# Archaeological evaluation on land north of Hornecroft, The Heath, Tattingstone, Suffolk, IP9 2LX

**June 2017** 



by Dr Elliott Hicks

with contributions by Laura Pooley and Lisa Gray figures by Sarah Carter and Ben Holloway

fieldwork by Ben Holloway with Ziya Eksen, Harvey Furniss and J Roberts

# commissioned by Greg Dodds, Orwell Homes Ltd

NGR: TM 127 368 (centre)
Planning ref: B/16/01046/FUL
CAT project ref.: 17/05d
Suffolk Parish Number: TAT 032
Suffolk Event Code: ESF25535
OASIS ref: colchest3-284228



**Colchester Archaeological Trust** 

Roman Circus House, Roman Circus Walk, Colchester, Essex, CO2 7GZ

tel.: 01206 501785 email: lp@catuk.org

C	ontents
4	0

<ol> <li>Summary</li> <li>Introduct</li> </ol>		
1 Summary 2 Introduction 3 Archaeological and landscape background 4 Aims 2 5 Methodology 3 6 Results 7 Finds 8 Environmental report 9 Discussion 10 Acknowledgements 11 References 12 Abbreviations and glossary 13 Contents of archive 14 Archive deposition 15 16 17 18 18 19 19 19 19 10 11 11 11 11 11 11 11 11 11 11 11 11		
Figures		after p11
OASIS summ	ary sheet	
List of pho	otographs, tables, maps and figure	es
Cover: general Photograph 1		<b>es</b> 3 4
Cover: general Photograph 1	T1 trench shot, looking W T4 trench shot, looking S	3
Cover: general Photograph 1 Photograph 2 Table 1 Table 2	T1 trench shot, looking W T4 trench shot, looking S All metal-detected finds	3 4 5

# 1 Summary

An archaeological evaluation (six trial-trenches) was carried out on land to the north of Hornecroft, The Heath, Tattingstone, Suffolk in advance of the construction of thirteen new dwellings and an associated access road. The evaluation uncovered twelve undated features, most of which are probably tree-throws from a wood shown on the site in Hodgkinson's map of 1783. An undated posthole, pit/posthole, gully and a possible ditch terminus (or natural feature) was also recorded.

# 2 Introduction (Fig 1)

This report presents the results of an archaeological evaluation on land to the north of Hornecroft, The Heath, Tattingstone, Suffolk which was carried out on 6th-8th June 2017. The work was commissioned by Greg Dodds, on behalf of Orwell Homes, in advance of the construction of thirteen new dwellings and an associated access road, and was undertaken by Colchester Archaeological Trust (CAT).

The Local Planning Authority (Babergh District Council: Planning reference B/16/01046/FUL) was advised by Suffolk County Council Archaeology Service (SCCAS) that this site lies in an area of high archaeological importance, and that, in order to establish the archaeological implications of this application, the applicant should be required to commission a scheme of archaeological investigation in accordance with paragraphs 128, 129 and 132 of the *National Planning Policy Framework* (DCLG 2012).

All archaeological work was carried out in accordance with a *Brief for a Trenched Archaeological Evaluation* detailing the required archaeological work written by Rachael Abraham (SCCAS 2017), and a Written Scheme of Investigation (WSI) prepared by CAT in response to the SCCAS brief and agreed with SCCAS (CAT 2017).

In addition to the brief and WSI, all fieldwork and reporting was done in accordance with English Heritage's *Management of Research Projects in the Historic Environment (MoRPHE)* (English Heritage 2006), and with *Standards for field archaeology in the East of England* (EAA **14** and **24**). This report mirrors standards and practices contained in the Institute for Archaeologists' *Standard and guidance for archaeological evaluation* (CIfA 2017a) and *Standard and guidance for the collection, documentation, conservation and research of archaeological materials* (CIfA 2017b).

# 3 Archaeological and landscape background (Fig 2)

The following archaeological background draws on information from the Suffolk Historic Environment Record (archaeology.her@suffolk.gov.uk), SCC invoice number 9200794:

# Geology

The Geology of Britain viewer (1:50,000 scale<sup>1</sup>) shows the bedrock geology of the site as Red Crag Formation (sand), with superficial deposits of Lowestoft Formation (sand and gravel).

#### **Historic landscape**

Land to the north of Hornecroft, The Heath, Tattingstone is in an area defined as *ancient estates farmlands* in the Suffolk Landscape Character Assessment<sup>2</sup>. Within the Suffolk Historic Landscape Characterisation Map<sup>3</sup> it is defined as Landscape subtype 10.1, built up area (unspecified). The landscape immediately around the development site is characterised as sub-type 1.1 (pre-18th-century enclosure – random fields); sub-type 3.1 (post-1950 agricultural landscape (boundary loss from

<sup>&</sup>lt;sup>1</sup> British Geological Survey – http://mapapps.bgs.ac.uk/geologyofbritain/home.html?

<sup>&</sup>lt;sup>2</sup> <u>http://www.suffolklandscape.org.uk/</u>

<sup>&</sup>lt;sup>3</sup> The Suffolk Historic Landscape Characteristion Map, version 3, 2008, Suffolk County Council

random fields); sub-type 9.2 (post-medieval park and leisure –informal park); sub-type 11.1 (industrial – current industrial landscape); and sub-type 11.5 (industrial – water reservoir).

# **Archaeology⁴** (Fig 2)

**Prehistoric:** Prehistoric finds consist of a Mesolithic tranchet axe (BTY 001, 550m NNW) and Bronze Age axe hammer (BTY 004, 420m NW) both from Rookery Farm. Evaluation at Folly Farm 590m SW revealed a single pit containing a Bronze Age pottery sherd and a scatter of struck flint (TAT 020).

*Iron Age/Roman:* A coin and brooch of Iron Age/Roman date were recorded within a 1km radius of the site on the Portable Antiquities Scheme (PAS) database

**Medieval:** The 14th/15th century church of St Mary lies 930m ENE of the site (TAT013; Grade II\* listed). Evaluation at Folly Farm 590m SW revealed a small shallow pit containing pottery of 11th/12th century date (TAT 020).

**Post-medieval/modern:** Two coins, two tokens and a seal of post-medieval/modern date were recorded within a 1km radius of the site on the PAS database.

**Modern:** Archaeological monitoring at Tattingstone CEVCP School revealed only a brick soakaway and cistern related to the adjacent 19th century school (ESF22124, 990m ENE). Bentley Railway Station (opened 1846 but now demolished) was located 770m W (BTY 035) on the Ipswich to Colchester mainline (opened 1846, still in operation) (SUF 068), with the Hadleigh Railway branch line (1847-1965) (HAD 070) located 1.5km NNW.

*Undated:* Buxton Wood (BTY 021-022, 500m NW) is an ancient woodland. Numerous areas of charcoal were turned up whilst ploughing at Rookery Farm (BTY Misc, 380m NW). Cropmarks have been recorded immediately to the north (TAT 005, 100m N, trackway and possible field boundary running S from edge of modern field), 710m to the S/SE (TAT 004, field boundaries, ditches and trackways), 880m to the SE (TAT 012, linear ditches, field boundaries and trackways) and 1.06km SSE (STU 036, irregular track/drove way and field boundaries). Evaluation at Folly Farm 590m SW also revealed numerous undated shallow pit features (TAT 020).

# Listed buildings<sup>5</sup>

Listed buildings in the immediate vicinity include the 14th/15th century church (see above), 16th/17th century cottages, 18th/19th century stables/cartlodge and an 18th century paupers hospital/workhouse (Samford Hundred Incorporated House of Industry) (TAT 018).

# 4 Aims

The aims of the evaluation were to:

- excavate and record any archaeological deposits that were identified within the development site.
- identify the date, approximate form and purpose of any archaeological deposit within the application area, together with its likely extent, localised depth and quality of preservation.
- evaluate the likely impact of past land uses, and the possible presence of masking colluvial/alluvial deposits.
- establish the potential for the survival of environmental evidence.

