
PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**MINING RIGHT APPLICATION:
FARMS KLEIN RIVIER (713-32) AND BUFFELSBOSCH (742-14),
HUMANSDORP DISTRICT, EASTERN CAPE, SOUTH AFRICA**

DATE: 2012-06-25



REPORT TO:

CRAIG DONALD (Site Plan Consulting)

Tel: 021 854 4260; Fax: 021 854 4321;

Postal Address: P.O. Box 28, Strand, 7139;

E-mail: craig@siteplan.co.za

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

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

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

E-mail: mgalimberty@sahra.org.za

PREPARED BY:

KAREN VAN RYNEVELD (ArchaeoMaps Archaeological Consultancy)

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

Postal Address: Postnet Suite 239, Private Bag X3, Beacon Bay, 5205;

E-mail: kvanryneveld@gmail.com

**PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT
MINING RIGHT APPLICATION:
FARMS KLEIN RIVIER (713-32) AND BUFFELSBOSCH (742-14),
HUMANSDORP DISTRICT, EASTERN CAPE, SOUTH AFRICA**

EXECUTIVE SUMMARY

TERMS OF REFERENCE:

Site Plan has been appointed by the project proponent, Impuma, to prepare the EIA and EMP for the proposed *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project*, in the Eastern Cape province, South Africa. The mining right application has been made in terms of Section 22 of the MPRDA 2002. The application, over 2 non-contiguous portions of land, focuses on the development of a hard rock drill and blast surface mine and processing plant: Section 1 on the property Buffelsbosch comprises of an 8.7ha study site; Section 2 on the property Klein Rivier comprises of a 3.8ha study site. ArchaeoMaps was appointed by Site Plan to prepare the Phase 1 AIA for the proposed project.

THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT:

PROJECT AREA: Farms Klein Rivier and Buffelsbosch, Humansdorp District, Kouga Municipal District, Eastern Cape [1:50,000 Map Ref – 3424BA]. The application focuses on 2 non-continuous areas, described as:

- Section 1 – Buffelsbosch 742-14 – 8.7ha study site – S34°09'11.3"; E24°44'09.8";
- Section 2 – Klein Rivier 713-32 – 3.8ha study site – S34°08'30.0"; E24°43'43.5".

GAP ANALYSIS: Phase 1 AIA assessment covered both study sites (Section 1 & Section 2).

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

SUMMARY:

Sites	Period	Recommendations	Recommendations
Section 1 – Buffelsbosch 742-14			
Site 2.6	Colonial Period - Farmstead	S34°09'08.9"; E24°44'47.3"	N/A (In situ conservation)
Site 48.1	Stone Age – (ESA), MSA & LSA	S34°09'17.8"; E24°44'18.0"	1. Phase 2 archaeological mitigation, section conservation and continued monitoring; and 2. Destruction under a SAHRA Site Destruction Permit
FS1	Stone Age – (ESA)	S34°09'15.1"; E24°44'16.9"	
FS2	Stone Age – (ESA)	S34°09'21.0"; E24°44'10.5"	
Section 2 – Klein Rivier 713-32			
FS1	Stone Age – MSA & LSA	S34°08'38.0"; E24°43'41.3"	1. Archaeological site inspection; and 2. Destruction under a SAHRA Site Destruction Permit

Cultural landscape: Impact on the cultural landscape can be described as high and permanent, but localized.

Socio-cultural consultation: Landowner Roedolf Gerber has no objections to the development. Consultation with the Gamtkwa KhoiSan Council will be done after compilation of the Phase 1 AIA and will be reported on to the environmental consultant and SAHRA.

RECOMMENDATIONS:

With reference to cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project*, Eastern Cape, proceeds as applied for provided the developer complies with the abovementioned recommendations.

PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

**MINING RIGHT APPLICATION:
FARMS KLEIN RIVIER (713-32) AND BUFFELSBOSCH (742-14),
HUMANSDORP DISTRICT, EASTERN CAPE, SOUTH AFRICA**

CONTENTS

1) TERMS OF REFERENCE	3
❖ Development Location, Details & Impact.....	3
2) THE ARCHAEOLOGICAL IMPACT ASSESSMENT.....	6
❖ Archaeological Legislative Compliance.....	6
❖ Methodology & Assessor Accreditation.....	6
❖ Coverage and Gap Analysis.....	7
2.1) PRE-FEASIBILITY ASSESSMENT.....	8
2.2) THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT	13
2.2.1) SECTION 1 – BUFFELSBOSCH (742-14) – S34°09'11.3"; E24°44'09.8".....	14
SITE 2.6 (COLONIAL PERIOD – FARMSTEAD):	15
SECTION 1 – SITE 48.1, FS1 & FS2 (STONE AGE – ESA, MSA & LSA):	15
2.2.2) SECTION 2 – KLEIN RIVIER (713-32) – S34°08'30.0"; E24°43'43.5".....	20
SECTION 2 – FS1 (STONE AGE – MSA & LSA):	21
2.3) CULTURAL LANDSCAPES AND VIEWSCAPES.....	23
❖ The Klein Rivier and Buffelsbosch Cultural Landscape.....	24
2.4) SOCIO-CULTURAL CONSULTATION.....	26
3) CONCLUSION AND RECOMMENDATIONS.....	28
4) REFERENCES.....	29

APPENDIX - A:

Introduction to the Archaeology of South Africa

APPENDIX - B:

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

LIST OF FIGURES:

Figure 1: General locality of the proposed Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project study sites between Humansdorp, Oyster Bay and Cape St. Francis.....	4
Figure 2: Close-up of the properties Buffelsbosch and Klein Rivier indicating the proposed study sites, Section 1 and Section 2 respectively	4
Figure 3: Proposed site layout (courtesy Site Plan).....	5
Figure 4: Phase 1 AIA assessment findings.....	13
Figure 5: Section 1 on the property Buffelsbosch 742-14.....	14
Figure 6: Phase 1 AIA assessment findings.....	14
Figure 7: Image gallery – Section 1	19
Figure 8: Section 2 on the property Klein Rivier 713-32.....	20
Figure 9: Phase 1 AIA assessment findings.....	20
Figure 10: Image gallery – Section 2	22
Figure 11: Invitation to participate in the SAHRA SIA.....	27

LIST OF TABLES:

Table 1: SAHRA archaeological and cultural heritage site significance assessment.....	6
Table 2: Development and Phase 1 AIA assessment findings – co-ordinate details.....	28

1) TERMS OF REFERENCE

Site Plan Consulting (Site Plan) has been appointed by the project proponent, Impuma Quarries (Pty) Ltd (Impuma), to prepare the Environmental Impact Assessment (EIA) and Environmental Management Plan (EMP) for the proposed *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project*, in the Eastern Cape province, South Africa. The mining right application has been made in terms of Section 22 of the Minerals and Petroleum Resources Development Act, No 28 of 2002 (MPRDA 2002). The application, over 2 non-contiguous portions of land, focuses on the development of a hard rock drill and blast surface mine and processing plant: Section 1 on the property Buffelsbosch comprises of an 8.7ha study site; Section 2 on the property Klein Rivier comprises of a 3.8ha study site.

ArchaeoMaps Archaeological Consultancy was appointed by Site Plan to prepare the Phase 1 Archaeological Impact Assessment (AIA) for the project.

❖ *Development Location, Details & Impact*

The proposed *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* is situated in the Kouga Municipal District of the Eastern Cape, approximately 13km south of Humansdorp, 8km east of Oyster Bay and more or less 7.5km west of Cape St. Francis [1:50,000 Map Ref – 3424BA].

The application for a mining right is applied for over 2 non-contiguous portions of land to develop a hard rock drill and blast surface mine and processing (crushing and screening) plant. The 2 sections of the application are briefly described as (Site Plan 2011):

- | | | | |
|--------------|-----------------------|--------------------|-------------------------------|
| 1) Section 1 | – Buffelsbosch 742-14 | – 8.7ha study site | – S34°09'11.3"; E24°44'09.8"; |
| 2) Section 2 | – Klein Rivier 713-32 | – 3.8ha study site | – S34°08'30.0"; E24°43'43.5". |

Section 1 will house the 'aggregate' quarry (i.e. finer material), the processing plant and stockpiling area. Section 2 will contain only excavation for 'armoring' (i.e. coarser material). At Section 1 mining or quarrying will occur as a drill and blast operation with faces of 9-11m high and a blast size of 20,000-30,000 tons/blast, approximately once per month. Drilling and blasting will be conducted by a contractor. Drilling by hydraulic track rig and computer controlled blast detonation systems represents the latest quarrying techniques. Ahead of the face blasting, topsoil (where available outside of exposed bedrock) will be removed to stockpile berms for use in rehabilitation. Shot rock will be loaded by excavator into articulated dump trucks for hauling to the mobile / static full plant. At Section 2 mining will be conducted as a drill and blast operation using pre-split blasting (i.e. one row of closely spaced holes) to maximize the percentage of large boulders. All boulders more than 1 ton will be stockpiled or transported directly to be used as armoring. A small percentage of the non-oversized rock will either require picking (i.e. secondary breaking) and then all suitably sized material (i.e. not oversized) will be transported to the crushing plant for processing as aggregate (Site Plan 2011).

The closest farmstead is the landowners farmstead, situated approximately 750m north-east of Section 1 and 1.5km south-east of Section 2. The closest public roads are the Humansdorp / Oyster Bay unsurfaced road and the link road between it and St. Francis Bay. Both roads are located 1.8km from Section 2 at the closest point and approximately 3.4km and 2.3km from Section 1. Both sites are located on fallow land, largely agricultural / rural in nature (Site Plan 2011).

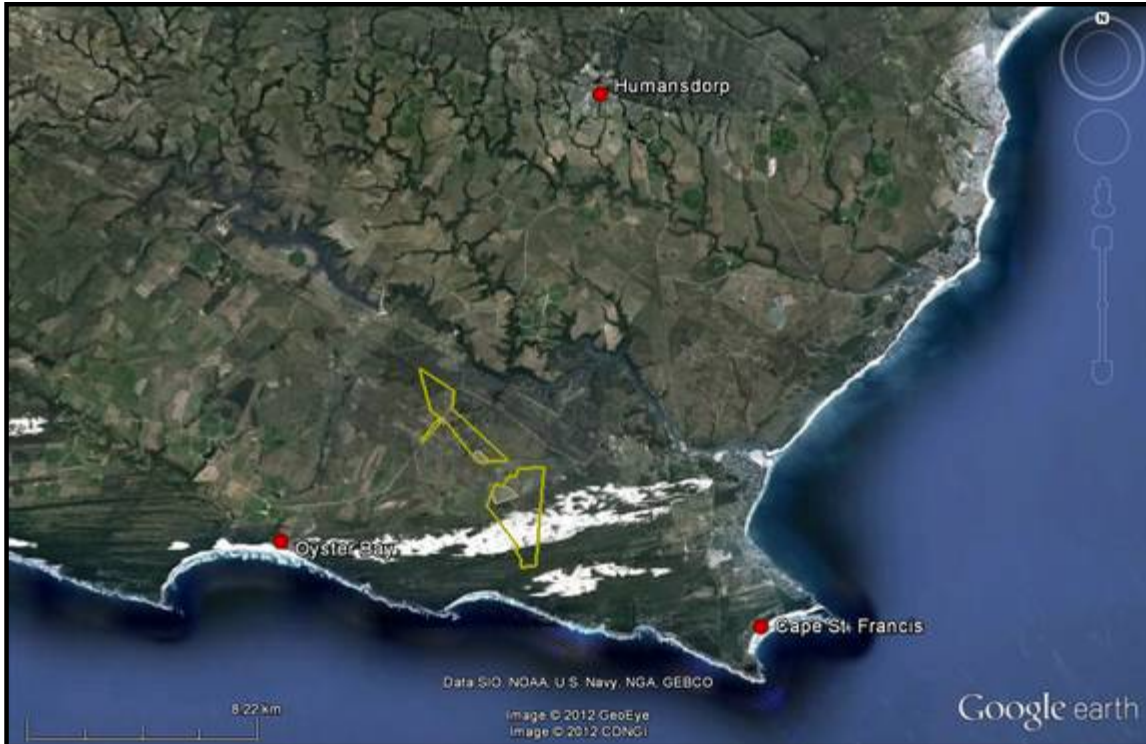


Figure 1: General locality of the proposed Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project study sites between Humansdorp, Oyster Bay and Cape St. Francis



Figure 2: Close-up of the properties Buffelsbosch and Klein Rivier indicating the proposed study sites, Section 1 and Section 2 respectively

