

Land off Hardwick Roundabout, King's Lynn, Norfolk

An Archaeological Evaluation



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CAMBRIDGE ARCHAEOLOGICAL UNIT
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**and
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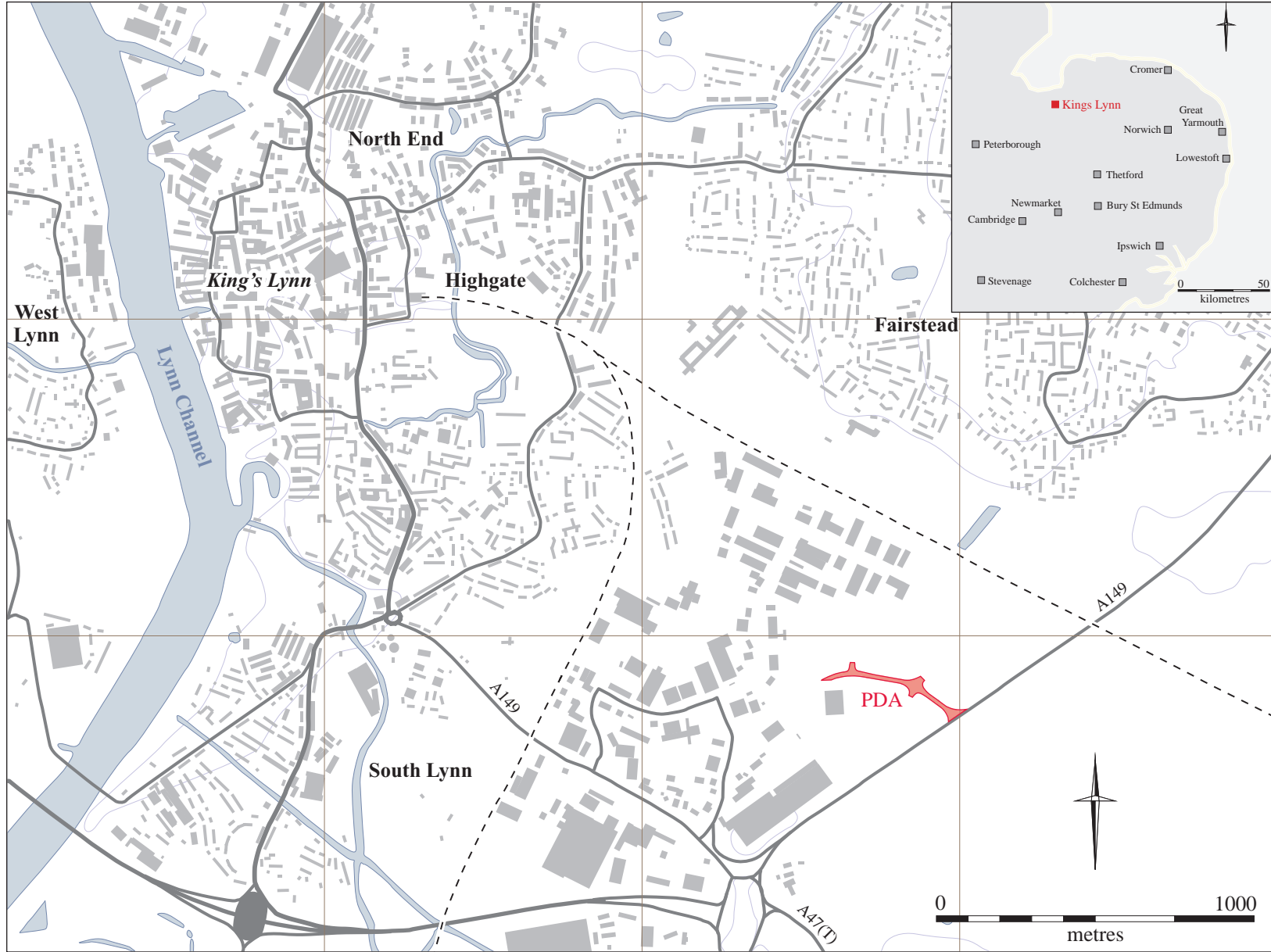
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The proposed road route on land off Hardwick roundabout, King's Lynn has been thoroughly archaeologically investigated. One area of archaeological activity was identified on the higher ground, on the western arm of the proposed road within a landscape of deeper fen deposits. Although the archaeology was limited in density, it was comparatively unusual, well preserved and dates to the Middle Iron Age. However, the archaeology identified within the proposed road route is not indicative of anything of international or national importance, but of regional and local importance. The character of the archaeology does not suggest that it should be categorically preserved in situ and preclude the proposed road development. The archaeology is comparable to other archaeological sites in the region that have been preserved by record (excavation) in recent years; a programme of excavation is recommended to mitigate the impact on the archaeology of the proposed road development.

561000/321000



565000/318000

Figure 1. Location map

Between 26th – 30th January 2009, a team from Cambridge Archaeological Unit undertook an evaluation by trial trenching and test pitting on 0.8 ha of land approximately 2km southeast of Kings Lynn centre, Norfolk on land off Hardwick roundabout, centred at TF 6360 1880. The evaluation was designed to investigate the presence/ absence, extent, date, state of preservation and significance of any subsoil features or archaeological deposits. The evaluation was commissioned by Morston Muckworks Ltd in advance of a proposed road route. Evidence for prehistoric activity was identified within two trenches in the form of a pit and Late Iron Age upright post alignment.

Introduction

A team from Cambridge Archaeological Unit undertook an evaluation by trial trenching and test pitting between 26th – 30th January 2009.

Topography and Geology

The proposed development area (PDA) lies to the southeast of Kings Lynn, Norfolk, centred at TF 6360 1880 and covers 0.8 ha of land (figure 1). The site slopes gradually from a terrace in the northwest c. 3.21m OD to c. 1.5m OD in the southeast. The underlying geology is comprised of Kimmerage clay overlain by drift. The site is bounded to the southeast by the A149 (Queen Elizabeth Way), to the west by Hardwick Industrial Estate, and to the immediate east and north by Middleton Sto Drain. The site is currently being used for arable cultivation.

