

**ARCHAEOLOGICAL EXCAVATIONS AT
BULLS LODGE QUARRY, BOREHAM, ESSEX**

**NGR: 57325 21205
(TL 7325 1205)**

**A POST-EXCAVATION ASSESSMENT AND
UPDATED PROJECT DESIGN REPORT**

**ASE Project No: 8158
Site Code: BOAF05**

**ASE Report No: 2014246
OASIS ID: archaeol6-62381**

By Steve Chew

**With contributions by Lucy Allott, Trista Clifford, Anna Doherty, Hayley Forsyth,
Karine Le Hégarat, Dawn Elise Mooney, Elke Raemen, Justin Russell and Helen Walker**

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Abstract

Archaeology South-East (ASE) was commissioned by Hanson Aggregates to archaeologically monitor and investigate a 2.5ha area in advance of the north and eastward enlargement of extraction works at Bulls Lodge Quarry.

The area is thought to have formed part of a deer park associated with the manor of New Hall during the medieval period. The earliest features uncovered on this part of the site were ditches, apparently relating to the initial settlement and land enclosure in the early post-medieval period (c. late 16th-17th century). Although the features appear to be predominantly agricultural in nature, a moderate assemblage of finds from this period suggests that domestic activity was taking place in the vicinity.

Subsequently, probably at some point in the 18th to 19th centuries, a series of new field boundary ditches were set out on a different orientation. This field pattern survived until at least the 1920's. This episode of land use also featured a series of very large pits, possibly initially dug as quarrying features and subsequently left open to accumulate water. These clearly correspond with three ponds shown on maps of the late 19th and early 20th centuries. It is likely that they were eventually backfilled during the construction of the World War II airbase at the site.

Finally, a series of small pits were dug through the backfill of the ponds, presumably in the mid 20th century or later. The function of these features remains unclear.

The current excavation followed on from a previous phase of monitoring and excavation carried out in winter 2012-2013 on an adjacent area directly to the west. The results of this previous phase of work are not repeated in the current document but they are considered in the overall assessment of significance and potential and in proposals for further post-excavation analysis and publication.

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1.0 INTRODUCTION

1.1 Site Background

1.1.1 Archaeology South-East (ASE), the contracting division of the Centre for Applied Archaeology (CAA), Institute of Archaeology, University College London (UCL) were commissioned by Hanson Aggregates to undertake archaeological monitoring and investigation on a 2.5ha area in advance of the north and eastward enlargement of extraction works at Bulls Lodge Quarry.

1.2 Geology and Topography

1.2.1 Bulls Lodge Quarry covers 320ha on the site of a former World War II airfield situated 2km north-east of Chelmsford, in the north-east of the parish of Boreham and partly in the parish of Little Waltham (TL 7325 1205; Figure 1). The surrounding landscape consists of arable fields and former quarry workings on a plateau at 53m OD, forming a low outcrop within a wide loop of the river Chelmer. The drift geology comprises a 2m thick deposit of Boulder Clay of the Springfield Till, laid down in the Anglian glacial period, overlying Chelmsford sands and gravels. Remnants of some of the World War II runways and dispersal loops still survive at the northern end of the quarry.

1.2.2 The current phase of work took place in a 2.5ha area along the north and east of the quarry – an eastward extension to the area archaeologically monitored in winter 2012/13 (Figure 1). Prior to the topsoil strip the area lay largely within arable fields, bisected by a north-south runway: part of the WWII airfield which previously occupied the site.

1.3 Scope of the Project

1.3.1 Archaeological monitoring and excavation was carried out during stripping for a north and eastward enlargement to Bulls Lodge Quarry, Boreham, near Chelmsford. Planning consent for mineral extraction was granted in 1990 and allowed the Essex County Council Field Archaeology Unit (now part of Archaeology South-East) access to investigate each area of the quarry for archaeological remains before the commencement of quarrying. The scope and extent of the archaeological work are determined by an informal agreement between Hanson Aggregates and Archaeology South-East, in consultation with the Historic Environment Management team (ECC HEM) of ECC Place Services who advise the mineral planning authority.

1.4 Circumstances and Dates of Work

1.4.1 The archaeological excavation was undertaken between the 26th of March and 9th of April 2014. The work was carried out by Steve Chew (Project Supervisor) with Lee Harvey, Dan Bateman, Tom Rugg and Fergal O'Donoghue (Assistant Archaeologists). Archaeological Surveying was carried out by Andrew Lewsey. The fieldwork was managed by Adrian Scruby and the post-excavation work by Mark Atkinson.

1.5 Archaeological Methodology

1.5.1 Archaeology South East is a Registered Archaeological Organisation with the Institute of Field Archaeologists (IfA) and all work was carried out in accordance with

IfA by-laws and guidelines for excavation and artefacts (IfA 2008a; 2008b; 2008c) and complied with Standards for Field Archaeology in the East of England (Gurney 2003).

- 1.5.2 An area measuring 2.5ha, as show on Figure 1, was inspected for archaeological remains in May 2014 during stripping undertaken by the quarry operator's contactor using mechanical excavators fitted with toothless ditching buckets. This work was carried out under constant archaeological supervision. The overburden was mechanically excavated in spits under constant archaeological supervision, until natural geology was exposed or until archaeological features or deposits were uncovered. The exposed soils dried extremely quickly. This resulted in a further machine strip (of c.0.10m) being required to define the archaeological cut features.
- 1.5.3 Following the stripping of overburden, a pre-excavation plan was drawn up using GPS planning technology
- 1.5.4 The observed archaeological remains were appropriately sample excavated by hand. Machine-excavated sondages were excavated through some of the larger quarry pit/pond features. All archaeological features and deposits were recorded using standard ASE methodologies. Written records comprising individual context recording sheets were created. After excavation, features were planned at a scale of 1:20 and sections drawn at 1:10. A GPS with map-based software was used to locate site boundaries and archaeological features and relate them to the Ordnance Survey. Colour digital photographs were taken of significant archaeological features, and of work in progress.
- 1.5.5 All stratified artefacts were collected and retained in line with standard ASE practice and IfA (2008a) guidelines.
- 1.5.6 An environmental sampling strategy was carried out, following current English Heritage (2011) guidelines. A standard bulk sample size of 40 litres (or 100% of small features) was taken from dated/datable sealed contexts to recover environmental material such as charcoal, charred plant remains, small mammal and fish bone.

1.6 Organisation of the Report

- 1.6.1 This post-excavation assessment (PXA) and updated project design (UPD) has been prepared in accordance with the guidelines laid out in Management of Research Projects in the Historic Environment (MoRPHE), Project Planning Notes 3 (PPN3): Archaeological Excavation (English Heritage 2008).
- 1.6.2 The report seeks to place the results from the site (hitherto referred to together as 'the site') within the local archaeological and historical setting; to quantify and summarise the results; specify their significance and potential, including any capacity to address the original research aims, listing any new research criteria; and to lay out what further analysis work is required to enable their final dissemination, and what form the latter should take.
- 1.6.3 The current phase of work follows on from intermittent phases of archaeological monitoring at Bulls Lodge Quarry since 1990 (see section 2.0). The scope of the current report is to report on and assess the results of the excavation carried out in March-April 2014. It also assesses remains found in the most recent previous phase of monitoring carried out in an adjacent area in winter 2012-2013. This has been reported on in a separate document (Dyson 2013) and the results are not reproduced

here in full; however, they are considered in the significance and potential section (6.0) and in the methodology for publication (7.0). Both phases used the site code BOAF05. Other previous archaeological work carried out within the quarry falls outside the scope of the current assessment.

2.0 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Previous Archaeological Work

2.1.1 Extensive archaeological investigations have previously been carried out both in and around the quarry. It is located within a general landscape of established archaeological significance. In 1992-4 a Roman villa site was excavated in the neighbouring quarry site a Great Holts Farm 0.5km to the east (Germany 2003). The villa is dated to the 2nd-4th centuries and was established within a landscape of regularly planned agricultural fields and stock enclosures. Remnants of an earlier prehistoric landscape were also recorded including Neolithic finds, Late Neolithic and Bronze Age ring-ditches, Late Bronze Age pits and an Early Iron Age timber building.

2.1.2 Archaeological monitoring and investigation of exposed remains at Bulls Lodge Quarry has been carried out intermittently since the quarry first started to operate in 1990. The survival of the archaeological remains within the area of the quarry is variable due to the truncation by large-scale ground clearance and levelling by bulldozers during the construction of the Second World War airfield. However, particularly in those areas least impacted by airfield construction prehistoric, Roman, medieval and post-medieval remains have been found at various locations across the development area. The main archaeological discoveries, located on Figure 1 and in broad chronological order, are as follows:

- A prehistoric (Late Neolithic or Early Bronze Age) ring-ditch and Early Bronze Age burial urn approx. 1 km to the south-east (Archer and Clarke 2007);
 - A Late Bronze Age cremation burial and pits approx. 1km to the south-east (Germany 2007);
 - A Late Bronze Age timber building approx. 500m to the southeast (Germany 2008);
 - A Late Iron Age/early Roman enclosure 1.3km to the south-east (Archer and Clarke 2007);
 - Late Iron Age boundaries and a Roman stone-founded apsidal building, an administrative centre for a rural estate, approx. 2km to the south-east (outside the limits of Figure 1) (Lavender 1993);
 - A medieval moated farmstead approx., 1.4km to the east, dated to the 12th/13th century, including a farmhouse, windmill and granary (Clarke 2003);
 - A medieval field system approx. 1.2km to the south-east (Germany 2007);
 - A medieval enclosed farmstead 250m to the southeast (Ennis 2011 and 2012);
 - A large medieval pit and post-medieval field boundary ditches and in-filled ponds roughly 450m to the south-east (Allen 2011);
 - Post-medieval timber structures approx. 650m to the south-east (Germany 2007).
- 2.1.3 Monitoring and investigation of a 6ha area to the immediate west of this phase of work (Dyson 2013) identified a scatter of small prehistoric pits and a series of 16th to 18th century enclosure and drainage systems. The presence of quantities of deer

remains suggested an association between features in this area of the site and the New Hall estate deer park. The relatively high quantities of CBM encountered in ditches at the east end of the site indicated the possibility of a post-medieval building somewhere in the vicinity.

2.2 Historical and Documentary Evidence

- 2.2.1 Bulls Lodge Quarry occupies part of the former estate of the manor of New Hall. The estate's manor house stands near the south-western edge of the quarry, 1.7km from the current area. It has been used as a convent since the 18th century. The origins of the manor are uncertain although it was first documented in 1301 and it is argued that it displaced an earlier manor known as *Walkfares* in the late 13th century (Clarke 2003, 1-5 and 67-9).
- 2.2.2 Documentary and cartographic records reveal that much of the manor estate was a deer park although its precise boundaries are unknown. The earliest reference to the deer park dates to 1396, but it was most likely established between 1250 and 1330, the main period of emparking in Essex. The disemparking of the deer park began in the 17th century and was probably undertaken on a piecemeal basis over several centuries. By the late 18th/early 19th century the deer park no longer existed and its area was occupied by enclosed fields and woods.
- 2.2.3 The airfield was constructed in 1943 by the 861st Engineer Battalion of the US Army. For a short period after the war it was used as a racetrack for motorcycles and cars. In the 1950s it was bought by Ford Motor Sport as a centre for vehicle development. The use of the airfield for mineral extraction began in 1990 since when a number of phases of archaeological work have been conducted ahead of quarry development.

3.0 ORIGINAL RESEARCH AIMS

- 3.1 The aim of the on-going archaeological monitoring is to record archaeological remains exposed within Bulls Lodge Quarry before their destruction by successive phases of mineral extraction. The long term objective is to obtain a greater understanding of the development of the prehistoric and historic landscape within the quarry area. Over much of the quarry the character and date of individual landscape elements can be established through recording and selective excavation, but in some areas more detailed excavation is required to investigate and record significant sites where there is good surviving evidence of settlement or farming activity.
- 3.2 The specific objectives of the current monitoring and excavation work were to:
- Investigate and record a further part of the general scatter of surviving prehistoric remains across the landscape
 - Investigate and record the medieval landscape, and in particular to identify remains such as field systems associated with the medieval farmstead excavated to the southwest in 2012
 - Investigate and record remains relating to the post-medieval agricultural landscape, particularly the remains identified to the west in 2012/2013.
- 3.3 The origins and development of medieval rural settlement types and the dynamics of medieval settlement are on-going regional research topics for the Eastern counties (Medlycott 2011, 70).

4.0 ARCHAEOLOGICAL RESULTS

4.1 Introduction

4.1.1 The archaeological remains are discussed below according to the following period structure. In addition, Period 2 has been split into separate stratigraphic phases, 2.1, 2.2 and 2.3.

- Period 1: Early Post Medieval – late 16th-17th century
- Period 2: Later Post- Medieval – 18th- mid 20th century
- Period 3: Modern

4.1.2 At present the results are discussed at the context level. Further interpretation, including the assigning of sub-groups, groups and landuse elements will be carried out during the analysis stage. All contexts are referred to in square brackets [...] with environmental samples listed in triangular brackets <...> and registered finds referred to thus RF<...>. A context register is provided in Appendix 2.

4.2 Summary

4.2.1 The monitoring and investigation identified a timber structure and 42 cut features consisting of 11 ditches or gullies, 25 pits and 6 post-holes. The recorded archaeological remains are described below in broad period order. Further context data is presented in Appendix 2.

4.2.2 The area is thought to have formed part of a deer park associated with the manor of New Hall during the medieval period. The earliest features uncovered on this part of the site are ditches, apparently relating to the initial settlement and enclosure of this area in the early post-medieval period (c. late 16th -17th century). Although the features appear to be predominantly agricultural in nature, a moderate assemblage of finds from this period suggests that domestic activity was taking place in the vicinity.

4.2.3 Subsequently, probably at some point in the 18th to 19th centuries, a series of new field boundary ditches were set out on a different orientation. This field pattern survived until at least the 1920's. This episode of land use also featured a series of very large pits, possibly initially dug as quarrying features and subsequently left open to accumulate water. These clearly correspond with three ponds shown on maps of the late 19th and early 20th centuries. It is likely that they were eventually backfilled during the construction of the World War II airbase at the site.

4.2.4 Finally, a series of small pits were dug through the backfill of the ponds, presumably in the mid 20th century or later. The function of these features remains unclear.

4.3 Natural Deposits, Overburden and Evidence of Truncation

4.3.1 The site lies on a gentle slope with natural Boulder Clay recorded at 55.47m AOD at the north of the stripped area descending to 54.27m at the south. Archaeological remains were discovered cut into the natural geology and were primarily identified in the western part of the excavated area. To the west of the existing runway, a shallow (0.06m) layer of orange/brown silty clay subsoil, [802], was observed, overlying the latest 18th-19th century features but pre-dating the construction of the runway associated with the WWII airfield. In this area, the subsoil was overlain by topsoil [801], consisting of loose grey-brown clay silt with an average depth of 0.30m but, to the east of the runway, the topsoil directly overlay natural geology.

