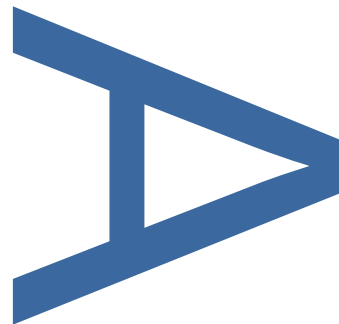
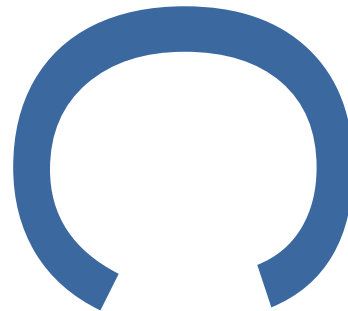


**Welbourne Plot C, Tottenham Hale
Centre, London N17 9LB**



**Assessment Report for an
Archaeological Excavation**



<i>Planning reference</i>	HGY/2018/2223		
<i>Local planning authority</i>	London Borough of Haringey		
<i>PCA report no.</i>	R15696	<i>Site Code</i>	WMD19
<i>PCA project no</i>	K7134	<i>Date</i>	December 23

PRE-CONSTRUCT ARCHAEOLOGY LIMITED

www.pre-construct.com

Project Information	
Site name	Welbourne Site, Tottenham Hale Centre
Project type	Assessment Report for an Archaeological Excavation
Site address	Welbourne Site, Tottenham Hale Centre, Tottenham N17 9LB
NGR	TQ 34290 89573
Local planning authority	London Borough of Haringey
Planning reference	HGY/2018/2223
Commissioning client	RPS Consulting Services UK Ltd on behalf of Argent
Project dates	21 st November 2019 to 13 th March 2020
Archive site code	WMD19

PCA Information			
PCA project code	K7134	PCA report number	R15696
PCA Project Managers	Helen Hawkins and Lucy Whittingham		
PCA office	London		
Address	Unit 54 Brockley Cross Business Centre, Endwell Road, London SE4 2PD		
Telephone	0207 732 3925		
E-mail	LWhittingham@pre-construct.com	Internet	www.pre-construct.com

Quality Control		
Written by:	Shane Maher and Lynden Cooper	April and November 2023
Graphics by:	Mark Roughley	December 2023
Graphics checked by:	Mark Roughley	December 2023
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1 ABSTRACT

- 1.1 This report details the results of an Archaeological Stage 2 Excavation undertaken by Pre-Construct Archaeology Ltd (PCA) on land at the Welbourne Site (Plot C), Tottenham Hale Centre, London Borough of Haringey N17 9LB. The work was commissioned by RPS Consulting Services UK Ltd on behalf of Argent. The central grid reference for the site was TQ 34290 89573 (Figure 1).
- 1.2 The Stage 2 fieldwork was undertaken between 21st November 2019 and 13th March 2020.
- 1.3 The archaeological investigations revealed a natural bedrock of clay (London Clay Formation) with superficial deposits of Devensian sands and gravels (Kempton Park Gravel Member) and overlying deposits of brickearth and alluvium, collective components of the Enfield Silt Member of Late Devensian/Early Holocene origin.
- 1.4 Archaeological activity from the Mesolithic, Late Bronze Age/Early Iron Age, medieval and post-medieval periods was evident.
- 1.5 Noteworthy were three Mesolithic lithic scatters of high density, stratified in the upper horizon of the Enfield Silt brickearth. Worked lithics at lesser density were also recovered from the brickearth surface across the wider extent of the stripped site.
- 1.6 Assessment of the lithics has demonstrated that the assemblage is exclusively of Early Mesolithic technology. Furthermore, each scatter sub-assemblage appears to be of Deepcar-type, a chrono-cultural tradition with a floruit in the 9th millennium BC. There is a notable association of typical Deepcar-type microliths with rarer forms of isosceles triangle and this may point towards a distinct facies of the Deepcar chrono-cultural grouping.
- 1.7 The spatial and assemblage integrity of the scatters demonstrates that they were essentially *in-situ*, albeit with some down-profile vertical movement. Each scatter comprised discrete areas of flint knapping i.e. the working of nodules into cores and production of blade/bladelet/flake tool blanks and their waste, as well as production of core tools (axes/picks). Much of this activity seems to have occurred around surface hearths evident from dense areas of burnt worked flint in each scatter. Tools were manufactured and or/maintained at the site with identifiable activity zones for hunting toolkit maintenance (microlith replacement), probable butchery and other resource processing including hide scraping, antler/bone and wood working.
- 1.8 The lithic scatters would appear to have been deposited on a land surface immediately above the Enfield Silt brickearth and lithics were incorporated downwards into the deposit profile from invertebrate and root bioturbation. It is suggested that the original land surface horizon was lost to bioturbation.
- 1.9 A small assemblage of LBA/EIA ceramics was recovered as intrusive finds in the brickearth and residual finds from later cut features. The finds provide some indication for activity at or in the vicinity of the site.