Archaeological Background

The known and expected archaeology within the PDA has been discussed within Appleby, G. 2008. *Land off Hardwick Roundabout, Kings Lynn, Norfolk; An Archaeological Desk Top Assessment* (Cambridge Archaeological Unit Report 856), and is consequently only briefly summarised in this report.

Evidence from archival, aerial and cartographic sources demonstrated a strong potential for Neolithic/ Bronze Age and Roman activity along the ancient water courses and areas of slightly higher ground, evidence of Medieval agricultural activity was also likely to be exposed. The proposed road route is located in an area of known archaeology with an overall potential for evidence dating from the Palaeolithic through to the present day.

In particular, Palaeolithic, Mesolithic and Neolithic tools and flint scatters attest to occupation and utilisation of the landscape. The fieldwork programme at Fairstead, immediately northeast of the site (Beadsmoore 2005) revealed Late Neolithic, Bronze Age and Iron Age activity including a burnt mound, pits, and discrete features.

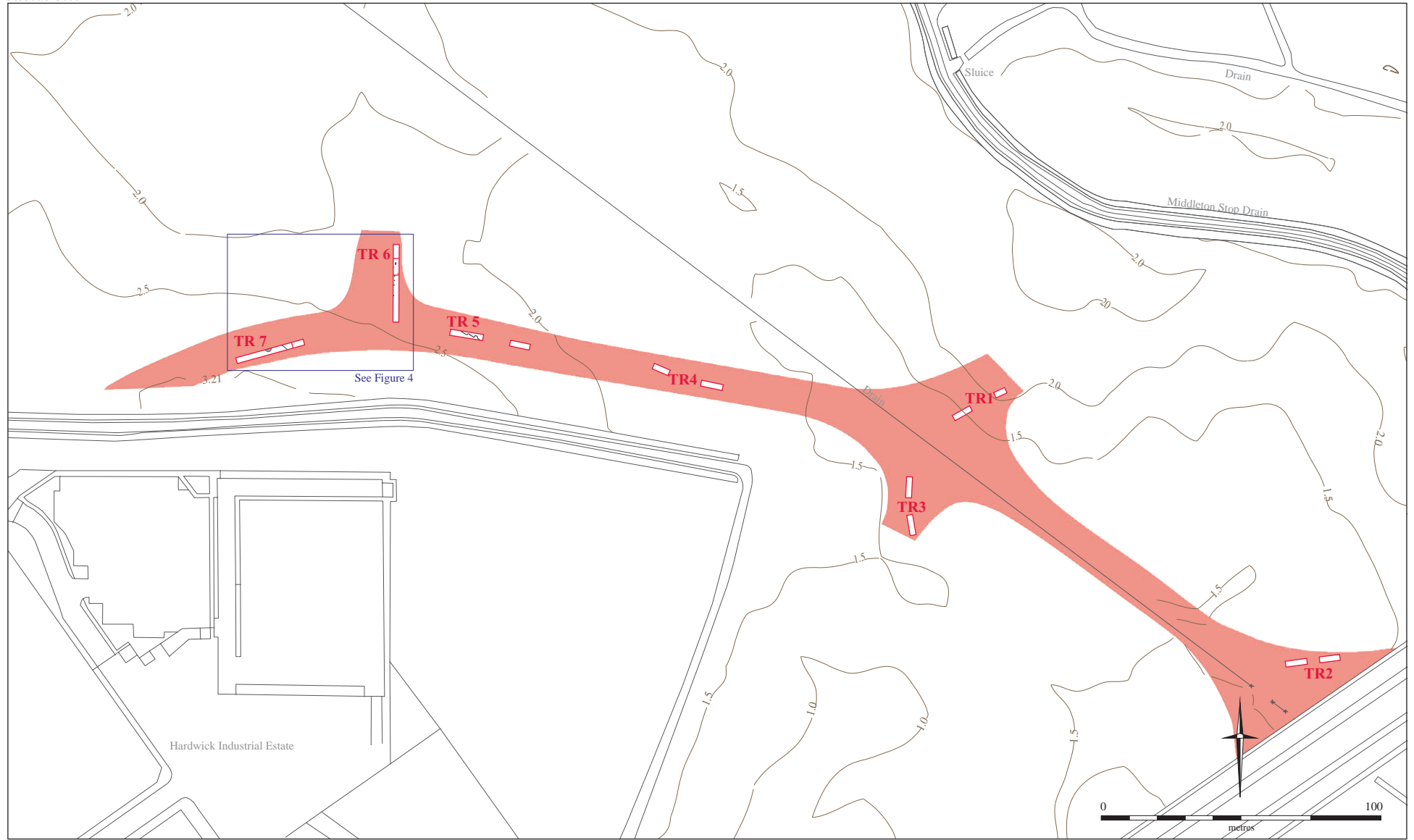


Figure 2. Trench location plan

Methodology

Trial Trenching

The location of the trenches was designed to follow the route of the proposed road, a programme of 175m of 2.2m wide evaluation trenches provided a 4.8% sample of the 0.8ha area of the PDA (figure 2). No judgemental trenching was machined.

Topsoil and deposits overlying the archaeology were machined under archaeological supervision and scanned by eye and with a metal detector. Peat and 'buried soil' deposits were completely removed in trenches where it was identified. Several of the trenches within the southeast of the site were considered too deep to open, therefore for health and safety reasons test pits were machined at either end of the trenches which were recorded and immediately backfilled.

All of the archaeological features were planned immediately and subsequently sampled. A minimum of 50% of each discrete feature was excavated. Excavation was carried out by hand and all finds were retained. The recording followed a CAU modified MoLAS system (Spence 1990); assigning context numbers (e.g. [fill], [cut]) to stratigraphic units and feature numbers, F., to interrelated stratigraphic units (e.g. a ditch's cut and fills). Base plans were drawn at 1:50, sections at 1:10. The photographic archive comprises colour and black and white slides as well as digital images. A representative range of deposits were bulk environmental sampled. All work was carried out in strict accordance with statutory Health and Safety legislation, within CAU risk assessment, and with the recommendations of SCAUM (Allen and Holt 2002).

