Northamptonshire County Council

Northamptonshire Archaeology

A Bronze Age Cremation Burial
From Upton, Northampton

Upton Flood Attenuation (Phase 2)
Archaeological Watching Brief

September - November 2007

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Report 08/78

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QUALITY CONTROL

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(Front cover: General view across the west spur, looking north-west)

OASIS REPORT FORM

PROJECT DETAILS		
Project name	A Bronze Age Cremation Burial From Upton, Northampton: Upton Flood Attenuation (Phase 2), Northampton, Archaeological Watching Brief	
Short description	An archaeological watching brief was carried out during flood attenuation works on the north side of the River Nene, between Kislingbury and Upton, Northampton. A small pit containing a cremation in a Collared Urn has been radiocarbon dated to the early 2nd millennium BC, the early Bronze Age. A number of postholes lay nearby, one of which cut the cremation pit and may have contained a grave marker. A series of undated shallow, parallel gullies and postholes, possibly part of a water-meadow management system, and a post-medieval or modern boundary ditch were also recorded.	
Project type	Archaeological watching brief	
Site status	None	
Previous work	Watching brief on river crossing	
Current land use	Pasture	
Future work	None	
Monument type/period	Bronze Age cremation burial	
Significant finds	Bronze Age collared urn with cremation	
PROJECT LOCATION		
County	Northamptonshire	
Site address	Upton, Northampton	
Study area	48.26ha	
OS Easting & Northing	4703 2599 to 4719 2593	
Height aOD	60m to 72m	
PROJECT CREATORS		
Organisation	Northamptonshire Archaeology	
Project brief originator	-	
Project Design originator	Halcrow Group Ltd	
Director/Supervisor	Anne Foard-Colby	
Project Manager	Anthony Maull	
Sponsor or funding body	English Partnerships	
PROJECT DATE		
Start date	September 2007	
End date	November 2007	
ARCHIVES	**Location**	**Content**
Physical	UFA07	2 boxes
Paper	UFA07	1 archive box
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BIBLIOGRAPHY	Journal/monograph, published or forthcoming, or unpublished client report (NA report)	
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A BRONZE AGE CREMATION BURIAL FROM UPTON, NORTHAMPTON

Upton Flood Attenuation (Phase 2), Northampton Archaeological Watching Brief

SEPTEMBER - NOVEMBER 2007

Abstract

Between September and November 2007, an archaeological watching brief was carried out by Northamptonshire Archaeology during flood attenuation works on the north side of the River Nene, between Kislingbury and Upton, Northampton. The topsoil was stripped in three separate areas, consisting of two spurs for the construction of banks and an area of floodplain lowering. A small pit containing a cremation in a Collared Urn has been radiocarbon dated to the early 2nd millennium BC, the early Bronze Age A number of postholes lay nearby, one of which cut the cremation pit and may have contained a grave marker. A series of undated shallow, parallel gullies and postholes, possibly part of a water-meadow management system, and a post-medieval or modern boundary ditch were also recorded.

1 INTRODUCTION

Between September and November 2007, Northamptonshire Archaeology (NA) maintained an archaeological watching brief during groundworks for the Upton Flood Attenuation Scheme (Phase 2), Northampton (NGR SP 703 599 to 719 593, Fig 1).

The work was commissioned by Birse Civils and was undertaken in order to meet the archaeological conditions, requested by Northampton Borough Council's Archaeological Advisor, which had been attached to the planning consent for the flood alleviation works. The purpose of the archaeological investigation was to mitigate against the impact of groundworks on archaeological remains in three areas, comprising two spurs for the construction of banks and an area of floodplain lowering.

The fieldwork was carried out in accordance with a specification written by Northamptonshire Archaeology (NA 2007) based on the specification produced by Halcrow (2007), who were advised by the former Archaeological Planning Officer for Northamptonshire County Council Historic Environment Team (NCCHET).

2 BACKGROUND

2.1 Topography and geology

The watching brief area was situated to the north of the River Nene, between the village of Kislingbury to the west and Upton, Northampton to the east (Fig 1). The ground rises from 60m aOD on the floodplain to 72mOD on the lower slopes to the north of the river. The land comprised water meadow and pasture for grazing sheep and cattle.

The British Geological Survey has mapped the area as a mixture of alluvium and

glacial boulder clay, sand and gravel, overlying Middle Lias clay, mudstone and ironstone (BGS 1980). The soils belong to the Fladbury 2 soil association, comprising stoneless clayey soils, variably affected by groundwater (SSEW 1983).

2.2 Archaeological and historical background

A search of the Historic Environment Record (HER) shows that the area of the flood attenuation works lies within a landscape containing archaeological remains ranging in date from the prehistoric to the post-medieval periods (Fig 2).

Within close proximity to the area a number of archaeological sites have been identified. They include:

- Possible prehistoric ditches, investigated between 1991 and 1992 by Northamptonshire Archaeology (NSMR 1475/0/1-2; Jackson 1993a; 1993b, 74-75).

- Iron Age pits and ditches, excavated during the widening of the A45 in 1965 (NSMR 5134; Jackson *et al* 1969).

- An Iron Age pit alignment, identified during trial trenching (Foard-Colby 2006b) and excavated prior to the construction of the Cross Valley Link Road (CVLR) (Carlyle 2008).

- Extensive Iron Age and Roman settlement evidence, together with field systems, recently excavated at Pineham Barn (NSMR 5088/0/1 and 5092/0/6; JSAC 1999; 2000; Buteux & Jones 2000; Morris 2000; Pears 2005; Carlyle 2006 and Brown 2007).

- An Iron Age pit alignment and late Iron Age and Roman settlement, excavated prior to the residential development at Upton (Maull 2000, Foard-Colby 2006a and Foard-Colby and Walker 2007). These sites lie to the south and south-west of Duston Roman town.

- A Saxon *Grubenhaus*, excavated during widening of the A45 in 1965 (SMR 5773/0/3; Jackson *et al* 1969, 213).

- Possible Saxon or early medieval ditches, identified from aerial photographs (SMR 5177/0/9).

3 OBJECTIVES

The objectives of the archaeological watching brief were:

- To provide archaeological monitoring of selected areas of groundworks where there were known archaeological features in the vicinity, or where there was deemed to be areas of archaeological or palaeoenvironmental/ geoarchaeological potential.

- To allow contingency arrangements for the treatment of areas of archaeological significance exposed during the groundworks.

- To retrieve high quality environmental bulk or column samples from peaty deposits exposed within the river re-alignment works, which could be used as the basis for an environmental assessment of the historic landscape in this part of the River Nene valley.

- To provide methodologies for the subsequent analysis of the excavated material and the subsequent reporting and archiving of the archaeological data.

4 FIELDWORK METHODOLOGY

Topsoil stripping was undertaken by mechanical excavator under archaeological supervision. All potential archaeological features were examined by hand excavation. Standard NA recording procedures were employed. The location of the stripped areas was related to the Ordnance Survey National Grid. Contexts were recorded on *pro-forma* sheets with a unique context number being allocated to each distinct deposit. Plans and sections were drawn at the appropriate scale. A photographic record comprising both 35mm black and white negatives, with associated contact prints and colour transparencies was maintained, with additional digital photographs. All records were compiled during fieldwork into a comprehensive and fully cross-referenced site archive. The site code is UFA 07.

All works were carried out in accordance with the Institute of Field Archaeologists' (IFA) *Code of Conduct* (IFA 1995, revised 2006) and *Standards and guidance for archaeological watching briefs* (IFA 1994, revised 2001), and complied with the *Policy and Guidance for Archaeological Fieldwork Projects in Northamptonshire* (NCCHET 1995). All procedures complied with the Northamptonshire County Council Health and Safety provisions.

5 WATCHING BRIEF RESULTS

5.1 Western area (area of floodplain lowering)

The area of floodplain lowering was located at the western end of the watching brief area (Fig 3). Excavation revealed a sequence of alluvial deposits, into the surface of which was cut a number of archaeological features, including a Bronze Age cremation burial.

At a depth of 1.2m below the stripped surface there was dark bluish grey silty clay (323) with gravel inclusions, succeeded by a layer, 0.6m thick, of light yellowish brown silty clay (322). A layer of light to mid grey and yellowish brown silty clay (321), of a similar thickness, slightly overlay or abutted this layer and together they may be terraces associated with the nearby River Nene. Sealing these deposits was mid orange brown alluvium (302) with river gravel inclusions.

Close to the northern edge of this area there was a cremation burial within an inverted Collared Urn of early Bronze Age date (Figs 4-6). It lay within a pit [306] with an adjacent pit/posthole [316] that may have held a marker-post. The burial is described

in detail in Section 6.

To the south-west of the cremation was a shallow posthole [309], 0.29m in diameter and 0.12m deep, and immediately to the north-west of posthole [316] was a shallow stakehole [318]. Both features were filled with mid greyish brown silty clay loam with gravel and charcoal flecks (308 and 317 respectively).

