AFRICAN CONSERVATION TRUST

Conservation ~ Education ~ Innovation

Trust No: IT 2174/2000/PMB **NPO No:** 030-243 **PBO No:** 930014758 **IUCN No:** NG/25190

HERITAGE IMPACT ASSESSMENT REPORT FOR THE DEVELOPMENT OF 13 NEW ROADS WITH A CUMULATIVE DISTANCE OF 5.39KM, THE UPGRADING AND BROADENING OF TWO EXISTING ROADS WITH A CUMULATIVE DISTANCE OF 7.05KM AND THE DEVELOPMENT OF A RURAL ABATTOIR ON SPARTA FARMS 259KU, LONDOLOZI GAME RESERVE, (MPUMALANGA PROVINCE)

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Report: ACT20/02

By

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5 June 2019

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DISCLAIMER:

Although all efforts are made to identify all sites of cultural heritage (archaeological and historical) significance during an assessment of study areas, the nature of archaeological and historical sites are as such that it is always possible that hidden or subterranean sites, features or objects could be overlooked during the study. THE AFRICAN CONSERVATION TRUST can't be held liable for such oversights or for costs incurred as a result thereof.

Clients & Developers should not continue with any development actions until SAHRA or one of its subsidiary bodies has provided final comments on this report.

EXECUTIVE SUMMARY

The African Conservation Trust (ACT) was appointed by Emross Consulting (Pty) Ltd to undertake a Phase 1 HIA for the development of 13 new roads with a cumulative distance of 5.39km, the upgrading and broadening of two existing roads with a cumulative distance of 7.05km and the development of a rural abattoir on Sparta Farms 259KU, Londolozi Game Reserve, Mpumalanga.

Several identified cultural heritage sites (archaeological and/or historical) exist in the larger geographical area within which the study area falls. Four heritage sites were identified and recorded during the physical assessment undertaken. The report will discuss the results of the Scoping and Field Assessment and provide recommendations on mitigating the impact of the proposed development on the cultural heritage resources in the study and development areas. The Palaeosensitivity Map indicates that the area is insignificant as far as its palaeontological potential.

Finally, from a Cultural Heritage point of view the development should be allowed to continue, once the mitigation measures recommended in the document has been implemented.

DECLARATION OF INDEPENDENCE

I HEREBY DECLARE THAT I AM AN INDEPENDENT SPECIALIST APPOINTED BY THE CLIENT ON A CONSULTANCY BASIS

CONTENTS

ABBREVIATIONS

ACT African Conservation Trust

AIA Archaeological Impact Assessment

APM Archaeology, Palaeontology and Meteorites unit at SAHRA

CMP Cultural Management Plan

DEA Department of Environmental Affairs

EAP Environmental Assessment Practitioner

EIA Environmental Impact Assessment

GPS Global Positioning Service

HIA Heritage Impact Assessment

I&APs Interested and Affected Parties

LIA Late Iron Age sites are usually demarcated by stone-walled enclosures

LMP Londolozi Management Plan

NEMA National Environmental Management Act (107/1998)

NHRA National Heritage Resources Act (5/1999)

PHRA-M Provincial Heritage Resources Authority - Mpumalanga

PIA Palaeontological Impact Assessment

SAHRA South African Heritage Resources Agency

SAHRIS South African Heritage Resources Information System

VIA Visual Impact Assessment

1. INTRODUCTION

1.1. SCOPE OF WORK

To comply with environmental (National Environmental Management Act 107/1997) and heritage legislation (South African Heritage Resources Act 5/1999), Emross Consulting (Pty) Ltd. (the independent Environmental Consultant) commissioned ACT to produce a Heritage Scoping Report for the project area. It must be noted that some of the proposed activities, on their own, do not trigger current heritage legislation. They were, however, taken the collective impact of the proposed developments surveyed by ACT.

1.2. PROJECT DESCRIPTION

Londolozi Game Reserve (Pty) Ltd (fig 1) are striving to ensure that their nature-based tourism operations meet environmental best practice and have assessed their game drive road network in order to optimise the network both from a game viewing and environmental management perspective. It has been recognised that some of the roads are poorly aligned and need to be closed and rehabilitated. To replace these, new routes (fig 2) have been identified based on best practice. In addition to this the assessment has shown that many of the existing roads need to be upgraded with two requiring broadening while the balance needs to be upgraded with no broadening.

Londolozi also wish to build and operate a rural abattoir within their existing camp footprint to facilitate the off-take and processing of game, primarily impala. (Zunckle 2019)

The proposed developments include several interrelated and separate components described as follows:

1. The upgrading and broadening of two roads, one of 2.94km and another of 4.11km (green);

2. The development of 13 new roads totalling 5.39km (red);

3. The upgrading of 14 existing roads within their current footprint totalling 10.44km (blue); and

4. The closure and rehabilitation of 27 roads totalling 11.96km (yellow).

5. The development and operation of an 84m2 (14m x 6m) rural abattoir with the daily throughput capacity of six animal units. Its proposed locality is within the current staff village footprint in the area zones for services at 24°47'51.34"S and 31°29'53.96"E (see Figure 3).

Name of farm and farm portions	Marthly 258KU& Sparta Farms 259KU
Magisterial District	Ehlanzeni District Municipality (DC32) and the Bushbuckridge Local Municipality (MP325)
1: 50 000 map sheet number	2431CD Newington 2431DC Skukuza
1:250 000 map sheet number	2430 (Pilgrims Rest)
Central point of development	24.800503, 31.507240
DARLE Reference No.	1/3/1/16/1E-212

TABLE 1

Table 1 provides an administrative description of the proposed development.

1.3. DESCRIPTION OF THE AFFECTED AREA

Londolozi covers an area of 6,172 hectares and is comprised of the farms Sparta and Marthly. It is in the Mpumalanga Lowveld making up approximately 10% of the SSW of which it forms an integral part (see Figure 1). The private properties that make up the SSW, including Londolozi, are managed as an open ecological system. Beyond this the SSW is open to the Kruger National Park to the east and to the Manyaleti Game Reserve to the north which effectively increases the ecological viability of Londolozi.

This information has been extracted from Londolozi Management Plan (LMP, 2019).

- *Climate*

The climatic conditions characteristic of Londolozi may be described as semi-arid. Precipitation occurs predominantly as summer thunder showers with occasional light winter rain when cold fronts penetrate deeply into the country. Summer temperatures range between 18° C and 45° C while winter temperatures range between 8° C and 23° C. A south to north rainfall gradient exists in the SSW with the long-term annual averages been 620mm and 570mm respectively. With Londolozi being located roughly in the centre of the SSW and having a longitudinal orientation, this gradient is also applicable.

Typical of semi-arid environments, precipitation is erratic with oscillating period of above and below average rainfall being recorded. Variations range between 248 mm (1991/1992) during drought years to 1147mm (2000/2001) for very wet years with flooding conditions.

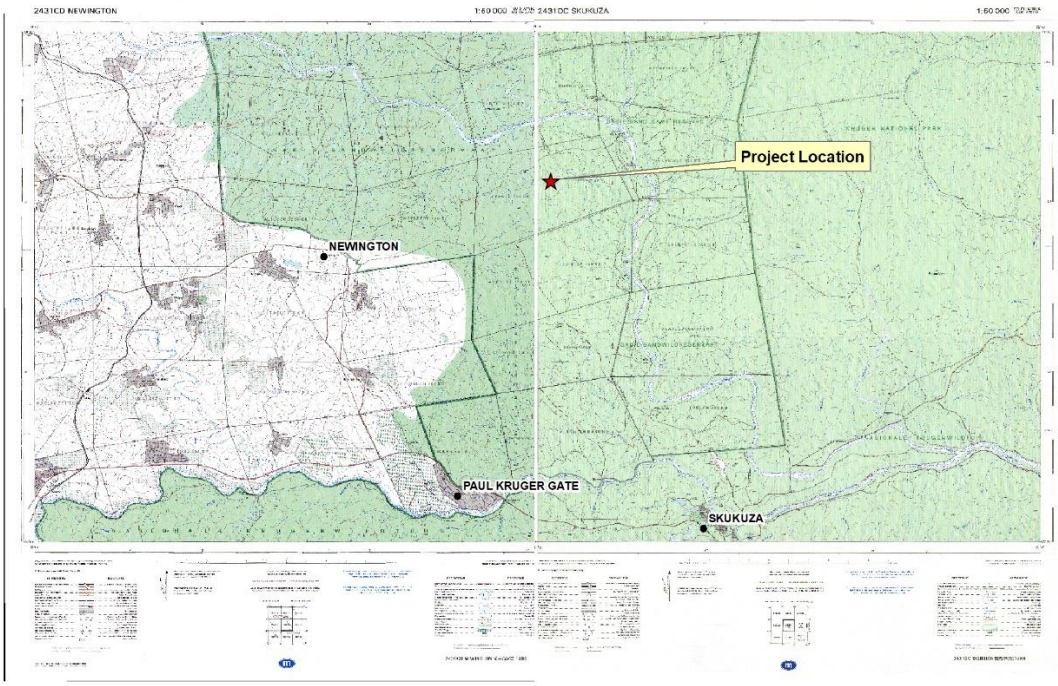


FIGURE 1 REGIONAL CONTEXT OF THE DEVELOPMENT FOOTPRINT, TO THE WEST OF THE KRUGER NATIONAL PARK ON A 1:50 000 MAP.

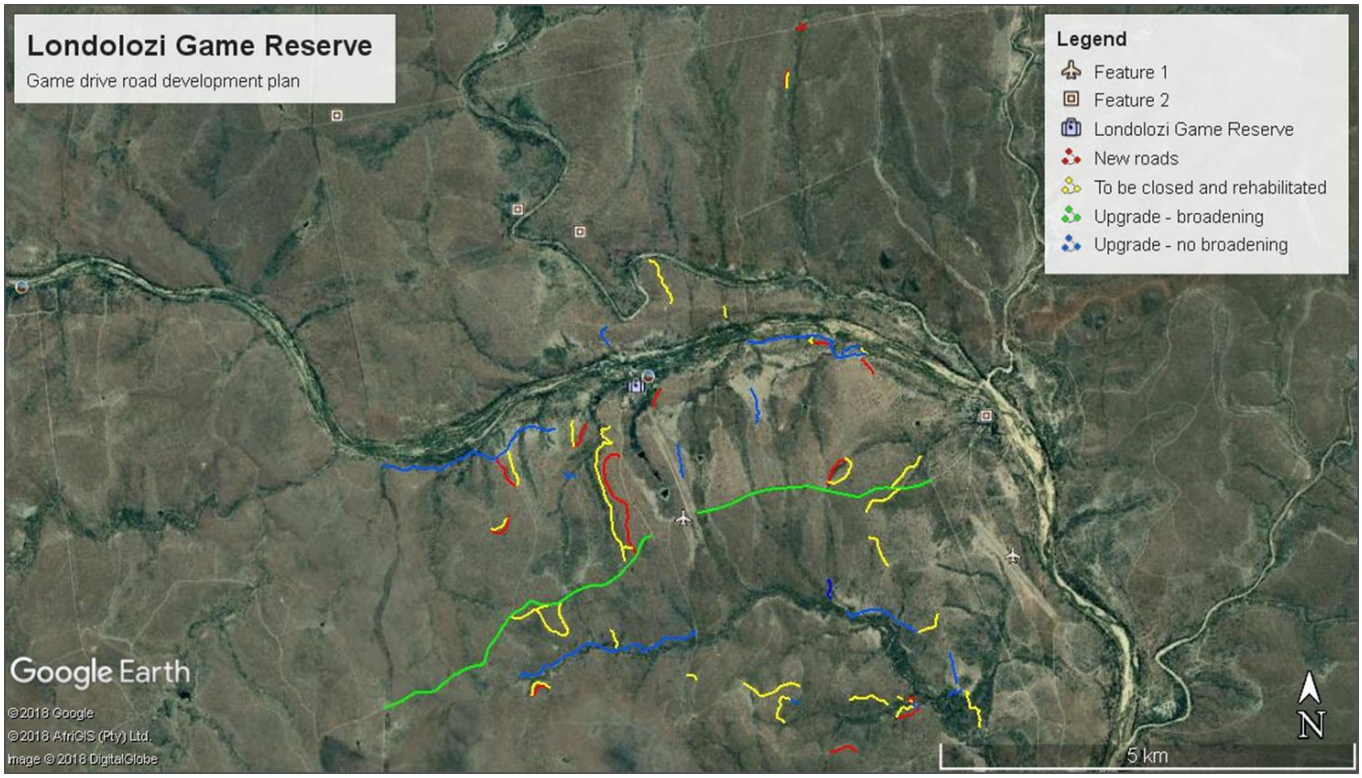


FIGURE 2 LOCAL CONTEXT OF THE SURVEY AREA WITH THE PROPOSED DEVELOPMENTS INDICATED (from Zunckel 2019)

- *Topography*

The topography of Londolozi is gently undulating with moderately dissected and rounded hill country, rising above the floor of the Sand River valley. The Sand River is a dominant feature in Londolozi. It crosses the western boundary at an altitude of just more than 330masl, flowing in an east north easterly direction to exit the property after dropping only 24m over 6.25km. The highest elevation on Londolozi is approximately 417masl in the south western corner of the property and the lowest is approximately 311masl at the point at which the Sand River crosses the eastern boundary.

