
PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**THE NCORA SAND MINE,
(CLUSTER 4 NCORA WATER SUPPLY SCHEME),
NCORA, CHDM, EASTERN CAPE, SOUTH AFRICA**

DATE: 2011-11-18



REPORT TO:

BRENDON STEYTLER (Indwe Environmental Consulting)

Tel: 083 766 7514; Fax: 086 513 9734;

Postal Address: 9 Tainton Avenue, Bonnie Doone, 5241;

E-mail: indwecon@telkomsa.net

MARIAGRAZIA GALIMBERTI (South African Heritage Resources Agency – SAHRA, APM Unit)

Tel: 021 462 4505; Fax: 021 462 4509;

Postal Address: P.O. Box 4637, Cape Town, 8000;

E-mail: mgalimberty@sahra.org.za

PREPARED BY:

KAREN VAN RYNEVELD (ArchaeoMaps Archaeological Consultancy)

Tel: 084 871 1064; Fax: 086 515 6848;

Postnet Suite 239, Private Bag X3, Beacon Bay, 5205;

E-mail: kvanryneveld@gmail.com

**PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT
THE NCORA SAND MINE (CLUSTER 4 NCORA WATER SUPPLY SCHEME),
NCORA, CHDM, EASTERN CAPE, SOUTH AFRICA**

EXECUTIVE SUMMARY

TERMS OF REFERENCE:

Indwe Environmental Consulting has been appointed by the project proponent, the CHDM, to apply for a Mining Right to excavate alluvial sand (the *Ncora Sand Mine*) to be used as construction material as part of the *Cluster 4 Ncora Water Supply Scheme*. The Mining Right application will conform to legislative requirements as contained in Section 22(4) of the MPRDA 2002. ArchaeoMaps was appointed by Indwe to prepare the Phase 1 AIA for the proposed *Ncora Sand Mine* development's EMP.

THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT:

PROJECT AREA: Approximate 2.5ha *Ncora Sand Mine* – S31°49'35.0"; E27°44'08.0" [1:50,000 map ref – 3127DC].

GAP ANALYSIS: Phase 1 AIA assessment covered an approximate 26ha area to accommodate the proposed 2.5ha development.

METHODOLOGY: One day field assessment; GPS co-ordinates – Garmin Oregon 550; Photographic documentation – Pentax K20D. Archaeological and cultural heritage site significance assessment and mitigation recommendations – SAHRA 2007 system.

SUMMARY: No archaeological or cultural heritage resources, as defined and protected under the NHRA 1999, were identified during the Phase 1 AIA.

Code	Development	Area	Co-ordinates	Recommendations
Ncora BP	Ncora Sand Mine	2.5ha	S31°49'35.0; E27°44'08.0"	N/A

RECOMMENDATIONS:

It is recommended that the proposed development, the *Ncora Sand Mine*, to be situated near the village of KwaMzola in the CHDM area of the Eastern Cape proceeds as applied for without the developer having to comply with additional cultural heritage compliance requirements.

PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**THE NCORA SAND MINE
(CLUSTER 4 NCORA WATER SUPPLY SCHEME),
NCORA, CHDM, EASTERN CAPE, SOUTH AFRICA**

CONTENTS

1) TERMS OF REFERENCE	3
❖ Development Location, Details & Impact	3
2) THE ARCHAEOLOGICAL IMPACT ASSESSMENT	11
❖ Archaeological Legislative Compliance	11
❖ Methodology & Assessor Accreditation	11
❖ Coverage and Gap Analysis	12
2.1) PRE-FEASIBILITY ASSESSMENT	13
2.2) THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT	15
❖ Ncora Sand Mine (Ncora BP) - S31°49'35.0"; E27°44'08.0"	15
3) CONCLUSION AND RECOMMENDATIONS	19
4) REFERENCES	20

APPENDIX - A:

Introduction to the Archaeology of South Africa

APPENDIX - B:

Extracts from the National Heritage Resources Act (No 25 of 1999)

LIST OF FIGURES

Figure 1: General locality of KwaMzola in the Eastern Cape	4
Figure 2: Locality of the <i>Ncora Sand Mine</i> (borrow pit) in relation to the village of KwaMzola – 1	4
Figure 3: Locality of the <i>Ncora Sand Mine</i> (borrow pit) in relation to the village of KwaMzola – 2	5
Figure 4: Phase 1 AIA assessment findings – <i>Ncora Sand Mine</i> (Ncora BP)	15
Figure 5: The <i>Ncora Sand Mine</i> study site: Thick grass cover characterizing the portion north of the access road	16
Figure 6: The <i>Ncora Sand Mine</i> study site: General view of the area south of the access road	17
Figure 7: The <i>Ncora Sand Mine</i> study site: Exposed surface areas towards the south west of the assessment area	17
Figure 8: Large scale exposed sections of the Tsomo River, along the northern part of the study site	17
Figure 9: Erosion sections in excess of 5+m along the banks of the Tsomo River, south of the access road	18
Figure 10: The TP1 test pit with an average depth of about 1m	18
Figure 11: The TP3 erosion area with an exposed section of approximately 1.5m in height	18

LIST OF TABLES

Table 1: SAHRA archaeological and cultural heritage site significance assessment	11
Table 2: Development and Phase 1 AIA assessment findings – co-ordinate details	19

1) TERMS OF REFERENCE

Indwe Environmental Consulting has been appointed by the project proponent, the Chris Hani District Municipality (CHDM), to apply for a Mining Right to excavate alluvial sand (the *Ncora Sand Mine*) to be used as construction material as part of the *Cluster 4 Ncora Water Supply Scheme*. The Mining Right application will conform to legislative requirements as contained in Section 22(4) of the Minerals and Petroleum Resources Development Act, No 28 of 2002 (MPRDA 2002). The approximate 2.5ha *Ncora Sand Mine* study site is situated at S31°49'35.0"; E27°44'08.0", on the western bank of the Tsomo River within the Chris Hani District municipal area of the Eastern Cape.

ArchaeoMaps Archaeological Consultancy was appointed by Indwe Environmental Consulting to prepare the Phase 1 Archaeological Impact Assessment (AIA) for the proposed *Ncora Sand Mine* development's Environmental Management Program (EMP).

❖ *Development Location, Details & Impact*

The *Ncora Sand Mine* study site is situated at S31°49'35.0"; E27°44'08.0" [1:50,000 map ref – 3127DC] (roughly 80km east of Queenstown and 100km south south west of Umtata) on the western bank of the Tsomo River near the village of KwaMzola, within the Intsika Yethu Local Municipality which is located within the south eastern section of the Chris Hani District municipal area (Indwe 2011).

The site's current land use is that of communal ground which has previously been cultivated (Indwe 2011).

The proposed *Ncora Sand Mine* development will focus on the excavation and removal of alluvial sand to an estimated depth of 3m. Sand will be used as construction and pipeline bedding material for part of the *Cluster 4 Ncora Bulk Water Supply Scheme*, for the construction of a water treatment works at Ncora Dam and the construction of bulk water pipelines. It is estimated that the total amount of sand required for the project (15 years) would be about 70,000m³ which equates to a surface area of approximately 2.5ha. The initial phases of the project are expected to last between 5-7 years and the quantity of sand required would be 30,000m³ (Indwe 2011).

The *Ncora Sand Mine* will be situated above the 1:50 year flood line of the Tsomo River. Mined areas will be systematically rehabilitated over the lifetime of the project. Use of the site will be supervised by engineers appointed by the CHDM and material will only be used for this project (Indwe 2011).

It is intended that the proposed *Ncora Sand Mine* will serve the CHDM *Cluster 4 Ncora Water Supply Scheme*. The Cluster 4 water backlog project is divided into 3 sub-projects namely the *Ncora water project*, the *northern project* and the *north eastern project*. The primary purpose of these sub-projects is to supply bulk water from the Ncora Dam to the surrounding villages to provide a reliable water supply. The proposed *Ncora Sand Mine* (borrow pit) is central to the project and will reduce the impacts of local sourcing of material (Indwe 2011).



Figure 1: General locality of KwaMzola in the Eastern Cape



Figure 2: Locality of the Ncora Sand Mine (borrow pit) in relation to the village of KwaMzola – 1



Figure 3: Locality of the *Ncora Sand Mine* (borrow pit) in relation to the village of KwaMzola – 2

2) THE ARCHAEOLOGICAL IMPACT ASSESSMENT

❖ *Archaeological Legislative Compliance*

The Phase 1 Archaeological Impact Assessment (AIA) was done for purposes of compliance to the South African Heritage Resources Agency (SAHRA) requirements in terms of the National Heritage Resources Act, No 25 of 1999 (NHRA 1999), with specific reference to Section 38.

The Phase 1 AIA was requested as specialist sub-section with findings and recommendations thereto to be included in the Environmental Management Program (EMP) of the proposed project in compliance with requirements of the Minerals and Petroleum Resources Development Act, No 28 of 2002 (MPRDA 2002).

The Phase 1 AIA aimed to locate, identify and assess the significance of cultural heritage resources, inclusive of archaeological deposits / sites, built structures older than 60 years, burial grounds and graves, graves of victims of conflict and cultural landscapes or views as defined and protected by the NHRA 1999, that may be affected by the proposed development.

- Palaeontological deposits / sites as defined and protected by the NHRA 1999 are not included as subject to this report.

