A PHASE 1 ARCHAEOLOGICAL IMPACT RE-ASSESSMENT OF THE PROPOSED ESTABLISHMENT OF AN ECO-RESIDENTIAL DEVELOPMENT ON THE REMAINDER OF THE FARM SWAN LAKE NO. 755, ASTON BAY IN THE KOUGA LOCAL MUNICIPALITY OF THE EASTERN CAPE PROVINCE

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Note: This report follows the minimum standard guidelines required by the South African Heritage Resources Agency for compiling Archaeological Heritage Phase 1 Impact Assessment (AHIA) reports. This report is a re-assessment of a report that formed part of an Environmental Impact Assessment.

The recommendations must be read in conjunction with the Record of Decision issued by the Department of Economic Development and Environmental Affairs dated 31/03/2009 with specific reference to conditions 6.7.21 - 6.7.24 as well as conditions 8.8.3.14 and 8.8.4.

EXECUTIVE SUMMARY

Eastern Cape Heritage Consultants cc was appointed by Coastal & Environmental Services during 2008 to conduct 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 at Aston Bay, Kouga Local Municipality of the Eastern Cape (Binneman 2008c). The purpose of the study was to establish the range and importance of possible archaeological/historical sites/remains, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

Due to a time lapse since the development was approved during 2009, the Department of Economic Development, Environmental Affairs and Tourism requested, as part of the extended Environmental Authorisation that all the studies and assessments be re-evaluated to ensure that the Amendment Application complies with the latest environmental regulations and requirements. Eastern Cape Heritage Consultants cc was then appointed by CAPE EAPrac (Pty) Ltd. during 2018 to re-assess the initial 2008 archaeological investigation and report. The preferred layout for the project was approved by the client in 2019 as reflected in this updated report (See Map 3).

The re-assessment was conducted during May 2018 by two archaeologists. Access to the southern section of the proposed development was easy due to a recent bushfire (Figure 1). No archaeological sites/materials were observed during the investigation. The eastern part of the proposed development however, is still covered by impenetrable thicket vegetation and dense grass cover which made an archeological investigation impossible.

In general the southern footprint investigated appear to be of low archaeological sensitivity, but it is possible that heritage sites/materials and human remains may be covered by sand and

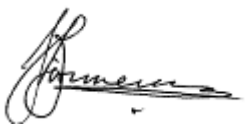
vegetation. The development falls within the coastal archaeological sensitivity zone where marine related archaeological sites, such as shell middens and human remains may be found. It is therefore recommended that all vegetation clearing and construction of infrastructure must be monitored by an archaeologist. The manager/foreman should be informed before construction starts on the possible types of heritage sites resources they may encounter and the procedures to follow when they find sites. If any concentrations of archaeological material are exposed during construction, all work in that area must cease and it must be reported immediately to the nearest museum/archaeologist or to the Eastern Cape Province Heritage Resources Authority. The local Gamtkwa KhoiSan Council must be consulted about possible mitigation measures regarding the finds and the destiny of the material. Potential home owners should be made aware of the cultural heritage of the immediate region. This could take the form of a 'management strategy' which could be included in the constitution of the Home Owners Association.

DECLARATION OF INDEPENDENCE AND QUALIFICATIONS

I, Dr. J.N.F. Binneman, herewith confirm that I hold a D.Phil degree in Archaeology from the University of the Witwatersrand (1996). I am a professional Archaeologist and member of the Association of South African Professional Archaeologists (ASAPA). I was attached to the Department of Archaeology at the Albany Museum in Grahamstown for 32 years and I have 40 years of field experience of eastern and southern Cape archaeology.

I hereby declare that:

- I act as an independent specialist for this project.
- I will conduct the study in an objective manner, even if this results in views and findings that are not favourable to the applicant.
- I will under no circumstances compromise my objectivity in performing the study.
- I do not have any financial interest in the undertaking of the activity, other than remuneration for the work performed in terms of the National Environmental Management Act, No. 107 of 1998 (NEMA), and the Environmental Impact Assessment (EIA) Regulations, 2014, as amended.
- I have the expertise to conduct the specialist study and report, including knowledge of the National Heritage Resources Act, No. 25 of 1999 and the Regulations, as well as the SAHRA APM Guidelines: Minimum Standards for the archaeological components of Heritage Impact Assessment (HIA) reports.
- I will comply with the relevant Acts, Regulations and all other applicable legislation.
- I have no, and will not engage in, conflicting interests in the undertaking of the activity.
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority.
- All the information contained in this report is true and correct.
- I am aware that a false declaration is an offence in terms of Regulation 48 of the EIA Regulations, 2014 published in the Government Gazette Notice No. 982, as amended.



Signature of specialist
Date: 12 June 2018

PROJECT INFORMATION

Type of development

The development entails the establishment of an eco-residential development of 42.3 hectares in size on the Remainder of the farm Swan Lake No. 755 at Aston Bay in the Kouga Local Municipality.

The applicant

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Purpose of the study

The original proposal was to conduct a Phase 1 Archaeological Impact re-assessment of the proposed establishment of an eco-residential development on the Remainder of the farm Swan Lake No. 755 at Aston Bay in the Kouga Local Municipality of the Eastern Cape Province. The survey was conducted to establish;

- the range and importance of possible exposed and *in situ* archaeological sites, features and materials,
- the potential impact of the development on these resources and,
- to make recommendations to minimize possible damage to these resources.