<sup>&</sup>lt;sup>4</sup> This is based on records held at the Suffolk County Historic Environment Record (SCHER).

<sup>&</sup>lt;sup>5</sup> This is based on records held at the Suffolk County Historic Environment Record (SCHER).

• provide sufficient information to construct an archaeological conservation strategy, dealing with preservation, the recording of archaeological deposits, working practices, timetables and orders of costs.

# 5 Methodology

Six trial-trenches were laid out across the development site. Five trenches measured 30m long by 1.8m wide, and one 20m by 1.8m (totalling 170m linear or 306m²).

All of the trenches were mechanically excavated under archaeological supervision. All archaeological horizons were excavated and recorded according to the WSI. A metal detector was used to check trenches, spoil heaps and excavated strata. For full details of the methodology, refer to the attached WSI.

# **6** Results (Appendix 1, Figs 3-5)

# Trench 1 (T1)

Trench T1 was excavated through modern topsoil (L1, c 0.24m thick) sealing subsoil (L2, c 0.26-0.37m thick), which sealed natural sands (L3). Undated posthole F1 measured 0.53m wide and 0.14m deep.



Photograph 1 T1 trench shot - looking west

## Trench 2 (T2)

Trench T2 was excavated through modern topsoil (L1, c 0.1m thick) sealing subsoil (L2, c 0.35-0.4m thick), which sealed natural sands (L3). Three undated tree-throws were recorded (F6, F10, F15) measuring 0.85-1.2m wide by 0.1-0.25m deep. Additionally F11, either an undated natural feature or possibly the terminus of a ditch, measured 1.2m across and 0.43m deep.

# Trench 3 (T3)

Trench T3 was excavated through modern topsoil (L1, *c* 0.15-0.17m thick) sealing subsoil (L2, *c* 0.41-0.45m thick), which sealed natural sands (L3). Two undated tree-throws were recorded (F7 and F16) measuring 1.48-1.9m wide by 0.2-0.34m deep.

# Trench 4 (T4)

Trench T4 was excavated through modern topsoil (L1, c 0.25-0.3m thick) sealing subsoil (L2, c 0.1m thick), which sealed natural sands (L3). Two undated pits (F2-F3) or possibly tree-throws, measured 0.8-0.9m wide by 0.3-0.35m deep. An undated gully (F4) aligned E-W measured 0.3m wide by 0.2m deep, and an undated pit/posthole (F5) measured 0.3m wide by 0.2m deep.



**Photograph 2** T4 trench shot - looking south

# Trench 5 (T5)

Trench T5 was excavated through modern topsoil (L1, c 0.25m thick) sealing subsoil (L2, c 0.05m thick), which sealed natural sands (L3). Three undated pits (F12, F13 and F14) or possibly tree-throws were recorded measuring 0.6-0.7m wide by 0.14-0.2m deep.

# Trench 6 (T6)

Trench T6 was excavated through modern topsoil (L1, c 0.26m thick) sealing subsoil (L2, c 0.22m thick), which sealed natural sands (L3). Two tree-throws were recorded (F8-F9) measuring 0.8-1.05m wide by 0.25-0.3m deep.

# 7 Finds

by Laura Pooley

The trenches were metal-detected before machining (L1) and the spoil heaps metal-detected after machining. All of the metalwork was identified from spoil heaps, none was recovered from features and no other finds were recorded. There was a total of 13 pieces of ironwork (740g) and one fragment of copper-alloy sheet (6g). The ironwork consisted of five nails, a bolt, two sheet fragments, a cap (probably from a piece of farm

machinery), the head of a golf club and three small unidentified fragments (see Table 1 for full details). None need date to earlier than the late post-medieval/modern period, and most are probably of agricultural origin.

Trench and finds no.	Description
T6 (1) (spoil heap)	Ironwork 1) rectangular sheet, 50mm long, 47mm wide (broken), 2-4mm thick, 34g. 2) iron nail, head missing, square-sectioned shaft, 62mm long, 8mm wide, 8mm thick, 12g.
T3 (3) (spoil heap)	Ironwork 1) iron nail, head missing, circular shaft bent 45°, 80mm long, 5mm diameter, 8g.
T3 (7) (spoil heap)	Ironwork 1) iron nail, complete, domed-round head (12mm diameter), square-sectioned shank (6mm by 6mm), 80mm long, 16g. 2) complete head of a golf club, shaft: 100mm long by 18mm diameter, head: 85mm long by 45mm wide, 256g 3) unidentified fragment (12g)
T5 (4) (spoil heap)	Ironwork 1) iron nail, head missing, square-sectioned shaft, 41mm long, 5mm wide, 5mm thick, 2g.
T2 (5) (spoil heap)	Ironwork 1) iron nail, head missing, square-sectioned shaft, 43mm long, 5mm wide, 5mm thick, tapers, 4g.
T4 (6) (spoil heap)	Ironwork  1) iron bolt, rectangular-head (23mm by 20mm), rectangular cross-section (14mm by 8mm), 85mm long, 56g.  2) iron cap, round and convex, 72mm diameter, 17mm high, 10mm thick, 266g.  3) sheet fragment, 73mm long, 48mm wide, 5mm thick, 40g.  4) two small unidentified fragments (34g).  Copper-alloy  1) Copper-alloy sheet fragment, broken, 25mm long, 25mm wide, 1mm thick, 6g.

Table 1 All metal-detected finds

# 8 Environmental report

by Lisa Gray MSc MA ACIfA Archaeobotanist

# Introduction - aims and objectives

Three samples were presented for assessment. They were taken from two undated tree-throws and one undated linear/gully ditch.

The aims of this assessment are to determine the significance and potential of the plant macro-remains in the samples, consider their use in providing information about diet, craft, medicine, crop-husbandry, feature function and environment.

# Sampling and processing methods

Forty litres of soil samples were taken and processed by Colchester Archaeological Trust. All samples were processed using a Siraf-type flotation device. Flot was collected in a 300-micron mesh sieve then dried.

Once with the author the flots were scanned under a low powered stereo-microscope with a magnification range of 10 to 40x. The whole flots were examined. The abundance, diversity and state of preservation of eco- and artefacts in each sample were recorded. A magnet was passed across each flot to record the presence or absence of magnetised material or hammerscale.

Identifications were made using uncharred reference material (author's own and the Northern European Seed Reference Collection at the Institute of Archaeology, University College London) and reference manuals (such as Beijerinck 1947; Cappers *et al.* 2006; Charles 1984; Fuller 2007; Hillman 1976; Jacomet 2006). Nomenclature for plants is taken from Stace (Stace 2010). Latin names are given once and the common names used thereafter.

At this stage, to allow comparison between samples, numbers have also been estimated but where only a very low number of items are present they have been counted. Identifiable charred wood >4mm in diameter has been separated from charcoal flecks. Fragments this size are easier to break to reveal the cross-sections and diagnostic features necessary for identification and are less likely to be blown or unintentionally moved around the site (Asouti 2006, 31; Smart and Hoffman, 1988, 178-179). Charcoal flecks <4mm diameter have been quantified but not recommended for further analysis unless twigs or roundwood fragments larger then 2mmØ were present.

# Results (Table 2)

# The plant remains

Charcoal flecks too small to identify were found in samples 1 (F16 undated three-throw) and sample 4 (F4 undated linear/gully). Identifiable charcoal fragments were found in sample 1. No other charred plant macro-remains were found in any of the samples.

Abundant uncharred root/rhizome fragments were found in each sample. Sample 1 contained nothing other than charcoal and uncharred root/rhizome fragments. Samples 3 and 4 contained low numbers of uncharred/dried waterlogged seeds of ruderal plants, such as fat hen (*Chenopodium album*), mouse ear type (*Cerastium* sp.) and sample 4 contained low numbers of seeds of the damp ground genus rush (*Juncus* sp.). The abundant root/rhizome fragments in both of these samples could indicate that these seeds are intrusive.

#### Fauna

No faunal remains were found in any sample.

# Inorganic remains

No inorganic artefactual remains were found in any sample.

