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Introduction

Circumstances of the project

Chadwell St Mary is a village in the unitary authority of Thurrock, in southern Essex. It lies approximately 1.5km to the north of Tilbury, and 3km to the east of Grays. Approximately 500m to the east of Chadwell St Mary lies Mill House Farm (Fig. 1). From 2009, Archaeological Solutions Ltd (AS) became involved in archaeological investigation at land attached to Mill House Farm as part of planning requirements associated with the gravel quarry which is located here. This work included aerial photographic assessment (Palmer 2009), archaeological trial trench evaluation (Quinn and Schofield 2012), and culminated in an archaeological excavation conducted

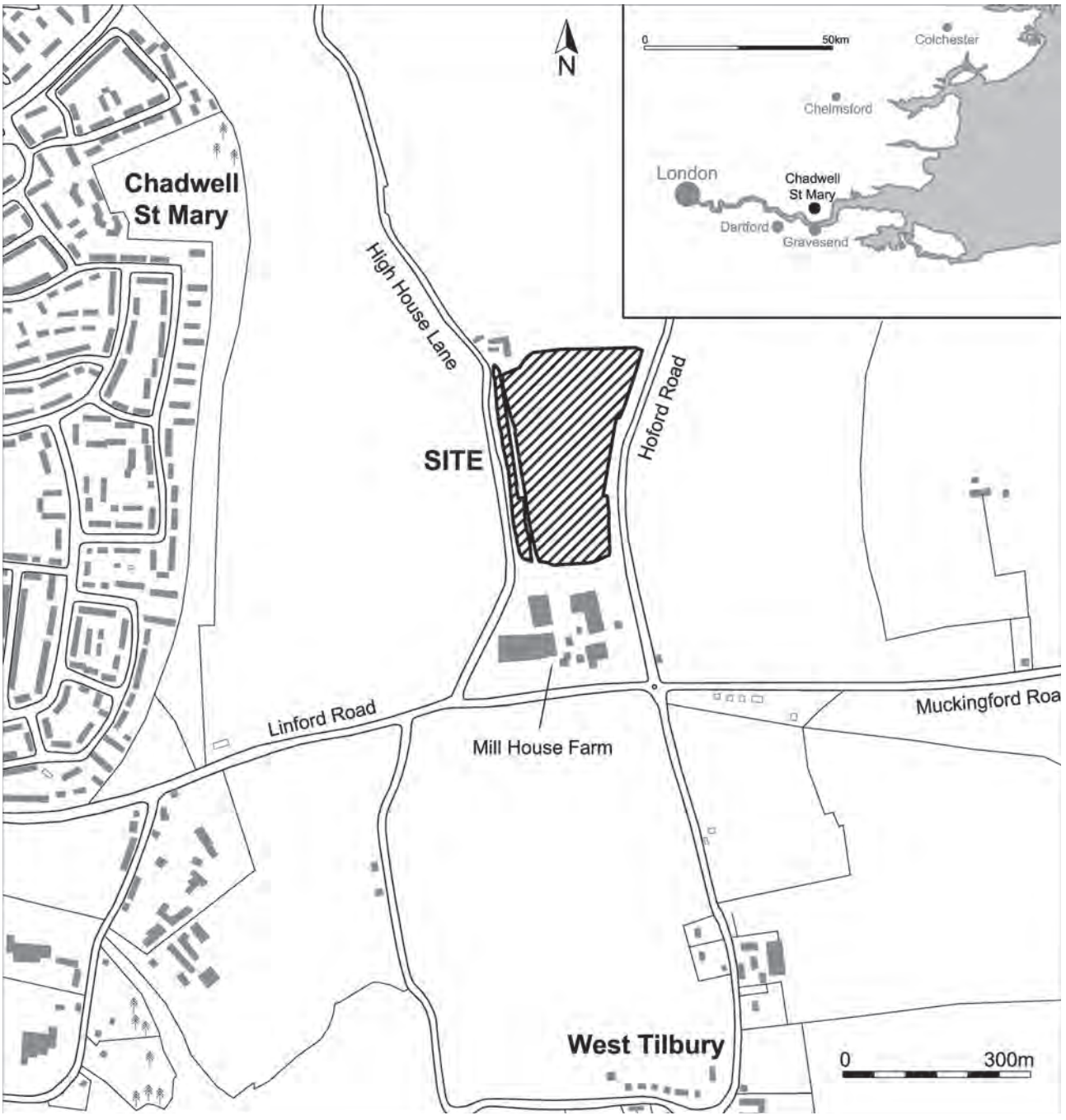

Figure 1. Site Location

using a phased approach between August 2012 and May 2014. The excavation was carried out to comply with a planning condition requiring a programme of archaeological work, imposed on approval for an extension to the pre-existing quarry. The project adhered to a brief issued by Essex County Council Historic Environment Management Team (ECC HEM) (dated April 2012), and a specification prepared by AS. The project also adhered to the *Code of Conduct* of the Chartered Institute for Archaeologists (CIfA), the CIfA's *Standard and Guidance for Archaeological Excavation* (revised 2008); and the *Standards for Field Archaeology in the East of England* (Gurney 2003).

The site

The site at Mill House Farm is situated on the Thames terrace to the east of Chadwell St Mary. It is bounded to the east by Hoford Road and to the west by High House Lane. To the south of the site is Mill House Farm itself and its associated outbuildings (Fig. 1). The river Thames runs in a broadly west to east direction approximately 4km to the south-east.

Mill House Farm was formerly known as Tilbury Mill. The farm buildings date from the 19th century although it is known that previously a windmill occupied the same footprint as the farmhouse. The farm is to the north of Linford Road, the eastern road into the village of Chadwell St Mary. A majority of the land immediately surrounding the site is agricultural, with High House Lane to the west and Hoford Road to the east. To the far west of the site is the eastern edge of Chadwell St Mary. To the far east of the site lie the villages of Linford and East Tilbury.

