the Archaeological and the Palaeontological Components of Impact Assessment Reports*, Draft version 1.4.
- Van Schalkwyk, L. O. 1994a. Wosi: an Early Iron Age village in the Lower Thukela Basin, Natal. *Natal Museum Journal of Humanities* 6: 65-117.

- Van Schalkwyk, L. O. 1994b. Mamba confluence; a preliminary report on an Early Iron Age industrial centre in the lower Thukela Basin, Natal. *Natal Museum Journal of Humanities* 6: 119-153
- Van Schalkwyk, L. O. Greenfield, H. J. & Jongsma, T. L. 1997. Ndondondwane: preliminary report on the 1995 survey and excavations. *Southern African Field Archaeology* 6: 61-79
- Voigt, E. A 1984. Annals of the Natal Museum. The faunal remains from Magogo and Mhlopheni: small stock herding in the Early Iron Age of Natal. (1) 26:141-164
- Wadley, L & Jacobs, Z. 2006. Sibudu Cave:background to the excavations, stratigraphy and dating. *Southern African Humanities*. 18 (1): 1-26.
- Wadley, L., 2007. The Middle Stone Age and Later Stone Age. In Bonner, P., Esterhuysen, A., Jenkins, T. (eds.): *A Search for Origins: Science, History and South Africa's 'Cradle of Humankind'*. Johannesburg: Wits University Press. Pg 122 -135.
- Whelan, D. 2001. *The Recent transmutation of the Indigenous Vernacular Architecture of the People of KwaMthembu and kwaMchunu, Msinga District, KZN, South Africa*. Unpublished MA thesis submitted to the University of Natal, Durban.
- Wright, J. and Hamilton, C. 1989. Tradition and transformations – The Phongolo-Mzimkhulu region in the late eighteenth and early nineteenth centuries. In Duminy, A &

APPENDIX 1.

**Palaeontological Impact Assessment for the proposed upgrade of
District Road D1269 (Msinga Local Municipality, KwaZulu-Natal) to a
blacktop surface**

Conducted by Gary Trower (MSc in Environmental Management, UFS)

1August 2018

Introduction

In terms of the National Environmental Management Act 107 of 1998, Section 38 (8) of the National Heritage Resources Act 25 of 1999, and the KwaZulu-Natal Heritage Act 4 of 2008, all aspects of cultural heritage are protected. Proposed developments that are likely to impact on heritage resources (i.e. historical, archaeological, palaeontological & cosmological) require a desktop and/or field assessment to gauge the importance of such resources (if present) to ensure that significant observations are not damaged or destroyed during the construction process.

In line with various regional projects aimed at infrastructure development, the KwaZulu-Natal Department of Transport proposes to upgrade District Road D1269 to a blacktop surface. The improved road will be located in the Msinga Tops area, just east of KwaNtonga and west of Ngubevu, passing close to the village of Gxobanyawo (Figure 1). This falls under ward 15 of Msinga Local Municipality, within the greater uMzinyathi District Municipality.

The existing gravel road is approximately seven kilometres in length and crosses various watercourses where underlying bedrock is exposed. The existing pipe and concrete box culvert structures associated with these watercourses will be upgraded as they are currently unable to handle moderate to large volumes of water during higher rainfall periods. These improvements are aimed at enhancing access; ensuring the safety of all road users at water crossings; and improving public transport between surrounding villages. The development will take place in a region where the underlying bedrock is potentially fossiliferous, with a high sensitivity rating of red (in terms of palaeontological material). Therefore a ground survey of the landscape affected by the proposed development was required to ascertain

the probability of encountering fossil specimens within geological units underlying the pathway of the proposed development in order to assess any other possible heritage resources which may be at risk.

