

INTRODUCTION

The Institute for Cultural Resource Management was approached by Durban Metro Waste Services to undertake an archaeological survey of the new Tongaat Sewer Extension Site in November 1999. This survey was one of the requirements of the EIA report which noted the ICRM's concern of the archaeological sensitivity of the affected area. While this area had not been recently surveyed, a Stone Age site had been recorded a decade ago. The archaeological survey recorded an iron on smelting site dating to c. AD 1000 – AD 1450. This site was regarded as having medium archaeological significance.

Defining significance

Archaeological sites vary according to significance and several different criteria relate to each type of site. However, there are several criteria that allow for a general significance rating of archaeological sites.

These criteria are:

1. State of preservation of:
 - 1.1. Organic remains:
 - 1.1.1. Faunal
 - 1.1.2. Botanical
 - 1.2. Rock art
 - 1.3. Walling
 - 1.4. Presence of a cultural deposit
 - 1.5. Features:
 - 1.5.1. Ash Features
 - 1.5.2. Graves
 - 1.5.3. Middens
 - 1.5.4. Cattle byres
 - 1.5.5. Bedding and ash complexes

2. Spatial arrangements:

- 2.1. Internal housing arrangements
- 2.2. Intra-site settlement patterns
- 2.3. Inter-site settlement patterns

3. Features of the site:

- 3.1. Are there any unusual, unique or rare artefacts or images at the site?
- 3.2. Is it a type site?
- 3.3. Does the site have a very good example of a specific time period, feature, or artefact?

4. Research:

- 4.1. Providing information on current research projects
- 4.2. Salvaging information for potential future research projects

5. Inter- and intra-site variability

- 5.1. Can this particular site yield information regarding intra-site variability, i.e. spatial relationships between various features and artefacts?
- 5.2. Can this particular site yield information about a community's social relationships within itself, or between other communities.

6. Archaeological Experience:

- 6.1. The personal experience and expertise of the CRM practitioner should not be ignored. Experience can indicate sites that have potentially significant aspects, but need to be tested prior to any conclusions.

7. Educational:

- 7.1. Does the site have the potential to be used as an educational instrument?
- 7.2. Does the site have the potential to become a tourist attraction?
- 7.3. The educational value of a site can only be fully determined after initial test-pit excavations and/or full excavations.

The more a site can fulfill the above criteria, the more significant it becomes. Test-pit excavations are used to test the full potential of an archaeological deposit. These test-pit excavations may require further excavations if the site is of significance. Sites may also be mapped and/or have artefacts sampled as a form of mitigation. Sampling normally occurs when the artefacts may be good examples of their type, but are not in a primary

archaeological context. Mapping records the spatial relationship between features and artefacts.

The Tongaat Sewer Extension site is important for the following reasons:

1. Little is known about Early and early Late Iron Age iron smelting technology and practices. This is the first near complete excavated furnace from this time period in the Tongaat Area.
2. Few sites of this time period have been recorded and/or excavated in the Tongaat region
3. The site has a cultural horizon and thus a cultural deposit
4. The site has research potential

METHODOLOGY & STRATIGRAPHY

The site was considered to be of medium archaeological significance and several test pits were excavated in the affected area to determine the full significance of the site. A total of fourteen test pits (each 3 m x 3 m) were placed in areas where artefacts (such as pottery shards, slag, furnaces, etc.) were observed on the surface.

Each square was excavated down to a sterile layer (± 30 cm – 40 cm below current topsoil) where no artefacts were observed. The soil had been disturbed by ploughing activity. In most cases the main cultural horizon was in the upper 10 cm of the sand. Below this was a hard white sandy soil with few, if any, artefacts. Below this white sand was a brown sand, followed by a red clay, that appeared to be the sterile layer. The base of the one furnace was in this latter sand. This soil profile occurred throughout the site.

I used a strategy of areas with a high density of pottery may indicate a domestic area, while those of furnace fragments, slag and/or iron ore may indicate an iron smelting/smithying activity area.

ARTEFACTS & FEATURES

Pottery

Very few shards were recovered in the whole excavation. Most of these were adiagnostic, however, some were decorated and/or had rims.

Three diagnostic pieces were recorded and are as follows:

- Shell impressions on neck, flat lip and straight rim
- Vertical and horizontal grooves on rim, neck and shoulder; everted rim and flat lip
- Everted rim, rounded lip, no decorations

Metallurgy

The evidence for metallurgy is in the form of thick furnace fragments, slag, tuyerès, iron ore, and hammer stones. A thorough surface inspection did not record any tuyerès in the affected area. This is either because they were discarded downslope when, and thus into the river, or they were discarded elsewhere.

Furnace fragments were mostly between 20 cm – 25 cm thick. Most of these fragments AHD been broken by the ploughing of the cane fields, however there was still a high density of fragments to indicate an activity area. Table 1 summarises the relative weights of these artefacts. The relative weights for each artefact category were used to determine the location of the highest concentration of artefacts, and therefore assist with the excavation strategies and site interpretation.