The site itself comprises relatively flat land rising gently to the north. Beyond its northern boundary there is a slight drop and then a further distinct but steady rise in the direction of the village of Orsett and the A13. To the south, at a distance of approximately 700m is a sharp drop from *c*.25m AOD to 5m AOD and the Thames-side plain upon which Tilbury sits.

The Mill House Farm site is located between two different soil associations; the Hucklesbrook and Wallasea 1 associations (SSEW 1983). The northern half is situated on soils of the Hucklesbrook Association, which are described as well drained coarse loamy and some sandy soils, commonly over gravel. The soils are suitable for cereals, vegetables and gravel extraction. To the south, however, lie the soils of the Wallasea 1 Association, which are described as deep stoneless non-calcareous and calcareous clayey soils overlying marine alluvium. The solid geology of the area consists of Thanet Formation Sandstone with Lambeth group Sandstone elsewhere (Essex CC 2007). This is overlain by river terrace gravels and marine alluvium (BGS 1995).

The known archaeology and history of the surrounding area

Prehistoric (c.700,000 BC – AD 43)

It appears that southern Essex contained a high proportion of prehistoric settlement, perhaps in part due to the favourable conditions created by the presence of the river Thames. The Mill House Farm site lies in the Pleistocene river valley which has a high potential for Lower and Middle Palaeolithic remains (Essex CC 2007). There have been numerous Palaeolithic spot finds (Essex Historic Environment Record (EHER) 1732, 1821 and 18617) including Acheulian handaxes within 1km of the site which may indicate settlement in the area (EHER 1786). The Neolithic activity is represented by a handaxe (EHER 1768) and a macehead axe (EHER 18616) found close to each other, *c*.750m north-east of the site. Excavations of cropmarks at Gun Hill (*c*.1km south-west of the site) revealed a Bronze Age ditch, postholes and numerous sherds of pottery (EHER 1789). Iron Age activity seemed prevalent with a considerable amount of settlement evidence including a domestic structure excavated *c*.1km south-west of the site (EHER 1790). An Iron Age trackway (EHER 1764) has been recorded running along the line of the current High House Lane, which lies directly adjacent to the site. Other Iron Age pits and postholes have been found *c*.875m north-east of the site (EHER 1733) and *c*.875m south-west of the site (EHER 1685) suggesting the presence of Iron Age settlement in this area.