4.3.2 Vertical truncation of the archaeological remains was localised to the immediate vicinity of the existing runway, which had destroyed all remains. Shallow features appeared to have been partially truncated away in some areas but there was no evidence of severe horizontal truncation.

4.4 Period 1: (Figure 2)

Field/enclosure

4.4.1 Shallow ditch [824] was recorded running on a north-south alignment for 31.5m. It was truncated away at both its northern and southern extents by later features. Its fill [823] was a loose light brown sandy silt with frequent post-medieval brick and tile inclusions and the occasional fragment of post-medieval red earthenware dating to the late 16th century onwards. A fragment of a possible copper alloy thimble dates to the 19th century but is considered intrusive.

4.4.2 Ditch [830] ran on an east-west orientation before changing orientation and terminating in a broad alignment with [824]. It was filled by [829] containing a substantial amount of CBM and post-medieval red earthenware

4.4.3 It seems likely that these two ditches form the corner of an earlier post-medieval field, part of a wider field system, which was also observed in previous excavations in the area immediately to the west during winter 2012-2013. Ditch [830] may be a direct continuation of a feature previously recorded as [627]; although, plans show a slight discrepancy in their alignment. Similarly ditch [824] may be associated with a ditch recorded as [669] during the previous phase of work.

4.4.4 These features clearly pre-date the field pattern shown on Ordinance Survey maps from 1874 onwards. The small assemblage of finds recovered suggests a date in the late 16th to 17th centuries.

Other discrete features

4.4.5 The other remains assigned to Period 1 are discrete features dated by very small finds assemblages and it is possible that some of them are later features containing residual material. For example post-hole [820] contained two sherds of later 16th century pottery and a few fragments of earlier post-medieval CBM. Nearby was a similar undated post-hole, [871], perhaps suggesting that they were part of a light agricultural structure such as a fence or hurdle. Post-hole [820] contained some evidence of *in situ* burning, suggesting that a wooden structure may have been burnt

4.4.6 Also tentatively assigned to this phase was a large feature, [860], which was only partially uncovered close to the western limit of excavation. Its fill, [859], produced two fragments of earlier post-medieval CBM.

Evidence for Period 1 settlement activity

4.4.7 Although only a limited number of boundary features were assigned to Period 1, a moderate quantity of late 16th to 17th century finds were recovered, often redeposited in later features. Of particular interest is the animal bone assemblage from features [860] and ditch [830] which displayed evidence of carcass portioning, indicating that primary butchery practices were carried out nearby. However, it is likely that the current excavation area lay on the periphery of any settlement activity, since earlier

post medieval finds were more abundant in excavations immediately to the west (Dyson 2013)

4.5 Period 2: Phase 2.1 (Figure 3)

- 4.5.1 Based on stratigraphic evidence, a single feature, pit [817], is placed after the earlier post-medieval field-system went out of use but before the instigation of a new field pattern. The pit was of substantial size (2.10m by 1.72m+ and 0.18m deep). In section it was shown to cut the Period 1 ditch, [824] and was itself truncated by a later Phase 2.2 ditch [822]. The dating evidence from its fill, [816], was mixed and included 16th century pottery and earlier post-medieval CBM as well as 18th-20th century glass and a 19th to 20th century structural fitting. However, all of the finds were recovered from areas of complex intercutting relationships suggesting that some may be residual and/or intrusive.

4.6 Period 2: Phase 2.2 (Figure 4)

Field-boundaries

- 4.6.1 Running broadly north-south down the western edge of the excavation area, ditch [851], was recut by a very similar ditch, [832]. This feature was the same as that recorded (as context [502]) to the south (Ennis 2012). It formed the western boundary of a field, defined on its southern side by east-west ditch [858], and subsequently recut as ditch [822]. Ditch [822] was observed, but not investigated, during the investigations to the west (Dyson 2013). The earlier cut of this ditch, [858], appeared to have been truncated away at its western extent but [822] clearly terminated and then continued after a gap of c.1m, suggesting an entrance to the field in this location. To the west, it was recorded as segment [902].
- 4.6.2 The eastern extent of this narrow field was represented by ditch [878]. The ditch was only visible for c.10 metres in plan but it appeared to have been truncated away at both its northern and southern extents.
- 4.6.3 This new field system clearly post-dates the earlier Period 1 ditches. Consultation of the Ordnance Survey shows that the field formed by these three boundaries was in place when the first edition was surveyed in 1874. Fairly good evidence for a slightly earlier inception to this field pattern comes from the primary silting of the southern boundary ditch [902], which contained a semi-complete bowl of probable late 18th century date.
- 4.6.4 Also associated with the later post-medieval field are a series of fairly poorly defined north-south linear features which run parallel, and immediately adjacent to, the main western field boundary: [841], [843] and [849] (Figure 4). Feature [843] was a shallow, irregular scoop, 0.09m deep, 0.85m wide and 57.92m in length north-south. Its fill, [842], was a mixed brown and orange clay containing very frequent flint nodules and near-complete and fragmentary brick fragments of early post medieval date. It sat centrally within another shallow linear gully, [849]. It was filled by [848], a compacted, orange-brown silty clay with the occasional flint and large brick fragment, again of early post-medieval date. Gully [849] ran parallel to the boundary ditch [832] on average 0.25m away from its western edge. A further shallow linear [841] was observed, again parallel, and slightly further to the west. This profile of this feature was a shallow, irregular bowl. It measured 1.05m east-west at its widest point, 0.20m deep and 34.71m north to south. Its fill [840] was a compact yellow-orange clay containing very frequent flint nodules and near-complete bricks which again have an

early post-medieval date.

- 4.6.5 The description of these features as ‘cuts’ may be misleading. It seems likely that [841] and [843] are the remains of a path or paths and the ‘fills’ of clay, flint and brick are layers of surfacing that have been compacted into the natural clay bed. However, [849] does resemble a cut feature, perhaps providing extra drainage alongside the path. Pathways alongside this field boundary are depicted on early editions the Ordnance Survey from the late 19th centuries.

4.7 Period 2: Phase 2.3 (Figure 5)

Quarry pits/ponds

- 4.7.1 Three very large cut features [807], [834] and [916] were recorded towards the west of the stripped area. It is likely that these represent quarry pits, subsequently left to fill up as ponds, or else features deliberately dug to collect water. The Ordnance Survey of 1881 (surveyed 1874) clearly depicts the three features as open water-bodies. They are also shown on all subsequent OS editions up to 1924. The largest of these [807] was 21.80m east-west by 15.70m north to south and in excess of 2.40m deep; although it was not fully excavated because of health and safety concerns. The others, [834] and [916], seem likely to be similar in size but extend beyond the limit of excavation to the west. However, no sign of either of these features was picked up in the winter 2013 strip area.
- 4.7.2 Two machine-excavated slots were investigated through [807]. Stratigraphically, the earliest excavated deposit was a 0.10m thick deposit of black, sandy peat [827/876]. Environmental analysis shows abundant and well-preserved plant remains which do not seem to be indicative of any anthropogenic influence.
- 4.7.3 A partially collapsed structure, [879], was recorded in the northern edge of [807] (see section 1 and photographs on Figure 5). It comprised 25 horizontal timbers, 3 vertical stakes and a 0.80m square fragment of cut bark. Two of the vertical stakes were removed and sampled as contexts 917 and 918. The wood taxa were identified as spruce/larch and willow/poplar. The sampled pieces showed minimal signs of working other than cut marks associated with conversion into timbers. Although the structure seemed to have collapsed down onto the surface of the peat, it was probably initially constructed before the peat formation, when the feature was first opened. This is suggested by the fact that the vertical stakes had crudely cut pointed ends which had been driven into the natural geology. The purpose of this structure remains unclear although it may represent some kind of revetment. This may support the interpretation that these features were initially dug for quarrying purposes, with wooden structures shoring up the edges of the pit whilst quarrying was ongoing.
- 4.7.4 Subsequent to the peat formation, and the partial collapse of [879], pit [807] was filled by a 1.45m deep, naturally deposited, bluish grey, silty clay [875]. This fill contained very frequent organic remains including the remains of at least three complete tree trunks, tentatively identified in the field as willow. Environmental analysis showed that two key environments were represented: woodland and hedgerow habitats characterised by seeds, fruits, nuts, round-wood and wood fragments of trees and shrubs common to mixed deciduous woodland and woodland margins and aquatic and wetland habitats. The latter indicate that the quarry pit is likely to have been filled with water at some point during its history, with plants such as buttercups, bur-reeds and bittersweet growing on the margins and pondweed, duckweed and others growing within the feature itself.

- 4.7.5 After the deposition of a thin lens of material, [806], the feature was finally backfilled with a layer of loose, mid brown slightly sandy silty clay [874]. These fills contained occasional timbers, brick fragments and iron objects including a complete horseshoe of 19th or 20th century date.
- 4.7.6 To the west a similar pit [834] was observed measuring 19.08m north-south by 12.08m east-west. A machine-dug slot through this feature revealed a peaty build-up [818], 0.12m wide and a layer of mid-brown sandy clay backfill [833]. A substantial quantity of CBM recovered from this backfill deposit date is of early post-medieval date.
- 4.7.7 To the south, the remains of a third substantial pit [916] was recorded measuring 9.88m north-south by 8.30m east-west. This too contained a peat build-up, [914], and a mid-brown sandy, silty clay backfill [915] containing CBM fragments of early post-medieval date and iron objects including a heavy duty chain with oval links, an iron spike, probably deriving from a cast iron railing and swivel fitting: all of likely 19th or 20th century date.

Field boundaries

- 4.7.8 The relationship between the quarry pit/pond features and the field boundaries discussed above in Phase 2.2 remains slightly ambiguous. Looking purely at the stratigraphic evidence, it was recorded that quarry pit [834] cut the north-south boundary, [832]. Spatially, this pit also seemed to overlie the boundary ditch in a way that suggests that the two were not contemporary. However, a number of editions of the Ordnance Survey published between 1881 and 1924 show that boundaries corresponding to the Phase 2.2 field survived into the mid 20th century and that [807], [834] and [916] were open water bodies from the late 19th century onwards. Furthermore several of the field boundary ditches produced 19th and 20th century material, including a WWII bullet from an upper fill of the southern field boundary, [902], suggesting that it may not have completely filled up by the time Boreham airfield was constructed.

4.8 Period 3: Modern (Figure 6)

- 4.8.1 A number of smaller pits were recorded: most of which cut the fills of the quarry pit/pond features or later post-medieval field ditches. Pit [853] was one of the largest of these features at 1.34m by 1.55m and 0.15m deep. The smallest was [912] at 0.33m by 0.42m and 0.17m deep. Their fills were very similar being a loosely compacted, yellowish brown clay silt similar in nature to the backfill of the quarry pit [807]. Dating evidence from these features was rather mixed and many contained very small quantities of residual earlier post-medieval finds. Glass of 19th to 20th century date was recovered from pit [889]. However, given the evidence presented above, that the field boundaries and pond features seem to have been open until the construction of the WWII airfield, it is assumed that the pits must be of relatively recent origin. Nearby, a slightly more substantial pit, [809], did not have any stratigraphic relationships with earlier features but did produce a machine drawn copper alloy thimble of 19th or 20th century date.
- 4.8.2 The function of these features is uncertain; they are not deep enough to reach the underlying sands and gravels and were mostly dug in areas of recent backfill so it seems unlikely that they represent quarrying. Similarly they only contained sparse finds suggesting that they are not rubbish pits.

- 4.8.3 A few other undated or poorly dated features have been tentatively assigned to Period 3, purely on the basis that it seems to represent a change in landuse, probably after the construction of the WWII airfield, when previously agricultural fields began to be used for sporadic pit digging. However it remains possible that some are of earlier date
- 4.8.4 Three small discrete features, [811], [813] and [826] were of similar profile and dimensions and are interpreted as post-holes. Although they do not form a completely straight line they may be related.
- 4.8.5 To the east of the main concentration of features, pits [864] and [869] both had evidence of in situ burning in the form of reddening of the natural clay and concentrated layers of charcoal. Environmental sampling of [864] indicated that the charcoal derived from oak. Both pits were devoid of finds

5.0 FINDS AND ENVIRONMENTAL ASSESSMENTS

5.1 Overview

5.1.1 A small to moderate-sized assemblage of finds was recovered during the current fieldwork at Bulls Lodge Quarry. The assemblage is quantified by context in Appendix 1. Finds were air-dried or washed and air-dried as appropriate to their material type. They were bagged according to context and material class. Aside from a small amount of residual flintwork, all of the finds are of post-medieval date.

5.1.2 Material from the adjacent area of fieldwork (Dyson 2013) is reported on elsewhere and has not been directly integrated into the results section of the finds and environmental assessments; however, it is envisaged that material from both areas will form part of a single publication. Both assemblages are therefore considered in the significance and potential (6.0) and further work (7.0) sections.

5.2 Flint by Karine Le Hégarat

5.2.1 Current work at Bulls Lodge Quarry produced two flakes weighing 7g, one of which was fragmented. They were recovered from contexts [810] and [857]. These were not chronologically diagnostic.

5.3 Post-Medieval Pottery by Helen Walker

5.3.1 A modest amount of post-medieval pottery, forty-seven sherds, weighing 699g, was excavated from sixteen contexts. The pottery has been catalogued following Cunningham's typology for post-Roman pottery in Essex (Cunningham 1985).

5.3.2 The pottery was sparsely distributed across the site. Virtually all the pottery comprises post-medieval red earthenware (PMRE), which is difficult to date closely, especially as most features contained very small amounts of pottery (between one and seven sherds) and much of the pottery consists of small abraded sherds. PMRE was manufactured from the 16th to 19th centuries with little change in fabric, but can sometimes be dated by vessel form and surface treatment. Earlier types belonging to the 16th century tend to be unglazed and such material was excavated from pit [817], stratified beneath ditch [822], where an unglazed hollowed everted rim perhaps from a jar was found. Similarly, quarry pit [916] produced a fragment of flanged dish, which is unglazed but shows a coating of iron-wash on the internal surface and probably dates to the later 16th century, when this vessel form was introduced. However, Period 1 gully [824], which is stratified below both these features, produced glazed material (an internally glazed base from a thin-walled vessel, perhaps a small bowl). Ditch [832] to the north of the site and post-hole [820] produced single unglazed sherds, both showing reduced surfaces indicative of a 16th century date. However, post-hole [820] also contained a thin-walled body sherd with an all over dark green glaze and rilled external surface, almost certainly from a drinking vessel. It is probably a forerunner of the black-glazed ware of the 17th century and may therefore date to the later 16th century.