Site and location

The site for the proposed establishment of an eco-residential development is located within the 1:50 000 topographic reference map 3424BB Humansdorp (Map 1). It is situated on the Remainder of the farm Swan Lake No. 755 at Aston Bay in the Kouga Local Municipality of the Eastern Cape Province, approximately 11 kilometres southeast of Humansdorp and 2,5 kilometers south of Jeffreys Bay (Maps 1-3). The proposed development is located about 200 metres northeast of the Seekoei River and one kilometre from the coast and falls within an archaeological sensitive area. A recent bushfire has cleared most of the southern footprint, but the eastern footprint which borders to a refuse dump is covered by dense coastal dune and alien vegetation (Figures 1-2). The property is also used for illegal dumping of building rubble. A general GPS reading was taken at 34.4.620S; 24.54.140E.

Relevant impact assessments in the immediate vicinity of the study area

Binneman, J. 2008a. A phase 1 archaeological heritage impact assessment of the proposed establishment of eco-residential units on Portion 2 of the farm Swan Lake No. 755, Aston Bay, Kouga Municipality, Eastern Cape Province. Prepared for Coastal & Environmental Services. Grahamstown. Eastern Cape Heritage Consultants. Jeffreys Bay.

Binneman, J. 2008b. A phase 1 archaeological heritage impact assessment of the proposed rezoning, subdivision and development of the Remainder of the farm Zeekoei River No. 693 near Paradysstrand (Kouga Municipality), from agriculture to residential zone i & ii, resort zone ii, business zone i and authority zone and to create a residential area, golf estate, business centre and air park. Prepared for Gertenbach Ecological Consultations. Jeffreys Bay. Eastern Cape Heritage Consultants. Jeffreys Bay.

Binneman, J. 2008c. 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. Prepared for Coastal & Environmental Services. Grahamstown. Eastern Cape Heritage Consultants. Jeffreys Bay.

Binneman, J. 2007. Letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological heritage impact assessment for the proposed new pump station and rising main in Ocean View, Jeffreys Bay, Kouga Municipality, Eastern Cape. Prepared for Geological & Environmental Services (GES). Greenacres. Eastern Cape Heritage Consultants. Jeffreys Bay.

Binneman, J and Reichert, K. 2018. A letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological impact assessment for the proposed construction of a single residential dwelling on Erf 833, Paradise Beach, Kouga Local Municipality, Eastern Cape Province. Prepared for MIM Environmental Consulting. Jeffreys Bay. Eastern Cape Heritage Consultants. Jeffreys Bay.

Binneman, J and Reichert, K. 2017. A walkthrough of S*ite Exigo-KOD-SA01* in the proposed Oceanview township development project at Jeffreys Bay in the Kouga Local Municipality of the Eastern Cape Province. Prepared for AGES Omega Ltd. East Londen. Eastern Cape Heritage Consultants. Jeffreys Bay.

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Binneman, J and Reichert, K. 2016b. A letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological impact assessment for the proposed mining of calcrete on the Remaining Extent of the farm Zeekoe Rivier No. 693, Division of Humansdorp, Kouga Local Municipality Eastern Cape Province. Prepared for Stellenryck Environmental Solutions. Lorraine. Eastern Cape Heritage Consultants. Jeffreys Bay.

Kaplan, J. 2016. Proposed 66 KV overhead line servitudes and substations Jeffreys Bay, Eastern Cape prepared for Pieter Badenhorst Professional Services. Wellington. ACRM. Rondebosch.

Kruger, N. 2017. Archaeological impact assessment (AIA) of a Portion of Erf 9932 Oceanview for the proposed Oceanview extension residential and mixed use development project, jeffreys Bay, Kouga Local Municipality, Eastern Cape Province. Prepared for AGES Omega Ltd. East Londen.by Exigo Sustainability.Arcadia. Eastern Cape Heritage Consultants. Jeffreys Bay.

Webley, L.E. 2006.Heritage assessment of Jubilee Estate, the Farm Seekoeirivier No.355. Prepared for Ecological Management Services, Kimberley. Albany Museum.

The Albany Museum in Grahamstown houses collections and information from the region. Other institutions which may also have collections and information from the region include Bayworld Museum in Port Elizabeth, University of Cape Town and Iziko Museums.

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature review

The coastline between Kabeljous River Mouth and Cape St Francis once housed hundreds of archaeological sites, including the remains of the indigenous people (Rudner 1968). Unfortunately, in a few decades virtually all of these important archaeological features have been destroyed by the development of the coastal towns and many were covered with dune sand and vegetation (Binneman 1985, 2001, 2005, 2007).

Little is known of the very early prehistory of the region. The oldest evidence of the early inhabitants are large stone tools, called hand axes and cleavers, which can be found in the river gravels which capped the hill slopes in the region (Laidler 1947. These large stone tools are from a time period called the Earlier Stone Age and may date between 1 million and 250 000 years old). These large stone tools are often found associated with the gravels in the area, and were later replaced by smaller stone tools called the Middle Stone Age (MSA) flake and blades industries. Evidence of MSA sites occur throughout the region and date between 120 000 and 30 000 years old. Fossil bone may in rare cases be associated with MSA occurrences along the coast.