This report comprises of a basic AIA. The report does not include any specialist heritage components inclusive of socio-cultural consultation, historical architecture or cultural landscapes.

❖ *Methodology & Assessor Accreditation*

The Phase 1 AIA was conducted over a 1 day period (2011-11-15) by one archaeologist. The assessment was done by vehicle and foot, and limited to a Phase 1 surface survey; no excavation or sub-surface testing was done. GPS coordinates were taken with a Garmin Oregon 550 (Datum: WGS84). Photographic documentation was done with a Pentax K20D camera. A combination of Garmap and Google Earth software was used in the display of spatial information.

SAHRA ARCHAEOLOGICAL AND CULTURAL HERITAGE SITE SIGNIFICANCE ASSESSMENT			
<i>SITE SIGNIFICANCE</i>	<i>FIELD RATING</i>	<i>GRADE</i>	<i>RECOMMENDED MITIGATION</i>
High Significance	National Significance	Grade 1	Site conservation / Site development
High Significance	Provincial Significance	Grade 2	Site conservation / Site development
High Significance	Local Significance	Grade 3A / 3B	Site conservation or extensive mitigation prior to development / destruction
High / Medium Significance	Generally Protected A	-	Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B	-	Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C	-	On-site sampling, monitoring or no archaeological mitigation required prior to or during development / destruction

Table 1: SAHRA archaeological and cultural heritage site significance assessment

Archaeological and cultural heritage site significance assessment and associated mitigation recommendations were done according to the system prescribed by SAHRA (2007).

The assessment was done by Karen van Ryneveld (ArchaeoMaps):

- Qualification: MSc Archaeology (2003) WITS University.
- Accreditation:
 1. 2004 – Association of Southern African Professional Archaeologists (ASAPA) – Professional Member.
 2. 2005 – ASAPA CRM Section: Accreditation – Field Director (Stone Age, Iron Age, Colonial Period).
 3. 2010 – ASAPA CRM Section: Accreditation – Principle Investigator (Stone Age).

Karen van Ryneveld is a SAHRA listed CRM archaeologist.

❖ *Coverage and Gap Analysis*

The Phase 1 AIA covered an approximate 640x420m (26ha) area to accommodate the approximate 2.5ha *Ncora Sand Mine* development.

2.1) PRE-FEASIBILITY ASSESSMENT

Based on the basic introductory literature assessment of South African archaeology (see Appendix – A) the probability of archaeological and cultural heritage sites within the proposed *Ncora Sand Mine* study site can briefly be described as:

1. **EARLY HOMININ** : Probability – *None*

2. **STONE AGE**
 - a. ESA : Probability – *Low - Medium*
 - b. MSA : Probability – *Low - Medium*
 - c. LSA : Probability – *Medium* (Human remains may be expected; should they be identified they will be of both scientific and social significance)
 - i. Rock Art : Probability – *None*
 - ii. Shell Middens : Probability – *None*

3. **IRON AGE**
 - a. Early Iron Age : Probability – *Low*
 - b. Middle Iron Age : Probability – *None*
 - c. Later Iron Age : Probability – *Medium* (Human remains expected to be in direct association with archaeological and contemporary sites – of scientific / social significance)

4. **COLONIAL PERIOD**
 - a. Colonial Period : Probability – *Low* (Human remains expected to be primarily associated with formal cemeteries)
 - i. Iron Age / Colonial Period Contact : Probability – *Low*
 - ii. Industrial Revolution : Probability – *Low*

Recorded Cultural Resources Management (CRM) projects in vicinity of the proposed *Ncora Sand Mine* and recorded in the SAHRA mapping project (2009) are quite limited, but including:

- Van Schalkwyk, L.O. & Wahl, B. (eThembeni) 2008. *Heritage Impact Assessment of Qoboshane Road Bridge and Borrow Pits, Indwe, Eastern Cape Province, South Africa*. (SAHRA Reference: 2008-SAHRA-0547); and
- Anderson, G. (Umlando) 2007. *The Archaeological Survey of the Elitheni Mine, Indwe, Eastern Cape* (SAHRA Reference: 2007-SAHRA-0369).

[Both study sites are situated approximately 53km north-west of the *Ncora Sand Mine*.]

- Dreyer, C. (Private) 2007. *Cultural Heritage Assessment of the proposed Diamond Prospecting on the Farm saamwerk (Portion 14 of Grootrivierwagendrift 29), Aliwal North, Eastern Cape* (SAHRA reference: 2007-SAHRA-0471);
- Van Schalkwyk, L.O. & Wahl, B. (eThembeni) 2008. *Assessment of Shopping Centre, Ugie, Eastern Cape Province, South Africa* (SAHRA Reference: 2008-SAHRA-0226); and
- Van Schalkwyk, L.O. & Wahl, B. (eThembeni) 2007. *Heritage Impact Assessment of Waste Water Treatment Works, Ugie, Eastern Cape Province, South Africa* (SAHRA Reference: 2007-SAHRA-0546)

[All 3 study sites are situated roughly 85km towards the north north east of the *Ncora Sand Mine* project site.]

- Van Schalkwyk, L.O. (eThembeni) 2008. *Heritage Impact Assessment of the proposed N2 Wild Coast Toll Highway* (SAHRA Reference: 2008-SAHRA-0167).

[The N2 study site runs approximately 60km east of the proposed *Ncora Sand Mine*.]

More CRM studies may well be inferred to have been done in the general area of the proposed *Ncora Sand Mine* post-compilation of the SAHRA (2009) database. Studies done by ArchaeoMaps in more direct proximity and within an about 30km radius from the study site includes:

- Van Ryneveld, K. (ArchaeoMaps). 2011a. *Phase 1 Archaeological Impact Assessment: Utilization of Borrow Pits – Chris Hani District Municipality, Eastern Cape, South Africa* (CRM Report to BESC);
- Van Ryneveld, K (ArchaeoMaps) 2011b. *Phase 1 Archaeological Impact Assessment: Water Supply Backlog in the CHDM: Regional Scheme 5 (near Cofimvaba), Eastern Cape, South Africa* (CRM Report to BESC);
- Van Ryneveld, K (ArchaeoMaps) 2011c. *Chris Hani District Municipality: Cluster 9 Bulk Water Supply Backlog: Amendment – Tsomo, Eastern Cape, South Africa* (CRM Report to Isi-Xwiba Consulting); and
- Van Ryneveld, K. (ArchaeoMaps) 2011d. *The Qumanco Borrow Pit, near Engcobo, Chris Hani District Municipality, Eastern Cape, South Africa* (CRM Report to Isi-Xwiba Consulting).

[The CHDM – Utilization of Borrow Pits project centered on the assessment of a number of borrow pits across the CHDM, some of which intersect the more immediate area of the study site, see specifically Roads 038, 247, 248 and 253. The Regional Scheme 5 study site is situated 18-25km west of the *Ncora Sand Mine*, while the Tsomo Amendment area is located approximately 20-25km south thereof. The closest previously assessed area comprises of the Qumanco Borrow Pit study site, situated less than 10km east north east of the *Ncora Sand Mine*. A variety of heritage resource types were recorded during the surveys, including sites of Stone Age, Iron Age and Colonial Period origin, with fairly recent Iron Age and Colonial Period sites being the most common and in no case particularly sensitive to any whichever type site. Identified sites indicated a low density distribution, with concentrations increasing in areas of modern settlement and in cases associated with period and contemporary grave sites / cemeteries.]

2.2) THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

❖ *Ncora Sand Mine (Ncora BP) - S31°49'35.0"; E27°44'08.0"*



Figure 4: Phase 1 AIA assessment findings – *Ncora Sand Mine (Ncora BP)*

No archaeological or cultural heritage resources, as defined and protected under the NHRA 1999, were identified on the surface or within exposed sub-surface sections during the Phase 1 AIA assessment of the *Ncora Sand Mine*.

The assessment covered an approximate 26ha area to include the proposed 2.5ha study site, centered on a rough 200m radius around the Ncora BP co-ordinate (S31°49'35.0"; E27°44'08.0") as well as spot assessment along the immediate banks of the Tsomo River, providing for large exposed sub-surface sections. In addition 3 test pit / erosion sections situated more inland supported section information from the riverbank. These test pit / erosion areas can briefly be described as:

1. TP1 – S31°49'36.3"; E27°44'13.3";
2. TP2 – S31°49'45.9"; E27°44'15.9"; and
3. TP3 – S31°49'44.0"; E27°44'13.5".

No archaeological or cultural heritage resources were identified on the surface of the study site. The northern part of the study site, north of the access road, is fenced as a camp – vegetation cover in this area, not having been grazed for a season or so, is much thicker than in the unfenced area south of the access road. Vegetation cover towards the north obscured surface visibility to a noticeable degree. The more open, grazed landscape towards the south provided for clear surface visibility with rather open areas specifically towards the south west of the assessment area.

Sub-surface interpretation is primarily based on large exposed sections of the Tsomo riverbed, in cases in excess of 5+m in height yielding a continuous anthropic sterile sand section with stratigraphy limited to changes in the color of the sand, from yellowish, to sand with grey and red undertones. Three test pit / erosion areas provided for interpretation slightly further away from the riverfront; TP1 being approximately 1m in depth, TP2 in excess of 3m and TP3 approximately 1.5m in height. Inspection of these test pit / erosion areas again yielded only anthropic sterile sand sections.