The artefacts and accompanying documentary records have been compiled into a stable indexed archive. This is currently stored at CAU under the project code NHER 52618. Within the text, the reference to a feature number is marked in bold (e.g. **F.01**) and context numbers in square brackets (e.g. [01]).

Artefact Survey

An artefact survey was carried out to determine densities of archaeological material in the peat, buried soil and topsoil to identify potential 'hotspots' of past activity. At either end of each trench six buckets (90 litres) of soil, were hand sorted for artefacts, which were retained.

Results

Artefact Survey

The artefact survey yielded no artefacts from any of the trenches. Two artefacts were however found as surface finds within the wider vicinity of the proposed road route: a sherd of post-Medieval tile and an undiagnostic flint. These surface finds indicate a low density background presence of post-Medieval and prehistoric material in the top soil.

Trial Trenching

No evidence for archaeological activity was identified within Trenches 1 through to 5, however Trenches 6 and 7 exposed a pit (**F.01**) and an alignment of prehistoric upright wooden posts (**F.02**), (wood numbers **01, 02, 03, 04 & 05**). Both features were situated on the slightly higher ground of the gravel terrace, away from the deeper fen deposits identified within the test pitted trenches.

The test pit trenches in the south-eastern and central areas of the PDA, (Trenches 1, 2, 3 and 4), revealed a series of three main peat deposits overlain by marine clays which were more than 3.2m deep. The lowest deposit of peat was a red woody peat, which was overlain by a brown reed peat, then a firm black peat, which in turn was overlain by two merging layers of marine clay. The marine clay was characterised by the high quantity of shell inclusions within and was distinctively different to the overlying generic alluvial deposit which spread over the majority of the site. Figure 3 below shows a schematic section of the deepest deposit sequence identified within the PDA.

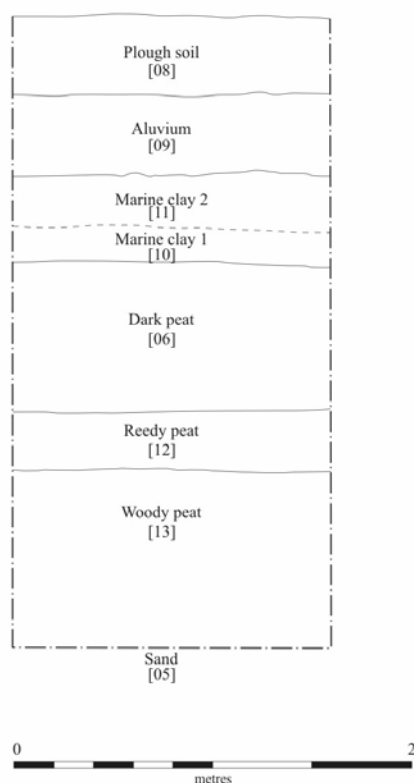


Figure 3: Schematic Section of Deposits

These layers of peat and clay (described below) appear to coincide with the height (OD) contours of the PDA. As the trenches came up out of the fen onto the terrace the deposits disappear from the lower deposits upwards, starting at the lowest point in the southeast at -1.7m OD in Trenches 1 & 2 and heading towards the highest in the west at 2.1m OD in Trench 7. The woody peat [13] was not present in the western half of Trench 4, the reedy peat [12] had faded out before Trench 5, the dark peat [06] is last seen in Trench 6 and both marine clays [10] & [11] have faded out by the western end of Trench 7 (see summary in table 1, page 8).

