
PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**TSITSIKAMMA WIND FARM – BORROW PITS PROJECT,
HUMANSDORP REGISTRATION DIVISION,
EASTERN CAPE, SOUTH AFRICA**

DATE: 2013-07-15



REPORT TO:

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SPECIALIST DECLARATION OF INTEREST

I, Karen van Ryneveld (Company – ArchaeoMaps; Qualification – MSc Archaeology), declare that:

- I am suitably qualified and accredited to act as independent specialist in this application;
- I do not have any financial or personal interest in the application, its' proponent or any subsidiaries, aside from fair remuneration for specialist services rendered; and
- That work conducted has been done in an objective manner – and that any circumstances that may have compromised objectivity have been reported on transparently.



SIGNATURE –

DATE – 2013-07-15

PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT
TSITSIKAMMA WIND FARM – BORROW PITS PROJECT,
HUMANSDORP REGISTRATION DIVISION, EASTERN CAPE, SOUTH AFRICA
EXECUTIVE SUMMARY

TERMS OF REFERENCE –

Site Plan has been appointed by the project proponent, Great Karoo Prospecting (Pty) Ltd, to prepare and submit 7 mining permit applications for EA, including an EIA and relevant EMP's to the DMR, Eastern Cape. The 7 proposed borrow pits, situated in the Humansdorp registration division of the Eastern Cape, roughly between Clarkson in the west and the Impofu Dam in the east, will comprise of development sites varying between 1.5ha and 4ha in size. Material from the borrow pits will be prioritized for construction of the *Tsitsikamma Community Wind Farm* project but will also serve other related infrastructure projects in the district. ArchaeoMaps was appointed by Site Plan to conduct the Phase 1 AIA for the proposed *Tsitsikamma Wind Farm – Borrow Pits Project*.

THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT –

PROJECT AREA: TBP-1: Clarkson 654/RE; TBP-2: Moeilikheid 662; TBP-3: Zalverige Valley 660/3; TBP-4: Diep Rivier Mond 358/RE8; TBP-5: Farm 678/RE2; TBP-6: Farm 787/3 and TBP-7: Zalverige Valley 660/3, Humansdorp registration division, Eastern Cape [1:50,000 map ref – 3424AB and 3424BA].

COVERAGE & GAP ANALYSIS: Pre-feasibility and field assessment (TBP-1 to TBP-7 & associated access roads).

FIELD METHODOLOGY: Three day field assessment; GPS co-ordinates – Garmin Oregon 550; Photographic documentation – Pentax K20D. Site significance assessment – SAHRA 2007 system.

SUMMARY:

Map Code	Site	Co-ordinates	Recommendations
<i>Tsitsikamma Wind Farm – Borrow Pits Project</i>			
TBP-1	Tsitsikamma Borrow Pit – 1	S34°00'54.8"; E24°22'18.5"	N/A
*TBP-2	Tsitsikamma Borrow Pit – 2	S34°03'34.4"; E24°25'17.5"	N/A
TBP-3	Tsitsikamma Borrow Pit – 3	S34°04'06.3"; E24°29'03.2"	N/A
*TBP-4	Tsitsikamma Borrow Pit – 4	S34°03'37.4"; E24°33'58.8"	N/A
*TBP-5	Tsitsikamma Borrow Pit – 5	S34°04'00.1"; E24°34'58.8"	Temporary conservation measures, including temporary fences with signage indicating the TBP-5.S1 and TBP-5.S2 as 'no-entry' areas to be in place for the tenure of construction. Temporary conservation measures should be removed after construction.
TBP-5.S1	Colonial Period – Structure (barn)	S34°04'03.8"; E24°35'06.6"	
TBP-5.S2	Colonial Period – Structure (cattle ramp)	S34°04'03.1"; E24°35'00.1"	
TBP-6	Tsitsikamma Borrow Pit – 6	S34°04'07.8"; E24°29'19.1"	N/A
TBP-7	Tsitsikamma Borrow Pit – 7	S34°04'56.1"; E24°29'09.5"	N/A
(*Preferred borrow pit study sites)			

RECOMMENDATIONS –

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Tsitsikamma Wind Farm – Borrow Pits Project*, Humansdorp registration division, Eastern Cape, proceed as applied for provided the developer comply with the abovementioned summarized recommendations.

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1) TERMS OF REFERENCE

Site Plan Consulting CC (Site Plan) has been appointed by the project proponent, Great Karoo Prospecting (Pty) Ltd, to prepare and submit 7 mining permit applications for Environmental Authorization (EA), including an Environmental Impact Assessment (EIA) and relevant Environmental Management Plans (EMPr's) to the Department of Mineral Resources (DMR), Eastern Cape. The 7 proposed borrow pits, situated in the Humansdorp registration division of the Eastern Cape, roughly between Clarkson in the west and the Impofu Dam in the east, will comprise of development sites varying between 1.5ha and 4ha in size. Material from the borrow pits will be prioritized for construction of the *Tsitsikamma Community Wind Farm* project but will also serve other related infrastructure projects in the district.

ArchaeoMaps was appointed by Site Plan to conduct the Phase 1 Archaeological Impact Assessment (AIA) for the proposed *Tsitsikamma Wind Farm – Borrow Pits Project*.

❖ Development Location, Details and Impact

The proposed *Tsitsikamma Wind Farm – Borrow Pits Project* is situated in the Humansdorp registration division of the Eastern Cape, roughly between Clarkson in the west and the Impofu Dam in the east [1:50,000 map ref – 3424AB and 3424BA], with the 7 study site property descriptions as follows (Site Plan 2013):