5.3.3 Period 1 ditch [830] to the north of the site produced glazed material in the form of a lid-seated rim and a simple upright rim, probably both from jars. Although glazed, these rim types are present in the 16th century, so that these sherds could be late 16th century, as glazing became common by the end of the century, although a later date cannot be precluded. Pits [853] and [922] produced single sherds that may have belonged to the same vessel, both showing one glazed surface and one abraded

surface. The sherds are not closely datable, but the fact that they appear to be from the same vessel indicates that these two features may have been open at the same time. Pits [805], [809], post-hole [811], quarry pit [807] and ditch [883], all produced sherds of glazed PMRE likely to date from the 17th century onwards. Finds include a sherd of black-glazed ware from pit [805], which is a type of PMRE covered in a glossy black glaze. This is primarily a 17th century type but continued well into the 18th century. Post-hole [811] produced a beaded rim from an internally glazed bowl or jar and quarry pit [807] produced a hooked beaded jar rim with an internal glaze.

5.3.4 Pit [910] produced a thick-walled unglazed base sherd, this could be PMRE, but is likely to be an example of flowerpot fabric and may be as late as 19th century. The only other ware present is creamware, produced from c.1740- 1830. Gully [841] produced a single sliver of this ware, perhaps from a plate. In contrast, ditch [902] produced a semi-complete hemispherical bowl in creamware showing a footring base and an everted flanged rim. The bowl is undecorated and shows an off-white, rather than cream-coloured glaze indicative of a later date in spite of the fact that hemispherical bowls are an 18th century shape. Perhaps a late 18th century date is most likely for this vessel.

5.3.5 To summarise, the pottery assemblage spans the later 16th century to 19th century, with vessel forms including fragments from bowls, jars, drinking vessel(s) and a dish. Little can be said about function and status other than to say the vessels are mainly utilitarian. The assemblage is similar to that from an earlier excavation carried out in the winter of 2013, just to the west of this site, in that the assemblage comprises mainly PMRE dating to the 16th and 17th centuries, with some similar vessel forms present such as the flanged dish and sherds from glazed drinking vessels that are not black-glazed ware. However, the 2013 excavation produced a much larger assemblage comprising over 4kg of pottery, which might suggest that the 2014 excavation at the periphery of settlement activity. In contrast the 2013 excavation produced no definite evidence of mid-18th to 19th century activity.

Context	Feature	Count	Weight	Ware and featured sherds	Date
804	805	1	3	Black-glazed ware: small abraded sherd	17th C or later
808	809	1	8	Post-medieval red earthenware: thick-walled sherd with dark external glaze, abraded	17th C or later
810	811	4	48	Post-medieval red earthenware: thick-walled sherd from shoulder of ?jug, reduced surfaces, unglazed apart from external splashes; thin-walled internally glazed sherd; beaded rim perhaps from a jar or bowl showing internal glaze	Latest pottery is 17th C or later
816	817	1	9	Post-medieval red earthenware: hollowed everted rim perhaps from a jar, unglazed	16th C
819	820	2	24	Post-medieval red earthenware: thick-walled unglazed sherd, reduced external surface; thin-walled sherd with all over dark green glaze and rilled external surface, probably from a drinking vessel	?later 16th C
823	824	3	19	Post-medieval red earthenware: thin-walled internally glazed flat base sherd with out-flaring sides, perhaps from a small bowl; unglazed sherd; very abraded sherd showing remains of glaze	Later 16thC onwards
829	830	7	37	Post-medieval red earthenware: hollowed	Later 16th C

Context	Feature	Count	Weight	Ware and featured sherds	Date
				everted rim from small jar showing internal glaze; simple upright rim with all over glaze perhaps from a jar + body sherds from this vessel; internally glazed sherd, not totally oxidised and showing a thin reduced core; two very abraded joining sherds	onwards
831	832	1	3	Post-medieval red earthenware: unglazed body sherd with reduced external surface	16th C or later
840	841	1	1	Creamware: small sherd, perhaps from a plate	Mid 18th C – c.1830
852	853	1	1	Post-medieval red earthenware: small abraded sliver with only one surviving surface, which shows a thin dark glaze	16th C or later
874	807	1	25	Post-medieval red earthenware: hooked beaded jar rim with internal glaze	17th C or later
882	883	5	19	Post-medieval red earthenware: joining sherds from an internally glazed thick-walled base; an unglazed body sherd with reduced surfaces, a body sherd with all over glaze; nearly all sherds are abraded	17th C or later
901	902	15	391	Creamware: joining sherds from hemispherical bowl with footring base and everted flanged rim, undecorated, almost white glaze	?late 18th C or early 19th
909	910	1	14	Post-medieval red earthenware: unglazed thick-walled base sherd, could be from a flowerpot	16th to 19th C
914	916	2	94	Post-medieval red earthenware: rim of flanged rim dish, unglazed with iron wash coating on internal surface; unglazed body sherd; both sherds are abraded	Later 16th C
921	922	1	3	Post-medieval red earthenware: body sherd with thin, dark internal glaze, externally abraded, could be from same vessel as in context 852	16th C or later
		47	699		

Table 1: Post-medieval pottery data

5.4 Ceramic Building Material by Trista Clifford

5.4.1 A small ceramic building material assemblage of 100 fragments weighing just less than 20kg was recovered from 24 contexts, primarily pit and ditch fills. Post medieval brick, roof tile and floor tile was recovered (Table 2). The assemblage as a whole is in poor condition; no complete objects were recovered and the bricks in particular are much abraded. Unstratified modern land drain fragments were recovered but are not included within this report and have been discarded.

Tile type	No. of items	% of total count	Weight kg.	% of total weight
Post-medieval brick	78	78%	18.787	94%
Post-medieval roof tile	21	21%	0.753	4%
Post medieval floor tile	1	1%	0.385	2%
Total	100	100%	19.925	100%

Table 2: Summary of the building materials

- 5.4.2 The tile was quantified by fabric, form, weight and fragment count. Data were recorded on a standard recording form and subsequently entered onto an Excel spreadsheet. Items of interest and fabric samples were retained; the remainder of the material was discarded.
- 5.4.3 The broad date range of the material in each context is summarised in Table 3. The dates for peg tiles and bricks are approximate; peg tiles in particular are hard to date precisely as the form changed very little between the 14th and 18th centuries.

Context	Date range (approx.)	Material
808	Post medieval	Brick crumb
810	Post medieval	Glazed ?roof tile
814	Post medieval	Brick crumb
816	Early post medieval	Un-frogged brick
818	Post medieval	Brick crumb
819	Early post medieval	Brick and roof tile
821	Early post medieval	Un-frogged brick, peg tile
823	Post medieval	Roof tile
829	Early post medieval	Un-frogged brick
831	16th century or later	Floor tile
833	Early post medieval	Un-frogged brick
835	Early post medieval	Brick and roof tile
838	Early post medieval	Brick and roof tile
840	Early post medieval	Un-frogged brick and roof tile
842	Early post medieval	Un-frogged brick
848	Early post medieval	Un-frogged brick
852	Post medieval	Brick crumbs
854	Post medieval	Brick crumb and roof tile
859	Early post medieval	Un-frogged brick
874	Early post medieval	Un-frogged brick
877	Post medieval	Roof tile
882	Post medieval	Brick and peg tile, reused vitrified brick
898	Late post medieval	Flake- roof tile?
914	Post medieval	Brick

Table 3: Dating of ceramic building material

- 5.4.4 Twenty one fragments of roof tile weighing 753g were recovered. Five fragments were vitrified. Five fabrics were identified. Two fragments exhibited nail holes: ditch fill [821] contained a piece with a circular nail hole of 11mm diameter, and ditch fill [882] contained a fragment with a polygonal hole of 12mm diameter. None of the roof tile was particularly diagnostic; a post medieval date is probable.
- 5.4.5 A total of 78 fragments of post-medieval brick were recovered. Six fabrics were recorded; all are un-frogged. Bricks with indented margins were recorded from pit fills [833], [859] and [874]. No complete bricks were recovered; measurements range from 51-71mm thick and 98-125+mm wide. Overall the bricks are significantly abraded; fabrics are fairly soft. Brick form could be divided into two broad categories: Poorly-made bricks with rough, creased sides, grass marks, irregular arrises and often coarsely sanded surfaces occurred in quarry pit fills [833] and [874] and ditch fills [829] and [848]. The most complete example from [874] measured 202+mm x 122mm x 65mm. More regularly shaped bricks with shaper arrises, smooth/ striated upper surfaces and finer moulding sand came from pit fills [833], [842] and [859] and ditch/ gully fills [829] and [840]. Vitrified material was recovered from five contexts including a completely vitrified fragment from [882] with glassy vitrified sand 'glaze'. This fragment exhibited mortar on a broken face which may be evidence of having been used post vitrification. Vitrification and over-firing was also characteristic of the assemblage from the 2013 excavations.
- 5.4.6 A single unglazed floor tile fragment in a sparsely calcareous fabric came from ditch fill [831]. The tile is 36mm thick and of 16th-17th century date.
- 5.4.7 The building material appears to be similar to the previously excavated assemblage. The bricks show characteristics of fairly early manufacture; none is likely to be of later than 18th century date. The floor tile is of a similar date. The roof tile is less diagnostic but unlikely to differ greatly. Significant abrasion may be due to the soft nature of the fabrics and/ or redeposition.

5.5 Glass by Elke Raemen

- 5.5.1 A small glass assemblage comprising 14 fragments (weight 640g) was recovered from six numbered contexts. Vessels range in date from the 17th century through to the 19th century.
- 5.5.2 Pit [809] (fill [808]) potentially contained the earliest glass fragment, consisting of a small, pale green chip (weighing <1g), probably from a base e.g. from a goblet. It is of early post-medieval date, however, is undiagnostic beyond that given its small size.
- 5.5.3 Three green glass shaft-and-globe bottle shards were found in post-hole [811] (fill [810]), including two conjoining base fragments with low kick. They are all from one vessel and date to the second half of the 17th century.
- 5.5.4 Green glass wine bottle base fragments were also recovered from pit [817] (fill [816]), again representing just one bottle, which dates to the second half of the 18th century. This context contained in addition a colourless cup or beaker rim fragment of 18th or 19th century date, as well as a clear cylindrical bottle fragment dating to the mid-19th to mid-20th century.
- 5.5.5 Other late material includes a near complete oval aqua bottle (height 161.4mm) dating to the 19th century ([901]) and an aqua base fragment from a cylindrical bottle,

possibly a mineral water bottle. The latter, found in pit [889] ([888]), dates to the mid-19th to early 20th century.

5.6 Clay Tobacco Pipe by Elke Raemen

5.6.1 The archaeological work produced a small assemblage of nine clay tobacco pipe fragments (weight 35g) from six different contexts. Eight of these comprise stem fragments, ranging in date from the mid-17th to 19th century. Many are abraded and none are marked or decorated.

5.6.2 In addition, quarry pit [834] (fill [833]) contained a bowl fragment of the elongated type dated to c. 1680-1710. As the most diagnostic parts of the bowl are missing, the exact type cannot be specified.

5.7 Registered Finds by Trista Clifford

(with a contribution on the WWII ordnance by Justin Russell)

5.7.1 A total of 12 Registered Finds were recovered. They are numbered from RF <10> onwards in order to run in sequence with finds recovered from a previous phase of work in an adjacent area (Dyson 2013). Registered finds are washed and/or air dried as appropriate to their material. Objects have been packed appropriately in line with IFA guidelines (2001). All objects are assigned a unique registered find number (RF<00>) and recorded on the basis of material, object type and date (shown in Table 4). Registered finds were assessed for conservation requirements. Unless indicated in the relevant section no further conservation for stabilisation or analytical purposes is required. Metal work is boxed in airtight Stewart tubs with silica gel.

RF	Context	Object	Material	Period	Wt (g)
10	806	HOSH	IRON	MOD	822
11	806	De-accessioned			
12	838	BUTT	COPP	PMED	3
13	823	THIM	COPP	PMED	<2
14	821	UNK	IRON	MOD	368
15	808	THIM	COPP	PMED	3
16	874	HING	IRON	PMED	733
17	816	SPIKE	IRON	PMED	184
18	816	UNK	IRON	PMED	28
19	898	BULL	COPP	MOD	10
20	835	GOUG	IRON	PMED	12
21	914	CHAI	IRON	PMED	168

Table 4: Registered Finds

5.7.2 A single copper alloy circular button, RF<12>, was recovered from ditch fill [838]. The button measures 20.8mm in diameter and has a plain border; the loop is missing. The button is later post medieval in date (c. 18th century).

5.7.3 Two machine drawn copper alloy thimbles were recovered. RF<15>, from pit fill [808], is a child's thimble measuring 15.8mm high and 13.8mm in diameter at the base. The rim is turned indicating a 19th-20th century date. RF<13> was recovered

in fragmentary condition from gully fill [823]. The turned rim indicates a similar date for this thimble. A possibly earlier Nuremburg sewing ring with punched, D shaped indentations (RF<1>) was recovered during the previous phase of excavation

- 5.7.4 Quarry pit fill [806] contained a complete iron horse shoe, RF<10>, measuring 175 x 178 x 20mm. The shoe has a toe clip and is of 19th-20th century date. A complete horseshoe was recovered previously, RF<9>.
- 5.7.5 Quarry pit fill [874] contained RF<16>, a complete iron hinge pivot, dimensions 195mm x 90mm x 28mm. The form changes little from the medieval period on, however the condition of this large example suggests a probable later post medieval date. An iron spiked terminal measuring 174mm x 19.47mm x 18.09mm and probably deriving from a cast iron railing was recovered from pit fill [916]. The same pit produced a heavy duty chain with oval links and swivel fitting, RF<21>. Both finds are in good condition and are likely to be of 19th – 20th century date.
- 5.7.6 Ditch fill [835] contained a complete iron gouge bit, RF<20>. The bit measures 100mm in length and has a sub- square sectioned stem with widened tang and concave blade 8mm wide. The form is comparable to medieval examples from Rayleigh Castle and Northampton (Goodall 2011, 36) but the general form changes little: therefore a later date should not be discounted.
- 5.7.7 A single fired bullet with a diameter of 7.9mm (.311in), length of 28mm (1.104 in) was recovered from context [898], fill of ditch [902]. Constructed with a gilding metal jacket, lead core and with one cannelure, this is a 30-06 bullet, of US origin, fired in a Browning automatic rifle or machine gun (indicated by the 4 rifling grooves with a right hand twist). The likelihood is that it relates to the use of Boreham airfield by the United States Air Force, from 1944. It could, however, also be indicative of an earlier phase of the Second World War (circa 1940), when Home Guard units were issued with US weapons and ammunition.
- 5.7.8 Two finds were recovered for which the function is not identified. RF<14> is a modern (?) agricultural machinery fitting recovered from ditch fill [821]. RF<18>, recovered from pit fill [816] is a fragment of iron plate, possibly a blade or knife fragment, undiagnostic of date.