CONCLUSION & RECOMMENDATIONS: Phase 1 AIA inspection of the proposed *Ncora Sand Mine* study site yielded no archaeological or cultural heritage resources, as defined and protected under the NHRA 1999, either on the surface or within exposed sub-surface sections. It is recommended that the development proceeds as applied for without the developer having to comply with any additional cultural heritage compliance requirements.



Figure 5: The *Ncora Sand Mine* study site: Thick grass cover characterizing the portion north of the access road



Figure 6: The *Ncora Sand Mine* study site: General view of the area south of the access road



Figure 7: The *Ncora Sand Mine* study site: Exposed surface areas towards the south west of the assessment area



Figure 8: Large scale exposed sections of the Tsomo River, along the northern part of the study site



Figure 9: Erosion sections in excess of 5+m along the banks of the Tsomo River, south of the access road



Figure 10: The TP1 test pit with an average depth of about 1m



Figure 11: The TP3 erosion area with an exposed section of approximately 1.5m in height

3) CONCLUSION AND RECOMMENDATIONS

With reference to cultural heritage compliance as per the requirements of the NHRA 1999 it is recommended that the proposed *Ncora Sand Mine* project, to be located near the village of Kwamzola, in the Chris Hani District municipal area of the Eastern Cape, proceeds as applied for without the developer having to comply with additional cultural heritage compliance requirements.

THE NCORA SAND MINE (NEAR THE VILLAGE OF KWAMZOLA)					
CHRIS HANI DISTRICT MUNICIPALITY, EASTERN CAPE					
MAP CODE	SITE	TYPE / PERIOD	DESCRIPTION	CO-ORDINATES	PRELIMINARY RECOMMENDATIONS
NCORA SAND MINE					
Ncora BP	Ncora Sand Mine	-	-	S31°49'35.0"; E27°44'08.0"	N/A
1	-	-	-	S31°49'25.7"; E27°44'03.3"	
2	-	-	-	S31°49'29.1"; E27°44'11.5"	
3	-	-	-	S31°49'42.9"; E27°44'13.5"	
4	-	-	-	S31°49'46.4"; E27°44'09.3"	
5	-	-	-	S31°49'47.0"; E27°44'03.5"	
6	-	-	-	S31°49'40.6"; E27°43'57.3"	
7	-	-	-	S31°49'31.7"; E27°43'57.0"	
TP1	-	-	-	S31°49'36.3"; E27°44'13.3"	
TP2	-	-	-	S31°49'45.9"; E27°44'15.9"	
TP3	-	-	-	S31°49'44.0"; E27°44'09.4"	
No archaeological or cultural heritage resources, as defined and protected under the NHRA 1999, were identified during the Phase 1 AIA of the proposed <i>Ncora Sand Mine</i> .					

Table 2: Development and Phase 1 AIA assessment findings – co-ordinate details

NOTE: Should any archaeological or cultural heritage resources as defined and protected by the NHRA 1999 and not reported on in this report be identified during the course of development the developer should immediately cease operation in the vicinity of the find and report the site to SAHRA / an ASAPA accredited CRM archaeologist.

4) REFERENCES

1. Indwe Environmental Consulting (Indwe). 2011. *Application for mining right to excavate sand for the Cluster 4 Ncora Water Bulk Supply Scheme, Chris Hani District Municipality*. Background Information Document.
2. South African Government. (No. 107) of 1998. *National Environmental Management Act*.
3. South African Government. (No. 28) of 2002. *Minerals and Petroleum Resources Development Act*.
4. South African Government. (No. 62) of 2008. *National Environmental Management Second Amendment Act*.
5. South African Government. (No. 25) of 1999. *National Heritage Resources Act*.
6. South African Heritage Resources Agency. 2007. *Minimum standards for the archaeological and heritage components of impact assessments*. (Unpublished guidelines.)

INTRODUCTION TO THE ARCHAEOLOGY OF SOUTH AFRICA

Archaeologically the southern African cultural environment is roughly divided into the Stone Age, the Iron Age and the Colonial Period, including its subsequent Industrial component. This cultural division has a rough temporal association beginning with the Stone Age, followed by the Iron Age and the Colonial Period. The division is based on the identified primary technology used. The hunter-gatherer lifestyle of the Stone Age is identified in the archaeological record through stone being the primary raw material used to produce tools. Iron Age people, known for their skill to work iron and other metal, also practiced agriculture and animal husbandry. Kingdoms and civilizations associated with the Iron Age are indicative of a complex social hierarchy. The Colonial Period is marked by the advent of writing, in southern Africa primarily associated with the first European travelers (Mitchell 2002).

During the latter part of the Later Stone Age (LSA) hunter-gatherers shared their cultural landscape with both pastoralists and Iron Age people, while the advent of the Colonial Period in South Africa is marked by a complex cultural mosaic of people; including LSA hunter-gatherers, pastoralists, Later Iron Age farming communities and Colonial occupation.

1) Early Hominin Evolution

DNA studies indicate that humans and chimpanzees shared a common ancestor between 6-8Mya (Sibley & Ahlquist 1984). By 4Mya, based on fossil evidence from Ethiopia and Kenya, hominins (humans and their immediate fossil ancestors and relatives) had already evolved. The earliest fossils are ascribed to *Ardipithecus ramidus* (4.4Mya), succeeded by *Australopithecus anamensis* (4.2-3.9Mya). These fossils are inferred to lie at the base from which all other hominins evolved (Leakey *et al.* 1995; White *et al.* 1994).

In South Africa the later hominins are classed into 3 groups or distinct genera; *Australopithecus* (gracile australopithecines), *Paranthropus* (robust australopithecines) and *Homo*. South Africa has 3 major hominin sites: Taung in the North-West Province, where Raymond Dart identified the first *Australopithecus* fossil in 1924 (Dart 1925); The Cradle of Humankind (Sterkfontein Valley) sites in Gauteng, the most prolific hominin locality in the world for the period dating 3.5-1.5Mya which have yielded numerous *Australopithecus*, *Paranthropus* and limited *Homo* fossils (Keyser *et al.* 2000; Tobias 2000); and Makapansgat in the Limpopo Province, where several more specimens believed to be older than most of the Cradle specimens were discovered (Klein 1999).

A. africanus, represented at all 3 sites are believed to have been present on the South African landscape from about 3Mya. From approximately 2.8Mya they shared, at least in the Cradle area, the landscape with *P. robustus* and from roughly 2.3Mya with early forms of *Homo* (Clarke 1999). Global climatic cooling around 2.5Mya may have stimulated a burst of species turnover amongst hominins (Vrba 1992); the approximate contemporary appearance of the first stone tools suggests that this was a critical stage in human evolution. But exactly which early hominin population is to be accredited as the ancestor of *Homo* remains elusive.

H. ergaster is present in the African palaeo-anthropological record from around 1.8Mya and shortly thereafter the first exodus from Africa is evidenced by *H. erectus* specimens from China, Indonesia and even Europe (Klein 1999).

2) The Stone Age

2.1) The Earlier Stone Age

In South Africa the only Earlier Stone Age (ESA) Oldowan lithic assemblage comes from Sterkfontein Cave. The predominant quartz assemblage is technologically very simple, highly informal and inferred to comprise exclusively of multi-purpose tools (Kuman *et al.* 1997). The latter part of the ESA is characterized by the Acheulean Industrial Complex, present in the archaeological record from at least 1.5Mya. Both *H. ergaster* and *P. robustus* may be accredited with the production of these tools. The association between stone tools and increased access to meat and marrow supporting the greater dietary breadth of *Homo* may have been vital to *Homo's* evolutionary success; and the eventual extinction of the robust australopithecines (Klein 1999).

Probably the longest lasting artefact tradition ever created by hominins, the Acheulean is found from Cape Town to north-western Europe and India, occurring widely in South Africa. Despite the many sites it is still considered a 'prehistoric dark age' by many archaeologists, encompassing one of the most critical periods in human evolution; the transition from *H. ergaster* to archaic forms of *H. Sapiens* (Klein 1999).

The Acheulean industry is characterized by handaxes and cleavers as *fosilles directeurs* (signature artefact types), in association with cores and flakes. Handaxes and cleavers were multi-purpose tools used to work both meat and plant matter (Binneman & Beaumont 1992). Later Acheulean

flaking techniques involved a degree of core preparation that allowed a single large flake of predetermined shape and size to be produced. This *Victoria West technique* indicates an origin within the Acheulean for the *Levallois technique* of the Middle Stone Age (Noble & Davidson 1966). The lithic artefact component was supplemented by wood and other organic material (Deacon 1970).

2.2) The Middle Stone Age

The Middle Stone Age (MSA), dating from approximately 500kya to 40-27/23kya is interpreted as an intermediate technology between the Acheulean and the Later Stone Age (LSA) (Goodwin & van Riet Lowe 1929). The MSA is typologically characterized by the absence of handaxes and cleavers, the use of prepared core techniques and the production of blades, triangular and convergent flakes, with convergent dorsal scars and faceted striking platforms, often produced by means of the *Levallois technique* (Volman 1984). The widespread occurrence of MSA technology across Africa and its spread into much of Eurasia in Oxygen Isotope Stage (OIS) 7 is viewed as part of a process of population dispersal associated with both the ancestors of the later Neanderthals in Europe and anatomically modern humans in Africa (Foley & Lahr 1997).

