
**HERITAGE IMPACT ASSESSMENT OF
THE ASSMANG REGIONAL GENERAL LANDFILL,
CATO RIDGE,
KWAZULU-NATAL, SOUTH AFRICA**



Assessment and report by



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Management summary

eThembeni Cultural Heritage was appointed by WSP Environmental to undertake a heritage impact assessment of a proposed landfill site near Cato Ridge, in terms of the KwaZulu-Natal Heritage Act No 10 of 1997. Two eThembeni staff members inspected the area on 31 May and 8 June 2007 and completed a controlled-exclusive surface survey, as well as a database and literature search.

We identified the following heritage resources within the proposed development area and list them here with management recommendations:

1. Structures associated with the airfield – may be altered or destroyed with no permit from Amafa
2. Structures associated with the original farmstead – may be altered or destroyed with a permit from Amafa
3. Structure associated with farming activities – may be altered or destroyed with a permit from Amafa
4. Structural remains – may be removed with no permit from Amafa
5. Four archaeological sites
 - A – May be altered or destroyed with a permit from Amafa if no graves are present; if graves are present permission from families also required
 - B – May be altered or destroyed with a permit from Amafa
 - C – May be altered or destroyed with a permit from Amafa
 - D – May be altered or destroyed with a permit from Amafa if no graves are present; if graves are present permission from families also required
6. Five ancestral grave cluster locations – may not be altered in any way without the permission of the families concerned and a permit from Amafa.

The public participation process for this project is ongoing. We recommend that the issue of ancestral grave identification and management is raised at all public meetings as a matter of urgency.

The area transformed by the Cato Ridge airfield infrastructure comprises the flat central grasslands of the site. The northern and southern boundaries have been planted to eucalyptus plantations and extensive informal, small-scale sand winning has occurred in the northern and north eastern portions. The northern and western boundaries are characterised by extensive sandstone outcrops. Surrounding land uses include homesteads on the plateau margins along the western and northern boundaries and the Assmang Plant along the southern boundary.

The site will be transformed completely and permanently by the proposed development.

We recommend that the development proceed with the proposed heritage mitigation and have submitted this report to Amafa aKwaZulu-Natali in fulfilment of the requirements of the KwaZulu-Natal Heritage Act. The client may contact Ms Wesuwe Tshabalala at Amafa's Pietermaritzburg office (telephone 033 3946 543) in due course to enquire about the Council's decision.

If permission is granted for the development to proceed, the client is reminded that the Act requires that a developer cease all work immediately and notify Amafa aKwaZulu-Natali should any heritage resources, as defined in the Act, be discovered during the course of development activities.

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Introduction and legislation

eThembeni Cultural Heritage was appointed by WSP Environmental to undertake a heritage impact assessment of a proposed landfill site near Cato Ridge, in terms of the KwaZulu-Natal Heritage Act No 10 of 1997. Section 27(1) of the Act requires such an assessment in case of:

- (a) construction of a road, wall, power line, pipeline, canal or other similar form of linear development or barrier exceeding 300 m in length;
- (b) construction of a bridge or similar structure exceeding 50 m in length; and
- (c) any development, or other activity which will change the character of an area of land, or water –
 - (i) exceeding 10 000 m² in extent;
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven, or subdivisions thereof, which have been consolidated within the past five years; or
- (d) the costs of which will exceed a sum set in terms of regulations; or
- (e) any other category of development provided for in regulations.

A heritage impact assessment is not limited to archaeological artefacts, historical buildings and graves. It is far more encompassing and includes intangible and invisible resources such as places, oral traditions and rituals. In the KwaZulu-Natal Heritage Act 1997 a heritage resource is defined any place or object of cultural significance i.e. of aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technological value or significance. This includes the following wide range of places and objects:

- (a) places, buildings, structures and equipment;
- (b) places to which oral traditions are attached or which are associated with living heritage;
- (c) historical settlements and townscapes;
- (d) landscapes and natural features;
- (e) geological sites of scientific or cultural importance;
- (f) archaeological and palaeontological sites;
- (g) graves and burial grounds, including -
 - (i) ancestral graves,
 - (ii) royal graves and graves of traditional leaders,
 - (iii) graves of victims of conflict,
 - (iv) graves of important individuals,
 - (v) historical graves and cemeteries older than 60 years, and
 - (vi) other human remains which are not covered under the Human Tissues Act, 1983 (Act No.65 of 1983 as amended);
- (h) movable objects, including -
 - (i) objects recovered from the soil or waters of South Africa including archaeological and palaeontological objects and material, meteorites and rare geological specimens;
 - (ii) ethnographic art and objects;
 - (iii) military objects;
 - (iv) objects of decorative art;
 - (v) objects of fine art;
 - (vi) objects of scientific or technological interest;
 - (vii) books, records, documents, photographic positives and negatives, graphic, film or video material or sound recordings; and
 - (viii) any other prescribed categories, but excluding any object made by a living person;
- (i) battlefields;
- (j) traditional building techniques.

A 'place' is defined as:

- (a) a site, area or region;
- (b) a building or other structure (which may include equipment, furniture, fittings and articles associated with or connected with such building or other structure);

- (c) a group of buildings or other structures (which may include equipment, furniture, fittings and articles associated with or connected with such group of buildings or other structures); and
- (d) an open space, including a public square, street or park; and in relation to the management of a place, includes the immediate surroundings of a place.

'Structures' means any building, works, device, or other facility made by people and which is fixed to land and any fixtures, fittings and equipment associated therewith older than 60 years.