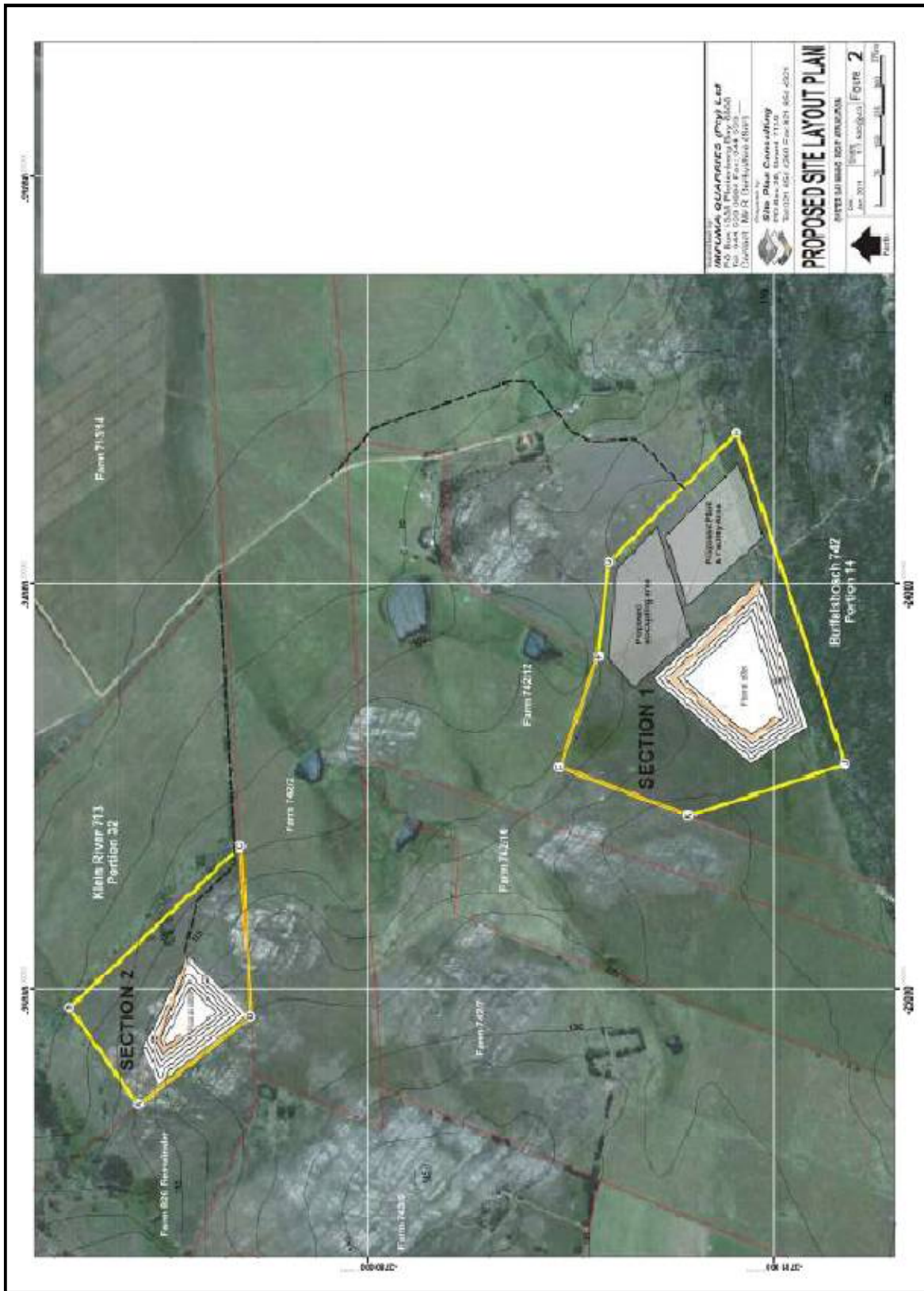


Figure 3: Proposed site layout (courtesy Site Plan)

2) THE ARCHAEOLOGICAL IMPACT ASSESSMENT

❖ *Archaeological Legislative Compliance*

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

The Phase 1 AIA was requested as specialist sub-section with findings and recommendations thereof to be included in the Environmental Impact Assessment (EIA) and Environmental Management Plan / Program (EMP), of the project 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 (2006 and 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 cultural landscapes or viewsapes as defined and protected by the NHRA 1999, that may be affected by the proposed development.

This report comprises of a basic AIA, including a basic pre-feasibility and Phase 1 AIA assessment with brief comments on the cultural landscape and public consultation, specifically requested by SAHRA in terms of Section 38(3)(e) of the NHRA 1999 (SAHRA 2012).

❖ *Methodology & Assessor Accreditation*

The Phase 1 AIA was done over a 2 day period (2012-06-11 to 06-12) by one archaeologist. The assessment was done by foot and limited to a Phase 1 surface survey; no excavation or sub-surface testing was done. GPS coordinates were taken with a Garmin Oregon 550 (Datum: WGS84). Photographic documentation was done with a Pentax K20D camera. A combination of Garmap and Google Earth software was used in the display of spatial information.

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

Table 1: SAHRA archaeological and cultural heritage site significance assessment

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

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

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

Karen van Ryneveld is a SAHRA listed CRM archaeologist.

❖ *Coverage and Gap Analysis*

The Phase 1 AIA covered both the proposed study sites, including the 8.7ha Section 1 area, Buffelsbosch, and the 3.8ha Section 2 area, Klein Rivier.

Phase 1 AIA assessment findings do not represent an all inclusive record of sites that may be situated on the relevant properties and surrounds. Assessment was focused on the 2 proposed study sites.

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 *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* study site can briefly be described as:

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

2. **STONE AGE**
 - a. ESA : Probability – *Medium*
 - b. MSA : Probability – *Medium* (Human remains not expected but should they be identified they will be of particular scientific significance)
 - c. LSA : Probability – *Medium* (Human remains may well be expected; should they be identified they will be of both scientific and social significance)
 - i. Rock Art : Probability – *Low*
 - ii. Shell Middens : Probability – *Low – Medium* (See LSA)

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 – *High* (Human remains expected to be primarily associated with formal cemeteries)
 - b. Iron Age / Colonial Period Contact : Probability – *Low-Medium*
 - c. Industrial Revolution : Probability – *Low*

A number of Cultural Resources Management (CRM) projects are recorded in the SAHRA mapping project (2009) database situated within an approximate 70km radius from the *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* study site, summarized as:

- Binneman, J. (Albany Museum). 2002. *Archaeological Heritage Sensitivity Investigation of the Proposed Burial Site of Sarah Baartman at Hankey, Kouga Municipality, Eastern Cape Province*. (SAHRA reference: 2002-SAHRA-0114);
- Binneman, J. (Albany Museum). 2006a. *Archaeological Heritage Impact Assessment for the Proposed Development of Portion A of the farm Zeekoei Rivier No 793 in the Humansdorp District*. (SAHRA reference: 2006-SAHRA-0027);
- Binneman, J. (Albany Museum). 2006b. *Phase 1 Archaeological Heritage Impact Assessment for the Proposed Development on the Remainder of Farm Noorsekloof 327, Jeffrey's Bay*. (SAHRA reference: 2006-SAHRA-0168);
- Binneman, J. (Albany Museum). 2006c. *Archaeological Heritage Impact Assessment for the Proposed Development of the Remainder of Erf 328, Jeffrey's Bay*. (SAHRA reference: 2006-SAHRA-0169);

- Binneman, J. (Albany Museum). 2006d. *Archaeological Heritage Impact Assessment for the Proposed Development of Portion 6 of Erf 336, Portion of Erf 321 and Portion 32 of Erf 321, Jeffrey's Bay.* (SAHRA reference: 2006-SAHRA-0171);
- Binneman, J. (Albany Museum). 2006e. *Archaeological Heritage Impact Assessment for the Proposed Development of Portion 5 of the Farm Die Woud No 500 in the Thornhill District.* (SAHRA reference: 2006-SAHRA-0177);
- Binneman, J. (Albany Museum). 2006f. *Letter of Recommendation 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.* (SAHRA reference: 2006-SAHRA-0175);
- Binneman, J. (Albany Museum). 2006g. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment for the Hankey Sewer Pipeline, Hankey (Kouga Municipality).* (SAHRA reference: 2006-SAHRA-0216);
- Binneman, J. (Eastern Cape Heritage Consultants). 2006h. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Impact Assessment for the Rezoning and Subdivision of Portion 32 of the Farm Rheebofontein No 346, Humansdorp District, Kouga Municipality.* (SAHRA reference: 2006-SAHRA-0172);
- 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 Rezoning of Erven 3279, 3280 and 3281 in the Humansdorp District (Kouga Municipality) from Agriculture to Residential Zone III.* (SAHRA reference: 2006-SAHRA-0173);
- Binneman, J. (Eastern Cape Heritage Consultants). 2006j. *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.* (SAHRA reference: 2006-SAHRA-0167);
- Binneman, J. (Eastern Cape Heritage Consultants). 2006k. *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 River No 335, Humandorp District (Kouga Municipality).* (SAHRA reference: 2006-SAHRA-0176);
- Binneman, J. (Eastern Cape Heritage Consultants). 2007a. *Letter of Recommendation (with Conditions) for the Exemption of a Full Phase 1 Archaeological Heritage Impact Assessment for the Proposed Hankey Golf Estate Development on Erf 1435, Hankey, Kouga Municipality, Eastern Cape.* (SAHRA reference: 2007-SAHRA-0433);
- Binneman, J. (Eastern Cape Heritage Consultants). 2007b. *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.* (SAHRA reference: 2007-SAHRA-0435);
- Binneman, J. (Albany Museum). 2008a. *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.* (SAHRA reference: 2008-SAHRA-0373);
- Binneman, J. (Albany Museum). 2008b. *A Phase 1 Archaeological Heritage Impact Assessment of the Proposed Establishment of an Eco-Residential Development on Portion 1, 4A, 4B, 5 and Remainder of the Farm Swan Lake No 755, Aston Bay, Kouga Municipality, Eastern Cape Province.* (SAHRA reference: 2008-SAHRA-0377);
- Binneman, J. (Eastern Cape Heritage Consultants). 2008c. *Phase 1 Archaeological Impact Assessment on the Proposed Development on Portion 78 of the Farm Ongegunde Vryheid No 746 (Rocky Coast Farm), Cape St. Francis, Kouga Municipality, Humansdorp District, Eastern Cape Province.* (SAHRA reference: 2008-SAHRA-0032);

- Binneman, J. (Eastern Cape Heritage Consultants). 2008d. *Phase 1 Archaeological Heritage Impact Assessment for the Proposed 'St. Francis Coastal Reserve' on Portions of the Remainder of the Farm new Papiessfontein No 320, Kouga Municipality, District of Humansdorp, Eastern Cape.* (SAHRA reference: 2008-SAHRA-0474);
- Nilssen, P.J. (Mossel Bay Archaeology Project). 2003. *Proposed St. Francis Golf Estate (Heritage Impact Assessment Phase 1) Final Report.* (SAHRA reference: 2003-SAHRA-0116);
- Nilssen, P.J. (CARM). 2007. *Inspection of Destruction of Archaeological Deposits and Archaeological Impact Assessment of further Construction Related Activities – 11 Diaz Road, Jeffrey's Bay, Jeffrey's Bay Magisterial District, Eastern Cape Province.* (SAHRA reference: 2007-SAHRA-0128);
- Van Schalkwyk, J.A. (National Cultural History Museum). 2007. *Proposed Marina Village Development, Jeffrey's Bay, Humansdorp Magisterial District, Eastern Cape Province.* (SAHRA reference: 2007-SAHRA-0404);
- Webley, L.E. (Albany Museum). 2002. *St. Francis Bay Proposed Beach Remediation – Phase 1 Heritage Assessment.* (SAHRA reference: 2002-SAHRA-0115);
- Webley, L.E. (Albany Museum). 2005. *Heritage Assessment of Jubilee Estates, Aston Bay.* (SAHRA reference: 2005-SAHRA-0301);
- Webley, L.E. (Albany Museum). 2006a. *Phase 1 Archaeological Impact Assessment along the St. Francis Bay Beach.* (SAHRA reference: 2006-SAHRA-0467);
- Webley, L.E. (Albany Museum). 2006b. *Phase 1 Heritage Impact Assessment: Portion 2 of the Farm Osbosch 707, St. Francis Bay.* (SAHRA reference: 2006-SAHRA-0333);

More recent CRM studies have been done in the more immediate area, including but not limited to:

