

**A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED
EXPANSION OF AGRICULTURAL ACTIVITIES ON PORTION 5 OF THE FARM
NOOITGEDACHT NO. 118, SUNLAND, SUNDAYS RIVER VALLEY
MUNICIPALITY, 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 Phase 1 Impact Assessment (AIA) reports. The report is part of an Environmental Impact Assessment.

EXECUTIVE SUMMARY

Purpose of the study

The original proposal was to conduct a survey of possible archaeological sites of the proposed expansion of agricultural activities on portion 5 of farm Nooitgedacht No. 118, Sunland, Sundays River Valley Municipality, Eastern Cape Province; to establish the range and importance of the archaeological sites/remains, the potential impact of the development and to make recommendations to minimize possible damage to these sites.

Type of development

The proposed development comprises the expand the existing agricultural activities with 38,4 hectares for additional citrus orchards and associated agricultural infrastructure

The investigation

Due to the dense/impenetrable thicket vegetation and grass it was difficult to find archaeological sites/materials, but occasional Earlier, Middle and Later Stone Age stone tools were observed in areas where the dense vegetation has been cleared, in vehicle tracks and where river gravels were exposed.

Cultural sensitivity

In general the proposed property for development appeared to be of low archaeological sensitivity. Development may proceed as planned (see recommendations).

Recommendations

1. The ECO must be trained to monitor the clearing of the vegetation.
2. It is suggested that an archaeologist should conduct a walkthrough when the area for development is cleared of vegetation.

3. If concentrations of archaeological material are uncovered during the development it should be reported immediately to the archaeologist at the Albany Museum and/or the Eastern Cape Provincial Heritage Resources Authority.
4. Manager/foreman should be informed before clearing starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites.

PROJECT INFORMATION

The type of development

The proposed agricultural development on Portion 5 of farm Nooitgedacht No. 118, Sunland aims to expand the existing agricultural activities with approximately an additional 38,4 hectares for citrus orchards and associated agricultural infrastructure. The total size of the farm is approximately 228,3 hectares and is used for commercial buffalo farming, citrus production, tourism activities and cattle grazing.

The Developer

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Purpose of the study

The purpose of the study was to conduct a Phase 1 Archaeological Impact Assessment (AIA) of the proposed expansion of agricultural activities on portion 5 of farm Nooitgedacht No. 118, Sunland, Sundays River Valley 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 farm Nooitgedacht No. 118 is located within the 1:50 000 topographic reference map 3325DA Addo (Map 1) and is situated approximately 2 kilometres south of Sunlands and 6 kilometres west of Addo as the crow flies. The property is located close (east) to the gravel road (MR00470) between the R75 to Uitenhage and Sunlands (general GPS reading: 33.31.45,45S; 25.36.28,77E) (Maps 1-2). The total extent of the farm is approximately 228,3

ha and the total size of the development footprint is 38,4 ha. The remainder is used for commercial buffalo farming, citrus production, tourism activities (Kududu Guest Farm) and cattle grazing.

The development will take place adjacent to a rehabilitated calcrete borrow pit on a relative flat plateau with gentle slope towards the south. The footprint area comprises of thick reddish alluvial soils and gravel towards the centre and south and thin grey soils covering calcrete outcrops towards the north. The entire footprint is covered by dense thicket vegetation and grass.

Relevant impact assessments from the wider region, databases and collections

Binneman, J. 2013a. A phase 1 archaeological impact assessment for the proposed establishment and operation of a composting and fertiliser processing facility on farm 715, Division Uitenhage, Nelson Mandela Bay Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres.

Binneman, J. 2013b. A phase 1 archaeological impact assessment for the proposed clearing of land for agricultural purposes on Panzi citrus farm near Kirkwood, Division of Uitenhage, Sundays River Valley Municipality, Eastern Cape Province. Prepared for CEN Integrated Environmental Management Unit. Port Elizabeth. Prepared for Public Process Consultants Greenacres.

Binneman, J. 2012. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Portion 23 of farm 104 Swanepoels Kraal and the remainder of farm 650, Kirkwood, Sundays River Valley Municipality, Eastern Cape Province.

Binneman, J. 2011. A phase 1 archaeological impact assessment for the proposed agricultural development of Portion 4, 5 and 6 of farm no. 194 Lot De B Olifants Kop, Nelson Mandela Bay Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres.