'Archaeological' means -

- (a) material remains resulting from human activity which are in a state of disuse and are in or on land and are older than 100 years, including artefacts, human and hominid remains and artificial features and structures;
- (b) rock art, being a form of painting, engraving or other graphic representation on a fixed rock surface or loose rock or stone, which was executed by human agency and is older than 100 years including any area within 10 m of such representation; and
- (c) wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land or in the maritime cultural zone referred to in section 5 of the Maritime Zones Act 1994 (Act 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which are older than 60 years or which in terms of national legislation are considered to be worthy of conservation;
- (d) features, structures and artefacts associated with military history which are older than 75 years and the sites on which they are found.

'Palaeontological' means any fossilised remains or fossil trace of animals or plants which lived in the geological past, other than fossil fuels or fossiliferous rock intended for industrial use, and any site which contains such fossilised remains or trace.

'Grave' means a place of interment and includes the contents, headstone or other marker of and any other structures on or associated with such place. Amafa aKwaZulu-Natali will only issue a permit for the alteration of a grave if it is satisfied that every reasonable effort has been made to contact and obtain permission from the families concerned. Since Amafa has not yet formulated guidelines or regulations for the removal of human remains, eThembeni adheres to the following procedures, compiled in discussion with the South African Heritage Resources Agency and used by professional colleagues:

- Notification of the impending removals (using English and Zulu language media and notices at the grave site);
- Consultation with individuals or communities related or known to the deceased;
- Satisfactory arrangements for the curation of human remains and / or headstones in a museum, where applicable;
- Procurement of a permit from Amafa aKwaZulu-Natali;
- Appropriate arrangements for the exhumation (preferably by a suitably trained archaeologist) and re-interment (sometimes by a registered undertaker, in a formally proclaimed cemetery);
- Observation of rituals or ceremonies required by the families.

Nature of proposed activities

Durban Solid Waste (DSW) is responsible for the disposal of domestic waste generated within the boundaries of the eThekweni Municipal Area. In 1996 DSW embarked on a process of identifying suitable sites which would meet the medium to long term waste disposal requirements of the eThekweni Municipal Area. This project was initiated so that suitable sites are demarcated for future landfill development, thereby guaranteeing that future waste generated can be disposed of accordingly.

During Phase 1 of the project various sites or 'windows' were identified throughout the municipal area. In the West Zone of the eThekweni Municipal Area, sites identified were the Shongweni Window, Ferroalloys / Radnor Window, Doornrug / Bonny Brae Window and the Lion Park / Thorndale Window.

An Environmental Impact Assessment process was initiated and the Scoping Report described and preliminarily assessed West Zone alternatives. The Scoping Phase identified the Ferroalloys Window as the most suitable area, but due to the uncertainty surrounding the proposed development of an airport, further investigation into this area was put on hold. Consequently an area south of the EnviroServ Landfill Site within the Shongweni Window was identified for further investigation.

WSP Environmental (Pty) Ltd (WSPE) has completed a comprehensive Scoping and Environmental Impact Assessment for the proposed Shongweni Landfill Site as a separate EIA application. The Environmental Impact Report for the Shongweni site will be finalised and submitted to the Department of Agriculture and Environmental Affairs shortly.

With the new airport identified at La Mercy, it is apparent that the dismissal of the Assmang (formerly Ferroalloys) site on the grounds of a proposed sub-regional airport is no longer valid. This site is now available for reconsideration for the development of a landfill site. The eThekweni Municipality have requested that approval for both the Shongweni and Assmang Landfill sites be investigated. Each site is the subject of a separate Environmental Impact Assessment application.

The project involves the identification, rezoning, permitting, development and operation of a large general landfill site to serve primarily the needs of the West Zone of the eThekweni Municipal Area. The proposed site is located within the jurisdiction of the Outer West Local Municipality. The site would be developed with the view of serving the needs of the Outer and Inner West areas.

The La Mercy landfill site is now closed and the Bisasar Road and Mariannahill sites have a remaining life span of approximately 6 to 11 years. However, with the closure of Bisasar, private contractors may divert to Mariannahill which will shorten its lifespan. The Mariannahill site currently services the western areas of the eThekweni Municipality. The Buffelsdraai landfill site (with an estimated lifespan of 80 years) predominantly services the northern areas of the Durban Metropolitan Area. Therefore, to avoid a waste disposal crisis it is necessary to identify and develop new regional landfill sites to cater for future waste disposal requirements in the west zone.

Site access, description and environmental issues

The proposed Assmang landfill site is located in the Cato Ridge industrial area at S29 41 56.00; E30 37 48.00, on a plateau overlooking the uMngeni River valley to the north and west. Road access to the site is from the N3 freeway southbound from Pietermaritzburg. Take the Cato Ridge offramp (exit 52) and turn left onto the R103. About four kilometres from Cato Ridge turn left onto Eddie Hagen Drive at the signpost to Abbatoir / Nagle Dam. The site is located on the left north of the Assmang Plant and access is via the airfield.

The area transformed by airfield infrastructure comprises the flat central grasslands of the site. The northern and southern boundaries have been planted to eucalyptus plantations and extensive informal, small-scale sand winning has occurred in the northern and north eastern portions. The northern and western boundaries are characterised by extensive sandstone outcrops.

Eddy Hagen Drive forms the south eastern boundary of the site, while the western and northern boundaries are defined by the plateau margin where homesteads are present. The Assmang Plant marks the southern boundary. The Cato Ridge airfield is located in the central, easternmost portion of the site.

Methodology

Two eThembeni staff members inspected the area on 9 and 11 July 2007. We completed a controlled-exclusive surface survey, where 'sufficient information exists on an area to make solid and defensible assumptions and judgements about where [heritage resource] sites may and may not be' and 'an inspection of the surface of the ground, wherever this surface is visible, is made, with no substantial attempt to clear brush, turf, deadfall, leaves or other material that may cover the surface and with no attempt to look beneath the surface beyond the inspection of rodent burrows, cut banks and other exposures that are observed by accident' (King 1978).