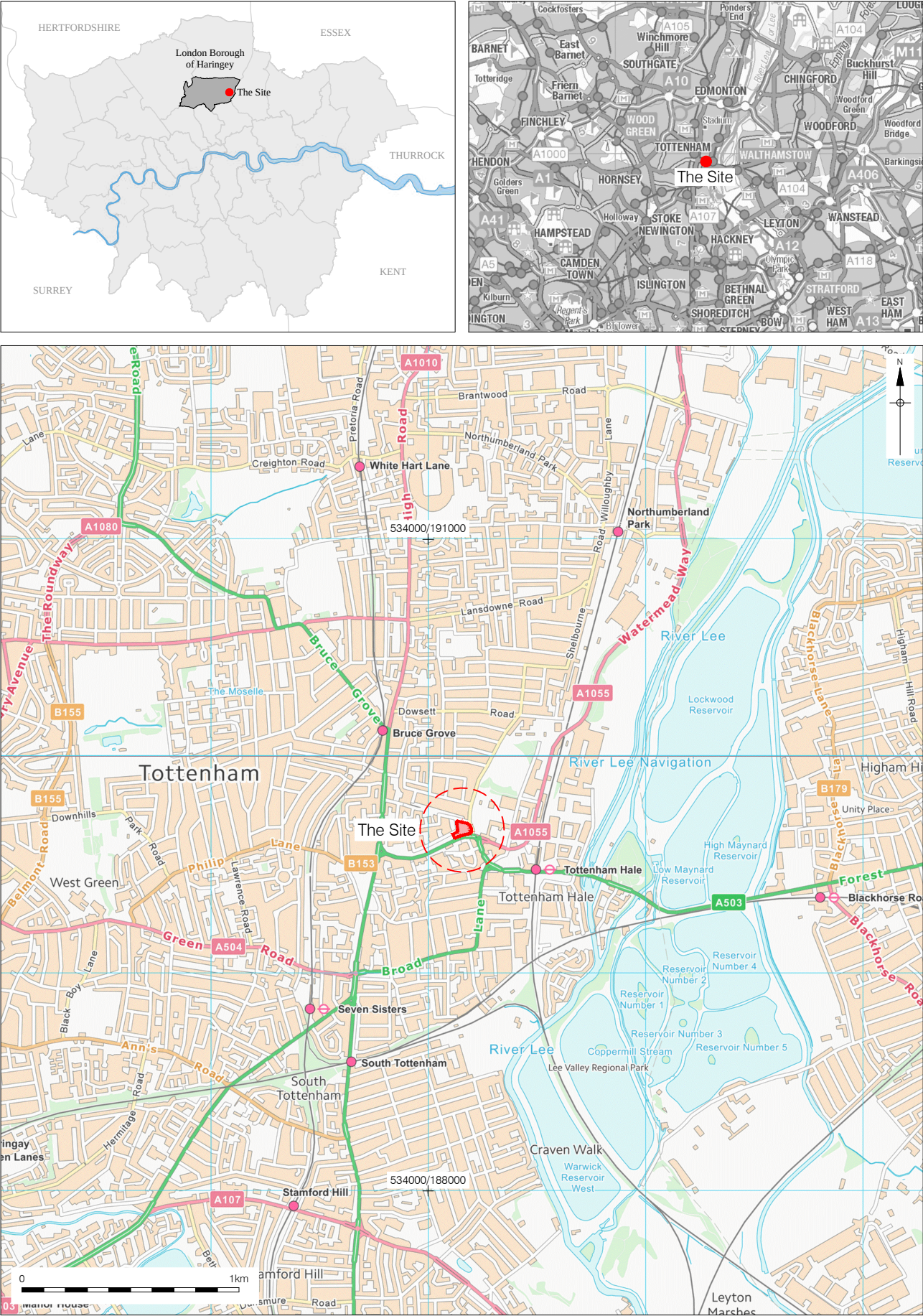
- 1.10 Medieval land division was evident from a large field boundary ditch crossing the site with associated small enclosures and a driveway to the west of the boundary. Associated features comprised an array of small pits, possible fence lines and some tree throw features.
- 1.11 The medieval features were sealed by a post-medieval sub-soil and early map evidence shows the site was open ground, recorded as two land parcels of meadow in 1843, until its modern development for 19th century housing. The meadow land-use may explain the survival of the Mesolithic scatter in a preserved brickearth deposit, unaffected by arable agricultural ploughing.
- 1.12 The assessment report demonstrates that the Mesolithic remains have considerable potential for contributing to both regional and national research agendas. The remains can be considered of regional and national significance as a 'site of early human activity without structures' (Historic England 2018).
- 1.13 An updated project design is presented for proposed post-excavation analysis of the Mesolithic remains. This would entail full typological, technological and metrical lithic classification, microwear analysis, a refitting programme, a dating programme and subsequent spatial analysis. This research would be placed into a regional and national context.
- 1.14 Recommendations are made for the appropriate publication of this Mesolithic occupation site as a combined Mesolithic PCA volume with another Early Mesolithic excavation of the Coca-Cola Site, Sidcup, Bexley. Recommendations are also made for the local reporting of the medieval remains together with those from the other Tottenham Hale Centre investigations.