Two further shallow postholes were situated to the south-east of the cremation. Postholes [311] and [313] were 0.29m and 0.43m in diameter respectively and 0.07m to 0.09m deep. They were filled with mid greyish brown silty clay loam with occasional river gravels (310 and 312 respectively). Fill (310) contained two pieces of worked flint.

Approximately 8m to the west of the cremation there was a shallow, linear feature [320], probably a furrow, aligned north to south and measuring 1.5m wide and 0.08m deep. Its fill (319) was light brown silty clay and it contained sherds of abraded 13th to 14th-century medieval pottery.

All of the features were sealed by topsoil (301), which ranged from 0.3m to 0.4m thick.

5.2 West spur

A shallow linear earthwork (Figs 7 and 8), the remains of a north-west to south-east aligned boundary ditch [204], was visible in the fields to the east and west of the watching brief area. It was parallel to field boundaries to the north and south. Within the stripped area the ditch, which was cut into the alluvium (202), was 1.4m wide and was filled with dark grey brown silty clay loam (203) with gravel inclusions. It was overlain by topsoil (201). No dating evidence was recovered from the ditch, but it is probably post-medieval or modern in date.

5.3 East spur

In this area, two ditches, a series of roughly parallel, undated, gullies and a scatter of pits and postholes were cut into mid brown alluvium (102) (Figs 7 and 9).

At the south end of the stripped area an east to west aligned ditch [104], measuring 1.3m wide and 0.20m deep, was found. It was filled with mid grey and reddish brown mottled silty clay (103) and contained charcoal flecks and eleven pieces of worked flint. It was parallel and *c* 8m to the north of an existing boundary ditch.

Divergent and to the south of ditch [104] was ditch [106], which was aligned north-west to south-east and measured 0.70m wide and 0.10m deep. Its fill (105) was similar to (103) and contained abraded fragments of brick and tile and one piece of fuel ash slag.

The truncated remnants of six parallel gullies [108], [122], [124], [132], [134] and [136] were aligned north-north-west to south-south-east. They measured between 0.25-0.31m wide and 0.05-0.10m deep. The gullies generally had a shallow, 'U'-shaped profile. Their fills (107), (121), (123), (131), (133) and (135) consisted of mid grey or orange brown silty clay with gravel inclusions. Short sections of three further parallel gullies [118], [120] and [154] on a slightly more westerly alignment were also

identified.

There were remnants of three other possible gullies: a slightly curvilinear gully [110], aligned north to south; a second slightly curvilinear gully [142], aligned east-west; and a very small fragment of gully [152], aligned north to south. They were 0.35-0.40m wide and approximately 0.10m deep, with 'U'-shaped profiles. They were typically filled with dark greyish brown silty clay with gravel inclusions or mid orange brown sandy clay with gravel inclusions.

A cluster of three pits [144], [148] and [150] was located south of gully [142]. Pit [144] was 0.39m in diameter and 0.20m deep with a steep-sided profile and concave base. Its fill (143) consisted of dark orange brown sandy clay with small gravel inclusions. To the south was pit [148], 0.45m in diameter and 0.14m deep with a 'U'-shaped profile. Fill (147) was mid greyish brown sandy clay with mid to large gravel inclusions. To the east was pit [150], which was 0.60m in diameter and 0.12m deep. Its shallow profile was 'U'-shaped. Its fill (149) consisted of mid orange brown silty clay with small gravel inclusions.

There was a scatter of ten undated postholes across the area, [112], [114], [116], [126], [128], [130], [138], [140], [146], and [156]. They were generally filled with dark greyish brown silty clay, sometimes with orange mottling.

The topsoil (101), which was between 0.25m and 0.40m thick, overlay the features.

6 THE BRONZE AGE CREMATION BURIAL

6.1 The Bronze Age cremation burial

A cremation burial within a Collared Urn (304) was recovered from pit [306] (Fig 4, Plate 1). The pit had a steep-sided, concave profile and measured 0.69m in diameter and 0.34m deep (Fig 5, Section 1; Plate 2). Although the fill of the pit (305) was fairly homogeneous, there appears to have been two phases of soil deposition as the urn was apparently placed upon a primary fill, 0.06m thick. The pit was backfilled around the urn with reddish brown silty clay with gravel inclusions (305), which contained no pyre debris. The contents of the urn (303) are described in detail below. The urn had been intact but the base was damaged during stripping of the topsoil.

The north-west edge of the cremation pit was cut by a pit/posthole [316], which may have supported a grave marker (Fig 5, Section 2; Plate 2). It measured 0.55m in diameter and was 0.28m deep. It was steep-sided with a break in slope half way down and steep narrower hole at the base. Its fill (315) was similar to the fill of the cremation pit.

6.2 **The Bronze Age urn** by Andy Chapman

The Collared Urn (Fig 6; Plates 3-6) stands *c* 250mm high, with a flat base, 105mm in diameter, and a rim diameter of 215mm. The fabric contains no evident mineral inclusions and is black throughout, apart from the outer skin, 1-2mm thick, which is red brown. The colour differentiation indicates that the pot had stood rim down in a bonfire, so that only the outer surface was oxidised. The base is 16-18mm thick, while

the body is consistently 10mm thick, and slightly thicker at the carination and at the base of the collar, where it is 15mm thick. There is an oblique coil join just above the carination, which has been a major point of fracture. The rim is rounded and undecorated.

This is a tripartite vessel, with a shallow collar, 43mm thick, above a concave neck, 65mm deep, with a marked carination at the base of the neck. The collar and the neck are decorated with a herringbone motif, executed in incised lines. There are six lines on the neck while on the collar there are abrupt changes from five to four lines (Plate 4). In some places adjacent lines meet at an apex or overlap slightly, while in other places there is a gap between the adjacent lines.

The narrow collar and the presence of decoration below the collar, places this urn in Longworth's Primary Series and in Burgess's Early style (Gibson & Woods 1997, 126-131).

6.3 **The cremation deposit** by Andy Chapman and Pat Chapman

Methodology

The base of the inverted urn had been damaged by the machine when the urn was uncovered. However, the urn was evidently already fractured at the base before this. This fracture had permitted water to trickle in, and loose bone within the void at the base of the pot had become coated with a thin layer of silt. The extent to which some of the soil content may have come into the pot post-deposition is uncertain.

Following cleaning of the exterior of the pot, the outside was treated with a weak solution of PVA to provide some strength to the fabric. One side of the vessel was in particularly poor condition, with an old oblique fracture along a coil join near the carination, so that the lower body had slipped down and slightly overlapped with the upper body. In addition, there were numerous other fractures throughout the vessel, which had essentially been held together by the soil adhering to the surfaces. This side of the vessel was removed to provide both a section of the contents and access to the interior for the excavation of the contents, as it was not possible to invert the urn to an upright position given the damage to the base and the presence of a void. The bone and soil deposit was taken down in a series of five spits, each *c* 30mm thick, over a total depth of 180mm. At each level the exposed surface was drawn and photographed (Fig 6, A-E; Plates 7-9). The uppermost spit comprised loose bone, while the others were all in a matrix of sandy loam. The matrix was retained for wet sieving. Once the contents of the urn had been removed, the remainder of the urn was in such a fragile condition, with multiple fractures, that it was not possible to keep it together.

The contents of the urn

The void in the base of the pot was up to *c* 30mm deep and extended down parts of the sides for up to 60mm (Fig 6, e; Plate 7). The first material to be deposited in the urn was loose large bone fragments, often up to 60mm across (Plate 8). There was a mixture of body parts, including fragments of skull, long bone and a number of recognisable fragments of the drums and the detached processes and spines of vertebra (Fig 6, d). Below this there were similarly large bone fragments, with the same broad mix of body parts, in a matrix of clean brown sandy loam (Fig 6, c; Plate 9). At around a depth of 120mm from the top of the bone deposit (60mm above the base of the deposit), there was a gradual change to smaller bone fragments, of up to 30mm, closely packed in a firm deposit of brown sandy loam (Fig 6, b). The bottom

20mm of the deposit was very densely packed in a compact matrix of brown sand, which also contained sparse small flecks of charcoal. This still contained some pieces of bone of up to 30mm, but the proportion of small fragments was higher. The lower half of the deposit still contained a mix of body parts.

It was notable throughout that, apart from very sparse and small charcoal flecks, the matrix was of clean sand, which had evidently not come from the pyre. There were no stone inclusions, even down to the smallest pebble.

The base of the bone deposit lay 35mm from the rim of the urn, with a slight hollow in the top of the underlying deposit (Fig 6, a). At the interface between the cremated bone and the underlying sand there were a few fragments of oak charcoal, 40-60mm long, which suggests that a few lumps of carbonised wood had been deliberately placed on top of the bone deposit. The charcoal has given a radiocarbon date in the early 2nd millennium BC (see below). In addition, there was a single piece of natural flint, 45mm long by 36mm wide and 15mm thick.