We consulted various provincial databases, including historical, archaeological and geological sources and undertook a limited literature review, included as Appendix A. We assessed the value and significance of heritage resources, as defined in the KwaZulu-Natal Heritage Act 1997 and the criteria contained in Appendix B. Culturally significant landscapes were assessed according to the criteria in Appendix C.

The client has provided a map of the area, submitted to Amafa separately. Geographic coordinates were obtained with a handheld Garmin GPS72 global positioning unit. Photographs were taken with a Nikon Coolpix S200 digital camera and submitted to Amafa on compact disc. Appendix D contains a statement of independence and a summary of our ability to undertake this heritage impact assessment.

The assumptions and limitations of this heritage impact assessment are as follows:

- We have assumed that the description of the proposed project, provided by WSP Environmental, is accurate.
- We have assumed that the public consultation process undertaken as part of the Environmental Impact Assessment is sufficient and adequate and does not require repetition as part of the heritage impact assessment.
- Soil surface visibility was good, with visibility impeded only in areas of dense grassland around the airfield. We relied on local residents to indicate the locations of ancestral graves and did not examine areas of dense vegetation around the homesteads. Other heritage resources, including more ancestral graves, might be present in the latter areas and we remind the client that the Act requires that a developer cease all work immediately and notify Amafa should any heritage resources, as defined in the Act, be discovered during the course of development activities.
- No subsurface investigation (including excavations or sampling) were undertaken, since a permit from Amafa aKwaZulu-Natali is required to disturb a heritage resource.

Observations and recommendations

No development activities associated with the proposed project had begun prior to our visit, in accordance with provincial heritage legislation.

⇒ [Places, buildings, structures and equipment](#)

Various buildings and structures are present within the proposed development site. All the structures associated with the airfield, including residences, the clubhouse and hangars, are modern and have no heritage significance (see photographs below). They may be altered or destroyed without a permit from Amafa.



Other structures are those associated with the original farmhouse and include the farmstead (S29 42 06.0; E30 37 47.5) and various outbuildings (S29 42 02.4; E30 37 50.4). All of these structures are in a state of complete disrepair and are structurally unsound, although they are occupied by a number of families (see the photographs below).

Since they are probably older than sixty years they constitute heritage resources, but they have low heritage significance. A permit from Amafa aKwaZulu-Natali is required for their alteration or demolition. The main importance of these structures is their current use as residences and their association with ancestral graves (see below).



Another structure that is probably older than sixty years is the remains of a livestock dip in the northern portion of the property (pictured below), at S29 41 11.8; E30 37 46.8. It has low heritage significance and a permit from Amafa is required for its alteration or demolition. Its main importance is its association with the location of Mr Mgwengwe's father's grave (see below).



Chunks of concrete and foundation slabs are present in at least three locations in the north eastern portions of the site, at S29 41 47.6; E30 38 02.0, S29 41 46.1; E30 37 58.7 and S29 41 36.6; E30 37 50.8. These structural remains have no heritage significance and may be altered or removed with no permit from Amafa.

⇒ [Places to which oral traditions are attached or which are associated with living heritage](#)

None were observed within the proposed development site.

⇒ [Historical settlements and townscapes](#)

None were observed within the proposed development site.

⇒ [Landscapes and natural features](#)

The area transformed by the Cato Ridge airfield infrastructure comprises the flat central grasslands of the site. The northern and southern boundaries have been planted to eucalyptus plantations and extensive informal, small-scale sand winning has occurred in the northern and north eastern portions. The northern and western boundaries are characterised by extensive sandstone outcrops. Surrounding land uses include homesteads on the plateau margins along the western and northern boundaries and the Assmang Plant marks the southern boundary.

The site will be transformed completely and permanently by the proposed development.

⇒ [Geological sites of scientific or cultural importance](#)

None were observed within the proposed development site.

⇒ [Archaeological and palaeontological sites](#)

We located four archaeological sites within the proposed development area. Their details are summarised in the following table:

Site no	Description	Location	Significance	Mitigation
A	Bilobial circular cattle byre, 8m diameter. Down slope western entrance. Possible internal ancestral graves.	S29 41 22.0; E30 37 30.5	Low	No further mitigation needed if no graves are present. May then alter or destroy with a permit from Amafa
B	Rectangular sunken cattle byre, 12x8m. Down slope western entrance. Homestead platforms located immediately adjacent to north and south.	S29 41 22.9; E30 37 27.3	Low	No further mitigation needed. May alter or destroy with a permit from Amafa
C	Circular small stock byre, 3-4m diameter. Overgrown with much vegetation.	S29 41 22.7; E30 37 31.3	Low	No further mitigation needed. May alter or destroy with a permit from Amafa
D	Homestead platform with foundation Imprints of 2 rectangular and 2 circular dwellings. Former home of Gumedede family with old possibly unmarked ancestral graves definitely present according to Mr Mgwengwe.	S29 41 26.1; E30 37 18.0	High if graves are present	Graves may not be altered in any way without Amafa and family permission.



Site A – bilobial cattle byre with down slope entrance in foreground.



Site B – rectangular sunken cattle byre with homestead platforms immediately adjacent to north and south.

⇒ [Graves and burial grounds](#)

We interviewed Mr Mgwengwe, who lives with his extended family in the original farmhouse at S29 42 06.0; E30 37 47.5. He stated that he is aware of three graves associated with this home – those of his wife, an adolescent son and a baby. He used to live in the northern part of the property, near the cattle dip, and his father is buried there. (We searched the area of about 100 metres around the dip but could not identify a grave or homestead remains. Our search area might have been too circumscribed, or the homestead could have been destroyed during the establishment of the timber plantation, or stone could have been culled from the site, leaving the grave unmarked).

Mr Mgwengwe's son and family live in the farmstead outbuildings at S29 42 02.4; E30 37 50.4. Mr Mgwengwe knows that up to ten ancestral graves are located around these buildings.