Two main areas were marked for excavations. One area only had pottery shards (mostly on the surface), while the other area had a high concentration of artefacts associated with metallurgy. The first excavations were concentrated near the existing sewage buildings. Six 3 m x 3 m squares were excavated in this area, however, few artefacts were recovered. The two decorated pottery shards came from this area.

One semi-complete furnace, and the side walling of another furnace, was recorded. This furnace was ± 25 cm thick, ± 30 cm deep, ± 80 cm long and ± 50 cm wide. The furnace was oval in shape and both ends were either damaged, or purposefully left open (see fig 1). A concentration of slag and iron ore was found nearby this furnace. The furnace consisted of

several fragments of vitrified clay and these were sampled. No stratigraphic profile was visible and the inside of the furnace was a uniform light brown sand. There was no clay base for this furnace, nor were there lumps of slag adhering to the furnace walls. No large pieces of slag and/or iron ore were recorded inside the furnace. That is there was very little waste material in the furnace, however a bit of charcoal was recovered near the base of the furnace.

Table 1: Weights (kg) of artefacts from furnace area

Square	Furnace Fragmen ts	Slag	Iron Ore	Othe r	Total
9.4	12.20	2.00	1.00	0.02	15.22
9.5	15.00	4.00	0.50	0.00	19.50
9.6	9.00	0.20	0.20	0.00	9.40
9.6 (furnace)	21.00	0.05	0.00	0.01	21.06
9.7	34.00	4.50	2.50	0.00	41.00
9.8	21.50	1.70	0.25	0.00	23.45
9.9	9.50	5.50	0.50	0.00	15.50
9.10	10.50	1.00	1.00	0.01	12.51
9.11	22.00	4.00	3.00	0.03	29.03
9.12	44.00	5.00	4.00	0.00	53.00
Total	198.70	27.95	12.95	0.07	239.67

DISCUSSION

The decorated pottery from the Tongaat furnace site indicates two possible ages. The first date is between c. AD 900 to AD 1150. This is the Ntshokane Phase and is the terminal Early Iron Age. The second piece of decorated pottery is part of the Late Iron Age, and dates to c. AD 1050 to AD 1450. A more precise date for this latter period cannot be given as it is a relatively unknown period in KwaZulu-Natal. The site is important then since it contains

information from one of either two relatively under researched time periods in KwaZulu-Natal history.

Few iron smelting sites from the Early Iron Age, and specifically the Ntshekane Phase, have been systematically excavated. The lack of slag, and iron ore, yet an *in situ* furnace is interesting and this suggests that the slag, at least, was being removed and worked elsewhere. A furnace area with over 200kg of fragments should yield much more slag than the ± 28 kg seen at this site. This type of furnace is a marked contrast to those recorded in the Tugela River Valley (Anderson 1998; Maggs 1982), Hluhluwe (Hall 1980), Richards Bay (Anderson 1999) and Pongola (Anderson 1997). These latter sites have high concentrations of slag (and silica), and tuyères.

The lack of tuyère fragments is interesting since, tuyères form part of the bellows which raises the temperature of the fire in the furnace, and thus allows for the iron ore to be smelted. If the intact furnace has not been broken by the ploughing of the field, then the tuyère slots are still visible (compare figures 1 and 2). Hall (1980) noted that some of the furnaces in the Hluhluwe Nature Reserve had no inlets for tuyères. A similar technology may have been used for the Tongaat furnaces. Alternatively, the tuyères and other waste, were being discarded into/near the Tongati River. However, not enough complete furnaces at Tongaat were recorded to make a comparison.

CONCLUSION

The Tongaat furnace site was excavated as part of a salvage excavation as a result of the proposed development of the Tongaat Sewer Extension. The site was regarded as having medium archaeological significance, and since it would have been negatively impacted by the development, some form of mitigation was required. The mitigation undertaken was to assess the site's full significance by test pit excavations. Fourteen test-pits were excavated and enough material was recovered for an adequate sample of the site to be saved

Two styles of decorated pottery were recorded. These decorations date the site to between *c.* AD 1050 to AD 1450. No furnaces dating to this time period have been previously excavated in the Tongaat region, and this excavation has added to the knowledge of early iron smelting techniques and variations in KwaZulu-Natal.

A permit by Amafa-aKwaZulu-Natali will be issued to the archaeologist for the destruction of the site.

References

Anderson, G. 1999. The archaeological survey and excavations of the RBM mining lease. Unpub. CRM report to Richards Bay Minerals.

Anderson, G. 1998. Archaeological survey of the Jana-Klip Dams. Unpub. CRM report for DWAF.

Anderson, G. 1997. Archaeological excavations at KwaTshelensimbi. Unpub. CRM report on the Paris Dam for Impala Irrigation Board & DWAF.

Maggs, T. 1982. Mabhija: a precolonial industrial development in the Tugela Basin. *Annals of the Natal Museum* **25(1)**: 83-114

Hall, M. 1980. An iron-smelting site in the Hluhluwe Game Reserve, Zululand. *Annals of the Natal Museum* **24 (1)**: 165 - 176