#### **Discussion**

# Biases in recovery, residuality, contamination

Nothing with regards biases in recovery, residuality or contamination was highlighted for any of these samples. On microscopic examination it was clear that bioturbation was likely due to the presence of abundant root/rhizome fragments in each sample

# Quality and type of preservation

No waterlogged or mineralised plant remains were found.

Flecks and fragments of charcoal were present. Charring of plant macrofossils occurs when plant material is heated under '...reducing conditions...' where oxygen is largely excluded (Boardman and Jones 1990, 2) leaving a carbon skeleton resistant to biological and chemical decay (English Heritage 2011,17). These conditions can occur in a charcoal clamp, the centre of a bonfire or pit or in an oven or when a building burns down with the roof excluding the oxygen from the fire (Reynolds, 1979, 57).

# Significance of the samples and recommendations for further work

A recent study of intrusion and residuality in the archaeobotanical record for central and southern England (Pelling *et al.* 2015) has highlighted the problem of assigning solitary or scarce charred plant macro-remains, such as the identifiable charcoal fragments in sample 1, to the dated contexts they were taken from because it is possible that these durable charred plant remains survived being moved between contexts by human

action and bioturbation so cannot be properly interpreted unless radiocarbon dates are gained from the plant macro-remains themselves. That is the only way to secure a genuine date for the charred plant macro-remains like these (Pelling *et al.* 2015, 96).

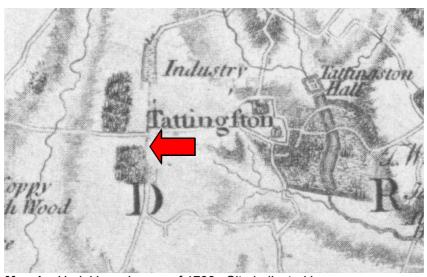
Therefore, due to the charred plant remains assemblage consisting of charcoal flecks and fragments and the likelihood that the uncharred/dried waterlogged seeds are intrusive no further work is recommended on these samples.

Sample	Finds No.	Sample	Bulk sample volume (L)	Flot volume (ml)	Charcoal <4mmØ	Charcoal >4mmØ	Dried water Seeds	logged	ı	Modern root/rhizomes	
Sa	這	description	В	Ĕ	а	а	а	d	р	d	Comments
1	2	F16 undated tree-throw	20	20	2	3	-	-	-	3	-
3	9	F10 undated three-throw	10	5	-	-	1	1	2	3	Dried waterlogged fathen (Chenopodium album), orache (Atriplex sp.), mouse ear (Cerastium sp.) and thistle (Carduus/Cirsium, sp.)
4	10	F4 undated linear/gully	10	2	1	_	1	1	2	3	Dried waterlogged fat hen, mouse ear and rush (Juncus sp.)

Table 2 Environmental results

Key: a = abundance [1 = occasional 1-10; 2 = moderate 11-100; 3 = abundant >100]

# 9 Discussion



**Map 1** Hodgkinson's map of 1783. Site indicated by arrow.

d = diversity [1 = low 1-4 taxa types; 2 = moderate 5-10; 3 = high]

p = preservation [1 = poor (family level only); 2 = moderate (genus); 3 = good (species identification possible)

Archaeological evaluation uncovered sixteen undated features: seven tree-throws, five pits/tree-throws, and a posthole, pit/posthole, gully and a ditch terminus/natural feature. The paucity of finds recovered means that none of these features can be dated. Hodgkinson's map of 1783, however, shows a wood on the southern half of the site, suggesting that most, if not all, of the features are post-medieval tree-throws.

# 10 Acknowledgements

CAT is grateful to Greg Dodds of Orwell Homes Ltd for commissioning and funding the project. The project was managed by C Lister, fieldwork was carried out by B Holloway with Z Eksen, H Furniss and J Roberts. Figures are by BH and S Carter. The project was monitored by Rachael Abraham for Suffolk County Council Archaeological Services.

# 11 References

Note: all CAT reports, except for DBAs, are available online in .pdf format at <a href="http://cat.essex.ac.uk">http://cat.essex.ac.uk</a>

Asouti, E.	2006	'Factors affecting the formation of an archaeological wood charcoal assemblage.' Retrieved on 13th February 2015 from World Wide Web: <a href="http://pcwww.liv.ac.uk/~easouti/methodology">http://pcwww.liv.ac.uk/~easouti/methodology</a> application.htm
Beijerinck, W Brown, N and Glazenbrook, J	1947 2000	Zadenatlas der Nederlandsche Flora. Veenman and Zonen Wageningen. Research and Archaeology: a frame work for the Eastern Counties 2 Research agenda and strategy, East Anglian Archaeological, occasional papers 8 (EAA 8)
Cappers, R J T, Bekker, R M & Jans, J E A	2006	Digital Zadenatlas Van Nederlands - Digital Seeds Atlas of the Netherlands. Groningen Archaeological Studies Volume 4. Groningen: Barkhius Publishing Groningen.
CAT	2014	Health & Safety Policy
CAT	2017	Written Scheme of Investigation (WSI) for an archaeological evaluation on land north of Hornecroft, The Heath, Tattingstone, Suffolk, IP9 2LX
Charles, M	1984	'Introductory remarks on the cereals.' Bulletin on Sumerian Agriculture 1, 17-31.
CIfA	2008a	Standard and Guidance for an archaeological evaluation
CIfA	2008b	Standard and guidance for the collection, documentation, conservation and research of archaeological materials
DCLG	2012	National Planning Policy Framework
Gurney, D	2003	Standards for field archaeology in the East of England. East Anglian
		Archaeology Occasional Papers 14 (EAA 14).
English Heritage	2006	Management of Research Projects in the Historic Environment (MoRPHE)
English Heritage	2011	Environmental Archaeology: A Guide to the Theory and Practice of Methods for Sampling and Recovery to Post-Excavation. Swindon: English Heritage Publications.
Fuller, D	2007	'Cereal Chaff and Wheat Evolution' Retrieved on 12th February 2010 from World Wide Web:
Hillman, G C	1976	http://www.homepages.ucl.ac.uk/~tcrndfu/archaeobotany.htm 'Criteria useful in identifying charred Wheat and Rye Grains.' Unpublished versions of notes likely to have entered publication in some form and
Jacomet, S	2006	given to the author by Gordon Hillman during her MSc in 1995-1996.  Identification of cereal remains from archaeological sites – second edition. Basel: Basel University Archaeobotany Lab IPAS.
Medlycott, M	2011	Research and archaeology revisited: A revised framework for the East of England. East Anglian Archaeology Occasional Papers 24 (EAA <b>24</b> )
Pelling, R, Campbell G, Carruthers, W, Hunter, K & Marshall P	2015	Exploring contamination (intrusion and residuality) in the archaeobotanical record: case studies from central and southern England'. In <i>Vegetation History and Archaeobotany</i> (2015) <b>24</b> : 85-99.
Reynolds, P	1979	The Iron Age Farm: The Butser Experiment. London: British Museum Press.

SCC	2008	The Suffolk Historic Landscape Characterisation Map, version 3
SCCAS	2017a	Requirements for a Trenched Archaeological Evaluation (version 1.3)
SCCAS	2017b	Archaeological Archives in Suffolk: Guidelines for preparation and deposition
SCCAS/CT	2017	Brief for a Trenched Archaeological Evaluation at Land north of Hornecroft, The Heath, Tattingstone. Rachael Abraham, March 2017
Smart, T and Hoffman, E S	1988	'Environmental Interpretation of Archaeological Charcoal.' In Hastorf C.A. and Popper V.S. <i>Current Palaeobotany</i> Chicago and London. University of Chicago Press.
Stace, C	2010	New Flora of the British Isles 3nd Edition Cambridge University Press Cambridge.