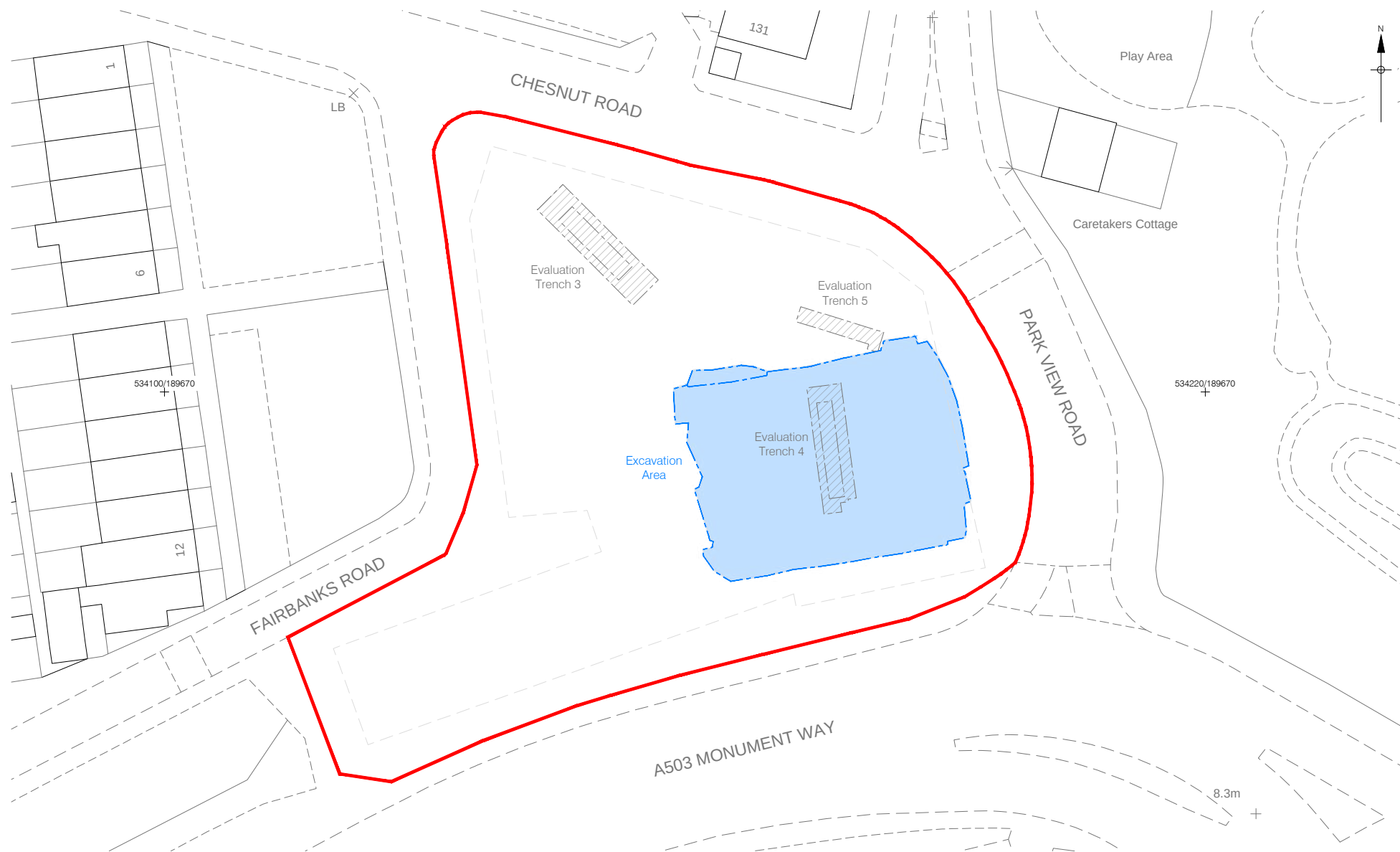
2 INTRODUCTION

- 2.1 This report details the results and working methods of an archaeological field excavation and watching brief undertaken at the Welbourne Site (Plot C), Tottenham Hale Centre, London Borough of Haringey, by Pre-Construct Archaeology Ltd between 21st November 2019 and 13th March 2020.
- 2.2 The site was situated on a vacant plot of land at Welbourne (Plot C), Tottenham Hale Centre, London Borough of Haringey, N17 9LB, National Grid Reference TQ 34290 89573 (Figure 1). It is bounded by Park View Road to the east, Monument Way to the south, Fairbanks Road to the west and Chestnut Road to the north. The entire site covered an area of c.1430.95m².
- 2.3 These works took place in advance of a mixed-use redevelopment comprising residential and retail space, part of the wider Tottenham Hale redevelopment. The archaeological work was commissioned by RPS Consulting Services UK Ltd on behalf of Argent.
- 2.4 The investigation was conducted by PCA under the supervision of Shane Maher and the project was managed by Helen Hawkins with prehistoric expertise input by Barry Bishop. It was monitored by Adam Single of GLAAS (Historic England) on behalf of the London Borough of Haringey.
- 2.5 The site was first subject to an archaeological desk-based assessment by CgMs Heritage (2018) and part of a wider geoarchaeological assessment for the Tottenham Hale Centre (Plots C, D & E) undertaken by Quaternary Scientific (QUEST), University of Reading (Young 2019).
- 2.6 An archaeological evaluation of three land plots (Welbourne, Ashley Road West and Ashley Road East) was undertaken by Pre-Construct Archaeology Ltd from 15th-22nd October 2019 (Hawkins 2020). Pertinent here are Trenches 3, 4 and 5 situated in the Welbourne Plot C. The top of the Enfield Silt brickearth was recorded at 7.43 to 7.57m OD. Trench 4 revealed a 'medieval field boundary ditch oriented north-west by south-east containing medieval pottery and residual prehistoric lithic artefacts' (ibid, 19). Trenches 3 and 4 demonstrated that the brickearth was overlain by a 'post-medieval agricultural horizon' while Trench 5 demonstrated some truncation from a 'levelling layer' associated with 19th century housing development.
- 2.7 Historic England considered the results to be of sufficient importance to require archaeological mitigation consisting of a strip, map and record investigation of the southeast corner of the site.
- 2.8 A site-specific Written Scheme of Investigation (Hawkins 2019a) detailing the methodology and work programme for the archaeological excavation was prepared prior to the fieldwork and approved by Adam Single for Historic England on behalf of the London Borough of Haringey. The excavation area comprised one main trench of 723.72m² (Figure 2, Trench 1), with a watching brief on six geotechnical test pits in other areas of the plot (Figure 2, TP1-6). The WSI for the works focussed upon the known medieval remains at the site.
- 2.9 The strip, map and sample investigations commenced on 21st November and during the machine clearance works it became apparent that a Mesolithic flint working site was present

on the site. Historic England therefore requested a method statement for the controlled evaluation of the flint remains and this was submitted as an addendum to the main WSI (Hawkins 2019b). Considering the elevated significance of the site the updated WSI included provision for public outreach as a site open day.

- 2.10 This report details the results of the fieldwork and its methodology to demonstrate that all work has been carried out in accordance with the original WSI and RAMS for Stage 2 Archaeological Mitigation (Hawkins 2019a) and the addended WSI for the Mesolithic site (Hawkins 2019b).
- 2.11 A 'meet the archaeologists' open day was held on the site on 5th February 2020 for local schools and the general public comprising site tours undertaken by PCA staff. This covered discussion of the archaeology of the Mesolithic hunter-gatherers at the site and other evidence for contemporary human activity in the Lea Valley. Selected finds from the site were displayed as a table-top presentation with relevant specialists on hand to provide information about the Mesolithic context, production and use of the artefacts.
- 2.12 The site has been given the unique side code WMD19. It is intended that the completed archive comprising written, drawn and photographic records will, upon completion of the project, be deposited with the London Archaeological Archive (LAA) and a copy of this report submitted to the GLHER and OASIS for wider dissemination.





0 25m

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08/12/2023 MR

Figure 2
Detailed Site Location
1:625 at A4

3 PLANNING BACKGROUND

- 3.1 The site was subject to an archaeological planning condition applied to planning application HGY/2018/2223: Condition C23:
- 3.2 No demolition or development (apart from demolition to slab level) shall take place within Plot C until a stage 1 written scheme of investigation (WSI) in respect of Plot C has been submitted to and approved by the local planning authority in writing. For land that is included within the WSI, no demolition or development (apart from demolition to slab level) shall take place within Plot C other than in accordance with the agreed WSI, and the programme and methodology of site evaluation and the nomination of a competent person(s) or organisation to undertake the agreed works.
- 3.3 If heritage assets of archaeological interest are identified by stage 1 then for those parts of the site which have archaeological interest a stage 2 WSI shall be submitted to and approved by the local planning authority in writing. For land that is included within the stage 2 WSI, no demolition/development (apart from demolition to slab level) shall take place within Plot C other than in accordance with the agreed stage 2 WSI which shall include:
- A. The statement of significance and research objectives, the programme and methodology of site investigation and recording and the nomination of a competent person(s) or organisation to undertake the agreed works.
 - B. The programme for post-investigation assessment and subsequent analysis, publication & dissemination and deposition of resulting material. This part of the condition shall not be discharged until these elements have been fulfilled in accordance with the programme set out in the stage 2 WSI.
- 3.4 The results presented in this report demonstrate that all the work proposed in the Stage 2 Written Scheme of Investigation (Hawkins 2019a and b) has been carried out, as required by Part B of Planning Condition C23.

4 GEOLOGY AND TOPOGRAPHY

- 4.1 The geology and topography of the site are comprehensively covered in the QUEST Geoarchaeological Deposit Model Report (Young 2019) which is framed within the wider geoarchaeological landscape mapping of the lower Lea valley by Corcoran *et al.* (2011).
- 4.2 The QUEST report was based upon some 28 boreholes and test pit records from previous ground investigations (BGS GeolIndex logged data and four site-associated geotechnical works) and a further three targeted geotechnical pits (QTP1-3) undertaken by QUEST. For Plot C, the site considered here, there was good coverage as the land was vacant and accessible. There were data logs from nine prior geotechnical interventions and the recent QTP1 within Plot C (Young 2019, Table 1 and Figure 2).
- 4.3 The following is taken from the Written Scheme of Investigation (Hawkins 2019a), which is based upon the QUEST Geoarchaeological Deposit Model Report (Young 2019):
- 4.4 The British Geological Survey (BGS Online 2018) indicates that the solid geology of the Plot comprises London Clay deposits (Clay, Silt & Sand) forming the London Basin. Superficial deposits of Enfield Silt Member (Clay & Silt) are mapped as overlying the London Clay across the whole plot.
- 4.5 The Made Ground deposits varied from 0.8m to 2.35m. Enfield Silt was recorded in areas where the Made Ground was c. 1m thick or under. The Enfield Silts sealed deposits of natural gravels belonging to the Kempton Park Gravel, which was deposited in a high energy river system c. 30-14,000 years before present. At the base of the sequence was the London Clay.
- 4.6 A further phase of geotechnical investigation comprising six test pits (TP1-6) was monitored by PCA as a watching brief in 2019, as an initial part of the Stage 2 Strip, Map and Sample works. The surface of the bedrock London Clay was revealed in Test Pits 2, 3 and 4 at heights from 5.46m OD to 4.7m OD. The overlying Kempton Park Gravels were noted between 6.2m OD and 6.8m OD to be 1.5m-1.6m thick. Two deposits of Enfield Silt brickearth were recorded above the gravels. The lower brickearth had an orange-brown colour and was noted at 7.57m OD to 6.9m OD. This was seen in all areas of investigation ranging between 0.2m and 0.7m thick. The brickearth layer above was greenish brown and was recorded at a high point of 7.4m OD and a low of 7.2m OD.
- 4.7 The Welbourne site is at the eastern margin of Landscape Zone LZ3.2 (Terrain 3), as defined by Corcoran (*et al.* 2011 - see Map 3, Tottenham to Leyton). Landscape Zone LZ3.2 is a ridge of higher ground between two tributary valleys (LZ3.1 and LZ 3.6) and bounded to the east by the low terrace of LZ3.3 on the historic floodplain of the Lea.
- 4.8 The Welbourne site was relatively flat at a level at c.8m OD, situated at the base of the valley slope that rises to the west. The modern ground level falls gently towards the floodplain of the river Lea to the east, a topography that reflects the early Holocene terrain.