The top 30-40mm of the urn was filled with clean light brown sand, containing fine gravel. The material in the top of the urn was the same as the light brown sand adhering to the outer surface of the pot.

Given the presence of a void at the base of the urn, it seems unlikely that the pot had been "topped-up" with sand prior to being inverted and deposited, as this would probably have prevented the contents from settling to form a void. It seems more likely that some organic filler or cover had been used to prevent the contents from falling out on inversion. It is suggested that the decay of an organic filler or cover allowed the formation of a void at the base of the inverted pot as the bone subsided; the pot may subsequently have sunk into the underlying sand by up to 40mm.

6.4 **The human bone** by Sarah Inskip

(The full report is included in the appendix, and is summarised below)

The bone deposit weighed 2.3 kg. This is average for a complete, adult modern cremation. The total weight and virtual complete representation of skeletal elements suggest that the very complete remains from a single entire individual had been collected and placed in the urn. Every long bone is represented and furthermore, the small bones of the hand and foot were recovered, including three sesamoid bones and many distal phalanges. All the major bones of the skull are present as well as a large number of each of the four types of vertebrae. The deposit was checked for the presence of more than one individual but no repeated, sided fragments were found.

The colour of the bone, 90% of which is cream/white, indicates a pyre temperature above 600° C. There were few fragments of black and grey bone. There were no significant colour differences between the groups and uniformity in bone fragment colour suggests that the high temperature of the pyre was consistent around the body. There was a large variation in bone fragment size; the largest was a tibia fragment measuring 62mm x 40mm, while the smallest fragments were less than 1mm. The majority of the bone (82%) was in the 10mm and 5mm sieve fractions.

The osteological evidence suggests that this person was adult and the auricular surface indicates that they were a middle adult onwards (at least 25 years old). This is further reinforced by the presence of age related pathology, as there are changes in

the spine that are consistent with osteoarthritis, which would also suggest an older adult, although such changes can also be activity related. Unfortunately, it was not possible to determine the sex of the individual.

6.5 **The charcoal** by Rowena Gale

A sample of charcoal recovered from a Collared Urn was identified to genus level prior to radiocarbon dating.

The charcoal was extremely friable and also infiltrated with sediments, which made it rather difficult to examine. The sample was prepared using standard methods (Gale and Cutler 2000). Anatomical structures were examined using incident light on a Nikon Labophot-2 compound microscope at magnifications up to x400 and matched to prepared reference slides of modern wood; where possible, the maturity of the wood was assessed (ie heartwood/ sapwood). The samples were identified as:

Context (303) – 1 x oak (*Quercus* sp.) sapwood, <1g
26 x oak (*Quercus* sp.) heartwood

6.6 Radiocarbon determination

A sample of charcoal from the fill (303) of the Collared Urn was submitted for radiocarbon determination. The charcoal yielded a radiocarbon date of 1980-1750 cal BC (95% confidence, 3560+/- 40 BP. Beta-238910). The results are given in Table 1 below.

Table 1: Radiocarbon determination of the charcoal from cremation pit [306]

Lab no. and sample no.	Origin of sample	Sample details	13C/12C ratio	Conventional radiocarbon age BP	Cal BC 68% 95%
Beta-238910 UFA07/303	Fill 303	Oak charcoal	-24.0 0/00	3560 +/-40	1940-1870 1980-1750

Radiocarbon dating laboratory: Beta-Analytic, University of Florida, Miami, USA
Method of analysis: AMS- standard delivery
Calibration: Reimer et al 2004; OxCal v3.10; Bronk Ramsey; curb r:5 sd:12 prob usp (chron)

7 OTHER FINDS

7.1 **Worked flint** by Andy Chapman

A total of 18 pieces of flint was recovered during the fieldwork. Four pieces are from subsoil (102) and eleven are from fill (103) of ditch [104] on the eastern spur, and two pieces are from context (310), posthole [311] from the floodplain lowering area.

In addition, there is a single piece associated with the Collared Urn cremation burial (303). It had been placed within the urn on top of the cremated bone. This was a piece of natural flint, 45mm long by 36mm wide and 15mm thick, from a patinated and rolled pebble that had probably fractured along a natural plan of weakness.

The raw material is either grey, or occasionally brown, vitreous flint with a brown to

light brown cortex or a grey granular opaque flint with a light brown to white cortex. Most pieces are between 20-30mm long, often with some cortex surviving, indicating that most come from quite small pebbles, as can be found within the local gravels.

The group includes 13 flakes, two blades and two cores. The flakes are typically short and squat, and only a couple show clear edge damage, perhaps from utilisation. There are two blades, one of which shows both edge damage and some retouch.

The two cores are both crudely worked pebble cores, 50mm and 52mm in diameter. One has a single platform while the other is discoidal, with small flakes removed around the circumference. Both cores are in grey opaque flint, with white cortex.

This small group of flint contains too few diagnostic features to enable any general characterisation, although all would be broadly appropriate to Neolithic to early Bronze Age assemblages utilising poor quality flint obtained as pebbles or small cobbles from the local gravels.

7.2 Medieval pottery

A total of 12 sherds of heavily abraded pottery were recovered from two contexts in the floodplain lowering area. Eight sherds were recovered from a layer of alluvium (302) and four from the fill (319) of a furrow [320]. One sherd of Lyvden Stanion 'B' ware is possibly the handle of a 'fish' dish. All of the sherds are non-diagnostic and date to the 13th to 14th centuries (Iain Soden pers comm).

8 ENVIRONMENTAL ANALYSIS

8.1 Environmental remains by Karen Deighton

Introduction

Four samples were collected from a range of features in the flood plain lowering area during the course of the watching brief. These were processed and analysed in order to establish the presence/absence of ecofacts and their nature, range and state of preservation. Their contribution to the nature and function of the site was also considered.

Method

Three samples were processed using a modified siraf tank fitted with a 500micron mesh and flot sieve. The resulting flots were dried and analysed using a microscope (10x magnifications). The sample from posthole [309] was washed though a range of stacked sieves (500microns-3.4mm) and the resulting retents were analysed. Identifications were made, where possible, with the aid of the author's reference collection and a seed atlas (Schoch *et al* 1988).

Results

Preservation of the plant remains was by charring and waterlogging. The level of preservation was fairly poor with most specimens fragmented, which adversely affected identification. A summary of the ecofacts by context is presented in Table 2.

Table 2: Ecofacts by sample

Cut/fill	306/305	309/308	303	316/315
Ecofact/Feature	Pit	Posthole	Base of cremation	Post pit
Sheep sorrel *(Rumex acetosella)*	1	1	-	1
Bistort *(Polygonum bistorta)*	-	1	-	-
Fat hen *(Chenopodium album)*	-	1	-	1
Buttercup family (Ranunculaceae)	-	1	-	-
Cabbage family (Cruciferae)	-	-	-	1
Indeterminate weed	-	22	-	-
Charcoal*	10	20-30	-	8
Beetle (Coleoptera)	-	1	-	-

* Number of fragments present

Conclusion

The analysis has established the presence, nature, range and degree of preservation of the ecofacts. Unfortunately, no statements can be made regarding the nature and function of the site due to the paucity and poor preservation of the environmental remains.

9 DISCUSSION

An inverted, early Bronze Age Collared Urn, containing the remains of a single mature adult, was found in a small pit close to the banks of the present-day course of the River Nene. There was no evidence for a surrounding ditch or mound to indicate that this lay within a round barrow. Immediately to the north-west and cutting the cremation pit was a posthole, which may have supported a grave marker. Four small, shallow postholes were identified in close proximity to the cremation pit, but the lack of dating or stratigraphic evidence precludes establishing an association with the grave. The soil samples taken in this area yielded insufficient data, due to poor preservation and paucity of ecofacts, to attempt an interpretation of environmental conditions/habitats.

There are few comparable funerary sites of Bronze Age date in the immediate vicinity. Investigation by Northamptonshire Archaeology of the Upton Barrow (Scheduled Ancient Monument 13674; NSMR 5132/0/3), the site of which lies approximately 285m south-east of Upton Mill, was inconclusive in establishing a date for the monument (Jackson 1993a, 8-9; 1993b, 72-73). It was suggested that the monument probably post-dated the Roman period. At Pineham Barn, to the south of the River Nene, there was a small Bronze Age cemetery containing the remains of seven individuals, one of which was contained within a vessel, probably of middle Bronze Age date (Brown 2007). A nearby cluster of pits produced early Bronze Age pottery and a continuous ring ditch close to the cemetery was interpreted as a possible barrow, although this is undated.

Within the broader landscape, the site lies *c* 2.5km to the west of the Neolithic causewayed enclosure at Briar Hill, which was a major focus for ritual and funerary activity in this stretch of the Nene valley from the Neolithic to the middle Bronze Age periods. A small, unenclosed cemetery dated to the middle Bronze Age and containing the remains of at least 22 individuals, was excavated at Briar Hill in the 1970s.

