

Chapter 9: Archaeological Impact Assessment

**Scoping and Environmental Impact Assessment:
Sontule Citrus – Agricultural Expansion on Remainder of Farm
632, Sunland, Sundays River Valley Municipality**

Final EIA Report

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A PHASE 1 ARCHAEOLOGICAL IMPACT ASSESSMENT FOR THE PROPOSED DEVELOPMENT OF 144 HA OF CITRUS ORCHARDS AND ASSOCIATED INFRASTRUCTURE AS WELL AS THE CONSTRUCTION OF A DAM ON THE REMAINDER OF FARM 632 NEAR SUNLANDS, 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 Heritage Phase 1 Impact Assessment (AHIA) reports.

EXECUTIVE SUMMARY

Public Process Consultants on behalf of Sun Orange Farms (Pty) Ltd appointed Eastern Cape Heritage Consultants cc to conduct a Phase 1 Archaeological Impact Assessment (AIA) for the proposed development of 144 hectares of citrus orchards and associated infrastructure as well the construction of a dam on the Remainder of Farm 632 near Sunland, Sundays River Valley Municipality, Eastern Cape Province. The project will be known as the Sontule Citrus development.

Access to the study area was easy, but dense vegetation and grass in certain areas made it difficult to find *in situ* archaeological sites/materials. Nonetheless, occasional Middle Stone Age (MSA) stone tools were observed in a vehicle track along the southern boundary fence. These stone tools were in secondary context and not associated with any other archaeological material and no further action is needed. There is a dilapidated old building next to a quarry on the property. There are no known graves older than 60 years on the property.

The proposed development will take place near the Sundays River, in an area where one would expect to find freshwater mussel middens. It is recommended that if such features or any other concentrations of archaeological material are exposed, it must be reported to the archaeologist at the Albany Museum in Makhanda (Grahamstown) or to the Eastern Cape Provincial Heritage Resources Authority so that a systematic and professional investigation can be undertaken. Furthermore, all clearing activities must be monitored and managers/foremen should be informed before clearing/construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. The ECO can be trained to monitor the clearing of the vegetation and to report finds. In general, the proposed areas for development appears to be of **low archaeological sensitivity** and the development may proceed as planned.

9.1 PROJECT INFORMATION

9.1.1 Type of development

The farm measures approximately 459 hectares and is currently a working citrus farm with an additional 144 ha of orchards and associated infrastructure proposed. The effective irrigation areas are ~127ha.

The Sontule citrus development will also require the construction of a new dam on site and will be supplied with water from an existing dam on the property, which is supplied with water from the LSRWUA canal system.

- The existing dam has a capacity of 20 000m³
- The proposed new dam will be supplied with water from the existing dam via a 315mm uPVC pipe
- New dam specs:
 - Dam wall height 5 meters
 - Total proposed dam footprint ~31 800 m²
 - Estimated dam capacity ~49 000 m³
- New pumphouse (electrical consumption for pumps ~75kw)
- Relay water to orchards via pipes of varying sizes of either 250mm or 315mm uPVC pipe

The footprint for the new dam will be 3.18 ha and the area proposed for clearing for orchards and associated infrastructure is approximately 144 ha. A total clearance area of 147 ha is therefore proposed.

Applicant

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Consultant

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9.2 Purpose of the study

The purpose of the study was to conduct a Phase 1 Archaeological Impact Assessment (AIA) for the proposed development of ~144 hectares of citrus orchards and associated infrastructure as well as the construction of a dam on the Remainder of Farm 632 near Sunland, Sundays River Valley Municipality, 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.

9.3 Site and Location

The site for the proposed developments is located within the 1:50 000 topographic reference maps 3325BC Coerney (Map 1). The proposed areas for the citrus orchard and dam developments are situated approximately 7 kilometres northwest of Sunlands, and it is located close to the Sundays River (Map 2). The property consists of hills with moderate to steep gradients and relatively flat areas in between. The proposed development area comprises of reddish alluvial soils and it is covered by short grass and dense vegetation in places (Figure 1). Some areas have been disturbed by previous agricultural and other activities (Figure 2). There are no known graves or buildings older than 60 years on the property. A general GPS reading was taken at 33.28.906S; 25.32.781E.