# 12 Abbreviations and glossary

Bronze Age period from c 2500 – 700 BC
CAT Colchester Archaeological Trust
ClfA Chartered Institute for Archaeologists

context specific location of finds on an archaeological site

feature (F) an identifiable thing like a pit, a wall, a drain, can contain 'contexts'

Iron Age period from 700 BC to Roman invasion of AD 43 layer (L) distinct or distinguishable deposit (layer) of material

medieval period from AD 1066 to c AD 1500 Mesolithic period from c 10,000 – 4000BC modern period from c AD 1800 to the present

natural geological deposit undisturbed by human activity

NGR National Grid Reference

OASIS Online AccesS to the Index of Archaeological InvestigationS,

http://oasis.ac.uk/pages/wiki/Main

post-medieval from c AD 1500 to c 1800

residual something out of its original context, eg a Roman coin in a modern pit

Roman the period from AD 43 to c AD 410

SCC Suffolk County Council

SCCAS Suffolk County Council Archaeological Services SCHER Suffolk County Historic Environment Record

section (abbreviation sx or Sx) vertical slice through feature/s or layer/s

u/s unstratified, ie without a well-defined context

wsi written scheme of investigation

## 13 Contents of archive

Finds: none retained
Paper and digital record

One A4 document wallet containing:

The report (CAT Report 1116)

SCCAS evaluation brief, CAT written scheme of investigation

Original site record (feature and layer sheets, trench record sheet, finds record)

Site digital photographic log, site photographic record on CD Sundries (attendance register, benchmark data, risk assessment).

# 14 Archive deposition

The paper archive and finds are currently held by CAT at Roman Circus House, Roman Circus Walk, Colchester, Essex, but will be permanently deposited with SCCAS under Parish Number TAT 032.

# © Colchester Archaeological Trust 2017

## **Distribution list:**

Greg Dodds, Orwell Homes Ltd Rachael Abraham, SCCAS Suffolk County Historic Environment Record



# **Colchester Archaeological Trust**

Roman Circus House, Roman Circus Walk, Colchester, Essex, CO2 7GZ

tel.: 01206 501785 email: lp@catuk.org

checked by: Philip Crummy date: 9.9.2017

# Appendix 1 Context list

Context Number	Finds Number	Context type	Description	Date
L1	-	Topsoil	Loose friable moist dark brown loam with occasional stones	Modern
L2	-	Subsoil	Firm dry medium brown sandy-silt with occasional stones	Undated
L3	-	Natural sand	Loose soft dry light to medium pale brown mottled orange sand with common stones	Post-glacial
F1	-	Posthole	Soft dry light to medium brown sandy-silt	Undated
F2	-	Pit/tree-throw	Firm moist medium grey/brown sandy-silty	Undated
F3	S(8)	Pit/tree-throw	Firm moist dark grey/brown sandy-silt	Undated
F4	-	Gully	Firm moist medium grey/brown sandy-silt	Undated
F5	-	Pit/post-hole	Firm moist medium grey/brown sandy-silt	Undated
F6	-	Tree-throw	Soft moist medium grey/brown silty-sand	Undated
F7	-	Tree-throw	Soft moist medium grey sandy-silt	Undated
F8	-	Tree-throw	Soft dry light grey brown sandy-silt with occasional stones and manganese inclusions	Undated
F9	-	Tree-throw	Mixed fill: soft dry light to medium brown silt with occasional stones and manganese inclusions; and firm dry light grey silt with manganese inclusions	Undated
F10	S(9)	Tree-throw	Moist medium brown sandy-silt with very occasional stones	Undated
F11	-	Possible ditch terminal or natural feature	Moist medium grey/brown sandy silt with occasional stones	Undated
F12	-	Pit/tree-throw	Firm moist medium grey/brown sandy-silt	Undated
F13	-	Pit/tree-throw	Firm moist medium grey/brown sandy-silt	Undated
F14	-	Pit/tree-throw	Firm moist medium grey/brown sandy-silt with charcoal inclusions	Undated
F15	-	Tree-throw	Friable dry medium grey/brown sandy-silt with occasional stones	Undated
F16	S(2)	Tree-throw	Soft moist medium grey sandy-silt with charcoal inclusions	Undated

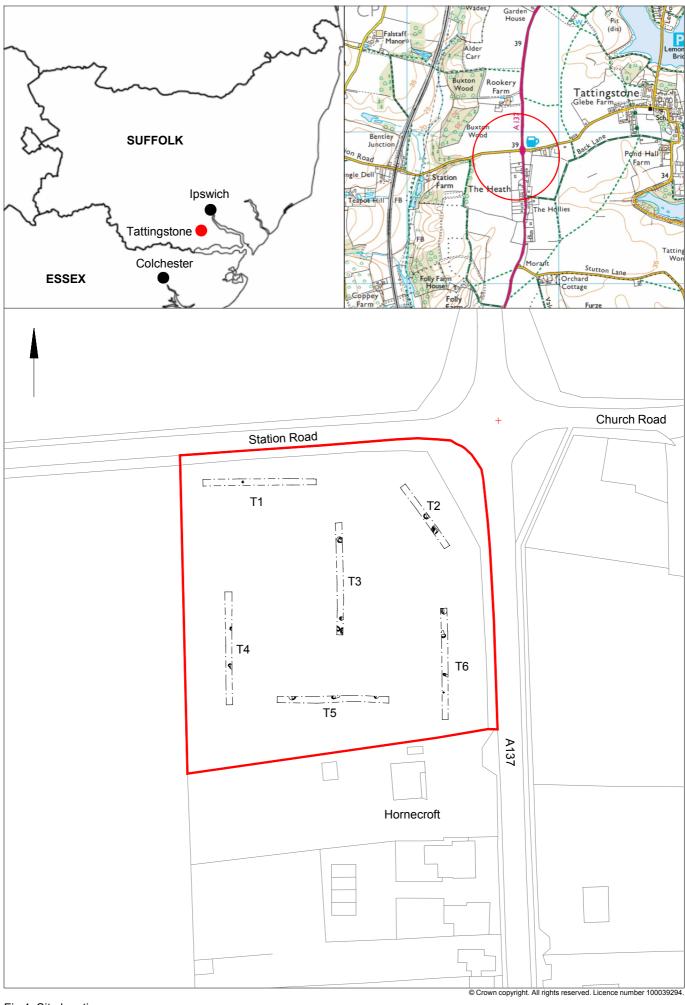


Fig 1 Site location

0 50 m



Fig 2 Development site in relation to nearby archaeological sites

© Crown copyright. All rights reserved. Licence number 100039294. Imagery © 2017 Google, map data © 2017 Google.