All graves and human remains have high heritage significance and may not be altered in any way without the permission of the families concerned, as well as a permit from Amafa. Exhumation and re-interment of human remains should be avoided whenever possible, due to the associated ethical, social and financial implications.

⇒ [Movable objects excluding any object made by a living person](#)

None were observed within the proposed development site.

⇒ [Battlefields](#)

None were observed within the proposed development site.

⇒ [Traditional building techniques](#)

None were observed within the proposed development site.

Summary of findings in terms of the KwaZulu-Natal Heritage Act 1997 Section 27(3)

(a) the identification and mapping of all heritage resources in the area affected

1. Structures associated with the airfield (residences, clubhouse and hangars)
2. Structures associated with the original farmstead (farmhouse and outbuildings)
3. Structure associated with farming activities (cattle dip)
4. Structural remains - chunks of concrete and foundation slabs
5. Four archaeological sites
6. Five ancestral grave cluster locations (associated with original farmhouse, farmstead outbuildings, cattle dip and possibly archaeological sites A and D)

(b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in regulations

1. No heritage significance
2. Low heritage significance
3. Low heritage significance
4. No heritage significance
5. A – low heritage significance, but high if graves are present
B – low heritage significance
C – low heritage significance
D – low heritage significance, but high if graves are present
6. High heritage significance.

(c) an assessment of the impact of development on such heritage resources

All identified heritage resources will be altered or destroyed by the proposed development if not managed appropriately.

(d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development

The development could only be considered sustainable if the identified heritage resources are managed appropriately.

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

The public participation process for this project is ongoing. We recommend that the issue of ancestral grave identification and management is raised at all public meetings as a matter of urgency.

(f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives

1. May be altered or destroyed with no permit from Amafa
2. May be altered or destroyed with a permit from Amafa
3. May be altered or destroyed with a permit from Amafa
4. May be removed with no permit from Amafa
 - A – May be altered or destroyed with a permit from Amafa if no graves are present; if graves are present permission from families also required
 - B – May be altered or destroyed with a permit from Amafa
 - C – May be altered or destroyed with a permit from Amafa
 - D – May be altered or destroyed with a permit from Amafa if no graves are present; if graves are present permission from families also required
6. May not be altered in any way without the permission of the families concerned and a permit from Amafa.

(g) plans for mitigation of any adverse effects during and after completion of the proposed development

If permission is granted for development to proceed, the client is reminded that the Act requires that a developer cease all work immediately and notify Amafa should any heritage resources, as defined in the Act, be discovered during the course of development activities.

Conclusion

We recommend that the development proceed with the proposed heritage mitigation and have submitted this report to Amafa aKwaZulu-Natali in fulfilment of the requirements of the KwaZulu-Natal Heritage Act. According to Section 27(4) of the Act:

The report shall be considered timeously by the Council which shall, after consultation with the person proposing the development, decide -

- (a) whether or not the development may proceed;
- (b) any limitations or conditions are to be applied to the development;
- (c) what general protections in terms of this Act apply, and what formal protections may be applied to such heritage resources;
- (d) whether compensatory action shall be required in respect of any heritage resources damaged or destroyed as a result of the development; and
- (e) whether the appointment of specialists is required as a condition of approval of the proposal.

The client may contact Ms Wesuwe Tshabalala at Amafa's Pietermaritzburg office (telephone 033 3946 543) in due course to enquire about the Council's decision.

References

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Maggs, T. 1989. The Iron Age farming communities. In Duminy, A. and Guest, B. (eds) Natal and Zululand from earliest times to 1910. A new history pp. 28-48. Pietermaritzburg: University of Natal Press.

Mazel, A. 1989. The Stone Age peoples of Natal. In Duminy, A. and Guest, B. (eds) Natal and Zululand from earliest times to 1910. A new history pp. 1-27. Pietermaritzburg: University of Natal Press.

APPENDIX A

BACKGROUND AND LITERATURE REVIEW

The general area is one of variable heritage resource significance and the following tables provide a brief summary of archaeological time periods:

E arly	1.5 million to 180 000 years ago	Only stone artefacts remain from
S tone		this time period, including large
A ge		choppers, cleavers and hand axes
M idle	180 000 to 35 000 years ago	Stone tools smaller than in ESA;
S tone		include blades and flakes; human
A ge		and animal remains also found
L ater	35 000 years ago to the time	Variety of artefacts made from
S tone	of European settlement	organic and inorganic materials;
A ge		human remains, shell middens etc

E arly	400 – 500 AD	Mzonjani phase
I ron	500 – 700 AD	Msuluzi phase
A ge	700 – 900 AD	Ndondondwane phase
	900 – 1200 AD	Ntshekane phase
L ate	1200 – 1500 AD	Settlement by Nguni speakers
I ron	1500 – 1700 AD	Introduction of maize
A ge	1700 – 1850 AD	Pre-European settlement
	1850 AD to present	Historical

Stone and Iron Age and historical sites abound within the study area. Early Stone Age stone scatters occur in raised beach gravels, eroded areas and ancient coastal dunes. No information is available on the foods eaten by the Early Stone Age people in Natal, but it can be assumed on the basis of evidence on Early Stone Age people elsewhere that their diet consisted primarily of animals and plant foods. It was also during this period that people learnt to control fire' (Mazel 1989: 3-5).

'Clear technological differences separate the Middle Stone Age from the Early Stone Age. Whereas Early Stone Age tools were generally core tools [choppers, handaxes, cleavers], Middle Stone Age tools were made of flakes and blades detached from the core [trapezoids, segments, scrapers, points, flakes, blades]. Handaxes and cleavers were absent...