The time period, between 120 000 - 30 000 years ago, also witness the emergence of the first modern humans (*Homo sapiens sapiens*). Some of the oldest remains of anatomically modern humans in the world (some 110 000 yeas old) comes from the Klasies River complex of caves some 60 kilometres east of Aston Bay (Singer & Wymer 1982; Rightmire & Deacon 1991; Deacon 1992, 1993, 2001; Deacon, H. J & Shuurman, R. 1992; Deacon & Deacon 1999). The archaeological deposits at the Klasies River Caves (1-5) date to 120 000 years old and provide an excellent platform to study past human behaviour (Klein 1976; Henderson 1992; Henderson & Binneman 1997). The site also yielded some of the oldest evidence in the world for the exploitation of marine food resources by people.

Although humans were already anatomically modern by 110 000 years ago, they were not yet exhibiting ‘modern behaviour’ and only developed into culturally modern behaving humans between 80 000 and 70 000 years ago. This occurred during cultural phases known as the Still Bay and Howieson's Poort time periods/stone tool traditions/industries. The Howison's Poort Industry is well represented at Klasies River Cave 2 (Deacon & Wurz 1996; Wurz 1999) and also in the dunes near Oyster Bay (Carrion *et all.* 2000).

The most common archaeological sites found in the area are shell middens (Binneman 1996, 2001, 2005, 2007; Rudner 1968). They are relatively large piles of marine shell and are popularly referred to as ‘strandloper middens’. In general these shell middens date from the past 6 000 years. They are found mainly opposite rocky coasts, but also occur along sandy beaches if there was a large enough source of white mussel. These concentrations of shell represent the campsites of San hunter-gatherers (dating from as old as 6 000 years ago), Khoi pastoralists and KhoiSan (dating from the past 1 800 in the region) peoples who lived along the immediate coast and collected marine foods on a daily basis. The Khoi people were the first food producers in South Africa and introduced domesticated animals (sheep, goat and cattle) and ceramic vessels to southern Africa as early as 2 000 years ago. The oldest sheep remains recovered from the middens near the Kabeljous River Mouth were radiocarbon dated to 1 560 years old, the oldest date for the presence of sheep in the Eastern Cape (Binneman 1996, 2001). Shell middens are usually within 300 of the high water mark, but can be found up to 5 km inland. Mixed with the shell and other marine food waste are other terrestrial food remains, cultural material and often human remains are found buried in the middens. Also associated with middens are large stone floors which were probably used as cooking platforms.

Other archaeological sites may consist of concentrations of stone artefact and/or bone remains. Some of the stone tools may date back to 100 000 years old, and the fossil bone occurrences along the coast may also date this old (See appendix for a list of possible archaeological sites that maybe found in the area).

Cultural sensitivity of the coastal areas

Archaeological research conducted and observations made in the region between Kabeljous River Mouth and Cape St Francis indicates that this part of the coast and adjacent inland are extremely rich in archaeological heritage sites and material. For example, research at rock shelters and caves, such as Klasies River Mouth yielded some of the oldest remains of anatomically modern humans in the world. At Kabeljous River Mouth the oldest sheep remains in the Eastern Cape were recovered from shell middens. These remains, associated with Khoi pastoralists, the first food producers in South Africa, were radiocarbon dated to 1 560 years old - the oldest recorded date for the presence of sheep along the Eastern Cape coast.

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Rudner, J. 1968. Strandloper pottery from South and South West Africa. Annals of the South African Museum 49:441-663.

Singer, R. & Wymer, J. 1982. The Middle Stone Age at Klasies River Mouth in South Africa. Chicago: University of Chicago Press.

Wurz, S. 1999. The Howiesons Poort backed artefacts from Klasies River: an argument for symbolic behaviour. South African Archaeological Bulletin 54: 38–50.

ARCHAEOLOGICAL INVESTIGATION

Methodology

Previous relevant survey information for the immediate and adjacent areas was consulted before the survey started (see reference list above). A Google Earth aerial image study of the layout for the proposed development was also conducted prior to the investigation (Map 2). A representative of the developers was contacted prior to the investigation to inform him about the visit and to gain access to the property. He was also consulted about any known heritage remains on the property. The investigation was conducted by two archaeologists on foot. To cover as much of the terrain as possible the tracks and footpaths which run through the property were followed on foot where possible. GPS readings were taken with a Garmin and all important features were digitally recorded.

Limitations and assumptions

Due to the dense vegetation the archaeological visibility in the eastern footprint was poor and made it difficult to locate archaeological sites/materials. Notwithstanding, the experiences and knowledge gained from other investigations in the immediate area and wider surrounding region provided background information to make assumptions and predictions on the incidences and the significance of possible pre-colonial archaeological sites/material which may be located in the area, or which may be covered by the soil and vegetation.

The proposed development is about one kilometre from the coast and therefore falls within the archaeological sensitive coastal zone and it is predicted that it is possible that shell middens and other archaeological sites/materials (including human remains) may be found when the construction of the eco-residential takes place.