- *Geology and Soils*

The following description of the geology and soils is a direct extract from the SSW Management Plan as it applies to Londolozi:

The geomorphology of the eastern parts of Southern Africa and particularly the Lowveld regions, the Kruger National Park and the SSW Protected Area have been directly affected by the large-scale geographical processes which have taken place in South Africa. Due to this, the geological structures and differences in resistance to weathering by different rock types and formations has greatly influenced the current landscape morphology (Venter & Bristow, 1986). The Lowveld is predominantly underlain by the basement gneisses and granites. Using Walraven (Walraven, 1989) the overall area of the SSW Protected Area can be described as follows: A central band runs from close to the eastern boundary to the western boundary and is dominated by medium to coarse grained, sphene-bearing tonalite. Forming an approximate U-shape around the latter is a series classified as quartz-microcline-plagioclase-biotite migmatite and gneiss with mafic and ultra-mafic xenoliths. Local re-crystallisation occurs in the south of the reserve where the Sabie River borders the reserve. A tongue of light grey, medium grained biotite gneiss with coarse grained quartz veldspar leucosomes traverses the area from the north-eastern corner of the reserve (Exeter) through the northern sections of the reserve through to the west to areas adjoining the Kruger National Park. The north-eastern sections of the reserve are classified as grey to pale brown, medium- to coarse grained quartz-feldspar-biotite gneiss with subordinate mafic to ultramafic xenoliths.

In some areas where gabbro and dolerite intrusions strike through, the landscape features are flatter areas of relief (Venter & Bristow, 1986). Within these areas are underlying granophyric quartz gabbro (Sabi Sand Granophyre) which dominates the central and eastern sections of the southern reserve area. The origin of these rocks is unclear, but it may be that the Sabi Sand Granophyre represents some marginal interaction facies between the surrounding Nelspruit suite and gabbroic rocks which formerly overlay the granophyre, but which have been removed by erosion. In a narrow band in the eastern and central areas of the reserve, in a band through the south and west, we find what is termed Timbavati Gabbro, a medium- to coarse-grained gabbro, olivine gabbro and quartz gabbro. These are basic rocks with an irregular outcrop pattern distinguished by a clearly recognizable vegetation type. A very prominent dyke, consisting of fine to medium grained, hybridized gabbro, with abundant inclusions of acid rocks and protrudes prominently above the flat topography formed by the

granite and gneiss. In the SSW Protected Area, it stretches in a narrow band from the west and central boundary on the reserve though to the neighbouring Mala Mala adjoining the Kruger National Park (Peel & Stalmans, 2010).

Soil is defined as a natural mass of unconsolidated natural material which can support functional ecosystems within protected areas. This represents a critical resource and through its intrinsic properties delivers critical ecosystem services to the ecosystems in which it is found. Within the SSW Protected Area, there is a strong correlation between the geology and soils of the Protected Area. In the SSW Protected Area, the soils occur in distinctive catenary sequences on granitoid rocks. Their formation is a result of the following processes:

a. The mobilisation and eluviation of clay particles and soluble weathering products from porous soils in upland positions by rainwater;

b. The lateral downward transportation of these components under the influence of gravitation to foot slope positions, where they are redeposited to form impermeable clay horizons. At this point the ground water is forced to the surface, thus forming waterlogged zones (seepage lines) during the rainy season which follow the contours (Venter, 1986). Thus, a general catenary sequence from crest to valley bottom, determined by the sequence of soil complexes (i.e. sandy, hydromorphic, duplex and alluvial) and associated vegetation composition, is repeated regularly across the hills and valleys.

Although these catenary sequences associated with granite-gneiss is representative of the area, the presence of gabbro intrusions and dolerite dikes causes a marked change in soil patterns. These metamorphic units generally weather into clayey structured fertile soils which differ from the normal granite-gneiss pattern (Peel & Stalmans, 2010).

- *Hydrology and Artificial Water Provision*

The main hydrological feature of Londolozi is the Sand River. This river has its source in the foothills of the Drakensberg escarpment to the west and is an important tributary of the Sabie River which forms part of the southern boundary of the SSW. Another important hydrological feature is the Manyaleti River, which is also non-perennial. This river meanders in a southerly direction turning firstly to the north and then to the east after almost 4km of run-of-river within Londolozi. Its confluence with the Sand River is approximately 1.5km to the east of Londolozi's eastern boundary with Mala Mala. These features drain the northern two thirds of the property with the southern one third being drained by the Mxabeni and the Tukwane Rivers.

In addition to these non-perennial watercourses are ephemeral pans, i.e. natural depressions that temporarily hold water in the wet season. These occur throughout the property and represent important water sources as well as a diversification of habitat.

- *Vegetation Types*

A comprehensive description of the vegetation types (figs 3-5) as per the SSW Management Plan is provided here as it is also applicable to Londolozi:

At a very coarse level, the SSW Protected Area falls within the one biome and one bioregion: The Savanna Biome, and the Lowveld Bioregion. The SSW Protected Area falls mainly within the Granite Lowveld (SVI 3) vegetation type, occurring at altitudes of about 250 - 700 m and is characterised by tall shrubland with few trees to moderately dense low woodland on the deep sandy uplands with Terminalia sericea, Combretum zeyheri and C. apiculatum, and with a ground layer including Pogonarthria squarrosa, Tricholaena monachne and Eragrostis rigidior (Mucina & Rutherford, Reprint 2011). The equivalent vegetation types as described by Acocks (Acocks, 1975) are Arid Lowveld (Veld Type 11) and Lowveld (Veld Type 10). According to Low and Rebelo's classification (Low & Rebelo, 1996), the reserve comprises of Mixed Lowveld Bushveld (Type 19) and Sour Lowveld Bushveld (Type 21).

FIGURE 3 VIEW OF THE GENERAL VEGETATION IN THE AREA OF MUCH OF THE PROPOSED DEVELOPMENTS

FIGURE 4 GRASSY PATCHES

FIGURE 5 VEGETATION TOWARDS THE SAND RIVER

Tourist accommodation and facilities, staff accommodation and related infrastructure also exists.

The above descriptions of the physical area have been taken from Zunckel 2019.

Table 2 provides the socio-economic background of the project.

2. TERMS OF REFERENCE

The Terms of Reference for the study was to:

1. Identify all objects, sites, occurrences and structures of an archaeological or historical nature (cultural heritage sites) located on the portion of land that will be impacted upon by the proposed development;

2. Assess the significance of the cultural resources in terms of their archaeological, historical, scientific, social, religious, aesthetic and tourism value;

3. Describe the possible impact of the proposed development on these cultural remains, according to a standard set of conventions;

4. Propose suitable mitigation measures to minimize possible negative impacts on the cultural resources;

5. Review applicable legislative requirements.

CURRENT ZONING	Conservation Tourism
ECONOMIC ACTIVITIES	Conservation Tourism
SOCIO-ECONOMIC ENVIRONMENT	Sabi Sand Game Reserve is located adjacent to the Kruger National Park. Officially named Sabi Sand Wildtuin, the Sabi Sand Game Reserve consists of a group of private game reserves. The Park's name comes from the Sabie River on its southern boundary and the Sand River flowing through it. The area of the reserve is 62,308 hectares and it shares a non-fenced boundary of 50.0 km (31.1 mi) with the Kruger National Park to its east. The nearest large town is Hazyview. Hazyview is a sub-tropical farming town and is renowned for its large banana and macadamia nuts industries, contributing about 20% of South Africa's bananas and 30% of macadamia output. Most of the province of Mpumalanga's private game reserves are found just east of Hazyview. Hazyview is a home of the Tsonga people, who occupy the north-eastern part of the town along the banks of the Sabie River. To the south of Hazyview, the Swazi people call this their home. While to the north-western part of this town, the Mapulana people and their cultures are to be found. Sepulana, their language, is a mixture of both Xitsonga and Siswati, this is what makes the Mapulana an interesting cultural group in Hazyview. White Africans also reside in Hazyview. The Mapulana people are currently claiming the whole north-western part of the town until the town of Sabie, from Hazyview to Sabie. While the Tsonga people, the custodian of South Africa's big five game, are claiming the whole north-eastern part of Hazyview, in particular all the game reserves east of Hazyview and southern Kruger, such as Skukuza, Pretoriuskop, Satara, Protea Hotel Kruger Gate etc. While the Swazi people are claiming the whole southern part of the town. (Wikipedia)
EVALUATION OF IMPACT	An evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits NHRA (Act No. 25 of 1999, Section 38(3d)): Positive

TABLE 2

3. LEGISLATIVE REQUIREMENTS

The conservation of cultural heritage resources is dealt with mainly in two pieces of legislation. These are the Environmental Management Act (107/1998) and the National Heritage Resources Act (5/1999).

3.1. THE NATIONAL HERITAGE RESOURCES ACT

According to this Act the following is protected as cultural heritage resources:

a. Archaeological artefact, structures and site older than 100 years

b. Ethnographic art objects

c. Objects of decorative and visual arts

d. Military objects, structures and sites older than 75 years

e. Historical objects, structures and sites older than 60 years

f. Proclaimed heritage sites

g. Graves older than 60 years

h. Meteorites and palaeontological material

i. Objects, structures and sites of technological or scientific value.

The National Estate includes the following:

(a) places, buildings, structures and equipment of cultural significance

(b) places to which oral traditions are attached or which are associated with living heritage

(c) historical settlements and townscapes

(d) landscapes and natural features of cultural significance

(e) geological sites of scientific or cultural importance

(f) archaeological and palaeontological sites

(g) graves and burial grounds, including—

(i) ancestral graves

(ii) royal graves and graves of traditional leaders

(iii) graves of victims of conflict

(iv) graves of individuals designated by the Minister by notice in the Gazette

(v) historical graves and cemeteries; and

(vi) other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No. 65 of 1983

(h) sites of significance relating to the history of slavery in South Africa

(i) movable objects, including—

(i) objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens

(ii) objects to which oral traditions are attached or which are associated with living heritage

(iii) ethnographic art and objects

(iv) military objects

(v) objects of decorative or fine art

(vi) objects of scientific or technological interest; and

(vii) 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).

Section 38(4) of NHRA requires a process of assessment to be followed in order to determine whether any cultural heritage resources are located within an area to be developed, as well as the possible impact of the proposed development thereon. This process must be followed under the following circumstances:

(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 50 m in length

(c) any development or other activity which will change the character of a site—

(i) exceeding 5 000 m2 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 the 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 m2 in extent or

(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority.

Section 38(8) is, however, applicable to this proposed project:

(8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority about such development have been considered prior to the granting of the consent.

Notice must also be taken of the following Sections:

- 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.

A structure means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith.

Alter means any action affecting the structure, appearance or physical properties of a place or object whether by way or structural or other works, by painting, plastering or the decoration or by any other means.