9.3.1 Selected relevant impact assessments from the adjacent region, databases and collections

- Binneman, J. and Reichert, K. 2021a. A phase 1 archaeological impact assessment for the proposed development of approximately 250 hectares of citrus on Portion 15 of the Farm Oliphants Kop No. 194 (Gates Farm), near Addo within the Nelson Mandela Bay Municipality, Eastern Cape Province. Prepared for I.W. Terblanche & Associates. Humansdorp. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. and Reichert, K. 2021b. Phase 1 Archaeological Impact Assessment (AIA) for the proposed development of approximately 250 hectares of citrus orchards and associated infrastructure on Portion 4 of the Farm Klein Rooipoort No. 632 and the development of a storage dam on Portion 2 of Farm 658 near Sunlands within the Sundays River Valley Municipality, Eastern Cape Province. Prepared for I.W. Terblanche & Associates. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. and Reichert, K. 2020a. An archaeological assessment of the proposed amendment application for the authorised Instomi citrus farm, that includes the installation of irrigation pipelines, near Addo within the Sundays River Valley Local Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. and Reichert, K. 2020b. An archaeological assessment of the proposed amendment application for the establishment of a goat breeding facility on the authorised Instomi citrus farm near Addo within the Sundays River Valley Local Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. and Reichert, K. 2020c. A phase 1 archaeological assessment for the proposed cultivation of 67 ha of citrus and associated infrastructure on Portion 11 of Farm 100 (Tango) near Addo in the Sundays River Valley Local Municipality of the Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants cc.
- Binneman, J. and Reichert, K. 2019. A phase 1 archaeological impact assessment for the proposed establishment of a big 5 game reserve with lodge accommodation and a water pipeline to various dams near Addo in the Sunday's River Valley Municipality of the Eastern Cape Province. Prepared for Habitat Link Consulting. Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. and Reichert, K. 2018. A phase 1 archaeological impact assessments for the proposed agricultural activities on Portion 525 of the farm Strathsomers Estate No. 42 and associated irrigation infra-structure on Portion 523 of the farm Strathsomers Estate No. 42 in the Sundays River Valley Municipality of the Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants cc.
- Binneman, J. and Reichert, K. 2016a. A phase 1 archaeological impact assessment for the proposed clearing of natural vegetation to establish citrus orchards and grazing for game on the Remainder of Portion 1 of farm 119 (Wolverton) in the Sundays River Valley Municipality of the Eastern Cape Province. Prepared for Public Process Consultants. Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.

- Binneman, J. and Reichert, K. 2016b. A phase 1 archaeological impact assessments for the proposed clearing of vegetation in three areas to establish citrus orchards on the farm Boschkraal near Kirkwood, Sunday's River Valley Local Municipality Eastern Cape Province. Prepared for Prime Resources (Pty) Ltd. Parklands. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. and Reichert, K. 2016c. A phase 1 archaeological impact assessment for the proposed clearing of natural vegetation to expand the existing agricultural activities on portion 274, Strathsomers Estate No. 42 in the Sundays River Valley Municipality of the Eastern Cape Province. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. and Reichert, K. 2016d. A phase 1 archaeological impact assessment for the proposed clearing of natural vegetation to establish citrus orchards on the Remainder of Portion 14 of the farm Geelhoutboom No. 89 in the Sundays River Valley Municipality of the Eastern Cape Province. Prepared for Public Process Consultants. Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. and Reichert, K. 2015. A letter of recommendation (with conditions) for the exemption of a full phase 1 archaeological impact assessment for the proposed clearing of 20 ha of natural vegetation to establish citrus orchards on the farm Hitgeheim, Sunland, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Engineering Advice & Services (Pty) Ltd. Humewood. Eastern Cape Heritage Consultants cc. Jeffreys Bay
- Binneman, J. 2014a. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Portion 7 of the Farm Scheepers Vlake No. 98, Sunland near Kirkwood, Sundays River Valley Municipality, Eastern Cape Province. Prepared for I.W. Terblanche & Associates. Stellenbosch. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. 2014b. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Farm 632, Sunland near Kirkwood, Sundays River Valley Municipality, Eastern Cape Province. Prepared for I.W. Terblanche & Associates. Stellenbosch. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. 2014c. A phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on the remaining extent of Farm 714, Sunland Near Kirkwood, Sundays River Valley Local Municipality, Eastern Cape Province. Prepared for I.W. Terblanche & Associates. Stellenbosch. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. 2014d. Phase 1 archaeological impact assessment for the proposed expansion of agricultural activities on Luthando farm, Portion 320 of Strathsomers Estate No. 42, Kirkwood, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Public Process Consultants. Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Binneman, J. 2013. 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. Prepared for Public Process Consultants Greenacres. Eastern Cape Heritage Consultants cc. Jeffreys Bay.
- Gaigher, S. 2013. Heritage Impact Assessment for the Stormwater infrastructure in Valencia, Addo, Sundays River Valley Municipality, Eastern Cape Province.
- Rossouw, L. (Paleo Field Service). 2013 a. Phase 1 Heritage Impact Assessment of Disco Chicks Farm 2 (Farm 713), Sundays River Valley Municipality.
- Rossouw, L. 2015. Phase 1 Archaeological Impact Assessment of Intsomi Game Farm, Sundays River Valley Municipality, Eastern Cape Province. Prepared for Public Process Consultants Greenacres. National Museum. Bloemfontein.