Finds and results

It was not possible to do a complete survey of the property during 2008 due to the dense coastal dune and alien vegetation. However, three small fine scatters of marine shell, occasional quartzite stone tools and pot shards were observed where the bush was clear along the northern boundary of the property for an Eskom vehicle service track for the power line

(Binneman 2008c) (Map 2). The dense vegetation made it impossible to find archaeological remains on the remainder of the proposed property for development.

A recent bush fire razed almost all of the dense vegetation in the southern footprint. This improved the archaeological visibility and made it possible to conduct a proper investigation of this part of the property. Nevertheless, apart from a few fragments of marine shell in places no significant concentrations of archaeological materials were observed. The eastern footprint is still covered by dense vegetation which made an archaeological investigation impossible. Footpaths and an Eskom service track were followed where possible on foot in order to investigate the eastern footprint for possible sites/materials.

There are no known graves or buildings older than 60 years on the property surveyed and in general it would appear from the visual evidence that the area may be of low cultural sensitivity. However, soil and vegetation may cover sites/materials which may be exposed during the development.

ASSESSMENT OF THE IMPACTS ON HERITAGE

Pre-colonial archaeology, recent palaeonotological and historical remains

Assessments of impacts can only be presented on the evidence of the visibility of heritage remains. Therefore a re-assessment can only be presented for the southern footprint of which a large part has recently been cleared of vegetation by a bushfire.

The eastern footprint is covered with dense vegetation which made a re-assessment impossible and therefore the impact on possible heritage resources during the clearing of the vegetation and the construction phase cannot be assessed at present. Once the vegetation is cleared a re-assessment can be conducted.

Nature of the impacts

From the visual evidence it would appear that the southern footprint is of low heritage sensitivity because no significant sites/materials were observed during the re-assessment. However, this does not rule out the fact that significant heritage resources may be covered by soil and vegetation. The three thin shell scatters and associated cultural material (also Khoi pastoralist pottery) observed along the northern boundary of the property indicate that there are pre- colonial archaeological sites on the property which may be buried.

The main impact on heritage remains will be the physical disturbance of the material and its context. Further clearing of the vegetation may expose surface heritage remains. Construction activities (approximately 42.3 hectares) will penetrate sub-surface sediments and may expose, disturb, destroy and displace heritage remains. Heritage resources are non-renewable and the construction phase may have a negatively impact on heritage remains.

Extent of the impacts

Further clearing of the vegetation and future construction activities may impact on above ground and buried heritage remains (including human remains). This negative impact on possible heritage sites/materials may be local and relatively small, but nevertheless permanent. In general further disturbances of sites/materials can be limited by mitigation if reported immediately to the nearest archaeologist and/or Eastern Cape Heritage Provincial Resources Authority (ECPHRA).

Although these impacts will be limited and restricted to the local area, heritage remains of regional, national and even international significance may be exposed. The wider region (Klasies River Caves) yielded some of the oldest remains of anatomically modern humans in the world. The oldest date for the presence of sheep associated with Khoi pastoralists along the Eastern Cape coast was recorded some 5 kilometres north of the proposed development.

Table 1. Impacts on heritage resources

Nature: The potential impact of further clearing of the vegetation and construction of the infrastructure on above and below ground heritage for the southern footprint (re-assessed on the visual evidence of surface heritage remains).		
	Without Mitigation	**With Mitigation**
Extent	Local	Local
Duration	Permanent	Permanent
Magnitude	Minor	Minor
Probability	Unlikely	Unlikely
Degree of confidence	Medium-high	Medium-high
Significance	Low	Low
Status	Negative	Neutral
Reversibility	No	No
Irreplaceable loss of resources?	No, but in some cases, yes	No
Can impacts be mitigated?	Yes	
Cumulative impacts: The cumulative impacts on above and below ground heritage will only increase if further residential developments are planned for adjoining areas.		
Residual impacts: Long term to permanent		

ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE HERITAGE RESOURCES.

Objective: To conserve the above and below ground heritage resources of the proposed eco-residential development on the Remainder of the farm Swan Lake No. 755 at Aston Bay, as outlined in the National Heritage Resources Act of 1999.		
Project component/s	Clearing of approximately 42.3 hectares of natural vegetation for the establishment of an eco-residential development and construction of infrastructure.	
Potential impact	The physical disturbance and/or destruction of pre-colonial archaeology sites/remains including human remains.	
Activity/risk source	Clearing of vegetation and construction of infrastructure	
Mitigation: Target/Objective	If concentrations of heritage materials/sites and/or human remains are exposed then all work must stop for an archaeologist to investigate and to mitigate the conservation of the remains.	
Mitigation: Action/control	**Responsibility**	**Timeframe**
No mitigation is proposed for the southern footprint before construction starts because the visual heritage remains are of low significance	Archaeologist	Before the development starts.
Manager/foreman and/or ECO should be informed on the possible types of heritage remains they may encounter and the procedures to follow when they find sites.	Consultant, applicant manager/ECO and the archaeologist	Before the development starts.