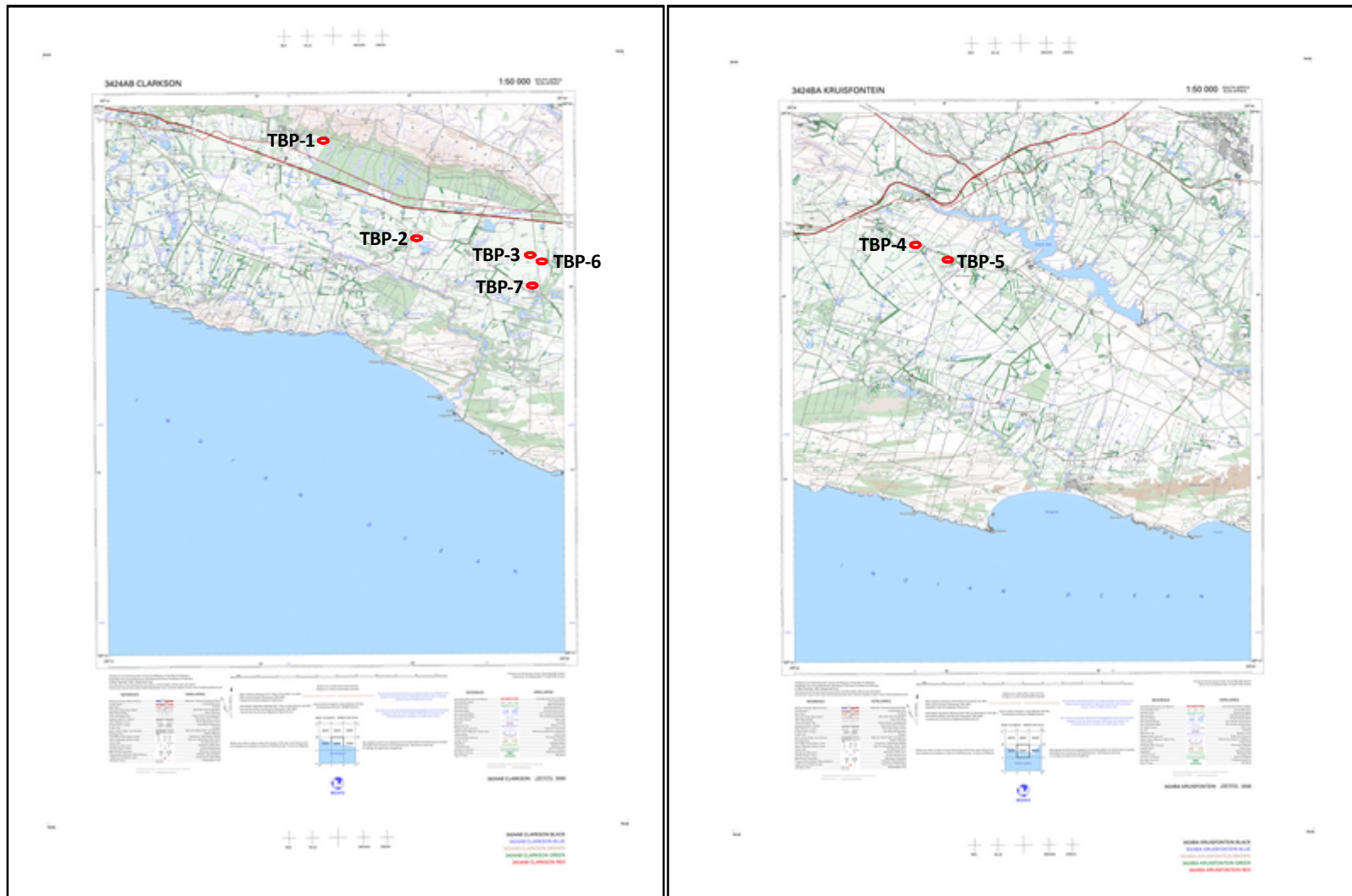
- TBP-1 : Clarkson 654/RE;
- *TBP-2 : Moeilikheid 662;
- TBP-3 : Zalverige Valley 660/3;
- *TBP-4 : Diep Rivier Mond 358/RE8;
- *TBP-5 : Farm 678/RE2;
- TBP-6 : Farm 787/3; and
- TBP-7 : Zalverige Valley 660/3.

(*Preferred borrow pit study sites).

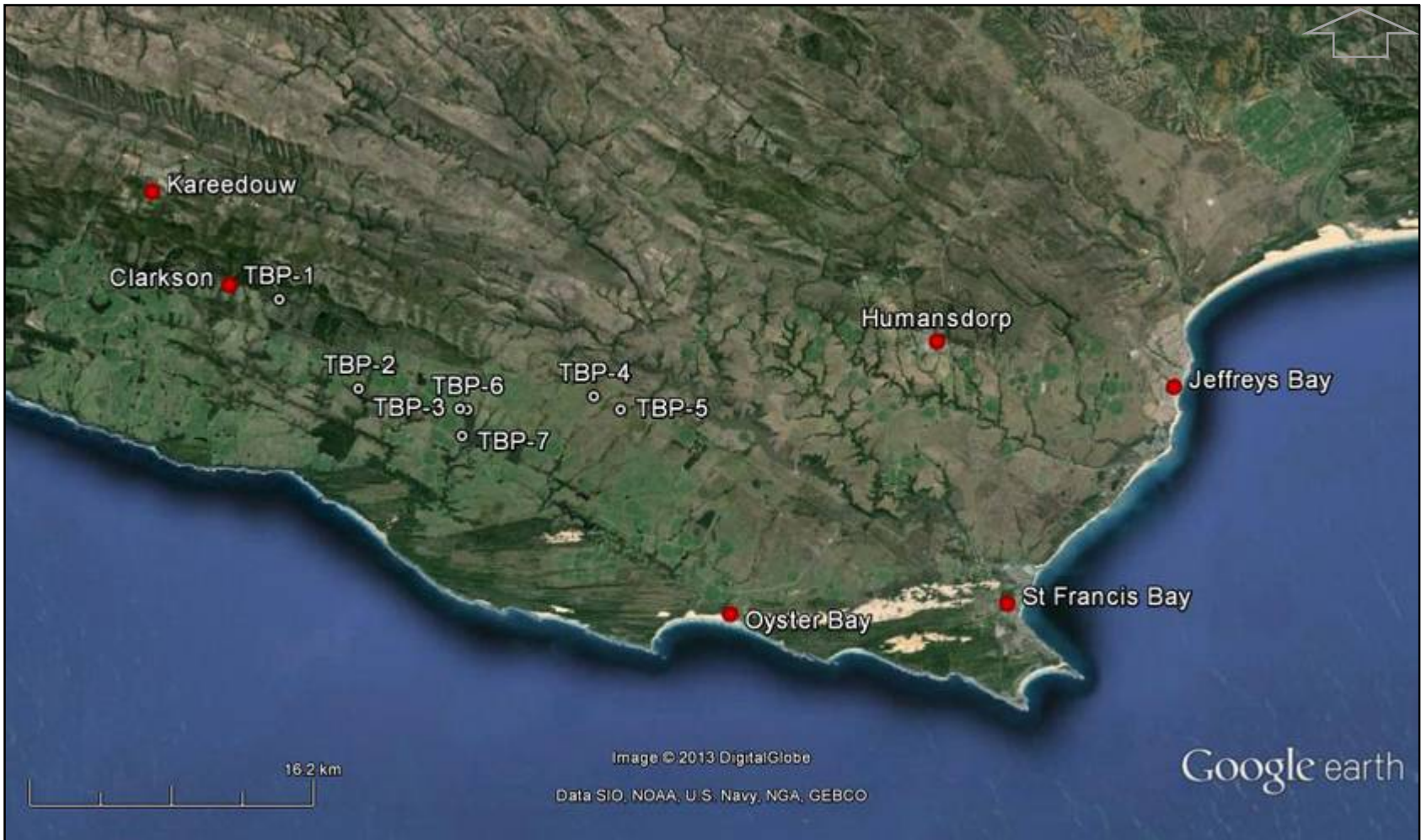
Proposed study sites measures in all cases approximate 1.5ha areas aside from TBP-7 which comprises a roughly 4ha area. TBP-2 constitutes a formerly used borrow pit; all other site proposals (TBP-1 and TBP-3 to TBP-7) are based on the development of virgin sites. Study sites used will be formalized, implying that the development area will be fenced with an access gates, channeling traffic and limiting development impact spillover with reference to potentially identified heritage resources in the vicinity. Access points to public roads will be signposted and heavy vehicle movement managed according to requirements. Environmental assessments and prescription of activities ancillary to the mines, including the access roads, are included in assessments of impact. In the event of further areas being required for stockpiling or logistical facilities outside the indicated study sites, the use of such external areas will be sought under the NEMA (1998) as a separate application and will preferably be identified within the *Tsitsikamma Community Wind Farm* project study site where areas for disturbance have already be demarcated. Proposed borrow pits are expected to have a lifespan of approximately 2 years, renewable to a maximum of 5 years. (Site Plan 2013).