- ACO, UCT. 2010. *Environmental Impact Assessment for Three Proposed Nuclear Power Station Sites and Associated Infrastructure.* CRM report to Arcus Gibb.
- Anderson, G. (Umlando). 2010. *Heritage Survey of the Proposed Melkhout-Oyster Bay Transmission Line.* CRM report to Arcus Gibb.
- Anderson, G. (Umlando). 2011 *Heritage Survey of the Proposed 66kv Line between St. Francis and Red Cap Kouga Wind Farm, Eastern Cape.* CRM report to CES.
- Binneman, J. (Eastern Cape Heritage Consultants). 2010. *A Phase 1 Archaeological Heritage Impact Assessment for the Proposed Deep River Wind Energy Project, Kouga Municipality, District of Humansdorp, Eastern Cape Province.* CRM report to Savannah Environmental.
- Binneman, J. (Eastern Cape Heritage Consultants). 2011a. *A Phase 1 Archaeological Impact Assessment for the Proposed Oyster Bay Wind Energy Facility, Kouga Local Municipality, Humansdorp District, Eastern Cape Province.* CRM report to Savannah Environmental.
- Binneman, J. (Eastern Cape Heritage Consultants). 2011b. *A Phase 1 Archaeological Impact Assessment for the Proposed Tsitsikamma Community Wind Energy Facility, Kouga Local Municipality, Humansdorp District, Eastern Cape Province.* CRM report to Savannah Environmental.
- Binneman, J. & Booth, C. (Albany Museum). 2010. *A Phase 1 Archaeological Impact Assessment (AIA) for the Proposed 20MW Wind Farm on Three Proposed Alternative Sites: Erf 121, Driftsands (Site Alternative 1), Bushy Park Farm, Remainder of Erf 26, as well as Portions 5, 6 and 7 thereof (Site Alternative 2) and Rietfontein Farm, Erf 594, van Stadens East (Site Alternative 3), Nelson Mandela Metropolitan Municipality, Port Elizabeth, Eastern Cape Province.* CRM report to SRK.
- Van Ryneveld, K. (ArchaeoMaps). 2010. *Cultural Heritage Impact Assessment – Establishment of a Commercial Wind Farm, Kouga Local Municipality, Eastern Cape, South Africa.* CRM report to Arcus Gibb.

[Reports recorded in the SAHRA mapping project (2009) were requested from SAHRA on 2012-06-05, but access to the reports could not be obtained prior to submission of this report.]

[The Albany Museum, the SAHRA accredited Regional Data Recording Centre for the Eastern Cape region was contacted with regards to database access (SAHRA 2007). At the time of submission of this report database access could not be obtained, based on research department policy compilation procedures (E-mail correspondence with Dr. Johan Binneman, Head of Archaeology, Albany Museum – 2012-01-16, 01-31, 02-05, 04-10 and 06-04). On 2012-06-05 Dr. Johan Binneman stated that based on early retirement the request be further referred to Celeste Booth. The database access request was referred to Celeste Booth on 2012-06-07 and replied to on 2012-06-14 stating that the policy document will be finalized and a copy thereof forwarded to ArchaeoMaps. The policy document has as yet not been finalized; by implication database access could be obtained.]

The following summary, aiming to provide a brief description of the more immediate receiving cultural environment of the proposed *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* study site, is based on data recorded in a limited number of referenced CRM reports dating from 2010 onwards:

- Earlier and Middle Stone Age (ESA & MSA) artefacts and sites were recorded in many a CRM report to as far as approximately 17km inland (Binneman 2010), associated with natural draw cards to these areas and including river banks and other fresh water resources as well as raw material outcrops (Anderson 2011, 2011; Binneman 2010, 2011a, 2011b; & Van Ryneveld 2010). As a norm ESA and MSA recorded sites and occurrences are described a low archaeological significance, though Anderson (2011) assigned medium significance ratings to a number of recorded disturbed concentrations of lithic artefacts, more than often directly associated with raw material outcrops. The Site 2.3 ESA & MSA site, containing also a low quantity of Later Stone Age (LSA) artefacts, was assigned a high significance rating (Van Ryneveld 2010). In addition to CRM recorded sites Binneman (2011a, 2011b) includes the Albany Museum database recorded Brandewynkop site in his description of the receiving cultural environment of the greater area, where ESA, MSA and LSA artefacts were discovered. The Klasies River Complex remains the most significant, primarily MSA site recorded and researched along the southern Cape coast of the Eastern Cape. The site was first reported to the South African Museum in 1955 and from the 1960's onwards research projects have been ongoing. The Klasies River Complex was declared a National Monument in 1990. After replacement of the National Monuments Act, No 28 of 1969 (NMA 1969) by the NHRA 1999, the site received automatic site status as a National Heritage Resource. The Klasies River Mouth Complex was also proposed, as part of a serial submission, as a World Heritage Site in 1998 (<http://whc.unesco.org/en/tentativelists>), with specific reference to evidence for early modern human remains, dating to between 90-120kya and archaeological evidence relating to cultural modernity.

Binneman (2010, 2011a, 2011b) describes a general 5km archaeological sensitive zone from the coast relating more specifically to LSA 'strandloper' type sites, with recorded sites from his PhD thesis, situated within the more immediate Thyspunt area, described (ACO UCT 2010) as concentrated within 300-400m from the coastline. Evidence of this site distribution pattern was also found by the ACO UCT (2010), who describes concentrations of LSA type sites as radically decreasing from there to the approximate 2km mark from the shoreline. These sites are typically characterized by rich concentrations of shell remains in cases associated with lithic artefacts and ceramic, including decorated ceramic. Shell midden type sites may however also be fairly ephemeral in character, particularly threatened by the dynamic shifting coastal dune landscape. High concentrations of shell midden type sites were also identified by Binneman & Booth

(2010) further east towards Port Elizabeth with high concentrations of sites recorded within the approximate 1km zone from the coastline.

While the majority of the Stone Age is associated with a hunter-gatherer type lifestyle, the influx of Khoe pastoralists, approximately 2,000 years ago (2kya) marks the first significant socio-cultural change along the southern Cape coast: Khoe pastoralists kept domesticated animals (specifically goat and sheep) alongside their use of the natural environment and for purposes of this report purposely the coastal zone, for the collection and harvesting of seafood resources and organized themselves according to a kingship socio-political structure. Fish traps at Tony's Bay within the greater Thyspunt area may be ascribed to either Khoe exploitation of the environment, although the possibility of the site having Colonial Period origins cannot be excluded (ACO UCT 2010). Stone walling further towards the interior may again be ascribed either to Khoe or Colonial farming activities (Anderson 2011).

The Iron Age is poorly represented in the archaeological record: No Iron Age sites were recorded in any of the listed CRM reports done for developments in the immediate study site area.

Aside from prominent Stone Age activity across the cultural landscape, Colonial occupation from the late 1700's and particularly around 1820 greatly served to change the face of tangible heritage resources and the way of life along the southern Cape coast, closely related to the establishment of Cape St. Francis as a small trading port. Colonial Period farmsteads are found dotted on the landscape, with Built Structures pre-dating 60 years of age, reported on by the ACO UCT (2010), Anderson (2010, 2011) and Van Ryneveld (2010), some of which are also described as of living heritage significance (ACO UCT 2010). Associated cultural activities are evidenced by agricultural and live stock farming, practiced by farmers with ancestral ties to the project area dating to the 1820's and soon thereafter as well as associated Colonist family cemeteries (Anderson 2010, Van Ryneveld 2010). Anderson (2011) highlighted the use of the 1953 and 1975 topographical map sets in monitoring more recent Colonial Period changes to the cultural landscape, primarily dating from the 1960's onwards, while the ACO UCT (2010) reported on the unfortunate poor Built Environment record of the Eastern Cape and specifically the southern Cape coast.

Evidence of the Industrial Revolution across the greater study area is poor but easily identifiable by visible modern roads (albeit many are still gravel), power lines etc, in addition to large scale tourism and residential developments closer to Cape St. Francis.

A number of shipwrecks are known from the greater Cape St. Francis to Oyster Bay area, many of which are fairly recent and briefly listed as: Andre C (unknown), Barcelona (1973), Bokkeveld (1978), Cyprus (1881), Davina (1881), Derby (1895), Dorys SA (1943), Etosha (1998), Excelsior (1995), Galaxy (1942), Genesis (1992), George T. Hay (1906), Inch Kenneth (1877), Iocolos Victory (1996), Jason (1869), Karlin (1998), Kosmopolit (1880), Lady Head (1859), L'Aigle (1850), L'August (1858), L'Uranie (1800), Mic Mac (1879), Mitford (1875), Nagos (1993), Niagara (1872), Palli Hja Mariannu (1999), Pigot (1785), Rona (1883), Santa Artemis (1972), Spy (1851), Sun (2001), Susan Crisp (1851) and the Which Way (1999) (<http://sashipwrecks.com/Webb/htm>).

2.2) THE PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT

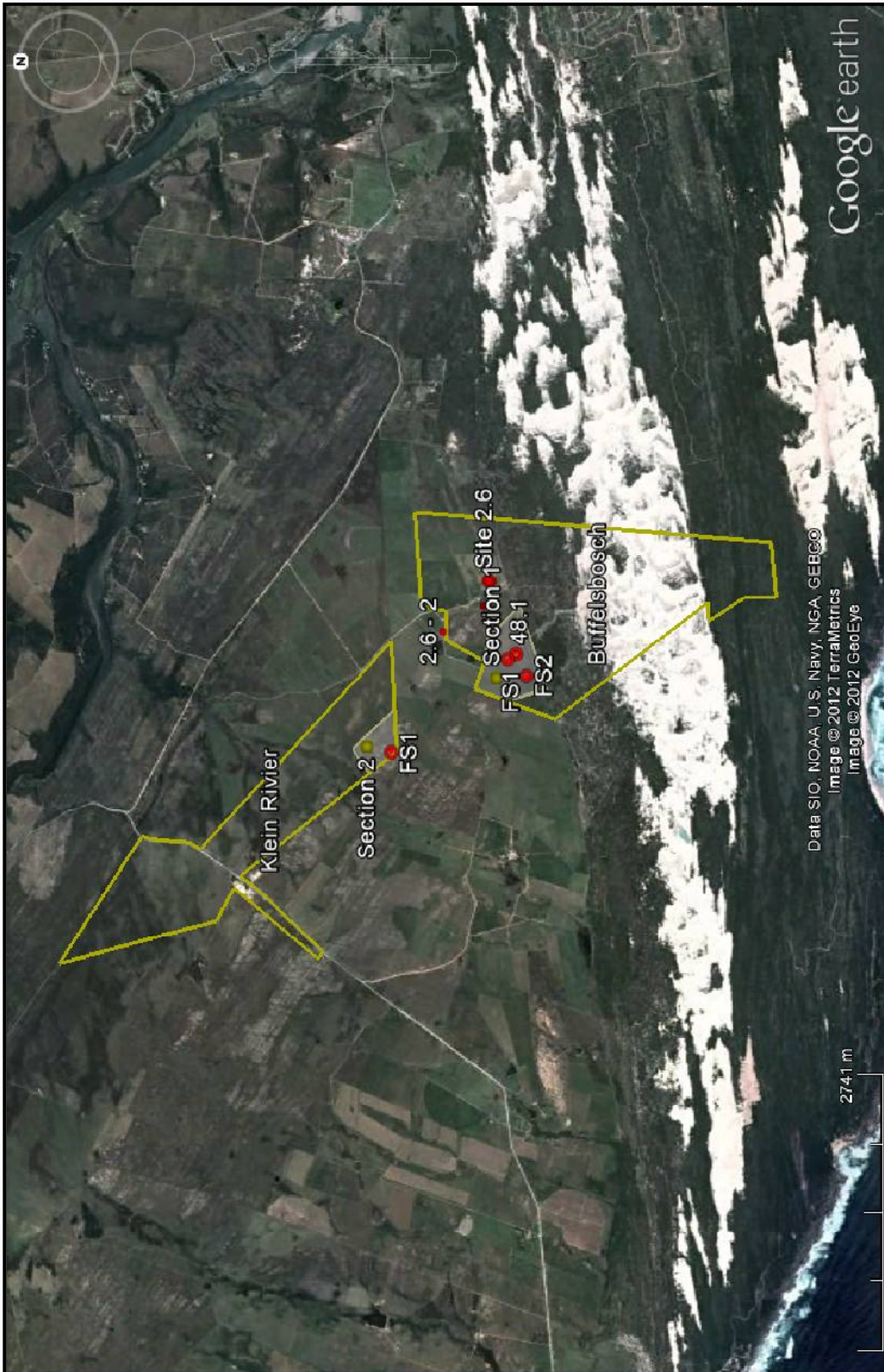


Figure 4: Phase 1 AIA assessment findings

2.2.1) SECTION 1 – BUFFELSBOSCH (742-14) – S34°09'11.3"; E24°44'09.8"