To the north-east of Mill House Farm lies a major multi-period site of regional and national archaeological importance. It included the Bronze Age Mucking South Rings; Iron Age enclosures, roundhouses and cemeteries; Romano-British enclosures and cemeteries; and an Anglo-Saxon settlement. In 1965 Mucking South Rings was excavated at the south end of Orsett Quarry Field; it consisted of two concentric ditches 1.5m deep, which were approximately 83 and 43 metres in diameter respectively (EHER 3841). The only definite structure inside was a 12m ring gully to a roundhouse, while other Bronze Age features including roundhouses and middle Bronze Age field systems were identified to the north. In 1978 Mucking North Ring was excavated 1km to the north of the South Rings. It was approximately 38m in diameter and contained two 12m diameter roundhouses, one with a porch, which had a wooden screen shielding them from the main entrance. Evidence for bronze working shows that it took place at or very close to the enclosure and trade in salt was also evident.

At the beginning of the Iron Age, the Mucking South Rings were abandoned and in the second half of the first millennium the focus of settlement shifted to the North Ring where a settlement of roundhouses covered much of the flatter western part of the site along with groups of ancillary four, six and nine post structures (EHER 13842; Clark 1993). During the mid to late 1st century BC an imposing multivallate earthwork was built over the South Rings covering an area of approximately 90 by 85m.

Romano-British (AD 43–410)

Locally it is thought that a Roman settlement was situated to the south of the road between Chadwell St Mary and Tilbury. Archaeological investigations conducted in the early 20th century at a location *c*.875m south-west of the Mill House Farm site reported the existence of a probable occupation area (EHER 1686). This evidence included the remains of a Roman pottery kiln, cremation urns, and numerous assemblages of pottery and coins. An excavation at Gun Hill (*c*.1km to the south-west) also recorded settlement evidence consisting of a rectangular enclosure, a field boundary system, and a pottery kiln and kiln wasters (EHER 1791).

Anglo-Saxon (AD 411–1065)

Prior to work conducted by AS at the Mill House Farm site, there has been very little evidence for an Anglo-Saxon presence recorded in the vicinity of Chadwell St Mary or West Tilbury. Evidence for Anglo-Saxon occupation has been found at Gun Hill, a site that was occupied throughout the prehistoric and Roman periods, *c*.1km south-west of the current site (EHER 1792). Excavated cropmarks revealed settlement evidence in the form of postholes, pits and walls indicating a structure thought to be a *Grubenhaus*. Loom weights and pottery vessels dated this site to the 5th-6th centuries AD. To the west, another *Grubenhaus* of 6th century date has been identified at Chadwell St Mary County Primary School (Lavender 1998).

This apparent lack of evidence for Anglo-Saxon occupation is in stark contrast to Mucking to the north-east. Archaeological excavation at what is now Orsett Quarry demonstrated that an unusually large Anglo-Saxon settlement containing over 100 people at any one time was located on the semi-derelict Roman landscape (Essex HER 13844, 13845; Clark 1993). In total the settlement consisted of approximately 53 posthole buildings and 203 smaller *grubenhäuser* or sunken-featured buildings (SFBs). There were two associated cemeteries, one containing 274 inhumations and around 480 cremations. The smaller cemetery contained 62 inhumations but was already under quarrying at the time and so could originally have been much larger. The cemeteries were in use between the early 5th and mid 7th centuries, and Roman military style buckles and belt fittings suggest that the earliest settlers may have been Germanic mercenaries. The settlement continued into the 8th century and so the latest burials may have been made after Christianity was adopted and buried in Christian cemeteries such as Cedd's minster at Tilbury (Clark 1993; Hamerow 1993; Jones and Jones 1974).

Medieval (AD 1066–1539)

That Chadwell St Mary was settled by the late Anglo-Saxon period is demonstrated by reference to it in the Domesday Book. Its Domesday Survey entry indicates that it was a sizeable village with one priest, seven smallholders, and pasture for 100 sheep (Morris 1983). St Mary's Church in the village is mostly of 12th century date but may have some Norman elements (Kelly's 1890). Sufficient archaeological remains have been recorded in the parish to indicate a settlement of reasonable size but none of this evidence has been found in close proximity to the excavation site. Field boundaries and ditches (EHER 1793) have, however, been found *c*.1km south-west of the site. Excavation at a site *c*.1km to the north-west of Mill House Farm, recorded a millstone, numerous sherds of medieval vessels, and animal remains (EHER 1804). Medieval pottery has also been found *c*.875m south-west of the site (EHER 1683).