The choice of sites was based on an assessment of the regional geology, the geomorphological relationship between gravel deposits, weathering depth and topographical features, and then combining geological target areas with ecological factor input, with particular preference to existing disturbed and cultivated areas over natural

areas, surrounding land use compatibility, and further matters such as access to delivery roads and delivery distance. Quarried material from the borrow pits will be primarily used to provide suitable material for the construction / maintenance of gravel access roads, crane platforms and concrete aggregate for the wind turbine bases of the already authorized *Tsitsikamma Community Wind Farm*, but will also serve other related infrastructure projects in the district (Site Plan 2013).



Map 1: The Tsitsikamma Wind Farm – Borrow Pits Project: 1:50,000 map ref – 3424AB and 3424BA



Map 2: General locality of the *Tsitsikamma Wind Farm – Borrow Pits Project* study sites, Eastern Cape

2) THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

❖ Archaeological Legislative Compliance

The Phase 1 Archaeological Impact Assessment (AIA) for the *Tsitsikamma Wind Farm – Borrow Pits Project*, Humansdorp registration division, Eastern Cape, was done for purposes of compliance to the South African Heritage Resources Agency's (SAHRA) requirements in terms of the National Heritage Resources Act, No 25 of 1999 (NHRA 1999), with specific reference to Sections 34-38.

The Phase 1 AIA was requested as specialist sub-section with findings and recommendations thereof to be included in the Environmental Impact Assessment (EIA) and Environmental Management Plans (EMPr's) of the development, in compliance with requirements of the Minerals and Petroleum Resources Development Act, No 28 of 2002 (MPRDA 2002), the National Environmental Management Act, No 107 of 1998 (NEMA 1998) and associated Regulations (2010) and the NHRA 1999.

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 basic cultural landscapes or views as defined and protected by the NHRA 1999, that may be affected by the proposed development.

This report comprises of a Phase 1 AIA, including a basic pre-feasibility study and field assessment only.

❖ Methodology and Gap Analysis

The Phase 1 AIA includes a basic pre-feasibility study and field assessment:

- The pre-feasibility assessment is based on the Appendix 1 introductory archaeological literature. In addition the SAHRA 2009 Mapping Project Database and the SAHRA Built Environment Database on Declared Provincial Heritage Sites (buildings older than 60 years) of the Eastern Cape were consulted. The study excludes consultation of the Albany Museum, the SAHRA accredited Data Recording Centre (DRC) for the Eastern Cape region's database.
- The field assessment was done on 2013-07-04 and 07-05. The assessment was done by foot and off-road vehicle and limited to a Phase 1 surface survey. GPS co-ordinates 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. Scale bar: 10cm intervals.

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

SAHRA ARCHAEOLOGICAL AND CULTURAL HERITAGE SITE SIGNIFICANCE ASSESSMENT			
Site Significance	Field Rating	Grade	Recommended Mitigation
High Significance	National Significance	Grade I	Site conservation / Site development
High Significance	Provincial Significance	Grade II	Site conservation / Site development
High Significance	Local Significance	Grade III-A	Site conservation or extensive mitigation prior to development / destruction
High Significance	Local Significance	Grade III-B	Site conservation or extensive mitigation prior to development / destruction
High / Medium Significance	Generally Protected A	Grade IV-A	Site conservation or mitigation prior to development / destruction
Medium Significance	Generally Protected B	Grade IV-B	Site conservation or mitigation / test excavation / systematic sampling / monitoring prior to or during development / destruction
Low Significance	Generally Protected C	Grade IV-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

❖ Assessor Accreditation

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 / AMAFA / EC PHRA listed CRM archaeologist.

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 *Tsitsikamma Wind Farm – Borrow Pits Project*, Humansdorp registration division, Eastern Cape, can briefly be described as:

1. Early Hominin : Probability – *None*

2. Stone Age
 - a. ESA : Probability – *Low-Medium*
 - b. MSA : Probability – *Medium-High*
 - c. LSA : Probability – *Medium-High* (Human remains may be expected; if identified of both scientific and social significance)
 - i. Rock Art : Probability – *Low-Medium*
 - ii. Shell Middens : Probability – *Low-Medium*

3. Iron Age
 - a. Early Iron Age : Probability – *None*
 - b. Middle Iron Age : Probability – *None*
 - c. Later Iron Age : Probability – *Low*

4. Colonial Period
 - a. Colonial Period : Probability – *Low-Medium* (Human remains expected to be primarily associated with formal cemeteries)
 - b. Iron Age / Colonial Period Contact : Probability – *Low*
 - c. Industrial Revolution : Probability – *None*

❖ The SAHRA 2009 Database

A number of archaeological Cultural Resources Management (CRM) projects are recorded in the SAHRA 2009 Mapping Project Database situated within an approximate 35km radius from the *Tsitsikamma Wind Farm – Borrow Pits Project* study sites. CRM project study sites are clustered towards the east of the *Tsitsikamma Wind Farm – Borrow Pits Project* study site, near Oyster- and Jeffrey's Bay, with only a single study site near Kareedouw in the west. CRM studies recorded in the SAHRA 2009 Mapping Project Database are listed as:

- Binneman, J. (Eastern Cape Heritage Consultants). 2006a. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment on Portion 60 (Part of Portion 57) of the farm Klein Zeekoei Rivier No 335, Humansdorp District (Kouga Municipality);*
- Binneman, J. (Eastern Cape Heritage Consultants). 2006b. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment for the Subdivision and Rezoning of +/- 40ha of Portion 123 (Portion of Portion 67) of the Farm 'Estate Klein Zeekoei Rivier' No 3, Humansdorp District (Kouga Municipality);*