- 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;

(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;

(c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any

meteorite; or

(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Permits from the applicable heritage resources are required for the actions mentioned above.

3.2. THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT

This Act states that a survey and assessment of cultural resources must be done in areas where development projects will change the face of the environment. The impact of the development on these resources should be determined and proposals for the mitigation thereof made.

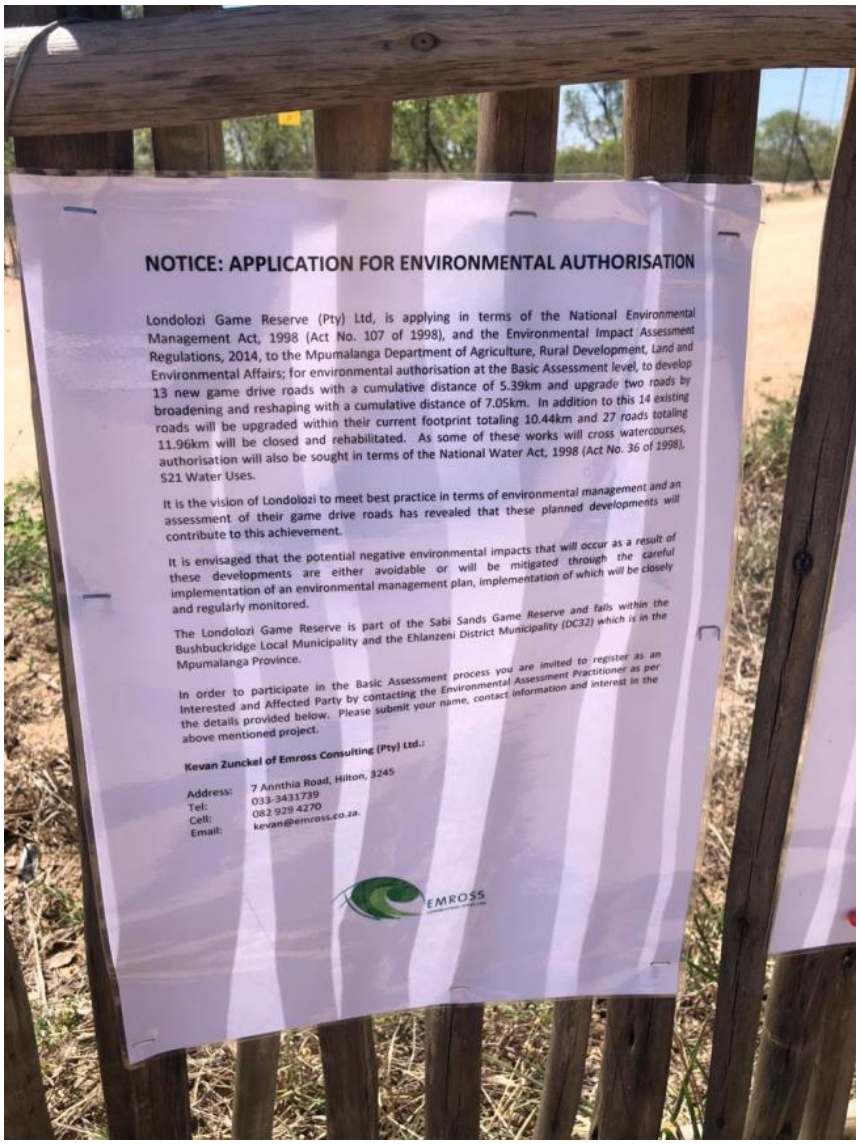
Environmental management should also take the cultural and social needs of people into account. Any disturbance of landscapes and sites that constitutes the nation's cultural heritage should be avoided as far as possible and where this is not possible the disturbance should be minimized and remedied.

4. PUBLIC PARTICIPATION

Public involvement in this impact assessment process was facilitated through the actions listed below. Evidence of these actions can be seen below:

- Site notices in A3 format were posted at the Newington (fig 6) and Shaw's (fig 7) entrance gates to the SSW on 15 November 2018 and remained there for approximately three months.
- Notice of intention to apply for environmental authorisation was placed in and published by the Mpumalanga News (fig 9) on Thursday 22 November 2018 and the Lowvelder (fig 8)on Friday 23 November 2018.
- Notification was sent to all immediate neighbours via email with a Background Information Document (BID) attached, on 28 November 2018.
- All registered Interested and Affected Parties and immediate neighbours were notified of an amendment to the application in the addition of the rural abattoir with the SSW being notified on 26 February 2019 and immediate neighbours on 6 March 2019. Registered I&APs were notified on 5 March 2019.

Considering the low level of interest expressed by the public in the proposed developments it was deemed unnecessary to hold a public meeting. Note that no comment was forthcoming from immediate neighbours and that those who expressed interest from outside of the SSW appear to be interested in potential work opportunities and not the assessment process.



NOTICE: APPLICATION FOR ENVIRONMENTAL AUTHORISATION

Londolozi Game Reserve (Pty) Ltd, is applying in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), and the Environmental Impact Assessment Regulations, 2014, to the Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs; for environmental authorisation at the Basic Assessment level, to develop 13 new game drive roads with a cumulative distance of 5.39km and upgrade two roads by broadening and reshaping with a cumulative distance of 7.05km. In addition to this 14 existing roads will be upgraded within their current footprint totaling 10.44km and 27 roads totaling 11.96km will be closed and rehabilitated. As some of these works will cross watercourses, authorisation will also be sought in terms of the National Water Act, 1998 (Act No. 36 of 1998), S21 Water Uses.

It is the vision of Londolozi to meet best practice in terms of environmental management and an assessment of their game drive roads has revealed that these planned developments will contribute to this achievement.

It is envisaged that the potential negative environmental impacts that will occur as a result of these developments are either avoidable or will be mitigated through the careful implementation of an environmental management plan, implementation of which will be closely and regularly monitored.

The Londolozi Game Reserve is part of the Sabi Sands Game Reserve and falls within the Bushbuckridge Local Municipality and the Ehlanzeni District Municipality (DC32) which is in the Mpumalanga Province.

In order to participate in the Basic Assessment process you are invited to register as an Interested and Affected Party by contacting the Environmental Assessment Practitioner as per the details provided below. Please submit your name, contact information and interest in the above mentioned project.

Kevan Zunckel of Emross Consulting (Pty) Ltd.:

Address: 7 Annthia Road, Hilton, 3245
Tel: 033-3431739
Cell: 082 929 4270
Email: kevan@emross.co.za.

EMROSS

FIGURE 6 SITE NOTICES POSTED AT NEWINGTON ENTRANCE GATE (taken by J. Goodman)

FIGURE 7 SITE NOTICES POSTED AT SHAW'S ENTRACE GATE TO THE SSW. (© C Goodman)

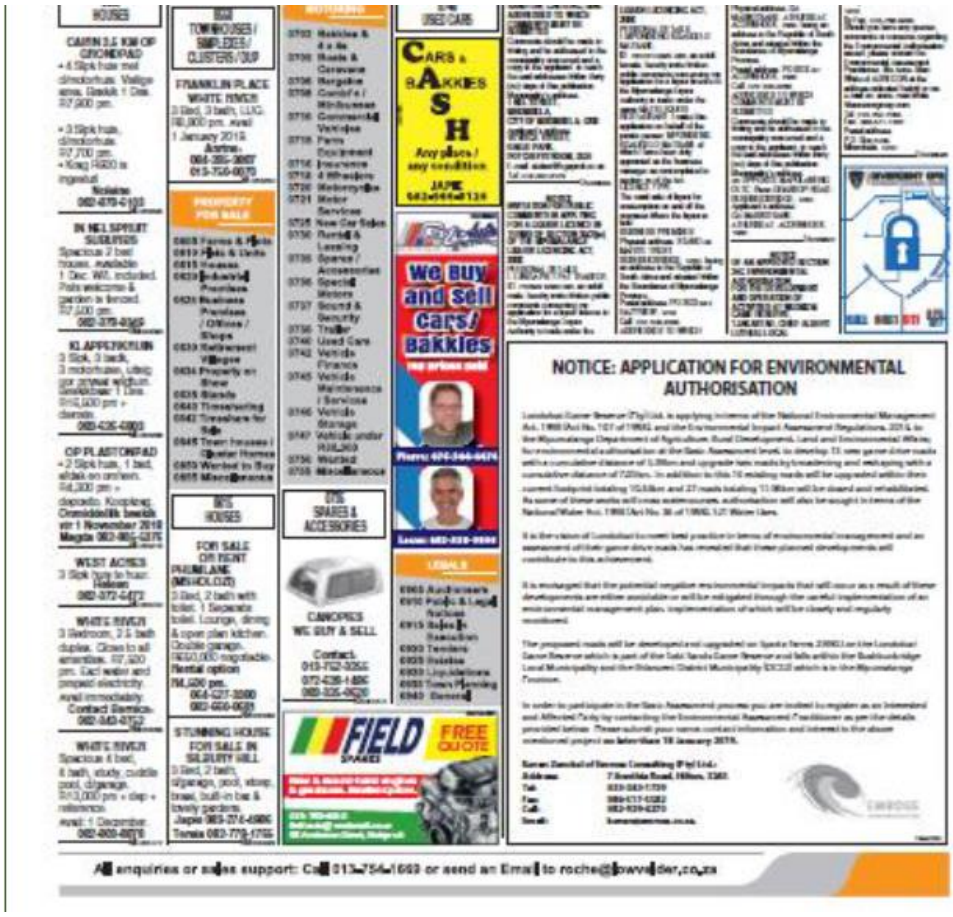


FIGURE 8 NOTICE OF INTENT TO APPLY FOR ENVIRONMENTAL AUTHORISATION IN THE LOWVELDER OF 23 NOVEMBER 2018 (taken from Zunckel 2019)

FIGURE 9 NOTICE OF INTENT TO APPLY FOR ENVIRONMENTAL AUTHORISATION IN THE MPUMALANGA NEWS OF 22 NOVEMBER 2018. (taken from Zunckel 2019)

5. METHODOLOGY

5.1. Survey of literature

A survey of available literature was undertaken in order to place the development area in an archaeological and historical context. The sources utilized in this regard are indicated in the bibliography.

The South African Heritage Resources Information System (SAHRIS) was consulted to found out if any known sites occur within the footprint of the proposed development or its proximity.

5.2. Field survey

The field assessment section of the study is conducted according to generally accepted HIA practices and aimed at locating all possible objects, sites and features of heritage significance in the area of the proposed development. The location/position of all sites, features and objects is determined by means of a Global Positioning System (GPS) where possible, while detailed photographs are also taken where needed.

There were no limiting factors.

The survey took one person 13 hours to complete. Figure 10 shows the tracks of the areas surveyed.

5.3. Oral histories

People from local communities and others familiar with the area in which the proposed development is to be located are sometimes interviewed in order to obtain information relating to the surveyed area. A request was made to interview older residents or persons who are familiar with the area. No such interview was, however, arranged by the developer.

5.4. Documentation

All sites, objects, features and structures identified are documented according to a general set of minimum standards. Co-ordinates of individual localities are determined by means of the Global Positioning System (GPS). The information is added to the description in order to facilitate the identification of each locality.

6. BACKGROUND/LITERATURE REVIEW

Several Heritage Impact Assessments have been undertaken in the larger geographical area. No Grade I or II sites (National or Provincial Heritage Sites) have been identified near to the proposed development area yet.