Post-medieval (AD 1540–1900)

Chadwell St Mary continued to develop in the post-medieval period. Numerous 18th and 19th century buildings are listed in the village and surrounding area, including Mill House Farm itself, which is a 19th century two storey Grade II listed building (EHER 119737). Prior to this, a windmill was known to exist on the site of Mill House Farm (EHER 1806).

Previous archaeological work at Mill House Farm

Aerial photographic assessment

There is an abundance of reported cropmarks including linear features recorded by aerial photography in the area of Chadwell St Mary and West Tilbury that remain unexcavated. Cropmarks have also been located on and surrounding the site (EHER 1750, 1753 and 1769). These features, when identified, were considered likely to represent prehistoric ring-ditches, round barrows and enclosure ditches.

An aerial photographic assessment was undertaken by Air Photo Services as part of the current project (Palmer 2009). The report noted cropmarks representing possible archaeological features within, and surrounding, the proposed development (Fig. 2). The aerial photographic assessment summarised the archaeological features observed within the site as:

> "an apparently unstructured series of ditched features of more than one phase. One ditch links these with a larger group of rectangular enclosures to the south-east. Features within the development area include rectangular fields (?), small enclosures, parts of features of unidentified form, a large (*c*.40m diameter) circular feature of unknown function, and part of a multi-ditched boundary and/or track."
>
> (Palmer 2009, 1)

Subsequent archaeological excavation of the site (see below) revealed good correlation between the features observed as cropmarks and their physical form, layout, and extent when observed during excavation. Excavation has, however, allowed more detailed interpretations to be made regarding these features.

