

Transitional medieval Brick Kilns at Site 3, Beaulieu Chelmsford, Essex



**Post-excavation Assessment
& Updated Project Design**



May 2017

**Client: Countryside Zest
(Beaulieu Park) LLP**

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Transitional medieval Brick Kilns at Site 3, Beaulieu, Chelmsford, Essex

Post-excavation Assessment and Updated Project Design

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Summary

Oxford Archaeology East carried out an open area excavation within Site 3, Beaulieu, Chelmsford ahead of the construction of the RDR haulage road. The works were carried out between the 23/9/16 and 20/11/16.

The earliest phase of occupation recorded dates to the high medieval period and comprises several ditches, possibly forming part of a field system associated with the nearby manor of Bulls Lodge.

Undoubtedly the most significant remains encountered comprise four brick kilns (clamps), a probable specialist brick kiln and a number of associated features, including quarry pits, work surfaces and cart tracks. The brick kilns appear to be those built specifically for the construction of Henry VIII's Tudor palace located nearby at Beaulieu.

1 INTRODUCTION

1.1 Project Background

- 1.1.1 Between the 23rd September and 20th November 2016 Oxford Archaeology East carried out an archaeological excavation at Site 3 Beaulieu, Chelmsford (TL 7405 1034; Fig. 1). The work was undertaken in advance of the Radial Distributor Road (RDR) route as part of the infrastructure works associated with the new neighbourhood to the north-east Chelmsford, known as Beaulieu.
- 1.1.2 Outline planning permission for the Beaulieu development has been granted by Chelmsford City Council (ref: 09/01314/EIA). The new neighbourhood, will comprise up to 3,600 new homes and up to 62,300m² of mixed use development including new schools, leisure and community facilities, employment areas, new highways and associated ancillary development, including full details in respect of roundabout access from Essex Regiment Way and a priority junction from White Hart Lane.
- 1.1.3 These archaeological excavations were undertaken to mitigate the construction impacts of the RDR haulage road totalling 0.85 hectares.
- 1.1.4 This work was carried out in accordance with the Beaulieu Archaeological Investigation Strategy (URS 2013a), and an Archaeological Method Statement prepared by Oxford Archaeology East (Mortimer 2016).
- 1.1.5 This excavation is part of an ongoing archaeological project, across a phased development. The time-scale for this development is dependant on many factors and so cannot be accurately determined at the present time. The work presented in this Post-Excavation Assessment will eventually be incorporated into wider Analysis and Publication Reports.
- 1.1.6 This assessment has been conducted in accordance with the principles identified in English Heritage's guidance documents *Management of Research Projects in the Historic Environment*, specifically *The MoRPHE Project Manager's Guide* (2006) and *PPN3 Archaeological Excavation* (2008).
- 1.1.7 The site archive is currently held by OA East and will be deposited with the appropriate county stores in due course.

1.2 Geology and Topography

- 1.2.1 Beaulieu (the Site) is located approximately 4km to the north-east of Chelmsford, Essex. The Site encompasses an area of high ground surrounded on three sides by river valleys. To the west and south is the River Chelmer, and to the east is Boreham Brook. North of the Site the ground rises towards the village of Terling. From the southern part of the Site there are views south towards the Chelmer Valley and Danbury Hill.
- 1.2.2 The site is situated in the eastern part of the Beaulieu development (centred on TL 7405 1034; Fig. 1) and encompasses two fields, both of which were previously arable farmland.
- 1.2.3 Site 3 lay on a steep gradient with the northern end of the excavation area being 33.8m OD. At the southern end of the excavation area the ground descends to 29.8m OD. The second area (Trench 611) was relatively flat at 31.6m OD.

- 1.2.4 The superficial geology consists of boulder clay of the Lowestoft Till formation underlain by London Clays. To the south of the area lay a mixture of head deposits and sand and gravels (British Geological Survey).

1.3 Archaeological and Historical Background

Neolithic

- 1.3.1 Essex has some of the earliest surviving evidence of settlement, mainly concentrated to the north-east along the River Crouch at Lawford and Lemarsh (Hedges, 1984). Evidence for possible domestic settlement within the vicinity of Beaulieu was recorded at Court Road, 1km to the north-west, in the form of several pits with Neolithic pottery within their fills (SMR 6142).

Bronze Age

- 1.3.2 Settlement continued to be concentrated along the river valleys of the Chelmer and Crouch, however during the Bronze Age the landscape was enclosed by field systems for the first time, such as those found at Great Wakering (Kemble 2001). These enclosed field systems would have continued in use through into the early Iron Age. It has been suggested that these Bronze Age field systems form the basis for the modern landscape in the Chelmer Valley (Drury & Rodwell 1980).
- 1.3.3 Several crop-marks have been recorded by aerial photography to the south of Belstead Hall and interpreted as part of a Bronze Age settlement (SMR 16888), with further domestic dwellings excavated at Springfield Lyons, 2.5km to the south-west. Further occupation sites are attested to by the recovery of artefacts, such as at New Hall School, to the east and Pratt's Farm, to the north.

Iron Age

- 1.3.4 The settlement pattern during the Iron Age would have been of nucleated settlements within a larger farming landscape. Evidence of this, within the vicinity of the development area, was seen to the south of Belstead Hall (SMR 17438). This comprised a large enclosure with associated pits and smaller ditches (Drury 1978).
- 1.3.5 The Later Iron Age witnessed an expansion of settlement onto the heavier clay soils and the continued occupation of the estuaries. These estuarine sites are seen to become more complex in nature over time, with higher population density and sustained occupation, such as has been found at Little Waltham (Drury 1980).
- 1.3.6 By the end of the Iron Age sites such as Gosbecks oppida show that portions of the population were highly structured and of high status. These sites would have relied on farming communities scattered around the environs to supply agricultural commodities. (Crummy 1997).

Roman

- 1.3.7 During the Roman period a *mansio* (an imperial post station or inn) was established 5km west of Beaulieu at Moulsham Street. Around this a small market town (*Caesaromagus*) developed with the surrounding area forming an agricultural hinterland to supply produce to the town.
- 1.3.8 This agricultural landscape would have comprised of large farms and villa complexes, such as those at Great Holts Farm and Bulls Farm Lodge. Smaller domestic sites would also have formed part of the landscape. Evidence for these has been recorded during evaluation work at Greater Beaulieu. Evidence for pottery making, associated with domestic use was also recorded.

Anglo-Saxon

- 1.3.9 In the immediate Post-Roman period, the Roman town at Chelmsford was abandoned and much of the surrounding landscape reverted to rough pasture or woodland (Hunter 2003). No known remains of Anglo-Saxon date are recorded within the application site although this is more likely to reflect the relatively poor archaeological visibility of Anglo-Saxon settlement sites rather than a lack of activity during the period.
- 1.3.10 Two records dating to the Anglo-Saxon period are held by the EHER; both of which are documentary records for Late Saxon manors, with Belestedam (Belstead Hall) recorded in the Domesday survey of AD 1086 and one in the vicinity of New Hall School documented in AD 1062 (Reaney 1935).

Medieval

- 1.3.11 The medieval town of Chelmsford was founded at the end of the 12th century, by the Bishop of London, to the north of the earlier Roman settlement at Moulsham. Throughout the medieval period the site was located within the rural hinterland of Chelmsford in a landscape populated by scattered farmsteads and manors.
- 1.3.12 To the west lay the manor of New Hall on the site of the current New Hall School. It is first mentioned by name (as 'Nova Aula') in documents dating to AD1301 when the site formed part of the lands owned by the Canons of Waltham Abbey and was used as the summer residence of the Abbott. It was later transferred to the Regular Canons under Henry II (Burgess & Rance 1988).
- 1.3.13 The first deer park surrounding New Hall was created during the medieval period with the manor at its centre (Tuckwell, 2006). Under Henry VII, New Hall was granted to Thomas Boteler, Earl of Ormond, who received a licence to crenellate (fortify) it in AD1481 (E41/420) and who, in all likelihood, rebuilt or remodelled the original medieval hall in the latest architectural style. The new structure came to the attention of Henry VIII who visited New Hall in 1510 and 1515, shortly before Ormond's death. Subsequently, the property passed to Thomas' daughter and thus into the Boleyn family through her husband Sir Thomas Boleyn, from whom Henry VIII acquired the hall in 1516, changing its name to the 'Palace of Beaulieu'. Shortly after 1518 he rebuilt the Ormond's medieval hall on a quadrangular plan with gatehouse in the south range, great hall in the east and chapel in the west ranges. Mary Tudor took residency at New Hall intermittently between 1532 and her ascendancy to the crown in 1553.
- 1.3.14 Evidence for a further moated manor is recorded at Belstead Hall. This manor was occupied throughout the medieval period. By 1325 it was called Belestede, in 1354 it was recorded as Belestede Hall and by 1504 it was known as Belested Hall. The name is thought to derive from 'the site of the bell house' (Reaney 1935).
- 1.3.15 Analysis of aerial photographs and geophysical survey identified a number of features which, when investigated by trial trench evaluation, were found to comprise a possible enclosure ditch or moat. A cobbled surface (possibly representing a house platform or yard surface), pit and several further ditches were recorded within the enclosure. Pottery recovered from the features suggests an occupation date of the 12-13th century (ECC FAU 2009). These remains have been interpreted as paddocks and an agricultural processing area associated with the manorial site at Belstead Hall c.160m to the north-east of Site 7 within Zone A of the Beaulieu development.

Post-Medieval

- 1.3.16 The development of New Hall and its deer park dominated the landscape of the application site and the surrounding area until the park contracted in size and the fields

were enclosed for agriculture in the early 18th century. As the deer park was reduced in size the former medieval manors or lodges developed into farms, creating an essentially agricultural landscape.

- 1.3.17 Since the medieval period, New Hall had been set within the largest deer park in Essex; once totalling some 1,500 acres. The EHER records that the enclosed area actually comprised four separate parks surrounding New Hall and its gardens. Within the Great or Old Park located to the north of New Hall. The remaining parks were known as the Red Deer Park located to east of New Hall, the Dukes Park (located further east beyond the study area; EHER 47226) and the New or Little Park situated to the south and west of New Hall. The application site is located within this latter area.

Previous Archaeological Investigations

Geophysical Surveys

- 1.3.18 Geophysical magnetic susceptibility and detailed magnetometer surveys were carried out to evaluate the potential for important archaeological remains that may be buried within the Site. The magnetic susceptibility survey provided a rapid assessment of likely areas for previous settlement and industrial activity. The survey identified six areas of high potential, ten areas of medium potential and seven areas of low potential (Scott Wilson 2008). The magnetic susceptibility survey was followed by a detailed magnetometer survey of c.50% of the Beaulieu scheme. This survey provided a greater level of detail and identified individual features such as pits and ditches, field boundaries, buildings and structures, kilns or hearths and buried iron objects. The detailed magnetometer survey identified ten areas of high archaeological potential; six of medium potential and 19 of low potential (Scott Wilson 2008).

Trial trench Evaluation, 2008

- 1.3.19 A limited programme of targeted trial trench evaluation was undertaken between June and August 2008 to support the Environmental Impact Assessment for the Beaulieu development. The purpose of the trial trenching was to confirm the presence/absence and significance of archaeological remains at eight sites identified by an assessment of the combined results of the desk-based studies and non-intrusive surveys (Scott Wilson 2007).
- 1.3.20 The trial trenching confirmed the presence of archaeological remains dating from the late prehistoric to post-medieval periods. This included a Late Iron Age and Early Romano-British settlement (Site 8); an Iron Age ditch (Site 5); medieval rural settlement possibly indicative of a precursor to Belstead Hall (Site 7); a possible medieval/transitional medieval warrener's lodge associated with the former deer park (Site 10); transitional medieval moated enclosure (Site 11); Tudor fishpond and associated earthwork dam (Site 2); a brick making site comprising two scove or clamp kilns of possible Tudor date (Site 3) and evidence for associated quarrying activity (Site 4).