5.8 Bulk Metalwork by Trista Clifford

- 5.8.1 Eight iron nails weighing a total of 87g were recovered from five separate contexts. The previous phase of excavation (Dyson 2013) produced 15 iron nails. Handmade general purpose nails were recovered from ditch fills [821], [838] and [882] and pit fill [808]. Complete examples measure 56-57mm in length with circular heads and square sectioned stems; comparable in form with those of the previous phase. Ditch fill [854] contained a heavy duty nail of similar form measuring 85mm in length. A late post medieval date is probable.
- 5.8.2 An iron rod fragment was recovered from pit fill [901], weighing 21g. Pit fill [806] contained three fragments from a modern paint can. A small piece of copper alloy disc was recovered from the same context. Pit fill [816] contained a short curved copper alloy rod fragment. All are of post medieval date.

5.9 Animal Bone by Hayley Forsyth

- 5.9.1 The archaeological excavations produced a small assemblage containing 66 identifiable fragments of mammal and amphibian bones. The bone has been hand-collected and retrieved from bulk samples. The assemblage derives from a large quarry pit, ditches, gullies, pits and post hole fills dating to the post-medieval period.
- 5.9.2 The assemblage has been recorded onto an Excel spreadsheet in accordance with the zoning system outlined by Serjeantson (1996). Wherever possible, the fragments have been identified to species and the skeletal element represented. Elements that could not be confidently identified to species, such as long-bone and vertebrae fragments, have been recorded according to their size and identified as large, medium or small mammal.
- 5.9.3 In order to distinguish between the bones and teeth of sheep and goats, a number of criteria were used including those outlined by Boessneck (1969), Boessneck et al (1964), Halstead et al (2002), Hillson (1995), Kratochvil (1969), Payne (1969, 1985), Prummel and Frisch (1986) and Schmmid (1972). Red and fallow deer bones and antler were identified with reference to Lister (1997) and Hillson (1996). Tooth eruption and wear has been recorded according to Grant (1982) and all metrical data has been taken in accordance with von den Driesch (1976). No tooth eruption data or metrical data was available within the assemblage. The state of fusion has been noted and each fragment has then been studied for signs of butchery, burning, gnawing and pathology.
- 5.9.4 The assemblage contains 121 fragments of domestic and wild animals, of which 66 have been identified to taxa. The majority of the specimens (98.5%) are in poor condition, showing signs of surface erosion.

Taxa	NISP count
Cattle	2
Sheep/Goat	1
Fallow Deer	1
Fallow/Red Deer	1
Small Mammal	31
Medium Mammal	19
Large Mammal	8
Anuran	3

Table 5: NISP (Number of Identified Specimens)

- 5.9.5 The assemblage contains sixty-six identifiable bone fragments which include cattle, sheep/goat, fallow deer, fallow/red deer, small mammal, medium mammal, large mammal, anuran bones. The majority of the bone derives from small mammals (Table 5), though small quantities of medium mammal and large mammal bones have been recovered. The assemblage is dominated by small mammal long bone fragments in bulk samples taken from [808] <11>, [829] <3>, [835] <2>, [854] <5>. Medium mammal and large mammal fragments are also present in some abundance.
- 5.9.6 Fusion data is limited as the majority of the bones are fragmentary and in poor condition. A small number of bones have been classed as adult based on the surviving fusion data available.

5.9.7 Five bones, meat and non-meat bearing elements, exhibited evidence of butchery; two large mammal long bone fragments from ditch fill [829] have been chopped, as well as a large mammal cranial fragment from pit fill [859]. A cattle metatarsal from quarry pit fill [818] has been chopped lengthways and a cattle horn core from pit fill [859] has been sawn from the cranium. This suggests primary butchery practices which included carcass portioning.

5.10 Environmental Samples by Dawn Elise Mooney and Lucy Allott

5.10.1 During archaeological excavations at the site, seventeen bulk environmental samples were taken in order to recover environmental remains such as charred plant macrofossils, wood charcoal, fauna and mollusca, and to assist finds recovery. Sample <4> was deemed unnecessary and discarded on site. Samples were taken from a variety of features including ditches, pits, hearths, and a large quarry pit/pond feature, and ranged in volume from 10 litres to 40 litres. Although a previous phase of archaeological investigation was conducted at the site (Dyson 2013), no environmental remains were recovered during this work. The following text details the processing of these samples, their origin on site, and their contents, and assesses their potential to contribute to the interpretation of the site through discussions of diet, agriculture, fuel procurement strategies and local environment.

5.10.2 Samples <1>, <2>, <3>, <5 – 11>, <15> and <16> were processed by flotation. Flots and residues were retained on 500µm and 250µm meshes respectively, and air dried, with the exception of samples <1>, <15> and <16> which were retained wet in order to preserve uncharred plant remains. The dried residues were passed through graded sieves of 8mm, 4mm and 2mm and each fraction sorted for environmental and artefactual remains (Appendix 3). Artefacts recovered from the residues have been distributed to finds specialists, and are discussed within the relevant sections of this report. Samples <12 – 14> and <17> contained large quantities of uncharred organic material, and were processed by wet-sieving. Sub-samples of 2 litres were washed through a stack of geological sieves ranging from 4mm to 250µm, and each fraction was retained wet. The dry and wet flots and the wet sieved fractions were scanned under a stereozoom microscope at 7-45x magnifications and their contents recorded (Appendices 4 and 5). Identifications of macrobotanical remains have been made through comparison with published reference atlases (Cappers *et al.* 2006, Jacomet 2006, NIAB 2004), and nomenclature used follows Stace (1997).

5.10.3 Charcoal fragments recovered from the heavy residue of samples <6>, <7>, <9> and <10> were fractured along three planes (transverse, radial and tangential) according to standardised procedures (Gale & Cutler 2000). Specimens were viewed under a stereozoom microscope for initial grouping, and an incident light microscope at magnifications up to 400 xs to facilitate identification of the woody taxa present. Taxonomic identifications were assigned by comparing suites of anatomical characteristics visible with those documented in reference atlases (Hather 2000, Schoch *et al.* 2004), and by comparison with modern reference material held at the Institute of Archaeology, University College London. Identifications have been given to species where possible, however genera, family or group names have been given where anatomical differences between taxa are not significant enough to permit satisfactory identification. Where identifications were uncertain due to poor preservation or limited size of charcoal specimens the identification is preceded by cf., denoting 'compares with'. Nomenclature used follows Stace (1997) and taxonomic identifications of samples are recorded in Appendix 1.

Ditches: <2>, fill [835] of Period 2 ditch [832]; <3>, fill [829] of Period 1 ditch [830];

<5>, fill [854] of Period 2 ditch [822]; <10>, fill [877] of Period 2 ditch [878].

- 5.10.4 For the most part, charred macrobotanical remains were rare in samples taken from ditches at the site. Samples <3> and <5> produced small flots dominated by modern rootlets and seeds, with no charred plant macrofossils present. The flot of sample <2> was also small and contained a large amount of modern plant material; however a small number of charred wild seeds were present, including dog's mercury (*Mercurialis perennis*), dog rose (cf. *Rosa canina*) and grass (Poaceae). Wood charcoal was uncommon in these samples, and comprised mostly small fragments and flecks. A much larger quantity of charcoal was recovered from sample <10>, which produced a very large flot dominated by charred wood fragments, including roundwood and pieces >30mm. The charcoal assemblage comprised mostly oak (*Quercus* sp.) fragments, although alder (*Alnus* sp.) was also noted. Occasional crop plant remains were recorded in this sample, including caryopses of barley (*Hordeum* sp.), probable bread wheat (cf. *Triticum aestivum*) and spelt/emmer (*Triticum spelta/dicoccum*), and a fragment of cereal rachis. Wild taxa were represented in the sample by oat (*Avena* sp.) caryopses and a daisy family (Asteraceae) seed.

?Period 3: Fire pit [864]: <6>, upper fill [861]; <7>, secondary fill [862]; <8>, basal fill [863].

- 5.10.5 Sample <8>, from the basal fill of the fire pit, produced a small flot dominated by charcoal pieces and flecks mostly <4mm, with modern rootlets and seeds also noted. However, samples <6> and <7> both produced large flots containing mostly wood charcoal fragments, including some >20mm. A selection of fragments from each sample was identified as oak. Other charred plant macrofossils were rare, comprising only a single grass seed from sample <7>.

Pits: <1>, fill [804] of Period 3 pit [805]; <9>, fill [868] of ?Period 3 pit [869]; <11>, fill [808] of Period 3 pit [809].

- 5.10.6 Sample <11> produced a small flot containing no charred plant macrofossils other than rare charcoal fragments, which was dominated by modern plant material. The wet flot from sample <1> contained a large amount of uncharred wood fragments, along with a small amount of charcoal flecks. Other botanical remains were rare, comprising uncharred, fresh-looking nettle (*Urtica* sp.) and hemp-nettle (*Galeopsis tetrahit*) seeds. A larger dry flot was recovered from sample <9>. This contained large quantities of wood charcoal including fragments >25mm, identified as oak, alder and hornbeam (*Carpinus betulus*). The sample also produced one spelt/emmer grain and two barley caryopses, and a single charred goosefoot (*Chenopodium* sp.) seed.

Quarry pit/pond [807] : <12>, fill [806]; <13>, fill [880]; <14>, fill [827]; <15>, fill [896]; <16>, fill [875]; <17>, fill [876].

- 5.10.7 Fill [896], was initially suspected to be from a separate cut within [807] although it was later equated with [876], which was separately sampled as <17>. Sample <15> was rich in uncharred plant seeds and fruits including acorns and acorn cupules (*Quercus* sp.), dog rose fruits and seeds, seeds and articles of sedge (*Carex* sp.) and seeds of knapweed (*Centaurea* sp.), thistles (*Carduus/Cirsium*), dogwood (*Cornus sanguinea*), knotweed/dock (*Polygonum/Rumex*), blackberry/raspberry (*Rubus* sp.), field maple (*Acer campestre*), goosefoot, and willow-leaved cotoneaster (*Cotoneaster salicifolius*). Roundwood fragments with bark were commonly noted, along with thorns, leaves and rootlets. The uncharred plant material was very well-preserved and fresh-looking.

5.10.8 Like sample <15>, the other fills of quarry pit/pond [807] contained abundant well-preserved, fresh-looking macrobotanical remains including seeds, fruits, wood fragments, roundwood, thorns, buds, and stems of monocotyledonous plants. Taxa represented can generally be divided into two categories: woody plants and shrubs, and other wild plants. Woody taxa present included hawthorn (*Crataegus monogyna*), blackberry/raspberry, rose (*Rosa* sp.), dogwood, lime (*Tilia cordata*), hazel (*Corylus avellana*), elder (*Sambucus nigra*), hornbeam (*Carpinus betulus*), blackthorn (*Prunus spinosa*) and beech (*Fagus sylvatica*). Of the remaining taxa, some such as bitterweet (*Solanum dulcamara*), branched bur-reed (*Sparganium erectum*), buttercups (*Ranunculus* sp.), pondweed (*Potamogeton* sp.), duckweed (*Lemna* sp.), water plantain (*Alisma plantago-aquatica*), and sedges, prefer wetland margin or aquatic environments. Others, such as chickweed (*Stellaria* sp.), goosefoot, selfheal (*Prunella vulgaris*), hedge parsley (*Torilis* sp.), dock (*Rumex* sp.), grasses and thistles are found in a variety of cultivated and waste ground environments, while others such as the lily family (Liliaceae) may represent cultivated garden plants. Uncharred plant remains were most common in sample <13> from the basal fill of the pit, while in others a similar range was present but examples were less common and less well preserved.

Discussion

5.10.9 The presence and preservation of charred plant remains from the site was very variable. Charred macrobotanical remains were infrequently found in ditch and pit features at the site. Crop seeds including spelt/emmer, bread wheat, and barley indicate the consumption of cereals however, the absence of chaff suggests that these plants were not being processed on site. Oat caryopses noted in sample <10> may represent a cultivar, however in the absence of chaff remains it is not possible to distinguish these from wild varieties. Other charred wild seeds were rare, and mostly comprised weeds of arable land and disturbed ground such as grasses, goosefoot and seeds of the daisy family. Finds of dog rose (*Rosa canina*) and dog's mercury (*Mercurialis perennis*) in sample <2> are indicative of woodland or woodland margin environments, likely to have been exploited for fuel procurement. The charred seeds from the site are likely to represent accidental inclusions with material for fuel or kindling.

5.10.10 The charred wood remains from the site were variable in quantity however, large assemblages were recovered from ditch fill [877], pit fill [868], and the fills of fire pit [864]. These remains were moderately well preserved although somewhat abraded and showed moderate evidence of sediment infiltration and concretion linked to fluctuations in groundwater level. Oak was by far the most common taxon in these assemblages however alder and hornbeam were also noted. These taxa are likely to have been commonly found in the vicinity of the site. Oak is known to be an excellent fuel wood (Taylor 1981), and may have been specifically selected for use as firewood. Alder is a rather poorer fuel wood when fresh, but makes high-quality charcoal, and may be selected for this purpose (Taylor 1981). However, this taxon is also found in damp woodland and wetland margin environments, and may simply represent the procurement of fuel wood from low lying land in the immediate environs of the site.

5.10.11 The waterlogged plant remains from quarry pit [807] were abundant and well-preserved. Two key environments were represented: woodland and hedgerow habitats characterised by seeds, fruits, and nuts, round-wood and wood fragments of trees and shrubs common to mixed deciduous woodland and woodland margins and

aquatic and wetland habitats. The latter indicate that the features, particularly the quarry pit, are likely to have been filled with water at some point during their history, with plants such as buttercups, bur-reeds and bittersweet growing on the margins and pondweed, duckweed and others growing within the pit itself. The woodland material does not seem to be indicative of any anthropogenic influence, and is also likely to represent the natural infilling of the pits with vegetation from the surrounding area. Although abundant, the excellent preservation and 'fresh' appearance of the material suggests that it is likely to be of a post-medieval or early modern date. The material from these samples therefore may be useful for landscape reconstruction for the post-medieval period at the site, but is unlikely to contribute significantly to discussions of human activity.

5.11 The Waterlogged Wood by Dawn Elise Mooney

5.11.1 Three pieces of waterlogged wood were recovered during excavations at the site. All three pieces formed part of a timber structure [879], constructed in the edge of quarry pit/pond [807]. Timber remains were examined for evidence of woodworking, and for taxonomic identification. Samples taken from each timber were sectioned along three planes (transverse, radial and tangential) according to standardised procedures (Gale & Cutler 2000), and examined under a transmitted light microscope at 50x to 300x magnification in order to determine the woody taxa used as timber at the site. Taxonomic identifications were assigned by comparing suites of anatomical characteristics visible with those documented in reference atlases (Hather 2000, Schoch *et al.* 2004), and by comparison with modern reference material held at the Institute of Archaeology, University College London. Identifications have been given to species where possible, however genera, family or group names have been given where anatomical differences between taxa are not significant enough to permit satisfactory identification. Nomenclature used follows Stace (1997).