- 4.9 The River Lea originates in the Chilterns and flows from Leagrope Marsh near Luton in Bedfordshire, along the border with Essex to its confluence with the River Thames at Bow Creek. The Lee Navigation is a canalised river constructed during the 18th century, and incorporated into the existing River Lea.
- 4.10 The canalised element runs from Hertford to Bow Creek and flows c.672m to the east of the plot. The artificial elements of the river are referred to as the Lee, as named by an Act of Parliament, and the natural features are referred to as the Lea.

5 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

- 5.1 The following is taken from the Written Scheme of Investigation (Hawkins 2019a), which is a summarised version from the desk-based assessment (CgMs Heritage 2018):

Early Prehistoric - Palaeolithic, Mesolithic & Neolithic

- 5.2 No evidence dating to the Palaeolithic, Mesolithic or Neolithic periods is recorded by the Greater London Historic Environment Record (GLHER) within 1km of the North Island plot.
- 5.3 Corcoran *et al.* (2011) noted the lack of prehistoric evidence within the landscape zone within which the Welbourne plot is situated and suggest that this may be due to a lack of archaeological work or subsequent modern truncation rather than any lack of prehistoric activity.
- 5.4 Worked flints dating from the Mesolithic period have been found on this site and a few Mesolithic/Early Neolithic lithics on the nearby Ferry Island site (Maher forthcoming). No prehistoric cut features have been identified in any of the sites comprising the Tottenham Hale Centre project.

Bronze Age & Iron Age

- 5.5 A number of isolated Bronze Age finds were found within the marshland to the east of Tottenham Hale and are recorded within the area of the Maynard Reservoirs c.800m to the east of the North Island plot. These include cauldrons, spearheads, a dagger and a knife.
- 5.6 A ditch containing Late Bronze Age to Early Iron Age pottery was identified during an archaeological evaluation at Town Hall Approach c.700m southwest of the North Island plot.
- 5.7 Building works within the area of the Low Maynard Reservoir c.800m east of the plot in 1869 revealed a series of timber piles interpreted as a pile dwelling plot. Eight pottery vessels were found apparently in association with the piles, and these were variously dated to the Late Bronze/Early Iron Age and to the Roman period.
- 5.8 Isolated Iron Age findspots are recorded by the GLHER within the Maynard Reservoir c.800m to the east of the North Island plot, including an axe and a spearhead.

Roman

- 5.9 The High Road (A10), c.450m west of the Ferry Island plot, has been suggested to lie on the route of Ermine Street, a Roman road, running north-south linking the Roman towns of London and Lincoln.

Saxon/Early Medieval & Medieval

- 5.10 The name 'Tottenham' may derive from the Anglo-Saxon for Totta's village. This place name evidence is supported by an entry for the settlement in the Domesday Survey of 1086, strongly indicating that there was a settlement established in this area prior to 1066. In addition, the junction of Broad Lane and The Hale immediately west of the Ferry Land plot is thought to be

the plot of an Early Saxon settlement, which continued to grow during the later medieval and post-medieval periods.

- 5.11 Isolated finds of early medieval date within the Ferry Island Study Area Search Radius are limited to an early Viking sword found in the River Lea c.750m north east of the Ferry Island plot.
- 5.12 The HER records a further Saxon settlement at the High Road c.1km northwest of the Ferry Island plot, which would later develop into a medieval manor. Medieval remains associated with this manor that have been identified comprise a 14th -century jug and a shallow gully containing a single sherd of late medieval pottery.
- 5.13 The Domesday Survey also mentions a weir in the manor of Tottenham, possibly sited near to the later Tottenham Mills c.400m west of the Ferry Island plot. The first reference to mills in Tottenham is in AD1254, and the quay which served the village of Tottenham during the medieval period is recorded in the same area.
- 5.14 During the medieval period there is evidence that the settlements at Tottenham Hale and also along the High Road to the west had each expanded to become local focal points of activity. Evidence for this can be attributed to the number of medieval roads that pass through the area, primarily east to west. These are Phillip Lane, High Cross Lane, West Green Road, Broad Lane, Seven Sisters Road and Markfield Road to the west and southwest of the Ferry Island plot and Forest Road c.800m to the east.
- 5.15 The recent Ferry Island excavations revealed medieval pits, postholes and ditches of medieval date indicative of settlement at the site during, at least, part of the medieval period (Maher forthcoming).
- 5.16 The GLHER indicates that there is evidence for medieval structures in close proximity to the High Road c.450m west of the Ferry Island plot. These include various inns, a chapel, and location of a medieval roadside cross whilst further north along the High Road a well and a further inn are recorded.

Post-Medieval and Modern (including map regression exercise)

- 5.17 By 1600 Tottenham was recorded as a prosperous area with numerous alms-houses and charities, and by 1724 the density of buildings was so great it was noted as appearing to be one continuous street.
- 5.18 Thomas Clay's 1619 Survey of Tottenham shows the Welbourne site occupying open land adjacent to the road leading north from Tottenham Hale, partially within and owned by 'John Hadden' and partially within land owned by 'Sir James Price'. A similar situation is shown on the 1754 Rocque map, and on Wyburd's Survey of 1798.
- 5.19 The 1843 Tottenham Tithe map shows little change to the Welbourne site it is still laying within open ground on two parcels of land. The associated Tithe Award describes these two parcels within the Welbourne plot as:

175 - Meadow

191 - Meadow

- 5.20 By 1864 the internal field boundary has been removed, and the surrounding area has been widely developed. The Welbourne site is still open ground but is now bounded to the north by 'Chestnut Road' and a row of trees, and to the west by a field boundary.
- 5.21 The 1894-6 Ordnance Survey map shows the site to be occupied by residential housing and roads, this continues unchanged up to the 1955 Ordnance Survey. By 1975 the properties on the site and the surrounding roads had been cleared for redevelopment.

6 METHODOLOGY

- 6.1 The Stage 2 works were undertaken in accordance with the approved Written Schemes of Investigation (Hawkins 2019a) including an addendum of the WSI for additional works (Hawkins 2019b).
- 6.2 The original WSI works comprised a strip, map and sample intervention comprising one main excavation trench and six test pits (TP1-6), the latter being monitored as watching briefs. The excavation trench covered an area of 723.72m² and the size and depth of the test pits and are tabulated below:

Test Pit	Length	Width	Depth
TP1	3m	0.9m	3.8m
TP2	3m	0.9	4.6m
TP3	3m	0.9m	2.9m
TP4	3m	0.9m	3.3m
TP5	3.6m	0.9m	1.8m
TP6	2m	0.9m	2m