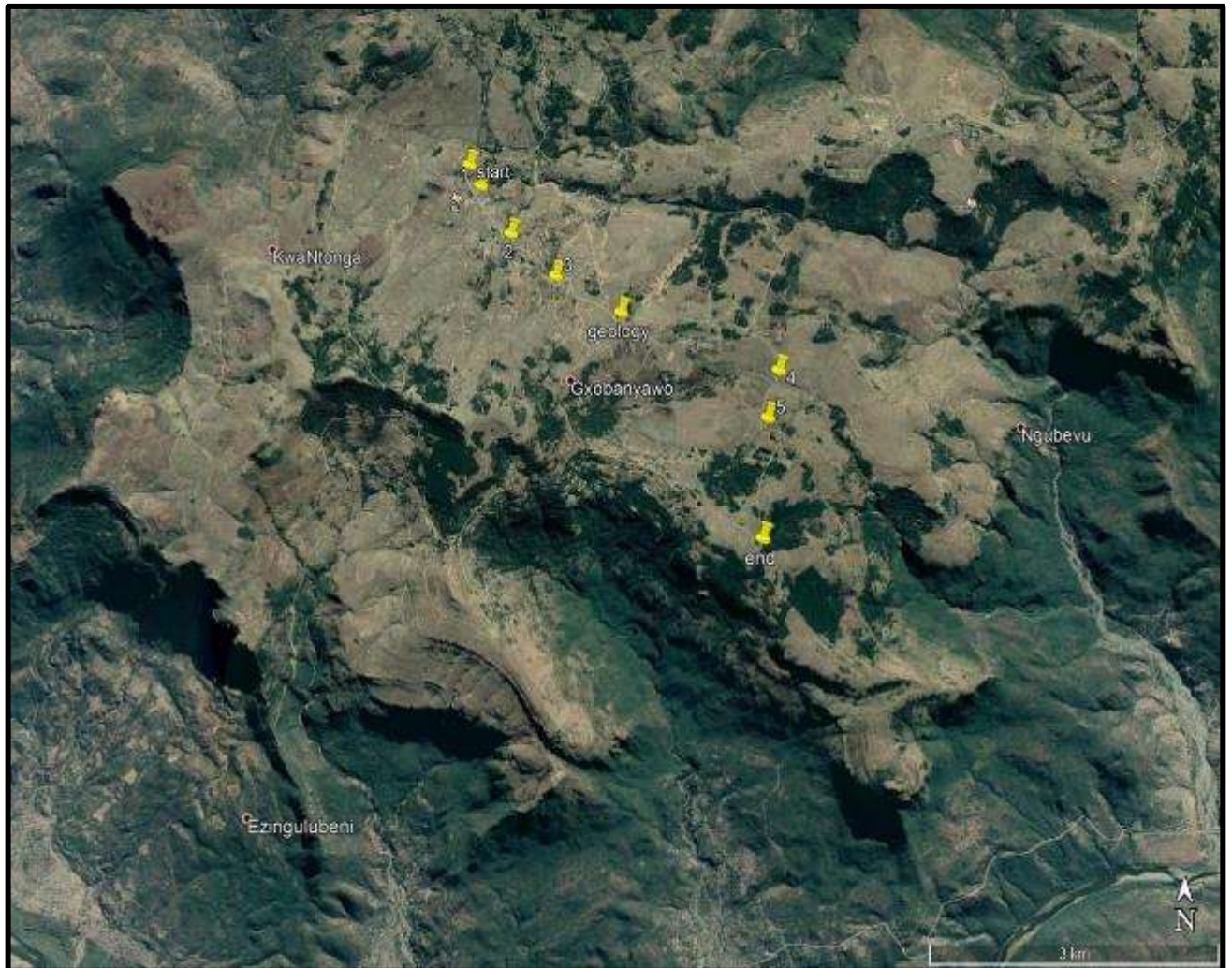


Figure 1: Satellite image showing an aerial view of the broader landscape where the D1269 is located. The site sits on a mountain top close to the village of Gxobanyawo, falling under the Msinga Local Municipality. The start and end of the proposed road upgrade are indicated, as well as the five watercourses where new pipe and culvert structures will be installed, whereas the point marked “geology” revealed aspects of the Ecca stratigraphy. Eye elevation approximately 15 kms, North is at the top of the page. (Modified Google Earth image, 2108 DigitalGlobe)

Geology

The geology in the landscape surrounding the site is dominated by Carboniferous and Permian deposits of the Dwyka and Ecca Groups (Figure 2). The Ecca Group is present within the study area in the form of medium to coarse-grained sandstones and grey micaceous shales. This geological unit represents deposits which were laid down in a giant inland sea and forms an important component and subdivision of the stratigraphy of the Karoo Supergroup, an extensive inland basin which preserves a rich array of tetrapod fauna which existed through the Permian and Triassic of southern Gondwana (Rubidge 2005, Smith *et al.* 1993). Rocks of the Karoo Basin are therefore rich repositories for palaeontological material, necessitating measures to minimize activities which may disturb or destroy fossils preserved in underlying beds.