Binneman, J. 2010. A phase 1 archaeological heritage impact assessment for the proposed development of a leisure estate in the Sundays River Valley area, Sundays River Municipality, Eastern Cape Province. Prepared for CEN Integrated Environmental Management Unit. Port Elizabeth.

The Albany Museum in Grahamstown houses collections and information from the wider region.

BRIEF ARCHAEOLOGICAL BACKGROUND

Literature review

Little systematic archaeological research and regional surveys/recordings have been conducted in the study area. The oldest evidence of the early inhabitants are large stone tools, called hand axes and cleavers, which can be found amongst river gravels along the Sunday's River and in old spring deposits in the region. These large stone tools are from a time period called the Earlier Stone Age (ESA) and may date between 1,5 million and 250 000 years old. In a series of spring deposits at Amanzi Spring near Uitenhage (approximately 20 km south of the study area), a large number of stone tools were found *in situ* to a depth of 3-4 metres. Remarkably, wood and seed material preserved in the spring deposits, possibly dating to between 250 000 to 800 000 years old (Inskeep 1965; Deacon 1970).

The large hand axes and cleavers were replaced by smaller stone tools called the Middle Stone Age (MSA) flake and blade industries. Evidence of MSA sites occur throughout the region and date between 250 000 and 30 000 years old. These stone artefacts, like the Earlier Stone Age tools are also found in the gravels along the banks of the Sunday's River and are mainly in

secondary context. Fossil bone may in rare cases be associated with MSA occurrences.

The majority of archaeological sites found in the area date from the past 10 000 years (called the Later Stone Age) and are associated with the campsites of San hunter-gatherers and Khoi pastoralists. These sites are difficult to find because they are in the open veld and often covered by vegetation and sand. Sometimes these sites are only represented by a few stone tools and fragments of bone (Deacon & Deacon 1999). The preservation of these sites is poor and it is not always possible to date them. There are many San hunter-gatherers sites in the nearby Suurberg and adjacent mountains. Here caves and rock shelters were occupied by the San during the Later Stone Age with well-preserved living deposits and paintings along the walls (Deacon 1976).

Some 2 000 years ago Khoi pastoralists occupied the region and lived mainly in small settlements. They were the first food producers in South Africa and introduced domesticated animals (sheep, goat and cattle) and ceramic vessels to southern Africa. Often archaeological sites are found close to the banks of large streams and rivers. Large piles of freshwater mussel shell (called middens) usually mark these sites. Prehistoric groups collected the freshwater mussel from the muddy banks of the rivers as a source of food. Mixed with the shell and other riverine and terrestrial food waste are also cultural materials. Human remains are often found buried in the middens.

References

- Deacon , H.J. 1970. The Acheulian occupation at Amanzi Springs, Uitenhage District, Cape Province. *Annals of the Cape Provincial Museums*. 8:89-189.
- Deacon, H. J., 1976. Where hunters gathered: a study of Holocene Stone Age people in the Eastern Cape. *South African Archaeological Society Monograph Series No. 1*.
- Deacon, H.J. & Deacon, J. *Human beginnings in South Africa*. Cape Town: David Phillips Publishers.
- Inskeep, R.R. 1965. Earlier Stone Age occupation at Amanzi: preliminary investigations. *South African Journal of Science*. 61:229-242.

ARCHAEOLOGICAL INVESTIGATION

Methodology

The landowner was contacted prior to the investigation to inform him about the visit and to gain access to the property. During the field study the landowner pointed out the proposed area for development. He was also consulted during the visit on possible locations of archaeological remains, graves and historical buildings and features. Most of the property for development is covered by dense thicket vegetation and to cover as much of the terrain as possible the many tracks which run through the property were followed with a vehicle and investigated by spot checks on foot by two people (Maps 1-2). GPS readings were taken with a Garmin and all important features were digitally recorded.

Limitations and assumptions

It was not feasible to do a comprehensive survey due to the large size of the property and the dense impenetrable vegetation (Maps 1-2). Due to the dense thicket vegetation it was difficult to locate archaeological sites/materials. However, in areas where the surface soils were exposed by natural erosion, foot paths and vehicle tracks, the archaeological visibility was good and made it fairly easy to locate archaeological materials (Figures 1-4).

Regardless of the restrictions imposed by the dense vegetation, the experiences and knowledge

gained from other investigations in the wider surrounding region provided background information to make assumption 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.