- 6.3 The modern overburden was removed by a mechanical 360° excavator fitted with a ditching bucket. The overburden removal continued under archaeological supervision in spits of 100mm until the archaeological deposits and features were encountered. The archaeological deposits were excavated by PCA staff using hand tools, i.e., trowels, shovels and mattocks.
- 6.4 The archaeological deposits and features were recorded using standard single context recording, on *pro forma* context and planning sheets located on baselines. Plans and sections were drawn at a scale of 1:5, 1:10 or 1:20 as appropriate. Digital photographs were taken.
- 6.5 In this report context numbers (cuts, layers and fills) are written in squared brackets [] and environmental sample numbers are presented in curly brackets { }.
- 6.6 During an early stage of the excavation further struck flints were recovered from the medieval ditch located in the evaluation (Ditch 1, Gp. 8) and similar lithic material was also noted on the surface of the stripped Enfield Silts. The lithics were identified as Mesolithic by the PCA lithics specialist, Barry Bishop, and were recognised as a significant but unforeseen discovery by all parties.
- 6.7 Following consultation with GLAAS (Historic England Advisors) an addendum for the WSI was produced in December 2019 with a specific methodology for the investigation of the Mesolithic remains (Hawkins 2019b). This comprised the establishment of a 5m grid and the excavation of 24 separate 1m² squares at the 5m interval across the stripped area. This would allow coverage of the area where flints were noted and serve as a sampling technique for the site.
- 6.8 These squares would then be treated as individual test pits (hereafter referred to as excavated grid squares) and hand excavated in 0.05m spits, any flints encountered would be recorded and given individual small find (SF) numbers. These would then be plotted by hand on *pro forma* permatrace at a scale of 1:10 and by GPS survey equipment. An environmental sample was taken of each 0.05m spit of excavated brickearth, to wet sieve for the retrieval of any

microliths that may be present. Most of this wet sieve process was done on site in purpose-built processing tanks.

- 6.9 A pilot study for six of these test pits involved the recording of lithics in 5D, incorporating XYZ co-ordinates with additional recording of find orientation (bulbar end position, ventral/dorsal side) and dip-slope angle. These were plotted at a scale of 1:5 on pro-forma permatrace. Following discussion between PCA and GLAAS it was decided that this method was unsuitable due to the brickearth composition. Finds spatial data for all subsequent excavation was undertaken with GPS providing XYZ national grid co-ordinates but within the established site grid system.
- 6.10 A Temporary Benchmark (TBM) was established using GPS survey equipment on the lid of an inspection chamber to the immediate west of the excavation trench at a value of 8.19m OD.
- 6.11 All other interventions associated with the excavation including trench edges, site grid and section lines were located using GPS survey equipment.

7 PHASED ARCHAEOLOGICAL SEQUENCE

Phase 1: Natural

- 7.1 The British Geological Survey map the bedrock geology of the site as London Clay Formation overlain respectively by superficial deposits of the Kempton Park Gravel Member and the Enfield Silt Member. Immediately to the west of the Tottenham Hale Centre site the rising ground has outcropping London Clay while to the east there is floodplain alluvium flanking the river Lea which overlies the Enfield Silt-Kempton Park Gravel units.
- 7.2 This sequence was supported by the findings of the comprehensive geotechnical surveys, comprising boreholes, window samples and test pits conducted at the Welbourne site and the other Tottenham Hale Centre sites and the QUEST geoarchaeological deposit model (Young 2019 including details of all prior geotechnical works).

Phase 1.1: London Clay and Kempton Park Gravels (Group 1, Group 10)

- 7.3 The earliest deposit encountered was the bedrock London Clay [33] (Group 10). This was seen in the base of Test Pits 2, 3 and 4 between 5.46m OD and 4.7m OD. In the northern portion of TP 3 the clay was scoured away forming what looked in section like the edge of a cut feature. This was possibly the southern edge of an E-W aligned palaeochannel [540] (Group 11), that sloped down to the east. However, given the small area of investigation, a more parsimonious interpretation would be that it was simply a scour feature of the Devensian channel. The highest point of this feature was noted on the surface of the London Clay at 5.46m OD and the lowest at 5.06m OD. Filling the scour/palaeochannel was a deposit of sandy gravels [539] that were indistinguishable from those overlying.
- 7.4 Natural fluvial gravels (Group 1) were noted sealing the London Clay and filling the possible palaeochannel/scour. These deposits were consistent with being part of the Kempton Park Gravel Member, the Devensian gravel terrace. It was recorded in all six test pits and in the lower levels in Section 30 (Figure 8). The highest point of the gravels was at 6.8m OD in TP5 and at 6.2m OD in TP4. For Test Pits 2, 3 and 4 it was possible to determine a full depth of the gravels of 1.5-1.6m thickness above the London Clay (Plates 1 and 2).

Phase 1.2: Enfield Silts (Orange-Brown Brickearth) Group 2

- 7.5 The gravels were sealed by a layer of mid orange-brown silty clay (Group 2, Plate 10), identified as part of the Enfield Silts Member 'brickearth' that covered the entire trench. During the investigation the top of this deposit was recorded between 7.45m OD and 7.15m OD, although it was noted at a height of 7.57m OD in Trench 3 during the evaluation. The maximum thickness of the layer was 0.49m. Worked and burnt flints were recovered across the site and at least three areas where distinct concentrations were noted (Figure 4).

Phase 1.3: Enfield Silts (Greenish Brown Brickearth) Group 3

7.6 This layer, was seen covering Group 2, had the same composition to the orange-brown Enfield Silts, the only difference was its greenish brown colour. The top of the layer was noted between 7.44m OD and 7.2m OD. Worked and burnt flints were recovered across the site and at least three areas where distinct concentrations were noted.

7.7 There is also a detailed stratigraphic description of the brickearth from a column sample {67} (Figure 8, section 30) taken through excavated grid square 120/215. It comprised three contexts:

Context [236]: 10YR 5/6; As3 Ag1 Dg+ Gg+; yellowish brown silty clay with roots and isolated angular to subangular gravel clasts consisting mostly of flint. Sharp contact into:

Context [237]: 10YR 5/3; As2 Ag1 Gg1 Dg+; brown, silty gravelly clay with isolated roots. Gravels consist mostly of flint. Sharp contact into:

Context [238]: 10YR 3/1; As2 Ag1 Gg1 Sh+; very dark gray, matrix-supported gravelly clayey silt. Sharp contact into:

Kempton Park Gravel

7.8 The site supervisor equated [236] with the upper brickearth (Phase 1.3, Group 3) and [237]/[238] with the lower brickearth (Phase 1.2, Group 2). The sedimentologist descriptions record some colour differences to those deposit descriptions made by site archaeologists and notably make mention of gravel clasts. This description is suggestive of the brickearth derivation as colluvial rather than alluvial.

Phase 1.4: Alluvial Clay Deposits Groups 5, 6, 7

7.9 Deposits of alluvial clay were recorded during the controlled excavation of grid squares 106/207(Group 5), 120/215(Group 6) and 120/217 (Group 7). The alluvium was characterised by deposits of firm, light to mid blue grey, clay. Mesolithic struck flint was recovered from alluvium Groups 5 and 6. The table below lists the groups, the highest level and excavated thickness of the alluvium.

Alluvium Groups	Highest Level	Thickness
Group 5	7.36m OD	>0.62m
Group 6	7.28m OD	>0.44m
Group 7	7.20m OD	>0.26m

7.10 The on-site identification of alluvium is somewhat curious. The grid square 106/207 (Group 5) contexts were described as alluvium, whereas the excavated grid square immediately to the south-west, 105/206, was recorded as entirely of brickearth, as were the other squares excavated in this area (Flint Scatter A). The worked flint from this square was in a similar depth of profile as those in the brickearth of the nearby squares.

7.11 It is suggested that the alluvium may represent a localised variation in the composition of the uppermost Enfield Silts.