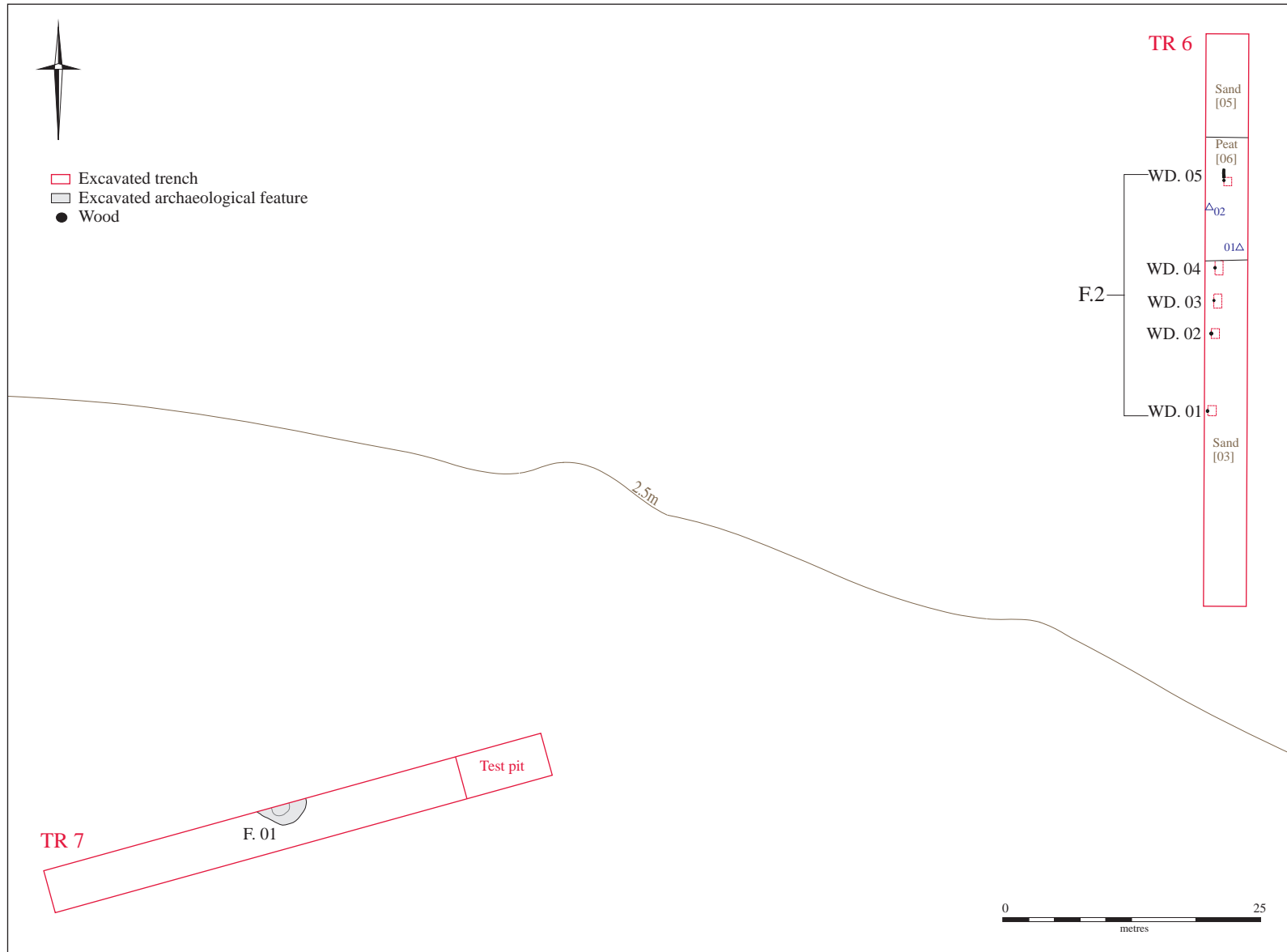


Figure 4. Trench plans for Trenches 6 and 7

- [08] Plough soil – moderately firm, mid brown, silty clay
- [09] Alluvial – stiff, mid orangey brown silty clay
- [11] Marine Clay 2 – stiff, mottled, light orangey brown clay, containing occasional shell
- [10] Marine Clay 1 – stiff, mottled pale bluish grey clay, containing occasional shell
- [06] Peat – firm, very dark blackish, reddish brown peat, containing frequent small black wood pieces
- [12] Peat – firm, mixed dark brown and reddish peat, containing abundant reeds
- [13] Peat – firm, mid reddish brown peat, containing abundant large red wood pieces
- [01] Buried Soil – loose, light brownish grey sand with moderate small sub-angular stones
- [05] Sand – very soft, light grey sand, containing frequent small sub-angular and sub rounded natural black flints
- [14] Gravel – loose, light orangey grey gravel

Trench	N/S/E/W/ NE/SW end	Depth (m)	Evidence of Archaeology	Layers encountered											
				08	09	11	10	06	12	13	01	05	14		
1	NE	0.45	n	y	y									y	
1	SW	>2.0	n	y	y	y	y	y	y	y					
2	E	>2.6	n	y	y	y	y	y	y	y					
2	W	>2.4	n	y	y	y	y	y	y	y					
3	N	>2.5	n	y	y	y	y	y	y	y					
3	S	3.2	n	y	y	y	y	y	y	y				y	
4	E	>2.1	n	y	y	y	y	y	y	y	y				
4	W	>1.75	n	y	y	y	y	y	y	y					
5	E	1.3	n	y	y	y	y	y						y	
5	W	1.05	n	y	y	y	y					y		y	
6	N	1.56	Late Iron Age post alignment F.02	y	y	y	y	y						y	
6	S	0.97	Late Iron Age post alignment F.02	y	y	y	y	y							y
7	E	1.5	Undated Pit F.01	y	y	y	y						y		y
7	W	0.8	n	y	y								y		y

Table 1: Summary of Test pits

A potential rodden was identified in the north-eastern test pit of Trench 1 at a height of 1.5m OD, which was visible from the plough soil surface. A thin layer of buried soil, approximately 0.05m thick, was identified on the higher ground within Trenches 5 and 7. The buried soil follows the edge of the fen deposits which were visible in Trenches 5, 6 and 7 (figure 2). All archaeological evidence was confined to the higher ground of the gravel terrace within Trenches 6 and 7 in the area where the buried soil was also exposed.

Trench 6 – Post Alignment

Five wooden upright posts **F.02**, wood numbers **01, 02, 03, 04 & 05**, were identified in Trench 6. Dating analysis was undertaken on a sample of wood from post 02 which produced a radiocarbon date of Cal BC 390 to 170. The posts were found to be in a well preserved condition which was reflected by the presence of tool marks. The posts were made of unconverted oak timbers that were trimmed at the lower end to a tapered point from multiple directions by a broad and flat tool. The exception to this was post 04 which was radially half split oak. Post 02 was the best preserved and the