5.11.2 Timber [918] and a further unnumbered timber were identified as willow/poplar (*Salix/Populus*) roundwood. Both had bark still attached, although only a small fragment remained adhering to the second timber. This timber measured 949mm in length and 36mm in diameter, and displayed no signs of working. Timber [918] measured 413mm long and had a diameter of 34mm. It displayed a single diagonal cut mark to one end, likely to relate to the stripping of the branch from the main trunk of the tree with a small axe or billhook. Timber [917] consisted of a 488mm long piece of tangentially converted spruce/larch (*Picea/Larix*) with a wedge-shaped cross section and a width of 43mm. Again, other than its conversion, the fragments showed no signs of working. The timbers were all very well-preserved, and likely to be of a post-medieval date.

6.0 POTENTIAL & SIGNIFICANCE OF RESULTS

6.1 Realisation of the Original Research Aims

- 6.1.1 **OR1:** Investigating and recording a further part of the general scatter of surviving prehistoric remains across the landscape
- 6.1.2 No further stratified prehistoric features were excavated during the current fieldwork. Two residual flint flakes were the only remains pre-dating the 17th century
- 6.1.3 **OR2:** Investigating and recording the medieval landscape, and in particular to identify remains such as field systems associate with the medieval farmstead excavated to the southwest in 2012; and
- 6.1.4 **OR3:** Investigating the origins and development of medieval rural settlement types and the dynamics of medieval settlement, which are on-going regional research topics for the Eastern counties (Medlycott 2011, 70)
- 6.1.5 No medieval features or finds were recorded, meaning that the current fieldwork contributes only negative evidence to research aims concerning this period.
- 6.1.6 **OR4:** Investigate and record remains relating to the post-medieval agricultural landscape, particularly the remains identified to the west in 2012/2013.
- 6.1.7 The current fieldwork has contributed to our understanding of the post-medieval agricultural landscape. The Period 1 remains are limited to two ditches, representing the edge of an enclosure, continuing into the adjacent area to the west and a few other poorly-understood discrete features; however, the finds evidence suggests that this relates to nearby settlement, probably established in the late 16th century to 17th century. This early field pattern appears to have been replaced by more regular and differently aligned field ditches at some point in the 18th century. The same boundaries were recut and historic maps show that they survived in use until the 20th century, probably only falling out of use as the site was developed as a WWII airfield. Similarly, a series of probable quarry pits, likely initially excavated in the 18-19th century remained open as ponds well into the 20th century. The final phase of land-use is characterised by sporadic 20th century pit digging.

6.2 Significance and Potential of the Individual Datasets

- 6.2.1 As well as considering the significance and potential of the remains uncovered in the current phase of work, this assessment incorporates the results of the previous phase of monitoring and excavation in the adjacent area to the west, which has been reported on in a separate document (Dyson 2013). It should be noted that these recent stages of fieldwork form part of a wider programme of work undertaken at Bulls Lodge Quarry (see section 2.1). It is envisaged that significant remains from all of the – as yet unpublished – phases of fieldwork will be analysed and published in a single article. The following section of this report therefore aims to assess whether the archaeology uncovered in these two recent areas is significant enough to

warrant inclusion. Section 7.0 then details the resources needed to incorporate these two areas into the wider programme of analysis and publication.

6.2.2 The stratigraphic sequence: prehistoric remains from the winter 2012/2013 area

6.2.3 A relatively low density scatter of small later prehistoric pits was identified across the western half of the area investigated in 2012/2013 (Dyson 2013). The small assemblage of pottery included some diagnostic Early Iron Age material, although not all of the pits were closely datable. Given the absence of associated enclosure systems and structures, these remains can only provide evidence of general later prehistoric land-use activity. The archaeology of this period has some limited local significance and warrants a brief summary in the stratigraphic narrative and inclusion on published plans for the prehistoric period. There is limited potential for further analysis but some comparison could be made with other areas of known later prehistoric activity within Bulls Lodge Quarry and perhaps with other extensively investigated landscapes elsewhere within the county.

6.2.4 *The stratigraphic sequence: Period 1, early post medieval – late 16th-17th century*

The stratified features assigned to Period 1 are few in number, the most significant remains being the edge of a field or enclosure which appears to have continued into the adjacent area, excavated in winter 2012/2013 (Dyson 2013). However these features contribute something to our understanding of the nature of post-medieval development on the site. In the medieval period the site formed part of the estate associated with the manor of New Hall (see 2.2). A medieval moated settlement, including a house, outbuildings and a windmill, has been recorded just 500m to the south-east (Clarke 2003) but it is thought that the area of the current site would have lain within a large deer park at this time. The deer park land is thought to have been gradually settled on a piecemeal basis during the early post-medieval period but the chronology of this process was previously rather poorly understood.

Although, individually, the stratified features are not very closely dated by their finds assemblages, there is some good evidence for material of late 16th and 17th century date from the site as a whole, and it seems likely that the earliest enclosure pattern was established at around this time. However, the high proportion of deer in the animal bone assemblage and evidence of antler working from the 2012/2013 area may suggest that hunting continued to take place in the vicinity during this time. The relatively moderate quantities of finds probably suggest that the current excavation area probably lay in a peripheral area at the edge of a settlement – the nature of which could be further conjectured with reference to the artefact assemblages. Overall the Period 1 evidence is assessed to be of local significance. Further stratigraphic analysis is required in order to phase, group and assign land-use interpretations to earlier post-medieval contexts previously recorded in the adjacent 2012/2013 area. The significance of the historic path or trackway that formerly ran more-or-less between the 2012/13 and current areas should be considered further in relation to the recorded landscape features and the artefact assemblages retrieved from them.

6.2.5 *The stratigraphic sequence: Period 2, later post- medieval – 18th- mid 20th century*

The Period 2 remains constitute a series of field boundary ditches and three very large pits, probably initially opened as quarrying features and subsequently left open as ponds. Historic maps show that these features were still open and in use in the 1920's. They seem to relate to small scale rural quarrying and agricultural activity. As such, the Period 2 remains are of limited significance and do not warrant full publication. However, it may be worth adding a short summary paragraph to the end of the results section on the Period 1 remains, detailing how the layout of the site changed in the later post-medieval period. To this end it is recommended that any available maps pre-dating the Ordnance Survey should be consulted in order to pin-point the start of this phase of activity and therefore provide a *terminus ante quem* for the Period 1 enclosure.

6.2.6 *The stratigraphic sequence: Period 3, Modern*

The Period 3 remains are all discrete features of uncertain function, which based on their stratigraphic relationships with the Period 2 ponds, seem to post-date the 1920's. These features have no significance or potential for further work. It is recommended that these are completely omitted from the publication.

6.2.7 *Worked Flint*

A single undiagnostic piece of struck flint was recovered in association with Early Iron Age pottery in pit [699] in the 2012/2013 area (Dyson 2013). The remainder of the assemblage was undiagnostic and found in post-medieval contexts. As a result the assemblage has no significance or potential and can be omitted from the publication.

6.2.8 *Prehistoric pottery*

No prehistoric pottery was recovered in the current area; however, a very small assemblage was recorded in the adjacent 2012/2013 area. This material has no wider significance or potential for further work. Dating evidence can be summarised from the previous report as required but there is no requirement for a standalone specialist report.

6.2.9 *Post-medieval pottery*

The post-medieval pottery assemblage from the current work and from the winter 2012/2013 area amounts to a relatively small total (c.250 sherds) but includes some diagnostic earlier post-medieval material with one moderate sized group of pottery from pit [624]. The assemblage has some potential to inform on the nature of domestic activity occurring during this period and it is recommended that a brief summary paragraph should be prepared for integration into the stratigraphic text.

6.2.10 *Ceramic building material*

The assemblage has local significance only insofar as it indicates the presence of a post-medieval building nearby, and has potential for dating the contexts within which it was contained. It is recommended that time is allowed for a ceramic building material specialist to rapidly assess the small assemblage material found in the previous adjacent phase of excavation

(Dyson 2013). This may warrant inclusion in a brief summary of the ceramic building material to be included in the main stratigraphic narrative.

6.2.11 *Glass*

The glass from the current phase of work has little significance or potential for further work. However, it is recommended that a glass specialist should rapidly assess the two pieces of glass stratified in pit [624] in the previous phase of work to determine whether they are of the same date as the late 17th/early 18th century pottery found in this feature (Dyson 2013). If appropriate, a summary sentence on the earlier post-medieval glass can be prepared for integration into the stratigraphic narrative.

6.2.12 *Clay tobacco pipe*

The clay tobacco pipe from the current phase of work has little significance or potential for further work. It is recommended that a specialist should rapidly assess the conjoining pieces of clay tobacco pipe stratified in pit [624] in the previous phase of work to determine whether they are of the same date as the late 17th/early 18th century pottery found in this feature (Dyson 2013). If appropriate a summary sentence can be prepared for integration into the stratigraphic narrative.

6.2.13 *Registered Finds*

The registered finds assemblage from the current phase of work is small and consists of later post medieval objects associated with a limited number of functions. It is therefore of minimal significance beyond dating and characterisation of features. It has no potential for further work. However, the previous phase (Dyson 2013) produced a number of objects which may have some potential to inform on the range of activities occurring on the site in the early post-medieval period. In particular the assemblage of worked antler suggests primary bone working activity in the vicinity of the site. The remainder of the metal objects, including a thimble, a tool haft and a horseshoe are not inherently closely-dated but may be worth including in a registered finds summary if the further phasing work demonstrates that they are well-stratified within early post-medieval features. These may also contribute to interpretation of the apparent nearby early post-medieval occupation activity.

6.2.14 *Bulk metalwork*

The bulk metalwork from both recent phases excavation of is of minimal significance and has no potential for further analysis.

6.2.15 *Animal bone*

The previous phase of work produced a moderate assemblage of animal bone, dominated by fallow and red deer (Ayton 2013). This analysis identified the function of the site as 'industrial' (craft manufacture?) in nature due to the large quantity of worked deer antler present (Clifford 2013). The amount of identifiable remains is relatively small and the condition is poor from the current phase of excavations. Although deer bones are present, they do not represent the bulk; worked bone is also absent from the current area. The butchery marks, however, are similar to those from the previous assemblage and suggest a continuation of the disposal of primary butchery waste (Ayton 2013). In summary, the assemblage from the earlier post-medieval features

does have some local significance with potential to inform on the range of activities being carried out in the vicinity. It is recommended that a short summary should be prepared for integration into the stratigraphic narrative.

6.2.16 *The environmental samples*

Only one sample, <3>, was collected from an earlier post-medieval feature. This produced only a small flot dominated by modern rootlets and seeds, with no charred plant macrofossils present. The remainder of the samples come from poorly-dated or very recent features, meaning that the environmental remains have little significance or potential for further work. No environmental samples were taken during the previous phase of work.

6.2.17 *The waterlogged wood*

The wood remains recovered from quarry pit [807] suggest that the timber structure was built of a variety of materials, possibly including timber offcuts. The willow/poplar roundwood may indicate the derivation of timber from damp woodland or wetland margin areas managed through coppicing or pollarding. These taxa are likely to have been found in low-lying areas in the environs of the site. Overall the timber assemblage is of low significance, and has no further potential to contribute to the interpretation of the site. It is recommended that the remains are discarded.

7.0 PUBLICATION PROJECT

7.1 Revised Research Agenda: Aims and Objectives

- 7.1.1 This section combines those original research aims that the site archive has the potential to address with any new research aims identified in the assessment process by stratigraphic and finds specialists to produce a set of revised research aims that will form the basis of any future research agenda. Original research aims (OR's) are referred to where there is any synthesis of subject matter to form a new set of revised research aims (RRA's) posed as questions below.
- 7.1.2 RRA 1 (OR1): How do the limited prehistoric remains from the 2012/2013 area fit into the wider prehistoric landscape uncovered in previous phases of work at the quarry? What does this say about the nature and density/intensity of land-use?
- 7.1.3 RRA2 (OR4): How do the earlier post-medieval features contribute to the picture of gradual enclosure of land previously forming part of the deer park associated with the manor of New Hall? Do stratigraphic associations suggest that deer butchery and antler-working was happening contemporaneously with domestic activity? If so, does this indicate that deer park and settled land continued to exist side-by-side in the earlier post-medieval period?
- 7.1.4 RRA3 (OR4): Can further map regression pinpoint when the later (Period 2) field pattern was put in place and therefore provide a more accurate *terminus ante quem* date for the Period 1 settlement features?

7.2 Preliminary Publication Synopsis

- 7.2.1 It is suggested that the results of the two most recent phases of excavation should be published alongside other areas of excavation including: Allen 2011; Ennis 2011; 2012. It is anticipated that future phases of investigation of quarry areas may also make further contributions.
- 7.2.2 The article should seek to address the individual site-specific research questions identified in the post-excavation assessment and should be presented within an updated chronological framework. It will therefore be necessary to review the phasing structure presented in this report in order to include other periods not represented in the current fieldwork.
- 7.2.3 The exact structure of the publication text has yet to be determined as detailed assessments of the other excavation areas have not yet been carried out. It is envisaged that the results assessed in the current document will form brief contributions to sections on the following periods:
- Prehistoric
 - Earlier post-medieval (c. late 16th -17th century)
- 7.2.4 Later remains from Periods 2 and 3 are judged to be of limited significance and can be omitted from the final publication, or else only be briefly referenced in general discussion of late land-use.

7.3 Publication Project

7.3.1 *Stratigraphic Method Statement*

In addition to the 122 contexts addressed directly in the current report, it will be necessary to phase 102 contexts from the adjacent area (Dyson 2013). Once this work has been done, contexts assigned to the prehistoric and earlier post-medieval periods from both areas will be subject to grouping and the resultant groups will form the basis of a wider land-use structure. The groups will be defined using stratigraphic, spatial and chronological analysis.

An estimated 10 groups are likely to form some 3-4 landuses (buildings, open areas, boundaries, etc.). They will be defined using stratigraphic, spatial and chronological analysis, using the group matrix and dating evidence, at approximately 5 landuses per day.

Although contexts of later post-medieval date will not be subject to any further analysis, further map regression will be carried out in order to determine when the Period 2 field pattern was laid out. Although these features will not be reported on in detail in the publication, this information will be useful in determining the end date of the Period 1 activity.

After completion of specialist summaries, an integrated period-driven narrative of the site sequence will be prepared. This will draw on specialist information in order to fully address the revised research aims. The narrative will include relevant selection of period/phase plans, sections, photographs. A detailed breakdown of the stratigraphic tasks is shown in Table 6.

7.3.2 *Worked flint*

No further work is required

7.3.3 *Prehistoric pottery*

No further work is required although it is recommended that some brief information on the dating evidence of the small prehistoric pottery assemblage recovered in the adjacent area (Dyson 2013) is integrated into the stratigraphic narrative.