After the riches offered by the Cradle sites and Makapansgat, southern Africa's Middle Pleistocene fossil record is comparatively poor. Early Middle Pleistocene fossil evidence suggests an archaic appearance and fossils are often assigned to *H. heidelbergensis* and *H. sapiens rhodesiensis* (Rightmire 1976). Modern looking remains, primarily from Border Cave (KwaZulu-Natal) and Klasies River Mouth (Eastern Cape) raised the possibility that anatomically modern humans had, by 120kya, originated south of the Sahara before spreading to other parts of the world (Brauer 1982; Stringer 1985). Subsequent studies of modern DNA indicated that African populations are genetically more diverse and probably older than those elsewhere (Cann *et al.* 1994). Combined, the fossil and genetic evidence underpins the so-called *Out of Africa 2* model (arguing that gene flow and natural selection led regional hominin populations along distinct evolutionary trajectories after *Homo's* expansion from Africa in the Lower Pleistocene *Out of Africa 1* model) of modern human origins and the continuing debate as to whether it should be preferred to its *Multiregional* alternative (arguing that modern humans evolved more or less simultaneously right across the Old World) (Mellars & Stringer 1989; Aitken *et al.* 1993; Nitecki & Nitecki 1994).

Persuasive evidence of ritual activity or bodily decoration is evidenced by the widespread presence of red ochre at particularly MSA 2 sites (after Volman's 1984 MSA 1-4 model; Hensilwood & Sealy 1997), while evidence from Lion Cave, Swaziland, indicates that specularite may have been mined as early as 100kya (Beaumont 1973). Evidence for symbolic behavioral activity is largely absent; no evidence for rock art or formal burial practices exists.

2.3) The Later Stone Age

Artefacts characteristic of the Later Stone Age (LSA) appear in the archaeological record from 40/27-23kya and incorporates microlithic as well as macrolithic assemblages. Artefacts were produced by modern *H. sapien* or *H. sapien sapien*, who subsisted on a hunter-gatherer way of life (Deacon 1984; Mitchell 2002).

According to Deacon (1984) the LSA can temporally be divided into 4 broad units directly associated with climatic, technological and subsistence changes:

1. Late Pleistocene microlithic assemblages (40-12kya);
2. Terminal Pleistocene / early Holocene non-microlithic assemblages (12-8kya);
3. Holocene microlithic assemblages (8kya to the Historic Period); and
4. Holocene assemblages with pottery (2kya to the Historic Period) closely associated with the influx of pastoralist communities into South Africa (Mitchell 2002).

Elements of material culture characteristic of the LSA reflect modern behavior. Deacon (1984) summarizes these as:

1. Symbolic and representational art (paintings and engravings);
2. Items of personal adornment such as decorated ostrich eggshell, decorated bone tools and beads, pendants and amulets of ostrich eggshell, marine and freshwater shells;
3. Specialized hunting and fishing equipment in the form of bows and arrows, fish hooks and sinkers;
4. A greater variety of specialized tools including bone needles and awls and bone skin-working tools;
5. Specialized food gathering tools and containers such as bored stone digging stick weights, carrying bags of leather and netting, ostrich eggshell water containers, tortoiseshell bowls and scoops and later pottery and stone bowls;
6. Formal burial of the dead in graves (sometimes covered with painted stones or grindstones and accompanied by grave goods);
7. The miniaturization of selected stone tools linked to the practice of hafting for composite tools production; and
8. A characteristic range of specialized tools designed for making some of the items listed above.

❖ Rock Art

Rock Art is one of the most visible and informative components of South Africa's archaeological record. Research into LSA ethnography (as KhoiSan history) has revolutionized our understanding of both painted and engraved (petroglyph) images, resulting in a paradigm shift in Stone Age archaeology (Deacon & Dowson 2001). Paintings are concentrated in the Drakensberg / Maluti mountains, the eastern Free State, the Cape Fold Mountains, the Waterberg Plateau and the Soutpansberg mountains. Engravings on the other hand are found throughout the Karoo, the western Free State and North-West Province (Mitchell 2002). Both forms of LSA art drew upon a common stock of motifs, derived from widely shared beliefs and include a restricted range of naturalistically depicted animals, geometric imagery, human body postures and non-realistic combinations of human and animal figures (anthropomorphic figurines). LSA Rock Art is closely associated with spiritual or magical significance (Lewis-Williams & Dowson 1999).

Aside from LSA or KhoiSan Rock Art, thus art produced by both hunter-gatherer and pastoralist and agro-pastoralist groups, Rock Art produced by Iron Age populations are known to be present towards the north of the country.

❖ Shell Middens ('Strandloper' Cultures)

South Africa's nearly 3,000km coastline is dotted by thousands of shell middens, situated between the high water mark and approximately 5km inland, bearing witness to long-term exploitation of shellfish mainly over the past 12,000 years. These LSA shell middens are easily distinguishable from natural accumulations of shells and deposits can include bones of animals eaten such as shellfish, turtles and seabirds, crustaceans like crabs and crayfish and marine mammal remains of seals, dolphins and occasionally whales. Artefacts and hearth and cooking remains are often found in shell midden deposits. Evidence exist that fish were speared, collected by hand, reed baskets and by means of stone fish traps in tidal pools (Mitchell 2002).

Shell midden remains were in the past erroneously assigned to 'Strandloper cultures'. Deacon & Deacon (1999) explain that '*no biological or cultural group had exclusive rights to coastal resources.*' Some LSA groups visited the coast periodically while others stayed year round and it is misleading to call them all by the same name. Two primary sources of archaeological enquiry serves to shed more light on the lifestyles of people who accumulated shell middens, one being the analysis of food remains in the middens itself and the other being the analysis of LSA human skeletal remains of people buried either in shell middens or within reasonable proximity to the coast.

Shell middens vary in character ranging from large sites tens of meters in extent and with considerable depositional depth to fairly small ephemeral collections, easily exposed and destroyed by shifting dune action. Shell middens are also found inland, along rivers where fresh water mussels occur. These middens are often fairly small and less common; in the Eastern Cape often dated to within the past 3,000 years (Deacon & Deacon 1999).

In addition shell middens are not exclusively assigned to LSA cultures; shellfish were exploited during the Last Interglacial, indicating that the practice was most probably continuous for the past 120,000 years (MSA shell middens). Along the coast of KwaZulu-Natal evidence exist for the exploitation of marine food resources by Iron Age communities. These shell middens are easily distinguished from Stone Age middens by particularly rich, often decorated ceramic artefact content. Colonial Period shell middens are quite rare and extremely ephemeral in character; primarily the result of European shipwreck survivors and reported on along the coast of KwaZulu-Natal and the Transkei, Eastern Cape.

3) The Iron Age

For close to 2 millennia people combining cereal agriculture with stock keeping have occupied most of southern Africa's summer rainfall zone. The rapid spread of farming, distinctive ceramics and metallurgy is understood as the expansion of a Bantu-speaking population, in archaeological terms referred to as the Iron Age.

3.1) The Early Iron Age

Ceramic typology is central to current discussions of the expansion of iron using farming communities. The most widely used approach is that of Huffman (1980), who employs a multidimensional analysis (vessel profile, decoration layout and motif) to reconstruct different ceramic types. Huffman (1998) argues that ceramics can be used to trace the movements of people, though not necessarily of specific social or political groupings. Huffman's Urewe Tradition coincides largely with Phillipson's (1977) Eastern Stream. A combined Urewe Tradition / Eastern Stream model for the Early Iron Age can be summarized as:

1. The Kwale branch (extending along the coast from Kenya to KwaZulu-Natal);
2. The Nkope branch (located inland and reaching from southern Tanzania through Malawi and eastern Zambia into Zimbabwe); and
3. The Kalundu branch (stretching from Angola through western Zambia, Botswana and Zimbabwe into South Africa).

In southern Africa, recent work distinguishes two phases of the Kwale branch: The earlier Silver Leaves facies (250-430AD) occurring as far south as the Northern Province. The later expression or Mzonjani facies (420-580AD) occurs in the Northern Province as well as along the KwaZulu-Natal coastal belt (Huffman 1998). Since the Silver Leaves facies is only slightly younger than the Kwale type site in Kenya, very rapid movement along the coast, perhaps partly by boat, is inferred (Klapwijk 1974). Subsequently (550-650AD) people making Mzonjani derived ceramics settled more widely in the interior of South Africa.

Assemblages attributable to the Nkope branch appear south of the Zambezi but north of South Africa from the 5th Century. Ziwa represents an early facies, with Gokomere deriving jointly from Ziwa and Bambata. A subsequent phase is represented by the Zhizo facies of the Shashe-Limpopo basin, and by Taukome (Huffman 1994). Related sites occur in the Kruger National Park (Meyer 1988). Zhizo (7th – 10th Century) is ancestral to the Toutswe tradition which persisted in eastern Botswana into the 13th Century.