An archaeologist must monitor the further clearing of the vegetation in the southern footprint and for the entire eastern footprint.	Applicant, consultant and archaeologist	During the clearing of the vegetation in both footprints
An archaeologist should conduct a walk through of both footprints after the vegetation is cleared and before construction starts to check if any significant sites and/or materials were exposed and to establish what adjustments are required to mitigate possible impacts on pre-colonial archaeological sites and remains, as required by legislation. Further recommendations will follow after the investigation.	Applicant, consultant, and the archaeologist	From the start and duration of all phases of the development, i.e., during the clearing of the vegetation for the above ground heritage.
Compile a list and description of heritage sites/remains that may potentially be impacted by the development, if required.	Archaeologist	After the walkthrough before the development starts.
All levelling and construction of the infrastructure must be monitored by an archaeologist in both footprints.	Consultant, construction manager and archaeologist	Duration of the project for the buried heritage.
If human remains (or any other concentrations of heritage material) are exposed during construction, all work must cease in the immediate area and it must be reported immediately to the archaeologist at the Albany Museum (Tel.: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel.: 043 6422811), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to investigate and to collect material.	Consultant, ECPHRA Albany Museum and archaeologist	Duration of the project for the buried heritage.
Compile recommendations, a list and description of heritage remains that may potentially be impacted by the development, if required	Archaeologist	Duration of the project for the buried heritage.
The local Gamtkwa KhoiSan Council must be consulted about possible mitigation measures regarding the finds and the destiny of the material.	Consultant, Gamtkwa KhoiSan Council, Albany Museum, Archaeologist	Before the development continues and for the duration of the project
If the local Gamtkwa KhoiSan Council agrees to the removal of the material, an archaeologist must apply for permits from the Eastern Cape Province Heritage Resources Authority to collect and/or excavate sites/ materials from archaeological sites identified to be impacted by the development.	Archaeologist, Albany Museum and ECPHRA	Before the development continues and for the duration of the project

Performance indicator	All heritage sites/materials must be managed within the legislative guidelines. The success of the monitoring will be determined by the degree of damage/disturbance that can be avoided to heritage sites.
Monitoring	All development activities must be monitored by the archaeologist. A report and if required a list of recommendations, should be compiled and submitted to the Eastern Cape Provincial Heritage Resources Authority after the monitoring phase(s) for comment. A record must be kept of all accidental disturbances of heritage sites/material. All heritage sites/materials observed during any construction activity must be reported and recorded.

Figure 1. General views after a bushfire cleared a large part of the vegetation in the southern footprint. Note the piles of building rubble on the property.

Figure 2. General views of the dense vegetation which covers the eastern footprint.

DISCUSSION AND MITIGATION

No heritage sites/materials were observed in the southern footprint during the investigation. The dense vegetation cover in the eastern footprint made it impossible to find any heritage sites/materials as well. However, the three thin shell scatters and associated cultural material (also Khoi pastoralist pottery) observed along the northern boundary of the property indicate that there are archaeological sites on the property and these may be covered by vegetation and soil. These sites may date from the past 6000 years, but there may also be sites dating much

older. Of research interest are those of Khoi pastoralist origin, because the oldest remains of these groups along the Eastern Cape coast come from close to proposed development.

The proposed development is approximately one kilometre from the coast and therefore falls within an archaeological sensitive area and it is possible that shell middens and other heritage/archaeological sites/materials (including human remains) may be found when the construction of the eco-residential development takes place. It is therefore recommended that:

1. All vegetation clearing must be conducted in short strips under the supervision of an archaeologist, thereby allowing for documentation and/or rescue if any new sites/materials are exposed.

2. If any archaeological sites or material are exposed during the clearing of the vegetation, then further recommendations will follow for a possible Phase 2 Mitigation process.

    - A Phase 2 Mitigation process includes the systematic excavations and/or collection of sites/materials before construction of the development starts/continues.

3. All construction of infrastructure must be monitored by an archaeologist. If any shell middens/material or any other heritage/archaeological site/materials are exposed, all work in that area must cease and an archaeologist must inspect the find and make recommendations for a Phase 2 Mitigation process.

4. Manager/foreman or ECO should be informed before construction starts on the possible types of heritage sites resources they may encounter and the procedures to follow when they find sites.

5. If any concentrations of heritage/archaeological material are exposed during construction, then all work must cease in the immediate area and it must be reported to the archaeologist at the Albany Museum in Grahamstown (Tel: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 745 0888), so that a systematic and professional investigation can be undertaken. Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation (See appendix B for a list of possible archaeological sites/material that maybe found in the area). If any archaeological sites/materials are exposed, then:

    - The local Gamtkwa KhoiSan Council must be consulted about possible mitigation measures regarding the finds and the destiny of the material.

    - If the local Gamtkwa KhoiSan Council agrees to the removal of the material, an archaeologist must apply for a permit from the Eastern Cape Provincial Heritage Resources Authority to scientifically excavate/collect the material.

6. All costs must be financed by the applicant. This may include:

    All monitoring and mitigation expenses regarding the excavations/collecting of material, travel, accommodation and subsistence, analysis of the material, radiocarbon date(s) of the site(s) and a one-off curation/storage fee payable to the Department of Archaeology at the Albany Museum in Grahamstown (Eastern Cape Repository for Archaeological material).