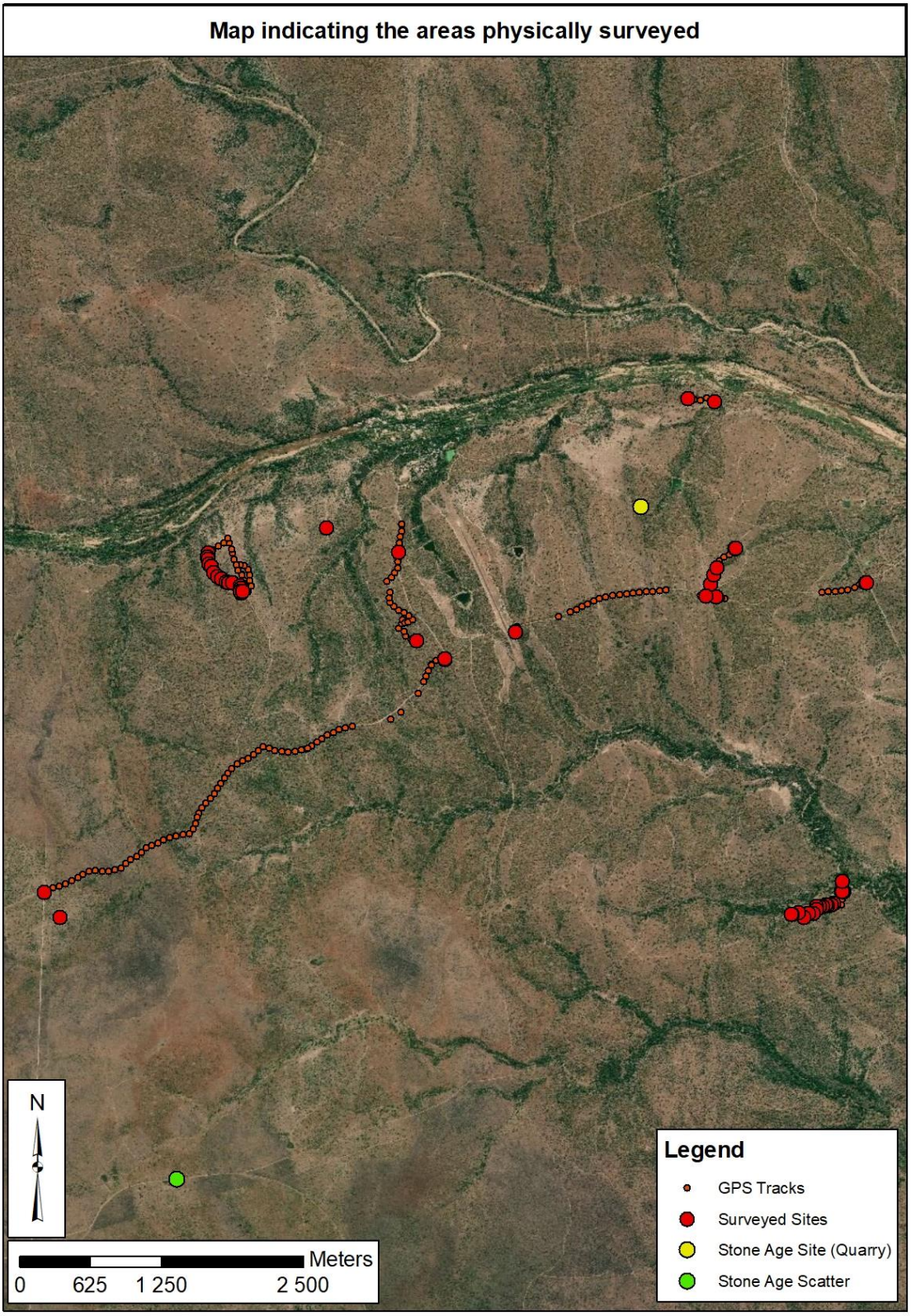


FIGURE 10 MAP INDICATING THE GPS TRACKS OF THE PHYSICAL SURVEY.

The literature review indicated the following:

6.1. LITERATURE REVIEW

The likely impact of the proposed development on palaeontological resources is gauged by consulting the palaeosensitivity map available on the SAHRIS and the nature of the proposed development. The fossil sensitivity map indicates that the area is deemed as insignificant as far as its palaeontological potential (fig 11 & tab. 2)

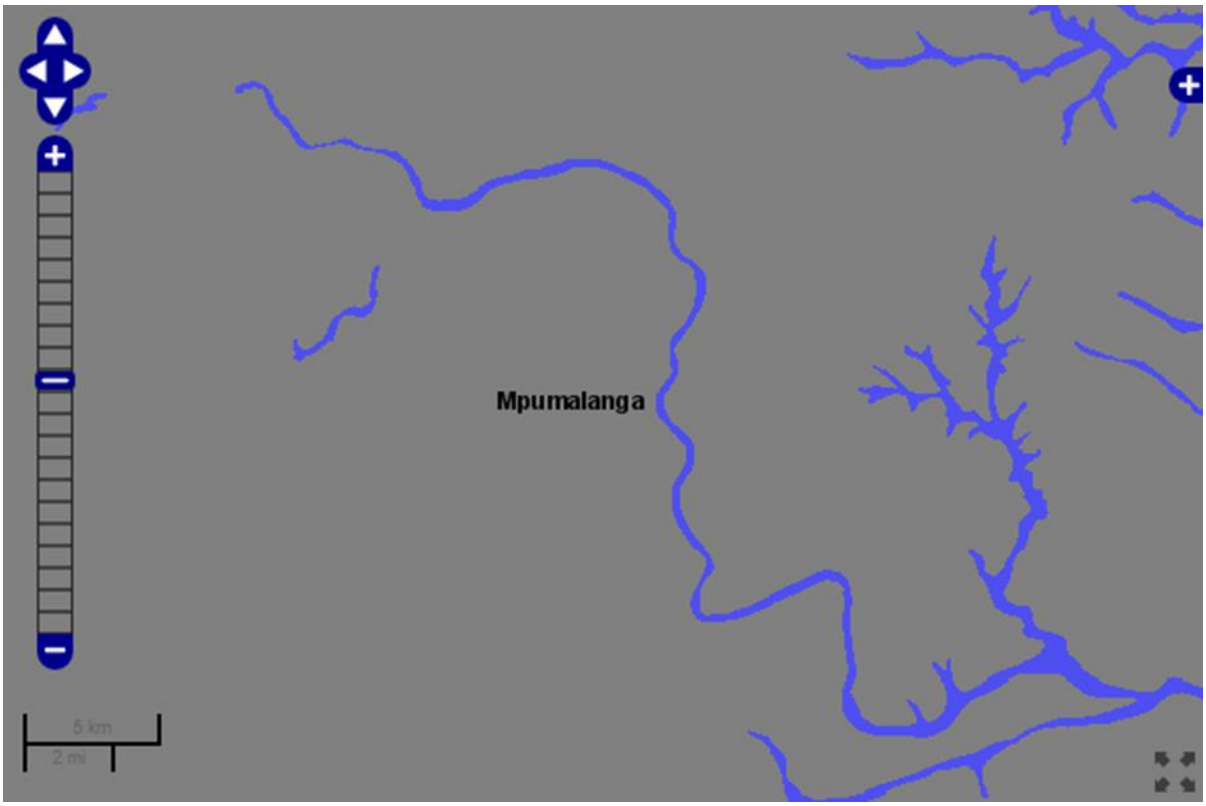


FIGURE11 THE PALAEOSENSITIVITY MAP, EXTRACTED FROM SAHRI, INDICATES THAT THE AREA OF THE PROPOSED DEVELOPMENT DOES NOT REQUIRE A PIA.

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.

TABLE 3 THE PALAEOSENSITIVITY TABLE, EXTRACTED FROM SAHRIS.

Several Heritage Impact Assessments have been undertaken in the area, none of them on this specific property.

FIGURE 12 SAHRIS CASES

Figure 12 is a screen shot of the SAHRIS map of HIA Cases in the area.

1. The proposal to build a 22Kv SWER Power line in farm Arathusa 241 KU, Sabie Sand Game Reserve was approved by SAHRA without the need to do a HIA as the power line will be erected near disturbed land (i.e.: the road nearby).

2. A phase 1 Archaeological Survey on the farm Toulon 383 KU located in Sabie Sand Nature Reserve, Mpumalanga Province was done by Celliers in 2016. Eight heritage sites were recorded.

3. The reconstruction and modification of West St Bridge- MalaMala Game Reserve did not require a HIA.

4. The proposed construction of an overhead 22 kV power line, from the Lisbon 22kV rural feeder. The power line will be located on the farm Huntington 281 KU, in the Bushbuckridge Local Municipality of Mpumalanga Province. SAHRA requested an HIA to be done.

5. A report on a Cultural Heritage Impact Assessment for the proposed development of upmarket tourism accommodation on the Selati Railway Bridge, Skukuza, Kruger National Park, Mpumalanga Province, was produced by A. van Vollenhoven in 2018. During the survey three sites/ features of cultural heritage significance were identified.

6. SAHRA requested an HIA for the intention to build power lines with various voltages, from the Seville Pegging Project. Just outside the area of Seville in Kwa-Tsakani, Farm Seville 224

KU, Thulamahashe Administrative District, Bushbuckridge Local Municipality, Mpumalanga Province. (2014)

7. SAHRA requested an HIA for the Safari Lodge and associated infrastructure in Skukuza, Kruger National Park.

8. The author conducted an HIA for proposed developments at the nearby Singita Sabi Sands in 2019. Three heritage sites were recorded.

RESEARCH PROJECTS

A limited amount of research projects has been conducted in the wider area surrounding the proposed development. They include:

1. Van Vollenhoven and Pelser investigated various sites associated with the Anglo Boer War in the Kruger National Park since 2005. Van Vollenhoven is continuing with this research.

2. Birkholtz (1997) investigated the archaeology of the Pretoruis Kop area in the Kruger National Park.

3. Meskell (2005) researched the Archaeological Ethnography around the Kruger National Park.

4. Meyer (1970s & 1980s) conducted research on the Iron Age in the Kruger National Park.

5. Ina Plug studied the archaeology of various Stone Age and Iron Age sites in the Kruger National Park during the 1980s and 1990s.

6. Unpublished reports include the rock art surveys in the Kruger National Park and surrounding areas by English and de Roshner, the current work being undertaken by Anton Pelser at Mahula and reports by this author on fieldwork conducted in 2017 in the Kruger National Park.

In order to be able to get a better understanding of the heritage of this area, it is necessary to give a background regarding the different phases of human history.

6.2. BACKGROUND

The Stone Age is the period in human history when lithics (stone) were used to make tools. In Southern Africa the Stone Age is divided into three periods. The sequence for the Southern African Stone Age (Lombard et.al 2012) is as follows:

Earlier Stone Age (ESA) up to 2 million – more than 200 000 years ago

Middle Stone Age (MSA) less than 300 000 – 20 000 years ago

Later Stone Age (LSA) 40 000 years ago – 2000 years ago

The Drakensberg divides the Province into an interior plateau, the Highveld, and the low-lying subtropical Lowveld. Several rivers merge into two main river systems, the Olifants River and the Komati River. This landscape has provided resources for humans and their predecessors for more than 1,7million years (Esterhuizen & Smith in Delius, 2007)

- The Early Stone Age (ESA)

The Southern Africa ESA dates from ~2 million to 250 000 thousand years ago. The hominids who were present during this time was developing physically, mentally and socially, bone and stone tools were developed. One of the most influential advances was their control of fire and diversifying their diet by exploitation of the natural environment (Esterhuizen & Smith in Delius, 2007).

The first tools date to ~ 2, 5 million years ago from the site of Gona in Ethiopia. Stone tools from this site shows that early hominids had the cognitive ability to select raw material and shape it for a specific application.

Mary Leaky discovered tools like these in the Olduwai Gorge in Tanzania during the 1960s. The stone tools are named after this gorge and known as the Oldowan industry. These tools, only found in Africa, are mainly simple flakes which were struck from cobbles. This method of manufacture remained for about 1,5 million years. Two species of hominid, an early form of Homo and Parathropus robustus, may have been responsible for making these tools.

Around 1, 7 million years ago more specialised tools known as Acheulean tools, appeared. They are named after a site in France with the name of Saint Acheul, where they were first discovered in the 1800s. Homo ergaster was probably responsible for the manufacture of Acheulean tools in South Africa. This physical type was arguably physically like modern humans, a larger brain and modern face, body height and proportion are all features which are very similar to us. Homo ergaster was able to flourish in a variety of environments in part because they were dependent on tools. They adapted to drier, more open grassland settings. ESA sites within situ deposits are very rare. Most tools of these people have been washed into

caves, eroded out of riverbanks and washed downriver. Deluis (2007) states that Early Stone Age tools (Olduwan & Acheulean) are widely distributed across Southern Africa, especially near watercourses such as rivers and streams, but many sites are not found in primary context. An example from Mpumalanga is Maleoskop on the farm Rietkloof, where ESA tools have been discovered. This is one of only a few such sites in Mpumalanga.