- Binneman, J. (Eastern Cape Heritage Consultants). 2006c. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment for the Rezoning and Subdivision of Portion 32 of the farm Rheeboekfontein No 346, Humansdorp District, Kouga Municipality;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2006d. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment for the Rezoning of Erven 3279, 3280 and 3281 in Humansdorp (Kouga Municipality) from Agricultural to Residential Zone III;*
- Binneman, J. (Albany Museum). 2006e. *Archaeological Heritage Impact Assessment for the Proposed Development of Portion A of the Farm Zeekoei Rivier 793 in the Humansdorp District;*
- Binneman, J. (Albany Museum). 2006f. *Phase 1 Archaeological Heritage Impact Assessment for the Proposed Development of the Remainder of the Farm Noorsekloof 327, Jeffrey's Bay;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2006g. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment for the Proposed Development of a Portion of the Farm Mentorskraal No 336, Jeffrey's Bay;*
- Binneman, J. (Albany Museum). 2006h. *Archaeological Heritage Impact Assessment of the Remainder of Erf 328, Jeffrey's Bay;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2006i. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment for the Subdivision and Rezoning of Portion 28 of the Farm 'Melkhoutekraal' No 254 in Kareedouw (Koukamma Municipality);*
- Binneman, J. (Eastern Cape Heritage Consultants). 2007. *Phase 1 Archaeological Heritage Impact Assessment of the Proposed Development of a Hotel and Resort on Erf 6338, Jeffrey's Bay, Kouga Municipality, Eastern Cape Province;*
- Binneman, J. (Albany Museum). 2008. *A Phase 1 Archaeological Heritage Impact Assessment of the Proposed Establishment of Eco-residential Units on Portion 2 of Farm Swan Lake No 755, Aston Bay, Kouga Municipality, Eastern Cape Province;*
- Nilssen, P.J. (Mossel Bay Archaeology Project). 2003. *Proposed St. Francis Golf Estate (Heritage Impact Assessment Phase 1). Final Report;*
- Nilssen, P.J. (CHARM). 2007. *Inspection of Destruction of Archaeological Deposits and Archaeological Impact Assessment of Further Construction Related Activities – 11 Diaz Road, Jeffrey's Bay Magisterial District, Eastern Cape Province;*
- Van Schalkwyk, J.A. (National Cultural History Museum). 2007. *Proposed Marina Village Development, Jeffrey's Bay, Humansdorp Magisterial District, Eastern Cape;*
- Webley, L.E. (Albany Museum). 2002. *St. Francis Bay Beach Remediation – Phase 1 Heritage Impact Assessment Report;*
- Webley, L.E. (Albany Museum). 2005. *Heritage Impact Assessment of Jubilee Estates, Ashton Bay;*
- Webley, L.E. (Albany Museum). 2006a. *Phase 1 Archaeological Impact Assessment along the St. Francis Bay Beach;* and
- Webley, L.E. (Albany Museum). 2006b. *Phase 1 Heritage Impact Assessment, Portion 2 of the Farm Osbosch 707, St. Francis Bay;*

A notable number of archaeological CRM studies have been done post compilation of the SAHRA 2009 Mapping Project Database and available on SAHRIS including, but not limited to:

- Anderson, G. (Umlando) 2011. *Heritage Survey of the Proposed 66kV Line between St. Francis and Red Cap Kouga Wind Farm, Eastern Cape;*

- Binneman, J. (Eastern Cape Heritage Consultants). 2008. *Phase 1 Archaeological Heritage Impact Assessment for the Proposed Kouga Wind Energy Project near Jeffrey's Bay, Kouga Municipality, District of Humansdorp, Eastern Cape;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2009. *A Phase 1 Archaeological Impact Assessment of the Proposed Cob Creek Estate Development on Portion 21 of the Farm Kabeljous Rivier No 321, Jeffrey's Bay, Kouga Municipality, Eastern Cape Province;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2011a. *A Phase 1 Archaeological Impact Assessment of the Communal Jetty on the Northern Bank of the Kromme River Estuary, Kouga Local Municipality, Eastern Cape Province;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2011b. *A Phase 1 Archaeological Impact Assessment for the Proposed Oyster Bay Wind Energy Facility, Kouga Local Municipality, Humansdorp District, Eastern Cape Province;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2011c. *A Phase 1 Archaeological Heritage Impact Assessment for the Proposed Happy Valley Wind Energy Facility near Humansdorp, Kouga Local Municipality, Eastern Cape Province;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2011d. *An Archaeological Desktop Study for the Construction of the Proposed Tsitsikamma Community Wind Energy Facility, Kouga Local Municipality, Humansdorp District, Eastern Cape Province;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2011e. *A Phase 1 Archaeological Impact Assessment for the Proposed Tsitsikamma Community Wind Energy Facility, Kouga Local Municipality, Eastern Cape Province;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2011f. *A Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Impact Assessment for the Proposed Shallow Drilling Programme (5 boreholes) at Cape St. Francis, Kouga Municipality, Humansdorp District, Eastern Cape Province;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2011g. *A Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment for the Proposed Construction of a Filling Station and Associated Infrastructure on the Corner of St. Francis Drive and Outenique Drive, Jeffrey's Bay, Kouga Municipality, Eastern Cape Province;*
- Binneman, J. (Eastern Cape Heritage Consultants). 2012. *Environmental Impact Assessment for the Proposed Banna Ba Pifhu Wind Energy Project near Humansdorp, Eastern Cape. Draft Environmental Impact Assessment Report. Chapter 11: Impact on Archaeology;*
- Halkett, D. (ACO-UCT). 2010. *Heritage Impact Assessment for Three Proposed Nuclear Power Station Sites and Associated Infrastructure;*
- Nilssen, P.J. (CHARM). 2003. *Proposed St. Francis Golf Estate Phase 2 Mitigation of Heritage Resources. Proposal for Recommended Mitigation;*
- Van Ryneveld, K. (ArchaeoMaps). 2010. *Cultural Heritage Impact Assessment – Establishment of a Commercial Wind Farm, Kouga Local Municipality, Eastern Cape, South Africa;*
- Van Ryneveld, K. (ArchaeoMaps). 2012a. *Phase 1 Archaeological Impact Assessment: Mining Right Application: Farms Klein Rivier (713-32) and Buffelsbosch (742-14), Humansdorp District, Eastern Cape, South Africa;*
- Van Ryneveld, K. (ArchaeoMaps). 2012b. *Phase 1 Archaeological Impact Assessment: Utilization of Existing Gravel Borrow Pits, Cacadu District, Eastern Cape, South Africa;*