0 500 m

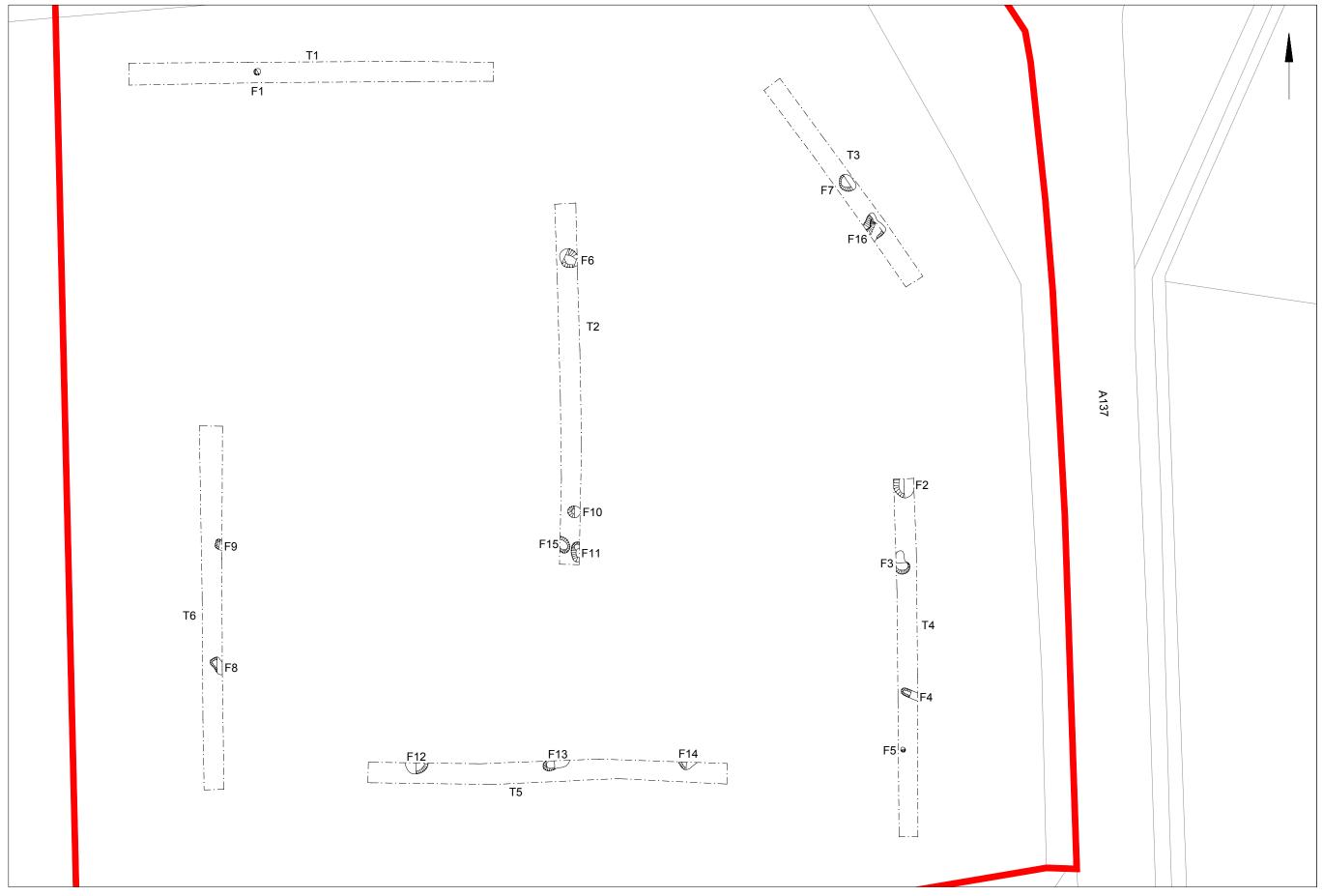


Fig 3 Results

© Crown copyright. All rights reserved. Licence number 100039294.

0 20 m

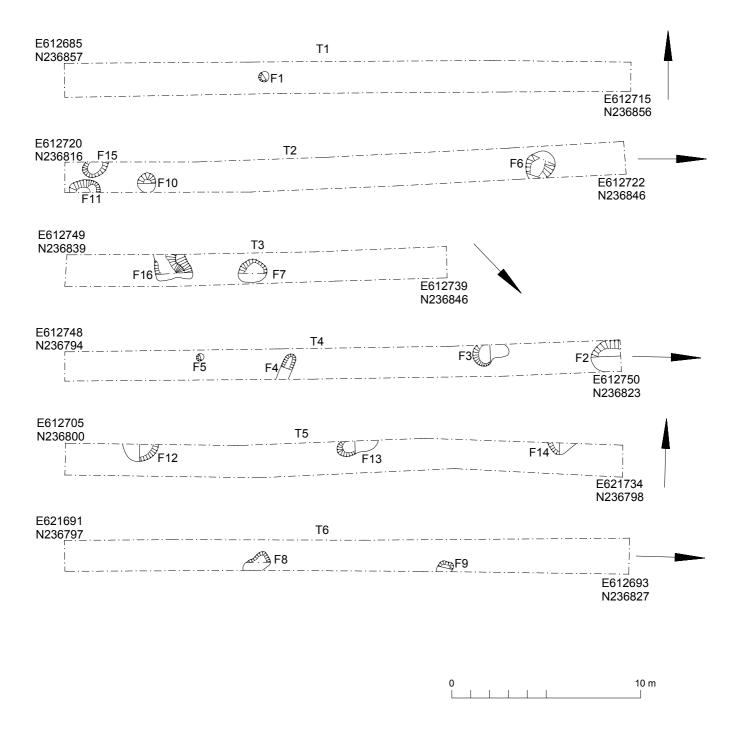


Fig 4 Detailed trench plans

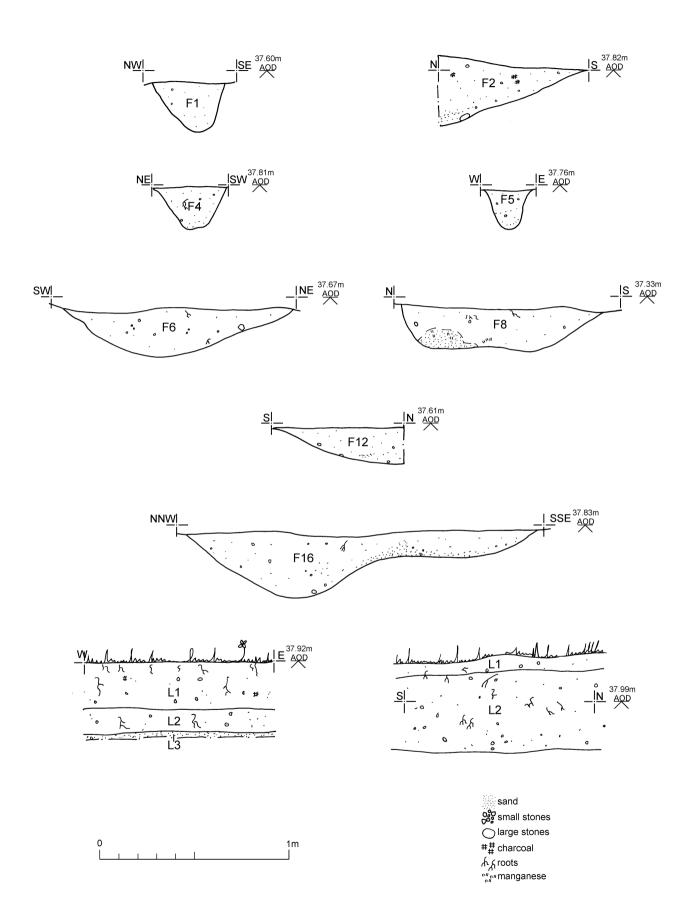


Fig 5 Feature and representative sections

# Written Scheme of Investigation (WSI) for an archaeological evaluation on land north of Hornecroft, The Heath, Tattingstone, Suffolk, IP9 2LX

**NGR:** TM 127 368 (centre)

Planning references: B/16/01046/FUL

Commissioned by: Greg Dodds (Orwell Homes Ltd)

Client: Orwell Homes Ltd

Curating museum: Suffolk County Council Archaeological Service

Suffolk HER parish code: TAT 032 Suffolk event number: ESF25535

CAT project code: 17/05d

OASIS reference: colchest3-284228

Site manager: Chris Lister

SCCAS/CT monitor: Rachael Abraham

This WSI written: 17.5.2017



COLCHESTER ARCHAEOLOGICAL TRUST, Roman Circus House, Roman Circus Walk, Colchester, Essex, CO2 7GZ

tel: 01206 501785 email: <u>lp@catuk.org</u>

# Site location and description

The development site is located on land to the north of Hornecroft, The Heath, Tattingstone, Suffolk (Fig 1). Site centre is NGR TM 127 368.

# **Proposed work**

The development comprises the erection of thirteen new dwellings and construction of associated access road.

# Archaeological background

The following archaeological background draws on information from the Suffolk Historic Environment Record (<a href="mailto:archaeology.her@suffolk.gov.uk">archaeology.her@suffolk.gov.uk</a>), SCC invoice number 9200794:

# Geology

The Geology of Britain viewer (1:50,000 scale<sup>1</sup>) shows the bedrock geology of the site as Red Crag Formation (sand), with superficial deposits of Lowestoft Formation (sand and gravel).