7.3.4 *Post-medieval pottery*

A brief summary paragraph should be prepared, focusing on the evidence of domestic activity in the vicinity

Total **0.5 day**

7.3.5 *Ceramic building material*

Rapid assessment the small assemblage material found in the previous adjacent phase of excavation (Dyson 2013). If appropriate a summary paragraph on the earlier post-medieval CBM can be prepared for integration into the stratigraphic narrative.

Total **1 day**

7.3.6 *Glass*

Rapid assessment of two pieces of glass stratified in pit [624]. If appropriate a summary sentence on the earlier post-medieval glass can be prepared for integration into the stratigraphic narrative.

Total **0.25 day**

7.3.7 *Clay tobacco pipe*
 Rapid assessment of conjoining clay tobacco pipe stratified in pit [624]. If appropriate a summary sentence can be prepared for integration into the stratigraphic narrative

Total **0.25 day**

7.3.8 *Registered finds*
 When the detailed phasing of features in the adjacent excavation area (Dyson 2013) has been carried out, it will be determined which of the registered finds are considered to be securely stratified in earlier post-medieval features. It is envisaged that a short text will be prepared on the items of worked bone and potentially on some of the metal registered finds.

Total **1 day**

7.3.9 *Bulk metalwork*
 No further work is required

7.3.10 *Animal bone*
 It is recommended that a short summary should be prepared for integration into the stratigraphic narrative particularly focusing on the evidence for butchery and for the exploitation of deer (RRA2).

Total **0.5 days**

7.3.11 *Environmental samples*
 No further work is required

7.3.12 *Waterlogged wood*
 No further work is required

7.3.13 *Illustration*
 It is envisaged that the two most recent phases of field work will contribute two stratigraphic figures (plans, sections, photographs). No finds are worthy of publication illustration.

Total **2 days**

Task description	Duration
<i>Stratigraphic Tasks</i>	
Complete phasing for 224 contexts	1 day
Define groups for prehistoric and earlier post-medieval contexts only	0.5 day
Define landuse and describe landuses.	0.5 day
Visit to local records office to consult historic maps	0.5 day
Digestion and integration of finds summary reports	0.5 day
Prepare period-driven narrative of the site sequence.	2 days
Sub-total	5 days
<i>Specialist Analysis</i>	
Post-medieval pottery	0.5 day
CBM	1 day
Glass	0.25 day
CTP	0.25 day
Registered finds	1 day
Animal bone	0.5 day

Illustration	
2 stratigraphic figures (plans, photographs etc)	2 days
Production	
Editing of the period-driven narrative	1 day
Project Management	1 day

Table 6: Resource for completion of the period-driven narrative of the site sequence

7.4 Artefacts and Archive Deposition

7.4.1 The site archive is currently held at the offices of ASE. Following completion of all post-excavation work, including any publication work, the site archive will be deposited with Chelmsford Museum. The contents of the archive are tabulated below (Table 8).

Number of Contexts	122
No. of files/paper record	147
Plan and sections sheets	5
Bulk Samples	17
Photographs	138 colour prints from digital images
Site Matrix	2 sheets
Bulk finds	39 bags
Registers	8

Table 7: Quantification of site archive

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Appendix 1 – Finds Quantification

Context	Pot	Wt (g)	CBM	Wt (g)	Bone	Wt (g)	Shell	Wt (g)	Flint	Wt (g)	FCF	Wt (g)	Fe	Wt (g)	Glass	Wt (g)	CTP	Wt (g)	Fossil	Wt (g)	Cu	Wt (g)	
u/s			6	974									1	198									
804	1	2																					
806																					3	560	
808	1	8	2	21									1	2									
810	4	48	1	34	1	30			1	4					3	296							
814			11	42																			
816	1	9	1	20											7	102	1	7			1	<2	
818			5	43	1	97																	
819	2	24	4	356			4	39															
821			6	396							1	25	3	16									
823	3	19	1	96																			
829	7	39	12	4276	10	166																	
831	1	3	1	387																			
833			5	2511													1	6					
835			3	32									1	13									
838			5	184									1	15			1	<2					
840	1	<2	13	1466	1	<2																	
842			5	1573																			
848			4	1944																			
852	1	<2	4	10																			
854			2	20									2	238									

Context	Pot	Wt (g)	CBM	Wt (g)	Bone	Wt (g)	Shell	Wt (g)	Flint	Wt (g)	FCF	Wt (g)	Fe	Wt (g)	Glass	Wt (g)	CTP	Wt (g)	Fossil	Wt (g)	Cu	Wt (g)
857									1	5												
859			2	283	10	129																
874	1	25	4	4985																		
877			1	46													4	16				
882	5	19	11	1228			1	2				2	11						1	5		
888														1	48							
898			1	5																		
901	14	390												1	194							
905												1	20									
909	1	13																				
914	2	94	1	149								3	302									
921	1	4															1	6				
<i>Total</i>	<i>46</i>	<i>697</i>	<i>111</i>	<i>#####</i>	<i>23</i>	<i>422</i>	<i>5</i>	<i>41</i>	<i>2</i>	<i>9</i>	<i>1</i>	<i>25</i>	<i>15</i>	<i>815</i>	<i>12</i>	<i>640</i>	<i>8</i>	<i>35</i>	<i>1</i>	<i>5</i>	<i>4</i>	<i>560</i>

Appendix 2: Feature Context Data

Context	Type	Filled by	Description
801	Layer	-	Loose, grey brown silty clay, c.0.30m thick
802	Layer	-	Light, orange brown silty clay, 0.06m thick
805	Pit	804	Sub-circular cut, 0,76m x 0.50m, 0.18m deep
807	Pit	806, 827, 874, 875, 876=same as 896, 879, 880, 897, 916,	Large oval pit, 21.8m x 15.7m, 2.40m+ deep
809	Pit	808	Sub-circular t, 2.30m x 2.18m, 0.50m deep
811	Post hole	810	Sub-circular 0.30m x 0.29m, 0.18m deep
813	Pit or post hole	812	Sub-circular, 0.70m x 0,34m, 0.10m deep
815	Tree bole	814	Irregular, 0.30m x 0.67m, 0.27m deep
817	Pit	816	Sub-circular, 2.10m x 1.72, 0.18m deep
820	Stake hole	819	Circular , 0.24m diameter, 0.05m deep
822	Ditch seg	821, 854	East-west aligned, 1.05m wide, 0.72m deep. Same as 883 and 902
824	Gully	813	North-south aligned, 0.55m wide, 0.07m deep
826	Post hole	825	Sub-circular, 0.40m x 0.28m, 0.20m deep
830	Ditch	829	East-west aligned, turning to south at east end. 1.05m wide, 0.25m deep.
832	Ditch seg	831, 835	North-south aligned ditch (same as 839), 0.80m wide, 0.40m deep
834	Pit	818, 833	Large oval pit, 12.08m x 19.81m, unexcavated
839	Ditch seg	838	North-south aligned ditch (same as 832), 1.44m wide, 0.68m deep
841	Gully?	840	North-south aligned, 1.05m wide, 0.20m deep
843	Gully?	842	North-south aligned (same as 851), 0.85m wide, 0.07m deep
845	Post Hole	844	Sub circular, 0.26m x 0.20m, 0.18m deep
849	Ditch	848	North-south aligned, 0.40m wide, 0.19m deep
851	Gully	850	North-south aligned (same as 843), 0.40m wide, 0.19m deep
853	Pit	852	Sub-circular, 1.34m x 1.55m, 0.15m deep
856	Posthole	855	Sub-circular, 0.23m x 0.24m, 0.05m deep
858	Ditch	857	East-west aligned, 0.73m wide, 0.19m deep
860	Pit	859	2.90m x 0.37m+, 0,24m deep
864	Pit	861, 862, 863	Circular, 0,93m diameter, 0,13m deep
867	Pit	865, 866	Sub-circular, 0.38m x 0.88m, 0.32m deep

869	Pit	868	Sub-circular, 0.56m x 0.84m, 0.25m deep
871	Posthole	870	Circular, 0.22m diameter, 0.06m deep
878	Gully	877	Linear, 6.6m x 0.64m, by 0.27m deep
879	Structure		Timber, 2.60m+ x 1.85m+
881	Pit	828	Sub-circular, 1.40m x 1.30m, 0.10m deep
883	Ditch seg	882	East-west aligned, 1.42m wide, 0.51m deep. Same as 822
885	Stake hole	884	Circular, 0.08m diameter, 0.07m deep
887	Pit	886	Sub-circular, 0.76m x 1.05m, by 0.09m deep
889	Pit	888	Sub-circular 0.76m x 0.68m
891	Pit	890	Sub-circular, 0.41m x 0.38m, 0.12m deep
893	Pit	892	Sub-circular, 0.50m x 0.44m, 0.08m deep
902	Ditch Seg	898, 899, 900, 901	East-west linear, 1.38m wide, 0.70m deep. Same as 822
904	Pit	903	Sub-circular, 0.64m x 0.82m, 0.10m deep
906	Pit	905	Sub-circular, 0.64m x 0.88m, 0.19m deep
908	Pit	907	Sub-circular, 1.06m x 1.08m, 0.16m deep
910	Pit	909	Sub-circular, 0.43m x 0.55m, 0.13m deep
912	Pit	911	Sub-circular, 0.33m x 0.44m, 0.17m deep
913	Void		
916	Pit	914, 915	Large oval pit, 9.88m x 8.30m, unexcavated
920	Pit	919	Sub-circular, 0.65m+ x 1.30m, 0.09m deep
922	Pit	921	Rectangular? 0.15m+ x 0.55m, 0.08m deep

Appendix 3: Environmental residue quantification

(Residue quantification (* = 1-10, ** = 11-50, *** = 51-250, **** = >250) and weights in grams)

Sample Number	Context	Parent Context	Context / deposit type	Sample Volume ltrs	Sub-Sample Volume litres	Charcoal >4mm	Weight (g)	Charcoal <4mm	Weight (g)	Charcoal Identifications	Bone and Teeth	Weight (g)	Land Snail shells	Weight (g)	Other (eg ind, pot, cbm)
1	804	805	P	30	30	*	<2g	*	<2g		*	<2g	*	<2g	Wood **/<2g - Magnetised Material **/<2g
2	835	832	D	40	40	*	<2g	*	<2g		*	<2g	**	4g	Magnetised Material **/2g
3	829	830	D	40	40	**	2g	*	<2g		***	6g	***	22g	Magnetised Material **/2g
5	854	822	D	40	40	*	2g	*	<2g		**	8g	**	2g	Magnetised Material **/2g
6	861	864	HE	40	40	**	22g	*	<2g	<i>Quercus</i> sp. (10)					Magnetised Material **/2g
7	862	864	HE	20	20	***	36g	****	64g	<i>Quercus</i> sp. (10)					Magnetised Material **/2g
8	863	864	HE	10	10	*	<2g	**	<2g						Magnetised Material **/<2g
9	868	869	P	30	30	***	26g	**	2g	<i>Quercus</i> sp. (5), <i>Alnus</i> sp. (4), <i>Carpinus betulus</i> (1)					Magnetised Material **/4g
10	877	878	D	40	40	***	48g	*	2g	<i>Quercus</i> sp. (8), <i>Alnus</i> sp. (2)	*	2g	*	<2g	Glass */<2g - Magnetised Material **/2g
11	808	809	P	40	40	**	2g	*	<2g		*	<2g			CBM */8g - Glass */<2g - CTP */<2g - Magnetised Material **/2g
13	880	807	PQ	40	40						*	<2g			
15	896	913	PC	40	30								*	<2g	Wood **/50g - Magnetised Material **/<2g
16	875	807	PQ	40	40	*	<2g				*	4g	*	<2g	Magnetised Material **/<2g - Wood **/300g

Appendix 4: Flot Quantification

Sample Number	Context	Weight g	Flot volume ml	Volume scanned	Uncharred %	Sediment %	Seeds uncharred	Charcoal >4mm	Charcoal <4mm	Charcoal <2mm	Crop seeds charred	Identifications	Preservation	Weed seeds	Identifications	Preservation	Other botanical	Identifications	Preservation	Fish, amphibian,	Land Snail Shells	
2	83 5	8	45	45	9 5	2	** <i>Rubus idaeus/fruticosus</i> agg., Poaceae, <i>Chenopodium</i> sp., Asteraceae, <i>Viola</i> sp.		*	***				*	<i>Mercurialis perennis</i> (1), large Poaceae (1), cf. <i>Rosa canina</i> (1)	+						***
3	82 9	10	75	75	9 7	1	* <i>Rubus idaeus/fruticosus</i> agg., <i>Chenopodium</i> sp., <i>Galeopsis tetrahit</i>	*	*	**												*** *
5	85 4	7	35	35	9 6	1	** <i>Sambucus nigra</i> , <i>Chenopodium</i> sp., <i>Galeopsis tetrahit</i> , <i>Polygonum/Rumex</i> , <i>Urtica</i> sp.	*	**	***											*	***
6	86 1	79	260	260	4 0	-	* Poaceae, <i>Chenopodium</i> sp., <i>Sambucus nigra</i>	*** *	*** *	*** *												*

Sample Number	Context	Weight g	Flot volume ml	Volume scanned	Uncharred %	Sediment %	Seeds uncharred	Charcoal >4mm	Charcoal <4mm	Charcoal <2mm	Crop seeds charred	Identifications	Preservation	Weed seeds	Identifications	Preservation	Other botanical	Identifications	Preservation	Fish, amphibian,	Land Snail Shells
7	86 2	26 0	700	700	1 0	1	* <i>Chenopodium</i> sp.	*** *	*** *	*** *				*	Small Poaceae (1)	+ +					*
8	86 3	2	5	5	5	-		*	**	***											*
9	86 8	23 2	750	750	5	1	* <i>Chenopodium</i> sp., <i>Rubus</i> <i>idaeus/fruticosus</i> agg.	*** *	*** *	*** *	*	<i>Hordeum</i> sp. (2), <i>Triticum</i> <i>spelta/dicoc-</i> <i>cum</i> (1)	+ +	*	<i>Chenopodi-</i> <i>um</i> sp. (1)	+				*	*
10	87 7	47 9	125 0	125 0	1	1	* <i>Chenopodium</i> sp., <i>Rubus</i> <i>idaeus/fruticosus</i> agg.	*** *	*** *	*** *	*	<i>Hordeum</i> sp. (2), <i>Triticum</i> <i>aestivum</i> (1), <i>Triticum</i> <i>spelta/dicoc-</i> <i>cum</i> (3)	+ - + +	*	<i>Avena</i> sp. (2), Asteraceae (1)	+ - + +	*	Indet. rachis fragment comprisi ng 2 nodes & internod es	+ +		*
11	80 8	6	40	40	9 5	1	** <i>Rubus</i> <i>idaeus/fruticosus</i> agg., <i>Galeopsis</i> <i>tetrahit</i> , <i>Chenopodium</i> sp., <i>Sambucus</i> <i>nigra</i> , <i>Polygonum</i> <i>aviculare</i>														*