- Van Schalkwyk, J.A. (National Cultural History Museum). 2010. *Heritage Impact Assessment for the Eskom Thuyspunt Transmission Lines Integrated Project. 400kV Electricity Transmission Lines, Grassridge to Thuyspunt, Port Elizabeth Region, Eastern Cape*;
- Van Schalkwyk, L. & Wahl, E. (eThembeni). 2009a. *Final Draft Report. Heritage Impact Assessment of Thuyspunt nuclear 400kV Integration Project: Northern Corridor, Cape St. Francis / Uitenhage / Port Elizabeth, Eastern Cape Province, South Africa*;
- Van Schalkwyk, L. & Wahl, E. (eThembeni). 2009b. *Final Draft Report. Heritage Impact Assessment of Thuyspunt nuclear 400kV Integration Project: Southern Corridor, Cape St. Francis / Uitenhage / Port Elizabeth, Eastern Cape Province, South Africa*;
- Wahl, E. & Van Schalkwyk, L. (eThembeni). 2013a. *Phase 1 Archaeological Impact Assessment Report: Proposed 132kV Power Line and Substation Infrastructure: Melkhout – Dieprivier, Kouga Local Municipality, Cacadu District, Eastern Cape Province, South Africa*;
- Wahl, E. & Van Schalkwyk, L. (eThembeni). 2013b. *Phase 1 Archaeological Impact Assessment Report: Proposed 132kV Power Line and Substation Infrastructure: Melkhout – Petensie, Kouga Local Municipality, Cacadu District, Eastern Cape Province, South Africa*;

❖ The Albany Museum Archaeological Database

Access to the Albany Museum archaeology database, 1:50,000 map ref – 3424AB and 3424BA, was requested on 2013-06-22. At the time of submission of this report no response regarding database access has been received from the Albany Museum.

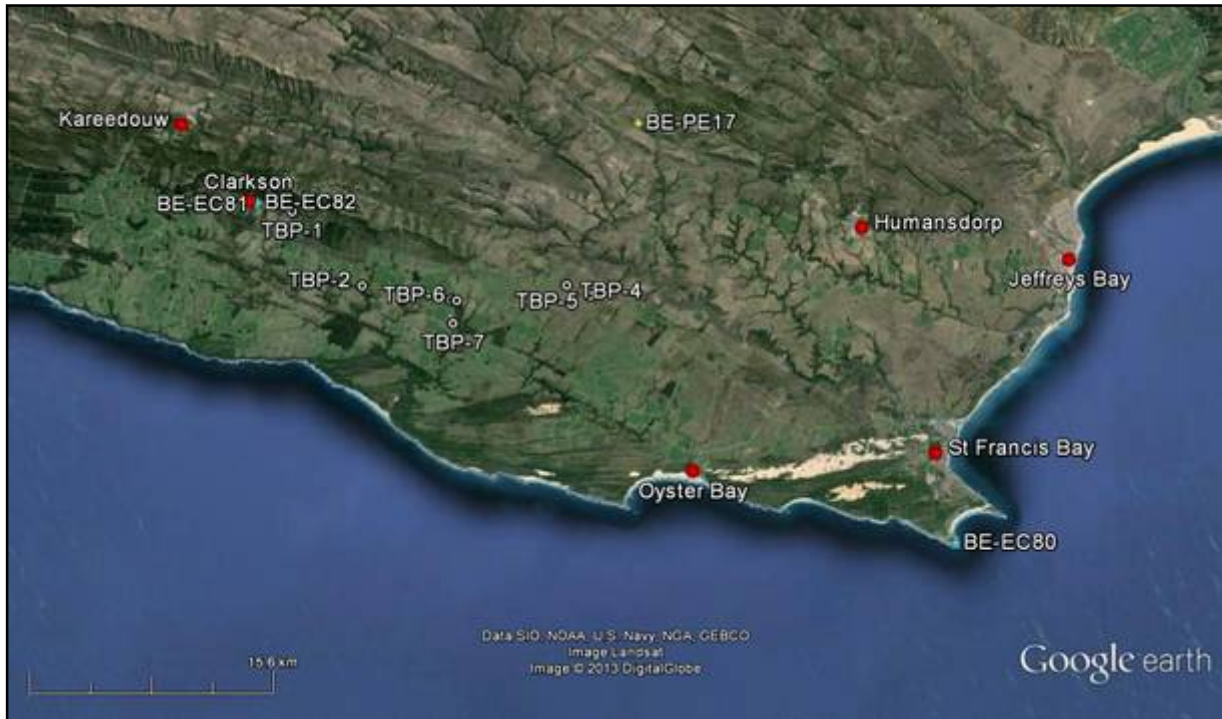
❖ SAHRA Built Environment Database – Eastern Cape

Declared Provincial Heritage Sites (buildings older than 60 years) situated in the vicinity of the *Tsitsikamma Wind Farm – Borrow Pits Project* study site area recorded in the SAHRA Built Environment – Eastern Cape database can be listed as:

- BE-EC80: SAHRA Identifier – 9/2/044/0004: Seal Point Lighthouse (1876), Cape St. Francis, Humansdorp District. Provincial Heritage Site;
- BE-EC81: SAHRA Identifier – 9/2/044/0006: Moravian Mission Complex, Mission Station, Clarkson, Humansdorp District. Provincial Heritage Site; and
- BE-EC82: SAHRA Identifier – 9/2/044-0006-001: Moravian Mission Complex, Mission Church, Clarkson, Humansdorp District. Provincial Heritage Site.

One declared Provincial Heritage Site listed in the SAHRA Built Environment – Port Elizabeth database spatially displays in the vicinity of the *Tsitsikamma Wind Farm – Borrow Pits Project* study site area, but it is assumed that the co-ordinates of the record is faulty on the database:

- BE-PE17: SAHRA Identifier – 9/2/073/0009: 10 Bird Street (Victorian Town House), Port Elizabeth Central, Port Elizabeth. Provincial Heritage Site.



Map 3: Distribution of declared Provincial Heritage Sites in the vicinity of the *Tsitsikamma Wind Farm – Borrow Pits Project* study site

❖ General Discussion

The '*Tsitsikamma*' stretches from the Bloukrans River in the west to the Eerste Rivier in the east and from the imposing Tsitsikamma Mountains in the north to the Indian Ocean in the south (www.tsitsikammahotel.co.za/area/index.html). Tsitsikamma is a Khoer word aptly meaning 'place of abundant or sparkling water' (<http://tsitsikamma.co.za>) ['*tse-tsesa*' meaning clear and '*gami*' meaning water].

A rich Stone Age record is reported on in CRM and research projects from the wider terrain, including Earlier (ESA), Middle (MSA) and Later Stone Age (LSA) sites and occurrences and providing for an interesting association with the landscape: The coastal zone remains the most sensitive, with many primarily LSA shell midden sites recorded within 300m from the coastline. From here it seems that the number of archaeological sites and occurrences decrease radically inland, but remains concentrated along significant landscape markers; water sources and raw material outcrops, with in comparison more ESA and MSA resources than along the immediate coastline.