Kalundu origins need further investigation; its subsequent development is however better understood. A post Bambata phase is represented by the 5th – 7th Century sites of Happy Rest, Klein Africa and Maunatlana in the Northern Province and Mpumalanga (Prinsloo 1974, 1989). Later phases are present at the Lydenburg Heads site (Whitelaw & Moon 1996) and by the succession of Mzuluzi, Ndongonwane and Ntshekane in KwaZulu-Natal (7th – 10th Centuries) (Prins & Grainger 1993). Later Kalundu facies include Klingbeil and Eiland in the northern part of the country (Evers 1980) with Kgopolwe being a lowveld variant in Mpumalanga (10th – 12th Century). Broadhurst and other sites indicate a still later survival in Botswana (Campbell 1991).

Despite the importance accorded to iron agricultural implements in expanding the spread of farming and frequent finds of production debris, metal objects are rare. Metal techniques were simple, with no particular sign of casting, wire drawing or hot working. Jewelry (bangles, beads, pendants etc.) constitute by far the largest number of finds but arrows, adzes, chisels, points and spatulae are known (Miller 1996).

Early Iron Age people were limited to the Miombo and Savannah biomes; excluded from much of the continent's western half by aridity and confined in the south during the 1st millennium to bushveld areas of the old Transvaal. Declining summer rainfall restricted occupation to a diminishing belt close to the East Coast and north of S33° (Maggs 1994); sites such as Canasta Place (800AD), Eastern Cape, mark the southern-most limit of Early Iron Age settlement (Nogwaza 1994).

❖ The Central Cattle Pattern

The Central Cattle Pattern (CCP) was the main cognitive pattern since the Early Iron Age (Huffman 1986). The system can be summarized as opposition between male pastoralism and female agriculture; ancestors and descendants; rulers and subjects; and men and women. Cattle served as the primary means of transaction; they represented symbols exchanged for the fertility of wives, legitimacy of children and appeasement of ancestors. Cattle were also used as tribute to rulers confirming sub-ordination and redistribution as loan cattle by the ruler to gain political support. Cattle represented healing and fertilizing qualities (Huffman 1998; Kuper 1980).

This cognitive and conceptual structure underlies all cultural behavior, including the placement of features in a settlement. The oppositions of male and female, pastoralism and agriculture, ancestors and descendants, rulers and subjects, cool and hot are represented in spatial oppositions, either concentric or diametric (Huffman 1986).

A typical CCP village comprise of a central cattle enclosure (byre) where men are buried. The *Kgotla* (men's meeting place / court) is situated adjacent to the cattle enclosure. Surrounding the enclosure is an arc of houses, occupied according to seniority. Around the outer perimeter of the houses is an arc of granaries where women keep their pots and grinding stones (Huffman 1986). The model varies per ethnic group which helps to distinguish ethnicity throughout the Iron Age, but more studies are required to recognize the patterns.

3.2) The Middle Iron Age

The hiatus of South African Middle Iron Age activity was centered in the Shashe-Limpopo Valley and characterized by the 5-tier hierarchical Mapungubwe State spanning some 30,000km². By the 1st millennium ivory and skins were already exported overseas, with sites like Sofala and Chibuenene, Mozambique, interfacing between interior and transoceanic traders. Exotic glass beads, cloth and Middle Eastern ceramics present at southern African sites mark the beginning of the regions incorporation into the expanding economic system that, partly tied together with maritime trading links across the Indian Ocean, increasingly united Africa, Asia and Europe long before Da Gama or Columbus (Eloff & Meyer 1981; Meyer 1998).

Occupation was initially focused at Bambandanyalo and K2. The Bambandanyalo main midden (1030-1220AD) stands out above the surrounding area, reaching more than 6m in places and covering more than 8ha the site may have housed as many as 2,000 people (Meyer 1998). The CCP was not strictly followed; whether this is ideologically significant or merely a reflection of local topography remains unclear. The

midden, the size of which may reflect the status of the settlement's ruler, engulfed the byre around 1060-1080AD, necessitating relocation of the cattle previously kept there. The re-organization of space and worldview implied suggests profound social changes even before the sites' abandonment in the early 13th century, when the focus of occupation moved to Mapungubwe Hill, 1 km away (Huffman 1998).

Excavations at Mapungubwe Hill, though only occupied for a few decades (1220-1290AD), yielded a deep succession of gravel floors and house debris (Eloff & Meyer 1981). Huffman (1998) suggests that the suddenness with which Mapungubwe was occupied may imply a deliberate decision to give spatial expression to a new social order in which leaders physically removed themselves from ordinary people by moving onto more inaccessible, higher elevations behind the stone walls demarcating elite residential areas. Social and settlement changes speak of considerable centralization of power and perhaps the elaboration of new ways of linking leaders and subjects.

At Bambandanyalo and Mapungubwe elite burial grave goods include copper, bone, ivory and golden ornaments and beads. Social significance of cattle is reinforced by their importance among the many human and animal ceramic figurines and at least 6 'beast burials' (Meyer 1998).

Today the drought prone Shashe-Limpopo Valley receives less than 350mm of rainfall per annum, making cereal cultivation virtually impossible. The shift to drier conditions in the late 1200's across the Shashe-Limpopo basin and the eastern Kalahari may have been pivotal in the break-up of the Mapungubwe polity, the collapse of Botswana's Toutswe tradition and the emergence of Great Zimbabwe (1220-1550AD), southern Africa's best known and largest (720ha) archaeological site (Meyer 1998).

South of the Limpopo and north of the Soutpansberg, Mapungubwe derived communities survived into the 14th Century, contemporary with the establishment of Sotho-speaking makers of Maloko pottery.

3.3) *The Later Iron Age*

South African farming communities of the 2nd millennium experienced increased specialization of production and exchange, the development of more nucleated settlement patterns and growing political centralization, albeit not to the same extent as those participating in the Zimbabwe tradition. However, together they form the background to the cataclysmic events of the late 18th / early 19th Century *Mfecane* (Mitchell 2002).

Archaeological evidence of settlement pattern, social organization and ritual practice often differ from those recorded ethnographically. The Moloko ceramic tradition seems to be ancestral to modern Sotho-Tswana speakers (Evers 1980) and from about 1,100AD a second tradition, the Blackburn tradition, appears along South Africa's eastern coastline. Blackburn produced mostly undecorated pottery (Davies 1971), while Mpambanyoni assemblages, reaching as far south as Transkei, includes examples of rim notching, incised lines and burnished ochre slip (Robey 1980). At present, no contemporary farming sites are known further inland in KwaZulu-Natal or the Eastern Cape.

Huffman (1989) argues that similarities between Blackburn and early Maloko wares imply a related origin, presumably in the Chifumbaze of Zambia or the Ivuna of Tanzania, which contains a range of ceramic attributes important in the Blackburn as well as beehive grass huts similar to those made by the Nguni. This is one of the few suggestions of contact between Sotho-Tswana and Nguni speakers on the one hand and farming communities who, if Huffman is correct, were already long established south of the Limpopo. Both ethnographic and archaeological data demonstrate that Sotho-Tswana and Nguni are patrilineal and organize their settlements according to the CCP (Kuper 1980).

From 1,300AD there is increasing evidence for the beginning of agro-pastoralist expansion considerably beyond the area of previous occupation. It is also to this time that the genealogies of several contemporary Bantu speaking groups can be traced (Wilson & Thompson 1969). Associated with this expansion was the regular employment of stone, rather than wood, as building material, an adaptation that has greatly facilitated the discovery and identification of settlements. Maggs (1976) describes 4 basic settlement types all characterized by the use of semi weathered dolomite to produce hard binding *daga* for house floors and a wall building tradition employing larger more regular stones for the inner and outer faces and smaller rubble for the infill. As with the more dispersed homesteads of KwaZulu-Natal and the Eastern Cape, sites tend to be in locally elevated situations, reflecting a deep seated Sotho and Nguni preference for benign higher places rather than supernaturally dangerous riverside localities; another important contrast to both 1st millennium (Maggs 1976) and later Zulu Kingdom settlement patterns (Hall & Maggs 1979).

The lack of evidence for iron production in the interior and eastern part of South Africa emphasize exchange relationships between various groups and associated more centralized polities. By the 19th Century iron production in KwaZulu-Natal was concentrated in particular clans and lineages and associated with a range of social and religious taboos (Maggs 1992). South of Durban comparatively few smelting sites are known (Whitelaw 1991), a trend even more apparent in Transkei (Feely 1987). However, metal remained the most important and archaeologically evident item traded between later farming communities. (Other recorded trade items include glass and ostrich eggshell beads; Indian Ocean seashells; siltstone pipes; *dagga*, and later on tobacco; pigments including ochre, graphite and specularite; hides and salt.)

Rising polity settlements are particularly evident in the north of the country and dated to the 17th Century, including Molokwane, capital of the Bakwena chiefdom (Pistorius 1994) and Kaditshwene, capital of a major section of the Hurutshe, whose population of 20,000 in 1820 almost equals contemporary Cape Town in size (Boeyens 2000). The agglomeration of Tswana settlements in the north of the country was fuelled by both population growth and conflict over access to elephant herds for ivory and long distance trade with the East Coast. During this period ceramic decoration became blander and more standardized than the earlier elaborate decoration that included red ochre and graphite coloring.

The *Mfecane* refers to the wars and population movements of the early 19th Century which culminated in the establishment of the Zulu Kingdom and came to affect much of the interior, even beyond the Zambezi: The late 18th Century was marked by increasing demands for ivory (and slaves) on the part of European traders at Delagoa Bay; as many as 50 tones of ivory were exported annually from 1750-1790. As elephant populations declined, competition increased both for them and for the post 1790 supply of food to European and American whalers calling at Delagoa Bay (Smith 1970). Cattle raiding, conflict over land and changes in climatic and subsistence strategies characterized much of the cultural landscape of the time.