Van Deventer -Radford (2019) found an isolated Oldawan chopper during a HIA survey at the nearby Sabi Sands Singita Game Reserve.

- Middle Stone Age (MSA)

A greater variety of tools, with diverse sizes and shapes appeared by 250 000 BP. These replaced the large hand axes and cleavers of the ESA. This technological change introduces the Middle Stone Age (MSA). This period is characterised by tools that are reduced in size but different in manufacturing technique (Esterhuizen & Smith in Delius, 2007).

In contrast to the ESA technology of removing flakes from a core, MSA tools were flakes to start with. They were of a predetermined size and shape and were made by preparing a core of suitable material and striking off the flake so that it was flaked according to a shape which the toolmaker desired. Elongated, parallel-sided blades, as well as triangular flakes are common finds in these assemblages. The mounting of stone tools onto wood or bone to produce spears, knives and axes became popular during the MSA. These early humans not only settled close to water sources but also occupied caves and shelters. It was during the MSA archaic physical type of Homo evolved to anatomically modern humans, Homo sapiens.

The MSA has not been widely studied in Mpumalanga but evidence of this period has been excavated at Bushman Rock Shelter, a well-known site on the farm Klipfonteinhoek in the Ohrigstad District. This cave was excavated twice in the 1960s by Louw and later by Eloff. The MSA layers indicates that the cave was repeatedly visited over a long period. Lower layers have been dated to in excess of 40 000 BP while the top layers date to approximately 27 000 BP (Esterhuizen & Smith in Delius, 2007; Bergh, 1998).

Two sites containing MSA tools were recorded by van Deventer-Radford (2019) during a recent survey at Singita Sabi Sands Game Reserve. The tools were deemed not to be *in-situ*, but transport by water action from elsewhere up the drainage system.

- Later Stone Age (LSA)

Early hunter gatherer societies were responsible for several technological innovations and social transformations during the LSA that started at around 20 000 years BP. Hunting of animals proved more successful with the innovation of the bow and link-shaft arrow. These arrows were constructed of a bone tip which was poisoned and loosely linked to the main shaft of the arrow. Upon impact, the tip and shaft separated leaving the poisoned arrow-tip imbedded in the prey animal. Other innovations include bored stones used as digging stick weights to uproot tubers and roots; small stone tools, mostly less than 25mm long, used for

cutting of meat and scraping of hides; polished bone tools such as needles; twine made from plant fibres and leather, tortoiseshell bowls, ostrich eggshell beads and other ornaments and artwork (Esterhuizen & Smith in Delius, 2007).

At Bushman Rock Shelter the MSA is also represented and starts at around 12 000 BP but only lasted for some 3 000 years. The LSA marks the transition from the Pleistocene to the Holocene was accompanied by a gradual shift from cooler to warmer temperatures. This change had a larger impact on higher lying parts of South Africa. Both Bushman Rock Shelter and a site close by, Heuningneskrans, have shown a greater use of plant foods and fruit during this period (Esterhuizen & Smith in Delius, 2007; Bergh, 1998).

Ostrich eggshell beads were found in most of the levels at these two sites. It appears that there is a gap of approximately 4 000 years in the Mpumalanga LSA record between 9 000 BP and 5 000 BP. It must be noted that the Stone Age has been under-researched in the province. It is, however, also a period known for rapid warming and major climate fluctuation, which may have led people to seek out protected environments in this area. The Mpumalanga Stone Age sequence is visible again during the mid-Holocene at the farm Honingklip near Badplaas in the Carolina District (Esterhuizen & Smith in Delius, 2007; Bergh, 1998).

Two LSA sites in the Kruger National Park (close to Skukuza, called SK4 (Bergh 1999: 4) date to the last 2500 years and are associated with pottery and microlithic stone tools (Bergh, 1998: 95). They are typical of a hunter-gatherer lifestyle and may also have been sites frequented by San, who were the first inhabitants of the eastern Lowveld. They were a nomadic people who lived together in small family bands and relied on hunting and gathering of food for survival. Although rock art has been less well studied in Mpumalanga (Deluis 2007:75) some sites have been recorded were evidence of Stone Age people were found in numerous rock shelters throughout the Lowveld where some of their rock paintings are still visible. Many rock art sites are found in the Kruger National Park, especially in the southern section (Eloff 2007: 12). A number of these shelters have also been documented in the Nelspruit area (Bornman, 1995; Schoonraad in Barnard, 1975). It has been argued that the red ochre source for these paintings is to be found at Dumaneni, near Malelane (Bornman, 1995).

A small amount of Geometric Tradition rock art (associated with the Khoekoen, are found through the Lydenburg district and into the Nelspruit area. (Deluis 2007:76).

A third group that produced rock art was Iron Age farmers. See below.

The close vicinity of water sources and ample grazing in the area of the proposed development would have made it a prime spot for hunting and obtaining water during the past. Therefore, one may assume that Stone Age people probably would have moved through the area.

Two possible Stone Age sites were identified and recorded during this survey. The results will be discussed in the next section.

Varty and Buchanan (1997) indicates “Stone Age Site” on a map of Londolozi, but no further information is recorded. It is understood that it was a site recorded by Conrad de Roschner and might be a rock art site.

During the period following the Stone Age Bantu-speaking people moved into this area from the northern parts of Southern Africa and settled here. This period is referred to as the Iron Age. The Iron Age is the name given to the period of human history when metal was mainly used to produce artefacts. In South Africa it can be divided in two separate phases (Bergh 1999: 96-98), namely:

Early Iron Age (EIA) 200 – 1000 A.D.

Late Iron Age (LIA) 1000 – 1850 A.D.

- Early Iron Age (EIA)

The Early Iron Age (~200-1 000 A.D.) began when pastoralist groupings moved into the north eastern parts of South Africa. Among these were the makers of the Lydenburg Heads, ceramic masks dating to about A.D. (Celliers 2017)

Ceramics comparable to those from the Lydenburg Heads site were also found at the Gustav Klingbiel Nature Reserve and archaeologists believe that they are related to the ceramic wares (pottery) of the Lydenburg Heads site in form, function and decorative motive.

The earliest research in Iron Age archaeology was conducted by Trevor and Hall in 1912. This revealed prehistoric copper-, gold- and iron mines. Schwelinus (1937) reported smelting furnaces, a salt factory and terraces near Phalaborwa. In the same year D.S. van der Merwe excavated stone walling, graves, furnaces, terraces and soapstone objects in the Letaba area.

Mason (1964, 1965, 1967, 1968) conducted the first scientific excavation in the Lowveld, followed by N.J. van der Merwe and Scully. M. Klapwijk (1973, 1974) excavated an EIA site at Silverleaves and excavated at Harmony and Eiland, both EIA sites.

Some archaeological research was done during the 1970’s at sites belonging to the EIA (Early Iron Age), location Plaston, a settlement close to White River (Evers, 1977). This site is located on a spur between the White River and a small tributary. It is situated on holding 119 at Plaston.

Early Iron Age ceramic collections from elsewhere in Mpumalanga and Limpopo can be compared to the Plaston sample. They include Silver Leaves, Eiland, Matola, Klingbiel and the Lydenburg Heads site. The Plaston sample is distinguished from samples of these sites in terms of rim morphology, most rims from Plaston are rounded and very few bevelled. Rims from the other sites display more bevelled rims (Evers, 1977:176).

During the early 1970's Evers also conducted fieldwork and excavations in the Eastern Transvaal. Two areas were studied, the Letaba area south of the Groot Letaba River, west of the Lebombo Mountains, east of the great escarpment and north of the Olifants River. The second area was the Eastern Transvaal escarpment region between Lydenburg and Machadodorp.

Early Iron Age pottery was also excavated by archaeologist, Prof. Tom Huffman during 1997 on location where the Riverside Government Complex is situated (Huffman, 1998). This site known as the Riverside site is situated a few kilometres north of Nelspruit next to the confluence of the Nelspruit and Crocodile River. The site was exposed during an environmental impact assessment for the new Mpumalanga Government complex/ offices. A bulldozer cutting exposed storage pits, cattle byres, a burial and a midden. Rescue conducted during December 1997 and March 1998 recovered the burial and contents of several pits.

One of the pits excluded among other items, pottery dating to the eleventh century (AD 1070 ± 40 BP) this relates the pottery to the Mzonjani and Broederstroom phases. The early assemblage belongs to the Kwale branch of the Urewe tradition.

An Early Iron Age site in Sekhukuneland, known as Mototolong (Van Schalkwyk, 2007) was the National Cultural History Museum. The site is characterized by four large cattle kraals containing ceramics which may be attributed to the Mzonjani and Doornkop occupational phases.

Van Deventer-Radford (2019) also found a possible Mzonjani phase site during her HIA at the nearby Sabi Sands Singita Game Reserve.

EIA sites are often found in specific locations: < 100m from water (riverbank or the confluence of streams). This meant that they were found on alluvial fans, which soils were nutrient rich and suitable for agriculture. Environmental reconstruction shows that this time (900-1100AD) was drier and these wetter soils and flood plains planned an important role in EIA settlement. A drier period again followed after 1450AD. (Delius 2007)

- Late Iron Age (LIA)

Historians and ethnographers describe the Lowveld was frequented by Swazi and Sotho-Tswana factions during the LIA (1500-1800 A.D.). (Barnard, 1975; Bergh, 1998; Bornman, 2002; Herbst, 1985; Myburgh, 1949).

Smaller groups, such as the Pai and Pulana were attacked by and forced to escaping the aggressive Swazi under Mswati, especially during the Mfecane (Difaqane). They (Swazi) were particularly active in the Lowveld during the Difaqane period (1820's) and it is well-known that they frequently attacked and ousted smaller herder groups like the Pai and Pulana, especially in the Low's Creek area. They were however prevented from settling in the low-lying areas owing to the occurrence of the tsetse fly and malaria. Consequently, there is not much evidence of large-scale settlement in the Crocodile River Valley until the time of colonial settlement (1890's) and later. Small, isolated dry-packed stone-walled enclosures found near

Nelspruit and surrounding areas may be attributed to these smaller groups who hid away from the Swazi attack. The sites were only short-term places of refuge, as these refugees had to frequently move as a result of the onslaught and therefore small, indistinct and with little associated cultural material.

Mswati systematically occupied this area with his own family and trusted commoners after they killed Tsibeni and evicted the remnants of his people who fled to an area near Legogote, where they are still living today" (Bornman, 1995).

Trade routes were already established before the period of colonial expansion, when they were used for the transfer of iron, tin, copper and some gold (Bergh, 1998:103). The earliest evidence of iron mining and working in the former Transvaal dates to approximately 300 AD and copper mining and working in Southern Africa may have been practiced as early as 620 A.D. (Bergh, 1998:103).

These people were responsible for the establishment of large settlements like Monomotapa the Zimbabwe Complex and the famed Mapungubwe in the Limpopo Valley. Around 900 AD Arab traders established a trade post at Sofala (Beira). Since the start of the 11th century, these Arabs had trade relations with the people of Zimbabwe. Cloths, porcelain and glass beads were traded for gold, ivory and other minerals.