Post WD.02, F.02



Post WD.01, F.02

Figure 5. Photographs of wood alignment F.02

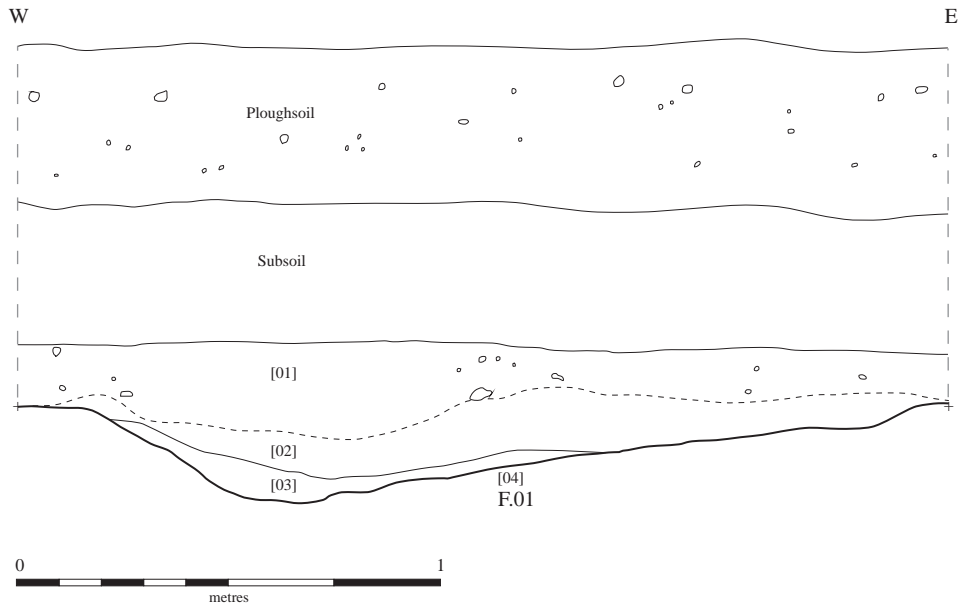


Figure 6. Section and photograph of Pit F.01, Trench 7

flat bladed tool marks on this and the others are consistent with the Middle to Late Iron Age date of the radiocarbon analysis (Bamforth see appendix). Bulk environmental analysis from deposit [06] revealed very scarce amounts of charcoal and no other botanical remains other than woody fragments typical of peat and a fluctuating water table.

The posts appear to have been placed through sand [05] at the southern end of the trench (on the higher ridge) and into the partially formed dark peat layer [06] at the northern end where the deposits became deeper (figure 5). The five posts form a straight line extending towards the deeper peat deposits of the fen, no posts were found beyond post number 05. A sheep/ goat 1st molar (small find 01) and an undiagnostic flint (small find 02) were also found within the peat layer [06]

Trench 7 – Undated Pit

A single undated sub-circular pit (**F.01**) was identified in trench 7 which had shallow concave sides and a gently concave base. The pit was 2m wide and 0.22m deep and was filled by the overlying buried soil which contained no artefacts (figure 6). As the pit was sealed by the buried soil it is likely to be prehistoric and potentially broadly contemporary with the posts. Bulk environmental analysis from the pit revealed low quantities of heavily fragmented charcoal, rare wild plant seed and one intrusive fat-hen seed, which shows no indication of the pits use.

Discussion

The evaluation trenches and test pits revealed a varied geology from higher ground through to deeper fen deposits, and defined the edge of the terrace at the western end of the site. The archaeology was focused on the higher ground of the gravel terrace with no archaeological evidence identified within the test pits in the eastern part of the PDA.

Both the pit and post alignment were situated on the gravel terrace which would have been a more habitable environment. The oak timbers were situated on the edge of the gravel terrace heading out towards the deeper deposits. The shaping of the lower ends of the posts from the post alignment is comparable to many similar items recorded from the Bronze Age and Iron Age, (Bamforth see Appendix), the posts are however smaller than those from other known structures of a similar date. The alignment of posts may form part of a route or jetty, which potentially extends further north or south outside the evaluation trench, with a possible row of posts to the east or west. However, the posts could also have formed a boundary or be associated with the setting of fish traps.

It is likely that the posts were established during the formation of the peat as the peat had only partially formed when the posts were driven in and continued to form after the insertion of the posts. This may have been a deliberate action to reclaim part of the landscape as the land was becoming wetter.

Conclusions

The programme of test pits and evaluation trenches has defined the limits of the peat and marine clay deposits and identified areas of archaeological activity on the higher ground away from the deeper fen deposits. The interpretation of the surrounding environment of the potential settlement area, (using bulk sample analysis), is limited due to the small area of excavation and minimal pollen recovered, however the condition of the timbers from the alignment demonstrates good preservation potential of organic material within the PDA.

Appendices

Flint – Emma Beadsmoore

Two (16g) chronologically non-diagnostic flints were recovered from the site; a core fragment and a tertiary flake.

Radiocarbon Dating Analysis

The Radiocarbon date was taken from a sample from post (02), which formed part of a timber alignment. Post (02) was a well preserved unconverted oak timber of which the lower end had been trimmed to a tapered point from all directions. The sample was taken from the upper exposed end of the timber.

	<i>Conventional Radiocarbon Age</i>	<i>2 Sigma Calibration (95% probability)</i>	<i>1 Sigma Calibration (68% probability)</i>
<u>Beta – 255942</u>	2220 +/- 50 BP	390-170 Cal BC	380-200 Cal BC

Table 2: Radiocarbon Analysis – Post-Alignment F.02, Post (02)

Assessment of Bulk Environmental Samples – Anne de Varielles

Methodology

Two bulk soil samples were chosen for analysis. They were processed using an Ankara-type flotation machine, using 300µm aperture meshes for collecting the flots and a 1mm mesh for the heavy residue. Sorting and identification of macro-remains from the flots were carried out under a low power binocular microscope in the George Pitt-Rivers laboratory, University of Cambridge. Nomenclature follows Stace (1997). All environmental remains are listed in table 3.

Preservation

Charring preserved all botanical remains in [3] F.1. The plant remains in [6], sample 3, include some charcoal but were otherwise waterlogged.

Results

Shallow pit

The pit, which was filled with buried soil, contained low quantities of heavily fragmented charcoal, three wild plant seeds and one intrusive fat-hen seed.

Peat layer contemporary to the oak posts – Mid - Late Iron Age

Charcoal was very scarce and no other charred botanical remains were found. Table 3 shows that, although the flot was relatively large, it contained few waterlogged wild plant seeds. The bulk of the flot was made up of woody fragments, more resilient to a fluctuating water-table.

Conclusion

The charred plant remains do not provide conclusive evidence for any permanence of human activity in the area. However, this may simply be a reflection of the size of the excavation area, and should not therefore, be taken as evidence against an Iron Age settlement. The poorly preserved waterlogged taxa indicate changes in water levels, either seasonally or more recently. A description of the local environment is not possible from such a small range of plants.

Recommendations

The sample from [6] highlights the potential for finding waterlogged remains and well preserved pollen sequences, which would add valuable information to the environmental study carried out at Fairstead, King Lynn, not 1km away.