Beaulieu Minerals trial trench evaluation

- 1.3.21 A trial trench evaluation was undertaken in September/October 2011 to inform and support the planning application for the Beaulieu Minerals Extraction scheme. The evaluation identified a concentration of archaeological remains to the north-west of New Hall School. These remains appear to represent a rural settlement and possible metalworking activity dating from the Late Bronze Age through to the end of the Roman period. Metal detecting of the plough soil revealed several Early Roman coins and fragments of Early Roman brooches within the main area of activity.

Beaulieu Phase 1 evaluation and excavations, 2013

- 1.3.22 Archaeological trial trench evaluation of the proposed Essex Regiment Way roundabout, White Hart Lane junction and connecting access road identified four locations of significant archaeological remains (Stocks-Morgan, 2013).
- 1.3.23 Site 5, located within the footprint of the proposed Essex Regiments Way roundabout, identified part of a Middle Iron Age settlement comprising a single roundhouse, surviving only as the remains of an eaves-drip gully. Several small pits and postholes were identified outside the roundhouse and were likely to be associated with domestic activity contemporary with the building. This settlement was surrounded by a large oval enclosure.
- 1.3.24 In Area A1 a single east to west aligned field boundary ditch of possibly Late Iron Age date attests to a wider agricultural landscape of field systems. A second, probably medieval, ditch was encountered on a north-west to south-east alignment (Stocks-Morgan, 2013a).
- 1.3.25 In Zone D of the development Site 11 and Area D1 identified evidence of two High medieval house platforms and their surrounding enclosures. Thought to be a medieval settlement associated with Belstead Manor estate (Stocks-Morgan, 2013b).

Beaulieu Zone A Housing Evaluation and Excavations, 2014

- 1.3.26 Trial trench evaluation and subsequent open area excavation within the Zone A housing area to the south of Belstead Hall Farm revealed remains dating from the Middle Bronze Age to the post-medieval period (Stocks-Morgan 2014a),
- 1.3.27 A Middle Bronze Age boundary ditch, aligned north-east to south-west, evidence for Early Iron Age open settlement comprising ten pits containing a large assemblage of pottery and fired clay, and a medieval, possible retting pit and enclosures were also recorded at Site 7. Sparse domestic activity is suggested by Late Iron Age pits that were revealed in Areas A3 and A4 along the side of a brook to the south of Zone A. In contrast Area A2 revealed the presence of a Late Iron Age/Roman enclosure ditch and later medieval ditch.

Zone B and E Trench Evaluation, 2014

- 1.3.28 Four areas of significant archaeological remains were identified in Zone E. No significant archaeological remains were recorded in Zone B (Stocks-Morgan 2014b).
- 1.3.29 Two small open area excavations were undertaken in the western part of Zone E, which encountered Late Bronze Age / Early Iron Age open settlement, comprising five four-poster structures and several pits. A further area in the northern part of Zone E encountered a small undated gully.
- 1.3.30 A large open area excavation (Site 8) was undertaken towards the south-eastern corner of the site, which identified occupation spanning a period from the Late Iron Age into the Early Roman period. These settlement remains consisted of an enclosure surrounding a roundhouse and associated occupation features. In the Early Roman period this enclosure was reconfigured and the roundhouse was replaced. This phase of settlement also produced an associated midden deposits and an ancillary roundhouse (Stocks-Morgan, 2016a)

Beaulieu Phase 2a Infrastructure mitigation evaluation and excavations, 2015

- 1.3.31 A small open area excavation was carried out ahead of the construction of drainage ponds and swales that form part of the Phase 2a infrastructure works. The archaeology encountered comprised a prehistoric trackway and a Late Iron Age nucleated settlement (Stocks-Morgan, 2016b).

CZ1 / Site 10

- 1.3.32 A 14th / 15th century pit was encountered with two associated ditches during excavation of Zone G / Site 10. This pit is thought to be a retting pit, based upon its shape and the recovery of pollen/seeds from the waterlogged deposits. A later medieval ditched enclosure was also recorded. Inside the enclosure were the remains of a 16th century house, represented by the remains of two brick built fireplaces, and a possible brick built staircase. Two further brick built ancillary structures were evident, one being a cellar and the second a probable toilet block (Stocks-Morgan, 2016c).

Beaulieu Gas Diversion

- 1.3.33 A total of six trenches were excavated across two separate fields, within the proposed development area.
- 1.3.34 No significant archaeological finds, features or deposits were present in the evaluation trenches (Stocks-Morgan, 2016d).

Beaulieu Primary and Secondary Schools Site

- 1.3.35 A total of sixty-one trenches were excavated within the proposed development area, across three separate fields.
- 1.3.36 Two phases of medieval field boundaries were present within the southern field, one of which was on a north-west to south-east alignment and the second phase aligned on a north to south axis. One further undated ditch was encountered in the northern part of the development area (Stocks-Morgan, 2016e).

Beaulieu Land parcels CZ 1 and CZ 2 and Zones M and N

- 1.3.37 This evaluation comprised thirty-three trenches across three separate fields, within the proposed development area.
- 1.3.38 A possible prehistoric posthole was recorded to the north of the site and a transitional medieval ditch and two quarry pits were encountered towards the eastern side of the development area. A further undated ditch was present (Stocks-Morgan, 2016f).

Beaulieu LS1, CZ5 and the Primary School site (Zone P)

- 1.3.39 A total of forty-five trenches were excavated across two separate fields, within the proposed development area.
- 1.3.40 Evidence of Early Iron Age open settlement was encountered, comprising a fire pit and two small pits. A Middle Iron Age ditch, thought to be part of either a field system or trackway was seen in the eastern field.
- 1.3.41 Transitional medieval remains comprising several brick filled linear features associated with the deer park were recorded in the eastern field. These may be evidence for a deer course. A post-medieval ring ditch was evident in the north-western part of the site along with a field boundary (Stocks-Morgan, 2016g).

Beaulieu CZ 6 and CZ 7

- 1.3.42 Forty-one trenches were excavated across two separate fields, within the proposed development area.
- 1.3.43 This evaluation recorded the remains of early prehistoric dispersed settlement in the form of a fire pit and a rectangular pit which contained frequent charcoal. In the northern part of the development area a putative late medieval settlement comprised four potential wall foundations, possibly belonging to a building, and two ditches thought to be part of an enclosure.
- 1.3.44 Several brick filled linear features in both fields may be evidence for a deer course associated with the deer park (Stocks-Morgan, 2016h).

Beaulieu land parcel CZ 7

A total of eighteen trenches were excavated in this area. The remains of two linear, brick filled features may be evidence for a deer course. A further three post-medieval field boundaries were found, along with two undated ditches and an undated posthole (Stocks-Morgan, 2016i).

Beaulieu Minerals Extraction Site (Site 1)

- 1.3.45 Evidence for prehistoric activity included three Early Bronze Age pits that may have been the remnants of cremations, although this was not conclusive and could represent domestic activity. An Early Iron Age post-built structure interpreted as a possible grain store was recorded in Area 1B. During the Middle Iron Age an unenclosed settlement was established that consisted of a roundhouse, a post-built structure and two ovens, a possible stock enclosure and numerous pits and postholes. Subsequently a Late Iron Age roundhouse within a sub-rectangular enclosure were set out in this area. The Early Roman period was represented by rectangular structures with associated cobbled surfaces and a small oven in Area 1C and a trackway to the north-east, in Area 1B.
- 1.3.46 Two areas of 12th to 14th century occupation were identified in Areas 1A and 1C. In Area 1C this comprised a rectangular enclosure encompassing a rectangular building. In the north-east of Area 1A, a small building was recorded in association with intercutting cess pits and a hollow filled by midden material.
- 1.3.47 By the transitional medieval period several brick filled gullies had been laid out. In the main these comprised gullies backfilled with broken brick fragments that followed the alignments of pre-existing medieval boundary ditches. These probably formed the foundations for creating visible barriers within the deer park landscape. A smaller number of more regularly constructed, brick-filled features possibly represented the foundations for small buildings.
- 1.3.48 Three post medieval ring ditches spaced across the excavation were most likely tree stands within a formal or managed garden (Stocks-Morgan 2017).

1.4 Acknowledgements

- 1.4.1 The author would like thank Iain Williamson of AECOM and Countryside Zest (Beaulieu Park) LLP who respectively commissioned and funded the archaeological work. The project was managed by Richard Mortimer and the illustrators were Charlotte Walton. Thanks are also extended to Steve Graham who supervised the site and Ed Cole, Jessica Dyson, Dan Firth, Toby Knight, Paddy Lambert, Adele Lord and Joanna Nataszcyc who helped with the fieldwork. The project was monitored by Alison Bennett

of Essex County Council. The machining was undertaken by Dave Calder of Danbury Plant Hire.

2 PROJECT SCOPE

- 2.1.1 This assessment deals only with the excavation carried out on areas designated as Site 3, within a larger phased development. The earlier evaluation data will be incorporated in to the results where relevant. Further assessments will be produced following any future work required on other parts of the development.

3 ORIGINAL RESEARCH AIMS AND OBJECTIVES

3.1 Aims

- 3.1.1 The main aim of the excavation was to preserve by record the archaeological remains present within the development area and to reconstruct the history and use of the site.
- 3.1.2 The current project will be incorporated within the wider archaeological investigations at Beaulieu. The research objectives that are applicable to this specific site are detailed below.

3.2 Regional Research Objectives

- 3.2.1 There are a number of regional research objectives that have been identified by Historic England, formally English Heritage (English Heritage, 1997) which provide a framework for investigation and can be applied to the medieval evidence recovered at Beaulieu.

The Medieval Period (AD 1066-1540)

- The study of medieval rural settlement diversity across East Anglia
- The characterisation of settlement forms, function, chronology, structure and the investigation rural settlement type and morphology
- The understanding of agrarian regimes on the geology of the rural sites, through the use of environmental sampling
- The characterisation and chronology of medieval field systems and understanding how the size and shape of fields can be related to agricultural regimes
- The study of the evolution of the medieval house and farmstead and agrarian economy
- To understand the form that farms take and the type of building present and whether functions can be attributed to them.

The Post Medieval Period AD (1540 – 1900)

- To map historic parks and gardens and identify / define unregistered parks and gardens. To assess the differential survival of earlier phases of historic parks
- The characterisation of settlement forms, function, chronology
- To assess / understand the development of parks and gardens in respect to the social and economic circumstances, especially in relation to the distribution of wealth and social stratification
- To understand the development of farmsteads and modern farming practices. To determine the social status specifically through architectural design

- To understand the effect of the dissolution and the social change brought about by the decline in manors, estates and gardens

3.3 Site Specific Research Objectives

3.3.1 The site specific aims for Site 3 are:

- To preserve by record the nature, extent, form and function of individual features identified at the early post-medieval brick making site
- To recover a sufficient sample of waster bricks to understand through further study where the bricks produced were used. Were they used in the construction of an individual building or for wider use in the main building or lodges of the New Hall estate; and
- To contribute to the wider understanding of scove/clamp kilns used in Essex through comparison with the brick-clamp at Beeleigh Abbey, Maldon.

4 SUMMARY OF RESULTS

4.1 Provisional Site Phasing

4.1.1 For consistency with all previous and forthcoming reports features where dating is available it will be attributed to the following periods (see Table 1). Features have been placed in phases based on stratigraphic and spatial relationships, alongside the use of artefact dating where available.

Neolithic (3500 – 2000 BC)	Early Neolithic (3500 – 2900 BC)	
	Middle Neolithic (2900-2500 BC)	
	Later Neolithic (2500 - 2000 BC)	
Bronze Age (2000 – 700 BC)	Early Bronze Age (2000 - 1500 BC)	EBA
	Middle Bronze Age (1500 - 1000 BC)	MBA
	Later Bronze Age (1000 – 700 BC)	LBA
Iron Age (700 BC – AD 43)	Early Iron Age (700 – 200 BC)	EIA
	Middle Iron Age (200 – 50 BC)	MIA = 200–100BC / LrIA:100-50BC
	Late Iron Age (50 BC – AD 43)	LIA
Roman (AD 43 - 410)	Early Roman (AD 43 - 200)	ER
	Roman (AD 200 - 400)	
Saxon (AD 410 – 1066)	Early Anglo-Saxon (AD 410 – 650)	
	Middle Anglo-Saxon (AD 650 – 850)	
	Late Anglo-Saxon (AD 850 – 1066)	
Medieval (AD 1066 – 1650)	Early Medieval (AD 1066 – 1200)	
	High Medieval (AD 1200 – 1450)	
	Transitional (AD 1450 - 1650)	
Post-Medieval (AD 1650 - 1800)		
Modern (AD 1800 – present)		

Table 1: Chronology used in this report

4.1.2 The underlying natural deposits into which the archaeological features were cut comprised a mid blueish grey brown clay with occasional patches of natural gravels.