Phase 1.5: Mesolithic

- 7.12 Abundant worked flint was recovered from the natural brickearth deposits, including the 'alluvial' units discussed above (Plates 11-13). Some 2,883 logged SF pieces were recovered manually while a further 3,122 pieces were retrieved from the systematic wet-sieving of brickearth deposit samples.
- 7.13 There is an apparent conundrum in that no Mesolithic contexts were assigned to Phase 1.5. The phase consists entirely of Mesolithic artefacts that were almost certainly introduced into Enfield Silt deposits by natural soil transforms (see Lithics Assessment Appendix 2 for detailed discussion and below for a summary of this reasoning).
- 7.14 From the initial excavations of the interval test pits within a 5m excavation grid (Figure 3) it was evident that the lithics were distributed unevenly across the stripped brickearth deposit: three distinct concentrations were noted, and these were investigated by further excavation squares (Figure 4).
- 7.15 Assessment of the lithics confirms the Mesolithic technology of the entire assemblage and defines the concentrations as three distinct nucleated scatters (A, B and C) but with worked flint in lesser density also recovered from across much of the stripped area (the Peripheral Scatter) (Figure 4).
- 7.16 The vast majority of worked flint was recovered from the uppermost 200mm horizon of brickearth (Figures 4- 6) with a rapid fall-off thereafter with increasing depth. Thus, the greater proportion of flints were from the upper brickearth deposit (Group 3) with lesser amounts in the lowermost brickearth (Group 2).
- 7.17 There is a presumption that most if not all the Enfield Silt brickearth was emplaced before the Mesolithic occupation, most probably from soil processes in the Late Glacial period. The scatters were most probably deposited on a ground surface, likely a thin soil on the surface of the brickearth, and flints have been incorporated into the finer matrix of the brickearth through bioturbation. The lack of a Mesolithic palaeosol may be from reworking into the surface of the brickearth or possibly from later truncation. The spatial and vertical disposition of lithics has been explored in detail in the Lithics Assessment report (Appendix 2).
- 7.18 Each scatter has worked flint in remarkably fresh condition and contained a full artefact size range from micro-debitage 2-10mm to larger cores,debitage products and tools. There was no horizontal size grading of material, and this suggests that the depositional patterns from site occupation are probably preserved, albeit with down-profile movement.
- 7.19 Each of the assemblages has core workingdebitage including blades, bladelets, flakes, shatter and chips, and each also has retouched and/or utilized tools and tool by-products. A high proportion of the worked material artefacts were burnt with some spatial clustering, and the clusters may be taken as proxy for former surface hearth settings.

Phase 2: Medieval

- 7.20 Archaeological activity on the site during the medieval period was characterised by the presence of a series of field/property boundaries, posthole alignments and sporadic pitting. The dates of the recovered pottery suggest that these features were broadly contemporary between the 12th and mid-13th century.

Ditch 1, Group 8 ([10]/[110]/[127]/[131]/[135]/[268])

- 7.21 Ditch 1 was the largest of the features that were excavated during the field work and comprised the original cut and its recut (Plates 15 and 16). The ditch formed a property boundary with most medieval activity lying to the west and only one pit lying to the east.
- 7.22 The original cut, Group 8, extended c. 17m in a northwest direction from the southeast corner of the site. The top of the cut was nearly level with the highest levels between 7.42m OD and 7.32m OD. A later recut completely removed the eastern side of the original ditch leaving the western side which had a moderate slope and a base that ranged from concave to even. At its widest the ditch measured 1.05m with a depth of 0.4m (Figure 8, sections 19, 24, 25, 27). Filling the cut was a deposit of firm to moderate, mid brown to mid orange grey, silty clay material [9]/[109]/[126]/[130]/[134]/[263] that yielded a small assemblage of pottery, with spot-dates ranging between AD1100-1225, AD1000-1400, AD1100-1500 (Sudds; Appendix 4) and residual struck flints. Domestic food taxa, represented by cattle and sheep/goat bone as well as non-food taxa from a horse astragalus were recovered from the fill [9] of Ditch 1 (Deighton; Appendix 7).

Ditch 1 Recut, Group 9 ([112]/[129]/[133]/[137]/[144]/[258])

- 7.23 As mentioned above the later recut (Group 9) truncated the eastern side of Group 8. This was recorded between 7.32m OD and 7.37m OD and had sides that sloped gently down to a base that was concave to uneven. The cut measured c. 25m long with a width between 1.3m to 2m and a maximum depth of 0.45m. The fill was described as a firm to friable, mid orange grey to mid brownish grey silty clay [111]/[128]/[132]/[136]/[143]/[257]. A small assemblage of pottery was recovered from the fill along with residual struck and burnt flints. The ceramics were spot-dated for individual contexts to AD1000-1225, AD1100-1200 and AD1100-1250 (Sudds; Appendix 4), suggesting a likely 12th century date.

Enclosures 1 and 2, Groups 14.1-14.4 Ditches 2, 3, 4, 5 (Figure 7)

- 7.24 A series of shallow linear features Groups 14.1-14.4 (Ditches 2-5) that lay to the west of Ditch 1 formed two small enclosures, Enclosures 1 and 2 (Plate 17).
- 7.25 Enclosure 1 was the most westerly of the two and covered an area that was over 19m², as it extended beyond the western trench edge. The eastern edge of the enclosure was defined by Ditch 2 (Group 14.1 [63]) and the southern edge by Ditch 5 (Group 14.4 [100]).

- 7.26 Ditch 2 was orientated northeast to southwest, a similar alignment to the boundary ditch (Ditch 1) and formed the border between Enclosures 1 and 2. The ditch was noted between 7.43m OD and 7.4m OD measuring 8.66m long by 0.44m wide and 0.26m deep, it had steeply sloping to nearly vertical sides and an almost horizontal base. Filling the cut was a deposit of firm, mid greyish yellow, clay [60]/[61]/[62]/[155] with occasional charcoal flecks that yielded a small quantity of pottery sherds, variously spot-dated AD1000-1225, AD1100-1225, AD1100-1250, AD1175-1400 and AD1200-1500 (Sudds; Appendix 4). Environmental samples were taken from the fill for further analysis and to check for any floral and fauna remains that might be present, the context and sample numbers are tabulated below (Wheeler; Appendix 8).

Context Number	Sample Number
60	105
61	104
62	103
155	106

- 7.27 Ditch 5 was seen between 7.46m OD and 7.35m OD orientated northeast to southwest, it formed the southern border of Enclosures 1 and 2 (Figure 7). The ditch had steeply sloping sides and a concave base measuring 7.96m long by 0.6m wide and 0.34m deep (Figure 8, section 18). The fill was a friable to firm, deposit of mid bluish grey, silty clay [99]/[156] material which yielded pottery spot-dated AD1000-1225 (Sudds; Appendix 4). The fill was sampled to check for any small animal/fish bones, seeds or any other environmental indicators that might be present, the table below shows the context and sample numbers (Wheeler; Appendix 8).

Context Number	Sample Number
99	102
156	100,101

- 7.28 Enclosure 2 comprised a sub-rectangular plot of land that was c. 46m². The northern boundary of the enclosure was defined by Ditch 3 (Group 14.2 [23]) (Figure 7). This was a shallow feature seen at 7.45m OD with a length of 2.4m, a width of 0.2m and a depth of 0.08m. The sides were described as steeply sloping and the base horizontal, the orientation of the ditch was similar to that of Ditch 5. A modern truncation removed the eastern portion of the cut, and it is possible that it had also been horizontally truncated. The cut was filled by a firm, yellowish grey to orange yellow, silty clay [20]/[22] with very occasional charcoal flecks and two pottery sherds spot-dated AD 1100-1225 (Sudds; Appendix 4). Domestic food taxa, represented by cattle and sheep/goat bones were recovered from the fill [22] of Ditch 3 (Deighton; Appendix 7). Environmental sample {87} was taken from the fill to ascertain if there were any floral or faunal remains present (Wheeler; Appendix 8).
- 7.29 Ditch 4 (Group 14.3 [124]) was encountered at 7.41m OD and formed the eastern extent of Enclosure 2. This was the smallest of the enclosure ditches with a length of 1.3m, a width of 0.34m and a depth of 0.17m. The cut shared a similar alignment with Ditches 1 and 2 and was characterised by sides that had moderate to gentle slopes and a base that was slightly concave.