Sample number		1	3
Context		3	6
Feature		1, Tr. 7	2, Tr. 6
Feature type		Pit	Post Alignment
Phase / Date		L.I.A?	L.I.A
Sample volume - litres		6	2
Flot volume - millilitres		9	200
Flot fraction examined -%		100	50
Charcoal >4mm		+	-
2-4mm		++	+
<2mm		+++	++
vitrified		-	
Wild Plant Seeds			
<i>Thalictrum flavum / minus</i>	Common/Lesser Meadow-rue		-
<i>Fumaria</i> sp.	Fumitory		-
<i>Chenopodium album</i>	Fat-hen	1M	
<i>Viola</i> sp.	Violets		+
<i>Rubus</i> cf. <i>idaeus</i>	Raspberry		+
<i>Rubus</i> sp.	Bramble		-
Indeterminate Apiaceae	Carrot family seeds		-
<i>Ajuga reptans</i>	Bugle		+
<i>Mentha</i> sp.	Mint		-
cf. <i>Plantago lanceolata</i>	possible Ribwort Plantain	1	
<i>Sambucus nigra</i>	Elder		+
<i>Alisma plantago-aquatica</i>	Water-plantain		-
lenticular <i>Carex</i> sp.	flat Sedge seed		-
Indeterminate wild plant seeds		2	-

Table 3: Environmental Remains from the Bulk Soil Samples

Key: '-' 1 or 2; '+' <10; '++' 10-50; '+++>50 items. M = modern intrusive

All the wild plant seeds in sample 3 were waterlogged

Waterlogged Wood Assessment Report

HARDWICK ROUNDABOUT KINGS LYNN

Client: Cambridge Archaeological Unit

Local Authority: Norfolk County Council

Author(s): M Bamforth

Doc Ref: LP0856L-WAR-v1.1

Date: March 09

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1. Introduction

- 1.1. This assessment report has been compiled by Michael Bamforth of L - P : Archaeology on behalf of Cambridge Archaeological Unit (CAU).
- 1.2. This document aims to assess the potential of the waterlogged wood assemblage in terms of woodworking technology, woodland reconstruction, decay analysis, species identification, dendrochronology and conservation and retention.
- 1.3. A total of eight discrete items were recorded. The material was recorded during a single visit to the offices of CAU on 18th March 2009.
- 1.4. Throughout this report, context numbers are referred to in square brackets, thus [00], and wood numbers are referred to in parentheses, thus (00).

2. Provenance

- 2.1. The material was recovered by CAU during an archaeological evaluation of land off Hardwick roundabout, Kings Lynn, Norfolk, during January 2009. The site code is NHER 52618.
- 2.2. The waterlogged wood was recovered from Trench 6. Five wooden posts were encountered, running in a straight line north–south along the axis of the trench. This line of posts was assigned the feature number F.02. Two pieces of bark and a single item of debris were recovered in association with the posts.
- 2.3. In the southern end of the trench, the posts were inserted through a higher ridge of sandy material (context [05]). In the northern, lower end of the trench, the posts were inserted into dark peat layer [06].
- 2.4. A sub-sample of Wood (02) was submitted for radiocarbon dating and returned a date of Cal BC 390 to 170 (2 sigma 95% probability: Beta-255942) indicating a Middle Iron Age date.

3. Methodology

- 3.1. This document has been produced in accordance with English Heritage guidelines for the treatment of waterlogged wood (BRUNNING 1996) and recommendations made by the SOCIETY OF MUSEUM ARCHAEOLOGISTS (1993) for the retention of waterlogged wood.
- 3.2. All discreetly numbered items and those displaying evidence of modification or woodland management were recorded individually using the L - P : Archaeology *pro forma* 'wood recording sheet' which is based on the sheet developed by Fenland Archaeological Trust for the post excavation recording of waterlogged wood. All records were then entered into a database.
- 3.3. Every effort was made to refit broken or fragmented items. However, due to the nature of the material, the possibility remains that some discreet yet broken items may have been processed as their constituent parts as opposed to as a whole.
- 3.4. The metric data were taken with hand tools including rulers and tapes, the toolmarks were measured using a profile gauge.
- 3.5. The system of categorisation and interrogation developed by TAYLOR (1998 & 2001) has been adopted within this report.
- 3.6. Items identifiable to species by morphological traits visible with a hand lens (oak - *Quercus* sp.) were noted. Other items were sub-sampled to allow later identification to genus via microscopic identification as necessary.

4. Condition of material

4.1. Where preservation varies within a discreet item, the section that is best preserved is considered when assigning the item a condition score. Items that were set vertically in the ground often display relatively better preservation lower down and a relatively poorer preservation higher up.

	MUSEUM CONSERVATION	TECHNOLOGY ANALYSIS	WOODLAND MANAGEMENT	DENDRO- CHRONOLOGY	SPECIES IDENTIFICATION
5	+	+	+	+	+
4	-	+	+	+	+
3	-	+/-	+	+	+
2	-	+/-	+/-	+/-	+
1	-	-	-	-	+/-
0	-	-	-	-	-

Table 1: Condition scale used in this report

4.2. The condition scale developed by the Humber Wetlands Project (VAN DE NOORT, ELLIS, TAYLOR & WEIR 1995 TABLE 15.1), will be used throughout this report (TABLE 1). The condition scale is based primarily on the clarity of surface data. Material is allocated a score dependent on the types of analysis that can be carried out, given the state of preservation. The condition score reflects the possibility of a given type of analysis but does not take in to account the suitability of the item for a given process.

4.3. The majority of the material scores a **4** (TABLE 2). This condition score reflects a well preserved assemblage. Technological analysis, an assessment of possible woodland management practices and species identification is possible throughout the assemblage.

CONDITION	FREQUENCY	% OF ASSEMBLAGE
0	0	0.0
1	0	0.0
2	0	0.0
3	2	25.0
4	5	62.5
5	1	12.5

Table 2: Condition score

5. Range and Variation

5.1. This assemblage contains a low range of material. The five driven posts of alignment F.02 are classed as timber. Three fragments of debris were also recovered.

