



PGS
HERITAGE

**PROPOSED UPGRADING OF THEMBINKOSI PRIMARY
SCHOOL SITUATED AT ERF 803 AND 804 IN OSIZWENI D
(WARD 9) IN THE NEWCASTLE LOCAL MUNICIPALITY,
AMAJUBA DISTRICT, KWAZULU-NATAL**

Heritage Impact Assessment

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Declaration of Independence

I, Wouter Fourie, declare that –

General declaration:

- I act as the independent heritage practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting heritage impact assessments, including knowledge of the Act, Regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, Regulations and all other applicable legislation;
- I will take into account, to the extent possible, the matters listed in section 38 of the NHRA when preparing the application and any report relating to the application;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- All the particulars furnished by me in this form are true and correct;
- I will perform all other obligations as expected from a heritage practitioner in terms of the Act and the constitutions of my affiliated professional bodies; and
- I realise that a false declaration is an offence in terms of regulation 71 of the Regulations and is punishable in terms of section 24F of the NEMA.

Disclosure of Vested Interest

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Regulations;

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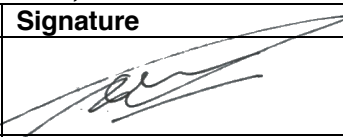
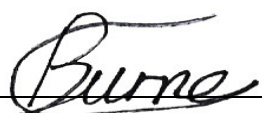
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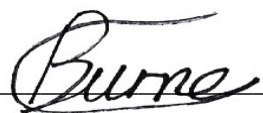
ACKNOWLEDGEMENT OF RECEIPT

Report Title	Proposed Upgrading of Thembinkosi Primary School Situated at Erf 803 and 804 In Osizweni D (Ward 9) in the Newcastle Local Municipality, Amajuba District, Kwazulu-Natal		
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 _____

The heritage impact assessment report has been compiled considering the NEMA Appendix 6 requirements for specialist reports as indicated in the table below.

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report
1.(1) (a) (i) Details of the specialist who prepared the report	Page 2 of Report – Contact details and company
(ii) The expertise of that person to compile a specialist report including a curriculum vita	Section 1.2 – refer to Appendix C
(b) A declaration that the person is independent in a form as may be specified by the competent authority	Page ii of the report
(c) An indication of the scope of, and the purpose for which, the report was prepared	Section 1.1
(cA) An indication of the quality and age of base data used for the specialist report	N/A
(cB) a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 3
(d) The duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment	Section 4
(e) a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used	Section 6 and Appendix B
(f) details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives;	Section 3.6
(g) An identification of any areas to be avoided, including buffers	Section 6
(h) A map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 3.6
(i) A description of any assumptions made and any uncertainties or gaps in knowledge;	Section 1.3
(j) A description of the findings and potential implications of such findings on the impact of the proposed activity, including identified alternatives, on the environment	Section 3.6 and 4
(k) Any mitigation measures for inclusion in the EMPr	Section 6
(l) Any conditions for inclusion in the environmental authorisation	Section 6
(m) Any monitoring requirements for inclusion in the EMPr or environmental authorisation	Section 6.5
(n)(i) A reasoned opinion as to whether the proposed activity, activities or portions thereof should be authorised and	Section 7
(n)(iA) A reasoned opinion regarding the acceptability of the proposed activity or activities; and	
(n)(ii) If the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure plan	Section 6
(o) A description of any consultation process that was undertaken during the course of carrying out the study	Not applicable. A public consultation process will be

Requirements of Appendix 6 – GN R326 EIA Regulations of 7 April 2017	Relevant section in report
	handled as part of the EIA and EMPPr process.
(p) A summary and copies if any comments that were received during any consultation process	Not applicable. To date no comments have been raised regarding heritage resources that require input from a specialist.
(q) Any other information requested by the competent authority.	Not applicable.
(2) Where a government notice by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Section 38(3) of the NHRA

EXECUTIVE SUMMARY

PGS Heritage (Pty) Ltd (PGS) was appointed by NCC Environmental (Pty) Ltd (NCC) to undertake a Heritage Impact Assessment (HIA) which will serve to inform the Basic Environmental Assessment (BA) and Environmental Management Programme (EMPr) for the proposed upgrading of Thembinkosi Primary School situated at Erf 803 And 804 in Osizweni D (Ward 9) in the Newcastle Local Municipality, Amajuba District, Kwazulu-Natal.

Heritage resources are unique and non-renewable and as such any impact on such resources must be seen as significant.

During the field work no heritage resources were identified. The area is indicated to be underlain by sandstone and shale from the Ecca group that can potentially contain fossil traces.

Heritage Impacts

No heritage resources were identified during the field work and no impact is expected. Possible subsurface chance finds will have a post-mitigation impact rating of low negative.

Palaeontological Impacts

As noted in Section 5 above, the school occurs in an area where the palaeontology is assessed as being almost entirely of high sensitivity. Deep excavations are not anticipated, and impacts will be managed through the chance finds protocol in **Appendix D** and having a post-mitigation impact rating of low negative.

General

It is the author's considered opinion that overall impact on heritage resources is Low. Provided that the recommended mitigation measures are implemented, the impact would be acceptably low or could be totally mitigated to the degree that the project could be approved from a heritage perspective. The management and mitigation measures as described in Section 6 of this report have been developed to minimise the project impact on heritage resources.

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TERMINOLOGY AND ABBREVIATIONS

Archaeological resources

This includes:

- material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years including artefacts, human and hominid remains and artificial features and structures;
- rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10m of such representation;
- wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the republic as defined in the Maritimes Zones Act, and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation; and
- features, structures and artefacts associated with military history which are older than 75 years and the site on which they are found.

Cultural significance

This means aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance

Development

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

- construction, alteration, demolition, removal or change in use of a place or a structure at a place;
- carrying out any works on or over or under a place;
- subdivision or consolidation of land comprising a place, including the structures or airspace of a place;
- constructing or putting up for display signs or boards;
- any change to the natural or existing condition or topography of land; and
- any removal or destruction of trees, or removal of vegetation or topsoil

Early Stone Age

The archaeology of the Stone Age between 700 000 and 3 300 000 years ago.

Fossil

Mineralised bones of animals, shellfish, plants and marine animals. A trace fossil is the track or footprint of a fossil animal that is preserved in stone or consolidated sediment.

Heritage

That which is inherited and forms part of the National Estate (historical places, objects, fossils as defined by the National Heritage Resources Act 25 of 1999).

Heritage resources

This means any place or object of cultural significance and can include (but not limited to) as stated under Section 3 of the NHRA,

- places, buildings, structures and equipment of cultural significance;
- places to which oral traditions are attached or which are associated with living heritage;
- historical settlements and townscapes;
- landscapes and natural features of cultural significance;
- geological sites of scientific or cultural importance;
- archaeological and palaeontological sites;
- graves and burial grounds, and
- sites of significance relating to the history of slavery in South Africa;

Holocene

The most recent geological time period which commenced 10 000 years ago.

Late Stone Age

The archaeology of the last 30 000 years associated with fully modern people.

Late Iron Age (Early Farming Communities)

The archaeology of the last 1000 years up to the 1800's, associated with iron-working and farming activities such as herding and agriculture.

Middle Iron Age

The archaeology of the period between 900-1300AD, associated with the development of the Zimbabwe culture, defined by class distinction and sacred leadership.

Middle Stone Age

The archaeology of the Stone Age between 30 000-300 000 years ago, associated with early modern humans.

Palaeontology

Any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

Table 1 – List of abbreviations used in this report

Abbreviations	Description
AIA	Archaeological Impact Assessment
ASAPA	Association of South African Professional Archaeologists
CRM	Cultural Resource Management
DEA	Department of Environmental Affairs
DWS	Department of Water and Sanitation
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIA practitioner	Environmental Impact Assessment Practitioner
ESA	Earlier Stone Age
GPS	Global Positioning System
HIA	Heritage Impact Assessment
I&AP	Interested & Affected Party
LCTs	Large Cutting Tools
LIA	Late Iron Age
LSA	Late Stone Age
MIA	Middle Iron Age
MSA	Middle Stone Age
NEMA	National Environmental Management Act, 1998 (Act No 107 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No 25 of 1999)
PHRA	Provincial Heritage Resources Authority
PSSA	Palaeontological Society of South Africa
SADC	Southern African Development Community
SAHRA	South African Heritage Resources Agency

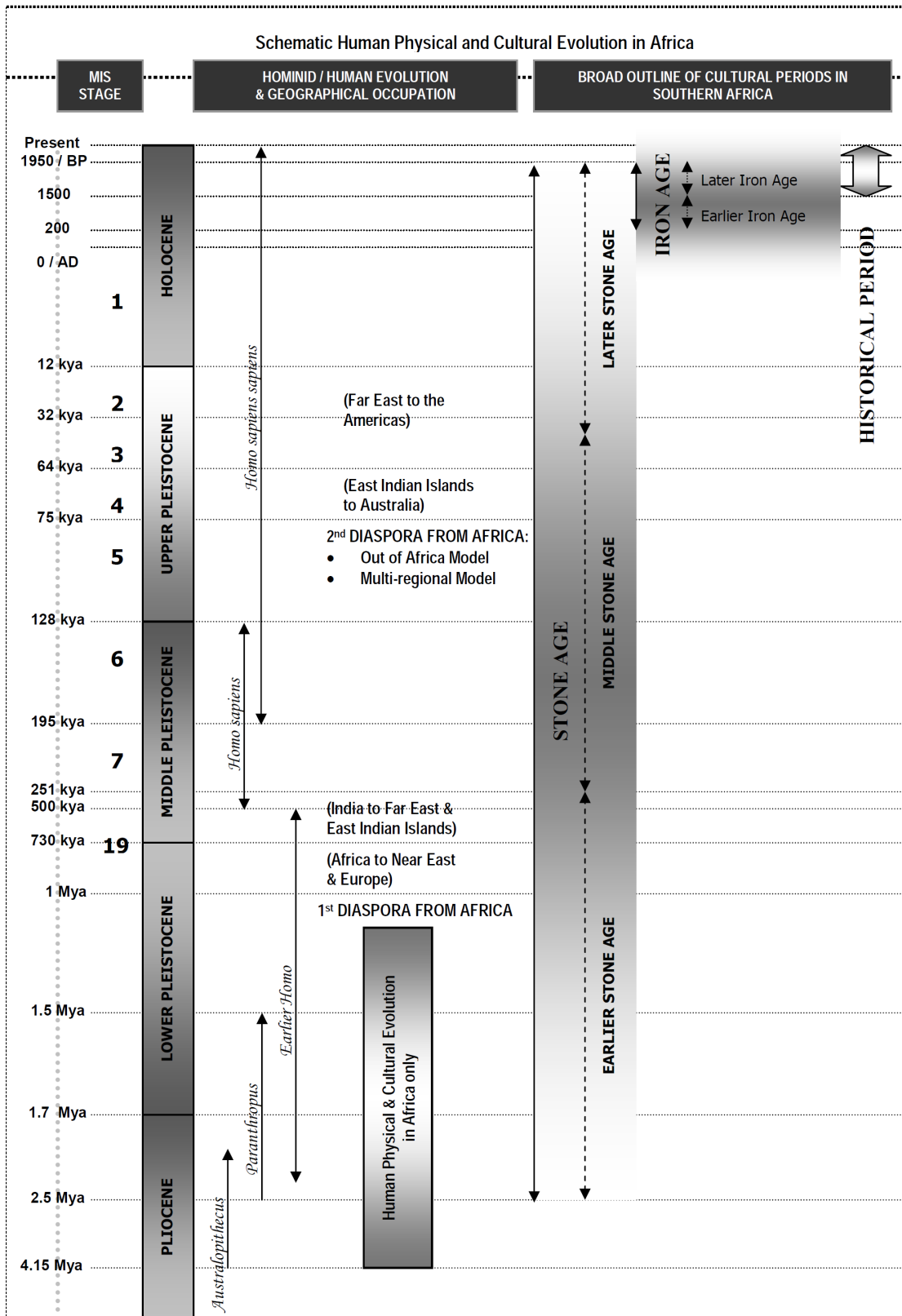


Figure 1 – Human and Cultural Timeline in Africa (Morris, 2008)