When viewing the PalaeoSensitivity map on the SAHRA website (www.sahra.org.za/sahris/map/palaeo, Figure 3) the area where the proposed development will take place is given as grey and red. Grey is the lowest sensitivity rating and does not require a palaeontological assessment. In this case it represents outcrops of dolerite, Jurassic lava intrusions which gave rise to the various dolerite dykes in the landscape. Red is the highest sensitivity rating for palaeontological resources and in this geological setting represents Ecca sandstones and shales.

Considerably younger alluvial deposits occur alongside many of the drainage lines within the valleys and are Quaternary in age (Figure 2). Where these were present they were surveyed and were all found to be sterile.

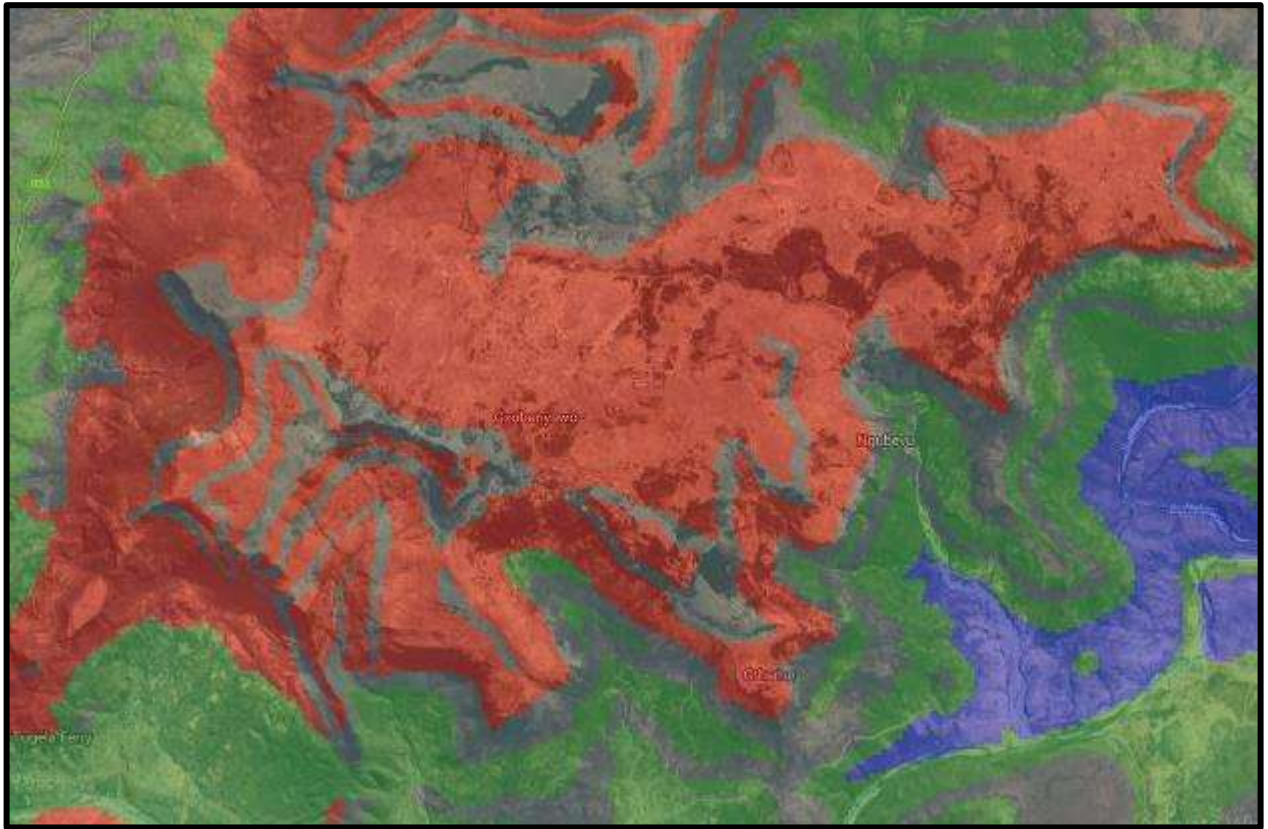


Figure 3: SAHRA PalaeoSensitivity map corresponding to the Google Earth image in Figure 1. The area of the proposed development falls within the red zone, given a sensitivity ranking of VERY HIGH in terms of possible fossil occurrences. This area corresponds to the olive-grey **Pv** unit in Figure 2, sedimentary rocks comprising of medium to coarse-grained sandstones, grey micaceous shales and coal. Modified from www.sahra.org.za/sahris/map/palaeo



Figure 4: The start of the proposed road to be upgraded, located at $28^{\circ} 40' 43.45''$ S, $30^{\circ} 31' 15.75''$ E



Figure 5: Looking south at water crossing 1. The area was dominated by medium-grained sandstones of Ecca



Figure 6: Quaternary deposits exposed along the banks of water crossing 1 comprised of different coloured stratigraphic bands, a process that takes a considerable period of time to form. These units appeared to be sterile as no archaeological and/or palaeontological material was observed eroding out of them



Figure 7: To the south of the bridge at water crossing 1, a thick unit of sandstone was present. When it was surveyed no fossils were observed, however several impressive potholes indicating a high velocity stream were preserved at this location (Fig. 8)



Figure 8: Potholes present at water crossing 1, just south of the bridge. Many of them still contained the spheroid rocks which had drilled them. These were formed when high velocity waters were flowing north into the Ngubevu river