The field boundary ditch recorded during topsoil stripping of the western spur, which was still visible as a surface feature, ran parallel to existing field boundaries, and is therefore probably post-medieval or modern in date.

Two ditches and a series of parallel gullies, together with a scatter of postholes, were revealed during the stripping of the eastern spur. One of the ditches ran parallel to an existing boundary and is probably post-medieval or modern in date. The other is undated. Similarly, the gullies are undated, but are probably the vestiges of a post-medieval water-meadow management system, their alignment suggesting drainage into a ditch at the south end of the stripped area.

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APPENDIX

Cremated human bone by Sarah Inskip

Introduction

This report presents the results of macroscopic osteological assessment of 2.3kg cremated bone found within an inverted Bronze Age collared urn. The bone was removed in five spits of around 30mm thick over a total depth of 180mm. The uppermost spit contained loose bone, while the rest of the deposit was contained in a sandy loam. The largest bone fragments were found near the base of the urn and fragment size decreased toward the top. A mixture of skeletal elements was found throughout the spits.

Osteological methodology

There are many obstacles to the study of cremated bone. During the cremation process, heat causes bone to fragment and warp complicating osteological analysis. Loss or selective deposition of the cremated material may be commonplace, and it is not unusual to have multiple or partial individuals. However it is still possible to glean a substantial quantity of information from cremated bone.

Data was collected following the Institute of Field Archaeology's 'The Guidelines to the Standards for Recording Human Remains' (Brickley and McKinley 2004) and English Heritage's 'Human bones from Archaeological Sites: Guidelines for Producing Assessment Documents and Analytical Reports' (Mays, Brickley and Dodwell 2004). Tooth roots were identified using Hillson (2002) and dental age was estimated using Ubelaker (1989) development. Lovejoy et al (1985) was used for the estimation of auricular surface age. Epiphyseal closure ages were taken from the relevant pages in Scheuer and Black (2000).

The material was received washed and dried. A few fragments of extraneous material were bagged separately. The total weight of each spit was recorded to the nearest 1g. The material was then sieved using 10mm, 5mm, 2mm and 1mm sieves and each fraction weighed. The material was sorted into element groups (skull, upper limbs, lower limbs, vertebrae, ribs, pelvis, hands and feet).

To assess for variation in pyre conditions, the colour of each elemental group was recorded. The largest fragment in each spit was measured to the nearest 0.1mm. Identifiable bone fragments were noted and were assessed for information regarding number of individuals, side, age, sex, pathology and non-metric traits.

Fragmentation

The total weight of the cremated deposit was 2.317 kg and little, if any, material had been lost as the urn was recovered with limited damage.

There was a large variation in bone fragment size; the largest was a tibia fragment measuring 62.2mm x 40.2mm, the smallest originated from the residue and was less than 1mm x 1mm. Table 3 displays the level of bone fragmentation as sorted by sieve fraction. A large quantity of fragments was retained in the 10mm sieve and due to their size, 90% of this material was identifiable to at least element type. The majority of bone (82%) was in the 10mm and 5mm sieve fraction, 48% and 34% respectively. Generally, the smaller the fragments, the harder it was to identify them and, as a result, spit fractions that contained smaller than average fragments, had fewer

identifiable pieces.

Table 3: Fragmentation levels for the cremated deposits in grams (g)

Spit number/ origin	Total weight (g)	Weight 10 mm	Weight 5 mm	Weight 2 mm	Weight 1 mm	Weight <1 mm	Maximum fragment size	Other
Base A	104	79	22	1	<1	<1	(skull) 50 x 35mm	Stone 2g
Level A-B	310	247	54	6	<1	3	(tibia) 64.5 x 26mm	
Level B-C	606	348	209	31	3	15	62.2 x 40.2mm	
Level C-D	416	186	170	40	6	14	45.8 x 18.5mm	
Level D-Natural	687	201	293	136	28	29	53 x 13mm	Animal bone (7g)
Natural	5	0	<1	4	<1	<1	12.2 x 8.4mm	
3	177	<1	50	102	6	16	17.2 x 11.2mm	
River cut	12	9	2	1	0	0	(Skull) 28.5 x 28.1mm	
Total	**2317**							

Skeletal elements

Tables 4 and 5 present the weights of each skeletal element group. 'Upper limb' refers to humerus, ulna, radius, scapula and clavicle and 'Lower limb' refers to femur, tibia and fibula. Unfortunately it was not always possible to distinguish the origin of some long bones thus a group of unidentified long bones was created.

Table 4: Weights of the identified skeletal elements in grams (g)

Bag number	Total weight	Unknown	Skull	Vertebrae	Ribs
Natural	5	3	>1	0	0
Base to A	102	26	16	21	5
A-B	301	36	68	35	4
B-C	606	205	89	51	12
C-D	418	121	71	30	17
D-Natural	687	320	81	64	14
Natural	5	3	<1	0	0
River cut	12	<1	6	1	<1
Fine residue	406	405	<1	0	0
3	177	164	4	1	0

Table 5: Weights of the identified skeletal elements in grams (g)

Bag number	Upper limb	Lower limb	Unidentified long bone	Pelvis	Hands and feet
Natural	0	0	1	0	0
Base to A	0	21	0	11	2
A-B	34	85	17	12	10
B-C	40	115	50	30	14
C-D	21	31	91	19	16
D-Natural	20	53	108	0	20
Natural	0	0	1	0	0
River cut	0	0	2	<1	0
Fine residue	0	0	0	0	0
3	0	0	5	0	3

Every long bone in the human skeleton is represented in the cremated deposit. Furthermore, the small bones of the hand and foot were recovered including three sesamoid bones and many distal phalanges. All the major bones of the skull are represented as well as a large number of each of the four types of vertebrae. The cremated deposit was checked for the presence of more than one individual but no repeated, sided fragments were found. The identifiable elements are listed below.

Skull: occipital, occipital condyles (left (L) and right(R)) L temporal, R temporal, sphenoid, R zygomatic, frontal, parietals, maxilla (alveolus) mandible and the R mandible condyle.
Vertebrae: Atlas (facets and neural arch), axis (facets, body and dens), at least 4 cervical, 10 thoracic, 5 lumbar and 3 sacral (taken on a count of left and right superior apophyseal facets)

Long bones: femoral head fragments, femoral condyle fragments, femoral shaft with linea aspera, interosseous crest (tibia), R tibia (nutrient foramen), L tibia (nutrient foramen), proximal tibia joint surface, proximal humeral head fragments, 2 x radial head, olecranon, R brachii muscle attachment on ulna and R clavicle. Identifiable shaft fragments of humerus, ulna, radius, femur, tibia and fibula present.

Hand: R and L hamate, L and R trapezium, scaphoid, L triquetral, at least 1 metacarpal shaft, R metacarpal 3, at least 4 proximal phalanges, at least 1 medial phalange and 4 distal hand phalanges.

Foot: 2 x Navicular, 2nd cuneiform, 3rd cuneiform, L 3rd cuneiform, talus fragments, r talus, calcaneous fragments, 7 x metatarsal, 2 x proximal phalanges, 1 x intermediate phalange and 3 x sesamoids.

Pelvis: Fragments of the auricular surface, R Sciatic notch/ilium, L and R Ischium, Iliac crest (fused), other fragments of ilium L and R.

Teeth: upper premolar 1, 2 x lower incisor, 51 substantial tooth roots (not including very small root fragments).

Other: First rib shaft fragment, multiple fragments of ribs L and R, 1x patella.

Fifty four substantial fragments of tooth roots were identified and extracted, some of which could be identified to tooth type. Specifically, there was an upper 1st premolar and two lower incisors. Roots of molars, premolars and canines were also present in the deposit. Although many root ends were broken, all unbroken roots are complete. No deciduous teeth or roots were identified. The root dentin is white/grey on the outer surface and grey within the pulp cavity.
Studies of modern cremations have demonstrated that bone weight for an adult falls between 1000g and 3600g (McKinley 2000, 404). Taking this data into account, the cremation easily falls into the average range for an adult. Additionally, nearly every part of the skeleton is represented indicating that the whole body was placed into the urn.
A few fragments of animal bone appeared to be present in spit D – natural. It is possible that other fragments of animal bone may remain unidentified in other spits. The size of the bone suggests medium to large size mammals. The fragments were white and grey.

Demographic attributes
As a high quantity of remains was recovered from the urn, caution was exerted over the identification of multiple individuals. It is required to assess for multiples of

bones and, more specifically certain landmarks and side. Although it is not completely impossible to rule out the possibility of a second individual, there were no cases of a repeated section of bone and it appears that this cremation consists of one very complete adult skeleton.

Age

The highly destructive nature of cremation means estimation of age from cremated deposits can be complex, but not impossible. A large number of ageing methods exist, and can be used to make a rough estimate of the individual's age at death. Due to the high level of bone fragmentation, usual age indicators, such pubic symphysis and dental wear could not be utilised. However, the process of epiphyseal fusion, auricular surface age estimation, cranial suture closure and dental development provided some indication of age, albeit a very wide estimate.