#### **Historic landscape**

Land to the north of Hornecroft, The Heath, Tattingstone is in an area defined as *ancient estates farmlands* in the Suffolk Landscape Character Assessment<sup>2</sup>. Within the Suffolk Historic Landscape Characterisation Map<sup>3</sup> it is defined as Landscape sub-type 10.1, built up area (unspecified). The landscape immediately around the development site is characterised as sub-type 1.1 (pre-18th-century enclosure – random fields); sub-type 3.1 (post-1950 agricultural landscape (boundary loss from random fields); sub-type 9.2 (post-medieval park and leisure –informal park); sub-type 11.1 (industrial – current industrial landscape); and sub-type 11.5 (industrial – water reservoir).

# Archaeology<sup>4</sup> (Fig 2)

**Prehistoric:** Prehistoric finds consist of a Mesolithic tranchet axe (BTY 001, 550m NNW) and Bronze Age axe hammer (BTY 004, 420m NW) both from Rookery Farm. Evaluation at Folly Farm 590m SW revealed a single pit containing a Bronze Age pottery sherd and a scatter of struck flint (TAT 020).

*Iron Age/Roman:* A coin and brooch of Iron Age/Roman date were recorded within a 1km radius of the site on the Portable Antiquities Scheme (PAS) database

**Medieval:** The 14th/15th century church of St Mary lies 930m ENE of the site (TAT013; Grade II\* listed). Evaluation at Folly Farm 590m SW revealed a small shallow pit containing pottery of 11th/12th century date (TAT 020).

**Post-medieval/modern:** Two coins, two tokens and a seal of post-medieval/modern date were recorded within a 1km radius of the site on the PAS database.

**Modern:** Archaeological monitoring at Tattingstone CEVCP School revealed only a brick soakaway and cistern related to the adjacent 19th century school (ESF22124, 990m ENE). Bentley Railway Station (opened 1846 but now demolished) was located 770m W (BTY 035) on the Ipswich to Colchester mainline (opened 1846, still in operation) (SUF 068), with the Hadleigh Railway branch line (1847-1965) (HAD 070) located 1.5km NNW.

*Undated:* Buxton Wood (BTY 021-022, 500m NW) is an ancient woodland. Numerous areas of charcoal were turned up whilst ploughing at Rookery Farm (BTY Misc, 380m NW). Cropmarks have been recorded immediately to the north (TAT 005, 100m N, trackway and possible field boundary running S from edge of modern field), 710m to the S/SE (TAT 004, field boundaries, ditches and trackways), 880m to the SE (TAT 012, linear ditches, field boundaries and trackways) and 1.06km SSE (STU 036, irregular track/drove way and field

<sup>&</sup>lt;sup>1</sup> British Geological Survey – <a href="http://mapapps.bgs.ac.uk/geologyofbritain/home.html">http://mapapps.bgs.ac.uk/geologyofbritain/home.html</a>?

<sup>&</sup>lt;sup>2</sup> http://www.suffolklandscape.org.uk/

<sup>&</sup>lt;sup>3</sup> The Suffolk Historic Landscape Characteristion Map, version 3, 2008, Suffolk County Council

<sup>&</sup>lt;sup>4</sup> This is based on records held at the Suffolk County Historic Environment Record (SCHER).

boundaries). Evaluation at Folly Farm 590m SW also revealed numerous undated shallow pit features (TAT 020).

# Listed buildings<sup>5</sup>

Listed buildings in the immediate vicinity include the 14th/15th century church (see above), 16th/17th century cottages, 18th/19th century stables/cartlodge and an 18th century paupers hospital/workhouse (Samford Hundred Incorporated House of Industry) (TAT 018).

# Planning background

Planning applications were submitted to Babergh District Council in July 2016 (B/16/01046/FUL) for the erection of thirteen new dwellings and construction of associated access road.

As the site lies within an area highlighted by the Suffolk HER as having a high potential for archaeological deposits, an archaeological condition was recommended by the Suffolk County Council Archaeological Service Conservation Team (SCCAS/CT). The recommended archaeological condition is based on the condition based on the guidance given in the *National Planning Policy Framework* (DCLG 2012) and in this case in section 3 of the planning permission:

" No development shall take place within the area indicated [the whole site] until the implementation of a programme of archaeological work has been secured, in accordance with a Written Scheme of Investigation which has been submitted to and approved in writing by the Local Planning Authority. The scheme of investigation shall include an assessment of significance and research questions."

# Requirement for work (Fig 1)

The required archaeological work is for evaluation by trial-trenching. Details are given in a Project Brief written by SCCAS (*Brief for a Trenched Archaeological Evaluation at Land north of Hornecroft, The Heath, Tattingstone* – SCCAS, March 2017).

Specifically, trial-trenches will be excavated to cover 5% of the development site or 300m<sup>2</sup>. This equates to five 30m trenches and one 20m trench, each measuring 1.8m wide. Trenches T1, T2 and T6 have been specifically located to target any surviving street frontages associated with the crossroads.

Decisions on the need for any further archaeological investigation (eg excavation) will be made by SCCAS/CT, in a further brief, based on the results presented in the evaluation report. Any further investigation will also be the subject of a further WSI, submitted to SCCAS/CT for scrutiny and formally approved by the LPA.

#### **Aims**

As per section 4 of the brief a linear trenched evaluation is required on the development site to enable the archaeological resource, both in quality and extent, to be accurately quantified.

Trial-trenching is required to:

- identify the date, approximate form and purpose of any archaeological deposit, together with its likely extent, localised depth and quality of preservation.
- evaluate the likely impact of past land uses, and the possible presence of masking colluvial/alluvial deposits.
- establish the potential for the survival of environmental evidence
- provide sufficient information to construct an archaeological conservation strategy, dealing with preservation, the recording of archaeological deposits, working practices, timetables and orders of costs.

<sup>5</sup> This is based on records held at the Suffolk County Historic Environment Record (SCHER).

All work will take place within and contribute to the goals of the Regional research frameworks (Gurney 2003, Medlycott 2011).

# Staffing

The number of field staff for this project is estimated as follows: one supervisor plus three archaeologists for two days, followed by one supervisor plus two archaeologists for a further one day.

In charge of day-to-day site work: Ben Holloway

# General methodology

All work carried out by CAT will be in accordance with:

- professional standards of the Chartered Institute for Archaeologists, including its Code of Conduct (CIfA 2008a, b)
- Standards and Frameworks published by East Anglian Archaeology (Gurney 2003, Medlycott 2011)
- relevant Health & Safety guidelines and requirements (CAT 2014)
- the Project Brief issued by SCC Historic Environment Officer (SCCAS/CT 2017)
- The outline specification within *Requirements for a Trenched Archaeological Evaluation* (SCCAS 2017a) to be used alongside the Project Brief

Professional CAT field archaeologists will undertake all specified archaeological work, for which they will be suitably experienced and qualified.

Notification of the supervisor/project manager's name and the start date for the project will be provided to SCCAS/CT one week before start of work.

Unless it is the responsibility of other site contractors, CAT will study mains service locations and avoid damage to these.

Prior to the commencement of the site a parish code and event number will be sought from the HER team. This code will be used to identify the finds bags and boxes, and the project archive when it is deposited at the curating museum.

At the start of work (immediately before fieldwork commences) an OASIS online record http://ads.ahds.ac.uk/project/oasis/ will be initiated and key fields completed on Details, Location and Creators forms. At the end of the project all parts of the OASIS online form will be completed for submission to SCCAS. This will include an uploaded .PDF version of the entire report.

# **Evaluation trial-trenching methodology**

Where appropriate, modern overburden and any topsoil stripping/levelling will be performed using a mechanical excavator equipped with a toothless ditching bucket under the supervision and to the satisfaction of a professional archaeologist. If no archaeologically significant deposits are exposed, machine excavation will continue until natural subsoil is reached.

Where necessary, areas will be cleaned by hand to ensure the visibility of archaeological deposits.

If archaeological features or deposits are uncovered, time will be allowed for these to be excavated, planned and recorded.