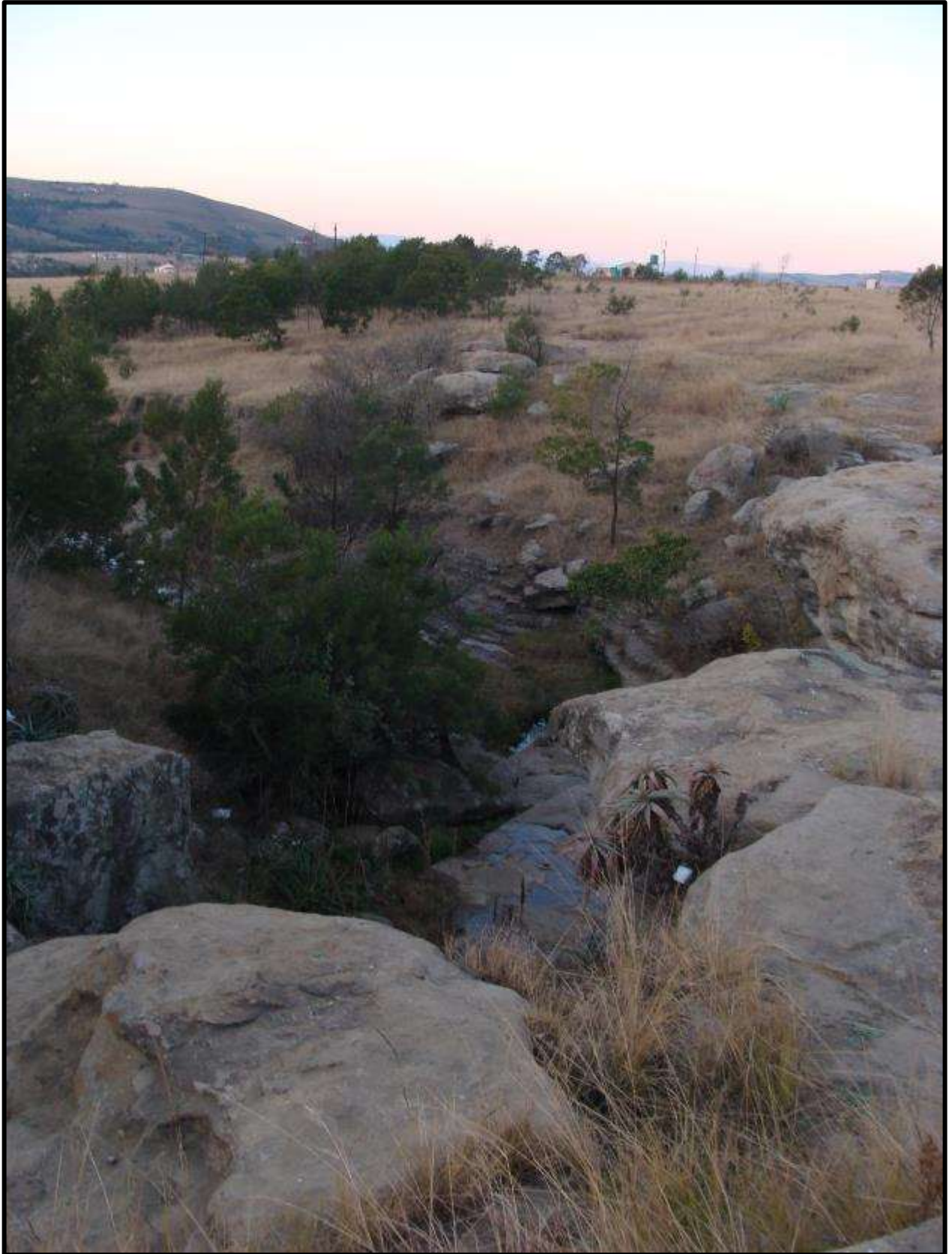


Figure 9: Water crossing 2 had good geological exposures, yet no palaeontological material was observed at this location



Figure 10: Rock overhang at water crossing 2 may have been used as a temporary shelter in the past, but when the river experienced an extreme flood event all archaeological material would have been disturbed or washed away



Figure 11: Concrete box culverts at water crossing 3



Figure 12: Possible graves overgrown with vegetation at water crossing 3, as indicated by a local taxi driver. GPS co-ordinates 28° 41' 24.47" S 30° 31' 55.15" E



Figure 13: Water crossing 3, showing the historical homesteads to the north of the road and the possible grave to the south of it. Eye elevation approximately 1.9 kms, North is at the top of the page. (Modified Google Earth image, 2108 DigitalGlobe)



Figure 14: Taxi drivers washing their cars at water crossing 4 in the late afternoon. It was obvious that when the water level rises during higher rainfall periods, the road would become submerged as water was already flowing across it when the stream level was very low



Figure 15: Quaternary deposits at water crossing 4. Successive stratigraphic units that markedly differ in colour such as these indicate that these top soils were formed over a considerable period of time. In spite of this, these younger deposits were devoid of archaeological and/or palaeontological material



Figure 16: End of the D1269, GPS co-ordinates 28° 42' 55.80" S, 30° 33' 15.58" E