Epiphyseal fusion

All identifiable epiphyses where fused, and no unfused material was identified. 5 fused proximal hand phalanges suggest an age of at least 14 years if female and 16 years if male (Scheuer and Black 2000). All epiphyses of the vertebrae are fused suggesting an age of 25+. The ischial and iliac crest epiphyses were completed and fused indicating a minimum age of 20 -23 years.

Dental ageing

A total of 54 substantial root fragments were recovered. Complete roots of two lower incisors, an upper premolar and a number of molars indicate a minimum age of approximately 15 years (Ubelaker 1989). There were other tooth roots, which are permanent, but it was difficult to ascertain which teeth they derived from.

Auricular surface

A number of auricular surface fragments were found. Although it is not possible to place the auricular surface in a specific age category, rough age estimation can be made. A young auricular surface is characterised by a billowing and lack of porosity. In this case, no billowing was observed but some striae and microporosity are present. This places the auricular surface at phase 4 or beyond and indicates that the individual was at least a middle adult.

Cranial sutures

Cranial suture age could be assessed at two sites of the skull following Buikstra and Ubelaker (1994); the anterior sagittal suture (score 1) and the midlamboid suture (score 2). Absence of a large number of vault sites means age estimation from this method is very tentative but according to Buikstra and Ubelaker (1994) this places the individual at a minimum of 21+ years.

The osteological evidence suggests that the individual in the urn is adult, furthermore, the auricular surface indicates that the individual is a middle adult onwards. This is further reinforced by the presence of age related pathology (described in a following section).

Sex

A sciatic notch was identified within the deposit and scored as possible female. The supraorbital margins are scored as ambiguous and possible male. No other indicators of sex were available and therefore, no sex has been ascribed to the cremated deposit

Pathology

Fragmentation and alterations to bone chemistry during the cremation process makes it very difficult to identify pathological changes, however in this case some

pathological modifications of the spine and a fibula shaft could be identified.

The individual had changes in the spine that are consistent with osteoarthritis. Marginal osteophytes were located on the lumbar and thoracic bodies and were of the grades 1 – 2 as described by Sager (1969). In addition, apophyseal facet remodelling was identified and scored as grade 1 (Sofaer-Derevenski 2000). Although these changes are related to the ageing process, they can also be activity related. It would be impossible to assess such aetiologies from just one individual from a population.

Degeneration and pitting around the anterior vertebral body surface was identified on at least one thoracic and one lumbar vertebrae. In particular, the thoracic vertebra shows evidence of wedging at its anterior posterior surface. It is difficult to comment on the cause of the modification due to the incompleteness of the vertebra. It could either be the result of a direct fracture or part of the ageing process.

A fibula shaft fragment had a layer of new bone growth, which appeared to be periostitis. A few unidentifiable long bones also had a similar layer of new bone. A localised infection or a disease may be responsible, but fragmentation means interpretation is highly speculative.

Non-metric traits

A few non-metric traits were observed and scored according to Buikstra and Ubelaker (1994). See Table 6 below.

Table 6. Non-metric traits

	Score		Other comments
Non metric trait	Left	Right	
Divided hypoglossal canal	0 (undivided)	0 (undivided)	L is an incomplete divide
Supraorbital structure	Notch		
Zygomatic facial foramen		6 (multiple small)	
Atlas bridging: Transverse Posterior	 None None		
Atlas facet form	single	single	

Efficiency of the cremation

Cremation dehydrates and oxidises the organic portion of bone, and this includes 30% of the organic skeleton (McKinley 2000). The macroscopic colour of cremated bone reflects the level of oxidation and may be an indicator of pyre conditions including temperature. The colours change from unburnt, charring/black (<300°C) to blue-grey, grey (<600°C) and fully oxidised white (>600°C) (Brickley and McKinley 2004).

The vast majority (>95%) of the bone that was analysed was white/cream and fully oxidised, suggesting pyre temperatures 600°C and above (McKinley 2004). There were few fragments of black and grey bone. Some skull fragments were white endocranially and grey ectocranially, particularly the temporal bones as they have very dense areas of bone around petrous pyramid. The long bone fragments were white on the external surface and in the medullary cavity. There were no significant colour differences between the elemental groups and uniformity in bone fragment colour suggests that the high temperature of the pyre was consistent around the body.

Dehydration during cremation causes shrinkage, warping and fissuring of the bone. This was evident in the cremated deposit with characteristic U-shaped splintering of long bones and separation of the vertebral body from the lamina and neural arch.

Conclusions

The cremated deposit is typical of the Bronze Age period. Identification of skeletal elements, siding and quantification indicates that only a single individual is present, despite the high quantity of remains. The representation of skeletal elements was exceptional with even the smallest bones of the hands and feet being identified. This suggests that the entire body was placed within the urn after cremation.

A high degree of oxidation is suggested by the colour of the bones, mostly white and grey. The pyre temperature indicated by these colours is around or in excess of 600°C. The distribution of colour seems to be fairly uniform with even the foot and hand elements being white.

The deposit of identifiable human remains can only be aged as middle adult using tooth root development, epiphyseal fusion and a tentative estimate from a fragmented auricular surface. It was not possible to be any more accurate than this because of the level of fragmentation and the nature of cremation.

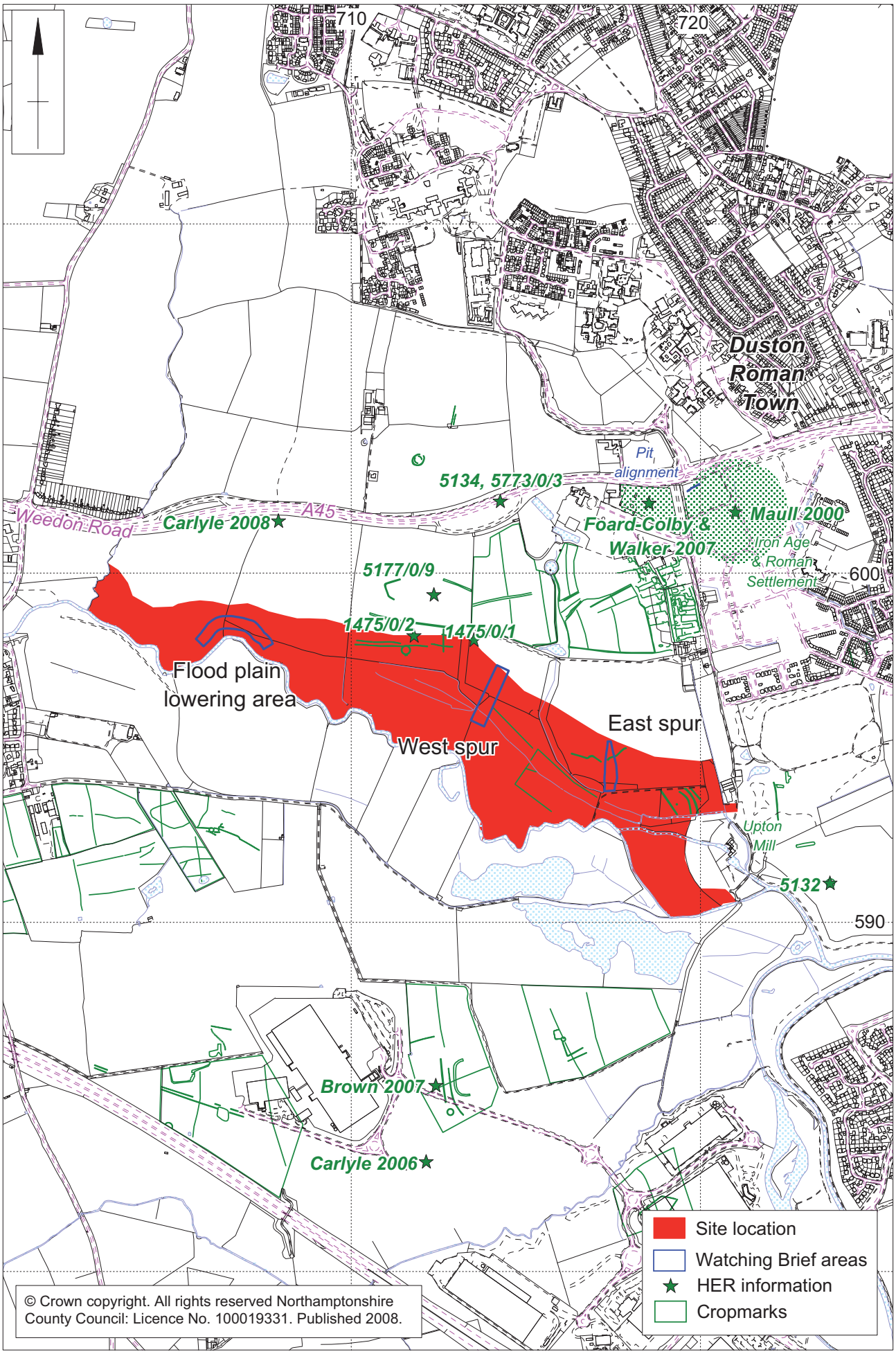
Osteoarthritis, in the form of osteophytosis and apophyseal facet remodelling may indicate that the individual again is a more mature adult.