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

9.4 BRIEF ARCHAEOLOGICAL BACKGROUND

9.4.1 Literature review

The oldest evidence of the early inhabitants in the Sundays River region are large stone tools, called hand axes and cleavers, which can be found amongst river gravels 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 Addo, 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) were also found.

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 Sundays River and, like hand axes, 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-gatherer 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.

9.4.2 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. 1999. *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.

9.5 ARCHAEOLOGICAL INVESTIGATION

9.5.1 Methodology

The farm manager was contacted prior to the investigation to inform him about the visit and to gain access to the property. All previous relevant survey information for the immediate and adjacent areas was reviewed before the survey started. The farm manager pointed out the proposed areas for the

development at the start of the survey and he was consulted about possible locations of archaeological remains, graves and historical buildings and features. A Google Earth aerial image study was also conducted of the area, prior to the investigation. The investigation was conducted on foot by an archaeologist and by doing spot checks from a vehicle. To cover as much of the proposed development areas as possible, vehicle tracks and cut lines on the farm were followed. GPS readings were taken with a Garmin and all the important features were digitally recorded.

9.5.2 Limitations and assumptions

It was not possible to do a complete survey of the areas due to the short grass and dense vegetation in places which made it difficult to locate *in-situ* archaeological sites/materials. Some areas on the property have been cleared of vegetation in the past and there are number of vehicle tracks and cut lines where the archaeological visibility was relatively good. The experiences and knowledge gained from several other investigations in the 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 areas, or which may be covered by soil and vegetation.

9.5.3 Finds and results

Although it was difficult to locate archaeological sites/materials, occasional Middle Stone Age (older than 30 000 years) stone tools were observed in areas where surface soil was removed in a gravel road along the southern boundary fence (Figure 1, bottom right insert). These Middle Stone Age (MSA) stone tools were manufactured from quartzite river cobbles/pebbles and the flakes displayed typical faceted striking platforms. The stone tools were found randomly without any recognised distribution patterns. They were in secondary context and not associated with any other archaeological remains. Few points and blades were observed and most of the tools were thick, small ‘informal’ flakes. No further action is needed. Apart from the occasional stone tools no other archaeological sites/materials were found.

There is a dilapidated old building on the property next to a quarry. In general, it would appear that the area is of **low archaeological sensitivity** and that it is unlikely that any sensitive archaeological remains will be exposed during the development.

9.6 ASSESSMENT OF THE IMPACTS

Direct impacts

Table 1. The potential physical disturbance and destruction of surface and buried pre-colonial archaeology sites/remains during all developments (rating based on the surface visibility of archaeological remains).