4.1.3 A light greyish brown silty clay (6620) subsoil, which was 0.10m thick, was present across the site. This was overlain by a dark greyish brown silty clay (6619) topsoil ranging from 0.15 to 0.25m thick.

4.1.4 The earliest archaeological features recorded date to the high medieval period and consist of a series of ditches, possibly part of a field system. The majority of the features, however, date to the transitional medieval (Tudor) period and relate to brick making, with five kilns encountered and associated quarry pits and work surfaces (see

Figs 2 and 3 for plans). For ease of reference, the lowest cut number assigned to linear features is used in the following text, although all cut numbers relating to slots excavated across the features are shown on the accompanying plan.

4.2 Pre-medieval

- 4.2.1 A hillwash material (6542; not illustrated) was evident at the southern end of Site 3, which lay at the base of the slope. It covered the southern end of the site for an area of 6m, where it was cut by medieval ditch **6541** (see below; not illustrated). This hillwash comprised a mid greyish brown silty clay which was 0.25m thick in places and produced no finds.

4.3 High medieval

- 4.3.1 In the south-eastern corner of Site 3 an enclosure ditch (**6557**) was encountered which was aligned west-south-west to east-north-east before turning at a right angle towards the north-north-west. The ditch had steep sides and a concave base, measuring between 2.3m and 2.5m wide and 0.79m and 0.83m deep. It contained a series of three fills (6554, 6555, 6556). One of the ditch slots (**6561**) contained one sherd of early medieval coarseware and two residual flint blades in the uppermost fill, along with residual Roman tile.
- 4.3.2 A further ditch (**6565**) extended from the south-east corner of this enclosure and was aligned north-north-west to south-south-east. This ditch had steep sides and a concave base and measured 4.7m wide and 1.14m deep. This ditch contained a series of secondary deposits (6566, 6567, 6568, 6569, 6571).
- 4.3.3 A ditch (**7152**) which was on the same alignment and in line with ditch **6565** was present in Trench 611 to the south-east. At this point the ditch had steep sides and a concave base and measured 0.6m wide and 0.28m deep. It was filled by a series of secondary deposits (7153, 7154, 7155).
- 4.3.4 Perpendicular to ditch **6565** was a small ditch (**6541**) which extended north-eastwards along the southern edge of Site 3. This ditch was 4.8m wide, 0.78m deep with steep sides and a concave base. It contained an initial fill of dark greyish brown silty clay (6543). Two thin lenses of material (6544, 6545) overlay this, one of which was possibly the remnants of a later gravel surface and an early post-medieval brick (see below) which may have slumped into the backfilled ditch.
- 4.3.5 The corner of an enclosure was revealed at the eastern edge of the excavation where a ditch (**6606**) was aligned south-east to north-west before turning towards the north-east. At the point where it turned, two later quarry pits cut the ditch (see below). The ditch had gradual sides and a concave base and measured 2.4m wide and 0.35m deep. It was filled by a mid orangey brown silty clay (6607) which contained one sherd of medieval coarseware.

4.4 Transitional medieval (Tudor)

Site 3

- 4.4.1 The majority of the archaeological features date to the transitional medieval (Tudor) period and relate to brick making. These remains include four brick kilns or clamps, associated work surfaces and large quarry pits (see Fig. 2 for plan and Plate 1 for aerial photograph). Only the bases of the brick clamps survived, further description of their design and use is provided in the Discussion (see Section 7).

Quarry pits

- 4.4.2 At the southern end of the site was a large sub-rectangular pit (**6608**) measuring 36.5m long and up to 9m wide. The southern side of the pit was steep, while the northern side was more gradual. It had a fairly flat base and measured 1.42m deep. The pit was initially filled by a 0.6m thick, pale yellowish brown silty clay (6609) followed by a mid greyish brown silty clay (6610) which was 0.3m thick. This was overlain by a 0.4m thick, deliberate dump of brick rubble (6611), which included several wasters from the nearby kiln/clamp. The pit was then infilled by a subsoil-derived material (6612) which suggests that it was left to gradually infill (see Fig. 4, section 2234). Before the pit was completely filled in, a later gravel surface (6583/6613) extended over the edge of it, subsiding into the top of it (see below).
- 4.4.3 In the centre of the excavation area and lying between kilns **6633** and **6650** (see below) was a large amorphous quarry pit (**6642**) which measured c. 23m long and 21m wide. A trench was excavated through the centre of the pit, which was found to be 0.9m deep with fairly steep sides and a generally flat base (see Fig. 4, section 2240). The pit was initially filled along the eastern side with a naturally-derived soil (6640), which was 1.35m thick. This was followed by a series of four deposits (6648, 6647, 6646, 6645), one of which (6645) contained the remains of a horse skeleton. All the deposits were waterlain suggesting either periodic flooding or a secondary use of the pit as a pond / tank. The pit was then backfilled with a further series of deposits (6641, 6649, 6639, 6638 and 6637) which comprised a mix of brick rubble and subsoil that are likely to be the result of deliberate tipping of waste material from the nearby kilns.
- 4.4.4 Several smaller quarry pits were encountered towards the eastern side of the excavation area. The northernmost example (**6575**) was sub-circular in plan and measured 11m by 7m. It was investigated by four test pits and found to be 0.25m deep with a relatively flat base. The fill comprised a dark greyish brown silty clay (6576).
- 4.4.5 Ten metres to the south-east lay two intercutting pits (**6601**, **6604**) which cut earlier ditch **6606**. Pit **6601** had fairly steep sides and an irregular base and measured 2.2m in diameter and 0.4m deep. It was filled by two fills (6602 and 6603) both of which were characteristic of gradual infilling. Truncating this pit to the east was the second pit (**6604**) which had relatively steep sides and a slightly concave base. It measured 3.5m in diameter and 0.3m deep and was filled by a mid orangey brown silty clay (6605).

Brick clamps/kilns

- 4.4.6 The southernmost of the three clamps/kilns identified in the main excavation area (kiln **6650**) was sub-rectangular in plan with a flat base and measured 17.25m long and 9.5m wide. The overall depth of the kiln deposits was 0.32m. The first layer within the kiln comprised a dark purple sandy clay (6595) which was 0.16m thick and the result of intense heat scorching of the natural clay. Over the top of this material was a 0.26m thick layer of dark greyish brown peaty clay (6593). This was overlain by a 0.16m thick layer of dark greyish black silty clay (6586): the remains of very degraded charcoal (see Plate 2).
- 4.4.7 Overlying this was a mid red sandy clay (6984) which is characteristic of crushed and heavily fired bricks, and was 0.12m thick and interpreted as the lowest course of the stacked bricks from the last firing.
- 4.4.8 Several flues were evident at this point, which were placed on the eastern and western sides of the kiln and spaced on average 0.5m apart. The flues terminated at the same point within the kiln, where there was an internal chamber aligned north to south which

measured 1.5m wide. These flues were evidenced by the lack of deposit 6984 and the presence of charcoal-rich material.

- 4.4.9 On either side of the kiln was a similar dark greyish brown silty clay (6985, 6987) which contained frequent brick pieces (<5cm) and which had a maximum width of 2.7m. This layer extended northwards towards the quarry pit (**6642**) and is thought to have acted as a track to load / unload the bricks. This is interpreted as a working area to load and unload the kiln.
- 4.4.10 Two further clamps/kilns were fully exposed and excavated showing a similar pattern of construction / use. The northernmost of these (kiln **6634**) was aligned north-west to south-east and measured 13.5m by 9.8m. The middle kiln (**6633**) was aligned at right angles to this and measured 27.5m by 10m.
- 4.4.11 A fourth kiln (**6635**) was revealed to the east of these, but was only only partially exposed within the excavation area. This kiln was recorded but not excavated.

Working areas and trackways

- 4.4.12 Several working surfaces were revealed that appear to have been associated with the kilns. The more northerly of these (6636) was partly exposed to the north-east of the kilns, in the corner of the excavation area. This gravel surface comprised frequent sub-angular flint along with small brick fragments compacted into a mid greyish grey silty clay.
- 4.4.13 Immediately south of kiln **6650** was a gravel surface (6632) which covered an area 19.6m by 10.5m. This surface comprised of small sub-angular flint metalling interspersed with moderate amounts of crushed brick.
- 4.4.14 A similar gravel surface (6583/6613) was encountered towards the south-western corner of the excavation area and overlay backfilled quarry pit **6608**. This surface measured 17.8m by 8.9m in area and was 0.2m thick (Fig. 4, section 2234). Above this was a final tertiary silty layer (6114) filling the pit, which was cut by a modern field drain.
- 4.4.15 Cutting surface (6583/6613) were two parallel linear gullies (**6573**, **6667**), forming the remains of a cart track. The gullies were spaced 1.2m apart and aligned north-west to south-east, with concave sides and flat bases. The western gully (**6573**) measured 0.45m wide and 0.06m deep. The eastern gully (**6667**) measured 0.3m wide and 0.06m deep. Both were filled with a similar mid greyish brown silty clay (6574, 6668). Gully **6573** produced a sherd of late medieval orange sandy ware.
- 4.4.16 A small gully (**6546**) was also encountered extending to the north-west on roughly the same alignment as gully **6573** and is interpreted as being part of the same trackway.
- 4.4.17 Remains of another probable cart trackway were found immediately north-east of quarry pit **6642**, represented by two parallel gullies (**6615**, **6617**) spaced 0.77m apart. This trackway was also aligned north-west to south-east, although gully 6615 curved slightly westwards into the quarry pit.
- 4.4.18 Located between kilns **6633** and **6634** was an area of brick rubble which measured 5m by 4m in plan. This deposit consisted of small crushed red sandy bricks, 80x70x70mm in size. Two test pits (6651, 6652) were excavated through the deposit, which measured a maximum of 0.24m thick and lay directly above the natural substrate.

Other features

- 4.4.19 Two pits possibly associated with the brick kilns were also encountered. In the south-western corner lay a sub-circular pit (**6562**) which was 4.8m long and 3.84m wide. The

0.18m-deep pit had shallow sides and a slightly concave base and was filled by a mid greyish brown silty clay (6563) which contained one sherd of sandy orange ware and frequent brick and gravel inclusions.

- 4.4.20 A small sub-circular pit (**6552**) was encountered in the south-eastern corner of the excavation area. This pit measured 0.71m long and 0.3m wide. The pit had steep sides and a concave base and was 0.05m deep. Although undated, it cut medieval ditch **6541**, indicating that it may have been contemporary with the kilns.

Trench 611

- 4.4.21 The remains of a smaller brick clamp/kiln (**7157**) were revealed in the north-western corner of Field 31. The excavation of this was undertaken separately (Trench 611) and is shown in Fig. 3, with the section (2561) on Fig. 4 and photograph on Plate 3.

Specialist brick clamp/kiln

- 4.4.22 The kiln measured 6.3m long and 4.4m wide and 0.24m deep and was aligned north-west to south-east. The natural directly below the kiln was visibly scorched (7163) to a thickness of 0.07m, giving it a purplish colour. Overlying this were two lenses of material, one of which was a patchy gravel surface (7183) and the other a subsoil material (7184); probably a levelling layer.
- 4.4.23 Directly above these deposits was a 0.05m-thick layer of charcoal (7149) which was overlain by a 0.1m-thick crushed red brick deposit (7161) with occasional gravel and grey silty clay inclusions.
- 4.4.24 A possible flue or firing tunnel was encountered cut into backfilled medieval ditch **7152** and was situated in the southern end of the kiln, along the short axis. The flue (**7222**) was 0.7m wide and 0.2m deep with moderately steep sides and a flat base. Degraded charcoal was recorded within the flue infilling and, although not identifiable to species, did appear on site to have been some form of timber plank.
- 4.4.25 Against the northern side of the kiln structure was some heavily degraded charcoal (7200) which formed the outline of a box set into the red clay deposit. However, it was unfortunately not possible to lift this intact due to the fragile nature of the charcoal. The box was square in plan and measured 0.6m across with a depth of 0.08m.