Results and findings

It was difficult to locate archaeological sites/materials because most of the area is covered by dense/ impenetrable thicket vegetation, low bushes and grass. Also areas cleared recently along the access tracks are covered by dense grass with limited archaeological visibility (Figures 1-4). Stone stools were the only archaeological material located and were observed throughout the area. Regardless of the large areas investigated on foot no other remains such as bone, ostrich eggshell or pottery were observed. However, it is possible that sites/materials are covered by vegetation and soil.

The most common stone tools observed throughout the area were of Middle Stone Age (MSA) origin (dating between 250 000 and 30 000 years old). The ages of the MSA stone tools in the study area are unknown, but are located in the reddish top soil which covers the region and in the river gravels exposed by erosion and in vehicle tracks towards the centre and southern part of the foot print. Towards the northern part these stone tools are exposed on or in the calcrete surfaces (Figure. 3). The tools are manufactured on quartzite and display typical faceted striking platforms. They were found randomly without any recognized distribution patterns. Most of the tools were thick, small 'informal' flakes, cores and chunks. Few of other typical MSA tool types such as 'true' points and blades were observed. The stone tools were in secondary context and not associated with any other archaeological material. Later Stone Age stone tools, mainly small flakes (dating younger than 30 000 years old) were occasionally located, but in general not present in any significant numbers. They were also in secondary context and not associated with any other archaeological materials. Surprisingly, few Earlier Stone Age (ESA) stone tools (dating between 1,5 million and 250 000 years old) were observed. Large numbers of these stone tools were located in a series of spring deposits at Amanzi Spring near Uitenhage (some 20 km south of the study area). It is possible that these stone tools are buried and covered by vegetation.

There are no graves or buildings older than 60 years. In general it would appear that the area is of low cultural sensitivity and that it is unlikely that any sensitive archaeological remains will be exposed during the development.



Figure 1. A general view of the area (main image) and the dense thicket vegetation.



Figure 2. General views of the footprint and the dense thicket vegetation which cover most of the proposed site for development .



Figure 3. A view of the exposed calcrete in the northern part of the footprint (main image) and stone tools embedded in the deposit (left insert) and the thick red soils and gravel towards the centre and southern part (right insert).



Figure 4. Views of river gravel exposed in a vehicle track (main image) and an example of MSA stone tools from the study area (right insert).

ASSESSMENT OF THE IMPACTS

Pre-colonial archaeology

Nature of the impacts

The main impact on archaeological sites/remains (if any) will be the physical disturbance of the material and its context. The clearing of the vegetation for the expansion of agricultural activities (approximately 38,4 ha) will expose, disturb and displace archaeological sites/material. However, from the investigation it would appear that the proposed area earmarked for development is of low archaeological sensitivity. The Earlier, Middle and Later Stone Age stone artefacts observed throughout the proposed property for development are considered to be of low cultural significance, because they are in secondary context and not associated with any other archaeological remains. Notwithstanding, important materials may be covered by soil and vegetation.

Extent of the impacts

The clearing of the vegetation for the expansion of agricultural activities may impact on remains which are buried (such as burials), but these impacts will be limited and restricted to the local area. Although the development may disturb a large area, the negative impact on possible archaeological sites/materials may be relatively small, but nevertheless permanent. In general further disturbances of sites/materials can be limited by mitigation if reported immediately to the nearest archaeologist/Eastern Cape Heritage Provincial Resources Authority.

Table 1. Impacts on the pre-colonial archaeology.

Nature: The potential impact of the clearing of the vegetation for the expansion of agricultural activities on above and below ground archaeology.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Permanent (4)	Permanent (4)
Magnitude	Minor (2)	Minor (2)
Probability	Unlikely (2)	Unlikely (2)
Significance	Low < 20	Low < 20
Status (positive or negative)	Negative	Neutral
Reversibility	No	No
Irreplaceable loss of resources?	No, but in some cases, yes	No
Can impacts be mitigated?	Yes	
<p>Mitigation: No mitigation is proposed for the property before construction starts because the archaeological remains (if any) are of low significance (excluding human remains).</p> <p>However, the ECO (must be trained) must monitor the clearing of the vegetation and if concentrations of archaeological materials and/or human remains are exposed then all work must stop for an archaeologist to investigate (see below).</p> <p>An archaeologist should conduct a walkthrough of the area after the vegetation is cleared to check if any significant sites/materials were exposed. Further recommendations will follow after the investigation.</p> <p>If any human remains (or any other concentrations of archaeological heritage material) are</p>		

exposed during construction, all work must cease and it must be reported immediately to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.