Acknowledgements

Dr Sonia Zakrzewski is thanked for her thoughts and opinions in the identification of small fragments.

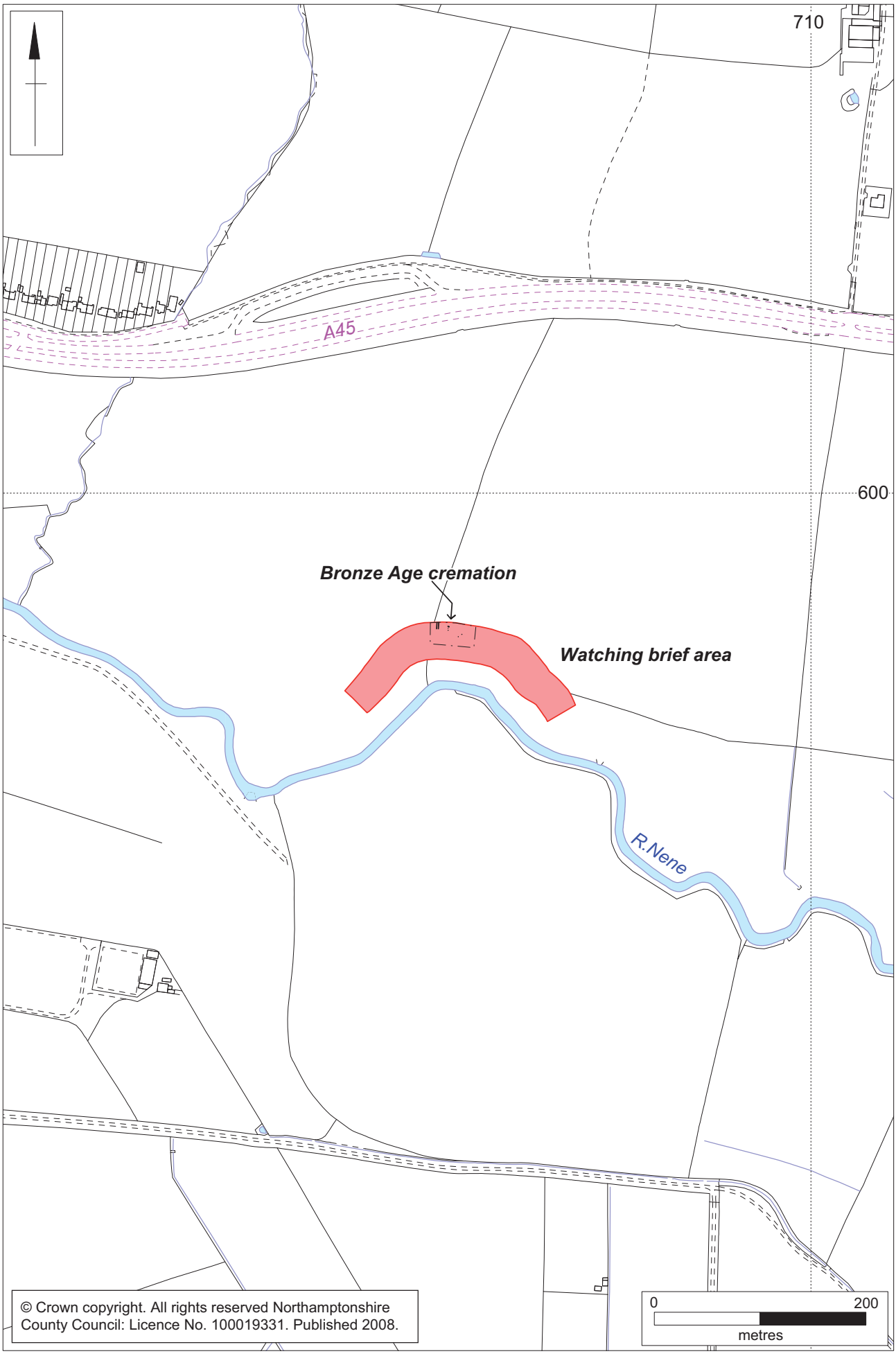
Scale 1:20,000

Site location Fig 1

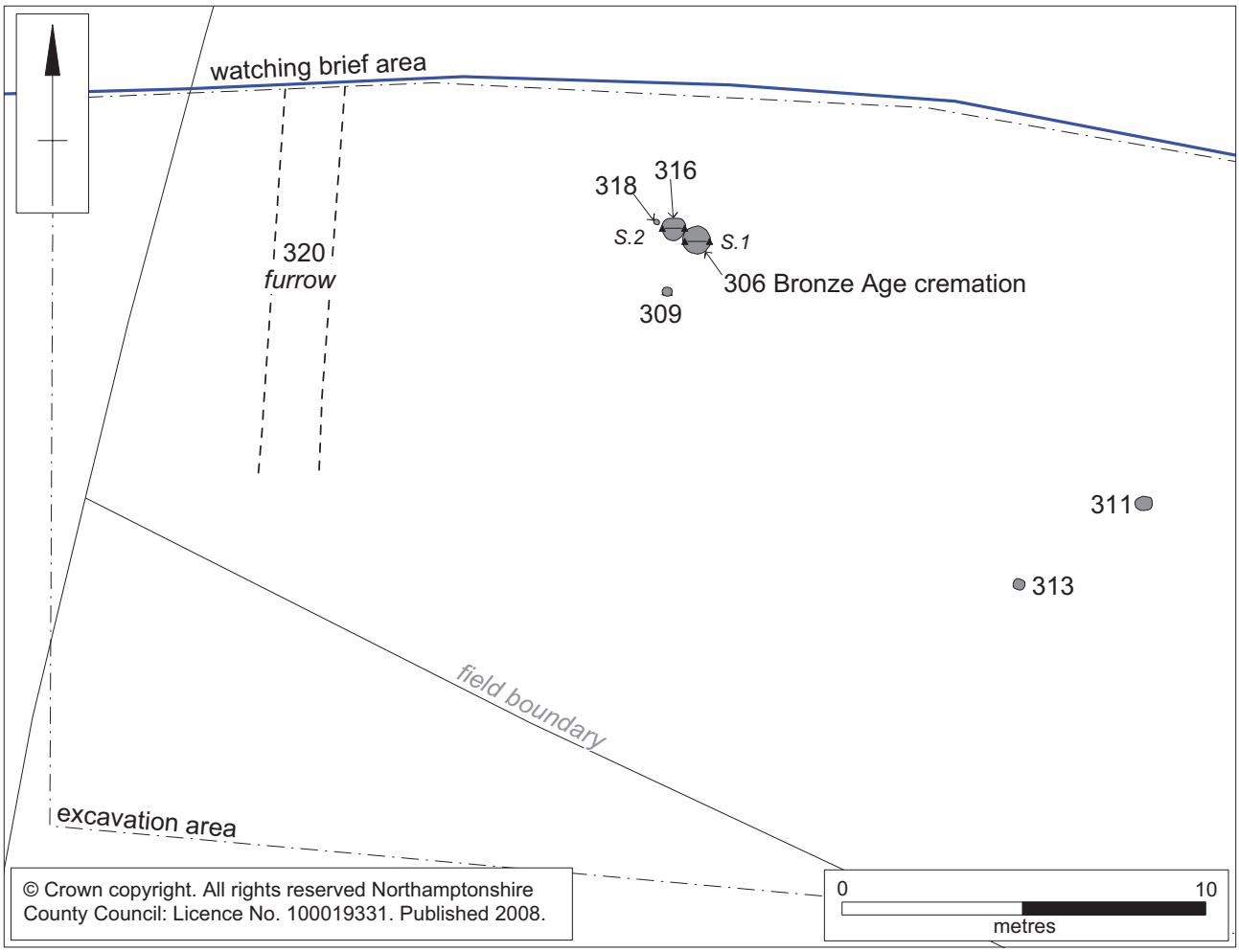


Scale 1:15,000