7. Although there are few visible archaeological sites in close proximity of the property, the proposed development will have an indirect impact on cultural resources in the surrounding

areas. Important archaeological and historical sites and material are within walking distance and residents will no doubt visit or 'discover' these through their recreational activities. Against this background the following recommendations are proposed:

- Terms of conditions, in the form of a 'management strategy' should be included in the constitution of the Home Owners Association or into the rules of any other relevant management body. The purpose of this 'management strategy' would be to inform the home owners and visitors to the Swan Lake Eco Estate of possible heritage resources on the property and surrounds, and to prevent possible damage to sites or the illegal collecting of material by residents and/or visitors. This 'management strategy' document (terms of conditions) can be compiled by the Eastern Cape Heritage Resources Authority in cooperation with the Home Owners Association or relevant body.

- It is suggested that if archaeological sites/materials are exposed in the footprints the developers should consider a small display/information centre at a central place in the development where relevant information can be displayed regarding the history of archaeological heritage of the area.

  Such a facility will be a positive contribution to the heritage empowerment of the local KhoiSan communities and it may prove to be a valuable 'investment' to the development. It should also include a 'management strategy' which inform the owner/visitors/tourists about the protection, conservation and protocol of visiting these heritage resources.

Motivation for 7.

There is no doubt that the development will have an impact and ripple effect on the archaeological heritage resources of the region. The impact will be indirect, but will increase over time. It is therefore the responsibility of the developers to inform potential homeowners and visitors to the development of the importance of the archaeological heritage of the area. In this way, the developers will make a contribution to the potential protection and preservation of these archaeological resources of the region.

The immediate and adjacent areas to the proposed development are rich in archaeological heritage sites, i.e. open-air sites, caves and shelters with extremely valuable and important unique archaeological deposits. There are sites within walking distance from the development and many others also within a short driving distance, for example the Klasies River Cave Complex. These sites and others will be 'discovered' by landowners and visitors during their stay/visit to the estate and region.

GENERAL REMARKS AND CONDITIONS

Note: This is an Archaeological Impact Assessment (AIA) report compiled for the Eastern Cape Provincial Heritage Resources Authority (ECPHRA) to enable them to make informed decisions regarding the heritage resources assessed in this report and only they have the authority to revise the report. This Report must be reviewed by the ECPHRA where after they will issue their Review Comments to the EAP/developer. The final decision rests with the ECPHRA who must grant permits if there will be any impact on cultural sites/materials as a result of the development

This report is a Phase 1 Archaeological Impact Assessment and does not exempt the developer from any other relevant heritage impact assessments as specified below:

In terms of the National Heritage Resources Act, No. 25 of 1999 (section 38) ECPHRA may require a full Heritage Impact Assessment (HIA) to assess all heritage resources, that includes *inter alia*, all places or objects of aesthetical, architectural, historic, scientific, social, spiritual, linguistic, or technological significance that may be present on a site earmarked for development. A full Heritage Impact Assessment (HIA) should assess all these heritage components, and the assessment may include archaeology, shipwrecks, battlefields, graves, and structures older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasized that this Phase 1 AIA is based on the visibility of archaeological sites/material and may not therefore reflect the true state of affairs. Sites and material may be covered by soil and vegetation and will only be located once this has been removed. In the event of such finds being uncovered during construction activities, ECPHRA or an archaeologist must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed (see attached list of possible archaeological sites and material).The developer must finance the costs should additional studies be required as outlined above. The *onus* is on the developer to ensure that the provisions of the National Heritage Act No. 25 of 1999 and any instructions from ECPHRA are followed. The EAP/developer must forward this report to ECPHRA in order to obtain their Review Comments, unless alternative arrangements have been made with the heritage specialist to submit the report.

APPENDIX A: brief legislative requirements

Parts of sections 35(4), 36(3) and 38(1) (8) of the National Heritage Resources Act 25 of 1999 apply:

Archaeology, palaeontology and meteorites

35 (4) No person may, without a permit issued by the responsible heritage resources authority—

(a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
(b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;
(d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.

Burial grounds and graves

36. (3) (a) 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.

Heritage resources management

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorized as –

(a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
(b) the construction of a bridge or similar structure exceeding 50m in length;
(c) any development or other activity which will change the character of the site –
(i) exceeding 5000m^2 in extent, or
(ii) involving three or more erven or subdivisions thereof; or
(iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
(iv) the costs of which will exceed a sum set in terms of regulations by SAHRA, or a provincial resources authority;
(d) the re-zoning of a site exceeding 10 000m^2 in extent; or
(e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must as 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.

APPENDIX B: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM COASTAL AREAS: guidelines and procedures for developers

Shell middens

Shell middens can be defined as an accumulation of marine shell deposited by human agents rather than the result of marine activity. The shells are concentrated in a specific locality above the high-water mark and frequently contain stone tools, pottery, bone and occasionally also human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m^2 in extent, should be reported to an archaeologist.

Human Skeletal material

Human remains, whether the complete remains of an individual buried during the past, or scattered human remains resulting from disturbance of the grave, should be reported. In general the remains are buried in a flexed position on their sides, but are also found buried in a sitting position with a flat stone capping and developers are requested to be on the alert for this.