Ancient trade routes passed close-by the current Nelspruit and started from Delagoa Bay in a westward direction, cutting through the Lebombo Mountains at the Sabie (Matala) Poort through the Lowveld towards the gold fields of Lydenburg or through Malalapoort, the Nkhomati and Crocodile Rivers to Skipberg inside the current Kruger National Park near where Pretoriuskop Rest Camp is situated. From here onwards there were two likely routes up the mountains to go to the goldfields. The first passed by Spitskop (Sabie) and from there on to Lydenburg. The second passed south of the Devils Knuckles to Lydenburg. There were also routes connecting to existing main routes, one of which started from Sabie or Lydenburg to the route which linked Delagoa Bay to the Soutpansberg through Pilgrim's Rest. It is also thought that a footpath existed at the foothills of the (Transvaal) Drakensberg which led around the mountain to link again with a main route alongside the Olifants River (Bergh, 1998:104). Delius (2007) states that "By the 1700s, economically driven centres of control had begun to emerge and, following the establishment of Portuguese trade posts, the eastern Transvaal became an important thoroughfare for both local and foreign traders." Long distance trade involved copper, tin, ivory, animal hides and rhino horns that were exchanged for cloths, glass beads and other European items such as firearms. The Voortrekkers used one of these routes in 1845 while making the wagon route between Ohrigstad and Delagoa Bay (Berg, 1998: 104).

Iron Age people also produced rock art- The ancestors of the Sotho-Tswana painted and the ancestors of the Nguni speaker engraved. (Deluis 2007:76) Deluis (2007) describes the paintings as " finger-painted anthropomorphic, zoomorphic and geometric designs almost exclusively in white and occasionally in red.". They were painted with fingers and not brushes like that of the San. They are often referred to as Late White Paintings, but can be classified into an earlier (rhino, zebra, elephant, lion, hyena, crocodile and mostly giraffe images – with

some scenes of stick fighting) and later period. Sotho-Tswana rock art tends to occur in remote, hilly areas. During the Dfiqane these hills became places of refuge. These people were the ancestors of the Pedi and related groups. The art dates in some cases to 1 000ya. (Deluis 2007)

Iron Age sites were identified in the south of the Kruger National Park (Eloff et.al. 2007: 35-39). Jordaan is currently working on two Early Iron Age sites close to Skukuza, namely SK17 and TSH1 (SAHRIS Database). Bergh (1999: 7) indicates that ~48 LIA sites have been identified here. This work was mainly completed by Meyer (1986). Again, it can be stated that the good grazing and access water in the area would have provided a suitable environment for Iron Age people.

Delius (2007) mentions that there is a difference in the distribution of Iron Age sites between the northern and southern parts of Mpumalanga, with the north having less of an agricultural focus, but "… with poor soils, but situated near ore resources, with mining by-products found…"

- Historical Period

The Historical Period began with the first recorded oral histories in the area. It includes the arrival of people that were literate, however, more recently also refers to the latter five hundred years of South African history.

Dutch sailors reached Delagoa Bay in 1721 and stayed there for nine years, during this time they started expeditions inland. During August 1723 lieutenant Jan Steffler and 17 men started the first of these expeditions but they were ambushed by natives shortly after crossing the Lebombo Mountains. Where they traversed the mountains is uncertain, but it is possible that they were in northern Swaziland once they were attacked. Steffler succumbed because of this ambush and his faction returned to Delagoa Bay (Bergh, 1998:116).

An additional attempt to initiate an interior route in June 1725, was unsuccessful after Francois de Cuiper and 34 men departed from Delagoa Bay and advanced in a north-western direction. They arrive at Gomondwano in the current Kruger National Park where they were attacked by a local tribe. This resulted in them also having to return to Delagoa Bay. Although this attempt was not successful, it is seen as the first European intrusion into this northern area (Bergh, 1998:116).

- The Voortrekkers

The Groot Trek of the Voortrekkers started with the Tregardt- van Rensburg trek in 1835. They happen upon Tregardt and his followers traversed the Orange River at Buffelsvlei (Aliwal North). Here van Rensburg joined the trek northwards. On 23 August 1837 the Tregardt trek left for Delagoa Bay from the Soutpansberg. They travelled eastwards beside the Olifants River to the eastern foothills of the Drakensberg. From here they trekked through the Lowveld and the current KNP, where they eventually traversed the Lebombo Mountains in March

1838. They reached the Fortification at Lourenço Marques on 13 April 1838 (Bergh, 1998:124125).

Permanent European (Voortrekker) settlement of the eastern areas of Mpumalanga began when a commission under the leadership of A.H. (Hendrik) Potgieter who negotiated with the Portuguese Governor at Delagoa Bay in 1844 for land. It was agreed that these settlers could settled down in an area that was a four-day journey from the east coast of Africa between 10˚ and 26˚ South. Voortrekkers started migrating into the region in 1845. Andries-Ohrigstad was the first town established in this area in July 1845 after the Voortrekkers negotiated for land with the Pedi Chief Sekwati. Farms were granted as far west as the Olifants River. The western boundary was not formalised but at a Volksraad meeting in 1849 it was determined that the Elands River would be the boundary between the districts of Potchefstroom and Lydenburg as this eastern piece of the Transvaal was then known (Bergh, 1998).

Owing to internal strife and differences between the various Voortrekker groups that stayed in the broader Transvaal region, the settlers in the Ohrigstad area governed from the town of Lydenburg decided to secede from the Transvaal Republic in 1856. The Republic of Lydenburg encompassed land that included not only the land originally obtained from the Pedi Chief Sekwati in 1849, and other areas of land negotiated for from the Swazis. The Republic of Lydenburg was a vast area and stretched from the northern Strydpoort Mountains to Wakkerstroom in the south and Bronkhortsspruit in the west to the Swazi border and the Lebombo mountains east. The movement of Europeans into the north would have significant consequences for the local people who inhabited the land. (Celliers 2017) In 1839 Mswati succeeded Sobhuza (also known as Somhlomo) as king of the Swazi. Intimidated by the ambitions of his half-brothers, with Malambule, who had support from the Zulu King Mpande, he turned to the Ohrigstad Boers for protection. He claimed that the land that the Boers had settled on was Swazi territory. The Commandant General of the Ohrigstad community, Andries Hendrik Potgieter, replied that the land was ceded to him by the Pedi leader Sekwati, in return for protection of the Pedi from Swazi attacks (Giliomee, 2003).

In reaction to the increasingly authoritarian way in which Potgieter conducted affairs at Ohrigstad, the Volksraad of Ohrigstad saw Mswati's offer to obtain more respectable title deeds for the property (Bonner, 1978). According to a sales contract set up between the Afrikaners and the Swazi people on 25 July 1846, the former were the owners of the land that had it southern border at the Crocodile River, which extended in a westerly direction up to Elandspruit, of which the eastern border was where the Crocodile and Komati Rivers joined and then extended up to Delagoa bay in the north (Van Rooyen, 1951). The Europeans purchased the land for a 100 heads of cattle (Huyser).

- History of the Anglo Boer War (1899-1902) in the area

General Louis Botha, with his Boer forces, marched through Nelspruit on 11 September 1900. On 18 September 1900, the British battalion of Lieutenant General F. Roberts arrive at Nelspruit. No major skirmishes in the war took place near Nelspruit, but a concentration

camp for Africans was established a small distance to the north of the town. The reason for this is possibly that there was a railway station at Nelspruit. (Celliers 2017)

Van Vollenhoven listed the Steinaecker's Horses' Sabi Bridge Post as a heritage site in his 2018 HIA Report.

Steinaecker's Horse was a volunteer military unit that fought on the side of the British. It functioned mainly in the Lowveld and Swaziland (Pienaar 1990: 343). Apart from its part during the War, it placed the base for the establishment of the Kruger National Park. It therefore is an important part of the history of the Park.

The unit was started by Francis Christiaan Ludwig von Steinaecker (Van Vollenhoven et.al.1998: 6).

The Sabi Bridge Post is one of several outposts established by the unit. He likewise erected military outposts along the Swaziland border up to the north of Letaba where he stationed an officer and a few troops at each post (Pienaar, 1990).

Fort Mpisane at Bushbuckridge (Pienaar 1990: 345), was placed under command of Captain HF (Farmer) Francis. The garrison consisted of 30 men, but the local faction of Chief Mpisane were also armed (Pienaar 1990: 348). In the battle Captain Francis was killed and buried next to the fort. Some black troops that were killed and buried in a trench to the southeast of the fort (Pelser 1999: 57).

- The Eastern and Selati Railway Lines

The building of the railway line between Pretoria and Delagoa Bay commenced after the Kruger Government presented the concession for the construction of the line to the Nederlandsche Zuid Afrikaansche Spoorweg-Maatschappij (NZASM). The railway line was completed in 1895 (de Jong et al. 1988).

Prior to the completion of the Eastern (Delagoa Bay) Railway line in 1895, gold was discovered in the Lowveld areas of Gravelotte, Leydsdorp, Rubbervale, Trichardtsdal and the Selati Goldfields. This needed a railway line to link the North-eastern Transvaal with the central markets of the ZAR be constructed (Pienaar, 1990).

President Paul Kruger backed this idea and in July 1890 he managed to convince the "Volksraad" that a proposed railway line connecting the Soutpansberg and Selati Goldfields with the main line to Lourenço Marques (Delagoa Bay) be approved.

The Selati Railway Line would be 307 km long and the task took three years to complete at an projected cost of £6 000 per km.

Westwood & Winby was chosen and completed surveying of the line in early 1893 and by July of that year 40 km of the line was finished (Pienaar, 1990). Regrettably, Oppenheim acted unlawfully in his transactions with the ZAR and after an enquiry initiated by Smit, all work on the railway halted after approximately 120 km connecting Komatipoort and Newington was completed. After countless legal battles both in ZAR and abroad, all contracts granted to

Oppenheim was nullified and at that point the Selati Railway line was ended. Materials and tools used for the construction of the line were left abandoned in the wilderness, along with many unmarked graves of British labourers that died of malaria (Pienaar, 1990). The graveyard in Komatipoort is evidence of this and several individuals lie buried here. Though no evidence could be found, it is probable that the grave of C.C. Moloney, who died 22 July 1894, located very nearby the Selati line in the Sabi Sand Reserve and near Kirkmans Kamp is further testimony to the adversities endured by the railway labourers.

Van Vollenhoven (2018) recorded the historical railway bridge on the Sabi River at Skukuza as part of the HIA for the proposed tourist development at the bridge. It was constructed in 1912. He also recorded the associated steam engine. This locomotive ran in the last trip through the Kruger Park before the railway line was decommissioned in 1972. This locomotive, no. 3638, was granted to the Park in October 1978. It therefore commemorates an historical occasion and as such has heritage significance.

In his 2016 HIA for the Kirkman's Camp on the nearby Toulon Farm Celliers recorded a single grave. The grave is well-marked and fenced. It is orientated in an east-west direction with the headstone, in the form of a cross, reads: "In Loving Memory of C.C. Moloney who died 22 July 1894". Research is essential to corroborate that the grave may have been related with the construction of the first section of the Selati Railway Line during the years 1893-1894.

He also recorded the site of the remains of the historic Selati Railway Line in two sites. At both locations the rails and sleepers were strip off, but the ballast and some parts of the sub-grade are visible. It is a historically significant feature since it was a key role in the development of the KNP and Sabi Sand Reserve. It is a historically significant feature as it played a key part in the development of the Kruger National Park and Sabi Sand Reserve.

The Selati Line was challenging with veld fires produced by sparks from the train, collisions with game and train accidents each happening. The increase in traffic on the line due to the mining in the Phalaborwa area led to the electrification of the line. The S.A.S decided to divert the line to the west of the KNP border. In 1968 a new line from Kaapmuiden was built West of the Nsikazi River and at Metsi, a few kilometres North of Newington, it joined the Selati Line. Upon completion of this new line traffic diminished severely and from April 1971 a single daily service between Komatipoort and Skukuza was operated to transport of supplies (Pienaar, 1990).

- The Sabie Game Reserve and Kruger National Park

In the later part of the 19th century was decided that a Nature Reserve in the Eastern Transvaal Lowveld is necessary to conserve game for future generations. On 26 March 1898 President Paul Kruger signed the proclamation of the "Goevernements wildtuin" (Sabie Game Reserve). (van Vollenhoven 2018) The outbreak of the Anglo-Boer War (1899-1902) changed this because of new British government and after the War in 1902 the Reserve was re-proclaimed with a larger area included between the Olifants and Sabie Rivers (Pienaar, 1990). Shortly afterwards Major James Stevenson-Hamilton was chosen as Warden of the reserve.