<p>Nature of the Impact</p>	<p>Possible loss of non-renewable heritage resources: 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 may expose, disturb and displace archaeological sites/material. However, from the investigation it would appear that the proposed areas earmarked for development are of low archaeological sensitivity. The Middle Stone Age stone tools observed in the area to be developed 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</p>
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	covered by soil and vegetation. There are no known graves or buildings older than 60 years on the area surveyed.
Extent	Site specific - The impact will be limited to the development footprint.
Duration	Permanent - Disturbance to archaeological material will be permanent.
Intensity	Medium
Probability	Probable – the archaeological material within the proposed development footprint will be disturbed, displaced or destroyed.
Reversibility	Irreversible – Once the archaeological material has been removed or destroyed this impact cannot be reversed.
Degree of Confidence	Medium / High
Status and Significance of Impact (no mitigation)	Low Negative (-)
Mitigation	<ul style="list-style-type: none"> • All construction activities must be monitored or alternatively a person must be specially trained, for example the ECO, to conduct the monitoring. This must include the clearing of vegetation, leveling, excavations for pipelines and other underground/ buried infrastructure and all above ground construction activities such as roads and buildings. • Construction managers/foremen should also 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. <p>If any human remains (or any other concentrations of archaeological heritage material) are exposed during construction, all work must cease in the immediate area of the finds and must be reported immediately to the archaeologist at the Albany Museum in Makhanda (Tel.: 046 6222312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel.: 043 7450888). Sufficient time should be allowed to investigate and to remove/collect such material. Recommendations will follow from the investigation and may include:</p> <ul style="list-style-type: none"> • Consultation with the local communities regarding the conditions for the possible removal, storage and reburial (in the case of human remains) of heritage material. • If the local communities agree to the removal of human remains and heritage, an archaeologist must apply for permits from the Eastern Cape Province Heritage Resources Authority to collect and/or excavate sites/materials from archaeological sites impacted by the development. • Consultation with the Albany Museum (repository for archaeological material in the Eastern Cape) regarding permit(s) to remove the heritage material, the storing, curating and costs involved. • A Phase 2 Mitigation process to systematically excavate and to remove the archaeological deposits before construction of the development continues. <p><u>Note:</u> All costs must be financed by the applicants. This may include:</p> <p>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 once-off</p>

	curation/storage fee payable to the Department of Archaeology at the Albany Museum.
Significance and Status (with mitigation)	Neutral (0)
Residual Impact	The cumulative impacts on above and below ground heritage will increase when further developments take place in adjoining areas, such as the proposed development of approximately 250 hectares of citrus orchards and associated infrastructure on Portion 4 of the Farm Klein Rooipoort No. 632 (located to the south and adjacent to the proposed Sontule Citrus development) and the development of a storage dam on Portion 2 of Farm 658 (located to the north and adjacent to the proposed Sontule Citrus development). It is anticipated that archaeological material uncovered or found during the development will be of low cultural significance similar to those observed during this survey. The cumulative impact of the developments therefore does not change the overall impact rating. Low Negative (-)



Figure 1. General views of the proposed area for the development of ~144 hectares of citrus orchards and associated infrastructure. A sample of Middle Stone Age stone tools (bottom right image) observed in a gravel road along the southern boundary of the property.



Figure 2. General views of the proposed area for the construction of a dam on the Remainder of Farm 632

9.7 DISCUSSION AND MITIGATION

The areas investigated are mostly covered by reddish alluvial soil and with short grass and dense vegetation in places. The archaeological visibility was relatively good in areas disturbed by agricultural and other activities. The proposed dam area for example has been cleared and levelled recently but no sites or stone artefacts were observed in this area (Figure 2). Middle Stone Age (MSA) tools were found along the southern boundary of the property but no further action is required. The proposed development will take place near the Sundays River in an area where one would expect to find freshwater shell middens. These are important archaeological sites and special care must be taken that these sites are not destroyed during development. The main potential impact on possible archaeological sites/remains will be the physical disturbance of the material and its context. However, from the investigation, it would appear that the proposed areas earmarked for the development are of **low archaeological sensitivity**.

It is recommended that:

1. Although it would seem unlikely that any significant archaeological remains will be exposed during the development, there is always a possibility that human remains and/or other archaeological remains such as freshwater shell middens and historical material may be uncovered during the development. Should such material be exposed during construction, all work must cease in the immediate area (depending on the type of find) and it must be reported to the archaeologist at the Albany Museum in Makhanda (Grahamstown) (Tel: 046 6222 312) or to the Eastern Cape Provincial Heritage Resources Authority (Tel: 043 7450 888), 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 of this Specialist Chapter for a list of possible archaeological sites that maybe found in the area).
2. All clearing activities and other developments must be monitored. Managers/foremen should be informed before clearing/construction starts on the possible types of heritage sites and cultural material they may encounter and the procedures to follow when they find sites. Alternatively, it is suggested that a person must be trained (ECO) as a site monitor to report to the foreman when heritage sites/materials are found.

9.8 GENERAL REMARKS AND CONDITION

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 Resources 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 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 B: 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 are not fully understood however some are thought to represent burial cairns while others may have symbolic value.