Cumulative impacts: The cumulative impacts on above and below ground archaeology will only increase if further expansions of the current proposed agricultural activities are planned for adjoining areas.

Residual impacts: Permanent

Pre-colonial archaeological cultural landscape

Nature of the impact

The archaeological significance of the area is low and there are also no historical buildings, graves or other features of importance on the site that will be impacted by the development. Therefore the visual impact of the development on the pre-colonial cultural landscape will be low as well and restricted to the immediate area. The area has been exposed to agricultural activities before and other developments in the immediate vicinity such as the construction of roads fences and small scale farming activities. Nevertheless a natural landscape will be transformed to a new 'commercial' landscape which will also change the 'sense of place' to a certain degree (the visual impact on the existing cultural landscape is subject to a specialist study).

Extent of impact

The visual impact of the development will be limited to the immediate area and will have little negative effect on the cultural landscape and 'significance/sense of place'. Notwithstanding, the 'presence' of the development will be long term to permanent and will be difficult to fully rehabilitate. Certain negative impacts can be mitigated.

Table 2. Impacts on the pre-colonial cultural landscape.

Nature: The potential impact of the clearing of the vegetation for the expansion of agricultural activities on the cultural landscape and 'sense of place'.		
	Without Mitigation	With Mitigation
Extent	Local (1)	Local (1)
Duration	Long term/permanent (4)	Long term/permanent(4)
Magnitude	Minor (2)	Minor (2)
Probability	Unlikely (2)	Unlikely (2)
Significance	Low < 20	Low < 20
Status (positive or negative)	Negative	Negative
Reversibility	Reversible	Reversible
Irreplaceable loss of resources?	No	No
Can impacts be mitigated?	Yes	yes
Mitigation: No mitigation is proposed because the archaeological remains are of low significance.		
Cumulative impacts: The cumulative impacts will only increase if further expansions of the current proposed agricultural activities are planned for adjoining areas, which may bring changes to the pre-colonial cultural landscape in terms of visual impacts and changes to 'sense of place'.		

Residual impacts: The damage/changes caused by the clearing of the vegetation for the establishment and operation of a composting and fertiliser processing facility, will be long term to permanent and will be difficult to fully rehabilitate.

ENVIRONMENTAL MANAGEMENT PROGRAMME for the pre-colonial archaeology.

Objective: To conserve the pre-colonial archaeological sites/remains of the farm Nooitgedacht No. 118 as outlined in the National Heritage Resources Act of 1999.	
Project component/s	Clearing of the vegetation for the establishment and operation of a composting and fertiliser processing facility.
Potential impact	The physical disturbance and/or destruction of pre-colonial archaeology sites/remains.
Activity/risk source	Construction of a composting and fertiliser processing facility, dams, access roads for construction vehicles, clearing of vegetation and earthworks.
Mitigation: Target/Objective	<p>The ECO must be trained to monitor the clearing of the vegetation. If concentrations of archaeological materials and/or human remains are exposed then all work must stop for an archaeologist to investigate.</p> <p>An archaeologist/heritage practitioner must do a 'walkthrough' of the final layout of development footprint before construction starts to establish what adjustments are required to mitigate possible impacts on pre-colonial archaeological sites/remains, as required by legislation.</p>

Mitigation: Action/control	Responsibility	Timeframe
The ECO must monitor the clearing of the vegetation. If concentrations of archaeological materials and/or human remains are exposed then all work must stop for an archaeologist to investigate.	Proponent, consultant, contractor	During the clearing of the vegetation
An archaeologist should conduct a walk through of the area 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.	Proponent, consultant, contractor and the archaeologist/heritage practitioner.	Before the construction starts.
Compile a list of recommendations of adjustments to prevent impacts on pre-colonial archaeological sites/remains.	Archaeologist/heritage practitioner	After the walkthrough before the construction starts.
Compile a list and description of pre-colonial archaeological sites/remains that may potentially be impacted by the development	Archaeologist/heritage practitioner	After the walkthrough before the construction starts.
Construction manager should be informed before construction starts on	Proponent, consultant, contractor and the	Before the construction starts.

the possible types of sites and material they may encounter and the procedures to follow when they find sites.	archaeologist/heritage practitioner.	
If any human remains (or any other concentrations of heritage material) are exposed during construction, all work must cease and it must be reported immediately to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811), so that a systematic and professional investigation can be undertaken. Sufficient time must be allowed to investigate and to collect such material.	Consultant, contractor and the archaeologist/heritage practitioner.	Duration of the project
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.	Proponent, Consultant and the archaeologist/heritage practitioner.	Before the construction starts 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 construction activities must be monitored by the archaeologist/heritage specialist. 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.