'Relatively little is known about the particular types of food that the Middle Stone Age hunter-gatherers ate. Border Cave [situated in the Lebombo Mountains on the border between South Africa and Swaziland] is the only site from which information is at present available... Small quantities of a wide variety of animals were found in the Border Cave excavations. These included honey badger, dassie, Burchell's zebra, bushpig, warthog, hippopotamus, steenbok, oribi, mountain reedbuck, waterbuck, roan / sable, impala, blesbok, hartebeest / tsessebe, blue wildebeest, springbok, greater kudu, nyala, bushbuck, eland, Cape buffalo and possibly an extinct giant Cape horse (*Equus capensis*).

'A handful of seeds was also found at Border Cave, while grindstones, which may have been used in the processing of plant foods, have been recovered from the Middle Stone Age layers at Umhlatuzana Shelter [located between Durban and Pietermaritzburg]...

'Evidence of the manufacture of cultural articles from materials other than stone first appears during the Middle Stone Age. So also does evidence concerning religious practices, the final Middle Stone Age stage at Border Cave producing the earliest known burial so far attributed to the Middle Stone Age' (Mazel 1989: 6-8).

Recent excavations at Sibhudu Shelter, a near-coastal site located between the uMvoti and uMngeni rivers, promise to shed more light on the Middle Stone Age of KwaZulu-Natal.

Later Stone Age sites occur throughout the province, with high concentrations in places such as the uKhahlamba mountains where rock shelters suitable for occupation are plentiful.

'Stone artefacts are overwhelmingly the most common cultural item recovered from the excavations that have been carried out, followed by pottery (belonging to the last 2 000 years), ground, polished and shaved bone, beads and ostrich eggshell... [Stone] scrapers were probably used for removing the fat from animal skins before these were pegged out to dry. Adzes were probably used for shaving wood and, to a lesser extent, bone; while backed pieces, of which there are different types, were probably employed in hunting and cutting up carcasses.

'A great deal of information about the foods Later Stone Age hunter-gatherers ate has been obtained from animal, plant and marine and freshwater shell remains. In some cases, it has been possible to identify the remains of individual species. As small animals in particular are sensitive to environmental fluctuations, these remains can also tell us much about past environments. Botanical remains are also very useful, for seeds can indicate which fruits and berries Later Stone Age people ate. And, because fruits and berries are seasonal, they can also provide information about the months during the year when sites were occupied' (Mazel 1989: 11-12).

'One of the main themes of Later Stone Age research in South Africa, including Natal, has been that of seasonality. It has been hypothesized, on the basis of the analysis of the seasonal movements of large antelope, that the food resources of southern Natal would have been exploited on a seasonal basis by hunter-gatherers. According to this hypothesis, they would have occupied the Drakensberg in summer and the Thornveld and coastal areas during winter, traversing the Midlands along ridges rather than in the valleys.

'Recent field-work based on this hypothesis has suggested that in southern Natal during the last 3 500 years, hunter-gatherers would have occupied the Drakensberg in spring and summer (October to March), the coastal zone in winter (April / May to August), and the Midlands in autumn and late winter (March / April to September). This seasonal hypothesis...has given rise to the speculation that while they were in the Drakensberg, the hunter-gatherers would have lived in large groups and would have operated from large home-base sites.

'One of the results of the formation of these larger social units could have been an increase in ritual activity. Social organisation in the Midlands, however, would have been characterized by the small mobile groups that traversed the zone, while in the coastal zones larger groups, but not as large as those in the Drakensberg, would have been found' (Mazel 1989: 17).

'The advent of the Iron Age saw not only the introduction of metallurgy. Of even greater significance was the introduction of agriculture, necessitating a settled, village way of life instead of the nomadic patterns of the Stone Age. It also provided for an appreciable increase in population density, as well as a more complex life-style. Richly decorated pottery is a hallmark of these early settlements. Domestic animals including cattle, sheep, goats and dogs were also a feature of the Iron Age, although current information indicates that they had already reached parts of South Africa, but apparently not Natal, during the Late Stone Age, through the agency of Khoisan herders...

'... the earliest Iron Age sites in South Africa, including Natal, relate to an eastern coastal and lowland cultural tradition with links as far north as the Kwale sites of eastern Kenya. This tradition has been named 'Matola', after a site in southern Mozambique, which provided close typological links between the Natal and eastern Transvaal sites¹. [In KwaZulu-Natal] almost all of them are on the belt of ancient dunes, which would have been covered by coastal forest at the time.

'In the St. Lucia area especially, sites are concentrated at the inland foot of the dunes, where they meet seasonally flooded grassland. It has been argued that these sites were the first choice of immigrant farmers because they afforded some open, but not flooded, space. The sandy soils are poor and leached but the accumulated forest humus would have ensured good crops for the first year or two after they had been cleared. Apart from being attracted by this agricultural potential, the [Mzonjani] people exploited the wild plant and animal resources of the forest and adjacent sea-shore.

'Although no direct evidence of agriculture has as yet been obtained from Natal sites, seeds of bulrush millet (a tropical African cultigen) have been recovered from [an Mzonjani] site in the Transvaal. Bulrush millet is still a favoured crop on the dunes around Kosi Bay. Evidence of domestic animals has yet to be found on any [Mzonjani] site and it seems likely that they were rare, if present at all. The

¹ This tradition is now known as Mzonjani in KwaZulu-Natal.

forest environment would certainly have been unsuitable as pasture for domestic animals. Marine mussels may therefore have played an important part as a protein source in place of meat or milk' (Maggs 1989: 29-31).

'Most Early Iron Age sites in Natal are later than the [Mzonjani] period and are classified according to ceramic styles [refer to the table above]...By this time villages, often about eight hectares in size and probably containing a hundred or more people, had become common in the lower-lying and savannah areas, below an altitude of 1 000 metres. They were most common along the major rivers and in the coastal belt, where there was good, deep soil, sweet year-round grazing, and timber for building and fuel...