5.2. TIMBER

5.2.1. **Wood (01) F.02** This unconverted oak timber has a slightly twisted grain, with sapwood and heartwood both present. The lower end has been trimmed to a point from all directions. A single side branch (diameter c. 5mm) has also been trimmed away. The tool facets are broad and flat. Two tool marks were recorded (TABLE 3). The top of the timber had degraded away, marking the preservation horizon for waterlogged wood. The worked, lower end of the timber is well preserved, scoring a **4** for condition (TABLE 1).

Length: 815mm Diameter: 120mm

5.2.2. **Wood (02) F.02** This unconverted oak timber has both sapwood and heartwood present. A single side branch (diameter. 30mm) is present. The lower end has been trimmed to a tapered point from all directions. The tool facets are flat, and tool signatures are present on many facets. Two tool marks were recorded (TABLE 3). The top of the timber had degraded away, marking the preservation horizon for waterlogged wood. The worked, lower end of the timber was very well preserved, scoring a **5** for condition (TABLE 1). The top of the timber has been sub-sampled for radiocarbon dating.

Length: 510mm Diameter: 105mm

5.2.3. **Wood (03) F.02** This unconverted timber was sub-sampled for species identification. Sapwood and heartwood are both present. The lower end has been trimmed from two directions. The top of the timber had degraded away, marking the preservation horizon for waterlogged wood and the item has fragmented. The worked, lower end of the timber is moderately preserved, scoring a **3** for condition (TABLE 1).

Length: 122mm Diameter: 61 x 49mm

5.2.4. **Wood (04) F.02** This radially half split, oak timber has both sapwood and

heartwood present. The lower end has been trimmed to a point from all directions. The tool facets are flat. One tool mark was recorded (TABLE 3). The top of the timber has degraded away, marking the preservation horizon for waterlogged wood. The worked, lower end of the timber was well preserved, scoring a **4** for condition (TABLE 1). The timber had been split from a log with a diameter of 110mm.

Length: 780mm Maximum breadth: 110mm Maximum thickness: 9mm

5.2.5. Wood (05) F.02 This unconverted oak timber has both sapwood and heartwood present. The lower end has been trimmed from three directions to a point. The top of the timber had degraded away, marking the preservation horizon for waterlogged wood. The heartwood has rotted out of the upper part of the timber, possibly in antiquity. The worked, lower end of the timber is well preserved, scoring a **4** for condition (TABLE 1).

Length: 445mm Diameter: 64 x 82mm

5.3.DEBRIS

5.3.1. A single piece of debris was recovered in association with wood (05). This item has been sub-sampled to allow species identification. The conversion of this small cube of material is unclassified. The item measures 50mm x 43mm x 40mm. This item is moderately preserved, scoring a **3** for condition (TABLE 1).

5.3.2. Two fragments of bark were also recovered in association with wood (05). these measured 100mm x 40mm x 15mm thick and 65mm x 29mm x 8mm thick. No woodworking evidence was noted. The bark fragments both scored a **4** for condition (TABLE 1)

5.3.3. These items do not appear to be associated with the upright posts, and may well represent naturally accumulated debris.

5.4.TOOLMARKS

5.4.1. A total of six toolmarks were recorded from the worked lower ends of four timbers (TABLE 3). The high incidence of recordable toolmarks can be seen as a proxy indicator of the good condition of the material.

5.4.2. Toolmarks are expressed in mm, with a measurement for the width (W) and the depth (D) provided thus W:D. The following equation is used to express D as a percentage of W, described as the curvature index (TAYLOR 2001):

- $$\text{Curvature index \%} = D / (W / 100)$$

TIMBER	TOOLMARK	CURVATURE INDEX %
(01)	37:4	10.81
(01)	39:4	10.25
(02)	36:2	5.55
(02)	42:2	4.76
(04)	34:3	8.82
(05)	30:0	0

Table 3. Toolmarks

5.4.3. The similarity of the curvature indexes of the two toolmarks recorded from Wood (01) suggests they were, unsurprisingly, both made by the same tool. Similarly, the two marks recorded from Wood (02) also seem to have been made with the same tool. The curvature indexes point to the presence of four different tools, one for each of the timbers from which toolmarks were recorded.

5.4.4. The relatively broad, flat bladed tools described by the toolmarks are consistent with the suggested Middle Iron Age date of the timbers. There are not enough toolmarks to allow a detailed analysis. However, a brief comparison with the toolmarks recorded from Barsham Marshes (Late Iron Age post alignment, Suffolk, BAMFORTH 2009) and Beccles (Late Iron Age post alignment, Suffolk, BAMFORTH ET. AL. FORTHCOMING) show a close correlation between the mean curvature index of the toolmarks recorded from this assemblage, and those from the Beccles post alignment (TABLE 4).

	MEAN CURVATURE INDEX %	MINIMUM CURVATURE INDEX %	MAXIMUM CURVATURE INDEX %	NUMBER OF TOOLMARKS IN CALCULATION
Hardwick Roundabout	6.7	0	10.81	6
Barsham Marshes	9.23	2.22	14.63	11
Beccles	6.29	0	15.15	13

Table 4. Comparison of toolmark data

5.5.FEATURE 02 – THE POST ALIGNMENT

5.5.1. Unconverted posts are well represented when considering Iron Age post alignments. Split posts occur less frequently (TAYLOR 2003, BAMFORTH ET. AL. FORTHCOMING). In terms of size, the posts of this assemblage are somewhat smaller than in other known structures of similar date. For example, the mean average diameter of the unconverted uprights of the Late Iron Age post alignment at Beccles is 205mm (AUTHORS ARCHIVE), against 73mm (including the original diameter of wood (04)) within this assemblage. The shaping of the lower ends of the driven posts of the alignment is typical of that seen on many similar items recorded from the Bronze and the Iron Age (TAYLOR 2001, BAMFORTH ET. AL. FORTHCOMING).

5.5.2. The limited scope of the evaluation trench raises the possibility that the feature may extend further to the north or south, or that there may be one or more parallel rows of posts that were not seen in the evaluation.