His vision and commitment performed a major role in the advent of nature conservation in the Lowveld and culminated in the establishment of the KNP in the early 20th century. (van Vollenhoven 2018) Pioneer and visionary of the later KNP, Col. James Stevenson-Hamilton appointed the first field ranger and sent Mr E.G. (Gaza) Grey to Gomondwane. In 1902 Stevenson-Hamilton made von Steinaecker's blockhouse at Sabie Bridge his first home. This outpost later grew into the Skukuza Rest Camp (Pienaar, 1990). The regiment was posted at this site from 1900 and between 1901 and 1902 operated the train between Komatipoort and Kilo 104. The railway bridge was not yet finished, but a temporary wooden bridge on a diversion line was used (Woolmore 2006: 18).

After September 1902 the blockhouse at the site, built by the Steinaecker's Horse Regiment (south of the temporary bridge), was used by Major J Stevenson-Hamilton as his office upon his employment as the first warden of the Park (Stevenson-Hamilton 1952: 55-56).In April 1903 a Game Reserve in the Soutpansberg region was proclaimed and named the Shingwedzi Game Reserve. The Shingwedzi and Sabie Game Reserves was combined by way of the proclamation of a conservation area between these two reserves in December 1914. In 1916 the two reserves were consolidated, and it was named the "Transvaal Game Reserves".

- The Sabi Sand Reserve

In 1922 the Transvaal Consolidated Land Company tasked Major Percy Greathead to assess the possibility of establishing a cattle farm nearby the Sabie Bridge (Skukuza). By the end of that year some 800 cross race cattle were introduced on the farm Toulon located around 6km from Sabie Bridge (Pienaar, 1990).

The newly appointed Manager of the Toulon Estate, Mr Crosby, became friends with the conservator of the Shingwedzi and Sabie Game Reserve, Mr James Stevenson-Hamilton and even organised tennis matches between staff of both establishments! (Celliers 2017)

In 1926 the KNP was proclaimed as South Africa's first national conservation region and it ensured a new time of nature conservation in the country. After the proclamation of the KNP and its new western boundary, next-door landowners founded the Sabie Private Game Reserves in 1934. This was followed in 1948 by the formation of the Sabi Sand Reserve. During 1961 because of the danger of foot and mouth disease and the continued hunting of game on private land next to the National Park, a fence was erected sandwiched between the Sabi Sands Reserve and the KNP. The Sabi Sand Reserve erected fences on the Western boundary to prevent the movement of game from the area. In 1993 the fence between the KNP and the Sabi Sands Reserve was dropped again, and game could roam between the reserves freely.

Celliers (2017) recorded the location of the current Kirkman's Camp tourist accommodation and facilities. A key feature is the original Toulon Estate farmhouse which is used as reception, office and shop space, dining and relaxation. The building is in a remarkable state and an excellent example of 1920's colonial architecture.

- Londolozi Game Reserve

Charles Varty and Frank Unger bought the 10 000 acre Sparta farm in 1926 from Transvaal Consolidated Investments (TCI) during an afternoon of tennis in Johannesburg. Sparta was used as a hunting farm. Four thatched mud rondawels were built in the 1930s, along with staff accommodation. Soon after an airstrip was cleared near the Selati Railway line. This was the first time that a private aircraft accessed the local farms. (Varty & Buchanan, 1997)

After Charles Varty died, John Varty and his brother, Dave Varty, terminated the hunting activities and converted it into a game reserve in 1973. The property was renamed Londolozi. (https://www.londolozi.com/en) Construction for Varty Camp started in the early 1970s.

(fig 13)

Londolozi is one of the original pioneering Private Game Reserves of the ecotourism industry in South Africa.

FIGURE 13 VARTY CAMP, PHASE 1, 1971. (taken from https://blog.londolozi.com/2019/05/29/nostalgic-moments-with-russell-macwilliam/#gallery)

7. POTENTIAL IMPACTS AND RISKS TO HERITAGE RESOURCES

The adverse impacts on heritage resources is probable direct, once-off events occurring through the initial construction period. In the longer term, the proximity of operations in an area might result in secondary indirect impacts resulting from the movement of people or vehicles in the direct or surrounding vicinity.

8. RESULTS OF THE MAY 2019 ASSESSMENT

A total of 4 possible heritage sites were recorded (table 3).

The survey for the upgrading of existing roads was greatly added by being able to inspect for archaeological material in areas were the roads has been scrapped. (fig 14) The edge of the road also provided a ~ profile of the ground (fig 15) that aided in the inspection for archaeological remains.

FIGURE 13 RECENT ROAD SCRAPPING THAT COULD POTENTIALLY INDICATE EXPOSED ARCHAEOLOGICAL MATERIAL

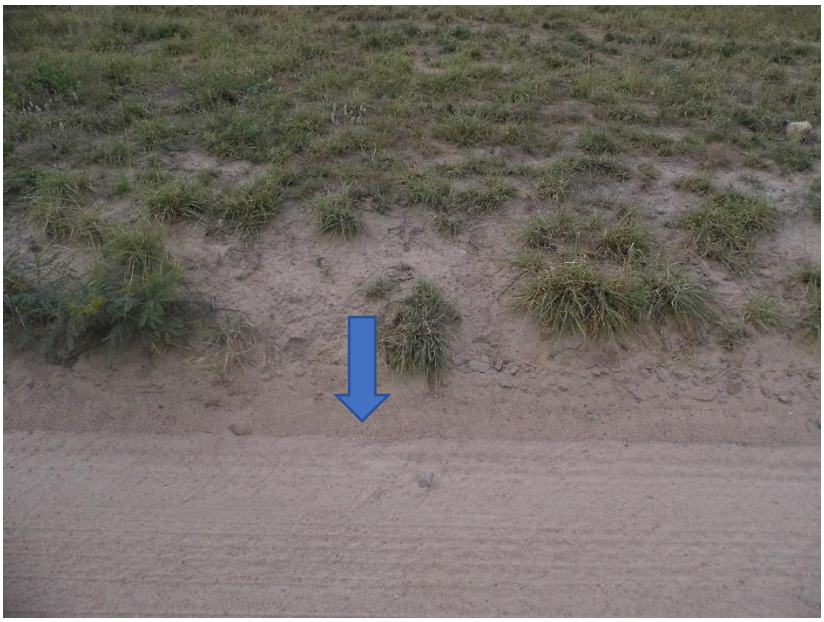


FIGURE 15 THE BLUE ARROW INDICATES THE SOIL PROFILE THAT WAS INSPECTED FOR ARCHAEOLOGICAL MATERIAL.

SITE NO	FIELD RATING	DIRECT IMPACT	PROPOSED MITIGATION
Lon-01	Low	Yes	Record before destruction
Lon-02	Low	No	
Lon-03	Medium	No	
Lon-04	Medium	No	

TABLE 3 TABLE SHOWING RECORDED SITES

Field Rating	Grade	Significance	Recommended Mitigation
National Significance (NS)	Grade 1		Conservation, nomination as national site
Provincial Significance (PS)	Grade 2		Conservation; Provincial site nomination
Local significance (LS 3A)	Grade 3A	High Significance	Conservation, No mitigation advised
Local Significance (LS 3B)	Grade 3B	High Significance	Mitigation but at least part of site should be retained
Generally Protected A (GPA)		High/ Medium Significance	Mitigation before destruction
Generally Protected B (GPB)		Medium Significance	Recording before destruction
Generally Protected C (GPC)		Low Significance	Destruction

TABLE 4 SIGNIFICANCE RATING GUIDELINES FOR SITES

1. *The upgrading and broadening of two roads, one of 2.94km and another of 4.11km (green- fig 17)*

FIGURE 16 A SECTION OF MAIN ROAD WEST THAT IS TYPICAL OF BOTH THAT REQUIRES UPGRADING (© KL Zunckel)

The plan is to access material for the upgrading from within one meter of each side of the roads (fig 16) through scraping the soil into the road to obtain the required shape. Any additional material required will be obtained from existing borrow pits on the properties. Figure 5 illustrates the localities of fill material that will be used to upgrade Main Roads West and East. The light blue pin and circle relates to the 100m3 available from the solar farm which will be applied to sections of both Main Road West and East. The light green pin and circle illustrates the western portion of Main road West that will be serviced from the borrow pit on the western boundary. The red pin illustrates the locality of the borrow pit from which material will be obtained for the eastern portion of Main Road East. The equipment to be used is a standard road grader (see Figure 17), with two 10m3 tipper trucks, a Tractor-Loader-Backhoe (TLB) and three tractor/trailer combinations.

The 1m strips from which material is obtained along the sides of the roads will be rehabilitated through the application of an indigenous grass seed mix and brush packing.

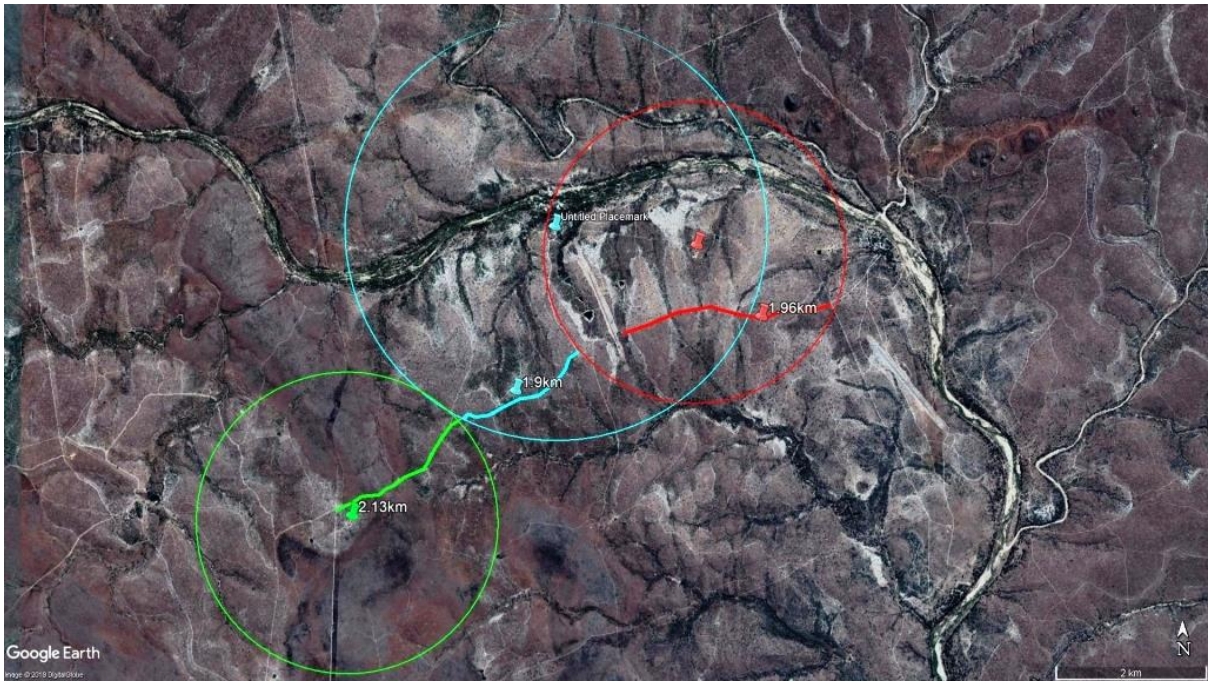


FIGURE 17 THE SOURCE OF FILL MATERIAL FOR THE UPGRADING OF MAIN ROAD WEST AND EAST. (taken from Zunckel 2019)

- No sites found

2. *The development of 13 new roads totalling 5.39km (red- figure 17)*

PHOTOS OF THE START, MID AND END POINTS OF THE PROPOSED NEW ROADS (taken from Zunckel 2019)

- Elmonskraal



- Tsalala



- Hobbits Hole



- Plaque

- Circuit North

- New Mbavala

- Inyathini South

- Circuit Pan

FIGURE 18 VIEW OF THE EXCISTING QUARRY THAT WILL SUPPLY THE PROPOSED WESTERN ROADS (GREEN ON FIGURE 17).