DISCUSSION AND MITIGATION

The main impact on archaeological sites/remains will be the physical disturbance of the material and its context. The clearing of the vegetation to expand the existing agricultural activities (approximately 38,4 ha) will expose, disturb and displace archaeological sites/material. However, from the investigation, it would appear that the proposed area earmarked for development is of low archaeological sensitivity and the visual impact on the surrounding cultural landscape will also be low. The Earlier, Middle and Later Stone Age stone artefacts were observed throughout the proposed property for development are considered to be of low cultural significance, because they are in secondary context and not associated with any other archaeological remains. Notwithstanding, important materials may be covered by soil and vegetation. Although it is unlikely that any sensitive archaeological remains will be exposed during the development, there is always a possibility that human remains and/or other archaeological and historical material may be uncovered. It is recommended/suggested that;

1. The ECO must be trained to monitor the clearing of the vegetation. If concentrations of archaeological materials and/or human remains are exposed then all work must stop for an archaeologist to investigate

2. An archaeologist should conduct a walkthrough of the area after the vegetation is cleared and before construction starts to check if any significant sites/materials were exposed. Further recommendations will follow after the investigation.
3. If any human remains or any other concentrations of archaeological heritage material are exposed during construction, all work must cease and it must be reported immediately to the archaeologist at the Albany Museum (046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (043 6422811). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation.
4. The manager/foreman should be informed before construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. It is suggested that a person be trained (ECO) to be on site to report to the site manager if sites are found.

GENERAL REMARKS AND CONDITIONS

Note: This report is a phase 1 archaeological impact assessment/investigation only and does not include or exempt other required heritage impact assessments (see below).

The National Heritage Resources Act (Act No. 25 of 1999, section 35) (see Appendix A) requires a full Heritage Impact Assessment (HIA) in order that all heritage resources, that is, all places or objects of aesthetics, architectural, historic, 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 older than 60 years, living heritage, historical settlements, landscapes, geological sites, palaeontological sites and objects.

It must be emphasised that the conclusions and recommendations expressed in this archaeological heritage sensitivity investigation are based on the visibility of archaeological sites/features and may not therefore, reflect the true state of affairs. Many sites/features 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, (such as during any phase of construction work), archaeologists must be informed immediately so that they can investigate the importance of the sites and excavate or collect material before it is destroyed. The onus is on the developer to ensure that this agreement is honoured in accordance with the National Heritage Act No. 25 of 1999.

It must also be clear that Archaeological Specialist Reports (AIA's) will be assessed by the relevant heritage resources authority. The final decision rests with the heritage resources authority, which should grant a permit or a formal letter of permission for the destruction of any cultural sites.

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 5000m² 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 000m² 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 A: IDENTIFICATION OF ARCHAEOLOGICAL FEATURES AND MATERIAL FROM INLAND AREAS: guidelines and procedures for developers

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 human remains are buried in a flexed position on their side, but are also found buried in a sitting position with a flat stone capping. Developers are requested to be on alert for the possibility of uncovering such remains.

Freshwater mussel middens

Freshwater mussels are found in the muddy banks of rivers and streams and were collected by people in the past as a food resource. Freshwater mussel shell middens are accumulations of mussel shell and are usually found close to rivers and streams. These shell middens frequently contain stone tools, pottery, bone, and occasionally human remains. Shell middens may be of various sizes and depths, but an accumulation which exceeds 1 m² in extent, should be reported to an archaeologist.

Large stone cairns

They come in different forms and sizes, but are easy to identify. The most common are roughly circular stone walls (mostly collapsed) and may represent stock enclosures, remains of wind breaks or cooking shelters. Others consist of large piles of stones of different sizes and heights and are known as *isisivane*. They are usually near river and mountain crossings. Their purpose and meaning is not fully understood, however, some are thought to represent burial cairns while others may have symbolic value.