Halkett (2010) reported on ESA and MSA occurrences at Thuyspunt. However, it is a rich array of LSA shell midden sites, some with inferred significant stratigraphic depth and shell scatters along the immediate coastline and more prominently in the dune fields that dominate the Thuyspunt cultural landscape. At Oyster Bay Nilssen (2003) argued for the Phase 2 mitigation of an intricate MSA and LSA amalgamation of shell midden sites situated within the dune system. Just north of the dune fields a large ESA, MSA and LSA site is situated in a palaeo-watercourse (van Ryneveld 2010), while a range of mostly deflated ESA, MSA and LSA scatters seem to be associated with quartzitic outcrops north of the dune system (Anderson 2011; Van Ryneveld 2012a). Roughly 5+ km inland

Binneman (2008, 2012) reported on further ESA and MSA artefacts in disturbed water born contexts. Two excavated LSA shelter sites, dated to approximately 6kya were reported on with reference to proximity thereof to development, while dated pastoralist members set an age of approximately 1,5kya for Khoe presence in the greater Jeffrey's Bay area (Binneman 2009).

Further west along the coastline and closer to the *Tsitsikamma Wind Farm – Borrow Pits Project* study site the Klassies River Mouth archaeological complex dominates by far in significance: The site is host to the oldest modern human remains, dated to 120kya. A number of research projects on the stratified archaeological deposits containing a variety of cultural remains have yielded a wealth of information including amongst others Industry level identification of lithic deposits, including a MSA Howiesonspoot level and LSA Kabeljous and Wilton members. Slightly inland from the Klassies River Mouth complex the Melkhoutboom site, another research site, is known for its ESA, MSA and LSA lithic deposits. Brandewynkop represent an inland dune field system exploited by seemingly both MSA and LSA communities, including verified pastoralist deposits. Binneman (2011b) commented on the fact that despite no formal surveys have been done in the coastal area between the Tsitsikamma and Klippepunt, informal field visits indicate again a potential archaeological wealth of Stone Age sites and resources, potentially similar to the Thuyspunt and Klassies River cultural landscapes. Approximately 1km inland from the Kromme River Mouth, along the banks of the river, LSA shell middens and scatters are still fairly common. Here deposits containing pastoralist ceramics have also been identified (Binneman 2011a). Further inland and in the immediate vicinity of the *Tsitsikamma Wind Farm – Borrow Pits Project*, Binneman (2011e) identified only low densities of ESA and MSA artefacts in disturbed contexts during his survey of the *Tsitsikamma Community Wind Farm* study site, with some further Stone Age deposits of said significance also identified during other surveys further inland (Van Ryneveld 2012b).

Second to the rich Stone Age heritage of the general area is the Colonial Period past: Anderson (2011) identified no less than 28 Colonial Period structures during his survey of the Red Cap wind farm power lines, while Colonial Period resources have also been reported on by Halkett (2010) and Van Ryneveld (2010). Listed Provincial Heritage Sites compliments the Colonial Period record of the region, with specific reference to the Moravian history of Clarkson. Though seldom mentioned in heritage documentation cognisance needs also be taken of the Paul Sauer Bridge, commonly known as the Storms River Bridge, designed by Italian Ricardo Morandi and constructed in 1954 (www://tsitsikammahotel.co.za/area/index.htm), at present only a year away from its 60 year formal heritage conservation status.

2.2) FIELD ASSESSMENT

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during field assessment of study sites TBP-1, TBP-2, TBP-3, TBP-4, TBP-6 and TBP-7. It is recommended that development of these borrow pits proceed as applied for without the developer having to comply with additional archaeological and cultural heritage compliance requirements.

Two archaeological and cultural heritage sites were identified in close proximity to the TBP-5 study site, including TBP-5.S1 and TBP-5.S2. Both sites are Colonial Period sites (farming infrastructure), with site TBP-5.S1 confirmed to pre-date 60 years of age although the date of Site TBP-5.S2 is at present not known. It is recommended that both sites be temporarily conserved (temporary fences with 'no-entry' signage) for the tenure of the development. All temporary conservation measures should be removed after construction. Temporary conservation measures recommended for the duration of construction does not refer to the 2 year use of the site (and applicable possible extension thereto), but specifically to the period during which the access road will be constructed / upgraded and fences erected around the development study site to demarcate the area of impact and formalize the development. Once the access road is constructed and the borrow pit site fenced the risk of accidental impact on the resources are minimized and land-use, or structure-use in this case, can continue as before by the landowner.

2.2.1) TSITSIKAMMA BORROW PIT – 1 (TBP-1): S34°00'54.8"; E24°22'18.5"



Map 4: TBP-1 study site (including archaeological fieldwork tracklog - white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the TBP-1 study site and access road. No archaeological artefacts or occurrences were identified on the surface of the site. Churned material from geotechnical test pits indicates anthropogenic sub-surface sterility.

- **RECOMMENDATIONS:** It is recommended that establishment of the TBP-1 borrow pit proceed as applied for without the developer having to comply with additional archaeological and cultural heritage compliance requirements.



Plate 1: General view of the TBP-1 study site [1]



Plate 3: General view of the TBP-1 study site [2]



Plate 2: Anthropogenic sterile churned deposit from geotech test pits



Plate 4: General view of the TBP-1 study site [3]

2.2.2) TSITSIKAMMA BORROW PIT – 2 (TBP-2): S34°03'34.4"; E24°25'17.5"



Map 5: TBP-2 study site (including archaeological fieldwork tracklog - white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the TBP-2 study site, including the relevant access road. Thick vegetation did obscure surface visibility radically. The absence of surface archaeological traces seems to be echoed by the rather overgrown sub-surface sections of the formerly used portion of the study site.

- **RECOMMENDATIONS:** It is recommended that continued utilization of the TBP-2 borrow pit proceeds as applied for without the developer having to comply with additional archaeological and cultural heritage compliance requirements.



Plate 5: General view of the TBP-2 study site [1]



Plate 7: General view of the TBP-2 study site [3]



Plate 6: General view of the TBP-2 study site [2]



Plate 8: General view of the TBP-2 study site [4]

2.2.3) TSITSIKAMMA BORROW PIT – 3 (TBP-3): S34°04'06.3"; E24°29'03.2"



Map 6: TBP-3 study site (including archaeological fieldwork tracklog - white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the TBP-3 study site. No archaeological artefacts, occurrences or traces were identified on the surface of the study site. Eroded sub-surface exposures to the immediate east of the study site indicated anthropogenic sub-surface sterility at least to a level of 40-50cm below the surface.

At the time of assessment a proposed access road to the study site was not formalized; for purposes of assessment relating to a proposed access road to Site TBP-3 see also the archaeological tracklog displayed with the TBP-6 study site.