FIGURE 19 OPERATIONS TAKING PLACE AT THE QUARRY

FIGURE 20 PROFILE OF THE QUARRY WALL. NO ARCHAEOLOGY WAS OBSERVED.

SITE Lon-01

Point 111:

24°48'4.96"S, 31°30'58.61"E

-24.801379°, 31.516282°

(figures 21, 22 & 26)

Site type: Archaeological

Site period: Stone Age (predominantly MSA)

Physical description: The site consists of a scattering of stone tools visible on wall face (figs 22 & 23) of an existing quarry (fig 21).

Integrity: Medium

Site extend: Limited to an area of >1m

Field rating: Generally Protected C [Medium significance, record before destruction]

General statement of significance: Low

Statement of impact: Destruction

	Without mitigation	*With mitigation*
Construction phase		
Probability	*Very probable (1)*	*Very probable (1)*
Duration	*Very short term (1)*	*Very short term (1)*
Extent	*Limited to site (1)*	*Limited to site (1)*
Magnitude	*Moderate (8)*	*Moderate (8)*
Significance of impact	*10 (Low)*	*10 (Low)*

Recommended mitigation: Record before destruction

FIGURE 21 VIEW OF THE EXCISTING QUARRY

FIGURE 22 THE LAYER OF MATERIAL IN WHICH STONE TOOLS WAS OBSERVED

FIGURE 23 CLOSE UP OF THE LAYER OF STONE WITHIN WHICH STONE TOOLS WAS OBSERVED.

FIGURE 24 CLOSEUP OF STONE TOOL

FIGURE 25 CLOSE UP OF STONE TOOL

FIGURE 26 GOOGLE MAP OF QUARRY SITE

Stone Age tools (figs 24 & 25) are visible on the wall of a quarry. Initial observations indicate that cores, unworked and worked flakes and more formal tools are present. This site more than likely represents the Stone Age in the area. The area surrounding the area with the tools has already been removed. It must be noted that the tools are probably not *in situ,* but an accumulated deposit brought together by hydro actions. There is, however, a significant number of tools that would warrant the recording of the assemblage.

It is recommended that an archaeologist familiar with the Stone Age should do a detailed mapping and drawing of the site and collect representative material. It must be noted that the quarry is operational, but the area of the finds has been left intact at present due to the presence of natural vegetation. The alternative is to secure the safety of the site by fencing it in.

3. *The upgrading of 14 existing roads within their current footprint totalling 10.44km (blue- fig 17)*

- No sites found.

4. *The closure and rehabilitation of 27 roads totalling 11.96km (yellow-fig 17)*

Figure 27 indicates the process followed when closing a dirt road. Damage to archaeological or any other heritage sites is unlikely to happen as the roads are merely closed off and natural vegetation is allowed to repopulate the old road surface.

FIGURE 27 A RECENTLY CLOSED ROAD

- No sites found

5. *The development and operation of an 84m2 (14m x 6m) rural abattoir with the daily throughput capacity of six animal units. Its proposed locality is within the current staff village footprint in the area zones for services at 24°47'51.34"S and 31°29'53.96"E*

The preferred locality for the Rural Abattoir is within the Service Zone of the Staff Village, as can be seen in Figure 28, and the coordinates are 24°47'51.11"S and 31°29'54.00"E.

Three addition heritage sites were observed during the survey. None of these will be impacted on, but have been recorded to be added on to the National Inventory.

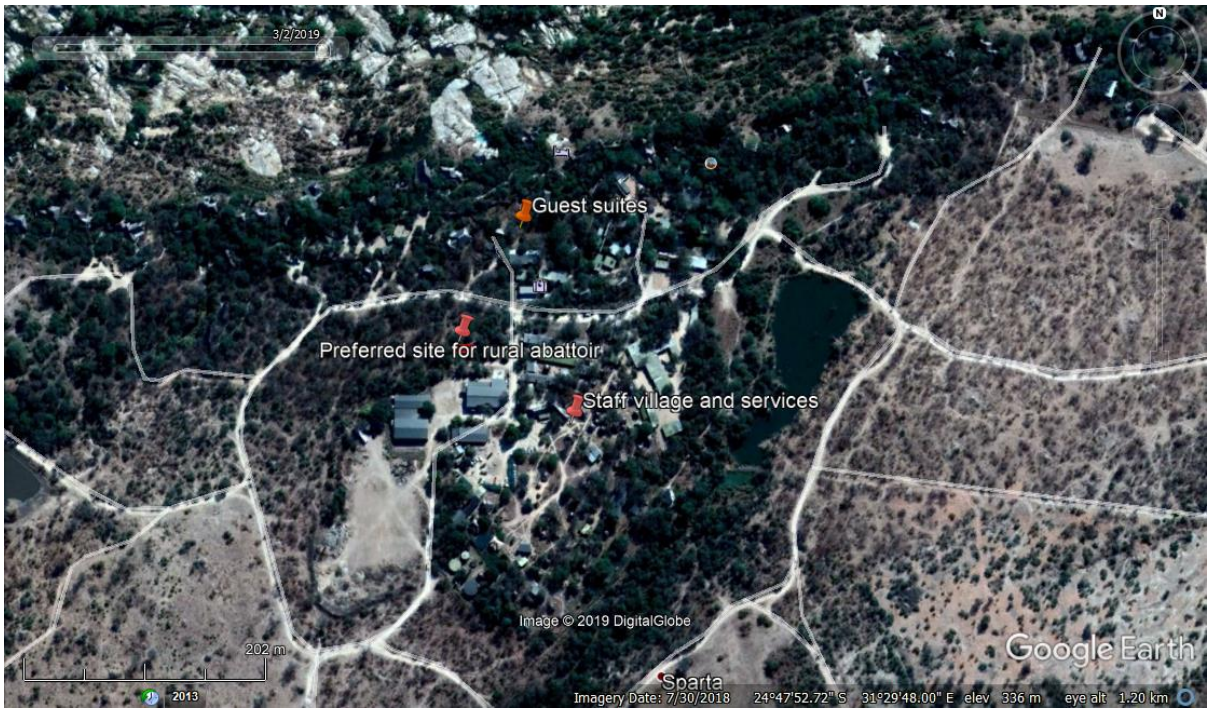


Figure 28 The preferred locality for the proposed Rural Abattoir at Londolozi.

SITE Lon-02

-24.854582”

31.479611”

(figures 29 & 30)

Site type: Archaeological

Site period: Middle Stone Age

Physical description: The site consists of an open-air surface scatter of stone tools.

Integrity: Low

Site extend: 2m x 2m

Field rating: Generally Protected C

General statement of significance: Low

FIGURE 29 GOOGLE MAP OF SITE LON-02

FIGURE 30 SCATTERING OF STONE TOOLS

SITE Lon-03

Site type: Historical

Site period: 1890s

Physical description: The site consists of the original Selati Railway Route.

Integrity: Medium

Site extend: Several kilometres, the whole length of the original railway line. Portions of the line is visible along its route. Please see section on the Selati Railway above.

Field rating: Generally Protected A

General statement of significance: Medium

SITE Lon-04

-24.796561

31.497471

Site type: Historical

Site period: 1920s

Physical description: The site consists of the four original hunting rondawels.

Integrity: Medium

Site extend: Four small structures.

Field rating: Generally Protected A

General statement of significance: Medium

Four thatch mud rondawels were built in 1926 (figs 31-33), along with staff accommodation. (Varty & Buchanan, 1997). All four still exists today and is part of the tourist infrastructure at the main camp.

FIGURE 31 THE FOUR ORIGINAL THATCHED MUD HUTS

FIGURE 32 INTERPRATIVE SIGNAGE AT THE ORIGINAL HUTS

FIGURE 33 THE ORIGINAL HUTS IN THE 1970s (taken from https://blog.londolozi.com/2017/11/25/this-is-londolozi-in-1977/)

It is necessary to mention that though all efforts were made to cover the total area and therefore to identify all possible sites or features of cultural (archaeological and/or historical) heritage origin and significance, that there is always the possibility of something being missed.

This should be kept in mind when development work commences and if any sites (incl. unmarked or unknown low stone-packed graves) are identified the following 'Chance find Procedure' should be followed:

• Upon finding any archaeological or historical material all work at the affected area must cease.

• The area should be demarcated in order to prevent any further work there until an study has been completed.

• An archaeologist should be contacted immediately to provide advice on the matter.

• Should it be a minor issue, the archaeologist will decide on future action, which could include adapting the HIA or not. Depending on the nature of the find, it may include a site visit.

• SAHRA's APM Unit may also be notified.

• If needed, the necessary permit will be applied for with SAHRA. This will be completed in conjunction with the appointed archaeologist.

• The removal of such archaeological material will be done by the archaeologist in lieu of the approval given by SAHRA, including any conditions stipulated by the latter.

• Work on site will only continue after removal of the archaeological/ historical material was done.

The above protocol has been taken from van Vollenhoven (2018).

9. CONCLUSIONS AND RECOMMENDATIONS

ACT was appointed by Emross Consulting (Pty) Ltd to undertake a Phase 1 HIA for the proposed development of 13 new roads with a cumulative distance of 5.39km, the upgrading and broadening of two existing roads with a cumulative distance of 7.05km and the development of a rural abattoir on Sparta Farms 259KU, Londolozi Game Reserve, Mpumalanga.

Four sites of archaeological potential were identified during the physical survey phase of the project of which only one (Stone Age) will be impacted on by the proposed developments. This site seems to be the remaining part of a larger deposit and it is suggested that an archaeologist familiar with the Stone Age records it or the site be secure via fencing.

It is also recommended that Londolozi Game Reserve considers the drafting of a Cultural Heritage Management Plan for the whole Reserve that will guide the management of known heritage sites and that will provide guidance in the event of chance finds during any operational activities.

It is recommended that the series of developments for which this HIA was undertaking can proceed once the recommendations made is carry out.

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ANNEXURE 1

METHODOLOGY OF ASSESSMENT OF POTENTIAL IMPACTS

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

- The nature, a description of what causes the effect, what will be affected and how it will be affected;

- The physical extent, wherein it is indicated whether:

o 1 - the impact will be limited to the site;

o 2 - the impact will be limited to the local area;

o 3 - the impact will be limited to the region;

o 4 - the impact will be national; or

o 5 - the impact will be international.

- The duration, wherein it is indicated whether the lifetime of the impact will be:

o 1 - of a very short duration (0–1 years);

o 2 - of a short duration (2-5 years);

o 3 - of a medium-term (5–15 years);

o 4 - of a long term (> 15 years); or

o 5 - permanent.

- The magnitude of impact, quantified on a scale from 0-10, where a score is assigned:

o 0 - small and will have no effect;

o 2 - minor and will not result in an impact;

o 4 - low and will cause a slight impact;

o 6 - moderate and will result in processes continuing but in a modified way;

o 8 - high, (processes are altered to the extent that they temporarily cease); or

o 10 - very high and results in complete destruction of patterns and permanent cessation of processes;

- The probability of occurrence, which describes the likelihood of the impact occurring and is estimated on a scale where:

o 1 - very improbable (probably will not happen);

o 2 - improbable (some possibility, but low likelihood);

o 3 - probable (distinct possibility);

o 4 - highly probable (most likely); or

o 5 - definite (impact will occur regardless of any prevention measures);

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

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

o The degree to which the impact can be reversed;

o The degree to which the impact may cause irreplaceable loss of resources; and

o The degree to which the impact can be mitigated.

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

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

S = Significance weighting

E = Extent

D = Duration

M = Magnitude

P = Probability

ANNEXURE 2

ARCHAEOLOGICAL SEQUENCE (TAKEN FOR COETZEE)

ANNEXURE 3

Evaluation of Heritage sites (van Vollenhoven)

The evaluation of heritage sites is done by giving a field rating of each using the following criteria:

- The unique nature of a site
- The integrity of the archaeological deposit
- The wider historic, archaeological and geographic context of the site
- The location of the site in relation to other similar sites or features
- The depth of the archaeological deposit (when it can be determined or is known)
- The preservation condition of the site
- Uniqueness of the site and
- Potential to answer present research questions