Recommendations

The proposed upgrade of the road can proceed as no palaeontological material was observed within the underlying bedrock exposed along the route of the proposed development or adjacent to it (within 50 meters). Whilst it is possible that fossils may occur in the region and some of these may lay buried in the vicinity of the road (based on the SAHRA sensitivity map), the proposed development is taking place along an existing gravel track which is already highly disturbed as a result of its construction process.

However infrastructure upgrades should proceed with caution, and in a sensitive manner, as heavy machinery may expose fossils not visible during the ground survey. If further excavation and disturbance of the road should reveal palaeontological material, construction should halt immediately. The relevant heritage resources agency would need to be informed and a field palaeontologist would be required to visit the site to evaluate possible fossil discoveries.

References

- 1) KwaZulu-Natal Heritage Act 4 of 2008
- 2) National Environmental Management Act 107 of 1998
- 3) National Heritage Resources Act 25 of 1999, section 38 (8)
- 4) Rubidge, B.S. 2005. Re-uniting lost continents - fossil reptiles from the ancient Karoo and their wanderlust. *South African Journal of Geology* 108 (1): 135-172
- 5) Smith, R.M.H., Eriksson, P.G. and Botha, W.J. 1993. A review of the stratigraphy and sedimentary environments of the Karoo-aged basins of Southern Africa. *Journal of African Sciences* 16: 143-169