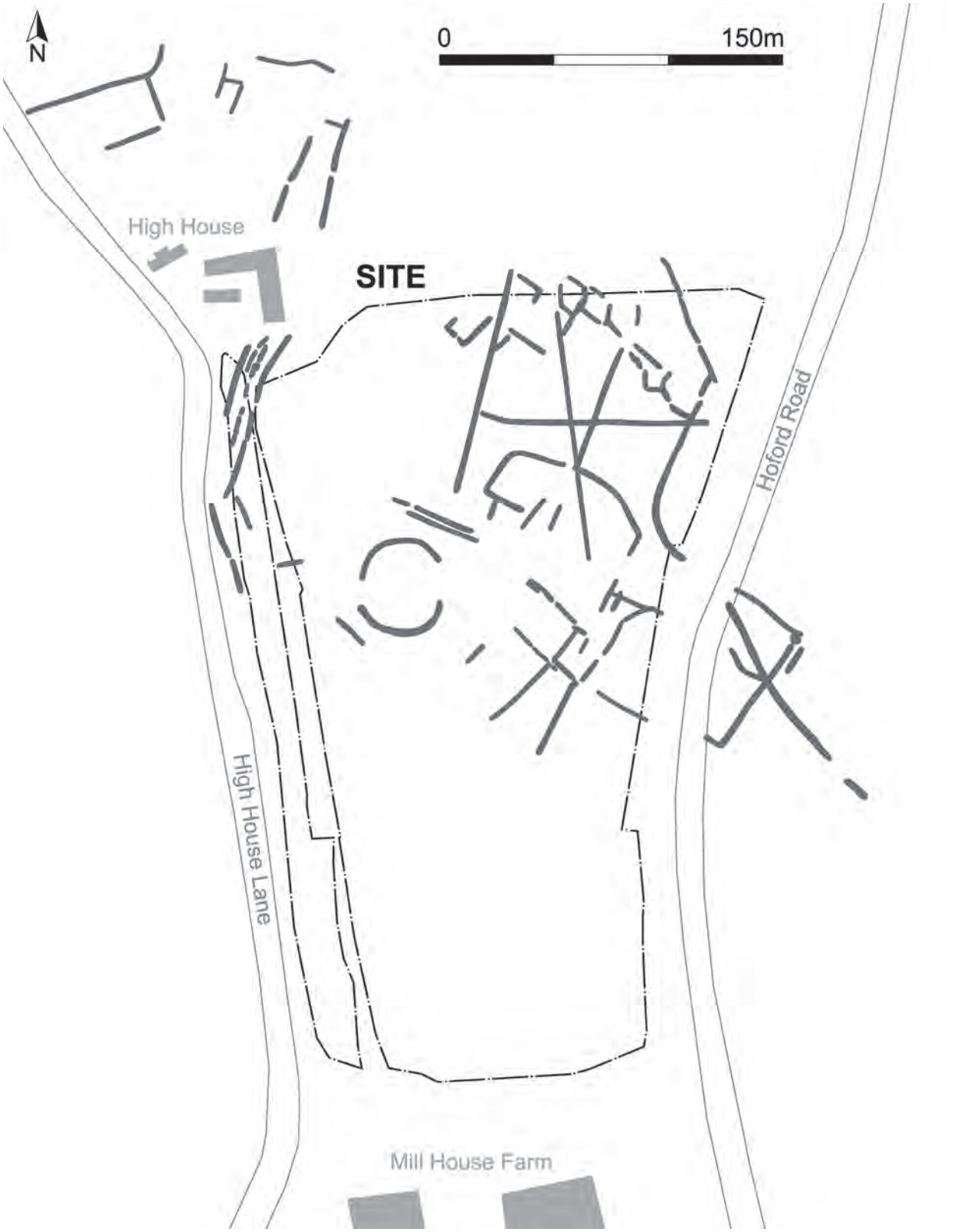

Figure 2. Cropmarks recorded during aerial photographic survey

Archaeological evaluation

The site has previously been subject to an archaeological evaluation conducted by AS (Quinn and Schofield 2012; Fig. 3). Archaeological features were found in the majority of the trenches.

Of the 100 features recorded, the majority were ditches (43) and pits (36). Postholes (12) and gullies (9) were also recorded. The features were broadly distributed throughout the trenches. The majority were contained in Trenches 2 (11) and 7 (7), 29 (5), 32 (5) and 33 (6) and the least in Trenches 12 (3), 3 (1), 31 (1) and 41 (1).