Stone artefacts

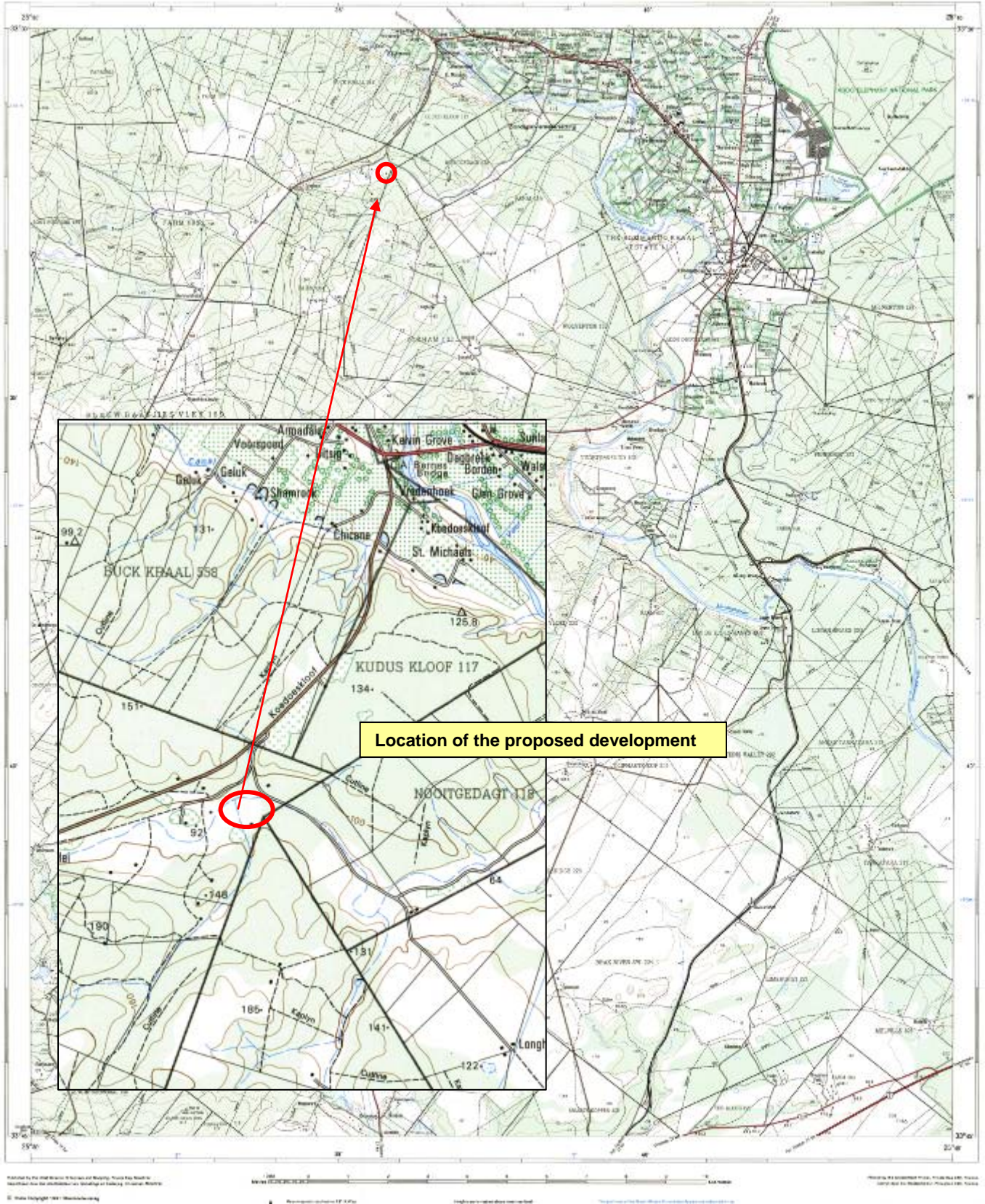
These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately and archaeologists notified.

Fossil bone

Fossil bones may be found embedded in geological deposits. Any concentrations of bones, whether fossilized or not, should be reported.

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 development. The red circles mark the approximate size of the footprint.



Map 2. Aerial images indicating the location of the proposed development. The pink lines outline the size of the footprint.