Its fill was a firm, light bluish grey clay [123] with occasional charcoal flecks and two sherds of pottery spot-dated AD1000-1225 (Sudds; Appendix 4). A small sherd of residual LBA/EIA pottery was also recovered (Cotton; Appendix 3).

Enclosure 3 Ditch 6 Group 15 ([50]/[94])

- 7.30 Ditch 6 (Group 15 [50]/[94]) represented a re-definition of the plots with removal of Enclosure 2, the addition of Enclosure 3 and a new drove way between it and Enclosure 1. The visible portion of the ditch was seen between 7.46m OD and 7.44m OD, the ditch itself extended beyond the northern trench edge. The ditch extended c. 4m south from the northern trench edge, then did a slight kink and ran c. 7.5m to the south-southeast where it turned northeast continuing a further c. 7.8m, where it was truncated by a modern intrusion. At its widest point the ditch measured 0.7m with a maximum depth of 0.26m. There is a high possibility that the enclosure extended right up to Ditch 1, but the modern intrusion removed any evidence of this. No evidence of a northern boundary was encountered indicating the size of the enclosure was over c. 81m². The ditch was characterised by sides that ranged from nearly vertical to moderately sloping and a base noted to be from concave to even. A firm, light grey brown with patches of light to mid orange brown mottling, silty clay [49]/[51]/[73]/[81]/[82]/[83]/[101]/[108] filled the ditch. The fill contained occasional charcoal, daub flecks and pottery sherds that were variously spot-dated to AD1100-1200, AD1100-1225, AD1100-1250, AD1175-1400 (Sudds; Appendix 4) and metal buckle SF 1 (Fill [73]) (Gaimster; Appendix 6). Three small sherds of residual LBA/EIA pottery were also recovered (Cotton; Appendix 3). Nine environmental samples were taken along the ditch to see what floral or faunal remains were present, the table below lists the contexts and sample numbers (Wheeler; Appendix 8).

Context Number	Sample Number
51	91
73	92
81	90
82	89
83	88
101	93
108	94, 95, 96

Possible Drove Way (Groups 14.1, 15)

- 7.31 As mentioned above a possible drove way was formed in the space between Enclosures 1 and 3 (Figure 7). This stretched c.12m from the northwest corner of the trench in a south-southeasterly direction to an open area formed to the south of Ditches 5 and 6 and to the west of Ditch 1. The drove way was between c. 1.6m to 2.5m wide and covered an area of relatively level ground (c. 7.47m OD- 7.4m OD) that was c. 20m².

Ditch 7 Group 17 ([158])

- 7.32 South of Enclosure 1 was Ditch 7 that was also orientated northwest to southeast indicating an association with the previous enclosures and boundary ditch. The northern portion of this cut

was truncated away by a later tree throw feature and the southern portion by a modern intrusion. Moderately to steeply sloping sides and a base that was horizontal to uneven characterised the feature. The ditch was seen between 7.48m OD and 7.25m OD with a surviving length of 3.82m, a maximum width of 0.86m and a depth of 0.14m. Pottery recovered from the light yellowish grey, silty clay fill [157] was spot dated AD 1100-1250 (Sudds; Appendix 4). The fill also contained residual struck flint.

Structure/Fenceline 1, Group 12 ([48], [91], [93], [98])

- 7.33 Group 12 was a group of four postholes that formed a fenceline located just inside the western boundary of Enclosure 3 (Figure 7). The fenceline stretched 6.8m from Posthole [93] in the north to Posthole [98], the most southerly. The posthole shapes ranged from sub-oval to sub-rounded, the sides from gently sloping to nearly vertical and the bases were concave to even. Their alignment respected the already defined property/field boundaries (i.e., north-northwest to south-southeast. The installation of the fenceline was sometime after Enclosure 3 was established as the southernmost post [98] truncated Ditch 6. The dimensions and levels of the individual postholes are tabulated below.

Context	Length	Width	Depth	Highest Level
48	0.3m	0.26m	0.37m	7.4m OD
91	0.5m	0.32m	0.08	7.4m OD
93	0.36m	0.32m	0.03m	7.4m OD
98	0.6	0.36m	0.24m	7.4m OD

- 7.34 The shallowness of posthole [93] indicates the possibility of horizontal truncation as this cut is more akin to the base of a posthole. Similar deposits of firm, light yellowish to bluish grey silty clay filled the postholes [47], [90], [92], [97]. Fill [47] contained pottery spot-dated AD1175-1400 (Sudds; Appendix 4).

Group 16 pit [78]

- 7.35 Pit [78] was seen at 7.5m OD located to the south of enclosure 1 and to the west of Ditch 7. The cut was a large sub-rounded feature with gradual to steeply sloping sides and a slightly concave base, that measured 2.06m by 1.94m and 0.79m deep. Filling the pit was a sequence of four distinct deposits of silts and clays, their descriptions and environmental sample numbers are listed below (Wheeler; Appendix 8). Domestic food taxa, represented by cattle and sheep/goat bones were recovered from fill (76) in Pit [78] (Deighton; Appendix 7).

Context	Description	Thickness	Sample Number
74	Compact, mid greyish brown, clay	0.14	-
75	Compact, mid-bluish grey, clay	0.22	10
76	Compact, mottled bluish/yellowish grey and dark brownish grey, silty clay containing residual struck flint.	0.28	11
77	Compact, mid yellowish brown, silty clay	0.36	12

Group 18 pit [165]

- 7.36 Group 18 was a sub-oval pit [165] with steeply sloping sides and a concave base that was noted c. 3.1m to the east of Ditch 1 at 7.25m OD. The pit was 0.96m long by 0.5m wide with a

depth of 0.27m and was the only medieval feature encountered beyond the boundary ditch (Ditch 1). A deposit of firm, mid greyish brown, silty clay [164] was recorded filling the cut.

Group 19.1 Tree throw features [68], [70], [142]

- 7.37 A group of Tree throw features that were noted in the southeast corner of Enclosure 1 indicated the possible disuse of the enclosure. The largest of the three, tree throw feature [142] truncated Ditches 2, 5 and 7 suggesting they were no longer being maintained. All three tree throw features were irregularly shaped with irregular sides and bases. Tree throw feature [142] was filled with a compacted deposit of mid bluish brown clay [141] with very occasional flecks of charcoal and fragments of residual struck flint. The other two fills were similar deposits of dark bluish grey silty clay [67], [69] with occasional charcoal flecks. The table below lists the dimensions and highest levels of Group 19.1.

Context	Length	Width	Depth	Highest Level
68	1.0m	0.97m	0.18m	7.41m OD
70	1.0m	0.68m	0.16m	7.38m OD
142	3.7m	3.0m	0.2m	7.3m OD

Group 19.2 Tree throw features [80], [96], [114]

- 7.38 This group of Tree throw features was also located in the east of the trench, near to the trench edges (Figure 7). Their shapes varied from sub-oval to irregular, the sides ranged from gently to steeply sloping and the bases from concave to horizontal. They were filled with similar deposits of silty clay material [79], [95], [113]. The dimensions and highest levels of the cuts are tabulated below.