Appendix 5: Results of assessment of wet-sieved samples and wet flots

Sample Number	Context	Parent Context	Context type	Sample Volume	Sub-sample processed	Sieves used	Macrobotanical Remains	Identification and preservation notes	Wood	Notes on Preservation of Wood	Faunal remains	Notes on faunal remains	Insects and fly pupae	Notes on insect remains	Other finds	Notes on finds
1	804	805	P	30	30	N/A - wet flot	**	<i>Urtica</i> sp., <i>Galeopsis tetrahit</i> . Well preserved and fresh-looking	****	Wood fragments common, mostly <4mm but some >20mm. Occasional charcoal flecks <1mm.	*	Land snail shells			*	Small fragments of coal observed
12	806	807	PQ	30	2	4, 2, 1mm, 500 & 250 microns	**	<i>Crataegus monogyna</i> , <i>Rubus</i> sp., <i>Rumex</i> sp. (nutlet with perianth), <i>Rosa</i> sp., <i>Sparganium erectum</i> , <i>Ranunculus</i> cf. <i>aquatilis</i> , <i>Chenopodium</i> sp., <i>Stellaria</i> sp., <i>Solanum</i> cf. <i>dulcamara</i> , <i>Potamogeton</i> sp., <i>Ranunculus acris/repens/bulbosus</i> , <i>Lemna</i> sp., Thorn and buds noted, Macros not as numerous as in <13>. Preservation moderate to good and all still very fresh-looking, monocotyledon stem	****	Roundwood present & often with bark present, rootlets and wood fragments common, no charcoal noted	*	Land snail shells	*	beetle wing case (1)		

Sample Number	Context	Parent Context	Context type	Sample Volume	Sub-sample processed	Sieves used	Macrobotanical Remains	Identification and preservation notes	Wood	Notes on Preservation of Wood	Faunal remains	Notes on faunal remains	Insects and fly pupae	Notes on insect remains	Other finds	Notes on finds
								frags also present								
13	880	807	PQ	40	2	4, 2, 1mm, 500 & 250 microns	****	cf. <i>Cornus sanguinea</i> , <i>Tilia cordata</i> , <i>Crataegus monogyna</i> , cf. <i>Corylus avellana</i> (nut), <i>Sparganium erectum</i> , <i>Ranunculus</i> sp., <i>Sambucus nigra</i> , <i>Prunus</i> sp., <i>Carpinus betulus</i> , <i>Potamogeton</i> sp., <i>Rubus</i> sp., <i>Ranunculus bulbosus/repens/acris</i> , <i>Solanum</i> cf. <i>dulcamara</i> , <i>Carex</i> sp., <i>Solanum</i> sp., <i>Alisma plantago-aquatica</i> , cf. <i>Torilis</i> sp., <i>Prunella vulgaris</i> , <i>Ranunculus</i> cf. <i>aquatilis</i> . Macros very well preserved,	****	Rw common and with bark, rootlets present, wood frags less common, no charcoal noted			**	Small cf. pupae		

Sample Number	Context	Parent Context	Context type	Sample Volume	Sub-sample processed	Sieves used	Macrobotanical Remains	Identification and preservation notes	Wood	Notes on Preservation of Wood	Faunal remains	Notes on faunal remains	Insects and fly pupae	Notes on insect remains	Other finds	Notes on finds
								abundant in all size fractions and fresh-looking								
14	827	807	PQ			4, 2, 1mm, 500 & 250 microns	***	<i>Cornus sanguinea</i> , <i>Prunus</i> cf. <i>spinosa</i> , <i>Crataegus monogyna</i> , <i>Rosa</i> sp., <i>Potamogeton</i> sp., <i>Ranunculus</i> cf. <i>aquatilis</i> , <i>Solanum</i> cf. <i>dulcamara</i> , <i>Carpinus betula</i> , cf. Liliaceae, <i>Polygonum</i> sp., indet macros, indet buds. Macros are more broken down and less well preserved in this deposit than in the other waterlogged/wet sieved samples. Sample contains amalgams of broken down organics	****	Roundwood with bark common, occasional wood fragments						

Sample Number	Context	Parent Context	Context type	Sample Volume	Sub-sample processed	Sieves used	Macrobotanical Remains	Identification and preservation notes	Wood	Notes on Preservation of Wood	Faunal remains	Notes on faunal remains	Insects and fly pupae	Notes on insect remains	Other finds	Notes on finds
								sometimes including wood and macros								
15	896	913	PC	40	2	N/A – wet flot	***	<i>Quercus</i> sp. (acorn cupule), <i>Quercus</i> sp. (acorn), <i>Rosa</i> cf. <i>canina</i> fruit and seeds, <i>Rosa</i> sp., <i>Centaurea</i> sp., <i>Carex</i> sp., <i>Carduus/Cirsium</i> sp., cf. <i>Cornus sanguinea</i> , <i>Polygonum/Rumex</i> sp. (**), <i>Rumex</i> sp. (perianth), <i>Rubus</i> sp. (*), <i>Acer campestre</i> , <i>Chenopodium</i> sp., cf. <i>Cotoneaster salicifolius</i> , <i>Carex</i> sp. urticla (**), Large fresh seeds and fruits common	****	Roundwood common with bark, rootlets common, thorns, leaves, wood fragments less common, no charcoal present	*	Land snail shells	*	1 beetle thorax and wings intact (no head or legs), 1 fly pupa noted		

Sample Number	Context	Parent Context	Context type	Sample Volume	Sub-sample processed	Sieves used	Macrobotanical Remains	Identification and preservation notes	Wood	Notes on Preservation of Wood	Faunal remains	Notes on faunal remains	Insects and fly pupae	Notes on insect remains	Other finds	Notes on finds
16	875	807	PQ	40	40	N/A - wet flot	***	Various including <i>Chenopodium</i> sp., <i>Polygonum/Rumex</i> , <i>Carex</i> sp., Poaceae, <i>Carduum/Cirsium</i> . Plant remains common and very well-preserved & fresh-looking.	****	Small roundwood with bark common. Wood fragments also common, mostly <4mm but some >50mm.						
17	876	807	PQ	40	2	4, 2, 1mm, 500 & 250 microns	***	<i>Crataegus monogyna</i> , <i>Carpinus betulus</i> , <i>Prunus</i> sp., <i>Cornus sanguinea</i> , cf. <i>Potamogeton</i> sp. (including some sprouting - very fresh), <i>Rosa</i> sp., <i>Rosa</i> cf. <i>canina</i> , cf. <i>Fagus sylvatica</i> , <i>Solanum</i> cf. <i>dulcamara</i> , <i>Carex</i> sp., <i>Rubus</i> sp., <i>Sambucus nigra</i> , <i>Ranunculus</i> cf. <i>aquatilis</i> , buds	****	Roundwood with bark common, rootlets very common, wood fragments less common, no charcoal			*	Beetle wing case (1), cf. fly? (1)		

Appendix 6: Essex Historic Environment Record Summary Sheet

Site name/Address: Bulls Lodge Quarry (former Boreham Airfield), Boreham, Essex	
Parish: Boreham	District: Chelmsford
NGR: TL 73250 12300	Site Code: BOAF 05
Type of Work: Archaeological Monitoring & Excavation	Site Director/Group: Steve Chew, Archaeology South-East
Dates of Work: 26th of March – 9th April, 2014	Size of Area Investigated: c.2.5 ha
Location of Finds/Curating Museum: Chelmsford	Funding source: Hanson Aggregates
Further Seasons Anticipated?: Yes	Related HER Nos.:
Final Report: EAH	Oasis No.: 143297
Periods Represented: prehistoric, post-medieval, modern	
SUMMARY OF FIELDWORK RESULTS:	
<p>Archaeology South-East (ASE) were commissioned by Hanson Aggregates to archaeologically monitor and investigate a 2.5ha area in advance of the north and eastward enlargement of extraction works at Bulls Lodge Quarry.</p> <p>The area is thought to have formed part of a deer park associated with the manor of New Hall during the medieval period. The earliest features uncovered on this part of the site are ditches, apparently relating to the initial settlement and enclosure of this area in the early post-medieval period (c. late 16th -17th century). Although the features appear to be predominantly agricultural in nature, a moderate assemblage of finds from this period suggests that domestic activity was taking place in the vicinity.</p> <p>Subsequently, probably at some point in the 18th to 19th centuries, a series of new field boundary ditches were set out on a different orientation. This field pattern survived until at least the 1920's. This period was also characterised by a series of very large pits, possibly initially dug as quarrying features and subsequently left open to accumulate water. These clearly correspond with three ponds shown on maps of the late 19th and early 20th centuries. It is likely that they were eventually backfilled during the construction of the World War II airbase at the site.</p> <p>Finally, a series of small pits were dug through the backfill of the ponds, presumably in the mid 20th century or later. The function of these features remains unclear.</p>	
Previous Summaries/Reports:	
<p>Allen, P. 2011 (Oct). <i>Bulls Lodge Quarry, Former Boreham Airfield, Essex: Archaeological Monitoring and Excavation, 2011</i>. EHER Summary</p> <p>Clarke, R. 2003. <i>A medieval moated site and windmill: excavations at Boreham Airfield, Essex 1996</i>. E. Anglian Occ. Paper 11</p> <p>Dyson, A. 2013. <i>Bulls Lodge Quarry, Former Boreham Airfield, Essex, Archaeological Monitoring and Excavation, Winter 2013</i>. ASE rep.</p>	

Ennis, T. 2011. *Bulls Lodge Quarry, former Boreham Airfield, Boreham, Essex. Archaeological monitoring and excavation 2008-9*, ECC FAU rep. 1975

Ennis, T. 2012. *Bulls Lodge Quarry, former Boreham Airfield, Boreham, Essex. Archaeological monitoring and excavation 2012*, ECC FAU rep.2582

Germany, M. 2007 (Feb). *Bulls Lodge Quarry, Former Boreham Airfield, Essex: Archaeological Monitoring and Excavation, 2005 and 2006*. ECC FAU report 1704

Germany, M. 2008. *Bulls Lodge Quarry, Former Boreham Airfield, Essex: Archaeological Monitoring and Excavation 2007*, ECC FAU Rep 1822

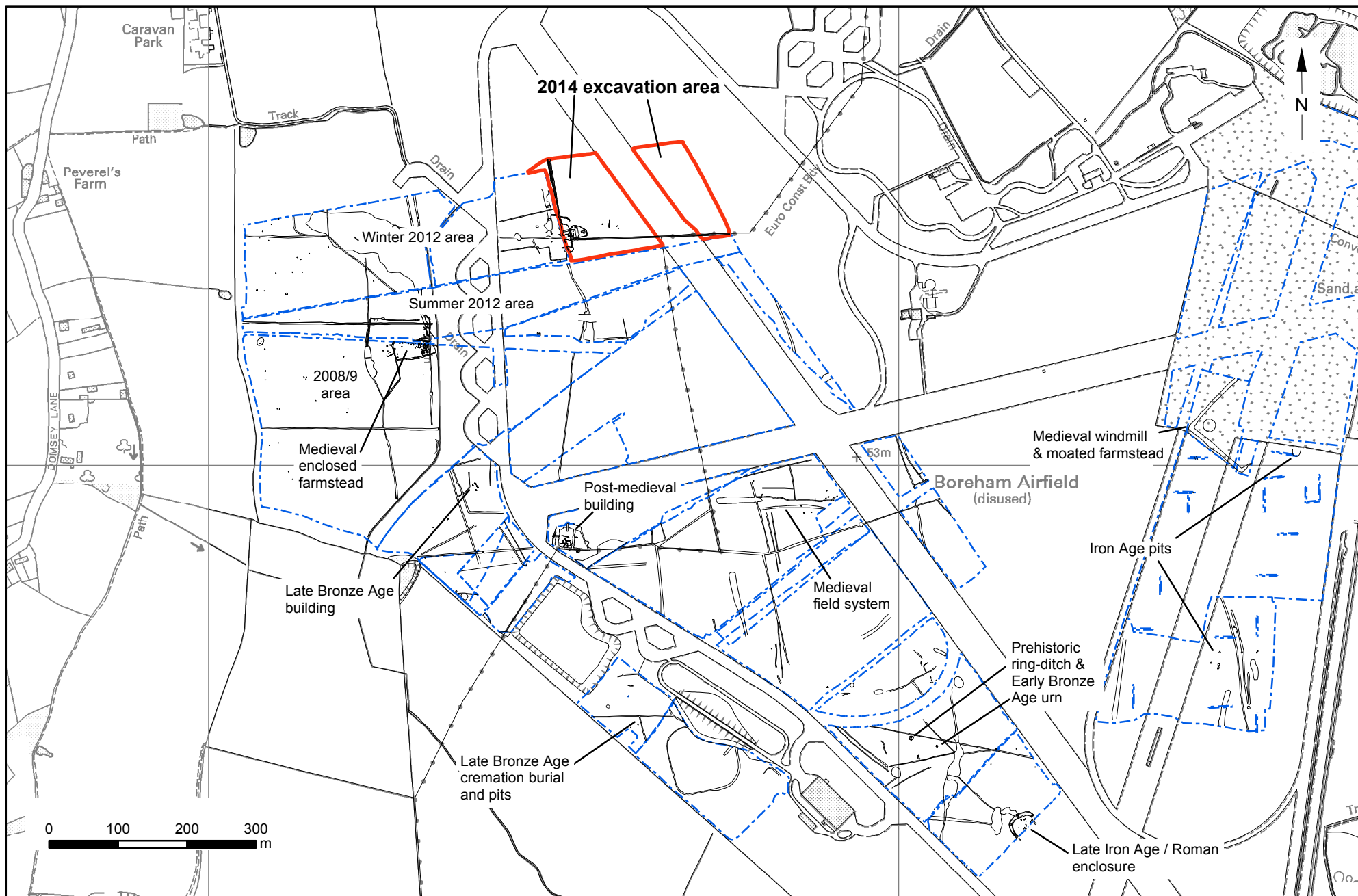
Author of Summary: Steve Chew

Date of Summary: July 2014

Appendix 7: OASIS Report Form

OASIS ID: archaeol6-184427	
Project details	
Project name	Bulls Lodge Quarry
Short description of the project	<p><i>Archaeology South-East (ASE) were commissioned by Hanson Aggregates to archaeologically monitor and investigate a 2.5ha area in advance of the north and eastward enlargement of extraction works at Bulls Lodge Quarry.</i></p> <p><i>The area is thought to have formed part of a deer park associated with the manor of New Hall during the medieval period. The earliest features uncovered on this part of the site are ditches, apparently relating to the initial settlement and enclosure of this area in the early post-medieval period (c. late 16th -17th century). Although the features appear to be predominantly agricultural in nature, a moderate assemblage of finds from this period suggests that domestic activity was taking place in the vicinity.</i></p> <p><i>Subsequently, probably at some point in the 18th to 19th centuries, a series of new field boundary ditches were set out on a different orientation. This field pattern survived until at least the 1920's. This period was also characterised by a series of very large pits, possibly initially dug as quarrying features and subsequently left open to accumulate water. These clearly correspond with three ponds shown on maps of the late 19th and early 20th centuries. It is likely that they were eventually backfilled during the construction of the World War II airbase at the site.</i></p> <p><i>Finally, a series of small pits were dug through the backfill of the ponds, presumably in the mid 20th century or later. The function of these features remains unclear.</i></p>
Project dates	Start: 26-03-2014 End: 09-04-2014
Previous/future work	Yes / Yes
Any associated project reference codes	BOAF05 - Sitecode
Type of project	Field evaluation
Site status	None
Current Land use	Industry and Commerce 5 - Mineral extraction
Monument type	DITCH Late Prehistoric
Monument type	DITCH X4 Post Medieval
Monument type	PITS Post Medieval
Monument type	QUARRY PITS/PONDS Post Medieval
Monument type	TIMBER STRUCTURE Post Medieval
Significant Finds	STRUCK FLINT Late Prehistoric
Significant Finds	POT Post Medieval
Significant Finds	CBM Post Medieval
Significant Finds	GLASS Post Medieval
Project location	
Country	England
Site location	ESSEX CHELMSFORD BOREHAM Bulls Lodge Quarry, formerly Boreham Airfield
Postcode	CM3 3BG