'Diet was based on agriculture and pastoralism, with a little supplementary hunting, fishing and gathering of wild plants and shellfish. Crops identified from seeds include several grains (bulrush millet, finger millet and probably sorghum), and probably the African melon... Most villages had one or more iron smelting areas and therefore produced their own requirements' (Maggs 1989: 31-32).

The beginning of the Late Iron Age marked a period of significant change in pottery styles, attributable to both socio-political and demographic factors (Maggs 1989). Settlements were no longer located in river valleys, but were built on higher ground where homesteads would benefit from cooling breezes and good views for strategic purposes.

Steep slopes, wetlands and marshy areas were used for grazing domestic animals and gathering wild food and medicinal plants. Settlements appear to have been much smaller, implying that 'society underwent a change away from the large Early Iron Age villages and towards the individual family homesteads of the historic Nguni-speaking peoples (Maggs 1989: 35).

Artefacts on Iron Age homestead sites include ceramic sherds, upper and lower grindstones and human and animal bones. Metalworking sites are often located in areas where iron ore is available and associated debris includes furnace remains, slag, bloom and ceramic sherds.

'The evidence or written sources [from shipwrecked Portuguese and other European mariners, who traversed lowland and coastal Natal on their way northwards to Mozambique] shows that, by the 1550s, while the coastal sourveld of Pondoland was thinly inhabited, coastal Natal from the Mtamvuna northwards was already well populated. A settlement of twenty hemispherical huts built of poles and thatch is described as being typical of the coast at that time. A later report confirms that such 'small villages' were the homes of kinship groups, each under the authority of a senior man. There can have been little difference between these homesteads and those of the nineteenth century in Natal and Zululand.

'The agro-pastoral economy of the Iron Age prevailed throughout the coastal regions, with cultivation typically a combination of grains, legumes and vegetables of the pumpkin-melon family. There were three types of grains, one being sorghum and another a smaller-seeded millet, specific identification being difficult to establish from the old Portuguese documents. Vegetables included beans, African groundnuts (both legumes), gourds, watermelons and pumpkins, while sorghum was cultivated for its sweet pith as well as for its seeds...There is evidence to show that tobacco was being cultivated and smoked by 1686. Cattle, sheep and goats were seen in quantities, as were chicken from southern Natal northwards' (Maggs 1989: 39).

APPENDIX B

SIGNIFICANCE AND VALUE OF HERITAGE RESOURCE SITES

The following guidelines for determining site significance were developed by the South African Heritage Resources Agency in 2003. We use them in conjunction with tables of our own formulation (see that for the Southern African Iron Age, below) when considering intrinsic site significance and significance relative to development activities, as well as when recommending mitigatory action.

Type of Resource

Place

Structure

Archaeological Site

Palaeontological Site

Geological Feature

Grave

Type of Significance

1. Historical Value

It is important in the community, or pattern of history

- Importance in the evolution of cultural landscapes and settlement patterns
- Importance in exhibiting density, richness or diversity of cultural features illustrating the human occupation and evolution of the nation, Province, region or locality.
- Importance for association with events, developments or cultural phases that have had a significant role in the human occupation and evolution of the nation, Province, region or community.
- Importance as an example for technical, creative, design or artistic excellence, innovation or achievement in a particular period

It has strong or special association with the life or work of a person, group or organisation of importance in history

- Importance for close associations with individuals, groups or organisations whose life, works or activities have been significant within the history of the nation, Province, region or community.

It has significance relating to the history of slavery

- Importance for a direct link to the history of slavery in South Africa.

2. Aesthetic Value

It is important in exhibiting particular aesthetic characteristics valued by a community or cultural group

- Importance to a community for aesthetic characteristics held in high esteem or otherwise valued by the community.
- Importance for its creative, design or artistic excellence, innovation or achievement.
- Importance for its contribution to the aesthetic values of the setting demonstrated by a landmark quality or having impact on important vistas or otherwise contributing to the identified aesthetic qualities of the cultural environs or the natural landscape within which it is located.
- In the case of an historic precinct, importance for the aesthetic character created by the individual components which collectively form a significant streetscape, townscape or cultural environment.

3. Scientific Value

It has potential to yield information that will contribute to an understanding of natural or cultural heritage

- Importance for information contributing to a wider understanding of natural or cultural history by virtue of its use as a research site, teaching site, type locality, reference or benchmark site.
- Importance for information contributing to a wider understanding of the origin of the universe or of the development of the earth.
- Importance for information contributing to a wider understanding of the origin of life; the development of plant or animal species, or the biological or cultural development of hominid or human species.
- Importance for its potential to yield information contributing to a wider understanding of the history of human occupation of the nation, Province, region or locality.

It is important in demonstrating a high degree of creative or technical achievement at a particular period

- Importance for its technical innovation or achievement.

4. Social Value

It has strong or special association with a particular community or cultural group for social, cultural or spiritual reasons

- Importance as a place highly valued by a community or cultural group for reasons of social, cultural, religious, spiritual, symbolic, aesthetic or educational associations.
- Importance in contributing to a community's sense of place.

Degrees of Significance

Rarity

It possesses uncommon, rare or endangered aspects of natural or cultural heritage

- Importance for rare, endangered or uncommon structures, landscapes or phenomena.

Representivity

It is important in demonstrating the principal characteristics of a particular class of natural or cultural places or objects

Importance in demonstrating the principal characteristics of a range of landscapes or environments, the attributes of which identify it as being characteristic of its class.

Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, Province, region or locality.

Sphere of Significance	High	Medium	Low	
International	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
National	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Provincial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Regional	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Local	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
Specific Community	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	-----

What other similar sites may be compared to this site?