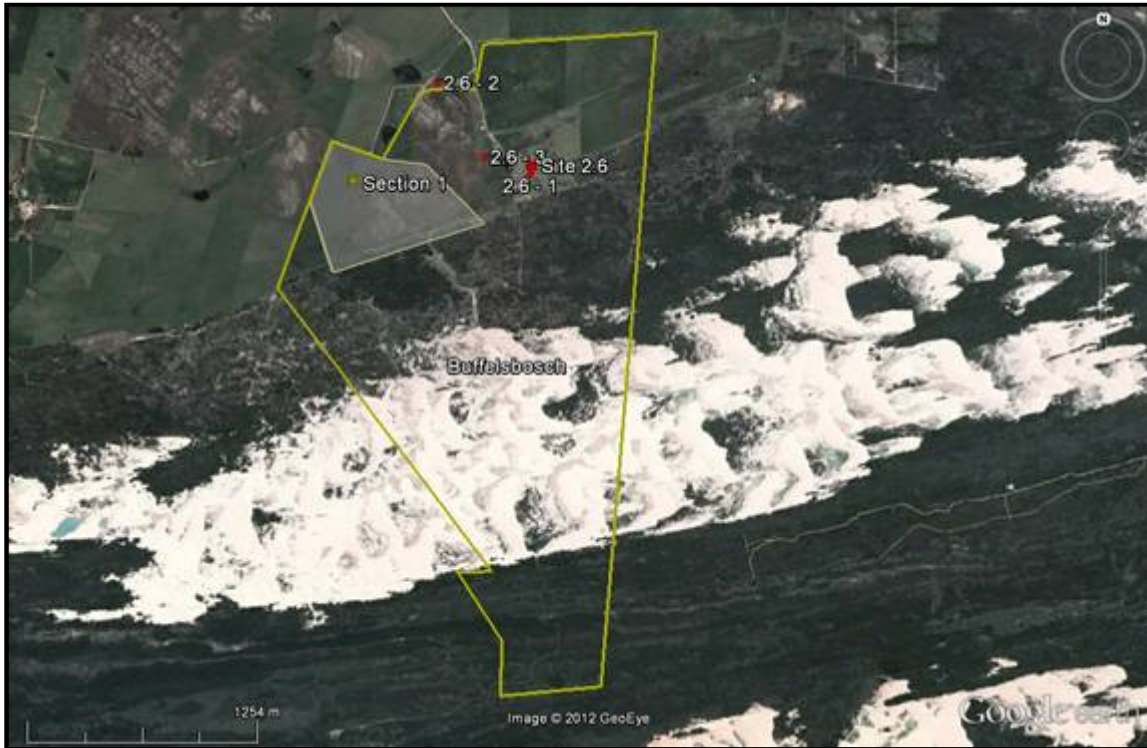


Figure 5: Section 1 on the property Buffelsbosch 742-14

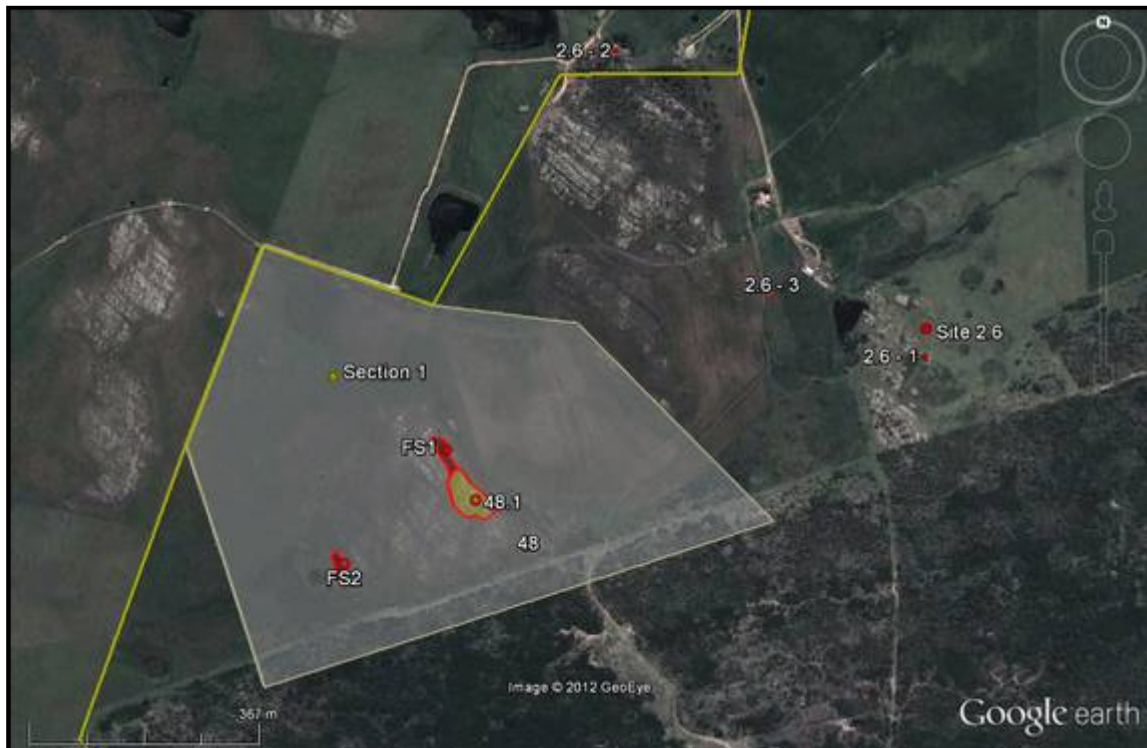


Figure 6: Phase 1 AIA assessment findings

The 8.7ha Section 1 study site (S34°09'11.3"; E24°44'09.8") is situated on the farm Buffelsbosch (742-32) (No CSG record). The proposed study site encompasses the Red Cap Kouga Wind Farm – Central Cluster development Turbine 48 locality and will be accessible from a west south-western access road. Development of the site for mining and specifically blasting purposes will require suitable development corridors around all Red Cap infrastructure including the turbine locality and access road (Craig Donald: Pers. Comm).

❖ **SITE 2.6 (COLONIAL PERIOD – FARMSTEAD):**

The proposed Section 1 study site is situated fairly close to the identified Site 2.6 Colonial Period Buffelsbosch farmstead. The site has been described as (Van Ryneveld 2011):

'Site 2.6 (S34°09'08.9"; E24°44'47.3") constitutes the original Buffelsbosch farmstead. The main residence is believed to date to the 1880's, but may well have been constructed slightly before that. The residence was in use until fairly recently; landowner R.P. Gerber reported that he was born at the main residence. Additional site features include at least 2 more residential structures, 1 vacant and 1 used for labor accommodation, in close proximity to the site. Immediately north of the site an old cattle dip is inscribed with the date 22 March 1911; providing a sequential date for later technological additions to the original farmstead and probably one of the oldest cattle dips in the general area. North-west of the main residence... an extension to the original Buffelsbosch setup is defined by a contemporary residence (property of H. Knott), but demarcating the locality of a former 2 roomed stone residential structure, the historical remains of which are totally contained within the modern residence and marking the north-western extremity of the original Buffelsbosch farmstead.' (See also Anderson 2011).

Basic additional geographic references for site features are summarized as:

1. Colonial Period main residence – S34°09'10.3"; E24°44'45.7" – Feature 2.6 – 1;
2. Colonial Period stone structure contained in contemporary residence – S34°08'54.3"; S24°44'27.6" – Feature 2.6 – 2; and
3. Colonial Period labor accommodation – S34°09'07.2"; E24°44'37.5" – Feature 2.6 – 3 (and comprising the site feature closest to the proposed Section 1 study site).

Site features are not individually fenced for conservation purposes. The majority of the Site 2.6 site features are fenced within a farm camp on the property of Roedolf Gerber, while the Feature 2.6 – 2 stone walled structure is contained within the contemporary residence of Harvey Knott. Despite proximity to the proposed Section 1 study site, no site features comprising Site 2.6 will be impacted on by development.

❖ **SECTION 1 – SITE 48.1, FS1 & FS2 (STONE AGE – ESA, MSA & LSA):**

The Section 1 study site has been visited on a number of occasions; 1st surveyed in August 2010 (Van Ryneveld 2010) and followed by a site inspection in the company of SAHRA (Mariagrazia Galimberti) in November 2011. At the time no archaeological artefacts were recorded on the outcrops contained in the Section 1 study site, the shallow outcrops at the north-eastern extremity of the study site, the outcrops east of Site 2.6 or exposed bedrock in the vegetated area south of the study site. The odd Stone Age artefact was first identified on the Section 1 outcrops during preliminary Red Cap micro-siting, December 2011. During the January / February micro-siting inspection a clear exposure was visible; artefacts were found clustered together in deflation hollows across a portion of the Section 1 outcrops, recorded as Site 48.1 (Van Ryneveld 2012) and described as:

'Clusters of Stone Age artefacts were identified along the central-eastern portion of the quartzite outcrops situated just north of Turbine Locality 48. The Site 48.1 (S34°09'17.8"; E24°44'18.0") low density Stone Age occurrence is characterized by collections of a mixture of Middle (MSA) and Later Stone Age (LSA) artefacts typically collected in deflation hollows, signifying a disturbed secondary context to the artefacts. MSA type

artefacts are primarily identified by broken flake and blade types while LSA types are typically represented by scrapers. Typologically artefacts seem to be of a fair quality but heavily rolled in appearance; the result of extensive post depositional water disturbance. Fairly high quantities of artefacts were present, with an average artefact ratio (artefacts: m²) of 5:1 recorded at deflation hollows containing artefactual material. However, the limited number of artefactual occurrences results in an average artefact ratio of $\leq 1:1$ for the indicated area.... Associated sub-surface deposits are not expected: The outcrops itself forms both the geological and anthropogenic basal member whilst geotechnical test pits indicated continuation of surface rock in sub-surface members.'

During the June 2012 survey for Site Plan it was found that the area of artefactual exposure increased noticeably (approximately 50m but in a narrowly confined strip) along the eastern extremity of the outcrops, indicated as Find Spot 1 (FS1 – S34°09'15.1"; E24°44'16.9"). In addition the rocky areas around the water hole also yielded artefacts, indicated on the map as Find Spot 2 (FS2 – S34°09'21.0"; E24°44'10.5"). At both newly identified areas of exposure, occurrences were very similar to that described for Site 48.1; typical admixtures of Middle and macrolithic Later Stone Age (MSA & LSA) artefacts were found collected in deflation hollows within the quartzite outcrops, forming both the geological and anthropogenic basal member. Some concentrations of artefacts were found in an earth bound context while in other cases the soil context were eroded away, leaving only stone pieces, lithics and non-anthropogenic flakes clustered together. At the FS2 area a number of larger, earlier MSA flakes and including 2 possible small Earlier Stone Age (ESA) bifacial tools were also found. Any artefact quantity description is at present relevant considering the following identified variables: Continued exposure of deflation hollows on the outcrops through erosion and continued erosion of the soil context in deflation hollows yielding increasingly more of its content, both anthropogenic and non-anthropogenic. A rough preliminary artefact ratio (artefacts: m²) of at least 5:1 is ascribed for combined occurrences, but taking note that not all occurrences are anthropogenic.

The odd artefact was encountered on the shallow outcrops along the north-eastern extremity of the Section 1 study site. To date no artefacts were discovered on the outcrops east of Site 2.6 and no artefacts were found in stone rich areas south of the existing access road along the southern perimeter of the Section 1 study site.

At present Stone Age occurrences in the Section 1 study site are interpreted as follows: Sequential periods of Stone Age use of the outcrops, including at least limited ESA but more specifically MSA and LSA use is evident. The outcrops may well have been favored for the provision of fresh water in the non-perennial water hole but also for the use of knapping material provided by the outcrops itself. Intermitted periods of landscape formation, including both erosion and deposition coined with post depositional processes, specifically water disturbance, have resulted in the mixed lithic artefact assemblage collected in deflation hollows across at least certain parts of the outcrops. At present landscape formation processes are in a stage of erosion or reduction (rather than deposition or build-up), resulting in increasing exposure of the quartzite outcrops surface itself associated with increasing exposures of artefacts collected in deflation hollows. Continued erosion will most probably result in further artefact exposures but also erosion of these artefacts from their current primarily secondary earth context, resulting systematically in artefact clusters without compound which will make artefacts more susceptible to hill wash during periods of intense environmental episodes, including specifically flush rains and storms. It can reasonably be inferred that associated with the process will be the erosion of at first smaller artefacts and non-anthropogenic flakes from clusters no longer held together by earth compound. Stone Age artefacts already subjected to hill wash may well be expected along the perimeter of the outcrops.