Associated features

- 4.4.26 Cut into the western side of the kiln was a sub-circular posthole (**7187**) which was 0.55m long and 0.3m wide. The posthole had concave sides and a rounded base and was 0.1m deep. It was filled by a mid greyish brown silty clay (7188).
- 4.4.27 In the eastern side of the kiln was a second circular posthole (**7179**) which had a diameter of 0.3m. This posthole had moderately steep sides and a concave base and was 0.1m deep. It was filled by two charcoal rich deposits (7180, 7186), most likely deriving from discarded kiln material.
- 4.4.28 Truncating the central part of the kiln were two intercutting pits. The earliest of these (**7147**), which had fairly steep sides and a slightly concave base, measured 0.55m in diameter and was 0.3m deep. It was filled by a light greyish orange silty clay (7151). This was cut by pit **7145** which had steep sides and a flat base. It measured 0.75m in diameter and was 0.25m deep. The fill comprised a dark greyish brown silty clay (7150).
- 4.4.29 Overlying the kiln was a gravel surface (7160), which may have been associated or may represent a later working area. This surface measured 11.5m long and 6m wide

and comprised a densely compacted light greyish silty clay with frequent sub-angular flints (7160).

4.5 Undated

- 4.5.1 A 0.6m wide ditch (**6548/6550**) aligned north-west to south-east was encountered in the south-eastern corner of the main excavation area. This 0.2m-deep ditch had steep sides and a concave base and its single fill comprised a light greyish brown silty clay (6549). Although undated, this ditch was truncated by ditch **6557**, suggesting that it was of medieval or earlier date.
- 4.5.2 A small sub-circular posthole (**6663**) lay immediately underneath kiln **6634**, and could have been related to the kiln's construction or may have been an earlier feature. This posthole measured 0.45m wide and 0.24m deep and had steep sides and a concave base. The fill comprised a mid greyish brown silty clay (6664).

5 FACTUAL DATA AND ASSESSMENT OF ARCHAEOLOGICAL POTENTIAL

5.1 Stratigraphic and Structural Data

The Excavation Record

- 5.1.1 All hand written records have been collated and checked for internal consistency, and the site records have been transcribed onto an MS Access Database. Contexts will be assigned to a phase dependant on the evidence found within them. The site plans and all relevant sections have been digitised in AutoCAD, finds will be drawn by hand. The quantification list of excavation records is recorded in Table 2.

Type	Excavation
Context registers	6
Context numbers/sheets	193
Plan registers	2
Section registers	2
Sample registers	8
Photo registers	14
Plans (1:20; 1:50)	58
Sections (1:10; 1:20)	31
Digital photographs	937

Table 2: Quantification of excavation records

Finds and Environmental Quantification

- 5.1.2 A large assemblage was recovered during the excavation, with CBM forming the largest component.
- 5.1.3 The bulk finds have been washed, bagged, marked (in accordance with Essex County Council guidelines) and quantified by material type onto an MS Office Access database to allow integration with the stratigraphic record. These overall totals are summarised in Table 3), which also includes some data obtained from the evaluation reports; more detailed quantification is presented in the finds appendices.

Finds Category	Excavation Quantities	
	Weight (kg)	Number
Flint	0.008	2

Finds Category	Excavation Quantities	
	Weight (kg)	Number
Pottery	0.01	4
Total CBM	28.5	54
Assessed CBM	11.73	20
Animal bone	2.259	79

Table 3: Quantification of finds

Range and Variety

- 5.1.4 Features consisted of ditches, kilns/clamps, pits, postholes and gravel surfaces. The features were of medieval date with the greatest proportion belonging to the transitional medieval (Tudor) period. Table 4 below summarises the total number of each type of feature.

type	Provisional Date					
	total	HM	TM	PM	Mod	undated
Ditches	6	5				1
Pits	9		9			
kiln	5		5			
posthole	3		2			1
gullies	5		5			
surfaces	4		4			
total	32	5	25			2

Table 4: Range and variety of features

5.1.5 Condition

- 5.1.6 Survival of the deposits was variable and there was some slight truncation due to ploughing. The overburden thickness was greatest in the southern part of the site.

5.2 Documentary Research

- 5.2.1 Documentary and cartographic research will be undertaken where appropriate to place the site, particularly the kilns, into its wider context.

5.3 Artefact Summaries

Flint

Summary

- 5.3.1 Two residual struck flint blades were recovered from ditch fill (6560). Both of these flints are likely to date from the Mesolithic or Early Neolithic period.

Statement of Potential and Recommendations for Further Work

- 5.3.2 The flint has little demonstrable potential to inform the dating and nature of activity on the site. No further work is required on this assemblage.

Medieval pottery

Summary

- 5.3.3 A total of four sherds weighing 0.01kg was recovered from four contexts. This pottery ranges from the early medieval into the post-medieval period.

Statement of Potential and Recommendations for Further Work

- 5.3.4 This is a small assemblage and therefore not of great significance and requires no further work.

Ceramic Building Material

Summary

- 5.3.5 The ceramic building material that has been assessed comprises 20 pieces weighing 11731g, which were recovered from five features, the majority from a large quarry pit **6642** and the remainder from three medieval and later ditches (**6541**, **6561**, **6643**) and a pit (**6562**). The assemblage comprises almost entirely of brick apart from three fragments of tile, two of which may be Roman.

Statement of Potential

- 5.3.6 The bricks are an important element of the site both as products of the brick clamps and in their historical association with a major building programme instigated by Henry VIII. Few examples of Tudor brick clamps are known and even fewer have been extensively excavated and reported. The bricks are the end product of the process of brick production and as such provide important evidence of the activity undertaken on the site.

Recommendations for Further Work

- 5.3.7 A report on the bricks should be prepared for publication. If there is any brick from the clamps themselves this should be recorded and compared to the brick from adjacent features to validate the latter as products from the clamps. Dating of an individual brick should be considered, if the new method of rehydroxylation dating becomes commercially available within the timescale of the project.

5.4 Environmental Summaries

Faunal Remains

Summary

- 5.4.1 A total weight of 2.259kg of animal bone was recovered. The majority of which, 1.651kg, represents a single horse skeleton.

Statement of Potential and Recommendations for Further Work

- 5.4.2 This is a small assemblage and has very low potential for providing information on diet or industrial practises. No further work is required.

Environmental Remains

Summary

- 5.4.3 Seventy samples were taken from features, of which fourteen samples were processed. Preservation of plant remains from kiln **6640** is by carbonisation but is restricted to occasional charred seeds with a notable lack of charcoal. Preservation of plant remains is by carbonisation and is limited to wood charcoal only.

Statement of potential

- 5.4.4 The two sampled kilns differ in the amount of charcoal that they contained; Kiln **7157** produced an abundance of charcoal which would be suitable for species identification to determine which wood species was used as fuel. The selected samples from kiln **6650** produced only sparse charcoal and occasional charred seeds that are of little interpretative value.

- 5.4.5 Further sampling of kilns **6663** and **6634** should be undertaken to test for fuel type, as at present only the specialist kiln has produced charcoal that is identifiable to species and given the different size and function to the kiln it would be unwise to assume it used a similar fuel. Further processing of samples from features dating to the medieval period should be undertaken in order to investigate possible differences in agricultural regimes as potentially these features relate to a different manor complex (Bulls Lodge) than ones previously seen in excavations at Beaulieu.

Recommendations for Further Work

- 5.4.6 A total of seven samples are suggested for further processing which will require 2 days to process and analyse. A further 49 buckets of soil are currently in storage and 1.5 days will be required to dispose of the soil and wash buckets.
- 5.4.7 Charcoal remains from the processed kiln samples and any further processed samples should be sent to the relevant specialist in order to assess the viability of species identification to ascertain fuel types used in the kilns.

6 REPORT WRITING, ARCHIVING AND PUBLICATION

6.1 Storage and Curation

- 6.1.1 Excavated material and records will be deposited with, and curated by, Essex County Council in appropriate county stores under the Site Code and county HER code SPBP16. A digital archive will be deposited with OA Library/ADS. ECC requires transfer of ownership prior to deposition. During analysis and report preparation, OA East will hold all material and reserves the right to send material for specialist analysis.
- 6.1.2 The archive will be prepared in accordance with current OA East guidelines, which are based on current national guidelines

6.2 Publication

- 6.2.1 The results from all phases of the project will form a site of regional significance, therefore publication in the East Anglian Archaeology monograph series appears appropriate. However, the Oxford Archaeology monograph series is also a viable alternative. Once the publication outlet is confirmed (following discussions with relevant parties), a preliminary synopsis will be prepared.

7 DISCUSSION

Introduction

- 7.1.1 The discussion concentrates on features that are dated and can be grouped. It is presented as an overall chronological format to help set the findings into context within their wider landscape setting.

High medieval

- 7.1.2 The earliest phase of activity dates to the high medieval period and is represented by several ditches (**6555**, **6557**, **6541**, **7152**) revealed in the southern part of Site 3 and in Trench 611. These ditches may have formed part of the outlying field system to the medieval manor complex at Bulls Lodge Farm, located 0.17km to the west (Fig. 1).
- 7.1.3 The ditches were quite substantial in size, possibly larger than might be expected for agricultural fields, however, given how poorly drained the natural geology is and the steep gradient of the site it is possible that these factors made larger ditches necessary. There was also little material culture recovered from the ditch fills suggesting that the ditches lay away from the main area of settlement.
- 7.1.4 A further ditch (**6606**) was present in the eastern part of Site 3, which although only tentatively dated by one small sherd of early medieval ware, its alignment appears similar to the medieval ditches suggesting that it may have been part of the same field system, or a separate enclosure.

Transitional medieval (Tudor)

- 7.1.5 The features which date to the transitional medieval period all relate to brick making and consist of the remains of five clamps or kilns, associated quarry pits, trackways and and work surfaces.
- 7.1.6 Four of the clamps (Kilns **6633**, **6634**, **6635**, **6650**) are characteristic of being used to fire standard bricks, with similar kilns having been excavated at Hampton Court Palace (Ford *et al.* 1993) and Beeleigh Abbey (Ennis 1996). These brick kilns would have had a central chamber which was left open to create an updraught and a series of flues present along the long axis of the kiln, which at the current site was evidenced within the excavated examples. Bricks would have been stacked up either side of the flues along within part of the central chamber. Once the bricks had been stacked the kiln structure would have been covered over by turf before firing occurred. The excavated examples only have the basal part of the surviving clamp structure, however, the flues and overall kiln structure were still evident.
- 7.1.7 Brick clamps could commonly accommodate the firing of 30,000 to 45,000 bricks but some have shown to have held up to 150,000 bricks (Ford *et al.*, 1993). Further analysis of the kiln structure could potentially estimate the individual kiln's capacity. Further research into the historical records for Beaulieu Palace may help to establish the quantities of brick used in the construction of the Palace. Combining the two sources of information, along with identifying particular brick fabrics may help to elucidate whether these kilns were used exclusively for the palace building or for the estate in general.
- 7.1.8 A further kiln (**7157**) was encountered to the south of the main group in Trench 611. This was much smaller in size, measuring 5m by 3m in comparison to the larger ones which were 20m by 10m in plan. The structure of the kiln was also different, with only one flue evident located along the short axis. It is possible that this kiln was used for specialist bricks, such as finistrals. No bricks or wasters of such bricks were found

during the excavation, although there is plenty of evidence for their use in Beaulieu Palace.