Study area	2.50 Hectares
Site coordinates	TL 7325 1205 51.7797577406 0.511778349236 51 46 47 N 000 30 42 E Point
Height OD / Depth	Min: 54.27m Max: 55.47m
Project creators	
Name of Organisation	Archaeology South East
Project brief originator	Archaeology South East
Project design originator	ASE
Project director/manager	Adrian Scruby
Project supervisor	Steve Chew
Type of sponsor/funding body	Developer
Name of sponsor/funding body	Hanson Aggregates
Project archives	
Physical Archive recipient	Chelmsford Museum
Physical Contents	"Animal Bones", "Ceramics", "Glass", "Worked stone/lithics"
Digital Archive recipient	CgMs
Digital Contents	"Stratigraphic", "Survey"
Digital Media available	"Database", "Survey", "Text"
Paper Archive recipient	Chelmsford Museum
Paper Contents	"Environmental", "Stratigraphic", "Survey"
Paper Media available	"Context sheet", "Drawing", "Matrices", "Photograph", "Plan", "Report", "Section", "Sur vey", "Unpublished Text"
Project bibliog.	
Publication type	Grey literature (unpublished document/manuscript)
Title	Bulls Lodge Quarry, Former Boreham Airfield, Essex
Author(s)/Editor(s)	Steve Chew
Date	2014
Issuer or publisher	ASE
Place of issue or publication	ASE
Entered by	Steve Chew (stevechew23@gmail.com)
Entered on	15 July 2014



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Bulls Lodge Quarry, Formerly Boreham Airfield

Project Ref: 8158

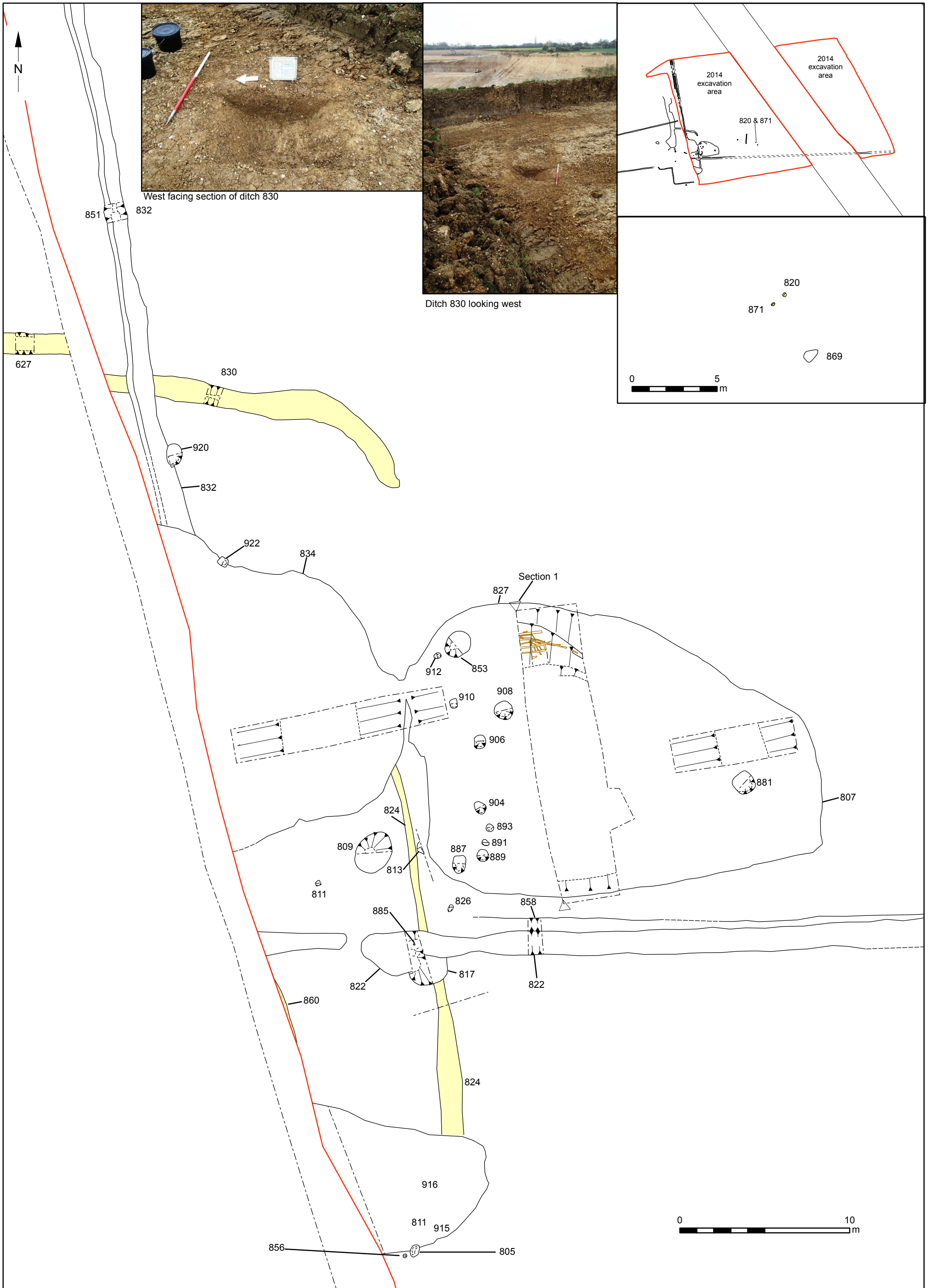
July 2014

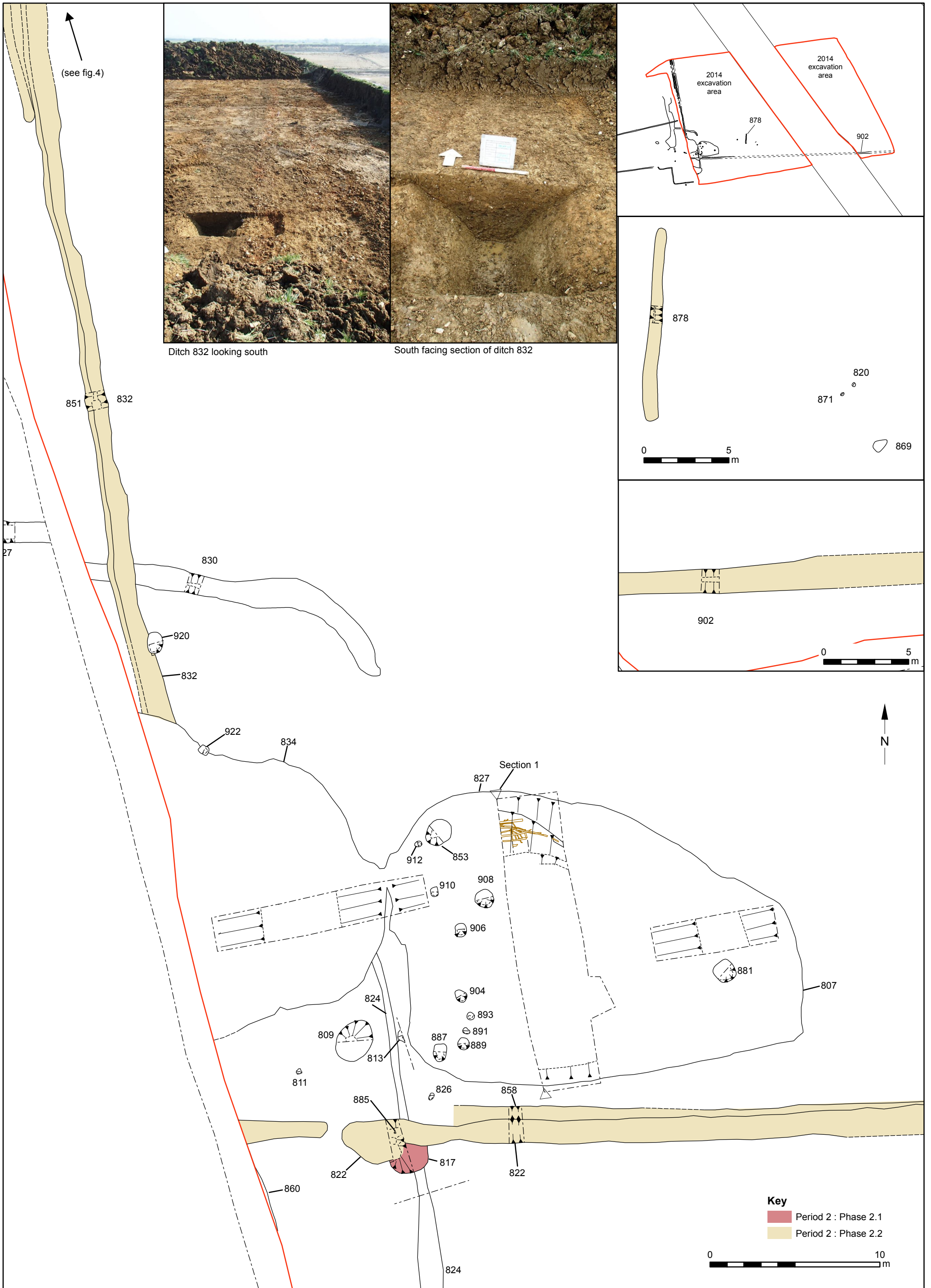
Location of 2014 excavation area

Report Ref: 2014188

Drawn by: APL

Fig. 1







© Archaeology South-East		Bulls Lodge Quarry 2014 excavation area	Fig. 4
Project Ref: 8158	Jun 2014	Period 2 : Phase 2.2 (north-west of site)	
Report Ref: 2014188	Drawn by: APL		



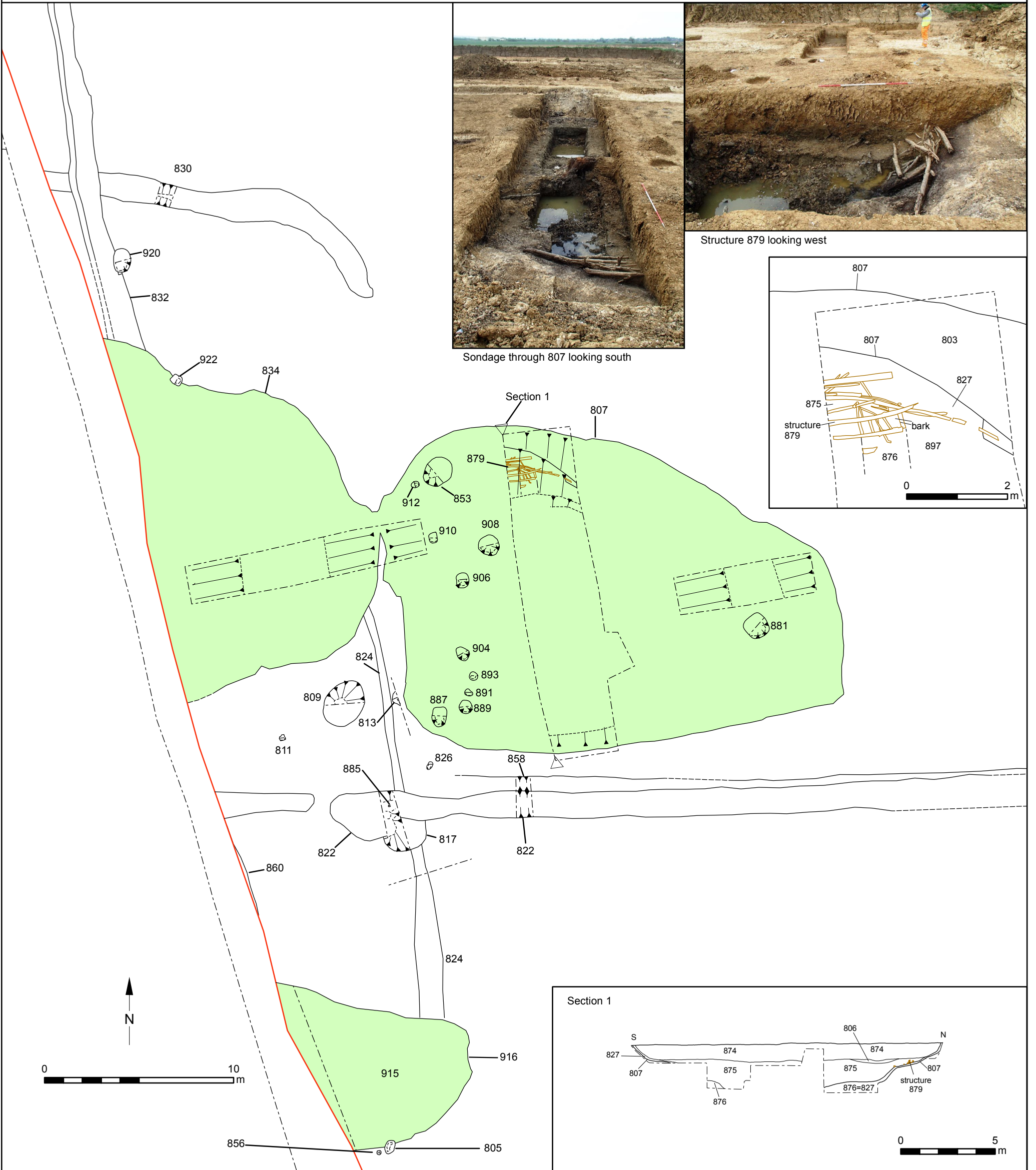
Pit 807 looking north



View of 807 from north-east



Structure 879 looking north-east





© Archaeology South-East		Bulls Lodge Quarry 2014 excavation area		Fig. 6
Project Ref: 8158	Jun 2014	Period 3		
Report Ref: 2014188	Drawn by: APL			

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