- **RECOMMENDATIONS:** It is recommended that establishment of the TBP-3 borrow pit proceed as applied for without the developer having to comply with additional archaeological and cultural heritage compliance requirements.



Plate 9: General view of the TBP-3 study site [1]



Plate 11: General view of the TBP-3 study site [2]



Plate 10: Anthropogenic sterile sub-surface sections at TBP-3



Plate 12: General view of the TBP-3 study site [3]

2.2.4) TSITSIKAMMA BORROW PIT – 4 (TBP-4): S34°03'37.4"; E24°33'58.8"



Map 7: TBP-4 study site (including archaeological fieldwork tracklog - white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the TBP-4 study site. No archaeological artefacts or occurrences were identified on the surface of the site. Churned material from a ploughed field to the north of the study site indicated general anthropogenic sterility.

At the time of the assessment an access road to TBP-4 was not yet defined, both a rough eastern and western route was included.

- **RECOMMENDATIONS:** It is recommended that establishment of the TBP-4 borrow pit proceed as applied for without the developer having to comply with additional archaeological and cultural heritage compliance requirements.



Plate 13: General view of the TBP-4 study site [1]



Plate 15: General view of the TBP-4 study site [3]



Plate 14: General view of the TBP-4 study site [2]



Plate 16: General view of the TBP-4 study site [4]

2.2.5) TSITSIKAMMA BORROW PIT – 5 (TBP-5): S34°04'00.1"; E24°34'58.8"



Map 8: TBP-5 study site (including archaeological fieldwork tracklog - white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the immediate TBP-5 study site area. No archaeological artefacts or occurrences were identified on the surface of the site and while no sub-surface sections were present at the study site churned material from a ploughed field to the north of the study site indicated general anthropogenic sterility. Towards the south-east of the TBP-5 borrow pit site 2 Colonial Period sites were identified, briefly summarized as:

❖ TBP-5.S1 – Colonial Period Infrastructure – Barn (S34°04'03.8"; E24°35'06.6")

The TBP-5.S1 Colonial Period barn is situated approximately 160m south-east of the TBP-5 borrow pit study site. Site TBP-5.S1 constitutes a structure predating 60 years of age and thus formally protected by the NHRA 1999.

The site receives automatic SAHRA protection as a site of *High Significance* with a *Provincial Grade II Field Rating*. However, architecturally the structure is assigned a *SAHRA Medium Significance* and a *Generally Protected B Field Rating*. Development will not impact on the site – the site will thus be conserved. The site is at present fenced within the farm camp with an access gate, complying with minimum SAHRA site conservation standards. The TBP-5 borrow pit site will be fenced within the framework of the development proposal: No additional permanent conservation measures are recommended pertaining specifically to Site TBP-5.S1, with direct reference to contemporary land use including continued use of the site. The developer should however ensure that temporary conservation measures are in place for the duration of the development (temporary fence of construction netting

or a similar visually clearly demarcated boundary with signage indicating the area as a 'no-entry' zone). All temporary conservation measures should be removed after construction.

❖ TBP-5.S2 – Colonial Period Infrastructure – Cattle Ramp (S34°04'03.1"; E24°35'00.1")

The TBP-5.S2 Colonial Period cattle ramp is situated roughly 25m south-east of the TBP-5 borrow pit study site. Site TBP-5.S2 may constitute a structure predating 60 years of age, although the site might be younger than this, implying that the structure may be formally protected by the NHRA 1999.

The site receives preliminary automatic SAHRA protection as a site of *High Significance* with a *Provincial Grade II Field Rating*. However, architecturally the structure is assigned a *SAHRA Low Significance* and a *Generally Protected A Field Rating*. Development will not impact on the site – the site will thus be conserved. The site is at present fenced within the farm camp with an access gate, complying with minimum SAHRA site conservation standards. Based primarily on the doubtful age of the site and the low cultural significance thereof no additional permanent conservation measures are recommended, specifically with reference to current land use. The developer should however ensure that temporary conservation measures are in place for the duration of the development (temporary fence of construction netting or a similar visually clearly demarcated boundary with signage indicating the area as a 'no-entry' zone). Temporary conservation measures should be removed after construction.

At the time of assessment the access road to TBP-5 was not defined, a rough route through the field was assessed. However, an existing farm road runs south of the site, which will provide for an equally feasible access road to the study site.

- **RECOMMENDATIONS:** It is recommended that establishment of the TBP-5 borrow pit proceed as applied for. No additional permanent conservation measures are recommended. Temporary conservation measures should be in place prior to commencement of the development at sites TBP-5.S1 and TBP-5.S2 situated in proximity to the TBP-5 borrow pit site. Temporary conservation measures should be removed after construction.



Plate 17: General view of the TBP-5 study site [1]



Plate 19: View of the study site with the cattle ramp in the background



Plate 18: General view of the TBP-5 study site [2]



Plate 20: General view of the TBP-5.S1 Colonial Period infrastructure

2.2.6) TSITSIKAMMA BORROW PIT – 6 (TBP-6): S34°04'07.8"; E24°29'19.1"



Map 9: TBP-6 study site (including archaeological fieldwork tracklog - white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the TBP-6 study site. Quartzite outcrops characterized the central and southern portion of the study site. However, these outcrops don't seem to be associated with an almost expected low density Stone Age artefacts. No sub-surface exposed sections were present on site to provide for a sub-surface interpretation.

At the time of assessment a proposed access road to the study site was not formalized; assessment to both the east and west of the study site should suffice for purposes of an access road to Site TBP-6 (and extended to TBP-3).

- **RECOMMENDATIONS:** It is recommended that establishment of the TBP-6 borrow pit proceed as applied for without the developer having to comply with additional archaeological and cultural heritage compliance requirements.



Plate 21: General view of the TBP-6 study site [1]



Plate 23: General view of the TBP-6 study site [3]



Plate 22: General view of the TBP-6 study site [2]



Plate 24: General view of the TBP-6 study site [4]

2.2.7) TSITSIKAMMA BORROW PIT – 7 (TBP-7): S34°04'56.1"; E24°29'09.5"



Map 10: TBP-7 study site (including archaeological fieldwork tracklog - white)

No archaeological or cultural heritage resources, as defined and protected by the NHRA 1999, were identified during the field assessment of the TBP-7 study site and access road. No archaeological artefacts or occurrences were identified on the surface of the site, but with thick vegetation obscuring surface visibility noticeably, across both virgin and agricultural fields. The vehicle access track running south-west to north-east across the study site provided for a shallow sub-surface scraped inspection of no more than 10cm in depth – yielding no anthropogenic indicators.

- **RECOMMENDATIONS:** It is recommended that establishment of the TBP-7 borrow pit proceed as applied for without the developer having to comply with additional archaeological and cultural heritage compliance requirements.