1 INTRODUCTION

PGS Heritage (Pty) Ltd (PGS) was appointed by NCC Environmental (Pty) Ltd (NCC) to undertake a Heritage Impact Assessment (HIA) which will serve to inform the Basic Environmental Assessment (BA) and Environmental Management Programme (EMPr) for the proposed upgrading of Thembinkosi Primary School situated at Erf 803 And 804 in Osizweni D (Ward 9) in the Newcastle Local Municipality, Amajuba District, Kwazulu-Natal.

1.1 Scope of the Study

The aim of the study is to identify possible heritage sites and finds that may occur in the proposed development area. The HIA aims to inform the EIA in the development of a comprehensive EMPr to assist the project applicant in managing the identified heritage resources in a responsible manner in order to protect, preserve, and develop them within the framework provided by the National Heritage Resources Act (Act 25 of 1999) (NHRA).

1.2 Specialist Qualifications

This Heritage Impact Assessment was compiled by PGS Heritage (PGS).

The staff at PGS have a combined experience of nearly 40 years in the heritage consulting industry. PGS and its staff have extensive experience in managing HIA processes. PGS will only undertake heritage assessment work where they have the relevant expertise and experience to undertake that work competently.

Wouter Fourie, the Project Coordinator, is registered with the Association of Southern African Professional Archaeologists (ASAPA) as a Professional Archaeologist and is accredited as a Principal Investigator; he is further an Accredited Professional Heritage Practitioner with the Association of Professional Heritage Practitioners (APHP).

1.3 Assumptions and Limitations

Not detracting in any way from the comprehensiveness of the research undertaken, it is necessary to realise that the heritage resources located during the desktop research do not necessarily represent all the possible heritage resources present within the area.

Such observed or located heritage features and/or objects may not be disturbed or removed in any way until such time that the heritage specialist has been able to make an assessment as to

the significance of the site (or material) in question. This applies to graves and cemeteries as well.

1.4 Legislative Context

The identification, evaluation and assessment of any cultural heritage site, artefact or find in the South African context is required and governed by the following legislation:

- National Environmental Management Act (NEMA), Act 107 of 1998
- National Heritage Resources Act (NHRA), Act 25 of 1999

The following sections in each Act refer directly to the identification, evaluation and assessment of cultural heritage resources.

- National Environmental Management Act (NEMA) Act 107 of 1998 – Environmental Impact Assessment Regulations 326 (7 April 2017) GN R982 of 8 December 2014, as amended
 - Basic Environmental Assessment (BEA) – Appendix 1 s (2)(d)
 - Environmental Scoping Report (ESR) – Appendix 1 s (3)(h)(iv) and Appendix 2 s(2)(g)(iv)
 - Environmental Impact Assessment (EIA) – Appendix 3 s (3)(h)(iv)/
- KwaZulu-Natal Amafa and Research Institute Act (Act 5 of 2018)
- Protection of Heritage Resources – Sections 37 to 40; and
 - Heritage Resources Management – Section 41

The KZN-RIA is utilized as the basis for the identification, evaluation and management of heritage resources and in the case of Cultural Resource Management (CRM) those resources specifically impacted on by development as stipulated in Section 41 of NHRA. This study falls under s41(8) and requires comment from the relevant heritage resources authority.

2 SITE LOCATION AND DESCRIPTION

2.1 Locality and Site Description

The footprint of the proposed school upgrade is situated at Erf 803 And 804 in Osizweni D (Ward 9) in the Newcastle Local Municipality, Amajuba District, Kwazulu-Natal (**Figure 2** and **Figure 3**).

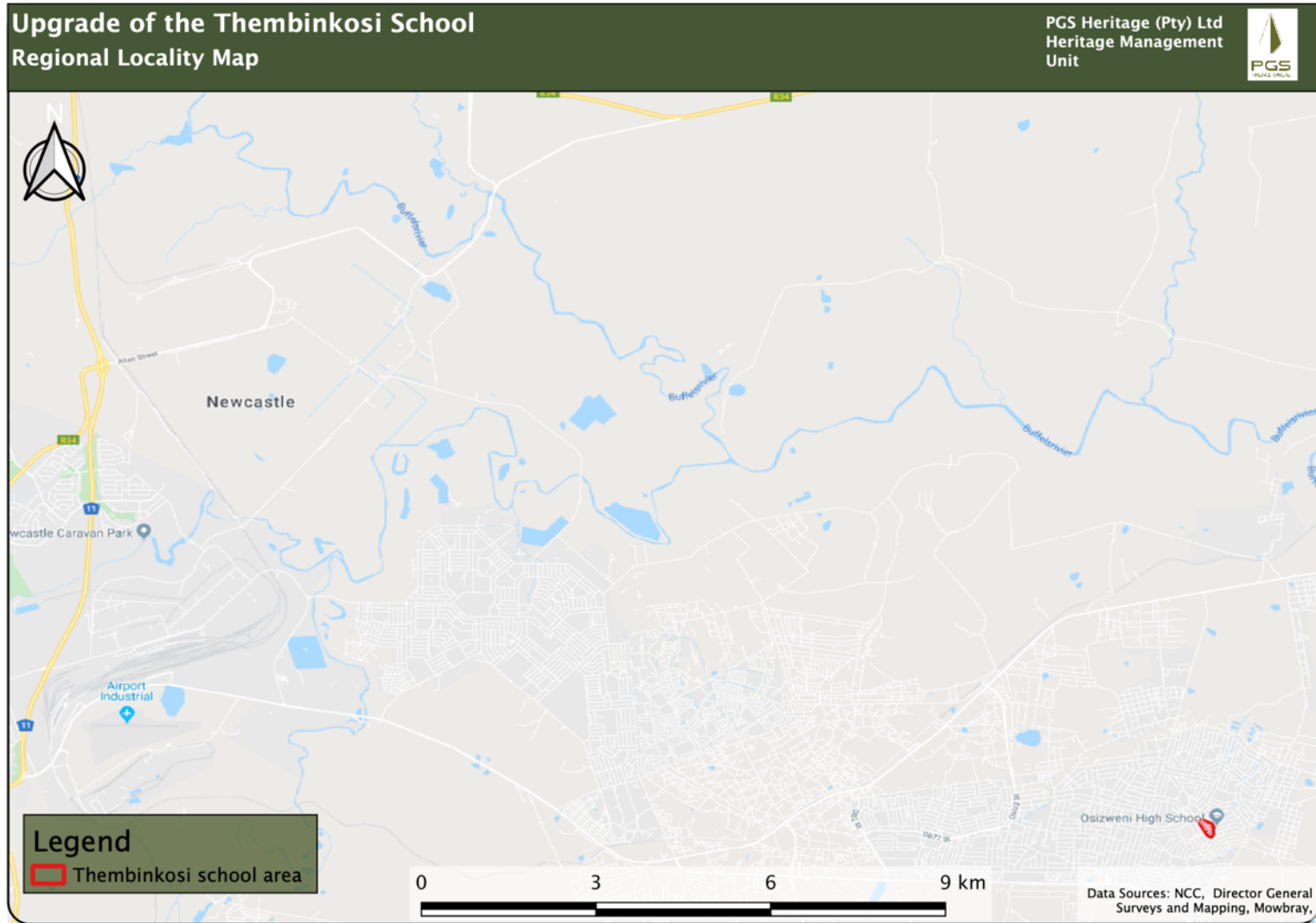


Figure 2 – Regional setting of the study area

Upgrade of the Thembinkosi School Locality Map

PGS Heritage (Pty) Ltd
Heritage Management
Unit



Figure 3 – Locality of the Thembinkosi school

2.2 Background of Project

Upgrade of Thembinkosi Primary School in KwaZulu-Natal falling under the Dept of Education's (DoE's) New Schools Programme.

EMIS. Number: 500489954

2.2.1 Erven/portion/township

Erf 803 & 804

Osizweni D, Ward 9

2.2.2 Local and District Municipality

Newcastle Local Municipality

Amajuba District Municipality

2.3 Project Description

The Coega Development Corporation (Pty) Ltd (CDC) is assisting the KwaZulu-Natal Department of Education (DoE-KZN) in implementing projects within the province of KwaZulu- Natal. This is being done under the School Building Programme of the DoE-KZN which is aimed at providing quality teaching facilities and to improve the quality of life of the previously disadvantaged communities. The programme is also aimed at creating jobs, developing and transferring skills and fighting poverty.

Thembinkosi Primary School (EIMS Number: 500489954) is situated at Osizweni Township D in the Newcastle Municipality within the Amajuba District, KZN. Prefabricated containers are currently used as classrooms by the children at this school.

The purpose of the project is to upgrade the informal school into a new (formal) school to provide learners with formal infrastructure that supports and improves teaching and learning.

The project objectives are:

- a) To provide quality teaching facilities
- b) To improve the quality of life of previously disadvantaged communities
- c) To create jobs
- d) To develop and transfer skills
- e) To fight poverty

The project consists of the construction of 9 Standard classrooms, 4 Grade-R classrooms, 2 Multipurpose laboratories and Specialist Rooms, 1 Media Centre, 1 Computer Room, 1 Teaching room, an Administration block consisting of 2 Deputy Principal's offices, a General office, Printing room, 2 Sick rooms, Entrance hall, Counselling suite, Staff room with kitchenette, 3 HOD offices, Garden stores change room, Counselling suite attached to standard classroom, a General storeroom outside of the Administration block, 1 Gate house, 1 SNP kitchen, 10 Girls' toilet seats, 7 Boys' toilet seats and Urinal spaces, 4 Teacher toilet seats, 1 disabled toilet, 6 Grade R toilets, Electrical works, Water reticulation, 30 parking bays and 1 soccer field.