There will be sufficient excavation to give clear evidence for the period, depth and nature of any archaeological deposit. For linear features 1m wide sections will be excavated across their width to a total of 10% of the overall length. Discrete features, such as pits, will have 50% of their fills excavated, although certain features may be fully excavated. The depth and nature of colluvial or other masking deposits will be established across the site.

Complex archaeological structures such as walls, kilns, or ovens will be sufficiently defined for recording, but will not be removed.

Fast hand-excavation techniques involving (for instance) picks, forks and mattocks will not be used on complex stratigraphy.

Trained CAT staff will use a metal detector to scan all trenches both before and during excavation. All spoil heaps will also be scanned and finds recovered.

Individual records of excavated contexts, layers, features or deposits will be entered on proforma record sheets. Registers will be compiled of finds, small finds and soil samples.

The photographic record will consist of general site shots, and shots of all archaeological features and deposits. A photographic scale (including north arrow) shall be included in the case of detailed photographs. Standard "record" shots of contexts will be taken on a digital camera. A photographic register will accompany the photographic record. This will detail as a minimum feature number, location, and direction of shot.

Trenches will not be backfilled until they have been signed off by the SCCAS/CT.

# Site surveying

The evaluation trench and any features will be surveyed by Total Station, unless the particulars of the features indicate that manual planning techniques should be employed. Normal scale for archaeological site plans and sections is 1:20 and 1:10 respectively, unless circumstances indicate that other scales would be more appropriate.

The site grid will be tied into the National Grid. Corners of excavation areas will be located by NGR coordinates.

# **Environmental sampling policy**

The number and range of samples collected will be adequate to determine the potential of the site, with particular focus on palaeoenvironmental remains including both biological remains (e.g. plants, small vertebrates) and small sized artefacts (e.g. smithing debris), and to provide information for sampling strategies on any future excavation. Samples will be collected for potential micromorphical and other pedological sedimentological analysis. Environmental bulk samples will be 40 litres in size (assuming context is large enough)

Sampling strategies will address questions of:

- the range of preservation types (charred, mineral-replaced, waterlogged), and their quality
- concentrations of macro-remains
- and differences in remains from undated and dated features
- variation between different feature types and areas of site

CAT has an arrangement with Val Fryer/Lisa Gray whereby any potentially rich environmental layers or features will be appropriately sampled as a matter of course. Trained CAT staff will process the samples (unless complex or otherwise needing specialist processing) and the flots will be sent to VF/LG for reporting.

Should any complex, or otherwise outstanding deposits be encountered, VF/LG will be asked onto site to advise. Waterlogged 'organic' features will always be sampled. In all cases, the advice of VF/LG and/or the Historic England Regional Advisor in Archaeological Science (East of England) on sampling strategies for complex or waterlogged deposits will be followed, including the taking of monolith samples.

## **Human remains**

CAT follows the policy of leaving human remains in situ unless there is a clear indication that the remains are in danger of being compromised as a result of their exposure. If

circumstances indicated it were prudent or necessary to remove remains from the site during the monitoring, the following criteria would be applied; if it is clear from their position, context, depth, or other factors that the remains are ancient, then normal procedure is to apply to the Department of Justice for a licence to remove them. In that case, conditions laid down by the license will be followed. If it seems that the remains are not ancient, then the coroner, the client, and CBCAO will be informed, and any advice and/or instruction from the coroner will be followed.

# Photographic record

The photographic record will consist of general site shots, and shots of all archaeological features and deposits. A photographic scale (including north arrow) shall be included in the case of detailed photographs. Standard "record" shots of contexts will be taken on a digital camera. A photographic register will accompany the photographic record. This will detail as a minimum feature number, location, and direction of shot.

## Post-excavation assessment

If a post-excavation assessment is required by SCCAS/CT, it will be normally be submitted within 2 months of the end of fieldwork, or as quickly as is reasonably practicable and at a time agreed with SCCAS/CT.

Where archaeological results do not warrant a post-excavation assessment, preparation of the normal site report will begin.

#### **Finds**

All significant finds will be retained.

All finds, where appropriate, will be washed and marked with site code and context number.

Stephen Benfield (CAT) normally writes our finds reports. Some categories of finds are automatically referred to other CAT specialists:

animal bones (small groups): Pip Parmenter

small finds, metalwork, coins, etc: Pip Parmenter / Laura Pooley

flints: Adam Wightman

or to outside specialists:

animal bones (large groups) and human remains: Julie Curl (Sylvanus)

environmental processing and reporting: Val Fryer / Lisa Gray

conservation of finds: staff at Colchester Museum

Other specialists whose opinion can be sought on large or complex groups include:

Roman brick/tile: Ernest Black Roman glass: Hilary Cool Prehistoric pottery: Paul Sealey

Other: EH Regional Adviser in Archaeological Science (East of England).

All finds of potential treasure will be removed to a safe place, and reported immediately to the Suffolk FLO (Finds Liaison Office) who will inform the coroner within 14 days, in accordance with the rules of the Treasure Act 1996. The definition of treasure is given in pages 3-5 of the Code of Practice of the above act. This refers primarily to gold or silver objects.

Requirements for conservation and storage of finds will be agreed with SCCAS and carried out as per their guidelines (SCCAS 2017b).

#### Results

Notification will be given to SCCAS/CT when the fieldwork has been completed.

An appropriate archive will be prepared to minimum acceptable standards outlined in *Management of Research Projects in the Historic Environment* (English Heritage 2006).

The draft report will be submitted within 6 months of the end of fieldwork for approval by SCCAS/CT.

Final report will normally be submitted to SCCAS/CT as both a PDF and a hard copy.

The report will contain:

- The aims and methods adopted in the course of the archaeological project
- Location plan of the area in relation to the proposed development.
- Section/s drawings showing depth of deposits from present ground level with Ordnance Datum, vertical and horizontal scale.
- Archaeological methodology and detailed results including a suitable conclusion and discussion and results referring to Regional Research Frameworks (EAA8, EAA14 & EAA24).
- All specialist reports or assessments
- A concise non-technical summary of the project results
- Appendices to include a copy of the completed OASIS summary sheet and the approved WSI

Results will be published, to at least a summary level, in the PSIAH (Proceedings of the Suffolk Institute of Archaeology and History) annual round up should archaeological remains be encountered in the evaluation. An allowance will be made for this in the project costs for the report.

Final reports are also published on the CAT website and on the OASIS website.

# **Archive deposition**

The archive will be deposited with the Suffolk County Council Archaeological Service as per their archive guidelines (SCCAS 2017b).

If the finds are to remain with the landowner, a full copy of the archive will be housed with the SCCAS.

The archive will be deposited with the SCCAS within 3 months of the completion of the final publication report, with a summary of the contents of the archive supplied to SCCAS/CT.

# **Monitoring**

SCCAS/CT will be responsible for monitoring progress and standards throughout the project, and will be kept regularly informed during fieldwork, post-excavation and publication stages.

Notification of the start of work will be given SCCAS/CT one week in advance of its commencement.

Any variations in this WSI will be agreed with SCCAS/CT prior to them being carried out.

SCCAS/CT will be notified when the fieldwork is complete. Trenches will not be backfilled until they have been signed off by the SCCAS/CT.

The involvement of SCCAS/CT shall be acknowledged in any report or publication generated by this project.

# **Education and outreach**

The CAT website (<a href="www.thecolchesterarchaeologist.co.uk">www.thecolchesterarchaeologist.co.uk</a>) is updated regularly with information on current sites. Copies of our reports (grey literature) can be viewed on the website and downloaded for free. A magazine (*The Colchester Archaeologist Vol 28* out now) summarises all our sites and staff regularly give lectures to groups, societies and schools (a fee may apply). CAT also works alongside the Colchester Archaeological Group (providing a venue for their lectures and library) and the local Young Archaeologists Club.

CAT archaeologists can be booked for lectures and information on fees can be obtained by contacting the office on 01206 501785.