Historic Environment Record (HER) sites Fig 2

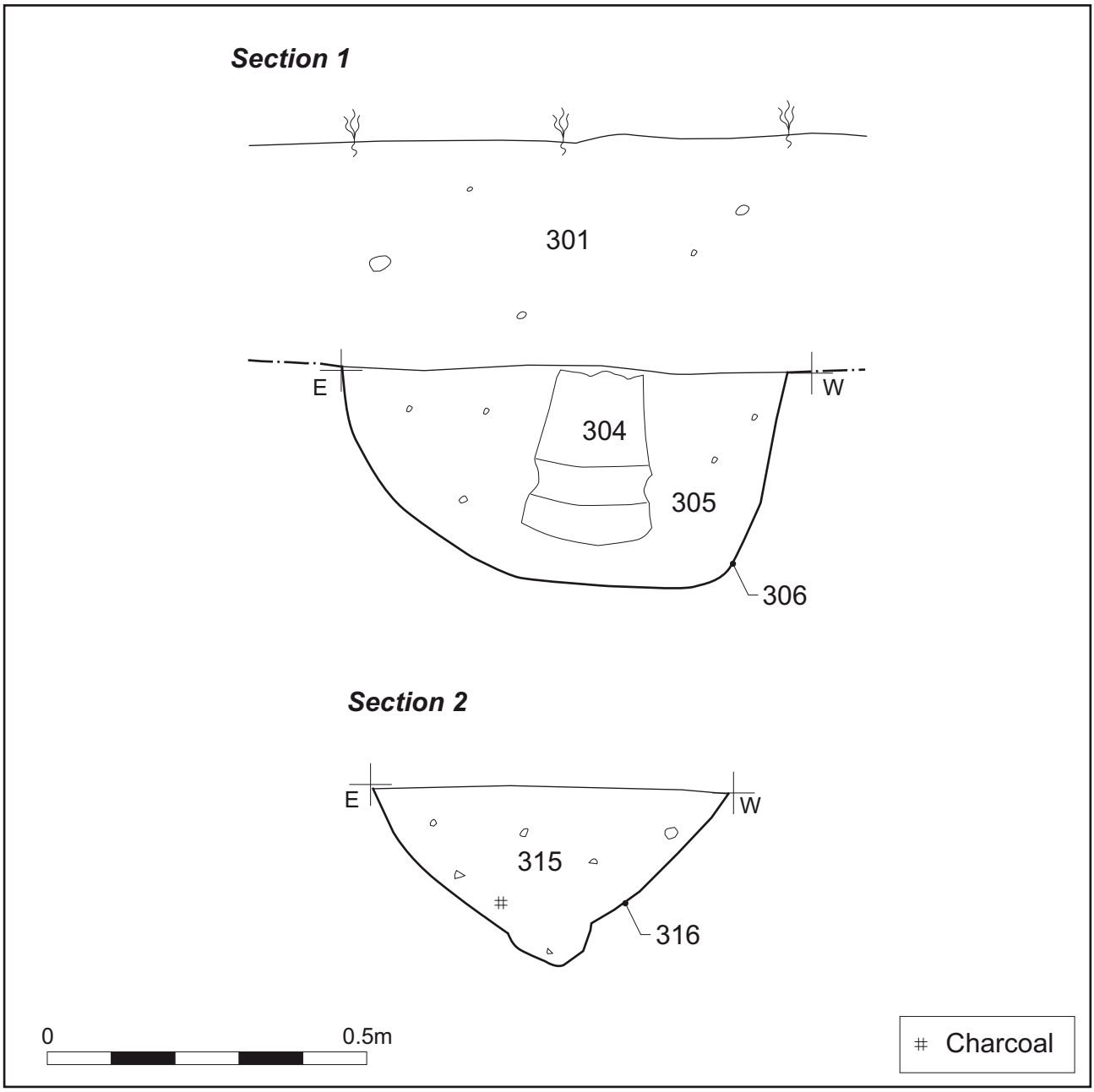


Location of western area (flood plain lowering area) Fig 3

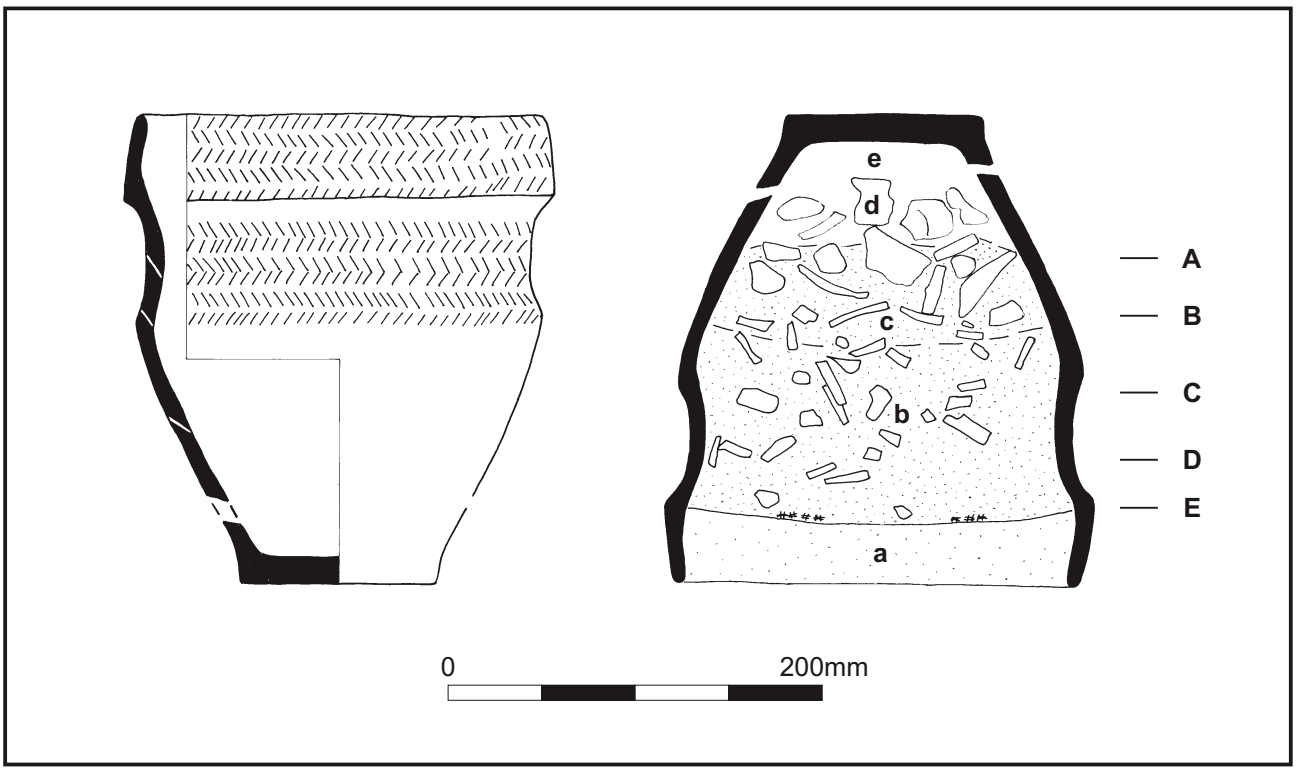


Scale 1:200

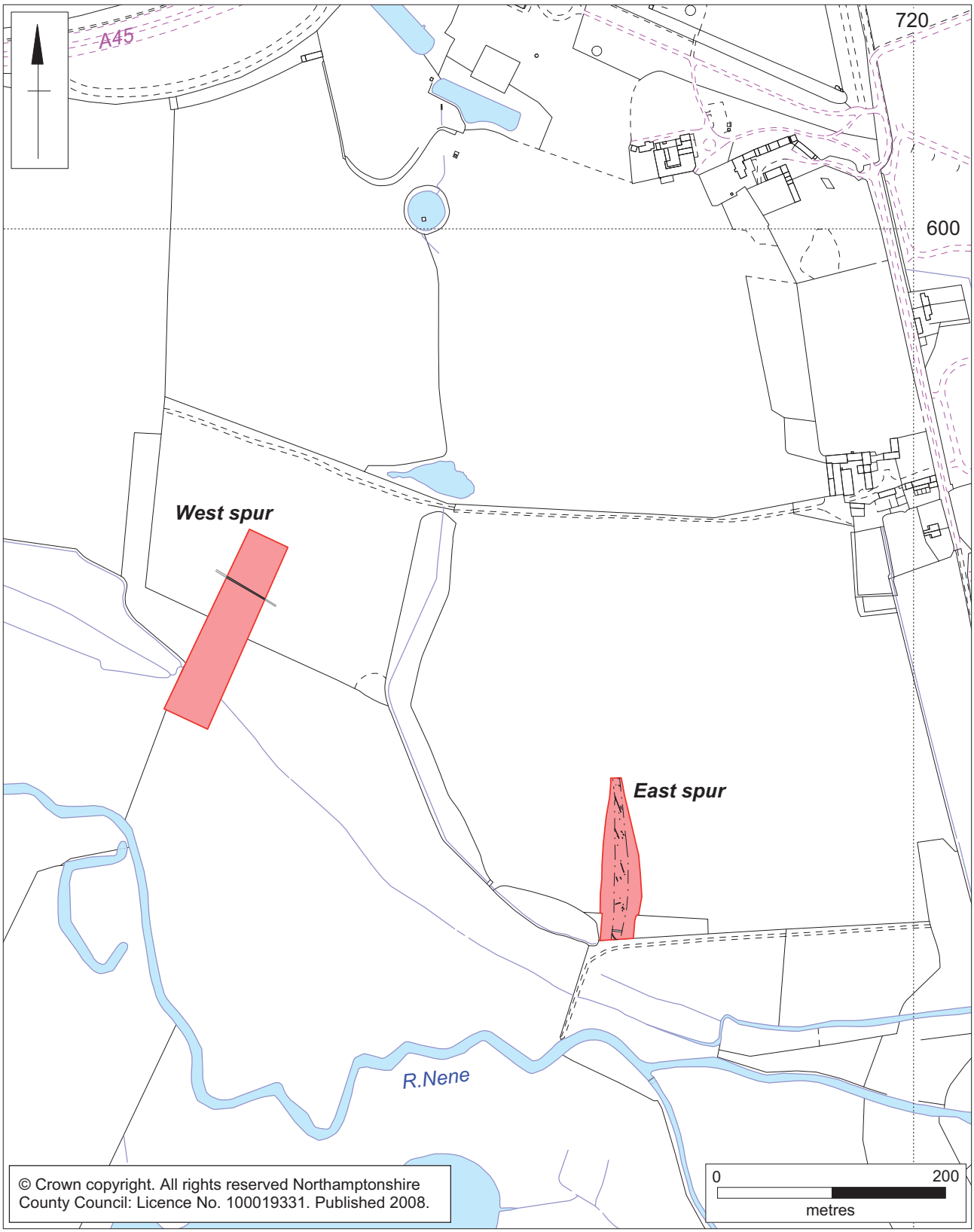
Flood plain lowering area, plan of features Fig 4