External works will comprise of bulk earthworks, paving, storm water disposal and water and sewer reticulation (**Figure 4**).

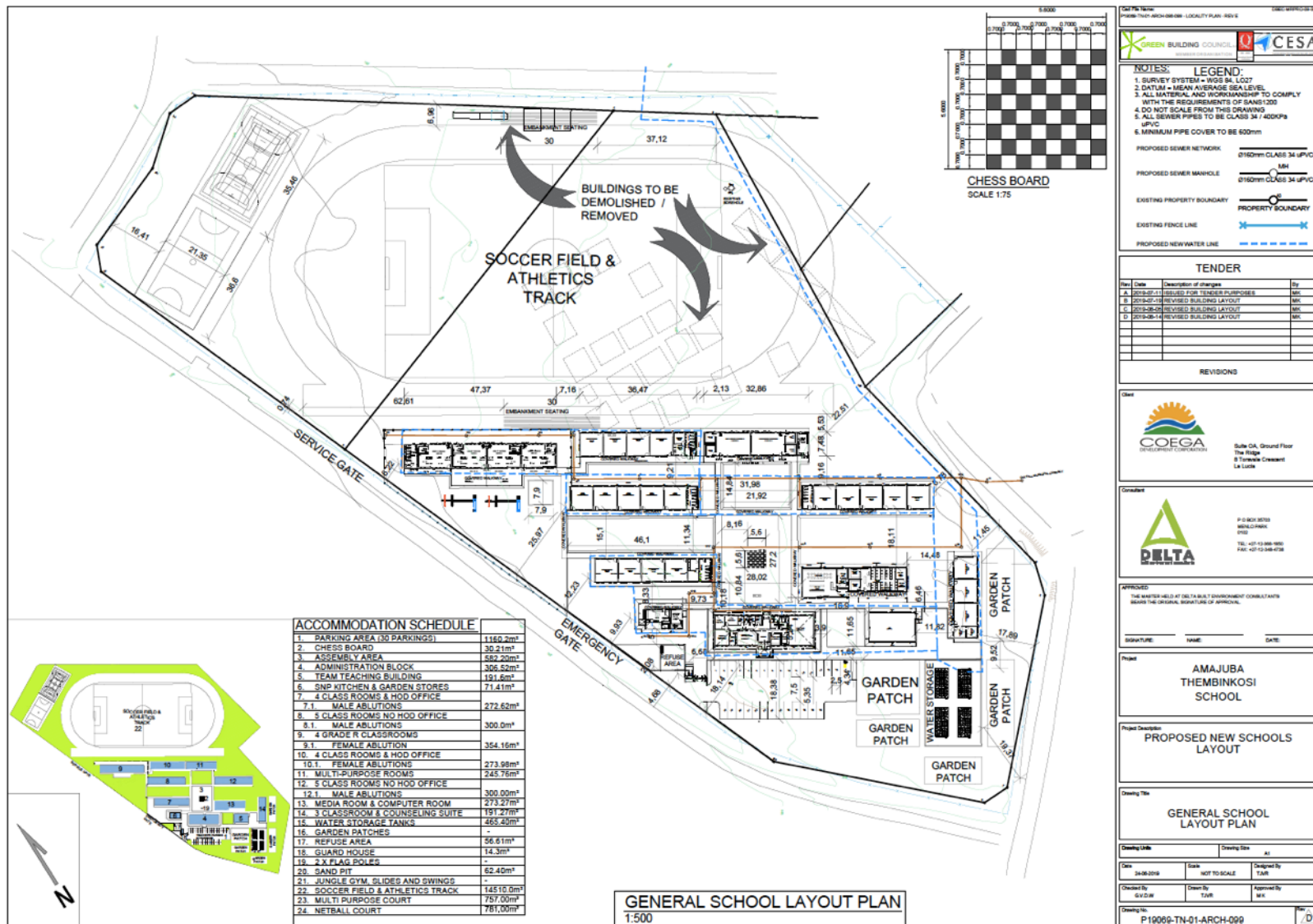


Figure 4 – Proposed school layout

3 CURRENT STATUS QUO

3.1 Site Description

The study area is currently utilised as a school. The extent of the property is fenced, and a number of prefabricated buildings are situated in the central portion of the property (**Figure 5**). These buildings are utilised as classrooms (**Figure 7 - Figure 10**).

Ablution facilities were constructed on the eastern fence. A brick foundation is all that is present of the long red roofed building present on the locality map in **Figure 3** situated to the east of the central prefabricated buildings (**Figure 6**).



Figure 5 – View from the south towards the school buildings



Figure 6 – Foundation of prefabricated building



Figure 7 – View of the eastern section of the current school buildings



Figure 8 – View from the north towards the school buildings with fence visible on the right



Figure 9 – General view from the north towards the buildings



Figure 10 – Temporary and permanent ablutions



Figure 11 – Central courtyard of current school

4 HISTORICAL BACKGROUND OF THE REGION

4.1 The Archival findings

The archival research focused on available information sources, which were used to compile a background history of the study area and surrounds. This data then informed the possible heritage resources to be expected during field surveying.

4.1.1 *Archaeological background*

The archaeology of KwaZulu-Natal spans three archaeological periods: the Stone Age, Iron Age and Historical/Colonial period. The early periods in the Stone Age archaeology of the region are recorded, amongst others, in Sibudu Cave on the coast of KwaZulu-Natal, which shows evidence for early forms of cognitive human behavioural patterns in the Middle Stone Age of South Africa some 40 000 years BP (Wadley, 2005). The caves, plains, valleys and hills of KwaZulu-Natal are known to once have been occupied by the San people. Evidence for this includes stone artefacts and an abundance of rock art, predominantly in the form of rock paintings in areas such as the Giants Castle and Kamberg in the Drakensburg Mountains (Vinnicombe, 1976). Rock art sites have been also been documented in the areas around Estcourt, Mooi River and Dundee.

Stone Age

The Stone Age can be roughly divided into three periods:

Earlier Stone Age (400 000 – 2 million Before Present/BP)

Middle Stone Age (30 000 – 300 000 BP)

Later Stone Age (30 000 BP – recent times)

Border Cave

Border Cave is situated some 40 kilometers to the north east of the study area at the Ingodini Border Cave Museum Complex. The site is probably the most well-known archaeological site in the larger Pongola area and is a tourist attraction.

The site was first investigated by Raymond Dart in 1934. His excavations exposed a thick deposit of archaeological material dating from the Iron Age overlaying Middle Stone Age (MSA) artefacts. During the early 1940s the archaeological deposits were disturbed by guano collectors.

The guano excavations revealed bone fragments that were forwarded to Dart, in 1941. The remains were that of a human infant dating back to around 100 000 years ago. A single perforated Conus shell was found with the infant remains (Wells, 1945).

Further excavations by Beaumont in the early 1970's exposed a complete MSA sequence succeeded by Early and Later Iron Age deposits. The Iron Age deposits date between 200-800BP, with the MSA stratigraphy dating from 130 000 to 35 000BP (Klein, 1977).

Iron Age

The Iron Age as a whole represents the spread of Bantu speaking people and includes both the Pre-Historic and Historic periods. It can be divided into three distinct periods:

The Early Iron Age: Most of the first millennium AD.

The Middle Iron Age: 10th to 13th centuries AD

The Late Iron Age: 14th century to colonial period.

The Iron Age is characterised by the ability of these early people to manipulate and work Iron ore into implements that assisted them in creating a favourable environment to make a better living. Iron is a very hard metal to work with compared to gold and copper, which have lower melting temperatures and therefore are easier to forge. However, a drawback of gold and copper is the occurrence of the ore, which is relatively limited compared to iron.

In Africa, we proceeded technologically directly from the Stone Age to the Iron Age, whereas in Eurasia there was a prolonged Copper and Bronze Age preceding the Iron Age. In southern Africa, metallurgical techniques made their first appearance in a rather advanced state that permitted the smelting of Copper and Iron directly after a Stone Age economic way of life.

This scenario provides a strong argument that metallurgical technology was introduced from elsewhere and did not develop locally. To effectively smelt iron oxide ore by reduction requires a temperature of at least 1100°C, that is 400°C below the metal's melting point. To obtain a temperature this high was probably unattainable in ancient furnaces. But the prolonged heating of ore in contact with abundant charcoal, needed to obtain a sufficiently high temperature for the reduction of the oxide ores, enabled the iron to obtain enough carbon to make it into mild steel. If this mild steel is repeatedly heated and hammered during the forging process, it will harden.

Early Iron Age

Early in the first millennium AD, there seems to be a significant change in the archaeological record of the greater part of eastern and southern Africa, lying between the equator and Natal. This change is marked by the appearance of a characteristic ceramic style that belongs to a single stylistic tradition. These Early Iron Age people practiced a mixed farming economy and had the technology to work metals like iron and copper.

A meaningful interpretation of the Early Iron Age has been hampered by the uneven distribution of research conducted so far; this can be partly attributed to the poor preservation of these early sites.

Linguistic and archaeological research has developed a commonly accepted theoretical model of Bantu distribution from Central Africa down towards Southern Africa from around 1000 BC to 500 AD. This model is believed to have resulted in the current tribal distribution as known today (Figure 12).