- 7.1.9 The brick kilns are currently only broadly dated to the Tudor period based on the bricks found in association with them, *i.e.* from the backfilled quarry pits, combined documentary references in historical texts about Beaulieu. Further clarification of the dating could be established through radiocarbon dating (and see App. B3 for other scientific dating methods). The large quantities of charcoal present within the environmental samples that were directly associated with the use of at least one of the kilns should provide suitable material for radiocarbon dating in addition to investigation of the type of fuel wood being used. The same bricks were used to construct the lime kiln at Site 8, 1km away.
- 7.1.10 Several features associated with the working of the kilns were evident in the excavation area. These included two large quarry pits (**6608**, **6642**) that were encountered adjacent to the kilns, which both had cart tracks (**6573**, **6615**) leading up to / away from them, and which were subsequently backfilled with brick waste. The two quarry pits were different in shape, one of which (**6642**) being roughly sub-circular and the other (**6608**) being long and thin, either suggesting they were of a slightly different date, possibly different seasons of work done by different workers, or they were targeting specific outcrops of higher quality clay.
- 7.1.11 No specific evidence for any structures associated with the itinerant workers was encountered during the excavation. External surfaces were identified but given their location near to the kilns and quarry pits it is likely that these were laid down as a work surface rather than associated with domestic settlement. It is possible that the structures lay outside the excavation area or that they were temporary buildings which have not survived in the archaeological record. The paucity of finds (four sherds of pottery) also reiterates that this was an area given over to industrial processes, probably located at some distance from contemporary domestic occupation. Although a larger assemblage of animal bone was recovered, most of the fragments are from the same animal, presumably a work horse (albeit only around 16 months old, see App. C1) that following its demise was buried in a partially-backfilled quarry pit.

APPENDIX A. CONTEXT SUMMARY WITH PROVISIONAL PHASING

context	cut	same as	Trench	Category	Feature Type	Width	Depth	Phase
6541			site 3	cut	ditch	1.7	0.78	medieval
6542			site 3	layer	hillwash	6	0.25	undated
6543	6541		site 3	fill	ditch	1.5	0.72	medieval
6544	6541		site 3	fill	ditch	1.3	0.08	medieval
6545	6541		site 3	fill	ditch	1.68	0.08	medieval
6546			site 3	cut	trackway	0.5	0.11	transitional medieval
6547	6546		site 3	fill	trackway	0.5	0.11	transitional medieval
6548			site 3	cut	ditch	0.6	0.2	undated
6549	6548		site 3	fill	ditch	0.6	0.2	undated
6550		6548	site 3	cut	ditch	0.48	0.19	undated
6551	6550		site 3	fill	ditch	0.48	0.19	undated
6552			site 3	cut	pit	0.3	0.05	transitional medieval
6553	6552		site 3	fill	pit	0.3	0.05	transitional medieval
6554	6557		site 3	fill	ditch	1.4	0.26	medieval
6555	6557		site 3	fill	ditch	2.5	0.66	medieval
6556	6557		site 3	fill	ditch	2.1	0.84	medieval
6557			site 3	cut	ditch	2.5	0.84	medieval
6558	6561		site 3	fill	ditch	2.3	0.78	medieval
6559	6561		site 3	fill	ditch	1.6	0.55	medieval
6560	6561		site 3	fill	ditch	1.9	0.3	medieval
6561		6557	site 3	cut	ditch	2.3	0.78	medieval
6562			site 3	cut	pit	3.84	0.18	transitional medieval
6563	6562		site 3	fill	pit	3.84	0.18	transitional medieval
6564		6557	site 3	cut	ditch	2.8	0.94	medieval
6565			site 3	cut	ditch	4.14	1.14	medieval
6566	6565		site 3	fill	ditch	3.1	1.1	medieval
6567	6565		site 3	fill	ditch	4.1	0.82	medieval
6568	6565		site 3	fill	ditch	2.6	0.64	medieval
6569	6565		site 3	fill	ditch	2.37	0.25	medieval
6570	6564		site 3	fill	ditch	2.8	0.9	medieval
6571	6565		site 3	fill	ditch	1.3	0.15	medieval
6572	6564		site 3	fill	ditch	1.82	0.52	medieval
6573			site 3	cut	trackway	0.45	0.06	transitional medieval
6574	6573		site 3	fill	trackway	0.45	0.06	transitional medieval
6575			site 3	cut	pit	1	0.25	transitional medieval
6576	6575		site 3	fill	pit	1	0.25	transitional medieval
6577		6575	site 3	cut	pit	1	0.25	transitional medieval
6578	6577		site 3	fill	pit	1	0.25	transitional medieval
6579		6575	site 3	cut	pit	1	0.25	transitional medieval
6580	6579		site 3	fill	pit	1	0.25	transitional medieval
6581		6575	site 3	cut	pit	1	0.25	transitional medieval

context	cut	same as	Trench	Category	Feature Type	Width	Depth	Phase
6582	6581		site 3	fill	pit	1	0.25	transitional medieval
6583			site 3	layer	surface	8.9	0.2	transitional medieval
6584	6650		site 3	layer	kiln	9	0.12	transitional medieval
6585	6650		site 3	layer	kiln		0.06	transitional medieval
6586	6650		site 3	layer	kiln	12	0.16	transitional medieval
6587	6650		site 3	layer	kiln		0.07	transitional medieval
6588	6650		site 3	layer	kiln		0.03	transitional medieval
6589	6650		site 3	layer	kiln		0.03	transitional medieval
6590	6650		site 3	layer	kiln		0.05	transitional medieval
6591	6650		site 3	layer	kiln	0.9	0.12	transitional medieval
6592	6650		site 3	layer	kiln	12	0.16	transitional medieval
6593	6650		site 3	layer	kiln	13	0.26	transitional medieval
6594	6650		site 3	layer	kiln	13	0.26	transitional medieval
6595	6650		site 3	layer	kiln	14	0.16	transitional medieval
6596	6650		site 3	layer	kiln	14	0.16	transitional medieval
6597		6557	site 3	cut	ditch	2.7	0.6	medieval
6598	6597		site 3	fill	ditch	2.7	0.24	medieval
6599	6597		site 3	fill	ditch	2.7	0.35	medieval
6600	6597		site 3	fill	ditch	2.7	0.1	medieval
6601			site 3	cut	pit	2.2	0.4	transitional medieval
6602	6601		site 3	fill	pit	1.2	0.3	transitional medieval
6603	6601		site 3	fill	pit	2.2	0.4	transitional medieval
6604			site 3	cut	pit	3.5	0.3	transitional medieval
6605	6604		site 3	fill	pit	3.5	0.3	transitional medieval
6606			site 3	cut	ditch	2.4	0.35	medieval
6607	6606		site 3	fill	ditch	2.4	0.35	medieval
6608			site 3	cut	pit	7.84	1.28	transitional medieval
6609	6608		site 3	fill	pit	5.6	0.6	transitional medieval
6610	6608		site 3	fill	pit	7.2	0.32	transitional medieval
6611	6608		site 3	fill	pit	7.4	0.26	transitional medieval
6612	6608		site 3	fill	pit	7.84	0.1	transitional medieval
6613		6583	site 3	layer	surface	1.9	0.24	transitional medieval
6614	6608		site 3	fill	pit	7.84	0.18	transitional medieval
6615			site 3	cut	trackway	1.2	0.16	transitional medieval
6616	6615		site 3	fill	trackway	1.2	0.16	transitional medieval
6617			site 3	cut	trackway	0.65	0.21	transitional medieval
6618	6617		site 3	fill	trackway	0.65	0.21	transitional medieval
6619			site 3	layer	topsoil		0.35	
6620			site 3	layer	subsoil		0.1	
6621		6608	site 3	cut	pit	9.5	1.42	transitional medieval
6622		6608	site 3	cut	pit	7.2	1	transitional medieval
6623				void				
6624	6621		site 3	fill	pit	3.3	1.42	transitional medieval

context	cut	same as	Trench	Category	Feature Type	Width	Depth	Phase
6625	6621		site 3	fill	pit	2	0.94	transitional medieval
6626	6621		site 3	fill	pit	4.5	0.92	transitional medieval
6627	6621		site 3	fill	pit	2.7	0.2	transitional medieval
6628	6621		site 3	fill	pit	7.5	0.6	transitional medieval
6629	6622		site 3	fill	pit	4.8	0.4	transitional medieval
6630	6622		site 3	fill	pit	5.4	0.74	transitional medieval
6631	6622		site 3	fill	pit	7.2	0.3	transitional medieval
6632			site 3	layer	surface	10.5		transitional medieval
6633			site 3	master	kiln	10		transitional medieval
6634			site 3	master	kiln	9		transitional medieval
6635			site 3	master	kiln	12		transitional medieval
6636			site 3	layer	surface	10	0.1	transitional medieval
6637	6642		site 3	fill	pit	13.6	0.8	transitional medieval
6638	6642		site 3	fill	pit	15	0.45	transitional medieval
6639	6642		site 3	fill	pit	13.75	0.6	transitional medieval
6640	6642		site 3	fill	pit	6	1.35	transitional medieval
6641	6642		site 3	fill	pit	7.25	0.6	transitional medieval
6642			site 3	cut	pit	21	2.4	transitional medieval
6643		6541	site 3	cut	ditch	0.87	0.38	medieval
6644	6643		site 3	fill	ditch	0.87	0.38	medieval
6645	6642		site 3	fill	pit	5.5	0.25	transitional medieval
6646	6642		site 3	fill	pit	5.25	0.3	transitional medieval
6647	6642		site 3	fill	pit	5.25	0.2	transitional medieval
6648	6642		site 3	fill	pit	2.4	0.3	transitional medieval
6649	6642		site 3	fill	pit	3.25	0.6	transitional medieval
6650	6650		site 3	cut	kiln	17	9	transitional medieval
6651			site 3	layer	rubble	1	0.19	transitional medieval
6652			site 3	layer	rubble	1	0.24	transitional medieval
6653	6633		site 3	layer	kiln	20	0.16	transitional medieval
6654	6633		site 3	layer	kiln	22	0.1	transitional medieval
6655	6633		site 3	layer	kiln	23.5	0.2	transitional medieval
6656	6633		site 3	layer	kiln	23.5	0.19	transitional medieval
6657	6634		site 3	layer	kiln	1.95	0.14	transitional medieval
6658	6634		site 3	layer	kiln	8.7	0.1	transitional medieval
6659	6634		site 3	layer	kiln	9	0.08	transitional medieval
6660	6634		site 3	layer	kiln	8.3	0.1	transitional medieval
6661	6634		site 3	layer	kiln	7.9	0.25	transitional medieval
6662	6634		site 3	layer	kiln	2.55	0.2	transitional medieval
6663			site 3	cut	posthole	0.45	0.23	undated
6664	6663		site 3	fill	posthole	0.45	0.18	undated
6665	6663		site 3	fill	posthole	0.45	0.12	undated
6666	6667		site 3	fill	trackway	0.3	0.06	transitional medieval
6667			site 3	cut	trackway	0.3	0.06	transitional medieval