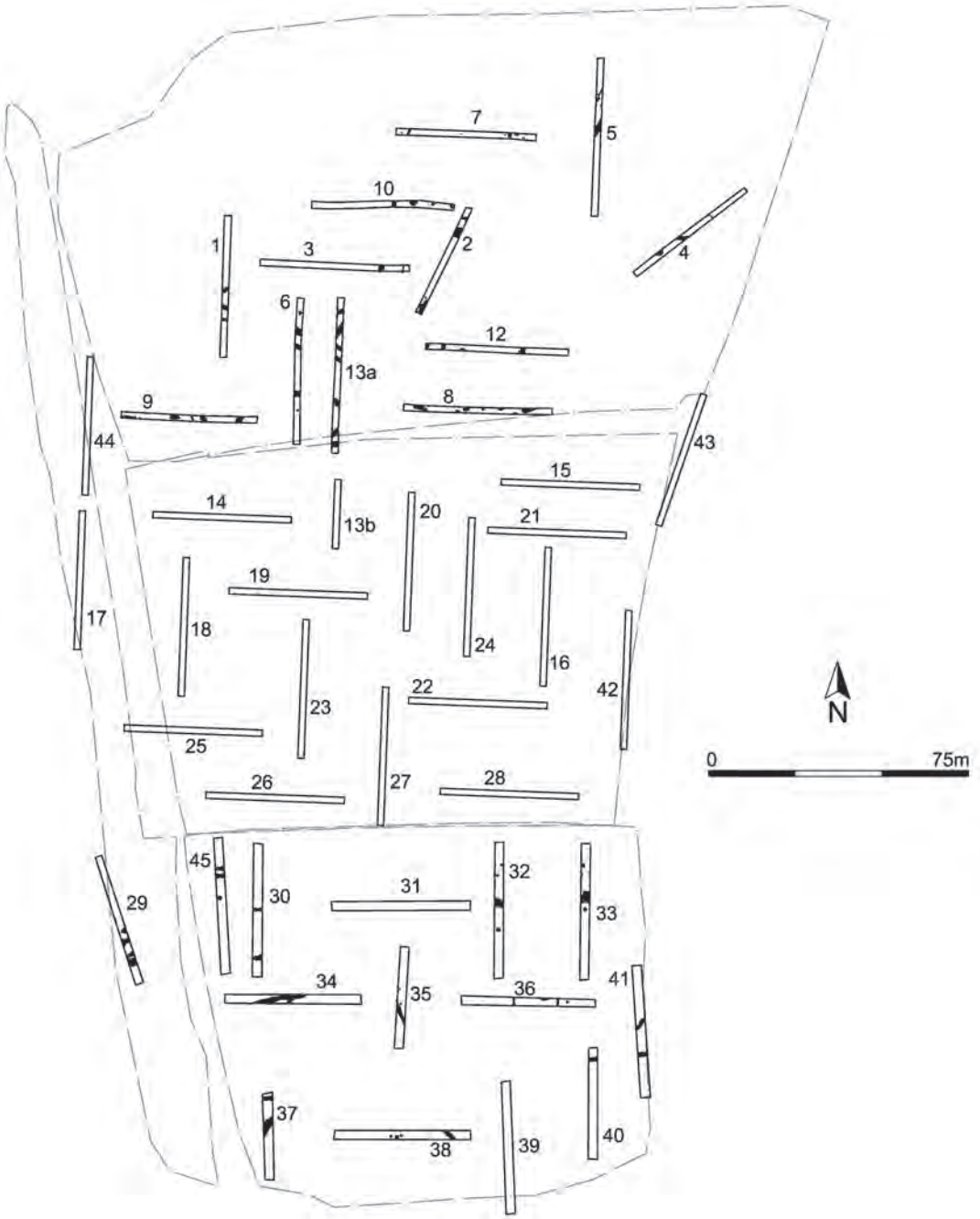

Figure 3. Trench location plan

Trench 39 contained no archaeological features. The remaining trenches contained between 4 and 6 features. The dating evidence (pottery) occurred in greater volume in the southern sector of the site (Phases 1 and 2). The majority of features in Trenches 32 and 33 contained late Bronze Age to early Iron Age pottery. Struck and burnt flint occurred in small quantities in these trenches and the features were tentatively identified as prehistoric.

With the exception of a single modern feature (Pit F1019 Tr.9), the features consistently dated to the late Bronze Age/ early Iron Age. Dated features were located in trenches in the central sector of Quarry Phases 5 and 6 (Trench 2 (2); Trench 5 (1); Trench 6 (4); Trench 8 (1); Trench 9 (2); Trench 12 (1) and Trench 13 (1)), and Quarry Phases 1 and 2 (Trench 33 (5)). The majority of the dated features were contained in Trenches 2, 6, 9, 33, 35 and 36. Pottery was generally found in small quantities (between 1–5 sherds) at the northern end of the site, but was more prolific at the southern end (Pits F2006 (Tr.31), Pit 2017 (Tr.38), Pit F2050 (Tr.32) contained 67, 62 and 17 sherds respectively. Ring-Ditch F1005 (Trs. 6 & 13A), Pit F1095 (Tr.2) and Pit F1121 (Tr. 8) contained the larger assemblages. Bone was not preserved. A few finds of struck flint and burnt flint were recovered.

Features were traceable from trench to trench e.g. Ditch F1044 (Trenches 2, 4, & 5), and Ditch F1038 (Tr.3) = F1046 (Tr.10) and F1111 (Tr.7). There was a good correlation between the archaeological features and the aerial

photographic data (Palmer 2009). The aerial photographic assessment records deeper soils in the southern half of the site, and a lack of cropmarks. A thin subsoil was present but archaeological features were numerous and present in every trench except Trench 39, the most southerly trench.

Palaeo-environmental and geo-archaeological Assessment

A palaeo-environmental and geo-archaeological assessment was undertaken following the excavation of the trial trenches by Dr Simon Lewis (see below). This work concluded that the sands and gravels present at the site were deposited in a fluvial environment, under cold climate conditions. They form part of the Orsett Heath gravel, which was deposited by the river Thames in a cold stage of the Pleistocene immediately after the Hoxnian interglacial, probably during Marine Isotope Stage 10, around 337,000–374,000 years ago (Bridgland 1994).