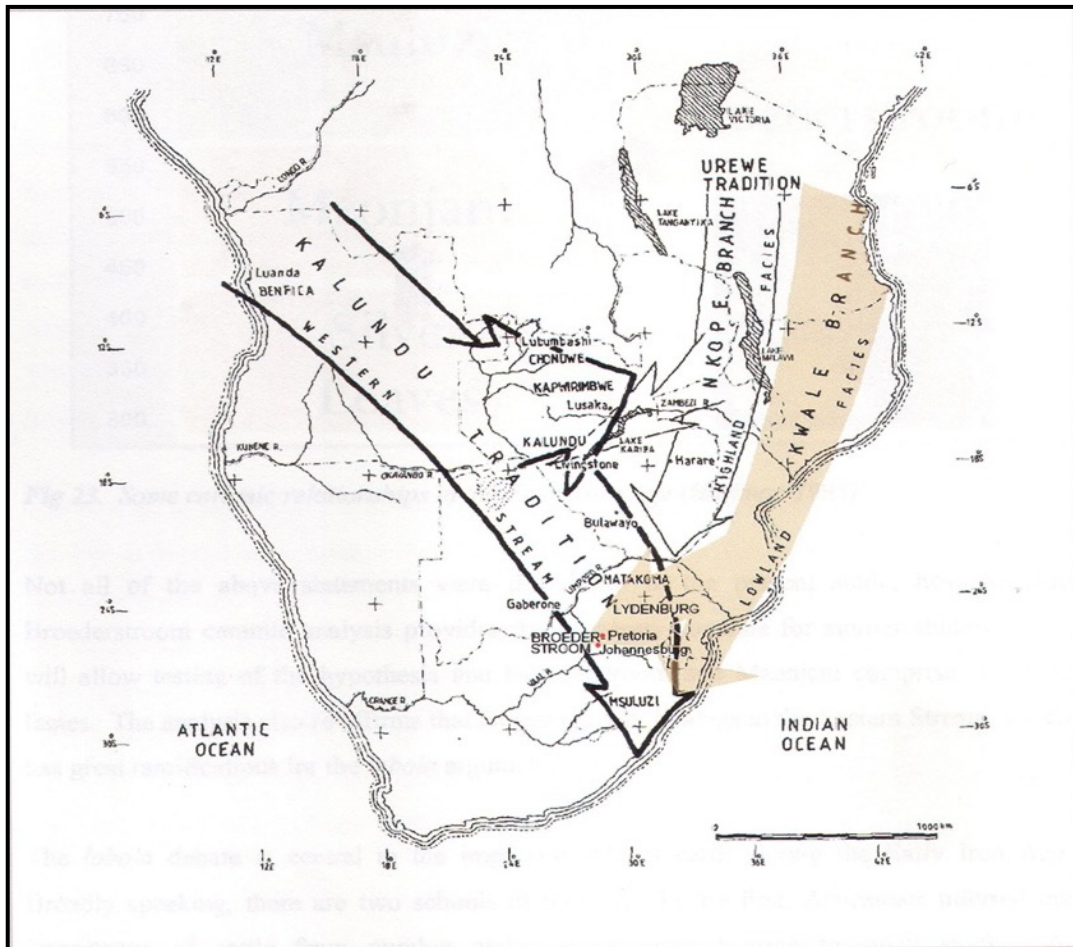


Figure 12 - Map of Western and Eastern Bantu movements from the Central Lakes area

Late Iron Age background

The second period of occupation in KwaZulu-Natal was during the **Early and Middle Iron Age**; an occupation of the KwaZulu-Natal region by the Bantu speakers who are thought to have migrated from as far as the Great Lakes regions of Congo and Cameroon. Existing evidence dates the Iron Age in southern Africa to the first millennium AD (Huffman, 2007). The site of Mzonjani, 15 km from Durban, is the oldest known Iron Age site in KwaZulu-Natal, dating to the 3rd Millennium AD (Huffman, 2007).

Archaeologically, the Natal area of current day KwaZulu-Natal was occupied by the Zulu people by AD 1050 (Huffman, 2007). These findings are backed by historical accounts, oral traditions, the study of linguistics, as well as anthropological and archaeological data (as presented through material culture and artefacts). The archaeological evidence of the Iron Age people in the region is represented through distinct ceramic traditions, stone walls and other structural features such as grain bins and hut floor remains, kraal remains, vitrified cattle dung (sheep and goat), iron implements, slags, bellows and furnaces. The area that was occupied by the Nguni speaking group of the Eastern Bantu language stream is characterised by settlement patterns defined as the Central Cattle Pattern (CCP) (Huffman, 2007). The earliest known type of stonewalling that characterises this settlement pattern (CCP) in the region (KZN) is known as Moor Park, which dates from the 14th to 16th Centuries AD (Huffman, 2007). This type of stonewalling can be found in defensive positions on hilltops in the Midlands of KZN (Huffman, 2007) (**Figure 13**).

Archaeologists have concluded that the function of these structures was to serve mainly defensive purposes - the site of Moor Park is "*located on the spurs and ends of hills, stone walls cut the settlement off from remaining terrain, perimeter walls enclose about two thirds of the settlement, leaving the back free*" (Huffman, 2007).

However, it has to be noted that the CCP and other forms of Iron Age stonewalling features are not restricted and/or endemic to the Eastern Bantu language speaking group and/or the Nguni to whom the Zulu people belong. Huffman's (2007) statement validates this, "*Iron Age stonewalling occurs over much of Southern Africa*". He goes on to say, "*as the most visible sign of agro-pastoral settlement, there are several classifications, mostly for specific areas, and few for larger regions*". It has also to be noted that these stonewall structures were not the most dominant and/or preferred form of building for the KwaZulu-Natal Ngunis, even though some are dated to have been built during the times of war between the Colonial powers and the Zulus (for example, during the Anglo-Zulu War).

In KwaZulu-Natal, the most dominant and preferred form of Iron Age structures are the 'beehive huts'- documented in many historical records dating as far back as the colonial times (**Figure 14**).

This presents a challenge to the archaeological study of the Iron Age in the province. Huffman (2007) argues that the archaeology of KwaZulu-Natal is not as prominent as in other parts of the country because most of the structures were built of thatch material that do not preserve well. The same is true for their ceramics. The type site of Moor Park therefore presents a unique view of the Iron Age in KwaZulu-Natal.

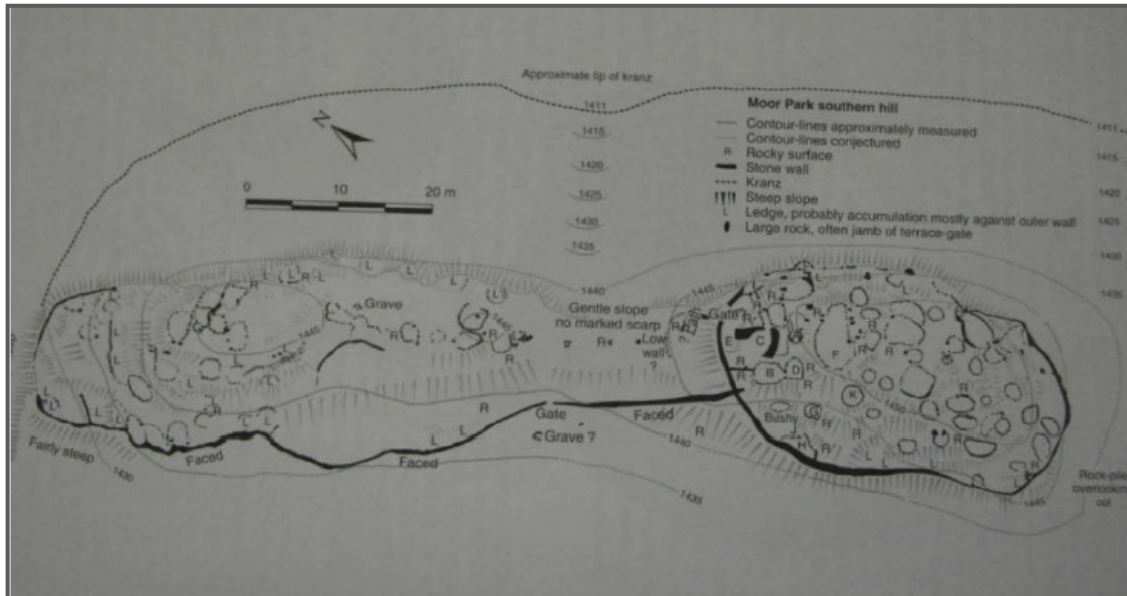


Figure 13- Site of Moor Park; picture ©T, N. Huffman (2007) to illustrate the CCP stonewalling (see also Davies 1974, from which the picture was initially taken).

The third phase of occupation in current day KZN was the **Late Iron Age** – a period just before the contact with the colonial settlers. In KwaZulu-Natal and other parts of southern Africa this period was characterised by a variety of expansionist battles fought by different chiefdoms, culminating in the pre-colonial southern African war called *Imfecane* (Ommer-Cooper, 1993). In the province of KwaZulu-Natal, this started during the early 1800's when the amaZulu were still under the 'static kingdom' of Senzangakona (Omer-Cooper, 1993). In KZN, the *Imfecane* brought about many battles between and within the different local Zulu chiefdoms.

In other parts of the country the *Imfecane* also affected the Koni (Limpopo Province), the Tswana by the Ndebele ka-Mzilikazi (interior regions of the country) and the amaMpondo, amaHlubi, abaThembu and amaXhosa in the Eastern Cape regions (Wright, 1991).

The *Imfecane* featured very prominently in KwaZulu-Natal during the reign of King Shaka KaSenzangakhona (Ommer-Cooper, 1993). Some of these battles and raids spread as far north as countries like Zimbabwe and Zambia.

In Zululand, one of the bigger local chiefdoms that Shaka conquered is the Ndwandwe chiefdom of Zwibe kaLanga, which was situated north of Shaka's territory around the modern day kwaNongoma (Knight, 1998).

Shaka managed, to some degree, to achieve his ideal kingdom by strategically expanding/extending the traditional *amabutho* system. The *amabutho* were the brigades of young men of similar age gathered together for a period of national service (Wright, 1991). The *amabutho* were quartered at large royal homesteads, *amakhandas* (**Figure 15**) - which were sited strategically above the surrounding country to guard against both outside attack and internal dissension, like the site of Moor Park discussed above. During the times of need, *amabutho* would be organised into *impi* to fight and protect the Zulu kingdom. The *amabutho*, organised into *impi*, would also be sent out to attack and take over rival chiefdoms that were opposed to King Shaka's rule and in the process, incorporate them under his monarchy.

As powerful as it may have been, King Shaka's reign as the Zulu King did not last long, as he was assassinated by his younger brothers in September 1828. One of them, Dingane KaSenzangakhona then became King. It is argued that by the time of his assassination, Shaka had not yet fully managed to assume and reconcile into his kingdom all the local Zulu chiefdoms: "*much chiefdom (sic) within the kingdom were still unreconciled to Zulu rule, while Zulu influence south of Thukela [was still] patchy*" (Knight, 1998).

The area south of the Thukela River (Natal) was to some degree devoid of King Shaka's hold. He did not manage to assimilate all the chiefdoms south of uThukela under his rule and this had negative ramifications to the Zulu kingdom for the years to come. King Shaka moved the royal homestead to KwaDukuza, Stanger, south of the upper Thukela River before his assassination by Dingane (and Mpande), who later relocated and rebuilt it at uMgungundlovu, '*The Place Surrounding the Elephant*' in the emaKhosini valley where King Shaka and King Dingane's forefathers are buried. The moving of the royal homestead by both Shaka and Dingane presents an interesting 'thesis' into the internal dynamics and politics of the Royal House and possibly 'one of the reasons' for the assassination of King Shaka by his brothers. One important reason for the relocation of the royal homestead back to uMgungundlovu- north of the upper Thukela River, was the growing influence of the white community at Port Natal (settlers) and the encroaching Trek Boers who crossed the Ukhahlamba Mountains into Natal in 1837 (Knight, 1998).