Fossil bone

Fossil bones or any other concentrations of bones, whether fossilized or not, should be reported.

Stone artefacts

These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists

notified.

Stone features and platforms

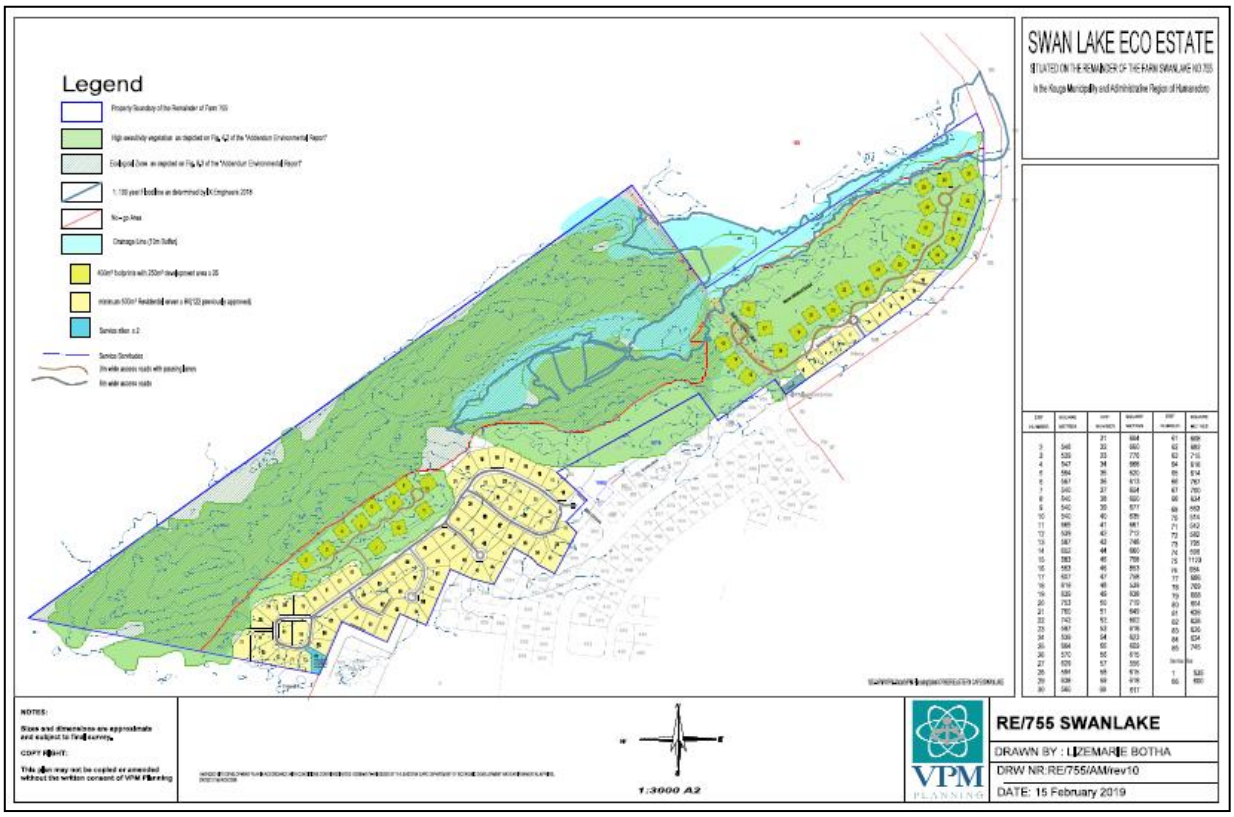
These occur in different forms and sizes, but easily identifiable. The most common are an accumulation of roughly circular fire cracked stones tightly spaced and filled in with charcoal and marine shell. They are usually 1-2 metres in diameter and may represent cooking platforms for shell fish. Others may resemble circular single row cobble stone markers. These occur in different sizes and may be the remains of wind breaks or cooking shelters.

Historical artefacts or features

These are easy to identify and include foundations of buildings or other construction features and items from domestic and military activities.

Map 1. 1:50 000 Maps indicating the location of the proposed Swan Lake development at Aston Bay.

Map 2. Aerial images indicating the location of the proposed Swan Lake Eco Estate development at Aston Bay. The green pins mark the archaeological sites observed during the 2008 investigation.



Map 3. Preferred layout of the proposed Swan Lake Eco Estate development at Aston Bay (map courtesy of CAPE EAPrac (Pty) Ltd.).

APPENDIX C: Abbreviated *Curriculum Vitae 2018*

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PREVIOUS POSITION: Head of the Department of Archaeology
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CURRENT POSITION: Researcher Emeritus
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QUALIFICATIONS: BA-Honours in Archaeology from the University of Stellenbosch (1978).
M.A in Archaeology from the University of Stellenbosch (1982).
D.Phil in Archaeology from the University of the Witwatersrand (1996).

RESEARCH EXPERIENCE: 40 Years of archaeological research in the eastern and southern Cape. This include the fields of Earlier, Middle and Later Stone Iron Age, Rock Art and Historical Archaeology.