Competition for access to overseas trade encouraged some leaders to replace locally organized circumcision schools and age-sets with more permanently maintained military regiments. These were now used to gain access through warfare to land, cattle and stored food. By 1810 three groups, the Mthethwa, Ndwandwe and Ngwane dominated northern KwaZulu-Natal (Wright 1995). The Mthethwa paramourcy was undermined by the killing of its leader Dingiswayo in *circa* 1818, which led to a brief period of Ndwandwe dominance. In consequence one of Dingiswayo's former tributaries, Shaka, established often forceful alliances with chiefdoms further south. Shaka's Zulu dominated coalition resisted the Ndwandwe who in return fled to Mozambique. As the Zulu polity expanded it consolidated its control over large areas, incorporating many communities into it. Others sought refuge from political instability by moving south of the Thukela River, precipitating a further *domino effect* as far as the Cape Colony's eastern border (Wright 1995).

4) *The Colonial Period*

In the 15th Century Admiral Zheng He and his subordinates impressed the power of the Ming Dynasty rulers in a series of voyages as far afield as Java, Sri Lanka, southern Arabia and along the East African coast, collecting exotic animals *en route*. But nothing more came of his expeditions and China never pursued opportunities for trade or colonization (Mote 1991).

Portuguese maritime expansion began around the time of Zheng He's voyages; motivated by a desire to establish a sea route to the riches of the Far East. By 1485 Diogo Cao had reached Cape Cross, 3 years later Bartolomeu Dias rounded the Cape of Good Hope and less than a decade later Vasco da Gama called at several places along South Africa's coast, trading with Khoekhoen (Khoi) at Mossel Bay before reaching Mozambique and crossing the ocean to India. His voyage initiated subsequent Portuguese bases from China to Iraq. In Africa interest was focused on seizing important coastal trading towns such as Sofala and gaining access to the gold of Zimbabwe. Following the 1510 Portuguese-Khoekhoen battle at Table Bay, in which the viceroy of India was killed, Portuguese ships ceased to call along the South African coast (Elphick 1985).

A number of shipwrecks, primarily along the eastern coast attest to Portuguese activity including the Sao Joao, wrecked in 1552 near Port Edward and the Sao Bento, destroyed in 1554 off the Transkei coast. Survivors' accounts provided the 1st detailed information on Africa's inhabitants (Auret & Maggs 1982).

By the late 1500's Portuguese supremacy of the Indian Ocean was threatened. From 1591 numerous Dutch and English ships called at Table Bay and in 1652 the Dutch East Indian Company (VOC) established a permanent base, with the intent to provide fresh food and water to VOC ships. In an attempt to improve the food supply a few settlers (free burghers) were allowed to establish farms. The establishment of an intensive mixed farming economy failed due to shortages of capital and labor, and free burghers turned to wheat cultivation and livestock farming. While the population grew slowly the area of settlement expanded rapidly with new administrative centers established at Stellenbosch (1676), Swellendam (1743) and Graaf-Reinet (1785). By the 1960's the Colony's frontier was too long to be effectively policed by VOC officials (Elphick 1985).

From the 1700's many settlers expanded inland over the Cape Fold Mountain Belt. The high cost of overland transport constrained the ability to sell their produce while settlement of the interior was increasingly made difficult by resident KhoiSan groups, contributing due to a lack of VOC military support to growing Company opposition in the years before British control of the Cape (1795 / 1806) (Davenport & Saunders 2000).

In 1820 a major British settlement was implanted on the eastern frontier of the Cape Colony, resulting in large numbers of the community moving into the interior, initially to KwaZulu-Natal, and then after Britain annexed Natal (1843), further into the interior to beyond the Vaal River. Disruptions of the *Mfecane* eased their takeover of African lands and the *Boers* (farmers) established several Republics. A few years later the 2nd South African War saw both the South African and Orange Free State Republics annexed by Britain, a move largely motivated by British desire to control the goldfields of the Witwatersrand. With adjacent regions of the sub-continent also falling, directly or indirectly, under

British rule and German colonization of Namibia, European control of the whole of southern Africa was firmly established before the 1st World War (Davenport & Saunders 2000).

❖ **Xhosa Iron Age Cultures meets Colonists in the Eastern Cape**

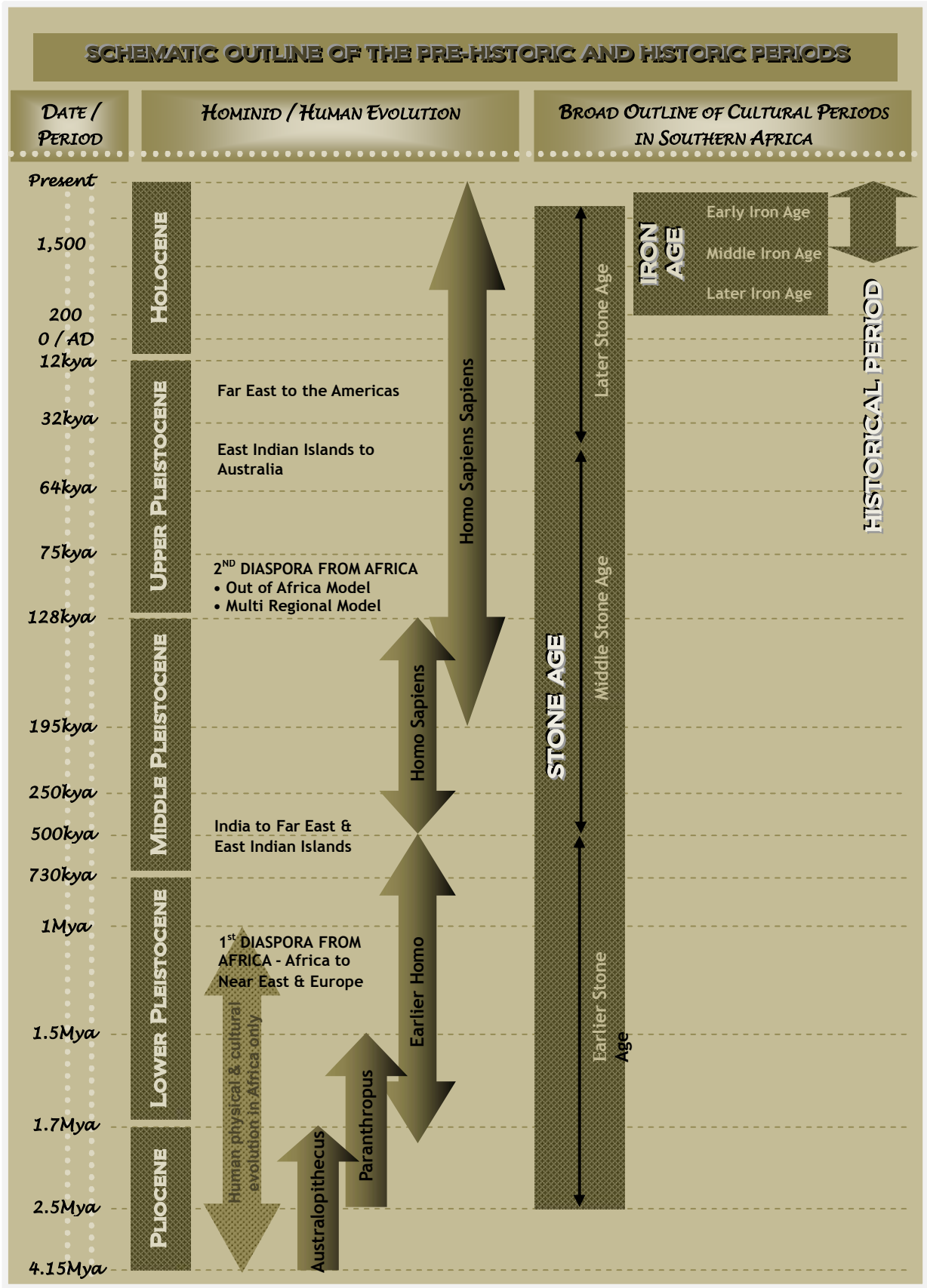
From the late 1600's conflict between migrants from the Cape (predominantly Boers) and Xhosa people in the region of the Fish River were strife, ultimately resulting in a series of 9 Frontier Wars (1702-1878) (Milton 1983). Both cultures were heavily based and reliant on agriculture and cattle farming. As more Cape migrants, and later settlers from Britain (1820) and elsewhere arrived, population pressures and competition over land, cattle and good grazing became intense. Cattle raiding became endemic on all sides, with retaliatory raids launched in response. As missionaries arrived with evangelical messages, confrontations with hostile chiefs who saw them as undermining traditional Xhosa ways of life resulted in conflicts which flared into wars.