The period of encroachment of first Natal, then Zululand, represents a **fourth phase** of settlement or occupation of KwaZulu-Natal, before it became open to most people during the periods of the Union of South Africa (1910-1961), Nationalist rule (1947-1994), and democratic South Africa (1994-to date)



Figure 14- Pre-industrial Zulu village: beehive huts, note homestead built using thatch material (Colonial period picture) (Laband & Thompson, 2000)

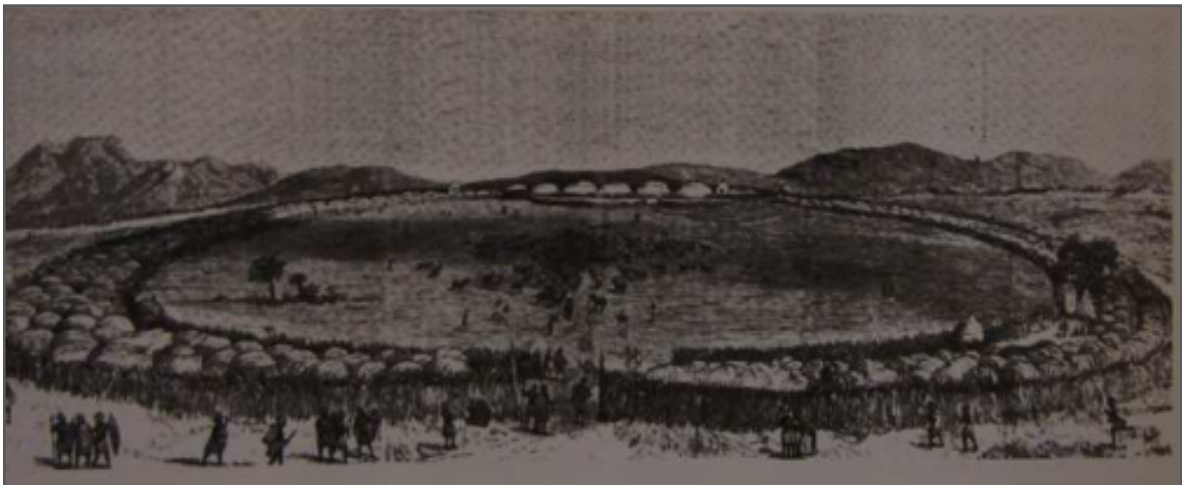


Figure 15 - An illustration of iKhanda or the royal homestead (Laband & Thompson, 2000)

4.1.2 Natal and Zululand: A Colonial Time Account of KwaZulu-Natal

The settler and Boer influence south of upper Thukela (uThukela) River and the strong Zulu influence north of the river during the late 1830s become important in understanding the development of the two territories divided by the river, which later became known as Natal and Zululand. This also marks the fourth phase in the development of what is today known as KwaZulu-Natal.

Since the 1830s, the KwaZulu-Natal landscape was divided into the north and the south; Natal in the south and Zululand in the north. Zululand can be broadly defined as the land between the uThukela River (some 100km north of present day Durban) and the Pongola River and Swaziland to the north, with Natal as the area south of the u-Thukela River. Initially this border was blurred and unmarked by any geographic or physical feature until colonial times:

“Certainly, this was the extent of the Zulu kingdom during its most static phase, although at times the Zulu kings exercised authority over the country considerable further south, while their hold over the northern borders was always tenuous. In fact, the kings defined their boundaries in terms of people who gave them allegiance, rather than by geographical features, and the idea of a single Zulu identity is largely mythical” (Knight, 1998).

Knight (1998) goes on to argue that “the history of the Zululand and its southern neighbour Natal has always been inextricably mixed, and the physical boundaries between them blurred”. The political border that existed between Zululand and Natal was in prehistoric times not marked by any geographic features. Natal came to exist when, the Portuguese explorer, Vasco da Gama, noted the existence of the south-eastern seaboard in his log as he sailed around the Cape and up the east coast of Africa, searching for a route to the Indies. He christened it *Terra Natalis*, in honour of the birth of Christ, and for the [following] centuries Natal was used to describe the country south of uThukela (idem: 15).

Existing archival evidence for the formal proclamation of uThukela River as the political boundary dividing Zululand (in the north) and Natal (in the South) dates to the 1850’s, during King Cetshwayo kaMpande’s rule as the Zulu King (**Figure 16**).

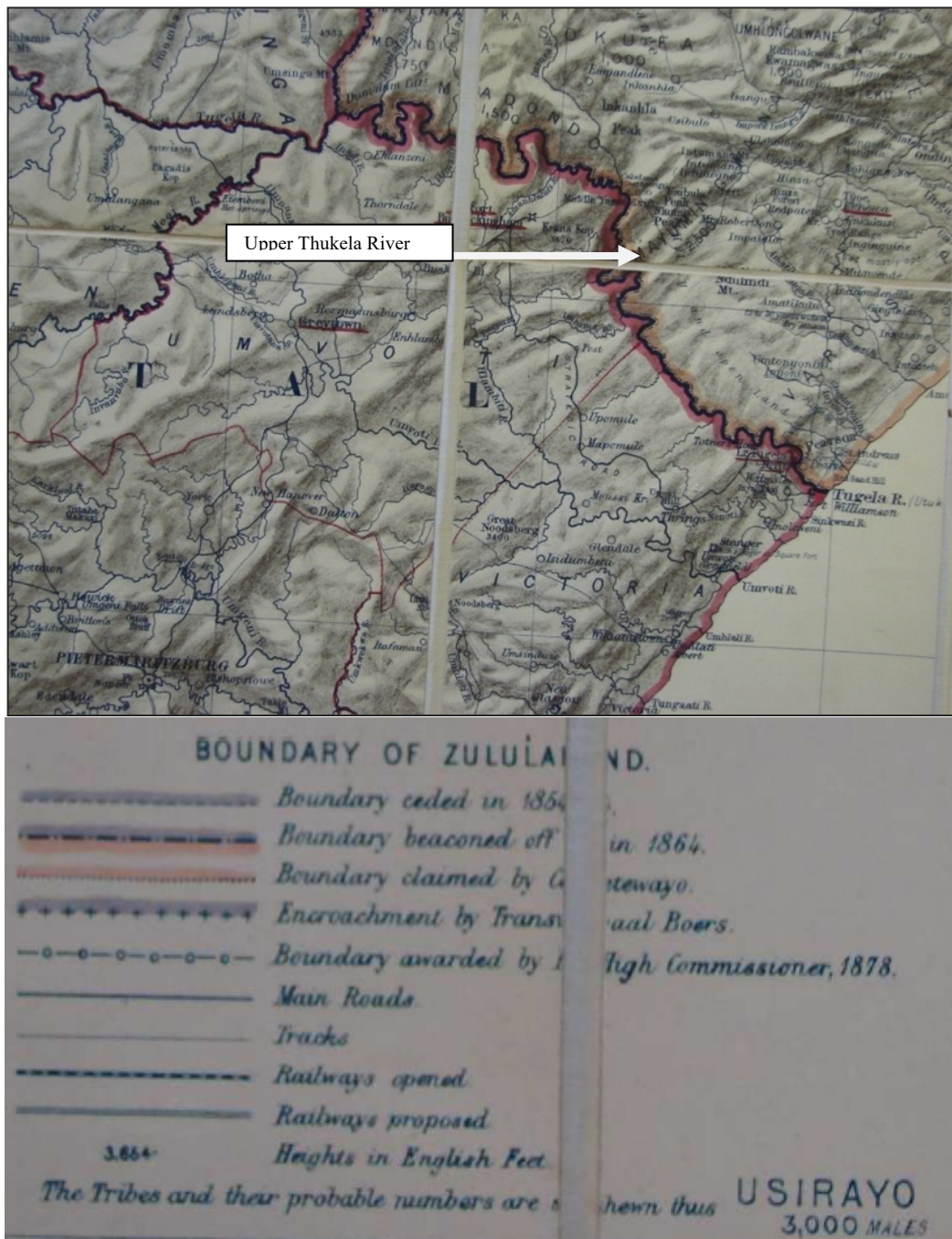


Figure 16- Map showing the Natal (south of Thukela River) and Zululand (north of Thukela River) Boundary, as well as the boundary proclaimed by King Cetshwayo in the 1870s when he became King. The first official proclamation of the boundary dividing Natal and Zululand took place in 1854 (note the map legends).

Stanford's Large Scale Map of Zulu Land with adjoining parts of Natal, Transvaal and Portuguese Africa, March 4th 1879 © Map Archives, Cullen Library, University of the Witwatersrand, Johannesburg, South Africa.

4.1.3 Zulu Civil War and the Split in the Royal House

Following the December 16, 1838 victory against Dingane, the Boers attempted to capture Dingane on numerous occasions, but their attempts were in vain on most of these occasions, in some cases with Dingane abandoning his royal homesteads and in some, with both sides failing to secure a clear and clean victory against one another until a **Peace Accord** was struck between the Zulu and the Boers, facilitated by the British in 1839 (Knight, 1998).

Some Zulu chiefs seem to no longer have had respect and trust for Dingane and his authority was questioned. This was followed by a split in the Royal House, with Prince Mpande KaSenzangakhona defecting to the south of uThukela River where his older brother, Shaka, had established the royal homestead previously. By now the battle for the soul of Zululand was within the Royal House until Mpande defeated Dingane in a civil war of 1840 in the Maqongqo Hills, assisted by Nongalaza kaNondela (a famous and brave Zulu warrior and chief) who had assisted Dingane on his Thukela River against the settlers and the Boers (Knight, 1998).

Following his defeat Dingane, fled to the northern borders on Zululand, in the Lebombo Mountains on the Swaziland border, where he tried to rebuild his kingdom with loyal followers who clung to him and where he later died. In the southern regions, the stronghold of the Zulu kingdom, Dingane was succeeded by his younger brother Mpande in February 1840.

Mpande had by now built relations with the Boers following his defeat of his older brother Dingane the year before. However, his assistance from the side of the Boers came at heavy price to him:

“In fact, the practical role played by the Trekkers in Dingane’s final defeat had been limited, but the price they demanded for it was high, and Mpande knew he dared [not] provoke them. The Trekkers appropriated thousands of head of cattle, and grandly extended their claim to Zulu territory up to the Mfolozi River, annexing nearly half of the kingdom – far more land, in fact, than there were farmers to occupy it. In the event, the Boers also had little time to enjoy this victory. In 1842, disturbed by the unsettling effects the Trekker policies were having in the region as a whole, British troops returned to Port Natal. Pretorius refused to accept their authority and fighting broke out on the fringe of the great lagoon. More troops were rushed up from the Cape, and the Trekkers resistance collapsed. Natal became a British Colony, and many Boers, disgusted by the prospects of living under British rule once more, trekked back across the mountains into the interior regions of the country”. (Knight, 1998).