PUBLICATIONS: Include 40 academic and popular articles.
1992 - 2008 Co-editor of the *Southern African Field Archaeology* (Accredited Journal)
MEMBER OF: Association of South African Professional Archaeologists

CONSULTANCY EXPERIENCE: 37 Years of eastern and southern Cape archaeology.

CONSULTANT PROJECTS - Clients include:

Cape Provincial Administration (pre 1994)
Atomic Energy Board
South African National Roads Agency
Pretoria Portland Cement
Blue Circle Cement
Eastern Cape Nature Conservation (pre April 2004) (now Eastern Cape Parks Board)
Department of Water Affairs
Department of Environmental Affairs
National Parks Board (now SANparks)
Wilderness Foundation
Gencor
Portnet (National Port Authority)
Coega Industrial Development Corporation
Eskom
Telkom
CSIR
Municipalities in the Eastern Cape
Wind Energy Developers in the Eastern Cape
Many small companies and land developers

A FEW SELECTED PROJECTS – (completed approximately 263 projects during 2013 - 2017 (list available on request).

A phase 1 archaeological impact assessment of the greater Coega Industrial Development Zone (IDZ), Near Port Elizabeth, Nelson Mandela Bay Municipality, Eastern Cape Province.

An archaeological walkthrough survey of the final turbine footprint for the proposed phase 1 Amakhala Emoyeni wind energy facility, Cookehouse District, Blue Crane Route Municipality, Eastern Cape Province.

A phase 1 archaeological impact assessment for the proposed Oyster Bay Wind Energy Facility, Kouga Local Municipality, Humansdorp District, Eastern Cape Province.

A phase 1 archaeological heritage impact assessment for the proposed Tsitsikamma Community Wind Energy Facility, Kouga Local Municipality, Humansdorp District, Eastern Cape Province.

A phase 1 archaeological heritage impact assessment for the proposed Kouga wind energy project near Jeffreys Bay, Kouga Municipality, District Of Humansdorp, Eastern Cape.

A phase 1 archaeological impact assessment for the proposed construction of a 55 megawatt solar farm and associated infrastructure on portion 2 of the farm Kraan Vogel Kuil No. 50, Pearston, Blue Crane Municipality, Eastern Cape Province.
Archaeological heritage impact assessment for the proposed Gqunubie valley golf estate.

A phase 1 archaeological heritage impact assessments for the proposed upgrading of road DR2071 from Debe Nek to the junction with road DR12093 and 6 borrow pits in the Nkonkobe Municipality, Amatole District Municipality, Eastern Cape Province.

A phase 1 archaeological heritage impact assessments for the proposed special maintenance of national route R61, section 4, from Tarkastad to Queenstown, Chris Hani District Municipality, Eastern Cape Province.

Archaeological heritage impact assessment for the proposed construction of an overhead power line to lkcf001 (frs 143) on the Farm Samekoms 392, Cradock District.

A phase 1 archaeological heritage impact assessment of 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

A phase 1 archaeological impact assessment for the proposed 132kv power line linking the Tsitsikamma community wind energy facility to the proposed extension of the existing Dieprivier Substation, Kouga Local Municipality, Humansdorp District, Eastern Cape Province.

SELECTED ACADEMIC PUBLICATIONS (peer reviewed, published in accredited journals)

Carrion, J.S., Brink, J.S., Scott, L. & **Binneman, J.N.F.** 2000. Palynology and palaeo-environment of Pleistocene coprolites from an open-air site at Oyster Bay, Eastern Cape coast. South African Journal of Science 96:449-453.

Binneman, J.N.F. 2000. Results from two test excavations in the Baviaanskloof Mountains, Eastern Cape Province. Southern African Field Archaeology **9**:81-92.

Binneman, J.N.F. 2001. An introduction to the Later Stone Age research project along the south-eastern Cape coast. Southern African Field Archaeology **10**:75-87.

Binneman, J.N.F. 2004/5. Archaeological research along the south-eastern Cape coast Part 1: open-air shell middens. Southern African Field Archaeology **13/14**:49-77.

Steyn, M., **Binneman, J.N.F.** & Loots, M. 2007. The Kouga Mummified remains. South African Archaeological Bulletin **65**:3-8.

Binneman, J.N.F. 2006/7. Archaeological research along the south-eastern Cape coast Part 2, caves and shelters: Kabeljous River Shelter 1 and associated stone tool industries. Southern African Field Archaeology **15/16**:57-74.

RECENT INTERNATIONAL CONFERENCES ATTENDED – presented papers

2000 Southern African Association of Archaeologists, University of the Witwatersrand, 25-28 April, Johannesburg.
2002 Society for Africanist Archaeologists, 18-21 May, University of Arizona, Tucson, USA.
2002 South African Association of Archaeologists, 7-11 July, Cape Town.
2004 South African Association of Archaeologists, 4-9 April, Kimberley.
2004 Society for Africanist Archaeologists, 25-29 June, University of Bergen, Bergen, Norway
2005 Pan African Association for Archaeology and Related Studies from the 3rd-10th of July, University of Botswana, Gaborone.
2006 Association of South African Professional Archaeologists, 10-13 April, Pretoria.
2008 Association of South African Professional Archaeologists, 25-29 March, Cape Town.
2012 Society for Africanist Archaeologists, 25-29 June, University of Toronto, Canada.