5.5.3. The setting of the feature, running from higher terrace gravels out into deeper, wetter fen deposits raises several possibilities. The posts may represent elements of a structure heading out into the fen, such as a route way or jetty (PARKER-PEARSON AND FIELD 2003, BAMFORTH ET. AL. FORTHCOMING), or possibly the continuation of a line of delineation. Depending on how wet the environment was at the time the posts were inserted, the posts may also be associated with the setting of fish traps (PEDERSON ET. AL. 1997). However, the limited scope of the evaluation trench, coupled with the lack of supporting

evidence, leaves little hope of assigning the feature a specific function at this stage.

6. Statement of Potential

- 6.1. The style of woodworking seen on the posts is typical of that seen throughout the Bronze and Iron Age. The lower, worked tips of the posts are well preserved, as is evidenced by the frequency of recordable toolmarks. Although a limited number of toolmarks were recorded, they are typical of the flat bladed axes of the Iron Age. The posts are somewhat smaller than those recorded from other contemporary post alignments, decreasing the likelihood that the posts originally supported some form of superstructure. However, this possibility cannot be ruled out. Other possible functions include a line of delineation, or possibly the securing elements of a fish trap. The limited available evidence precludes a firm understanding of the features function.
- 6.2. There is no scope for further analysis of the woodworking technology recorded from the timbers.
- 6.3. There are two non-oak items. It is unlikely that identifying these items to species will add anything to our understanding of the structure, or the site as a whole.
- 6.4. Although the posts are oak, none display enough growth rings to be suitable for dendrochronology (a minimum of 50 years growth is suggested).
- 6.5. Unless the burial environment which has preserved the timbers is thought to be under threat, it does not seem necessary to carry out a programme of decay analysis on the material to secure baseline data of the preservation of the waterlogged wood.
- 6.6. Although the woodworking is relatively simple and somewhat typical of Iron Age assemblages, English Heritage guidelines have identified Iron Age wood as of national importance (BRUNNING 1996). If no other Iron Age material from the region has been retained, it may be appropriate to conserve a timber to allow it to form part of the archive.

7. Recommendations

PRODUCTION OF ARCHIVE

7.1. Due to the rarity of worked Iron Age wood it is suggested that the two best preserved timbers, both of which display clear evidence of woodworking, are photographed and illustrated at an appropriate scale (Wood 01 & 02).

7.2. Due to the rarity of worked, Iron Age wood, it may be appropriate to conserve one of the timbers to allow retention as part of the archive (BRUNNING 1996). This is somewhat dependent on the quantity of conserved material currently held from this region.

FURTHER ANALYSIS

7.3. No further analysis is suggested

SUGGESTED TIMETABLE OF WORKS

7.4. Once removed from an anoxic burial environment, waterlogged wooden remains will begin to breakdown and decay. It is therefore essential that additional recording work take place as soon as possible. Therefore, it is advised that the suggested programme of illustration and photography is carried out within a year of excavation.

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OASIS DATA COLLECTION FORM: England

OASIS ID: cambridg3-57534

Project details	
Project name	Land Off Hardwick Roundabout, Kings Lynn, Norfolk: An Archaeological Evaluation
Short description of the project	Between 26th - 30th January 2009, a team from Cambridge Archaeological Unit undertook an evaluation by trial trenching and test pitting on 0.8 ha of land approximately 2km southeast of Kings Lynn centre, Norfolk on land off Hardwick roundabout, centred at TF 6360 1880. The evaluation was designed to investigate the presence/ absence, extent, date, state of preservation and significance of any subsoil features or archaeological deposits. The evaluation was commissioned by Morston Muckworks Ltd in advance of a proposed road route. Evidence for prehistoric activity was identified within two trenches In the form of a pit and Late Iron Age upright post alignment.
Project dates	Start: 26-01-2009 End: 30-01-2009
Previous/future work	Yes / Yes
Any associated project reference codes	NHER 52618 - HER event no.
Any associated project reference codes	NHER 52618 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Cultivated Land 4 - Character Undetermined
Monument type	TIMBER ALIGNMENT Middle Iron Age
Monument type	PIT Late Prehistoric
Significant Finds	WOOD Middle Iron Age
Significant Finds	FLINT Late Prehistoric
Methods & techniques	'Sample Trenches'
Development type	Rural commercial
Prompt	Direction from Local Planning Authority - PPG16
Position in the planning process	After full determination (eg. As a condition)

Project location	
Country	England
Site location	NORFOLK KINGS LYNN AND WEST NORFOLK KINGS LYNN Land off Hardwich Roundabout
Postcode	PE30
Study area	0.80 Hectares
Site coordinates	TF 6360 1880 52.7416524949 0.423764273888 52 44 29 N 000 25 25 E Point
Height OD / Depth	Min: 1.50m Max: 3.21m

Project creators	
Name of Organisation	Cambridge Archaeological Unit
Project brief originator	Local Authority Archaeologist and/or Planning Authority/advisory body
Project design originator	Emma Beadsmoore
Project director/manager	Emma Beadsmoore
Project supervisor	Kerry Murrell
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Morston Muckworks Ltd

Project archives	
Physical Archive recipient	Cambridge Archaeological Unit
Physical Archive ID	NHER 52618
Physical Contents	'Animal Bones','Ceramics','Environmental','Wood','Worked stone/lithics'
Digital Archive recipient	Cambridge Archaeological Unit
Digital Archive ID	NHER 52618
Digital Contents	'Environmental','Wood','Worked stone/lithics'
Digital Media available	'Spreadsheets','Survey','Text'
Paper Archive recipient	Cambridge Archaeological Unit
Paper Archive ID	NHER 52618
Paper Contents	'Environmental','Wood','Worked stone/lithics'
Paper Media available	'Context sheet','Map','Notebook - Excavation','Research','General Notes','Photograph','Plan','Report','Section','Survey','Unpublished Text'

Project bibliography 1	
Publication type	Grey literature (unpublished document/manuscript)
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