Stone artefacts

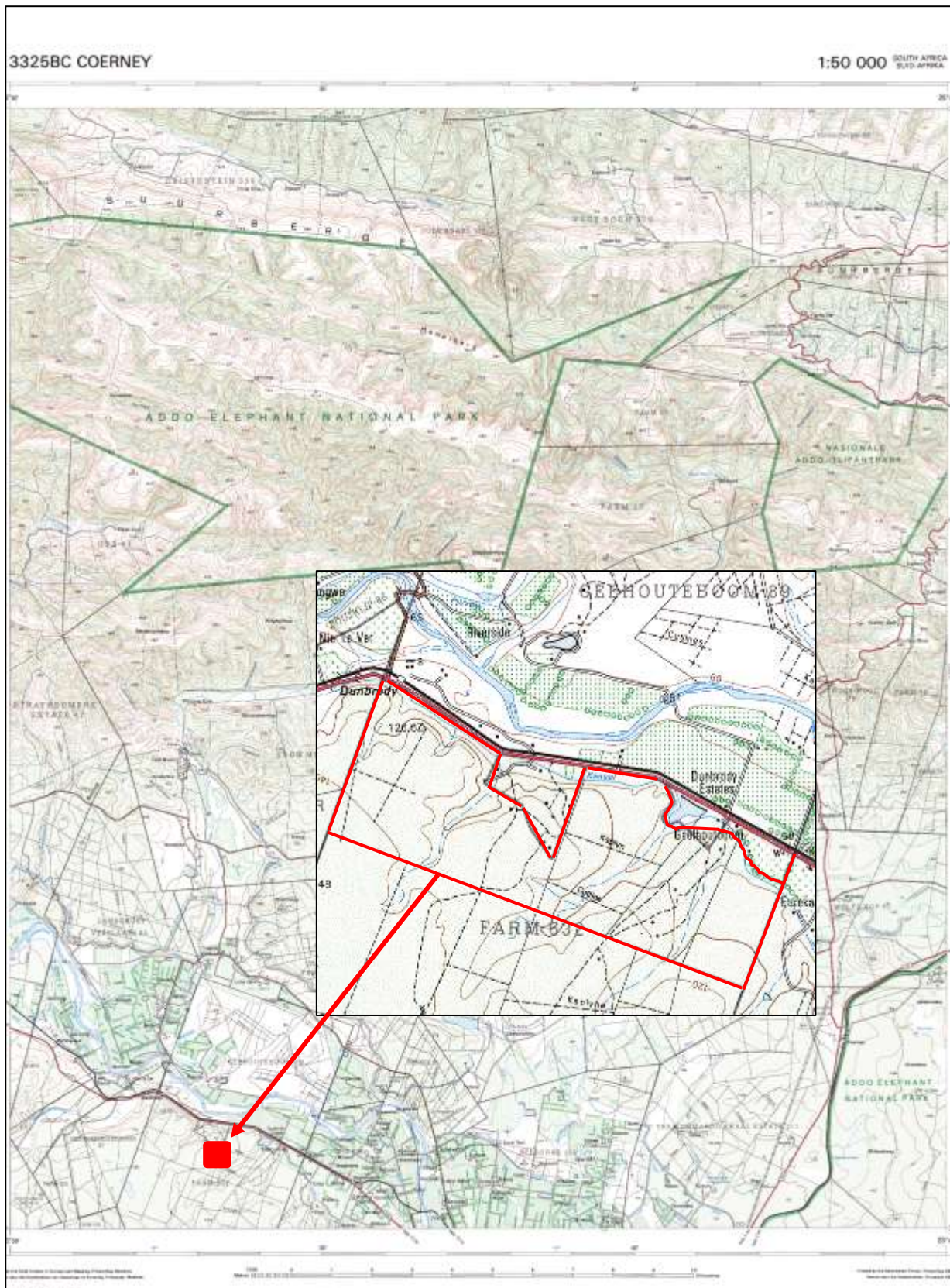
These are difficult for the layman to identify. However, large accumulations of flaked stones which do not appear to have been distributed naturally should be reported. If the stone tools are associated with bone remains, development should be halted immediately, and archaeologists notified.

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 Topographic maps indicating the approximate location of the Remainder of Farm 632 indicated by the red arrow and red square.



Map 2. Aerial images indicating the location of the Remainder of Farm 632 outlined by the red lines.



Map 3. Map of the area surveyed indicated in green. The proposed clearance of ~144 hectares of vegetation for the cultivation of citrus will be located within the green area. The proposed area for the construction of a dam is indicated by the yellow placemark (Map courtesy of Public Process Consultants).