- **RECOMMENDATIONS:** Should development of Section 1 proceed the final development area will be subject to required development buffer zones around the Red Cap Turbine 48 locality and associated access road, ensuring at least partial conservation of the outcrops itself.

The Colonial Period Site 2.6 Buffelsbosch farmstead, comprising of structures older than 60 years, receives automatic SAHRA protection as a site of *High Significance* with a *Provincial Grade 2 Field Rating*. (Structures are collectively ascribed a medium architectural significance). The site will not be impacted on by proposed mining of Section 1.

Based primarily on context the Site 48.1 occurrence and FS1 and FS2 extensions thereto are ascribed a SAHRA *Low Significance* and a *Generally Protected C Field Rating*. Deposits hold little potential for future research, aside from a basic typological and technological description. Continued monitoring of the impact of landscape formation or post depositional processes on disturbed low density occurrences associated with quartzite outcrops are however potentially of significance within the field of landscape archaeology. It is recommended that development in the area proceeds as applied for provided that:

- *Development proceeds under a SAHRA Site Destruction Permit* – Based on post depositional and ongoing landscape formation processes more artefacts may well be encountered during development; and
- *Development be preceded by Phase 2 archaeological sampling, section conservation and ongoing monitoring* – Phase 2 archaeological mitigation including systematic sampling and excavation should aim to collect a representative sample of the lithic artefacts at the site. Phase 2 archaeological mitigation should be done under a SAHRA Excavation Permit. The developer should ensure that a section of the development be conserved for future monitoring. A section of at least 100x30m is recommended. This section may coincide with areas that will be included in development corridor arrangements with Red Cap, provided that no development will impact on the section. In addition the developer should ensure that continued archaeological monitoring be done at the site, at least once every two years during the tenure of mining operations, to record the impact of landscape formation processes on archaeological deposits, including the conserved section as well as outcrops to the north, east and south of Section 1.



Site 2.6, Feature 2.6 - 3



Outcrops south of Section 1



View of the north of the Section 1 study site



View of the north-eastern outcrops



View of the western part of the study site



Artefact clusters at the Section 1 outcrops – 1



Artefact clusters at the Section 1 outcrops – 2



Artefact clusters at the Section 1 outcrops – 3

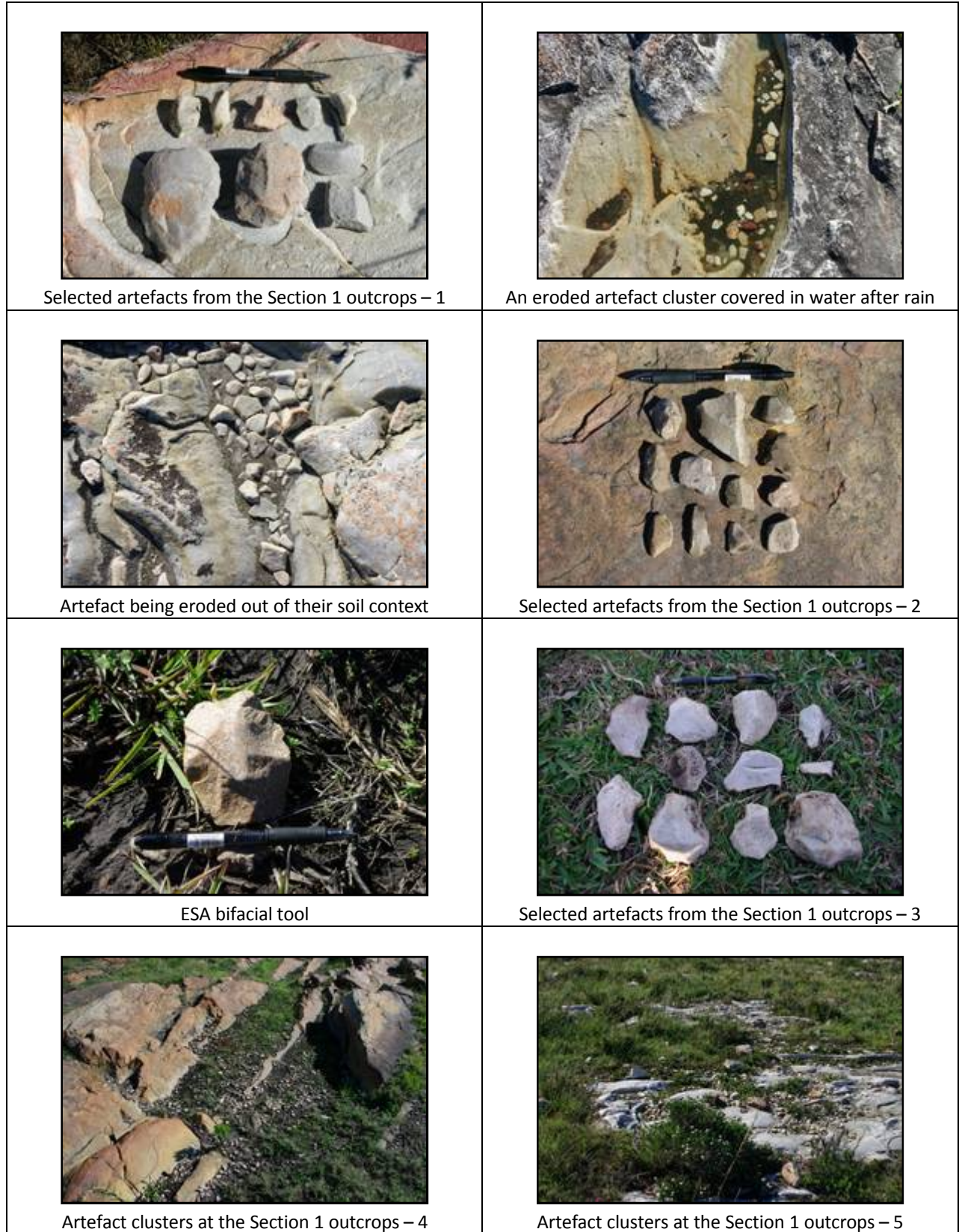


Figure 7: Image gallery – Section 1

2.2.2) SECTION 2 – KLEIN RIVIER (713-32) – S34°08'30.0"; E24°43'43.5"

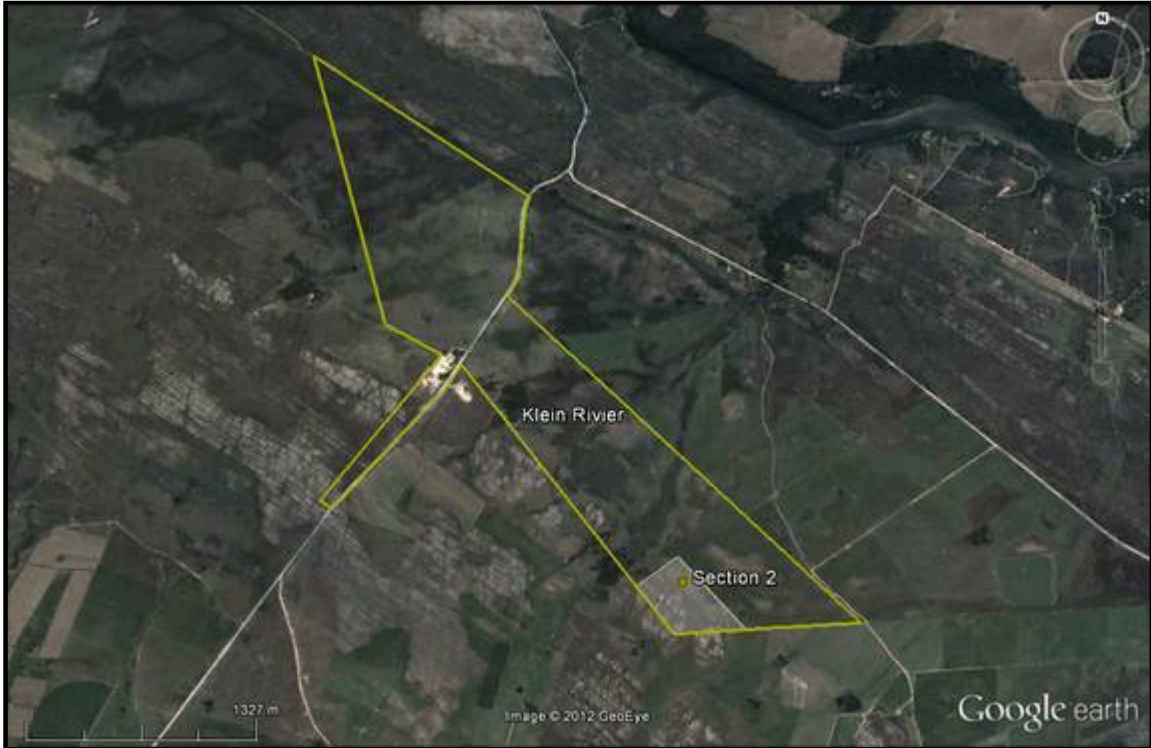


Figure 8: Section 2 on the property Klein Rivier 713-32

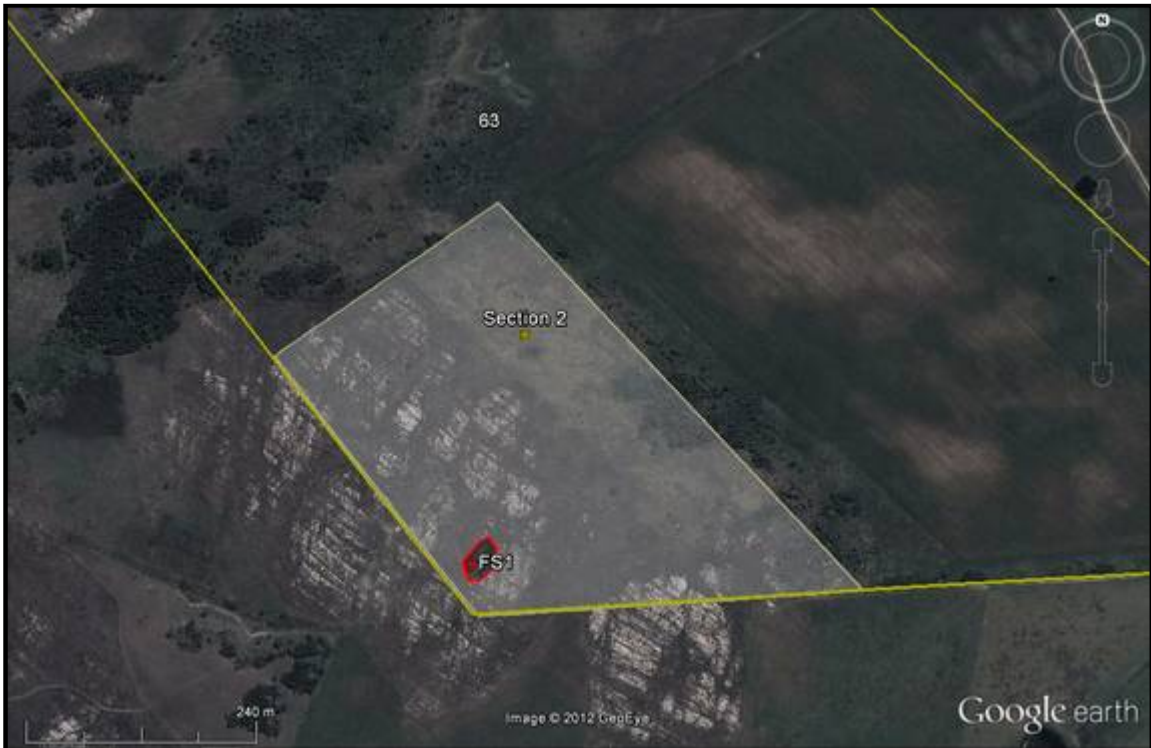


Figure 9: Phase 1 AIA assessment findings

The Section 2 study site (S34°08'30.0"; E24°43'43.5"), comprising a 3.8ha development area, is situated on the property Klein Rivier (713-32) (No GCS record), approximately 90m south of the Red Cap Kouga Wind Farm – Central Cluster development Turbine 63 locality. The site will be assessable via the Turbine 63 access road, which will run north-east to south-west from an existing farm access road.