After two decades of struggle, Natal had passed from nominal control of the Zulu kings to that of the Boers, and finally to the British. According to Knight (1998), this could, in logic, only mean one thing for the future, to bring all the three groups into further conflict. In the meantime, King Mpande agreed to fix the southern boundaries of the kingdom for the first time, in an accord signed by him and the British administration in Natal (**Figure 16**). This Anglo-Zulu accord

specified the Natal-Zulu border as the line of the Mziyathi and Thukela rivers- an agreement which allowed Mpande quietly to recover all the territory the Boers had extracted from him.

His reign as the Zulu King continued for another 30 years until his death in 1872, leaving the kingdom to Cetshwayo KaMpande.

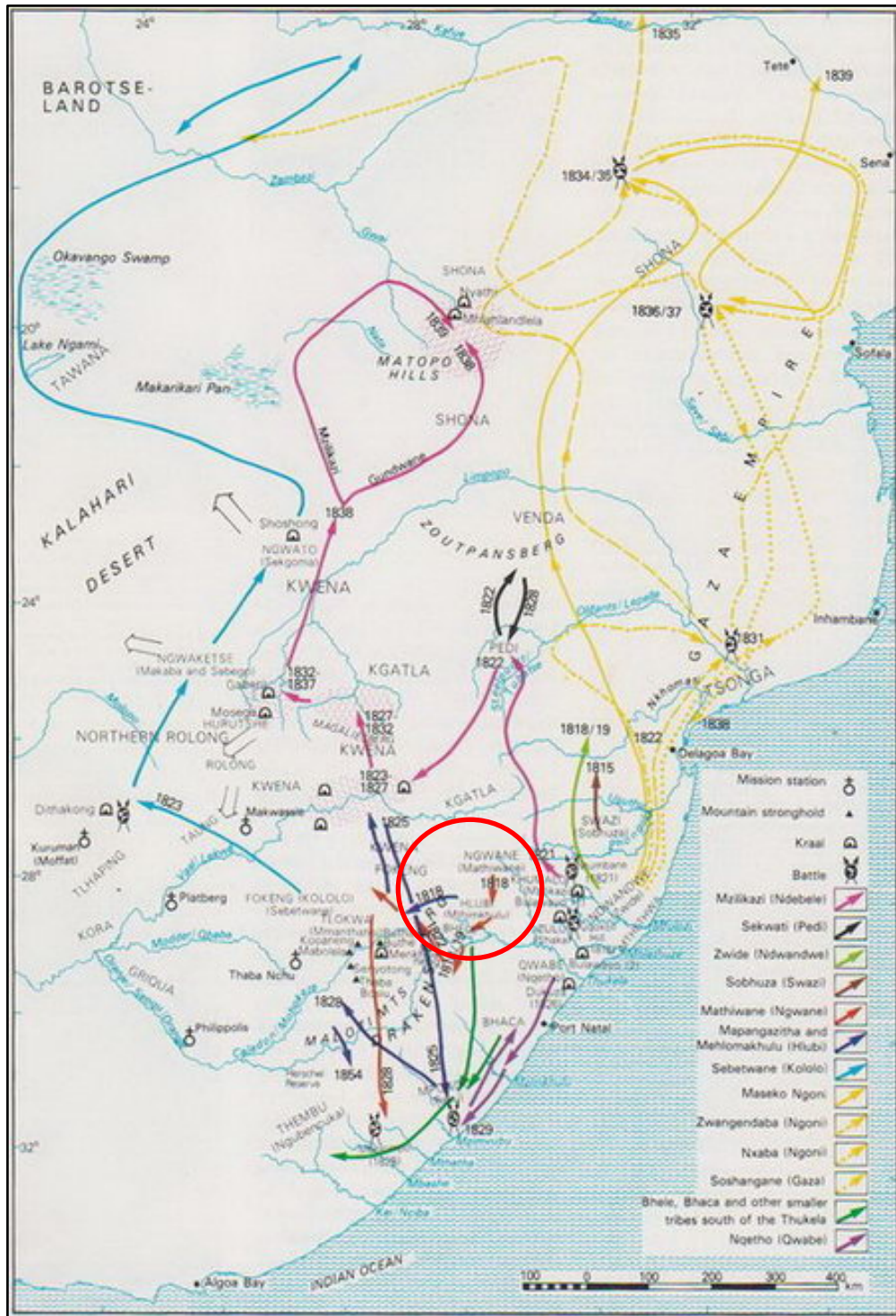


Figure 17 - Map indicating the movement of tribes between 1818 and 1835.

4.1.4 Colonial Settlement

Natal is named after the Portuguese word for Christmas which is Natal by Vasco da Gama who saw the coast in 1497. Since then it was occupied by Bantu-speakers until the arrival of the Trek Boers from the Cape Colony.

By 1832 the First Great Trek was under way. The Afrikaners were moving into the Orange Free State, the Transvaal, Mozambique and Natal. (Walker 1963). By 1824 the Trek Boers had been firmly entrenched in Natal where the British had set up a colony and had Anglican missionaries who were working with the ex-herders who had become mixed raiders such as Adam Kok, Andries Waterboer and Cornelius Kok to help set up mission stations and thus cement the presence of the British in their colonies (ibid.) .

However, by this point there began to be a dissatisfaction in the Boer ranks as people such as Piet Retief began to quarrel with other Trek Boers such as Potgieter and Piet Uys. Retief decided to go on his own with a few friends to Port Natal and see what opportunities there were to settle (ibid.). He befriended the Zulu chief Dingaan who promised to leave the Trekkers alone so long as they took back cattle which had been stolen by a rival chief. Retief promised to do so and returned to the Trekkers to give them the news that they could settle in Natal. However, he found that Uys and Potgieter had fought and beaten the Matabele who had retreated to southern Rhodesia as it was then known. This left the Highveld and the Orange Free State all the way to the Kalahari open for settlement (ibid.).

However, this frightened the Zulu king as the Matabele were Zulus like his own people. Dingaan. He pretended to befriend them by giving the Trekkers land between the Tugela and Umzimvubu Rivers, and then enticed the Trekkers unarmed into his presence and slaughtered them all.(ibid.)

What followed was the beginnings of the famous Battle of Blood River. On the 6 of February 1838 Dingaan attacked several Trekker's laagers around the river of Umgungundlovu killing approximately 500 women, children and servants (<http://www.info.gov.za/aboutsa/holidays.htm#16december>), mostly at Bloukrans.

In retaliation, on the 15th December 1838 the Trekker wagons crossed the Buffalo River close to Newcastle under the command of Pretorius. (<http://www.info.gov.za/aboutsa/holidays.htm#16december>.) They went to the Ncome River where the Zulu troops were waiting for them. On the 16th of December the war ensued and it ended with over 3000 Zulus dead and only three Trekkers wounded (<http://www.info.gov.za/aboutsa/holidays.htm#16december>).

The Boers then established a republic in Natal. It was part of a short lived Boer republic between 1839 and 1843 until it was annexed by Britain. (Walker 1963). The area was replaced by immigrants from the Cape, and those from Britain. From 1860 onwards many slaves were brought over from India and this caused a significant development in the Indian population in the area.

The colony acquired Zululand after the Zulu War of 1879 (ibid.) and subsequently added the lands north of the Buffalo River near Newcastle to the Colony in 1902. (ibid.).

4.1.5 *The South African Wars*

Although there is much information about the establishment of the province of Natal, pointing out the small parts of the Newcastle and thus Ngagane area took part in, this report now focuses only on the part played by Newcastle in the South African Wars.

The town of Newcastle seems to have played a vital part in the South African Wars since it was on the main road from Transvaal to Natal (Kinsey 1974). Fort Ameil, built on the outskirts of Newcastle became an important resting place for troops during the war (ibid). However, it was also an important strategic town due to its positioning since it could be used to protect Natal from advancing Boer forces (Gaigher 2011).

The Illustrated London News (1879) stated that Newcastle had been turned into a large military camp being almost halfway between Pretoria and Natal and that it was one of the largest stores of supplies and ammunition. Troops were constantly moving back and forward through the town thus requiring a large staff to attend to their needs.

Moreover, the Illustrated London News (ibid.) also noted that at Newcastle a permanent lager existed supplying all public institutions such as a post office and law courts. Newcastle was also a second line of defence after Dundee, Doornberg and Conference Hill (ibid.) However; Newcastle was not of much military interest. It was more a convalescent station for various General's columns (ibid.)

Many officers noted that the town was not a safe place to stay and that many felt threatened during their stay there (ibid.). The place was also riddled with enteric fever which is attested to by the number of grave sites which can be found around the cemetery outside the town.

During the Second-South African War Newcastle suffered some terrible onslaughts. On October 13th 1899 the town was completely overtaken by Boer Commandos and almost no British inhabitants were to be found anywhere (Maurice: 78 – 79). The Boers continued to Dundee, seemingly wanting to break the British strong hold over the main line between Pretoria and Natal.

It seems that Newcastle changed hands a few times during the war and was subject to much fighting and skirmishes (Maurice)

This short study has shown that there are many facets to the general project area and surrounds which are important for archaeology and history in South Africa. Although it has mostly focused on Newcastle as that is the town and area where the project area is found, it reflects the general importance of the place in the larger archaeological and historical context of the area.

5 FIELDWORK AND FINDINGS

A controlled surface survey was conducted on foot and by vehicle over a period of one day by one heritage specialist from PGS. The fieldwork was conducted on 15 October 2019. The track logs (in red) for the survey are indicated in Figure 18.

No heritage resources were identified during the field work.



Figure 18 - Fieldwork tracklogs

6 PALAEOLOGY

During the field work no geological outcrops were observed to determine the localized geology of the site.

A basic palaeontological sensitivity was determined using the palaeosensitivity map on the SAHRIS database (South African Heritage Resources Information System) (<http://www.sahra.org.za/sahris/map/palaeo>). Groenewald (2012) indicates that the area is underlain by shale and sandstone of the Ecca group. As can be seen in **Figure 19**, the proposed area of the project footprint occurs in an area where the palaeontology is assessed as being entirely of high sensitivity indicating the need for a field assessment and finds protocol (Refer to **Appendix D** for the finds protocol).



Figure 19 – Overlay of the Thembinkosi school on the palaeosensitivity map from the SAHRIS database. This shows that most of the area is coloured red indicating a very high sensitivity.

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

Figure 20 - SAHRIS palaeosensitivity ratings table

7 IMPACT ASSESSMENT

The following section provides the impact of the proposed development on identified heritage resources.

7.1 Methodology for determining the Significance of Environmental Impacts

This part of the document focuses on the identification of the major potential impacts the activities, processes and actions may have on the surrounding environment.

The impact significance rating process serves two purposes: firstly, it helps to highlight the critical impacts requiring consideration in the management and approval process; secondly, it shows the primary impact characteristics, as defined above, used to evaluate impact significance.