context	cut	same as	Trench	Category	Feature Type	Width	Depth	Phase
7145			Tr. 611	cut	pit	0.75	0.25	transitional medieval
7146	7145		Tr. 611	fill	pit	0.75	0.15	transitional medieval
7147			Tr. 611	cut	pit	0.55	0.3	transitional medieval
7148	7147		Tr. 611	fill	pit	0.6	0.18	transitional medieval
7149	7157		Tr. 611	layer	kiln	0.55	0.03	transitional medieval
7150	7145		Tr. 611	fill	pit	0.3	0.1	transitional medieval
7151	7147		Tr. 611	fill	pit	0.75	0.25	transitional medieval
7152			Tr. 611	cut	ditch	0.6	0.28	medieval
7153	7152		Tr. 611	fill	ditch	0.36	0.04	medieval
7154	7152		Tr. 611	fill	ditch	0.6	0.24	medieval
7155	7152		Tr. 611	fill	ditch	0.5	0.15	medieval
7156		7160	Tr. 611	layer	surface	3.3	0.3	transitional medieval
7157			Tr. 611	master	kiln	3.14	0.15	transitional medieval
7158			Tr. 611	layer	subsoil		0.06	
7159			Tr. 611	layer	subsoil		0.04	
7160			Tr. 611	layer	surface	0.7	0.05	transitional medieval
7161	7157		Tr. 611	layer	kiln	2	0.1	transitional medieval
7162	7157	7149	Tr. 611	layer	kiln	0.8	0.05	transitional medieval
7163	7157		Tr. 611	layer	kiln		0.08	transitional medieval
7164	7157		Tr. 611	layer	kiln	0.3	0.02	transitional medieval
7165		7160	Tr. 611	layer	surface	0.75	0.02	transitional medieval
7166	7157	7161	Tr. 611	layer	kiln		0.05	transitional medieval
7167	7157	7163	Tr. 611	layer	kiln		0.08	transitional medieval
7168	7157	7161	Tr. 611	layer	kiln	2	0.03	transitional medieval
7169	7157	7149	Tr. 611	layer	kiln		0.03	transitional medieval
7170	7157	7163	Tr. 611	layer	kiln		0.03	transitional medieval
7171	7147		Tr. 611	fill	pit	0.55	0.03	transitional medieval
7172		7152	Tr. 611	cut	ditch	0.6	0.35	medieval
7173	7172		Tr. 611	fill	ditch	0.6	0.35	medieval
7174	7157	7161	Tr. 611	layer	kiln	2	0.04	transitional medieval
7175	7157	7149	Tr. 611	layer	kiln	1	0.01	transitional medieval
7176	7157	7163	Tr. 611	layer	kiln	1	0.06	transitional medieval
7177	7157	7149	Tr. 611	layer	kiln	0.6	0.02	transitional medieval
7178	7157	7161	Tr. 611	layer	kiln	0.04	0.06	transitional medieval
7179			Tr. 611	cut	posthole	0.3	0.1	transitional medieval
7180	7179		Tr. 611	fill	posthole	0.05	0.04	transitional medieval
7181	7157	7149	Tr. 611	layer	kiln	0.6	0.05	transitional medieval
7182	7179		Tr. 611	fill	post hole	0.3	0.1	transitional medieval
7183	7157	7186	Tr. 611	layer	kiln	0.7	0.15	transitional medieval
7184	7157		Tr. 611	layer	kiln		0.04	transitional medieval
7185	7157	7184	Tr. 611	layer	kiln		0.03	transitional medieval
7186	7157		Tr. 611	layer	kiln		0.12	transitional medieval
7187			Tr. 611	cut	posthole	0.3	0.1	transitional medieval

context	cut	same as	Trench	Category	Feature Type	Width	Depth	Phase
7188	7187		Tr. 611	fill	posthole	0.3	0.1	transitional medieval
7189	7157	7161	Tr. 611	layer	kiln	2	0.1	transitional medieval
7190	7157	7161	Tr. 611	layer	kiln	2	0.1	transitional medieval
7191	7157	7161	Tr. 611	layer	kiln	2	0.1	transitional medieval
7192	7157	7163	Tr. 611	layer	kiln	0.22	0.03	transitional medieval
7193	7157	7163	Tr. 611	layer	kiln	0.4	0.02	transitional medieval
7194	7157	7163	Tr. 611	layer	kiln	0.2	0.04	transitional medieval
7195	7157	7186	Tr. 611	layer	kiln	0.35	0.1	transitional medieval
7196	7179		Tr. 611	fill	posthole	0.06	0.05	transitional medieval
7197	7157	7164	Tr. 611	layer	kiln	0.06	0.04	transitional medieval
7198	7179		Tr. 611	fill	posthole	0.06	0.03	transitional medieval
7199	7179		Tr. 611	fill	posthole	0.05	0.04	transitional medieval
7200			Tr. 611	finds unit	kiln	0.6	0.03	transitional medieval
7201	7200		Tr. 611	finds unit	kiln	0.6	0.08	transitional medieval
7202			Tr. 611	cut	post hole		0.05	transitional medieval
7203	7202		Tr. 611	fill	post hole		0.05	transitional medieval
7204	7202		Tr. 611	fill	post hole		0.05	transitional medieval
7205	7157	7184	Tr. 611	layer	kiln	0.5	0.09	transitional medieval
7206		7160	Tr. 611	layer	surface	0.5	0.05	transitional medieval
7207	7157	7161	Tr. 611	layer	kiln	0.5	0.05	transitional medieval
7208	7157	7163	Tr. 611	layer	kiln	0.55	0.02	transitional medieval
7209				void				
7210		7160	Tr. 611	layer	surface	3.1	0.2	transitional medieval
7221	7152		Tr. 611	layer	kiln flue	0.8	0.15	transitional medieval
7222	7152		Tr. 611	layer	kiln flue	0.4	0.2	transitional medieval
7223	7152		Tr. 611	layer	kiln flue	0.8	0.05	transitional medieval
7224	7152		Tr. 611	layer	kiln flue	0.4	0.1	transitional medieval
7225	7152		Tr. 611	finds unit	kiln flue	0.05	0.03	transitional medieval

APPENDIX B. FINDS REPORTS

B.1 Flint

By Anthony Haskins

- B.1.1 Two residual struck flint blades were recovered from the fill (6560) of a medieval ditch (**6561**). Both were struck from a mid reddish-brown semi-translucent good quality flint with an abraded chalky yellowish-white cortex. The larger of the two is a secondary decortification blade with a plain and unaltered platform. The other is a medial fragment of a parallel sided blade with a slight longitudinal curve. Both of these flints are likely to date from the Mesolithic or Early Neolithic period.

B.2 Medieval Pottery

By Helen Walker

Introduction and methodology

- B.2.1 A total of four sherds weighing 0.01kg was recovered from four contexts. This pottery ranges in date from the early medieval into the post-medieval periods.
- B.2.2 The Medieval Pottery Research Group (MPRG) *A guide to the classification of medieval ceramic forms* (MPRG 1998) and *Minimum Standards for the Processing, Recording, Analysis and Publication of Post-Roman Ceramics* (MPRG 2001) act as a standard. The pottery recording follows Cunningham's typology of post-Roman pottery in Essex (Cunningham 1985, 1-16; expanded by Cotter 2000 and Drury *et al.* 1993). Some of Cunningham's rim form codes are quoted in this report. All percentages quoted are by weight.
- B.2.3 The assemblage is recorded in the summary catalogue. The pottery and archive are curated by Oxford Archaeology East until formal deposition.

Sampling Bias

- B.2.4 The open area excavation was carried out by hand and selection made through standard sampling strategies on a feature by feature basis. There are not expected to be any inherent biases.

The Assemblage

Early medieval pottery – 11th century to c.1200

- B.2.5 Only a single feature, ditch **6561**, produced pottery comprising a small abraded sherd of early medieval ware.

High medieval c.1200 to 14th century

- B.2.6 The only definite medieval material is a single sherd of medieval coarseware from ditch **6606**.

Late medieval 14th to 16th C

- B.2.7 Site 3 produced a single, abraded sherd of sandy orange ware from pit **6562** that shows neither glaze or decoration and could be medieval or late medieval in date, spanning the 13th to 16th centuries. However, trackway **6573** produced a small sherd of unglazed

sandy orange ware with reduced surfaces indicative of a late medieval date spanning the late 14th to 16th centuries.

Context	Fabric	Sherd Count	Sherd Weight	Context Date range
6560	Early medieval ware	1	2	11th to early 13th C
6563	Sandy orange ware	1	2	later 13th to 16th C
6574	Late medieval sandy orange ware	1	1	Late 14th to 16th C
6607	Medieval coarseware	1	5	Later 12nd to 14th C

Table 5: Pottery catalogue (sherd weight is in grams)

B.3 Ceramic Building Material

By Cynthia Poole

Introduction and methodology

B.3.1 The total ceramic building material (CBM) collected from the site comprises 54 pieces weighing 28.5kg, of which, 20 pieces, weighing 11.731kg were assessed for this report. The CBM pieces were recovered from five features, the majority from a large quarry pit **6642** and the remainder from three ditches (**6541**, **6561**, **6643**) and a pit (**6562**). The assemblage has been fully recorded on an Excel spreadsheet in accordance with guidelines set out by the Archaeological Ceramic Building Materials Group (ACBMG 2007). The record includes quantification, fabric type, form, surface finish, markings and evidence of use/reuse (mortar, burning etc). Fabrics were characterised with the aid of x20 hand lens. The assemblage is summarised in Table 6.

The assemblage

Tile

B.3.1 The assemblage comprises almost entirely brick apart from three fragments of tile. The tile includes a piece of flat roof tile 14mm thick and made in the same fabric as the brick and probably contemporary with them. The other two pieces, made in orange sandy fabrics, may both be Roman: one plain flat tile (6560), measuring 31mm thick, is probably part of a tegula and a curved tile 6563) 18mm thick is probably a fragment of imbrex, though identification as a post-Roman ridge tile cannot be ruled out.

Brick

B.3.2 The brick is all very similar in character and made in the same fabric (Qfe). This is a reddish or orange brown fine sandy micaceous clay fabric containing a moderate-high density of medium-coarse quartz sand, common red-maroon ferrous oxide grits/clay pellets c.1-5mm and scattered flint grits and pebbles ranging from 2mm up to 40mm in size. All are well fired and hard and four are vitrified with grey glassy surfaces and a fifth overfired to a hard blue-grey vitrified condition throughout.

B.3.3 The bricks have a fairly rough finish with rounded arrises and corners, base and side surfaces having a rough sanded texture, sometimes creased, though upper surfaces are generally smoother, occasionally finely striated from the strike used to remove excess clay from the top of the mould. Two examples have discontinuous indented borders along some edges, which is usually taken to be indicative of a stock mould. A high proportion have scattered grass or straw stem impressions on the base and side

surfaces and a few have finger marks from handling the bricks pre-firing. One brick had a pimply surface, which may have resulted from being rained on.

- B.3.4 Only one complete brick survived providing the only evidence of length – just under 9 inches. Most of the remaining brick fragments retained complete thicknesses, which measured 2-2¼ inches and breadths 4¼ - 4½ inches. Details of all brick measurements appear in Table 6 in imperial and metric. This is very close to the dimensions established by the Brickmakers’ Charter of 1571, which stipulated measurements of 9 x 4½ x 2¼ ins - the so-called Statute Brick.
- B.3.5 All the bricks are interpreted as broken and waste products from the adjacent brick clamps, though no actual brick fragments were recovered from the clamps themselves. The bricks are all fresh and unabraded and there is no evidence such as mortar to suggest the bricks represent demolished building debris. Pit **6642** contained large quantities of brick throughout its fill, of which the examples reported here are a sample. The uniformity of bricks suggest all derived from the same manufacturing process and there appears to be no difference in the brick from different levels of the fill within pit **6642**, suggesting brick production was carried out for a single building project, rather than supplying a local market over an extended period of time. The bricks from this site are identical to those found on Zone E/Site 8 used in the building of the lime kiln and in the array of brick pads. The bricks are certainly of Tudor type, though it is not possible on brick form alone to be more precise than this. However the historical evidence for building work at Beaulieu Palace instigated by Henry VIII provides clear evidence for a specific demand for bricks at this period.

Cntxt	Cut	Spot Date	Nos	Wt (g)	Fab	Class	TH mm	TH ins	W mm	W ins	L mm	L ins
6542	6541	LC15-C16?	1	40	Qfe	Roof: flat	14	0	0	0	0	0
6543	6541	LC15-C16	2	161	Qfe	Brick	0	0	0		>85	0
6560	6561	RB	1	49	C	Flat tile	31	0	0	0	0	0
6563	6562	RB?	1	74	Q	Roof: imbrex?	18	0	0	0	0	0
6637	6642	LC15-C16	1	1185	Qfe	Brick	60	2⅜"	113	4 7/16"	>130	>5"
6637	6642	LC15-C16	1	1133	Qfe	Brick	55	2¼"	108	4¼"	>130	>5"
6637	6642	LC15-C16	1	997	Qfe	Brick	61	2⅜"	>88	>3½"	>165	>6½"
6638	6642	LC15-C16	3	436	Qfe	Brick	>55	0	>83	0	0	0
6639	6642	LC15-C16	1	1002	Qfe	Brick	54	2⅜"	113	4 7/16"	>121	>4¾"
6640	6642	LC15-C16	1	2348	Qfe	Brick	52-58	2"-2¼"	107	4¼"	225	8⅞"
6640	6642	LC15-C16	1	464	Qfe	Brick	56	2¼"	>98	0	0	0
6640	6642	LC15-C16	1	668	Qfe	Brick	60	2⅜"	110	4 5/16"	>85	0
6640	6642	LC15-C16	1	467	Qfe	Brick	52+	2"+	c. 109	4 5/16"	0	0
6640	6642	LC15-C16	1	2050	Qfe	Brick	54-57	2⅜"-2¼"	108	4¼"	>205	>8"
6644	6643	LC15-C16	1	445	Qfe	Brick	61	2⅜"	>104	0	>66	0
6645	6642	LC15-C16	2	212	Qfe	Brick	66	2⅝"	>58	0	0	0

Table 6: Ceramic building material

APPENDIX C. ENVIRONMENTAL REPORTS

C.1 Faunal Remains

By Zoe Ui Choileain

Introduction

C.1.1 A total weight of 2.259kg of animal bone was recovered. The majority of this, 1.651kg, represents a single horse skeleton.