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Southern African Iron Age

	Significance		
	- low	- medium	- high
Unique or type site			Yes
Formal protection			Yes
Spatial patterning	?Yes	?Yes	?Yes
Degree of disturbance	75 – 100%	25 – 74%	0 – 24%
Organic remains (list types)	0 – 5 / m ²	6 – 10 / m ²	11 + / m ²
Inorganic remains (list types)	0 – 5 / m ²	6 – 10 / m ²	11 + / m ²
Ancestral graves			Present
Horizontal extent of site	< 100m ²	101 – 1000m ²	1000 + m ²
Depth of deposit	< 20cm	21 – 50cm	51 + cm
Spiritual association			Yes
Oral history association			Yes
➤ Research potential			High
➤ Educational potential			High

Please note that this table is a tool to be used by qualified cultural heritage managers who are also experienced site assessors.

APPENDIX C

CULTURAL LANDSCAPES

The American National Parks Services sets out various criteria for the identification and management of cultural landscapes:

'Cultural landscapes are complex resources that range from large rural tracts covering several thousand acres to formal gardens of less than an acre. Natural features such as landforms, soils and vegetation are not only part of the cultural landscape, they provide the framework within which it evolves. In the broadest sense, a cultural landscape is a reflection of human adaptation and use of settlement, land use, systems of circulation and the natural resources and is often expressed in the way land is organised and divided, patterns of types of structures that are built. The character of a cultural landscape is defined both by physical materials, such as roads, buildings, walls and vegetation, and by use reflecting cultural values and traditions.

'Identifying the character-defining features in a landscape and understanding them in relation to each other and to significant historic events, trends and persons allows us to read the landscape as a cultural resource. In many cases, these features are dynamic and change over time. In many cases, too, historical significance may be ascribed to more than one period in a landscape's physical and cultural evolution.

'Cultural landscape management involves identifying the type and degree of change that can occur while maintaining the character-defining features. The identification and management of an appropriate level of change in a cultural landscape is closely related to its significance. In a landscape significant for its association with a specific style, individual, trend or event, change may diminish its integrity and needs to be carefully monitored and controlled. In a landscape significant for the pattern of use that has evolved, physical change may be essential to the continuation of the use. In the latter case, the focus should be on perpetuating the use while maintaining the general character and feeling of the historic period(s), rather than on preserving a specific appearance.

'A cultural landscape is a geographic area, including both natural and cultural resources, associated with a historic event, activity or person. The National Park Services recognises four cultural landscape categories: historic designed landscapes, historic vernacular landscapes, historic sites and ethnographic landscapes. These categories are helpful in distinguishing the values that make landscapes cultural resources and in determining how they should be treated, managed and interpreted...

'The four cultural landscape categories are not mutually exclusive. A landscape may be associated with a significant event, include designed or vernacular characteristics and be significant to a specific cultural group.'

APPENDIX D

We declare that Len van Schalkwyk, Beth Wahl and eThembeni Cultural Heritage have no financial or personal interest in the proposed development, nor its developers or any of its subsidiaries, apart from in the provision of heritage assessment and management consulting services.

Len van Schalkwyk and Beth Wahl are equal partners in eThembeni Cultural Heritage and the following synopsis of our respective qualifications and experience demonstrates our ability to complete heritage impact assessments. We are accredited by Amafa aKwaZulu-Natali to complete heritage impact assessments in KwaZulu-Natal, and by the Cultural Resources Management section of the Association of South African Professional Archaeologists to do so in the rest of South Africa.

Len has a master's degree in archaeology (specialising in the history of early farmers in southern Africa) from the University of Cape Town and sixteen years' experience in cultural heritage management. He left his position as assistant director of Amafa aKwaZulu-Natali, the provincial cultural heritage authority, to start eThembeni. Len has worked on projects as diverse as the establishment of the Ondini Cultural Museum in Ulundi, the cultural management of Chobe National Park in Botswana and various archaeological excavations and oral history recording projects. He was part of the writing team that produced the KwaZulu-Natal Heritage Act, 1997. Len has worked with many rural communities to establish integrated heritage and land use plans and speaks good Zulu.

Beth has an honours degree in African studies (majoring in archaeology and sociology) from the University of Cape Town and is completing her masters in heritage and tourism at the University of KwaZulu-Natal. Most recently she was employed by Amafa aKwaZulu-Natali as head of archaeology, which position she left to start eThembeni. Beth was a co-developer of the cultural heritage management plan for the uKhahlamba Drakensberg Park World Heritage Site and has developed and implemented training programmes for community guides and members of the public. Much of this training has focussed on the rock paintings of the uKhahlamba (Drakensberg) mountains.

❖ Heritage impact assessments

Such assessments are required as part of Environmental Impact Assessments by the KwaZulu-Natal Heritage Act 1997, the South African Heritage Resources Management Act 1999 and all national and provincial environmental legislation. We have completed numerous projects and Amafa aKwaZulu-Natali and the South African Heritage Resources Agency have supported our recommendations, without exception. The following projects are a sample of our work during 2005 and 2006:

Eskom power lines

- Braamhoek integrated power supply for PBA International
- Obanjeni, Mtunzini substation and power lines for SiVEST Environment and Planning
- Majuba Mfolozi power lines for BKS Environmental Management Division
- Idwala Carbonates for Stemele Bosch Africa
- Braamhoek power lines for Ludloko Developments

Housing, office and game estate developments

- Shakaskraal residential and commercial estate for ACER (Africa)
- Bird Valley Estate, Cramond; Camdeboo, Hilton and Sundara Estate, Oliviershoek for Alletson Ecologicals
- Muluja Heights, uKhahlamba Drakensberg for Brousse-James & Associates
- Lot 938 Port Edward for Buk'Indalo Consultancy cc
- Uitvlugt equestrian and wildlife estate, Pietermaritzburg for DR A'Bear & Associates
- New Forest, Dargle for Environmental Assessments cc
- Burlington Greenfield, Queensburgh; Hillary, Durban; Umkhumba, Cato Manor; Rem of Lot 125 Ifafa; Lot 6417 Tongaat, Westbrook Beach
- Erf 121 Bazley Beach and Rem of Lot 1 Umzumbe for Environmental Solutions
- Intathakusa Retreat, Inanda for futureWORKS!
- Alverstone, Assagay for Gary van Wyk and Scott Gelder
- Bishopstowe; Brookdales, Howick; Himeville; Kamberg; Northington, Mooi River; Phinda Game Reserve; Rietvallei equestrian estate, Lidgetton; Rietvei, Craigieburn; Riversdale, Himeville; Spring Grove, Nottingham Road;