As pressures between the European settlers and the Xhosa grew, settlers organized themselves into local militia, counteracted by Xhosa warring skills: But both sides were limited by the demands of seasonal farming and the need for labor during harvest. Wars between the Boers and the Xhosa resulted in shifting borders, from the Fish to the Sundays River, but it was only after the British annexed the Cape in 1806 that authorities turned their attention to the Eastern regions and petitions by the settlers about Xhosa raids. British expeditions, in particular under Colonel John Graham in 1811 and later Harry Smith in 1834, were sent not only to secure the frontier against the Xhosa, but also to impose British authority on the settlers, with the aim to establish a permanent British presence. Military forts were built and permanently manned. Over time the British came to dominate the area both militarily and through occupation with the introduction of British settlers. The imposition of British authority led to confrontations not only with the Xhosa but also with disaffected Boers and other settlers, and other native groups such as the Khoikhoi, the Griqua and the Mpondo. The frontier wars continued over a period of about 150 years; from the 1st arrival of the Cape settlers, and with the intervention of the British military ultimately ending in the subjugation of the Xhosa people. Fighting ended on the Eastern Cape frontier in June 1878 with the annexation of the western areas of the Transkei and administration under the authority of the Cape Colony (Milton 1983).

❖ **The Industrial Revolution**

The Industrial Revolution refers roughly to the period between the 18th - 19th Centuries, typified by major changes in agriculture, manufacturing, mining, transport, and technology. Changing industry had a profound effect on socio-economic and socio-cultural conditions across the world: The Industrial Revolution marks a major turning point in human history; almost every aspect of daily life was eventually influenced in some way. Average income and population size began to exhibit unprecedented growth; in the two centuries following 1800 the world's population increased over 6-fold, associated with increasing urbanization and demand of resources. Starting in the latter part of the 18th century, the transition from manual labor towards machine-based manufacturing changed the face of economic activity; including the mechanization of the textile industries, the development of iron-making techniques and the increased use of refined coal. Trade expansion was enabled by the introduction of canals, improved roads and railways. The introduction of steam power fuelled primarily by coal and powered machinery was underpinned by dramatic increases in production capacity. The development of all-metal machine tools in the first two decades of the 19th century facilitated the manufacture of more production machines in other industries (More 2000).

Effects of the Industrial Revolution were widespread across the world, with its enormous impact of change on society, a process that continues today as 'industrialization'.



5) References Cited

1. Aitken, M.J., Stringer, C.B. & Mellars, P.A. (eds). 1993. *The origin of modern humans and the impact of chronometric dating*. Princeton: Princeton University Press
2. Auret, C. & Maggs, T.M.O'C 1982. *The great ship São Bento: remains from a mid-sixteenth century Portuguese wreck on the Pondoland coast*. Annals of the Natal Museum 25:1-39
3. Beaumont, P.B. 1973. *The ancient pigment mines of South Africa*. South African Journal of Science 69: 41-46
4. Binneman, J.N.F. & Beaumont, P.B. 1992. *Use-wear analysis of two Acheulean handaxes from Wonderwerk Cave, Northern Cape*. South African Field Archaeology 1:92-97
5. Boeyens, J.C.A. 2000. *In search of Kadishwene*. South African Archaeological Bulletin 55:3-17
6. Brauer, G. 1982. *Early anatomically modern man in Africa and the replacement of the Mediterranean and European Neanderthals*. In De Lumley, H. (ed) *L'Homme erectus et la place de l'homme de tautavel parmi les hominides fossils*. Nice: Centre National de la Recherche Scientifique
7. Cann, R.L., Rickards, O. & Lum, J.K. 1994. *Mitochondrial DNA and human evolution: our one lucky mother*. Nature 325: 31-36
8. Campbell, A.C. 1991. *The riddle of the stone walls*. Botswana Notes and Records 23:243-249
9. Clarke, R.J. 1999. *A discovery of complete arm and hand of the 3.3 million year old Australopithecus skeleton from Sterkfontein*. South African Journal of Science 95:447-480
10. Dart, R.A. 1925. *Australopithecus africanus: the man-ape of South Africa*. Nature 115:195-199
11. Davenport, T.R.H. & Saunders, C. 2000. *South Africa: A modern history*. London: Macmillan
12. Davies, O. 1971. *Excavations at Blackburn*. South African Archaeological Bulletin 26: 165-178
13. Deacon, H.J. 1970. *The Acheulian occupation at Amanzi Springs, Uitenhage District, Cape Province*. Annals of the Cape Provincial Museums 8:89-189
14. Deacon, J. 1984. *Later Stone Age people and their descendants in southern Africa*. In Klein, R.G. (ed). Southern Africa prehistory and paleoenvironments. Rotterdam: A.A. Balkema
15. Deacon, H.J. & Deacon, J. 1999. *Human Beginnings in South Africa. Uncovering the Secrets of the Stone Age*. Cape Town: David Phillip Publishers
16. Deacon, J. & Dowson, A.D. (eds.) 2001. *Voices from the past. /Xam Bushmen and the Bleek and Lloyd Collection*. Johannesburg: Witwatersrand University Press
17. Eloff, J.F. & Meyer, A. 1981. *The Greefswald sites*. In Voigt, E.A. (ed) Guide to archaeological sites in the northern and eastern Transvaal. Pretoria: South African Association of Archaeologists
18. Elphick, R. 1985. *Khoikhoi and the founding of white South Africa*. Johannesburg: Ravan Press
19. Evers, T.M. 1980. *Klingbeil Early Iron Age sites, Lydenburg, Eastern Transvaal, South Africa*. South African Archaeological Bulletin 35:46-57
20. Feeley, .M. 1987. *The early farmers of Transkei, southern Africa, before AD 1870*. Oxford: British Archaeology Reports
21. Foley, R.A & Lahr, M.M. 1997. *Mode 3 technologies and the evolution of modern humans*. Cambridge Archaeological Journal 7:3-36
22. Goodwin A.J.H. & van Riet Lowe, C. 1929. *The Stone Age cultures of South Africa*. Annals of the South African Museum 27:1-289
23. Hall, M. & Maggs, T.M.O'C. 1979. *Nqabeni: a later Iron Age site in Zululand*. South African Archaeological Society Goodwin Series 3:159-176
24. Hensilwood, C. & Sealy, J.C. 1997. *Bone artefacts from the Middle Stone Age at Blombos Cave, southern Cape, South Africa*. Current Anthropology 38:390-395
25. Huffman, T.N. 1980. *Ceramics, classification and Iron Age entities*. African Studies 39:123-174
26. Huffman, T.N. 1989. *Ceramics, settlements and late Iron Age migrations*. African Archaeological Review 7: 155-182
27. Huffman, T.N. 1986. *Iron Age settlement patterns and the origin of class distinction in southern Africa*. Advances in World Archaeology 5:291-338
28. Huffman, T.N. 1994. *Toteng pottery and the origins of Bambata*. Southern African Field Archaeology 3:3-9
29. Huffman, T.N. 1998. *The antiquity of lobola*. South African Archaeological Bulletin 53:57-62
30. Keyser, A., Menter, C.G., Moggi-Cheggi, J., Pickering T.R. & Berger, L.R. 2000. *Drimolen: A new hominid bearing site in Gauteng, South Africa*. South African Journal of Science 96:193-197
31. Klapwijk, M. 1974. *A preliminary report on pottery from the north-eastern Transvaal, South Africa*. South African Archaeological Bulletin 29:19-23
32. Klein, R.G. 1999. *The human career: human biological and cultural origins*. Chicago: University of Chicago Press
33. Kuman, K, Field, A.S. & Thackeray, J.F. 1997. *Discovery of new artefacts at Kromdraai*. South African Journal of Science 93: 187-193
34. Kuper, A. 1980. *Symbolic dimensions of the southern Bantu homestead*. Africa 1:8-23