Methodology

C.1.2 All identifiable elements were recorded using a version of the criteria described in Davis (1992). Identification of the assemblage was undertaken with the aid of Schmid (1972), plus use of the OA East reference collection. Taphonomic information such as butchery, carnivore/rodent gnawing and burning was recorded. Moreover, preservation condition was evaluated using the 0-5 scale devised by Brickley and McKinley (2004). Age was recorded using epiphiseal fusion (Silver 1969). No signs of butchery, burning or gnawing were observed.

Results

Context	Element	Number of frags	Taxon	Collection method	Erosion	Biometry	Age
6560	Indet	7	Large mammal	hand	3	No	No
6641	Maxilla	1	equid	hand	1	No	Yes
6645	Astragalus	2	equid	hand	1	No	Yes
	Calcaneus	2	equid	hand	1	No	Yes
	Femur	3	Equid	hand	1	No	Yes
	Humerus	2	equid	hand	1	No	Yes
	lateral phalanx	3	equid	hand	1	No	No
	Metacarpus I	1	equid	hand	1	No	Yes
	Patella	2	equid	hand	1	No	Yes
	Pelvis	2	equid	hand	1	No	Yes
	PH1	2	equid	hand	1	Yes	Yes
	Radius	2	equid	hand	1	No	Yes
	Rib	20	Equid	hand	1	No	Yes
	Scapula	1	equid	hand	1	No	Yes
	Tibia	2	equid	hand	1	No	Yes
	Vertebra	26	equid	hand	1	No	Yes
7167	Radius	1	Large mammal	hand	3	No	No

Table 7: Faunal remains: results according to collection method

(i.e. hand-collection or flotation). Erosion grades (simplified version of Brickley & McKinley 2004, 14-15): 0 (surface morphology clearly visible, fresh appearance), 1 (light and patchy surface erosion), 2 (more extensive surface erosion than grade 1), 3 (most of bone surface affected by some degree of erosion), 4 (all of bone surface affected by erosive action), 5 (heavy erosion across whole surface, completely masking normal surface morphology).

C.1.3 The assemblage is primarily composed of a single horse skeleton with a small percentage of large mammal bone identified from other contexts.

C.1.4 The horse skeleton was recovered from fill 6645 in late transitional (Tudor) quarry pit **6642**. The skeleton is between 75-100% complete. The distal epyphyses of both humerii and calcanae are unfused, giving an age of no more than 16 months (plus or minus 1 yr).

C.1.5 It is probable that the horse maxilla from context 6641, which also fills pit **6642**, belongs to the same animal.

C.2 Environmental Remains

By Rachel Fosberry

Introduction

- C.2.1 Seventy samples were taken from features within the excavated areas in order to assess the quality of preservation of plant remains and their potential to provide useful data as part of further archaeological investigations. Samples were taken from high medieval activity in the south-eastern corner of the excavation and from transitional medieval features that include quarry pits, working areas and brick kilns. This initial assessment is solely for kilns/clamps **6650** and **7157**.

Methodology

- C.2.2 Fourteen samples were selected for processing for this initial assessment; six from kiln **6650** and eight from kiln **7157**. One bucket (up to 10 litres) of each bulk sample was processed by water flotation (using a modified Siraff three-tank system) for the recovery of charred plant remains, dating evidence and any other artefactual evidence that might be present. The floating component (flot) of the samples was collected in a 0.3mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve. Both flot and residues were allowed to air dry. A magnet was dragged through each residue fraction prior to sorting for artefacts. Any artefacts present were noted and reintegrated with the hand-excavated finds. The dried flots were subsequently sorted using a binocular microscope at magnifications up to x 60 and a list of the recorded remains are presented in Tables 8 and 9.

Results

Kiln **6650**

- C.2.3 Preservation of plant remains is by carbonisation but is restricted to occasional charred seeds with a notable lack of charcoal. Dock (*Rumex* sp.) seeds are present in all of the samples and occasional charred flower buds (approx 2mm x 4mm) were noted in two of the samples.

Sample No.	Context No.	Comments	Volume processed (L)	Flot Volume (ml)	Weed Seeds	Total Charcoal volume (ml)
967	6592	Possible lining from kiln; contains charcoal	7	1	#	<1
968	6592	Flue sample	7	30	#	<1
969	6592	Lining sample	7	20	#	2
970	6592	Flue sample	8	1	#	<1
971	6592	Lining sample	7	10	#	<1
972	6592	Flue sample	5	5	#	<1

Table 8: Selected samples from kiln **6650**

Kiln **7157**

- C.2.4 Preservation of plant remains is by carbonisation and is limited to wood charcoal only. Small branches and twigs are frequently well preserved. Sample 895, taken from the fill (7223) of the flue of kiln **7157** also contains five seeds of cleavers (*Galium aparine*).

Context No.	Sample No.	Comments	Volume processed (L)	Flot Volume (ml)	Weed Seeds	Total Charcoal volume (ml)
7149	870	Charcoal layer	8	430	0	570
7162	863	Charcoal deposit; stratigraphically below (7161). From square A	8	45	0	45
7169	874	Charcoal deposit from square C; no finds. Under burnt clay layer	8	140	0	2740
7175	873	Charcoal deposit from square E; no finds. Under burnt clay layer	2	40	0	290
7177	880	Bottom charcoal layer overlying gravel; from square D	8	1700	0	1840
7193	884	Burnt natural layer; no finds. Abundance of charcoal and occasional burnt clay. From square K	5	10	0	10
7199	881	Heavy charcoal layer which partially underlies (7182); from square F	2	230	0	230
7223 (flue)	895	Charcoal deposit in flue; includes burnt natural	8	120	5	660

Table 9: Selected environmental samples from kiln **7157**

Discussion and recommendations for further work

- C.2.5 The two kilns differ in the amount of charcoal that they contain; Kiln **7157** produced an abundance of charcoal which would be suitable for species identification to determine which wood species was used as fuel. The selected samples from kiln **6650** produced only sparse charcoal and occasional charred seeds that are of little interpretative value.
- C.2.6 Numerous samples were taken from kilns **6633**, **6634**, **6650** and **7157** and remain unprocessed. Similarly, samples from ditch/gully **6550**, **6557** and **7152** have not been processed.

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APPENDIX E. OASIS REPORT FORM

Project Details

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Project Name	<input type="text"/>		
Project Dates (fieldwork) Start	<input type="text"/>	Finish	<input type="text"/>
Previous Work (by OA East)	<input type="text"/>	Future Work	<input type="text"/>

Project Reference Codes

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HER No.	<input type="text"/>	Related HER/OASIS No.	<input type="text"/>

Type of Project/Techniques Used

Prompt

Please select all techniques used:

<input type="checkbox"/> Field Observation (periodic visits)	<input type="checkbox"/> Part Excavation	<input type="checkbox"/> Salvage Record
<input type="checkbox"/> Full Excavation (100%)	<input type="checkbox"/> Part Survey	<input type="checkbox"/> Systematic Field Walking
<input type="checkbox"/> Full Survey	<input type="checkbox"/> Recorded Observation	<input type="checkbox"/> Systematic Metal Detector Survey
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Monument Types/Significant Finds & Their Periods

List feature types using the [NMR Monument Type Thesaurus](#) and significant finds using the [MDA Object type Thesaurus](#) together with their respective periods. If no features/finds were found, please state "none".

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HER	<input type="text"/>	
Study Area	<input type="text"/>	National Grid Reference <input type="text"/>

Project Originators

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Project Design Originator	<input type="text"/>
Project Manager	<input type="text"/>
Supervisor	<input type="text"/>

Project Archives

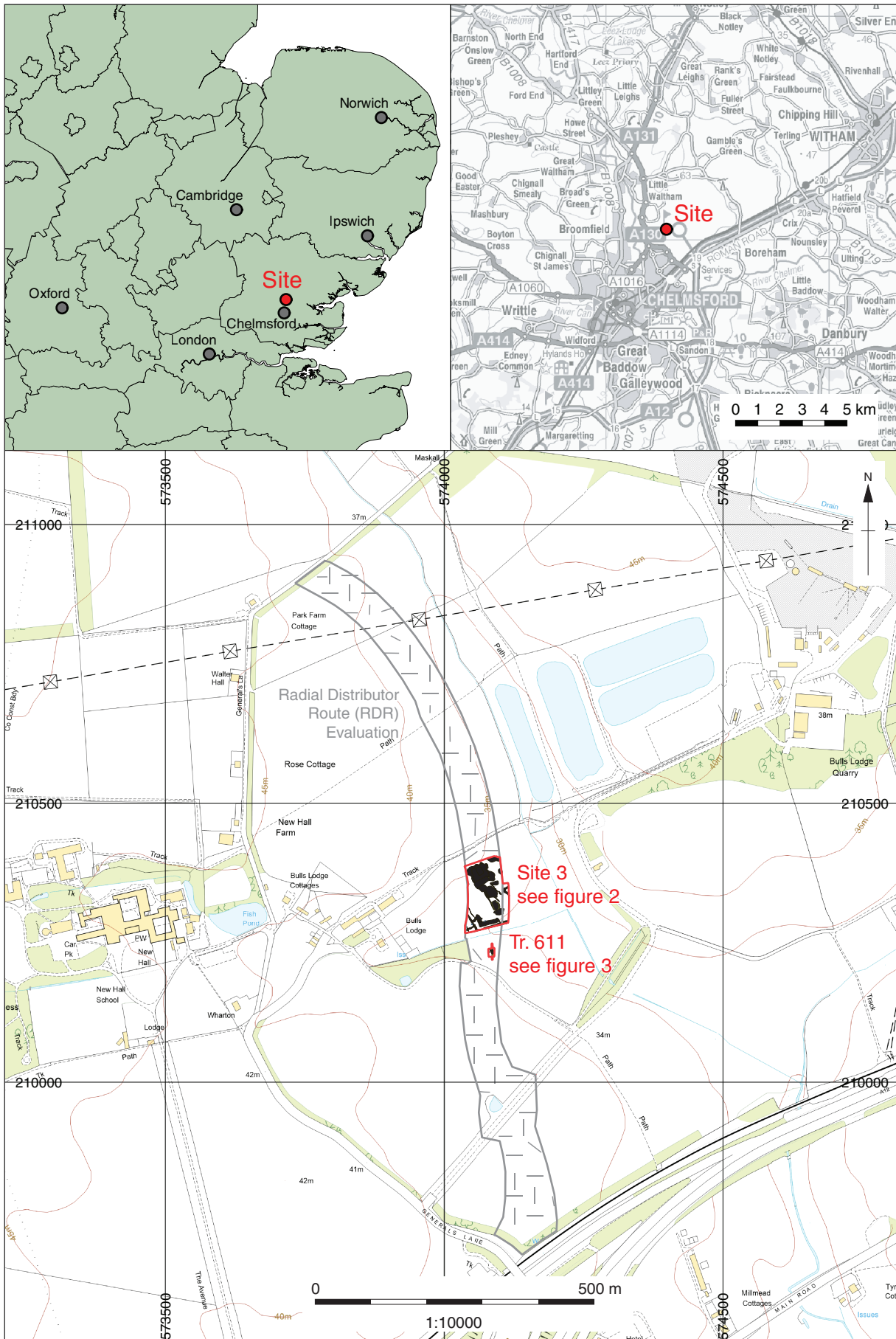
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Notes:



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Figure 1: Site location

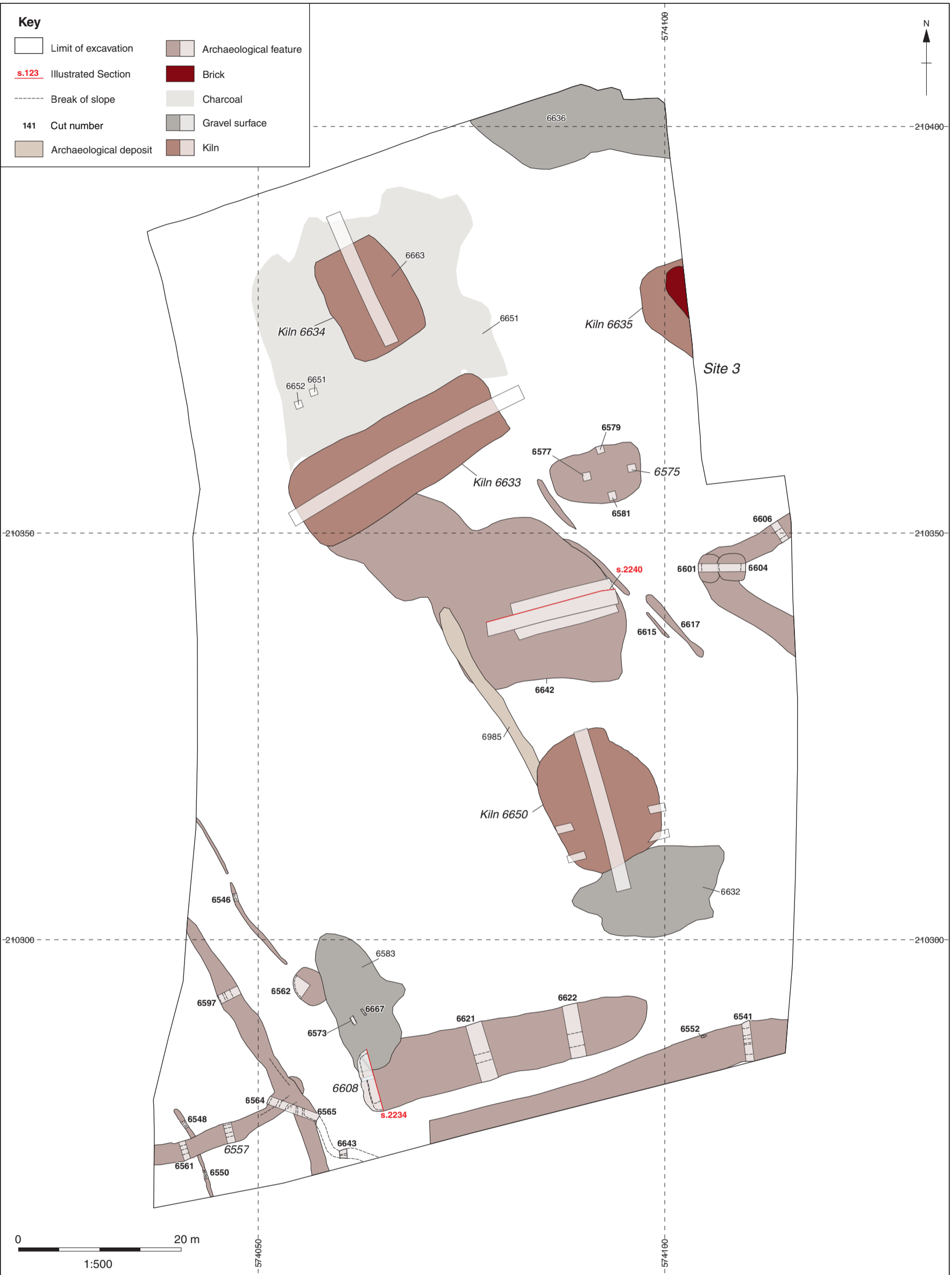


Figure 2: Archaeological remains in Site 3

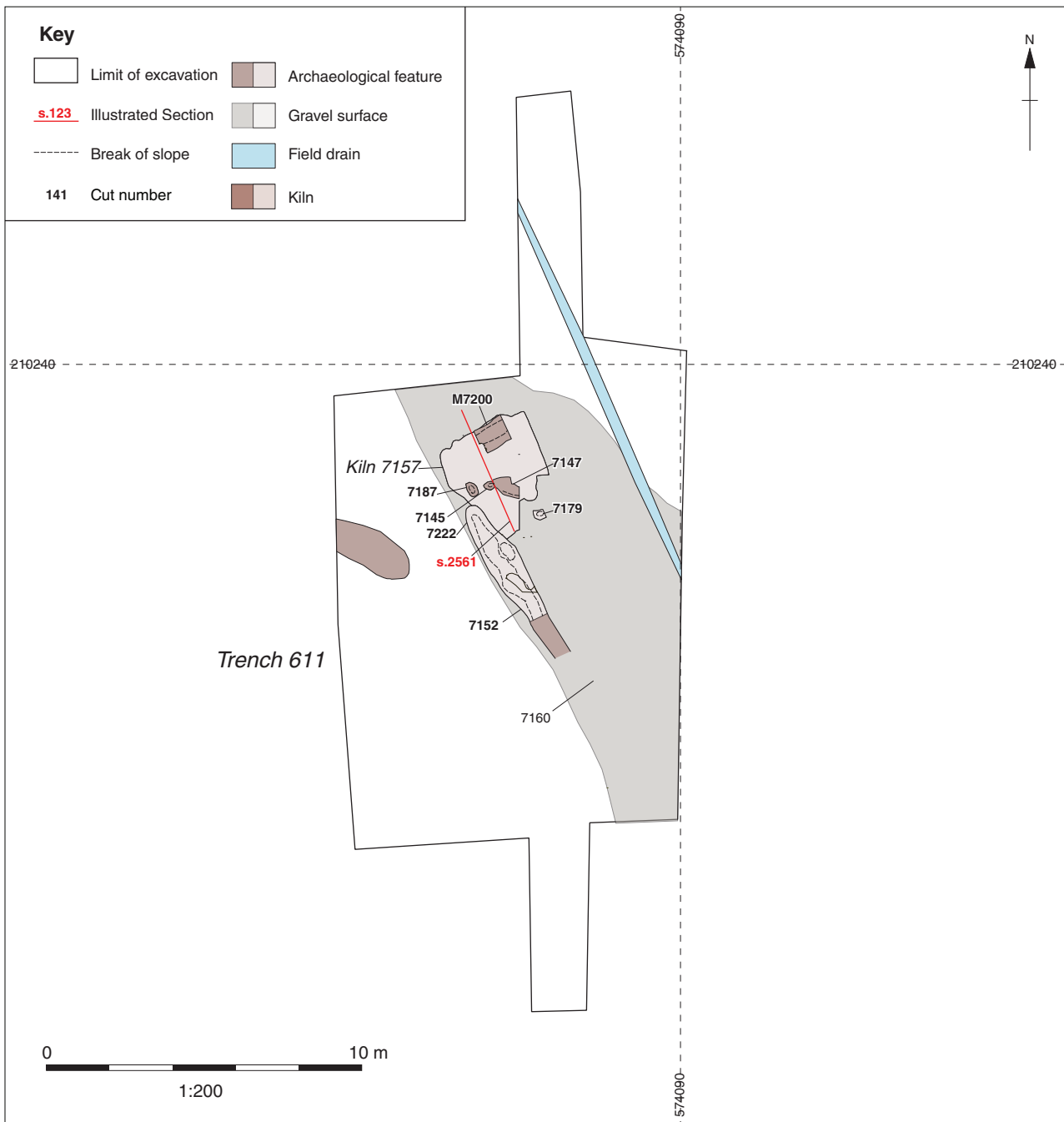


Figure 3: Archaeological remains in Trench 611

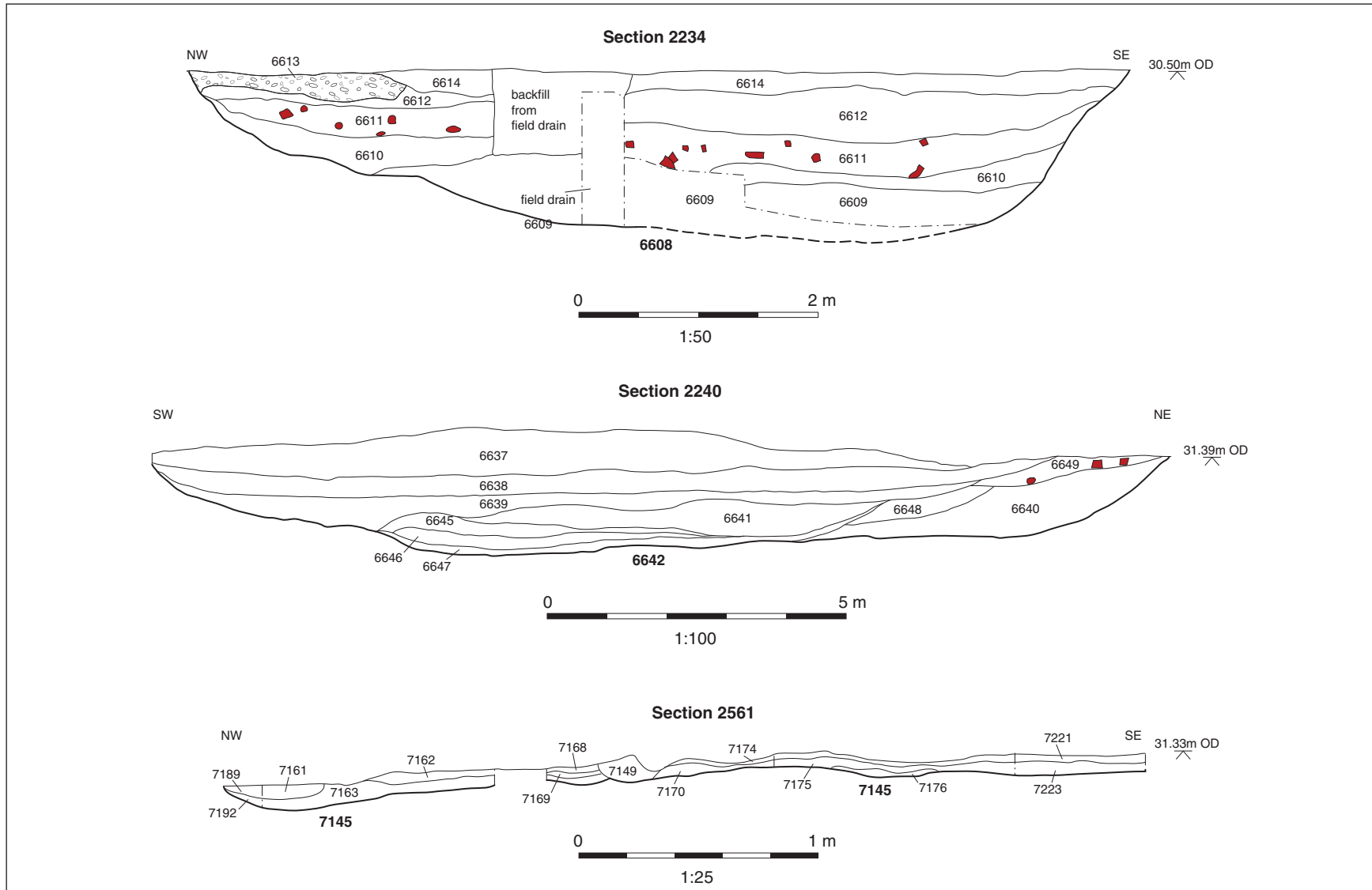


Figure 4: Selected sections



Plate 1: Overhead shot



Plate 2: Kiln 6650, from the east



Plate 3: Kiln 7157, from the north



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