- Inhluzani, Dargle / Impendle; Umdloti; Lot 535 Kloof; Meycol Farm, uThukela Mouth; New Guelderland, Blythedale Beach; Simbithi eco-estate, Shakas Rock
- Zinkwazi Lagoon Lodge and forest estate for Indiflora cc Environmental Services
- Umbogintwini golf course for Kerry Seppings Environmental Management Services
- Zwelisha, Bergville for McFerran & Associates
- Executive Village, Umhlanga Triangle and Umhlanga New Town Centre for Moreland Developments (Pty) Ltd
- Cherry Farm, Port Shepstone; Kingthorpe equestrian estate, Pietermaritzburg; San Marina estate, Marina Beach; Shelly Ridge, Marburg Commonage; Sunrise Bay eco-estate; The Plantation agri eco-estate, Ramsgate; Uplands, Margate for NMH Consulting
- Buffelshoek, Winterton for Peter Jewell Consulting Services
- Umdloti Lagoon Valley and KwaDabeka C, Durban for SiVEST Environment and Planning
- Garden Park residential and commercial development for Spencer Gore Construction
- Manzengwenya dive camp for Strategic Environmental Focus (Pty) Ltd
- Balcomb, Mtunzini; Braeside Farm, Umhlali; Hillside farm, Umhlali; Helmsley Farm, Umhlali; Lot 617 Sheffield Beach; Mtikini, Ulundi; Palm Lakes, Umhlali; Tara Estate, Salt Rock for Sustainable Development Projects
- Allemans Drift and Waterford, Howick for WSP Environmental
- Almond Bank, Pietermaritzburg for Afzelia Environmental Consultants cc
- Nodunga and Cele-Nhlangweni for CHS Developments
- Eendvogel Vley and Gordon Hill, Ladysmith for DEK Simpson Professional Land Surveyors
- Mhlumayo housing for Inkonjane Developments

Road upgrades

- Road 1B Mkhazeni, Mgai farm road, Esifubeni road and Sani Pass Phase 1 for ACER (Africa)
- Ncengeni road, Tugela Ferry for J Mitchell & Associates
- Vukani Phase 2, Inanda for Pravin Amar Development Planners
- P230 road, Empangeni / Eshowe and Zwelimbomvu road for Terratest Incorporated
- Hillcrest roads for WSP Environmental

Bridge construction

- Bridge 1 Batshe and Bridge 18 Diki for ACER (Africa)
- Mfule River bridge, Nkwalini for Eyethu Engineers

Water supply projects

- Fairbreeze mine and Simdlangentsha for ACER (Africa)
- Makhabeleni, Masihambisane and Ntanzi for Saunders & Wium Trust
- Ozwathini / Mathulini and Wosiyane, Emalangeni and Cibane for SiVEST Environment and Planning
- KwaDeyi / St Faiths, KwaFodo and Stuartsville for Stemele Bosch Africa
- KwaGqugquma for Terratest Incorporated
- Albert Falls and south coast water supply system, Amanzimtoti to Umzinto / Scottburgh for Umgeni Water Amanzi

Dams

- Nsami, Molepo and Acornhoek dams, Limpopo Province for Cave Klapwijk & Associates
- Sundara, Oliviershoek for Alletson Ecologicals

Virgin soil assessments

- Ideal View and Mid-Selbourne farms, Underberg for Alletson Ecologicals

Other

- Gautrain tunnel and portal variants, Johannesburg for Bohlweki Environmental
- Gautrain route variants, Tshwane for Felehetsa Environmental (Pty) Ltd
- Ermelo Majuba rail realignments for Cave Klapwijk & Associates
- Nondabuya and Welcome agricultural development programmes for ACER (Africa) and Institute for Natural Resources
- Ntingwe tea estate, N11 and N12 borrow pits for ACER (Africa)
- Ashburton quarry, Pietermaritzburg and Idwala mining, Port Shepstone for Council for Geoscience
- King Matiwane cultural village for NDG Africa
- Alton North ferrochrome smelter, Richards Bay for CSIR Environmentek
- Chieveley, KwaDlamini, Injasuthi and Elandskraal base stations for David Totman & Associates
- Msukeni and Lugelweni ecotourism developments, Eastern Cape for Environmental and Rural Solutions

- KwaBulawayo tourism development for ZAI Consultants
- Avon and Geogedale peaking power plants for Environmental Impact Management Services (Pty) Ltd
- Riverside industrial park, Durban for Environmental Planning & Design
- Port Shepstone commercial development for Environmental Solutions
- Nquthu artefact collection for Ernst Cloete & Associates
- Braamhoek Pumped Storage Scheme impact assessment and monitoring for Eskom
- Erf 50 Cato Ridge and Westway commercial developments for Guy Nicolson Consulting cc
- Wellington wine estate, Rosetta for Harbour Rocks Properties (Pty) Ltd
- Enyokeni, KwaKhangela for SiVEST Environment and Planning
- Nanxing mining, Wartburg for Terratest Incorporated
- Sappi Saiccor Amakhulu expansion, Umkomaas and underground cable installation, Richards Bay for WSP Environmental
- 10 000BC filming location, Garden Castle for Brousse-James & Associates
- Heritage resources component of the KwaDukuza Strategic Environmental Assessment for SiVEST Selatile Moloji