35. Leakey, M.G., Feibel, C.S., McDougall, I & Walker, A.C. 1995. *New four-million-year-old hominid species from Kanopi and Allia Bay, Kenya*. *Nature* 376:565-571
36. Lewis-Williams, D. & Dowson, T. 1999. *Images of Power. Understanding San Rock Art*. Halfway House: Southern Book Publishers
37. Maggs, T.M.O'C. 1976. *Iron Age communities of the southern Highveld*. Pietermaritzburg: Natal Museum
38. Maggs, T.M.O'C. 1992. *'My father's hammer never ceased its' song day and night': the Zulu ferrous metalworking industry*. *Natal Museum Journal of Humanities* 4:65-87
39. Maggs, T.M.O'C. 1994. *The Early Iron Age in the extreme south: some patterns and problems*. *Azania* 29/30:171-178
40. Mellars, P.A. & Stringer, C.B. (eds). 1989. *The human revolution: behavioural and biological perspectives on the origins of modern humans*. Edinburgh: Edinburgh University Press
41. Miller, D.E. 1996. *The Tsodilo jewellery: metal work from northern Botswana*. Cape Town: University of Cape Town Press
42. Milton, J. 1983. *The Edges of War. A history of Frontier Wars (1702-1878)*. Kenwyn: Juta & Co.
43. Mitchell, P. 2002. *The archaeology of southern Africa*. Cambridge: Cambridge University Press
44. Meyer, A. 1988. *N kultuurhistories interpretasie van die Ystertydperk in die Nasionale Krugerwildtuin*. Phd thesis, University of Pretoria
45. Meyer, A. 1998. *The archaeological sites of Greefswald*. Pretoria: University of Pretoria Press
46. More, C. 2000. *Understanding the Industrial Revolution*. London: Routledge
47. Mote, F.W. 1991. *China in the Age of Columbus*. In Levenson, J.A. (ed) *Circa 1492: Art in the Age of Exploration*. New Haven: Yale University Press
48. Nitecki, M.H. & Nitecki, D.V. (eds). 1994. *Origins of anatomically modern humans*. New York: Plenum
49. Noble, W & Davidson, I. 1996. *Human evolution, language and mind: a psychological and archaeological enquiry*. Cambridge: Cambridge University Press
50. Nogwaza, T. 1994. *Early Iron Age pottery from Canasta Place, East London district*. *South African Field Archaeology* 3:103-106
51. Pakenham, T. 1993. *The Illustrated Boer War*. Parklands: Jonathan Ball Publishers.
52. Pistorius, J.C.C. 1992. *Molokwane an Iron Age Bakwena Village. Early Tswana settlement in the western Transvaal*. Johannesburg: Perskor Press.
53. Prins, F.E. & Grainger, J.E. 1993. *Early farming communities in northern Transkei: the evidence from Ntsitsana and adjacent areas*. *Natal Museum Journal of Humanities* 5:153-174
54. Phillipson, D.W. 1977. *The later prehistory of eastern and southern Africa*. London: Heineman
55. Prinsloo, H. P. 1974. *Early Iron Age site at Klein Afrika near Wyliespoort, Soutpansberg mountains, South Africa*. *South African Journal of science* 70:271-273
56. Prinsloo, H.P. 1989. *Vroe Ystertydperk terreine in die Soutpansberg*. M.A. Thesis, University of Pretoria
57. Rightmire, G.P. 1976. *Relationships of Middle and Upper Pleistocene hominids from sub-Saharan Africa*. *Nature* 260:238-240
58. Robey, T.S. 1980. *Mpanbanyoni, a Late Iron Age site on the Natal south coast*. *Annals of the Natal Museum* 24:147-164
59. Sibley, C.G. & Ahlquist, J.E. 1984. *The phylogeny of the hominid primates as indicated by DNA-DNA hybridization*. *Journal of molecular evolution* 20:2-15
60. Smith, A.K. 1970. *The struggle for the control of southern Mozambique 1720-1835*. *Ossa* 63-96
61. Stringer, C.B. 1985. *Middle Pleistocene hominid variability and the origin of Late Pleistocene humans*. In Delson, E. (ed) *Ancestors: the hard evidence*. New York: Alan Liss
62. Tobias, P.V. 2000. *The fossil hominids*. In Partridge, T.C. & Maud, R.R. *The Cenozoic of southern Africa*. Oxford: Oxford University Press
63. Volman T.P. 1984. *Early prehistory of southern Africa*. In Klein, R.G. *Southern Africa Prehistory and palaeoenvironments*. Rotterdam: A.A. Balkema
64. Vrba, E.S. 1992. *Mammals as a key to evolutionary theory*. *Journal of Mammology* 73:1-28
65. White, T.D., Suwa, G. & Asfaw, B. 1994. *Australopithecus ramidus: a new species of early hominid from Aramis, Ethiopia*. *Nature* 371:306-312
66. Whitelaw, G. 1991. *Precolonial Iron production around Durban and in southern KwaZulu-Natal*. *Natal Museum Journal of Humanities* 3:29-39
67. Whitelaw, G. & Moon, M. 1996. *The distribution and ceramics of pioneer agriculturists in KwaZulu-Natal*. *Natal Museum Journal of Humanities* 8:53-79
68. Wilson, M. & Thompson, L. (eds) 1969. *Oxford history of South Africa*. Oxford: Oxford University Press
69. Wright, J.B. 1995. *Political transformations in the Thukela-Mzimkhulu region in the late eighteenth and early nineteenth centuries*. In Hamilton, C. *The Mfecane aftermath: Reconstructive debates in southern African history*. Johannesburg: Witwatersrand University Press

EXTRACTS FROM THE NATIONAL HERITAGE RESOURCES ACT, NO 25 OF 1999

DEFINITIONS**Section 2**

In this Act, unless the context requires otherwise:

- ii. *"Archaeological"* means –
 - a) 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;
 - b) 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 10 m of such representation;
 - c) 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,... 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.
- viii. *"Development"* means any physical intervention, excavation or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –
 - a) construction, alteration, demolition, removal or change of use of a place or structure at a place;
 - b) carrying out any works on or over or under a place;
 - c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
 - d) constructing or putting up for display signs or hoardings;
 - e) any change to the natural or existing condition or topography of land; and
 - f) any removal or destruction of trees, or removal of vegetation or topsoil;
- xiii. *"Grave"* means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;
- xxi. *"Living heritage"* means the intangible aspects of inherited culture, and may include –
 - a) cultural tradition;
 - b) oral history;
 - c) performance;
 - d) ritual;
 - e) popular memory;
 - f) skills and techniques;
 - g) indigenous knowledge systems; and
 - h) the holistic approach to nature, society and social relationships.
- xxxi. *"Palaeontological"* means 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 trance;
- xli. *"Site"* means any area of land, including land covered by water, and including any structures or objects thereon;
- xliv. *"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;

NATIONAL ESTATE**Section 3**

- 1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- 2) Without limiting the generality of subsection 1), the national estate may include –
 - 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).

STRUCTURES

Section 34

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

ARCHAEOLOGY, PALAEOLOGY AND METEORITES

Section 35

- 3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- 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 assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- 5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –
 - a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
 - b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
 - c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph a) to apply for a permit as required in subsection 4); and
 - d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.
- 6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

BURIAL GROUNDS AND GRAVES

Section 36

- 3) No person may, without a permit issued by SAHRA or a provincial heritage resources authority –
 - a) destroy, damage, alter, exhume or remove from its original position or otherwise disturb the grave of a victim of conflict, or any burial ground or part thereof which contains such graves;
 - b) destroy, damage, alter, exhume, remove from its original position or otherwise disturb any grave or burial ground older than 60 years which is situated outside a formal cemetery administered by a local authority; or
 - c) bring onto or use at a burial ground or grave referred to in paragraph a) or b) any excavation equipment, or any equipment which assists in the detection or recovery of metals.
- 4) SAHRA or a provincial heritage resources authority may not issue a permit for the destruction of any burial ground or grave referred to in subsection 3a) unless it is satisfied that the applicant has made satisfactory arrangements for the exhumation and re-interment of the contents of such graves, at the cost of the applicant and in accordance with any regulations made by the responsible heritage resources authority.
- 5) SAHRA or a provincial heritage resources authority may not issue a permit for any activity under subsection 3b) unless it is satisfied that the applicant has, in accordance with regulations made by the responsible heritage resources authority –
 - a) made a concerted effort to contact and consult communities and individuals who by tradition have an interest in such grave or burial ground; and
 - b) reached agreements with such communities and individuals regarding the future of such grave or burial ground.

- 6) Subject to the provision of any other law, any person who in the course of development or any other activity discovers the location of a grave, the existence of which was previously unknown, must immediately cease such activity and report the discovery to the responsible heritage resources authority which must, in co-operation with the South African Police Service and in accordance with regulations of the responsible heritage resources authority –
- a) carry out an investigation for the purpose of obtaining information on whether or not such grave is protected in terms of this Act or is of significance to any community; and
 - b) if such grave is protected or is of significance, assist any person who or community which is a direct descendant to make arrangements for the exhumation and re-internment of the contents of such grave or, in the absence of such person or community, make any such arrangements as it deems fit.

HERITAGE RESOURCES MANAGEMENT

Section 38

- 1) Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorised as –
 - a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m 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 subdivisions thereof which have been consolidated within the past five years; or
 - iv. the costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - d) the rezoning 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, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
- 2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –
 - a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
 - b) notify the person concerned that this section does not apply.
- 3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
- 4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
 - a) whether or not the development may proceed;
 - b) any limitations or conditions to be applied to the development;
 - c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
 - d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
 - e) whether the appointment of specialists is required as a condition of approval of the proposal.

APPOINTMENT AND POWERS OF HERITAGE INSPECTORS

Section 50

- 7) Subject to the provision of any other law, a heritage inspector or any other person authorised by a heritage resources authority in writing, may at all reasonable times enter upon any land or premises for the purpose of inspecting any heritage resource protected in terms of the provisions of this Act, or any other property in respect of which the heritage resources authority is exercising its functions and powers in terms of this Act, and may take photographs, make measurements and sketches and use any other means of recording information necessary for the purposes of this Act.
- 8) A heritage inspector may at any time inspect work being done under a permit issued in terms of this Act and may for that purpose at all reasonable times enter any place protected in terms of this Act.
- 9) Where a heritage inspector has reasonable grounds to suspect that an offence in terms of this Act has been, is being, or is about to be committed, the heritage inspector may with such assistance as he or she thinks necessary –
 - a) enter and search any place, premises, vehicle, vessel or craft, and for that purpose stop and detain any vehicle, vessel or craft, in or on which the heritage inspector believes, on reasonable grounds, there is evidence related to that offence;
 - b) confiscate and detain any heritage resource or evidence concerned with the commission of the offence pending any further order from the responsible heritage resources authority; and
 - c) take such action as is reasonably necessary to prevent the commission of an offence in terms of this Act.
- 10) A heritage inspector may, if there is reason to believe that any work is being done or any action is being taken in contravention of this Act or the conditions of a permit issued in terms of this Act, order the immediate cessation of such work or action pending any further order from the responsible heritage resources authority.