The impact significance rating system is presented in **Table 2** and involves three parts:

- **Part A:** Define impact consequence using the three primary impact characteristics of magnitude, spatial scale/ population and duration;
- **Part B:** Use the matrix to determine a rating for impact consequence based on the definitions identified in Part A; and
- **Part C:** Use the matrix to determine the impact significance rating, which is a function of the impact consequence rating (from **Part B**) and the probability of occurrence.

Table 2 - Impact significance rating system

PART A: DEFINING CONSEQUENCE IN TERMS OF MAGNITUDE, DURATION AND SPATIAL SCALE <i>Use these definitions to define the consequence in Part B</i>		
Impact characteristics	Definition	Criteria
MAGNITUDE	Major -	Substantial deterioration or harm to receptors; receiving environment has an inherent value to stakeholders; receptors of impact are of conservation importance; or identified threshold often exceeded
	Moderate -	Moderate/measurable deterioration or harm to receptors; receiving environment moderately sensitive; or identified threshold occasionally exceeded
	Minor -	Minor deterioration (nuisance or minor deterioration) or harm to receptors; change to receiving environment not measurable; or identified threshold never exceeded
	Minor +	Minor improvement; change not measurable; or threshold never exceeded
	Moderate +	Moderate improvement; within or better than the threshold; or no observed reaction
	Major +	Substantial improvement; within or better than the threshold; or favourable publicity
SPATIAL SCALE OR POPULATION	Site or local	Site specific or confined to the immediate project area
	Regional	May be defined in various ways, e.g. cadastral, catchment, topographic

	National/ International	Nationally or beyond			
DURATION	Short term	Up to 18 months.			
	Medium term	18 months to 5 years			
	Long term	Longer than 5 years			
PART B: DETERMINING CONSEQUENCE RATING					
<i>Rate consequence based on definition of magnitude, spatial extent and duration</i>					
		SPATIAL SCALE/ POPULATION			
		Site or Local	Regional	National/ international	
MAGNITUDE					
Minor	DURATION	Long term	Medium	Medium	High
		Medium term	Low	Low	Medium
		Short term	Low	Low	Medium
Moderate	DURATION	Long term	Medium	High	High
		Medium term	Medium	Medium	High
		Short term	Low	Medium	Medium
Major	DURATION	Long term	High	High	High
		Medium term	Medium	Medium	High
		Short term	Medium	Medium	High
PART C: DETERMINING SIGNIFICANCE RATING					
<i>Rate significance based on consequence and probability</i>					
		CONSEQUENCE			
		Low	Medium	High	
PROBABILITY (of exposure to impacts)	Definite	Medium	Medium	High	
	Possible	Low	Medium	High	
	Unlikely	Low	Low	Medium	

7.2 Heritage Impacts

No heritage resources were identified during the field work and no impact is expected. Possible subsurface chance finds will have a post-mitigation impact rating of low negative.

7.3 Palaeontological Impacts

As noted in Section 5 above, the school occur in an area where the palaeontology is assessed as being almost entirely of high sensitivity. Deep excavations are not anticipated, and impacts will be managed through the chance finds protocol in **Appendix D** and having a post-mitigation impact rating of low negative.

7.4 Impact Assessment Table

Table 3 - Impact Assessment Table

N o .	Affected Environment	Activity	Impact Description	BEFORE MITIGATION					Cumulative Impact	Mitigation measures / Recommendations	AFTER MITIGATION						
				Magnitude	Duration	Spatial Scale	Consequence	Probability			SIGNIFICANCE	Magnitude	Duration	Spatial Scale	Consequence	Probability	SIGNIFICANCE
	Construction																
1	Chance finds	Construction	Discovery of subsurface artefacts during trenching	Mode rate -	Long Term > 5 years	Site or Local	Medium	Unlikely	Low	No	Implement CFP	Minor +	Short Term < 18 months	Site or Local	Low	Unlikely	Low
2	Palaeontological finds	Construction	Discovery of fossils during trenching	Mode rate -	Long Term > 5 years	Site or Local	Medium	Possible	Medium	No	Implement CFP	Minor +	Short Term < 18 months	Site or Local	Low	Unlikely	Low

7.5 Management recommendations and guidelines

7.5.1 Construction phase

The project will encompass a range of activities during the construction phase, including ground clearance, establishment of construction camp areas and small-scale infrastructure development associated with the project.

It is possible that cultural material will be exposed during construction and may be recoverable, keeping in mind delays can be costly during construction and as such must be minimised. Development surrounding infrastructure and construction of facilities results in significant disturbance, however foundation holes do offer a window into the past and it thus may be possible to rescue some of the data and materials. It is also possible that substantial alterations will be implemented during this phase of the project and these must be catered for. Temporary infrastructure developments, such as construction camps and laydown areas, are often changed or added to the project as required. In general, these are low impact developments as they are superficial, resulting in little alteration of the land surface, but still need to be catered for.

During the construction phase, it is important to recognize any significant material being unearthed, making the correct judgment on which actions should be taken. It is recommended that the following chance find procedure should be implemented.

7.5.2 Chance find procedure

- An appropriately qualified heritage practitioner / archaeologist must be identified to be called upon in the event that any possible heritage resources or artefacts are identified.
- Should an archaeological site or cultural material be discovered during construction (or operation), the area should be demarcated and construction activities halted.
- The qualified heritage practitioner / archaeologist will then need to come out to the site and evaluate the extent and importance of the heritage resources and make the necessary recommendations for mitigating the find and the impact on the heritage resource.
- The contractor therefore should have some sort of contingency plan so that operations could move elsewhere temporarily while the materials and data are recovered.
- Construction can commence as soon as the site has been cleared and signed off by the heritage practitioner / archaeologist.

7.5.3 Possible finds during construction and operation (mining activities)

The study area occurs within a greater historical and archaeological site as identified during the desktop and fieldwork phase. Soil clearance for infrastructure as well as the proposed reclamation activities, could uncover the following:

- stone foundations;
- ash middens associated with the historical structures that can contain bone, glass and clay ceramics, ash, metal objects such as spoons, forks, and knives.
- unmarked graves
- Timeframes

It must be kept in mind that mitigation and monitoring of heritage resources discovered during construction activity will require permitting for collection or excavation of heritage resources and lead times must be worked into the construction time frames. **Table 4** gives guidelines for lead times on permitting.

Table 4 - Lead times for permitting and mobilisation

Action	Responsibility	Timeframe
Preparation for field monitoring and finalisation of contracts	The contractor and service provider	1 month
Application for permits to do necessary mitigation work	Service provider – Archaeologist and SAHRA	3 month
Documentation, excavation and archaeological report on the relevant site	Service provider – Archaeologist	3 months
Handling of chance finds – Graves/Human Remains	Service provider – Archaeologist and SAHRA	2 weeks
Relocation of burial grounds or graves in the way of construction	Service provider – Archaeologist, SAHRA, local government and provincial government	6 months

8 CONCLUSIONS

During the field work no heritage resources were identified. The area is indicated to be underlain by sandstone and shale from the Ecca group that can potentially contain fossil traces.

8.1 Heritage Impacts

No heritage resources were identified during the field work and no impact is expected. Possible subsurface chance finds will have a post-mitigation impact rating of low negative.

8.2 Palaeontological Impacts

As noted in Section 5 above, the school occur in an area where the palaeontology is assessed as being almost entirely of high sensitivity. Deep excavations are not anticipated, and impacts will be managed through the chance finds protocol in **Appendix D** and having a post-mitigation impact rating of low negative

General

It is the author's considered opinion that overall impact on heritage resources is Low. Provided that the recommended mitigation measures are implemented, the impact would be acceptably low or could be totally mitigated to the degree that the project could be approved from a heritage perspective. The management and mitigation measures as described in Section 6 of this report have been developed to minimise the project impact on heritage resources

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Heritage Assessment Methodology

The applicable maps, tables and figures, are included as stipulated in the NHRA (no 25 of 1999), the NEMA (no 107 of 1998). The HIA process consisted of three steps:

Step I – Literature Review: The background information to the field survey relies greatly on the Heritage Background Research.

Step II – Physical Survey: A physical survey was conducted by vehicle through the proposed project area by a qualified heritage specialist. The survey was conducted over one day (15 October 2019), aimed at locating and documenting sites falling within and adjacent to the proposed development footprint.

Step III – The final step involved the recording and documentation of relevant archaeological resources, the assessment of resources in terms of the HIA criteria and report writing, as well as mapping and constructive recommendations.

The significance of heritage sites was based on four main criteria:

- Site integrity (i.e. primary vs. secondary context),
- Amount of deposit, range of features (e.g., stonewalling, stone tools and enclosures),
- Density of scatter (dispersed scatter)
 - Low - <10/50m²
 - Medium - 10-50/50m²
 - High - >50/50m²
- Uniqueness; and
- Potential to answer present research questions.

Management actions and recommended mitigation, which will result in a reduction in the impact on the sites, will be expressed as follows:

- A - No further action necessary;
- B - Mapping of the site and controlled sampling required;
- C - No-go or relocate development activity position;
- D - Preserve site, or extensive data collection and mapping of the site; and
- E - Preserve site.

Impacts on these sites by the development will be evaluated as follows:

Site Significance

Site significance classification standards use is based on the heritage classification of s3 in the NHRA and developed for implementation keeping in mind the grading system approved by SAHRA for archaeological impact assessments. The update classification and rating system as developed by Heritage Western Cape (2016) is implemented in this report

Site significance classification standards prescribed by the Heritage Western Cape Guideline (2016), were used for the purpose of this report (Table A 1 and Table A 2).