References		
Brown, N and Glazenbrook, J.	2000	Research and Archaeology: a frame work for the Eastern Counties 2 Research agenda and strategy, East Anglian Archaeological, occasional
·		papers 8 (EAA 8)
CAT	2014	Health & Safety Policy
ClfA	2008a	Standard and Guidance for an archaeological evaluation
CIfA	2008b	Standard and guidance for the collection, documentation, conservation and research of archaeological materials
DCLG	2012	National Planning Policy Framework
Gurney, D	2003	Standards for field archaeology in the East of England. East Anglian Archaeology Occasional Papers 14 (EAA 14).
English Heritage	2006	Management of Research Projects in the Historic Environment (MoRPHE)
Medlycott, M	2011	Research and archaeology revisited: A revised framework for the East of England. East Anglian Archaeology Occasional Papers 24 (EAA <b>24</b> )
SCC	2008	The Suffolk Historic Landscape Characterisation Map, version 3
SCCAS	2017a	Requirements for a Trenched Archaeological Evaluation (version 1.3)
SCCAS	2017b	Archaeological Archives in Suffolk: Guidelines for preparation and deposition
SCCAS/CT	2017	Brief for a Trenched Archaeological Evaluation at Land north of Hornecroft, The Heath, Tattingstone. Rachael Abraham, March 2017

# L Pooley



Colchester Archaeological Trust, Roman Circus House, Roman Circus Walk, Colchester, Essex, CO2 7GZ

tel: 01206 501785 email: lp@catuk.org

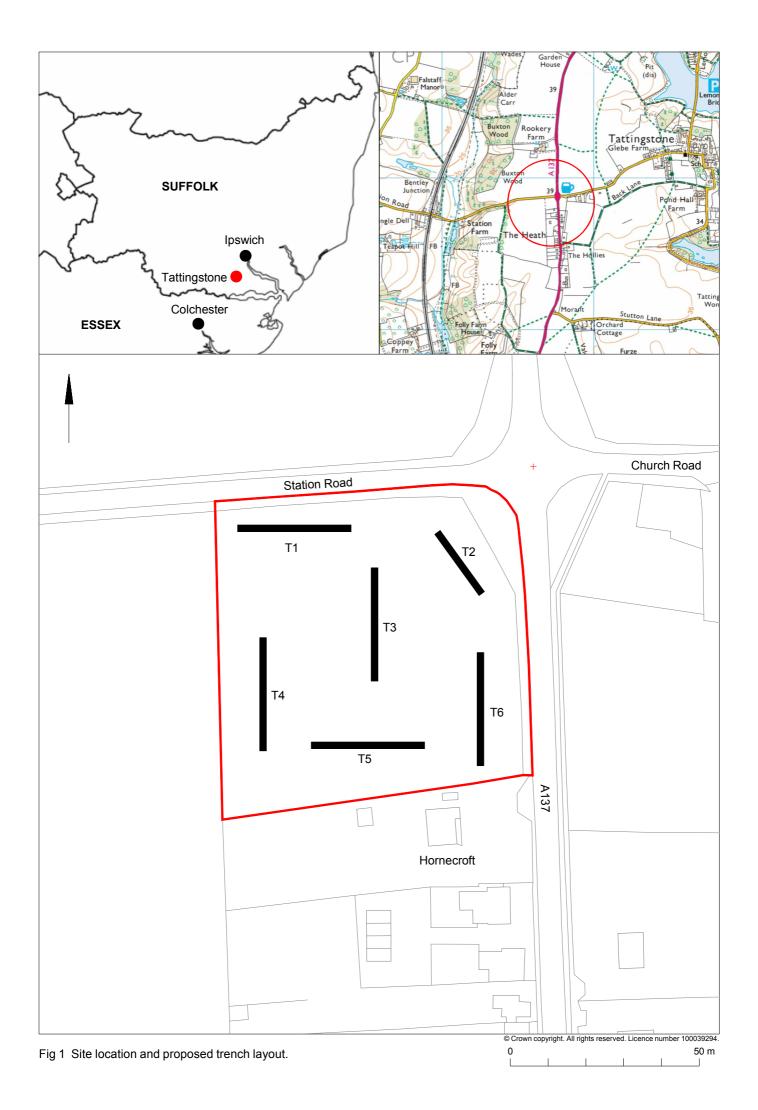




Fig 2 Development site in relation to nearby archaeological sites

© Crown copyright. All rights reserved. Licence number 100039294. Imagery © 2017 Google, map data © 2017 Google.

0 500 m

# **OASIS DATA COLLECTION FORM: England**

List of Projects L| Manage Projects | Search Projects | New project | Change your details | HER coverage | Change country | Log out

#### Printable version

## OASIS ID: colchest3-284228

Project details

Project name Archaeological evaluation on land north of Hornecroft, The Heath, Tattingstone, Suffolk, IP9 2LX

Short description of the project

An archaeological evaluation (six trial-trenches) was carried out on land to the north of Hornecroft, The Heath, Tattingstone, Suffolk in advance of the construction of thirteen new dwellings and an associated access road. The evaluation uncovered twelve undated features, most of which are probably tree-throws from a wood shown on the site in Hodgkinson's map of 1783. An undated posthole, pit/posthole, gully and a possible

ditch terminus (or natural feature) was also recorded.

Project dates Previous/future

No / Not known

Any associated 17/05d - Contracting Unit No.

Field evaluation

project reference codes

Any associated

B/16/01046/FUL - Planning Application No.

Start: 06-06-2017 End: 08-06-2017

project reference codes Type of project

Site status None

Current Land use Vacant Land 1 - Vacant land previously developed

Monument type POSTHOLE Uncertain Monument type PIT Uncertain

Monument type GULLY Uncertain TREETHROW Uncertain Monument type DITCH TERMINUS Uncertain Monument type Significant Finds IRONWORK Post Medieval Significant Finds IRONWORK Modern

Significant Finds COPPER ALLOY SHEET Post Medieval Significant Finds COPPER ALLOY SHEET Modern

Methods & ""Sample Trenches""

Development type Urban residential (e.g. flats, houses, etc.)

Prompt Planning condition

Position in the planning process After full determination (eg. As a condition)

#### **Project location**

Country

Site location SUFFOLK BABERGH TATTINGSTONE land north of Hornecroft, The Heath

Postcode IP7 2LX 0.65 Hectares Study area

TM 127 368 51.988320390721 1.098165808652 51 59 17 N 001 05 53 E Point Site coordinates

Height OD / Depth Min: 37.04m Max: 37.82m

# **Project creators**

Name of Organisation Colchester Archaeological Trust

Project brief

HEM Team Officer, ECC

Project design originator

Laura Pooley

director/manager

Project supervisor Ben Holloway

Type of sponsor/funding

body

# **Project archives**

Physical Archive

Digital Archive recipient

Suffolk County Council Archaeology Service

Digital Archive ID TAT 032

Digital Contents "Stratigraphic", "Survey"

Digital Media

"Images raster / digital photography","Survey"

available

recipient

Paper Archive Suffolk County Council Archaeology Service

Paper Archive ID TAT 032

Paper Contents

"Stratigraphic","Survey"

Paper Media available

"Context sheet","Miscellaneous Material","Photograph","Plan","Report","Section"

#### Project bibliography 1

Grey literature (unpublished document/manuscript)

Publication type

Title Archaeological evaluation on land north of Hornecroft, The Heath, Tattingstone, Suffolk, IP9 2LX: June 2017

Author(s)/Editor(s) Hicks, E.

CAT Report 1116

Other bibliographic details

2017

Colchester Archaeological Trust

Issuer or

Place of issue or Colchester

publication

Description A4 loose-leaf ring-bound URL http://cat.essex.ac.uk/

Entered by Laura Pooley (lp@catuk.org)

10 August 2017 Entered on

Please e-mail Historic England for OASIS help and advice © ADS 1996-2012 Created by Jo Gilham and Jen Mitcham, email Last modified Wednesday 9 May 2012 Cite only: http://www.oasis.ac.uk/form/print.cfm?id=292554 for this page