❖ **SECTION 2 – FS1 (STONE AGE – MSA & LSA):**

The Section 2 study site is characterized by the fairly steep slopes of the quartzite outcrops, with the north-eastern lower lying areas heavily vegetated, obscuring surface visibility. The odd Stone Age lithic artefact was observed along the southernmost and central ridges of the study site; lodged in small crevices, eroding from shallow overburden or trapped in erosion hollows. The low density of generally observed artefacts makes any artefact ratio (artefacts: m²) description impossible; based on size these artefacts are ascribed a rough Middle and macrolithic Later Stone Age (MSA & LSA) assignation, with the immediate outcrops serving as raw material source for the production of artefacts. In the southern part of the study site, indicated as Find Spot 1 (FS1 – S34°08'38.0"; E24°43'41.3"), a series of deflation hollows were present, some of which contained collections of Stone Age artefacts. These artefacts are typologically ascribed to the MSA and macrolithic LSA, produced by a dominating flake technology. An artefact ratio description for the deflation hollow occurrence is particularly difficult, at least 1 deflation hollow contained noticeably high concentrations of Stone Age lithics with a rough 5-8:1 ratio, but other collections were dominated by non-anthropogenic flakes with only the odd artefact observed in between, providing for a minimum artefact ratio estimation of 1-2:1. Artefacts within these deflation hollows are in an evident secondary disturbed context, some lodged in an earth context, but others being only collections of artefacts and non-anthropogenic flakes where the soil context has been eroded away in totality. Based on basic post-depositional processes and specifically inferred ongoing landscape formation processes (as described in Section 1), it can be inferred that more artefact containing deflation hollows may be exposed in time. However, within the specific context of Section 2 landscape gradient also plays an important role: The possibility that erosion, coined with heavy winds and water disturbance over many centuries, have resulted in hill wash associated with collections of disturbed artefacts at the bottom of the outcrops, today covered by overburden, cannot be ruled out.

- **RECOMMENDATIONS:** Based on surface artefact quantities and specifically archaeological context, the FS1 Stone Age occurrence at Section 2 is ascribed a SAHRA *Low Significance* and *Generally Protected C Field Rating*. It is recommended that development in the area proceeds as applied for provided that:
 - *Development proceeds under a SAHRA Site Destruction Permit* – Based on post depositional and ongoing landscape formation processes more artefacts may well be encountered during development; and
 - *Development be preceded by a brief archaeological site inspection* – Disturbed artefact contexts together with low artefact densities hold little potential for future research aside from basic typological and technological descriptions, but the impact of post depositional and landscape formation processes on deposits are potentially significant specifically within the field of landscape archaeology.

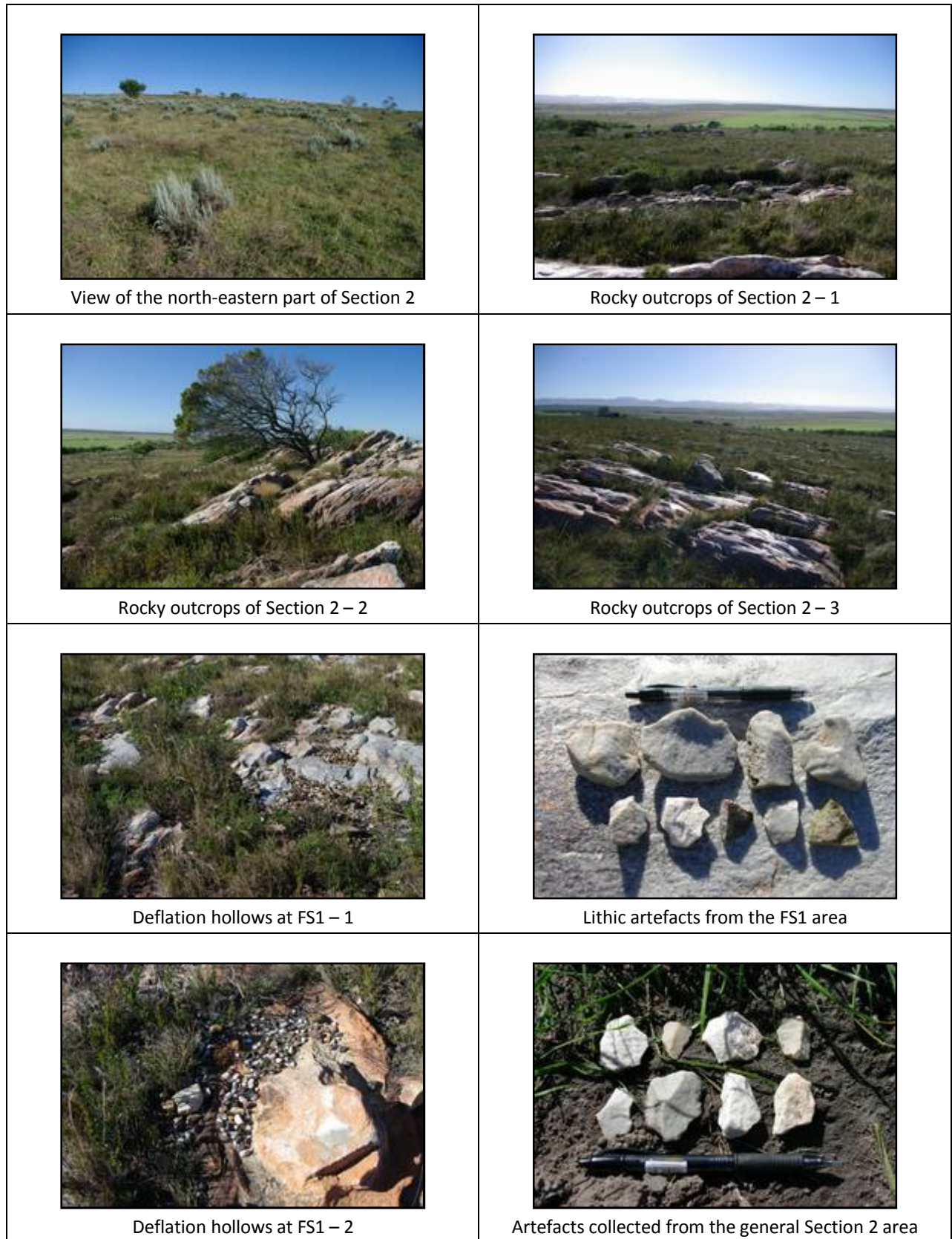


Figure 10: Image gallery – Section 2

2.3) CULTURAL LANDSCAPES AND VIEWSCAPES

A 'Cultural Landscape' refers to a particular geographical area that represents the unique combined work of man and nature (James & Martin 1981). The term has its origins in 16th Century Germany where 'Cultural Landscape' (*Kultur Landschaft*) implies 'shaped lands' to differentiate it from the 'Original Landscape' (*Urlandschaft*), or the 'unaltered' landscape, prior to human impact (Sauer 1925). Sauer (1925) stresses the agency of culture as a force in shaping the visible features of the earth's surface in delimited areas where the physical environment retains a central significance, as the medium with and through which human cultures act. According to Sauer (1925) *'The cultural landscape is fashioned from a natural landscape by a cultural group. Culture is the agent, the natural the medium, the cultural landscape... the result'*.

In order to better understand the concept of 'Cultural Landscape' it is necessary to separate the term 'culture' to further our understanding of its many definitions. Within the anthropological arena culture is generally understood as a *'complex whole which includes knowledge, belief, art, morals, law, custom, and any other capabilities and habits acquired by man as a member of society'*. Culture is *'human nature'* and is acquired through a learning process. Through culture people can adapt to their environment in non-genetic ways, so people living in different environments will often have different cultures, or will develop different cultures (Van Willigen 1986). An integral part of culture is change; be it the result of a changing natural environment to which the culture have to adapt to or contact with another culture, the primary force of cultural change, and often the result of socio-political pressure. Els (1992) explain that cultural contact change usually occurs according to either the process of acculturation (dominating 'donor' culture) or the process of enculturation (dominating 'receiver' culture). Both cultural processes can be spontaneous, forced or guided; but cultural process is never a one-way street; any given cultural system is at once a 'donor' and a 'receiver'. The essence of cultural change lies in the restructuring of the parts so that a new cultural pattern results. Bourguignon (1979) highlights the fact that this 'restructuring' should center on the question of *'What changes are (were) necessary to make culture, as we know it, possible?'* Culture is thus a process of constant change and adaptation; psychologically, behaviorally, technologically, politically, economically and spiritually (religiously), collectively referred to as 'cultural evolution'. [Certain forms of society and culture could simply not have arisen before others; for example, industrial farming could not have been invented before simple farming, and metallurgy could not have developed without previous non-smelting processes involving metals (Van Willigen 1986).]

When considering the concept of 'Cultural Landscape', taking cognizance of the vital force of change as an agent of culture, it is only logical that cultural change will be reflected in a changing cultural landscape.

The concept of 'Cultural Landscape' has also been adapted and developed within international heritage arenas (UNESCO 2005) as part of an international effort to reconcile one of the most encompassing dualisms in Western thought; those of 'nature' and 'culture'. In so doing the World Heritage Committee has adopted 3 categories of 'Cultural Landscape', ranging from (a) those landscapes most deliberately 'shaped' by people, through (b) the full range of 'combined' works, to (c) those least evidently 'shaped' by people (yet highly valued). The 3 categories extracted from the UNESCO Committee's Operational Guidelines, are as follows (Punnell 2006):

1. A landscape designed and created intentionally by man;
2. An 'organically evolved landscape' which may be a 'relict (or fossil) landscape' or a 'continuing landscape'; and
3. An 'associative cultural landscape' which may be valued because of the religious, artistic or cultural associations of the natural environment.

❖ *The Klein Rivier and Buffelsbosch Cultural Landscape*

Based on the known archaeological record, as described in the general introduction to South African archaeology (Appendix 1), the more immediate regional context of the *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project*, briefly illustrated in the pre-feasibility assessment and findings of the Phase 1 AIA, it can be concluded that the following cultural landscapes will be affected by the development:

1. Stone Age (ESA, MSA and LSA); and
2. Colonial Period.

THE ESA AND MSA CULTURAL LANDSCAPE: The ESA and MSA Cultural Landscape of the general *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* study site can be classified, according to the UNESCO Operational Guidelines (Punnell 2006), as an ‘organically evolved fossil landscape’ that has been least evidently shaped by humans.

Inferred to have been the 1st impact on the natural or unaltered landscape, ESA settlement along the southern Cape coast can be described as highly significant, though sparsely scattered site distribution indicates fairly low population numbers over an extensive period of time, with limited use of natural resources and visual cultural impact on the landscape. It can be inferred that ESA populations made use of a variety of resources both closer and further from the present day shoreline, indicative of a trait of varying landscape use by hunter-gatherer populations throughout the Stone Age. The ESA cultural landscape was overlain by subsequent MSA occupation, evidenced in the archaeological record by low quantities of sparsely scattered artefacts and occurrences. MSA visual impact on the natural landscape can again be described as minimal, though not denying extensive geographical use thereof.

THE LSA CULTURAL LANDSCAPE: The LSA Cultural Landscape of the general *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* study site can be classified, according to the UNESCO Operation Guidelines (Punnell 2006), as an ‘organically evolved continuing cultural landscape’, varying from originally least evidently shaped to a present day combined impact by humans.

Early LSA occupation of the general area is evidenced by numerous shell middens known to occur in shifting Holocene dunes close to the shoreline and with temporally and culturally related type sites reaching geographically much further inland. An increase in the quantity of sites from ESA / MSA times to the LSA may be interpreted as reflecting not only a population increase but also changing cultural traditions with confirmed evidence of cultural modernity mirrored in more advanced technology, implying greater exploitation and use of the environment, a greater variety of cultural goods and with cognitive and behavioral changes manifested in the archaeological record in more complex inter-site distribution patterns. Despite the radically altered ‘modern’ LSA hunter-gatherer way of life, visual cultural impact on the landscape remained low.

In addition the presence of Khoe pastoralists on the cultural landscape, from approximately 2,000 years ago (2kya) marks the first major socio-cultural change along the southern Cape coast. Despite known interaction between pastoralists and hunter-gatherer groups the extent of cultural exchange and complexity of this process remains largely elusive.

Cultural contact and socio-political tension from the late 1700’s onwards greatly contributed to the demise of the archaeologically recorded LSA cultural pattern and people of LSA descent joined the then mosaic of cultural

complexity on the south coast; colonial settlers, traders, rebels and rulers, slaves and iron age conflict from the east, in an intricate process of cultural adaptation and change that would forever transform their 'traditional' ways. Albeit changed, KhoiSan traditions survived. Today the KhoiSan, an individually recognized cultural group, is an active participant in modern South Africa culture, essentially a developing industrial society with its known high impact on the natural surrounds.