Table A 1: Rating system for archaeological resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Langebaanweg (West Coast Fossil Park), Cradle of Humankind	May be declared as a National Heritage Site managed by SAHRA. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Highest Significance
II	Heritage resources with special qualities which make them significant, but do not fulfil the criteria for Grade I status. Current examples: Blombos, Paternoster Midden.	May be declared as a Provincial Heritage Site managed by HWC. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	Exceptionally High Significance
III	Heritage resources that contribute to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. Current examples: Varschedrift; Peers Cave; Brobartia Road Midden at Bettys Bay	Resource must be retained. Specific mitigation and scientific investigation can be permitted in certain circumstances with sufficient motivation.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree.	Resource must be retained where possible where not possible it must be fully investigated and/or mitigated.	Medium Significance
IIIC	Such a resource is of contributing significance.	Resource must be satisfactorily studied before impact. If the recording already done (such as in an HIA or permit application) is not sufficient, further recording or even mitigation may be required.	Low Significance
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant or the consultant and approved by the authority.	No research potential or other cultural significance

Table A 2: Rating system for built environment resources

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
I	Heritage resources with qualities so exceptional that they are of special national significance. Current examples: Robben Island	May be declared as a National Heritage Site managed by SAHRA.	Highest Significance
II	Heritage resources with special qualities which make them significant in the context of a province or region, but do not fulfil the criteria for Grade I status. Current examples: St George's Cathedral, Community House	May be declared as a Provincial Heritage Site managed by HWC.	Exceptionally High Significance
II	Such a resource contributes to the environmental quality or cultural significance of a larger area and fulfils one of the criteria set out in section 3(3) of the Act but that does not fulfil the criteria for Grade II status. Grade III sites may be formally protected by placement on the Heritage Register.		
IIIA	Such a resource must be an excellent example of its kind or must be sufficiently rare. These are heritage resources which are significant in the context of an area.	This grading is applied to buildings and sites that have sufficient intrinsic significance to be regarded as local heritage resources; and are significant enough to warrant that any alteration, both internal and external, is regulated. Such buildings and sites may be representative, being excellent examples of their kind, or may be rare. In either case, they should receive maximum protection at local level.	High Significance
IIIB	Such a resource might have similar significances to those of a Grade III A resource, but to a lesser degree. These are heritage resources which are significant in the context of a townscape, neighbourhood, settlement or community.	Like Grade IIIA buildings and sites, such buildings and sites may be representative, being excellent examples of their kind, or may be rare, but less so than Grade IIIA examples. They would receive less stringent protection than Grade IIIA buildings and sites at local level.	Medium Significance
IIIC	Such a resource is of contributing significance to the environs These are heritage resources which are significant in the context of a streetscape or direct neighborhood.	This grading is applied to buildings and/or sites whose significance is contextual, i.e. in large part due to its contribution to the character or significance of the environs. These buildings and sites should, as a consequence, only be regulated if the significance of the environs	Low Significance

Grading	Description of Resource	Examples of Possible Management Strategies	Heritage Significance
		is sufficient to warrant protective measures, regardless of whether the site falls within a Conservation or Heritage Area. Internal alterations should not necessarily be regulated.	
NCW	A resource that, after appropriate investigation, has been determined to not have enough heritage significance to be retained as part of the National Estate.	No further actions under the NHRA are required. This must be motivated by the applicant and approved by the authority. Section 34 can even be lifted by HWC for structures in this category if they are older than 60 years.	No research potential or other cultural significance

The Significance Rating Scales for the Proposed Prospecting Activities on Heritage Resources

The impact significance rating process serves two purposes: firstly, it helps to highlight the critical impacts requiring consideration in the management and approval process; secondly, it shows the primary impact characteristics, as defined above, used to evaluate impact significance.

The impacts will be ranked according to the methodology described below. Where possible, mitigation measures will be provided to manage impacts. In order to ensure uniformity, a standard impact assessment methodology will be utilised so that a wide range of impacts can be compared with each other. The impact assessment methodology makes provision for the assessment of impacts against the following criteria:

Significance;
Spatial scale;
Temporal scale;
Probability; and
Degree of certainty.

A combined quantitative and qualitative methodology was used to describe impacts for each of the aforementioned assessment criteria. A summary of each of the qualitative descriptors along with the equivalent quantitative rating scale for each of the aforementioned criteria is given in **(Table A 3)**

Part A: Define impact consequence using the three primary impact characteristics of magnitude, spatial scale/ population and duration;

Part B: Use the matrix to determine a rating for impact consequence based on the definitions identified in Part A; and

Part C: Use the matrix to determine the impact significance rating, which is a function of the impact consequence rating (from **Part B**) and the probability of occurrence.

Table A 3 - Significance Rating Methodology

PART A: DEFINING CONSEQUENCE IN TERMS OF MAGNITUDE, DURATION AND SPATIAL SCALE <i>Use these definitions to define the consequence in Part B</i>					
Impact characteristics	Definition	Criteria			
MAGNITUDE	Major -	Substantial deterioration or harm to receptors; receiving environment has an inherent value to stakeholders; receptors of impact are of conservation importance; or identified threshold often exceeded			
	Moderate -	Moderate/measurable deterioration or harm to receptors; receiving environment moderately sensitive; or identified threshold occasionally exceeded			
	Minor -	Minor deterioration (nuisance or minor deterioration) or harm to receptors; change to receiving environment not measurable; or identified threshold never exceeded			
	Minor +	Minor improvement; change not measurable; or threshold never exceeded			
	Moderate +	Moderate improvement; within or better than the threshold; or no observed reaction			
	Major +	Substantial improvement; within or better than the threshold; or favourable publicity			
SPATIAL SCALE OR POPULATION	Site or local	Site specific or confined to the immediate project area			
	Regional	May be defined in various ways, e.g. cadastral, catchment, topographic			
	National/ International	Nationally or beyond			
DURATION	Short term	Up to 18 months.			
	Medium term	18 months to 5 years			
	Long term	Longer than 5 years			
PART B: DETERMINING CONSEQUENCE RATING <i>Rate consequence based on definition of magnitude, spatial extent and duration</i>					
			SPATIAL SCALE/ POPULATION		
			Site or Local	Regional	National/ international
MAGNITUDE					
Minor	DURATION	Long term	Medium	Medium	High
		Medium term	Low	Low	Medium
		Short term	Low	Low	Medium
Moderate	DURATION	Long term	Medium	High	High
		Medium term	Medium	Medium	High
		Short term	Low	Medium	Medium
Major	DURATION	Long term	High	High	High
		Medium term	Medium	Medium	High
		Short term	Medium	Medium	High
PART C: DETERMINING SIGNIFICANCE RATING <i>Rate significance based on consequence and probability</i>					
			CONSEQUENCE		
			Low	Medium	High
PROBABILITY (of exposure to	Definite		Medium	Medium	High

impacts)	Possible	Low	Medium	High
	Unlikely	Low	Low	Medium

WOUTER FOURIE

Professional Heritage Specialist and Professional Archaeologist and Director PGS Heritage

Summary of Experience

Specialised expertise in Archaeological Mitigation and excavations, Cultural Resource Management and Heritage Impact Assessment Management, Archaeology, Anthropology, Applicable survey methods, Fieldwork and project management, Geographic Information Systems, including *inter alia* -

Involvement in various grave relocation projects (some of which relocated up to 1000 graves) and grave “rescue” excavations in the various provinces of South Africa

Involvement with various Heritage Impact Assessments, within South Africa, including -

- Archaeological Walkdowns for various projects
- Phase 2 Heritage Impact Assessments and EMPs for various projects
- Heritage Impact Assessments for various projects
 - Iron Age Mitigation Work for various projects, including archaeological excavations and monitoring
 - Involvement with various Heritage Impact Assessments, outside South Africa, including -
- Archaeological Studies in Democratic Republic of Congo
- Heritage Impact Assessments in Mozambique, Botswana and DRC
- Grave Relocation project in DRC

Key Qualifications

BA [Hons] (Cum laude) - Archaeology and Geography - 1997

BA - Archaeology, Geography and Anthropology - 1996

Professional Archaeologist - Association of Southern African Professional Archaeologists (ASAPA)
- Professional Member

Accredited Professional Heritage Specialist – Association of Professional Heritage Practitioners (APHP)

CRM Accreditation (ASAPA) -

- Principal Investigator - Grave Relocations
- Field Director – Iron Age
- Field Supervisor – Colonial Period and Stone Age
- Accredited with Amafa KZN

Key Work Experience

Thembinkosi Primary School - HIA Report

4 November 2019

2003- current - Director – Professional Grave Solutions (Pty) Ltd

2007 – 2008 - Project Manager – Matakoma-ARM, Heritage Contracts Unit, University of the Witwatersrand

2005-2007 - Director – Matakoma Heritage Consultants (Pty) Ltd

2000-2004 - CEO– Matakoma Consultants

1998-2000 - Environmental Coordinator – Randfontein Estates Limited. Randfontein, Gauteng

1997-1998 - Environmental Officer – Department of Minerals and Energy. Johannesburg, Gauteng

Worked on various heritage projects in the SADC region including, Botswana, Mozambique, Malawi, Mauritius , Zimbabwe and the Democratic Republic of the Congo

Appendix D
Palaeontological Chance finds protocol

1 LEGISLATION

Cultural Heritage in South Africa (includes all heritage resources) is protected by the **National Heritage Resources Act (Act 25 of 1999) (NHRA)**. According to Section 3 of the Act all Heritage resources include “**all objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens**”.

Palaeontological heritage is unique and non-renewable and is protected by the NHRA and are the property of the State. It is thus the responsibility of the State to manage and conserve fossils on behalf of the citizens of South Africa. Palaeontological resources may not be excavated, broken, moved, or destroyed by any development without prior assessment and without a permit from the relevant heritage resources authority as per section 35 of the NHRA.

1.1 Background

A fossil is the naturally preserved remains (or traces) of plants or animals embedded in rock. These plants and animals lived in the geologic past millions of years ago. Fossils are extremely rare and irreplaceable. By studying fossils it is possible to determine the environmental conditions that existed in a specific geographical area millions of years ago.

1.2 Introduction

This informational document is intended for workmen and foremen on construction sites. It describes the actions to be taken when mining or construction activities accidentally uncovers fossil material.

It is the responsibility of the Environmental Control Officer (ECO) of the project to train the workmen and foremen in the procedure to follow when a fossil is accidentally uncovered. In the absence of the ECO a member of the staff must be appointed to be responsible for the proper implementation of the chance find protocol as not to compromise the conservation of fossil material.

1.3 Chance Finds Procedure

- If a chance find is made the person responsible for the find must immediately **stop working** and all work must cease in the immediate vicinity of the find.
- The person who made the find must immediately **report** the find to his/her direct supervisor which in turn must report the find to his/her manager and the ECO or site manager. The ECO must report the find to the relevant Heritage Agency (Amafa). (Contact details: Amafa Pietermaritzburg Office. Tel; 0333 946543 or email: lindim@amafapmb.co.za). The

information to the Heritage Agency must include photographs of the find, from various angles, as well as the GPS co-ordinates.

- A preliminary report must be submitted to the Heritage Agency within **24 hours** of the find and must include the following: 1) date of find; 2) a description of the discovery and a 3) description of the fossil and its context (depth and position of the fossil), GPS co-ordinates.
- Photographs (the more the better) of the discovery must be of high quality, in focus, accompanied by a scale. It is also important to have photographs of the vertical section (side) where the fossil was found.

Upon receipt of the preliminary report the Heritage Agency will inform the ECO (or site manager) whether a rescue excavation or rescue collection by a palaeontologist is necessary.

- The site must be secured to protect it from any further damage. **No attempt** should be made to remove material from their environment. The exposed finds must be stabilized and covered by a plastic sheet or sand bags. The Heritage agency will also be able to advice on the most suitable method of protection of the find.
- In the event that the fossil cannot be stabilized the fossil may be collected with extreme care by the ECO (or site manager). Fossils finds must be stored in tissue paper and in an appropriate box while due care must be taken to remove all fossil material from the rescue site.
- Once Heritage Agency have issued written authorization, the developer may continue with the development.