Pit [306] containing urn 304 and pit/posthole [316] Fig 5



The Collared Urn (304) and section showing contents of urn Fig 6

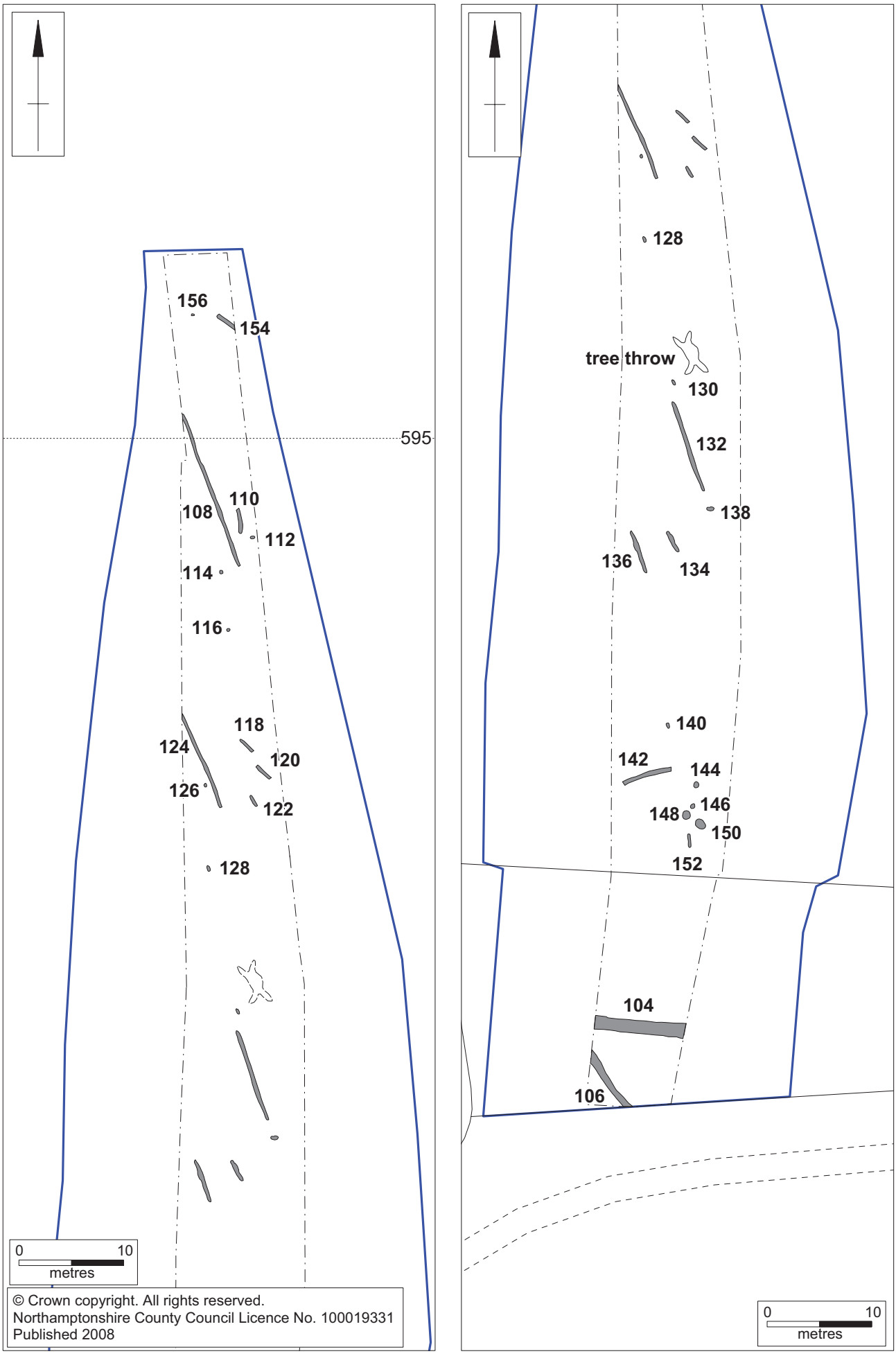


Scale 1:5000

Location of eastern areas Fig 7

Scale 1:500

West spur, plan of ditch [204] Fig 8



Scale 1:500

East spur, plan of features Fig 9

Plate 1: Inverted cremation urn (304) exposed in ground

Plate 2: Pit [306] after removal of urn and posthole [316], looking south

Plate 3: The Collared Urn, showing the incised herringbone decoration on the collar and neck

Plate 4: The Collared Urn, showing the decoration on the collar and the transition from five rows of herringbone (left) to four (right)

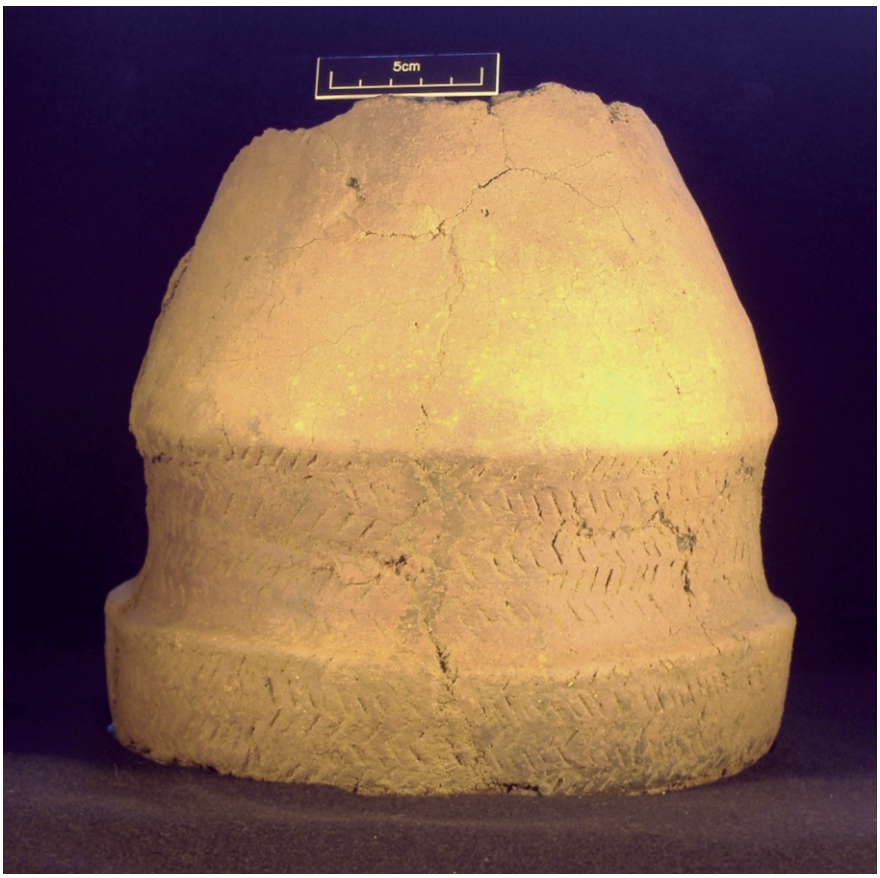


Plate 5: The Collared Urn, after initial cleaning and before excavation of contents

Plate 6: The Collared Urn after excavation and final cleaning

Plate 7: The bone and soil deposit in section

Plate 8: The loose bone in the base of the inverted urn

Plate 9: The bone deposit, level A, lying beneath the loose bone