The case of the KhoiSan remains unique, not only across southern Africa, but on an international level. In South Africa, contemporary KhoiSan represents the oldest surviving, albeit radically transformed cultural group, with an archaeologically confirmed heritage dating back to the LSA, at least 12,000/2,000 years ago: Contemporary KhoiSan culture denotes an extraordinary example of cultural evolution (comparable only to the Aboriginal and South East Pacific cultures), with change as the motive behind cultural adaptation reflected in the changing Cultural Landscapes that they have survived in.

THE COLONIAL CULTURAL LANDSCAPE: The Colonial Cultural Landscape of the general *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* study site can be classified, according to the UNESCO Operation Guidelines (Punnell 2006), as an 'organically evolved continuing cultural landscape', shaped by a range of combined human impacts.

Iron Age cultures are generally accredited with the introduction of farming practices in South Africa. However, the 18th Century saw Colonial farmers, with knowledge of farming practices brought from Europe radically influencing the lifeways of KhoiSan and other populations they encountered along the southern Cape coast. New laws of land ownership (in stark contrast to that of indigenous LSA populations and Iron Age groups), associated land-use practices and improved technology soon altered the natural environment to a degree unequalled before. Colonial settlement left a definite impact on the landscape, evidenced by the number of towns, villages and forts scattered across the landscape. 'Development' soon became associated with infrastructural improvements; better road and railway networks. But in more rural areas impact remained low; dispersed farmsteads, related farming infrastructure and agricultural fields with one of the most prominent visual Colonial Period impacts on the rural landscape being wind pumps (*circa* 1820-1840), marking a technological feat that opened up large parts of South Africa for economically viable farming. Neither Pakenham (1993) nor Milton (1983) makes mention of any significant battles or battlefields in the immediate vicinity of the *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* study site, though associated tensions are undeniable: The general cultural landscape remained rural, characterized by the tranquil evidence of scattered farmsteads with Colonial urbanization limited to the port at St. Francis and the trading station at Humansdorp.

Subsequent large scale industrialization, initially propelled by descendants of early Colonial settlers and later period European immigrants left an equally marginal visual impact, limited to a better road infrastructure and power lines on the study site itself and an increased population and associated industry in nearby towns.

* * *

Impact of the *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* on the cultural landscape can be described as high and permanent, but limited to the immediate study sites. Being situated north of the Holocene dune landscape and within fair distance from major public access roads and areas of habitation, visual impact of the development on the cultural landscape can be described as low.

2.4 SOCIO-CULTURAL CONSULTATION

Socio-cultural consultation aims to compile socio-cultural data related to a particular study site and its immediate past and present cultural environment for purposes of a Socio-cultural Impact Assessment as sub-component to the HIA. Consultation first and foremost aims to identify intangible heritage resources. Intangible heritage can be simplified as valued cultural traditions transmitted from generation to generation, constantly changing in response to environmental, social, political and economic circumstances. Living communities therefore often represents the departure point for enquiry. The SAHRA newsletter (Vol 1.1 -2005) define living heritage as representative of the '*...intangible aspects of inherited culture (and including) tradition, oral history, performance, ritual, language, popular memory, skills and techniques (and) indigenous knowledge systems (IKS)...*' Ethno-archaeological enquiry, an aspect of socio-cultural consultation, often serves to further understanding and interpretation of identified archaeological sites / resources (Van Ryneveld 2010).

All registered Interested and Affected Parties (I&AP's) for the Public Participation Process (PPP) of the *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project* were invited to participate in the SAHRA SIA or socio-cultural consultation for the project in terms of Section 38(3)(e) of the NHRA 1999. Registered I&AP's were invited by e-mail on 2012-06-08 and an invitation was hand delivered to landowner Roedolf Gerber on 2012-06-11. The invitation made provision for participation on two levels, including:

- 1) Submission of written cultural heritage comment / concern to be included in the assessment; and
- 2) Personal consultation to communicate cultural heritage concerns to be included in the assessment.

No written participation was received. The Gamtkwa KhoiSan Council (Gamtkwa) indicated their interested in a personal consultation session (2012-06-11). However, due to engagements abroad Kobus Reichert, heritage representative of the Gamtkwa, could not accommodate consultation within the timeframe of the project. Preliminary arrangements to conduct consultation after submission of the Phase 1 AIA report was approved telephonically on 2012-06-15 by both Site Plan (Craig Donald) and SAHRA (Mariagrazia Galimberti), on the condition that SAHRA will not issue a SAHRA HRC Comment for the project prior to submission of a report on the consultation session.

Brief consultation with landowner Roedolf Gerber was done telephonically on 2012-06-12. The landowner was personally consulted in 2010 when Site 2.6 was visited in his company. Gerber's comments regarding Site 2.6 are included in the relevant site description. 2012 consultation thus focused on the newly proposed Site Plan application areas only. According to Gerber the increasing number of developments in the area are of concern to farmers; not only with reference to application areas and the impact thereof on farmland but including also secondary impact in terms of required infrastructure such as access roads, or wear and tear on existing infrastructure, time and safety: Certain types of developments can easier be accommodated within an operational farm context than other. With reference to the mining application Gerber commented on sound landowner consultation from the side of both Impuma and Site Plan, specifically highlighting the 'centralization' of application areas eliminating the need for independent and duplicate infrastructural requirements. A development agreement between Impuma and Red Cap would be necessary should the Section 2 development proceed. Landowner Roedolf Gerber has no objections to the proposed development: The proposed development is supported by the landowner.



2012-06-08

ATT: DEAR REGISTERED INTERESTED AND AFFECTED PARTY (I&AP)

IMPUMA QUARRIES MINING RIGHT APPLICATION:
FARMS KLEIN RIVIER (FARM 713-32) & BUFFELSBOSH (FARM 742-14),
HUMANSDORP DISTRICT, EASTERN CAPE

RE: INVITATION TO PARTICIPATE IN THE SAHRA SIA / CONSULTATION PROCESS

ArchaeoMaps has been appointed by Site Plan Consulting to conduct the Phase 1 Archaeological Impact Assessment (AIA) for the abovementioned project. The Phase 1 AIA forms part of the South African Heritage Resources Agency (SAHRA) required studies to ensure compliance to the requirements of the National Heritage Resources Act, Act No 23 of 1999 (NHRA 1999). The NHRA 1999 makes provision for consultation with local communities and other interested parties to participate in this study / process. Section 38(3)(e) of the NHRA 1999 states:

38(3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): Provided that the following must be included:

(e) The results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources.

The SAHRA Guidelines (2007) gives a basic definition for the term 'heritage resource'. It states that: 'The legislation (NHRA 1999) requires that all heritage resources, that is, all places or objects of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance are protected. Thus any assessment should make provision for the protection of ALL these heritage components, including archaeology, shipwrecks, battlefields, graves, and structures over 60 years, living heritage and the collection of oral histories, historical settlements, landscapes, geological sites, palaeontological sites and objects...'

As registered I&AP you (or the organization or interest group you represent) are also invited to participate in the SAHRA SIA or consultation process. Two levels of participation are provided for:

1) SUBMISSION OF WRITTEN CULTURAL HERITAGE COMMENT / CONCERN TO BE INCLUDED IN THE ASSESSMENT.

Should you wish to submit a written cultural heritage comment or concern to be included in the assessment, please raise your comment by:

E-mail – To: kvanryneveld@gmail.com, with the E-mail Subject: Impuma Quarries – SAHRA SIA; or

Post – To: Postnet Suite 239, Private Bag X3, Beacon Bay, 3205.

Please ensure that your written comment reaches ArchaeoMaps no later than Friday 22nd of June (2012-06-22)

2) PERSONAL CONSULTATION TO COMMUNICATE CULTURAL HERITAGE CONCERNS TO BE INCLUDED IN THE ASSESSMENT.

Should you wish to be personally consulted with regards to your cultural heritage comment / concern regarding the project, please notify ArchaeoMaps by:

E-mail – To: kvanryneveld@gmail.com, with the E-mail Subject: Impuma quarries – SAHRA SIA (Consultation), to reach ArchaeoMaps no later than Friday 15th of June (2012-06-15).

- o Please provide a brief description of your cultural heritage concern(s). (Consultation need not be restricted to this concern(s), but it does provide for a basis on which the consultation session can be structured).
- o Please indicate your availability for consultation during the week Monday 18th to Friday 22nd of June (2012-06-18 to 2012-06-22).
- o Please ensure that you include a contact number (landline or cellphone number) in your e-mail.

Yours sincerely,

KAREN VAN RYNEVELD
ARCHAEO MAPS
Cell: 084 871 1064 / E-mail: kvanryneveld@gmail.com

Figure 11: Invitation to participate in the SAHRA SIA

3) CONCLUSION AND RECOMMENDATIONS

With reference to cultural heritage compliance, as per the requirements of the NHRA 1999, it is recommended that the proposed *Mining Right Application on Klein Rivier (Farm 713-32) and Buffelsbosch (Farm 742-14), Humansdorp District Project*, Eastern Cape, proceeds as applied for, provided the developer complies with the following recommendations:

Section 1 – Buffelsbosch: The Colonial Period Site 2.6 farmstead is situated in close proximity to the proposed study site, but will not be impacted on by development. Identified Stone Age deposits, labeled Site 48.1 and extensions FS1 and FS2 thereto, will be impacted on. It is recommended that Phase 2 archaeological mitigation, including systematic sampling and excavation be coined with section conservation. Phase 2 mitigation should be done under a SAHRA Excavation Permit. Continued monitoring of the area should coincide with development. Development should proceed under a SAHRA Site Destruction Permit.

Section 2 – Klein Rivier: Stone Age exposures labeled FS1 should be inspected prior to development impact to record possible extensions to the exposure. Development should proceed under a SAHRA Site Destruction Permit.

Cultural landscape: Impact on the cultural landscape can be described as high and permanent but localized.

Socio-cultural consultation: Socio-cultural consultation with the Gamtkwa KhoiSan Council will, in accordance with SAHRA consent, be done after compilation of the Phase 1 AIA and reported on to the environmental consultant and SAHRA.

MINING RIGHT APPLICATION: FARMS KLEIN RIVIER (713-32) AND BUFFELSBOSCH (742-14)					
HUMANSDORP DISTRICT, KOUGA MUNICIPAL AREA, EASTERN CAPE					
MAP CODE	SITE	TYPE / PERIOD	DESCRIPTION	CO-ORDINATES	PRELIMINARY RECOMMENDATIONS
Section 1 – Buffelsbosch 742-14 (S34°09'11.3"; E24°44'09.8")					
2.6	Site 2.6	Colonial Period	Farmstead	S34°09'08.9"; E24°44'47.3"	N/A (In situ conservation)
48.1	Site 48.1	Stone Age	(ESA), MSA & LSA	S34°09'17.8"; E24°44'18.0"	3. Phase 2 archaeological mitigation, section conservation and continued monitoring; and 4. Destruction under a SAHRA Site Destruction Permit
FS1	Find Spot 1	Stone Age	(ESA), MSA & LSA	S34°09'15.1"; E24°44'16.9"	
FS2	Find Spot 2	Stone Age	(ESA), MSA & LSA	S34°09'21.0"; E24°44'10.5"	
Section 2 – Klein Rivier 713-32 (S34°08'30.0"; E24°43'43.5")					
FS1	Find Spot 1	Stone Age	MSA & LSA	S34°08'38.0"; E24°43'41.3"	3. Archaeological site inspection; and 4. Destruction under a SAHRA Site Destruction Permit

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

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

4) REFERENCES

1. Bourguignon, E. 1979. *Psychological Anthropology: An Introduction to Human Nature and Cultural Differences*. New York: Holt, Rinehart and Winston.
2. Els, H. *Akkulturasi: Teorie en Praktyk*: Pretoria: University of Pretoria Press.
3. Giliomee, H. & Mbenga, B. 2007. *New History of South Africa*. Cape Town: Tafelberg Publishers.
4. Hewitt, J. 1921. *On several implements and ornaments from Strandloper sites in the Eastern Province*. South African Journal of Science 18:454-467.
5. <http://whc.unesco.org/en/tentativelists>.
6. <http://sashipwrecks.com/Webb/htm>.
7. James, P.E. & Martin, S. 1981. *All possible worlds: A history of geographical ideas*. New York: John Wiley and Sons.
8. Punnell, S. 2006. *Reconciling Nature and Culture in a Global Context: Lessons from the World heritage List*. Cairns: James Cook University.
9. Sauer, C. 1925. *The Morphology of Landscape*. University of California Publication on Geography 22:19-53.
10. Site Plan. 2011. *Background Information Document (BID): Mining Right Application on Farm Klein Rivier 713 Ptn 32 and Farm Buffelsbosch 742 Ptn 14 situated in the District of Humansdorp (Eastern Cape)*. Public document.
11. South African Government. (No. 28 of) 2002. *Minerals and Petroleum Resources Development Act*.
12. South African Government. (No. 107 of) 1998. *National Environmental Management Act*.
13. South African Government. (No. 25 of) 1999. *National Heritage Resources Act*.
14. South African Heritage Resources Agency. 2007. *Minimum standards for the archaeological and heritage components of impact assessments*. (Unpublished guidelines.)
15. South African Heritage Resources Agency. 2012. *Request for a Heritage Impact Assessment: Farm Klein Rivier 713 ptn 32 and Farm Buffelsbosch 742 ptn 14 situated in the District of Humansdorp (Eastern Cape Province)*. (Unpublished HIA request to Site Plan Consulting.)
16. UNESCO, 2005. *Operational Guidelines for the Implementation of the World heritage Convention*. UNESCO World Heritage Centre, Paris.
17. Van Ryneveld, K. 2010. *Heritage Impact Assessment (HIA) Rules; Developers must Report Heritage Impacts*. Miner's Choice 3(3): 24-26.
18. Van Ryneveld, K. (ArchoMaps) 2012. Phase 1 Archaeological Impact Assessment – Micro-siting and Phase 2 Archaeological Test Pitting – Turbine Line 33-36, Red Cap Kouga Wind Farm, Central Cluster, Oyster Bay, Eastern Cape, South Africa (CRM Report to Red Cap)
19. Van Willigen, J. 1986. *Applied Anthropology*. New York: Bergin and Garvey Publishers.