Plate 25: General view of the TBP-7 study site [1]



Plate 27: General view of the TBP-7 study site [3]



Plate 26: General view of the TBP-7 study site [2]



Plate 28: General view of the TBP-7 study site [4]

3) RECOMMENDATIONS

With reference to archaeological and cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Tsitsikamma Wind Farm – Borrow Pits Project*, Humansdorp registration division, Eastern Cape, proceeds as applied for provided the developer comply with the below listed heritage compliance requirements:

TSITSIKAMMA WIND FARM – BORROW PITS PROJECT				
HUMANSDORP REGISTRATION DIVISION, EASTERN CAPE				
Map Code	Type / Period	Description	Co-ordinates	Recommendations
<i>Tsitsikamma Wind Farm – Borrow Pits Project</i>				
TBP-1	-	-	S34°00'54.8"; E24°22'18.5"	N/A
*TBP-2	-	-	S34°03'34.4"; E24°25'17.5"	N/A
TBP-3	-	-	S34°04'06.3"; E24°29'03.2"	N/A
*TBP-4	-	-	S34°03'37.4"; E24°33'58.8"	N/A
*TBP-5	-	-	S34°04'00.1"; E24°34'58.8"	Temporary conservation measures, including temporary fences with signage indicating the TBP-5.S1 and TBP-5.S2 as 'no-entry' areas to be in place for the tenure of construction. Temporary conservation measures should be removed after construction.
TBP-5.S1	Colonial Period	Structure (barn)	S34°04'03.8"; E24°35'06.6"	
TBP-5.S2	Colonial Period	Structure (cattle ramp)	S34°04'03.1"; E24°35'00.1"	
TBP-6	-	-	S34°04'07.8"; E24°29'19.1"	N/A
TBP-7	-	-	S34°04'56.1"; E24°29'09.5"	N/A
*Preferred borrow pit study sites				

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

NOTES:

- Should any archaeological or cultural heritage resources, including human remains / graves, 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 the EC PHRA and an ASAPA accredited CRM archaeologist. Human remains confirmed younger than 60 years are to be reported directly to the nearest police station.
- Should any registered Interested & Affected Party (I&AP) wish to be consulted in terms of Section 38(3)(e) of the NHRA 1999 (Socio-cultural consultation / SAHRA SIA) it is recommended that the developer / EAP ensures that the consultation be prioritized within the timeframe of the Environmental Impact Assessment (EIA).

4) REFERENCES

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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* (signatory 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, Ndondonwane 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 comprises 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 Chibueni, 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 region's 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 typography 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 paramountcy 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

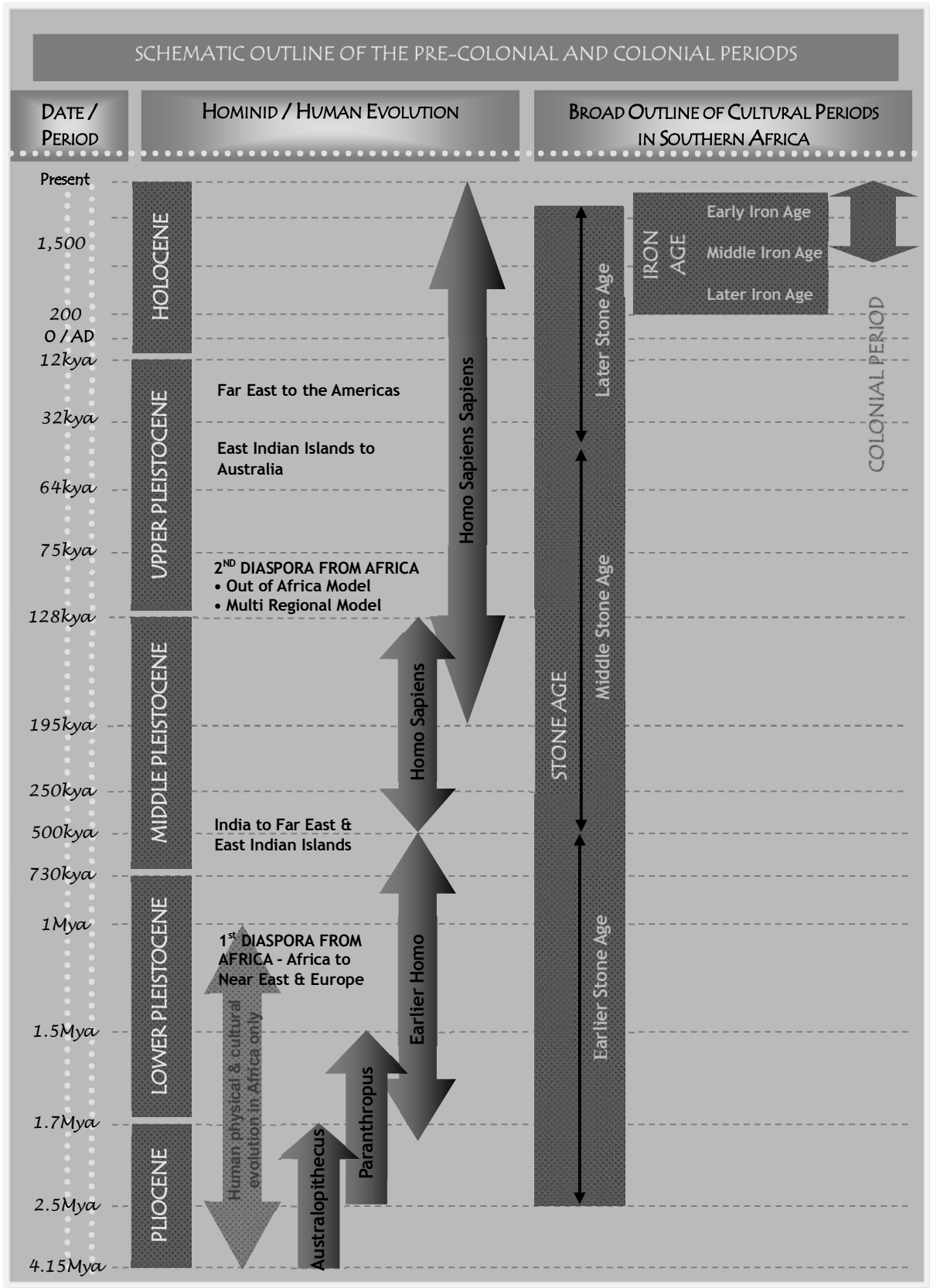
From the late 1600's conflict between migrants from the Cape (predominantly Boers) and Xhosa people in the region of the Fish River were strife, ultimately resulting in a series of 9 Frontier Wars (1702-1878) (Milton 1983). Both cultures were heavily based and reliant on agriculture and cattle farming. 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'.



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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 trace;
- 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-interment 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.