INTRODUCTION TO THE ARCHAEOLOGY OF SOUTH AFRICA

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

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

1) Early Hominin Evolution

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

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

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

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

2) The Stone Age

2.1) The Earlier Stone Age

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

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

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

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

2.2) The Middle Stone Age

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

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

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

2.3) The Later Stone Age

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

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

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

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

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

Rock Art

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

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

Shell Middens ('Strandloper' Cultures)

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

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

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

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

3) The Iron Age

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

3.1) The Early Iron Age

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

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

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

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

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

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

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

The Central Cattle Pattern

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

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

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

3.2) The Middle Iron Age

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

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

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

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

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

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

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

3.3) *The Later Iron Age*

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

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

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

From 1,300AD there is increasing evidence for the beginning of agro-pastoralist expansion considerably beyond the area of previous occupation. It is also to this time that the genealogies of several contemporary Bantu speaking groups can be traced (Wilson & Thompson 1969). Associated with this expansion was the regular employment of stone, rather than wood, as building material, an adaptation that has greatly facilitated the discovery and identification of settlements. Maggs (1976) describes 4 basic settlement types all characterized by the use of semi weathered dolorite 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**

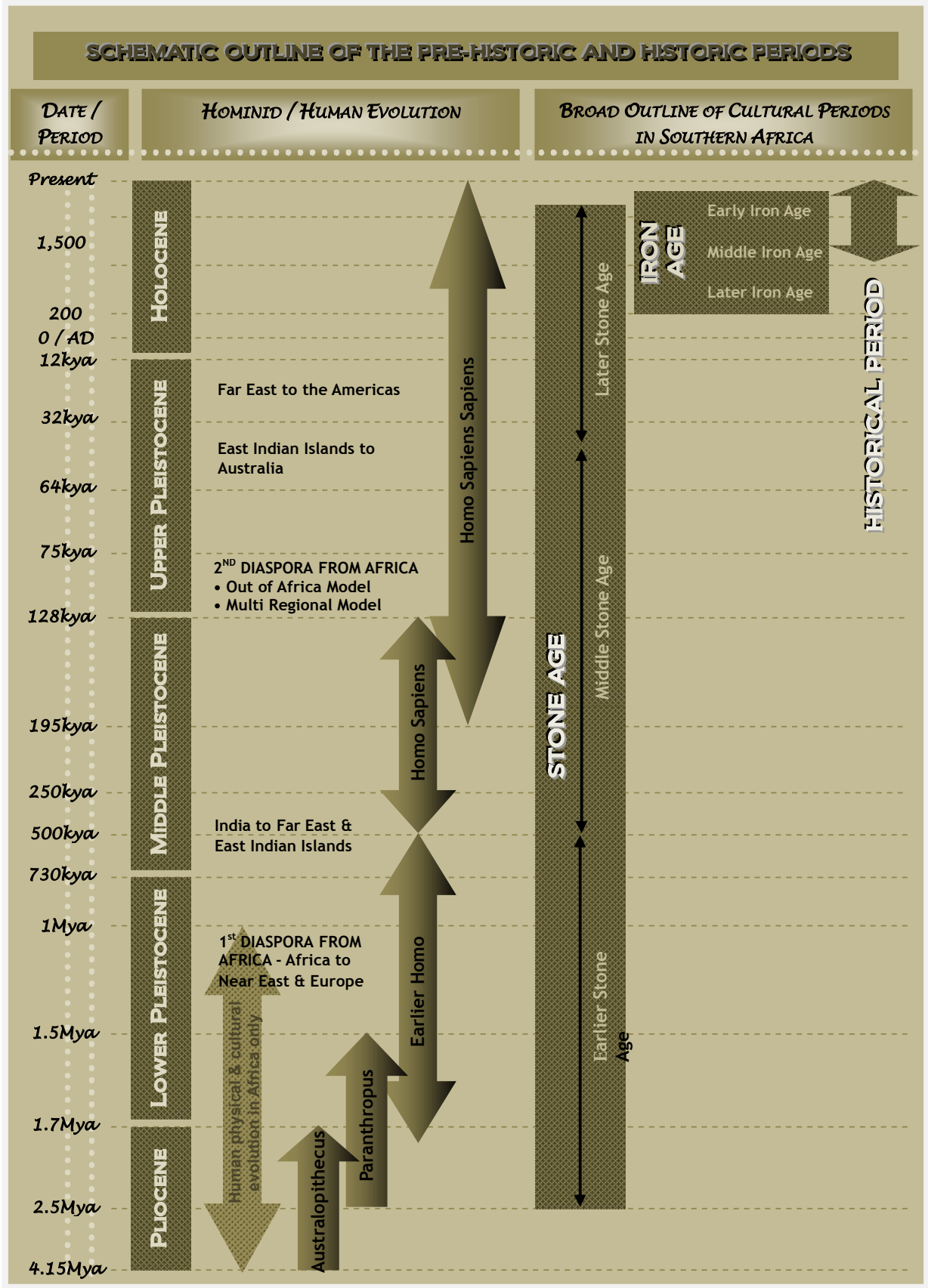
From the late 1600's conflict between migrants from the Cape (predominantly Boers) and Xhosa people in the region of the Fish River were strife, ultimately resulting in a series of 9 Frontier Wars (1702-1878) (Milton 1983). Both cultures were heavily based and reliant on agriculture and cattle farming.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



5) References Cited

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

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

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

DEFINITIONS**Section 2**

In this Act, unless the context requires otherwise:

- ii. *"Archaeological"* means –
 - a) material remains resulting from human activity which are in a state of disuse and are in or on land and which are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
 - b) rock art, being any form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and which is older than 100 years, including any area within 10 m of such representation;
 - c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic,... and any cargo, debris, or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation.
- viii. *"Development"* means any physical intervention, excavation or action, other than those caused by natural forces, which may in the opinion of a heritage authority in any way result in a change to the nature, appearance or physical nature of a place, or influence its stability and future well-being, including –
 - a) construction, alteration, demolition, removal or change of use of a place or structure at a place;
 - b) carrying out any works on or over or under a place;
 - c) subdivision or consolidation of land comprising, a place, including the structures or airspace of a place;
 - d) constructing or putting up for display signs or hoardings;
 - e) any change to the natural or existing condition or topography of land; and
 - f) any removal or destruction of trees, or removal of vegetation or topsoil;
- xiii. *"Grave"* means a place of interment and includes the contents, headstone or other marker of such a place, and any other structure on or associated with such place;
- xxi. *"Living heritage"* means the intangible aspects of inherited culture, and may include –
 - a) cultural tradition;
 - b) oral history;
 - c) performance;
 - d) ritual;
 - e) popular memory;
 - f) skills and techniques;
 - g) indigenous knowledge systems; and
 - h) the holistic approach to nature, society and social relationships.
- xxxi. *"Palaeontological"* means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trance;
- xli. *"Site"* means any area of land, including land covered by water, and including any structures or objects thereon;
- xliv. *"Structure"* means any building, works, device or other facility made by people and which is fixed to land, and includes any fixtures, fittings and equipment associated therewith;

NATIONAL ESTATE**Section 3**

- 1) For the purposes of this Act, those heritage resources of South Africa which are of cultural significance or other special value for the present community and for future generations must be considered part of the national estate and fall within the sphere of operations of heritage resources authorities.
- 2) Without limiting the generality of subsection 1), the national estate may include –
 - a) places, buildings, structures and equipment of cultural significance;
 - b) places to which oral traditions are attached or which are associated with living heritage;
 - c) historical settlements and townscapes;
 - d) landscapes and natural features of cultural significance;
 - e) geological sites of scientific or cultural importance
 - f) archaeological and palaeontological sites;
 - g) graves and burial grounds, including –
 - i. ancestral graves;
 - ii. royal graves and graves of traditional leaders;
 - iii. graves of victims of conflict
 - iv. graves of individuals designated by the Minister by notice in the Gazette;
 - v. historical graves and cemeteries; and
 - vi. other human remains which are not covered in terms of the Human Tissue Act, 1983 (Act No 65 of 1983)
 - h) sites of significance relating to the history of slavery in South Africa;
 - i) movable objects, including –
 - i. objects recovered from the soil or waters of South Africa, including archaeological and palaeontological objects and material, meteorites and rare geological specimens;

- ii. objects to which oral traditions are attached or which are associated with living heritage;
- iii. ethnographic art and objects;
- iv. military objects;
- v. objects of decorative or fine art;
- vi. objects of scientific or technological interest; and
- vii. books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings, excluding those that are public records as defined in section 1 xiv) of the National Archives of South Africa Act, 1996 (Act No 43 of 1996).

STRUCTURES

Section 34

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

ARCHAEOLOGY, PALAEOLOGY AND METEORITES

Section 35

- 3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- 4) No person may, without a permit issued by the responsible heritage resources authority –
 - a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
 - b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
 - c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
 - d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assists in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.
- 5) When the responsible heritage resources authority has reasonable cause to believe that any activity or development which will destroy, damage or alter any archaeological or palaeontological site is under way, and where no application for a permit has been submitted and no heritage resources management procedure in terms of section 38 has been followed, it may –
 - a) serve on the owner or occupier of the site or on the person undertaking such development an order for the development to cease immediately for such period as is specified in the order;
 - b) carry out an investigation for the purpose of obtaining information on whether or not an archaeological or palaeontological site exists and whether mitigation is necessary;
 - c) if mitigation is deemed by the heritage resources authority to be necessary, assist the person on whom the order has been served under paragraph a) to apply for a permit as required in subsection 4); and
 - d) recover the costs of such investigation from the owner or occupier of the land on which it is believed an archaeological or palaeontological site is located or from the person proposing to undertake the development if no application for a permit is received within two weeks of the order being served.
- 6) The responsible heritage resources authority may, after consultation with the owner of the land on which an archaeological or palaeontological site or meteorite is situated, serve a notice on the owner or any other controlling authority, to prevent activities within a specified distance from such site or meteorite.

BURIAL GROUNDS AND GRAVES

Section 36

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

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

HERITAGE RESOURCES MANAGEMENT

Section 38

- 1) Subject to the provisions of subsections 7), 8) and 9), any person who intends to undertake a development categorised as –
 - a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
 - b) the construction of a bridge or similar structure exceeding 50 m in length;
 - c) any development or other activity which will change the character of a site –
 - i. exceeding 5 000 m² in extent; or
 - ii. involving three or more existing erven or subdivisions thereof; or
 - iii. involving three or more erven or subdivisions thereof which have been consolidated within the past five years; or
 - iv. the costs which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - d) the rezoning of a site exceeding 10 000 m² in extent; or
 - e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
- 2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection 1) –
 - a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
 - b) notify the person concerned that this section does not apply.
- 3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection 2a) ...
- 4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development decide –
 - a) whether or not the development may proceed;
 - b) any limitations or conditions to be applied to the development;
 - c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
 - d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
 - e) whether the appointment of specialists is required as a condition of approval of the proposal.

APPOINTMENT AND POWERS OF HERITAGE INSPECTORS

Section 50

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