Context	Length	Width	Depth	Highest Level
80	1.11m	1.0m	0.18m	7.5m OD
96	1.5m	0.8m	0.22m	7.32m OD
114	1.06m	0.75m	0.22m	7.37m OD

Structure/Fenceline 2, Group 13 ([55], [57], [59], [66], [85], [87], [89])

- 7.39 This group of relatively shallow postholes suggest a redefining of existing boundaries as the cuts lay on a different alignment to any of the previous boundary markers. What has been interpreted here as a fenceline extends c.7.4m north-northeast from Posthole [55] to Posthole [85], with two small associated postholes (Postholes [57] and [66]) lying c.1m to the southeast of Posthole [55]. Sub-circular to sub-oval shapes with gently to steeply sloping sides and concave bases characterised the cuts. The shallow depths of the postholes are likely due to impacts from later land use activities. A series of silts and clays were noted filling the cuts, with only one, Fill [56] (Posthole [57]), containing any dating material; two sherds of medieval pottery spot dated AD1000-1250 (Sudds; Appendix 4). Residual struck flint was recovered from Posthole [55] (Fill [54]). The dimensions and highest levels of the cuts are listed below.

Context	Length	Width	Depth	Highest Level
55	0.42	0.38	0.18m	7.49m OD

57	0.22m	0.16m	0.21m	7.47m OD
59	0.34m	0.25m	0.15m	7.38m OD
66	0.32m	0.32m	0.11m	7.39m OD
85	0.38m	0.38m	0.08m	7.32m OD
87	0.3m	0.28m	0.07m	7.42m OD
89	0.4m	0.35m	0.04m	7.39m OD

Group 22 Intercutting Pits [105], [107]

- 7.40 Circa 2m to the east of Posthole [85] (Group 13) two intercutting pits were excavated. The earliest of the two was sub-oval shaped Pit [107] which had moderately sloping sides and a flat base. The northwestern edge was truncated by pit [105] This had a similar shape and sides, but the base was uneven. Both were filled with similar deposits of light bluish grey clay and both contained residual struck flints. Only one fill of Pit [105] contained pottery and this was dated to AD1000-1200 (Sudds; Appendix 4). A small sherd of residual LBA/EIA pottery was also recovered (Cotton; Appendix 3).

Group 20 Shallow Natural Features [116], [118], [120], [122]

- 7.41 This group of features lay to the immediate north and east of Group 22 and were probably the result of small animal or plant action. Their shapes ranged from sub-circular to irregular with gentle to moderate slopes and bases that were concave. Similar deposits of light bluish grey clay [115], [117], [119], [121] with occasional charcoal flecks were recorded filling the cuts, no finds were recovered. Tabulated below are the dimensions and highest levels of the features.

Context	Length	Width	Depth	Highest Level
116	0.42m	0.24m	0.04m	7.43m OD
118	1.12m	0.38m	0.13m	7.41m OD
120	0.26m	0.26m	0.05m	7.32m OD
122	0.24m	0.24m	0.05m	7.33m OD

Group 21 Shallow Features [150], [152], [154], [514]

- 7.42 Group 21 was a cluster of features lying c.7m to the east of Group 16 (Pit [78]). These were possibly formed by natural processes such as floral or faunal activities. The shapes of the features ranged from sub-oval to irregular with gently to moderately sloping sides and bases that were either concave or v-shaped (Figure 8, section 17). They were all filled with similar deposits of clayey silt material [149], [151], [153], [513] with occasional charcoal flecks. Fill [149] (Cut [150]) contained residual fragments of struck flint. In the table below the dimensions and highest levels for the features are listed.

Context	Length	Width	Depth	Highest Level
150	0.4m	0.24m	0.32m	7.41m OD
152	0.47m	0.21m	0.09m	7.41m OD
154	0.22m	0.16m	0.09m	7.41m OD
514	0.44m	0.15m	0.09m	7.41m OD

Group 23 Natural Features [53], [103]

- 7.43 Group 23 comprised possible tree throw features or natural hollows. The larger of the two, Cut [103] truncated the northern segment of Boundary Ditch 1 at c.1m from its northern limit. The cut had a sub-oval shape with moderately sloping sides and a base that was flat. A firm mid brownish grey clay [102] which contained two residual fragments of struck flint filled the cut. The second feature, cut [53] was located in the southern portion of the drove way, between Ditch 2 and Ditch 6. It had an irregular shape with gently sloping sides and a concave base. The fill was described as a firm, mid to light grey with dark grey patches, silty clay [52] deposit which contained frequent charcoal flecks. Tabulated below are the dimensions and highest levels of the two cuts.

Context	Length	Width	Depth	Highest Level
53	0.52m	0.4m	0.07m	7.42m OD
103	1.54m	1.08m	0.11m	7.32m OD

- 7.44 Layer [125] was a heavily truncated medieval soil horizon that was located in the southwest section of the trench. The layer was a compact, mid-brownish grey deposit of fine grained silty sand with frequent charcoal flecks. The layer measured over 3.8m long by 2.25m wide and extended into the southern limit of excavation.

Phase 3: Post-Medieval Subsoil Group 4 (contexts [4], [7], [24]/[29]/[34]/[38]/[424]/[428], [422]/[426], [423]/ [427])

- 7.45 Group 4 was a post-medieval subsoil horizon that sealed the medieval features, this was noted in all untruncated areas of the trench. The subsoil was described as a soft mid reddish to orange-brown clayey silt with occasional charcoal flecks. Two early post-medieval pottery sherds dated AD1550-1700 (Sudds; Appendix 4) was recovered from the subsoil (layer [38]) in Geotechnical Pit 4. The deposit ranged in thickness from 0.2m to 0.6m and the top of the horizon was noted between 7.6m OD and 8.0m OD.

Phase 4: 19th Century

- 7.46 The remains of a shallow cut feature [140] that contained burnt materials was noted in the southeast portion of the trench at 7.31m OD. This was 1.1m long by 0.54m wide and 0.04m deep, it was also truncated in middle by a modern service cut. The primary fill was a friable, dark bluish grey clay [139] with frequent charcoal/coal fragments. A deposit of friable, mid-brownish red, burnt silty clay [138] with occasional coal fragments covered the eastern portion of the primary fill.
- 7.47 During the evaluation a mid-yellowish-brown layer of silty clay [13], that contained a single sherd of pottery dated 1780-1950, was recorded in Trench 5. The layer was recorded at a high point of 7.69m OD and 0.35m thick.

Phase 5: 20th Century/Modern

- 7.48 On commencement of the archaeological investigation the main part of the site was vacant and cleared of any 19th to 20th -century residential and commercial buildings. There were no post-medieval foundations observed on site and any modern truncation cutting through to the brickearth has been indicted as such on Figures 3-6. One small 20th -century cut [439] was recorded (at 7.23m OD) as an archaeological feature during the excavation and three levelling deposits [3], [6], [12] were recorded during the evaluation. The cut was located in the southeast sector of the trench and extended into the southern LOE. The visible portion measured 0.7m long by 0.3m wide with a depth of 0.09m. Filling the cut was a reddish brown clay silt containing post great fire brick (AD1666-1900, Valcarcel; Appendix 5) in 20th -century demolition material.

- Excavated 1m x 1m Grid Squares
- Archaeological Features
- Modern Truncations and Obstructions

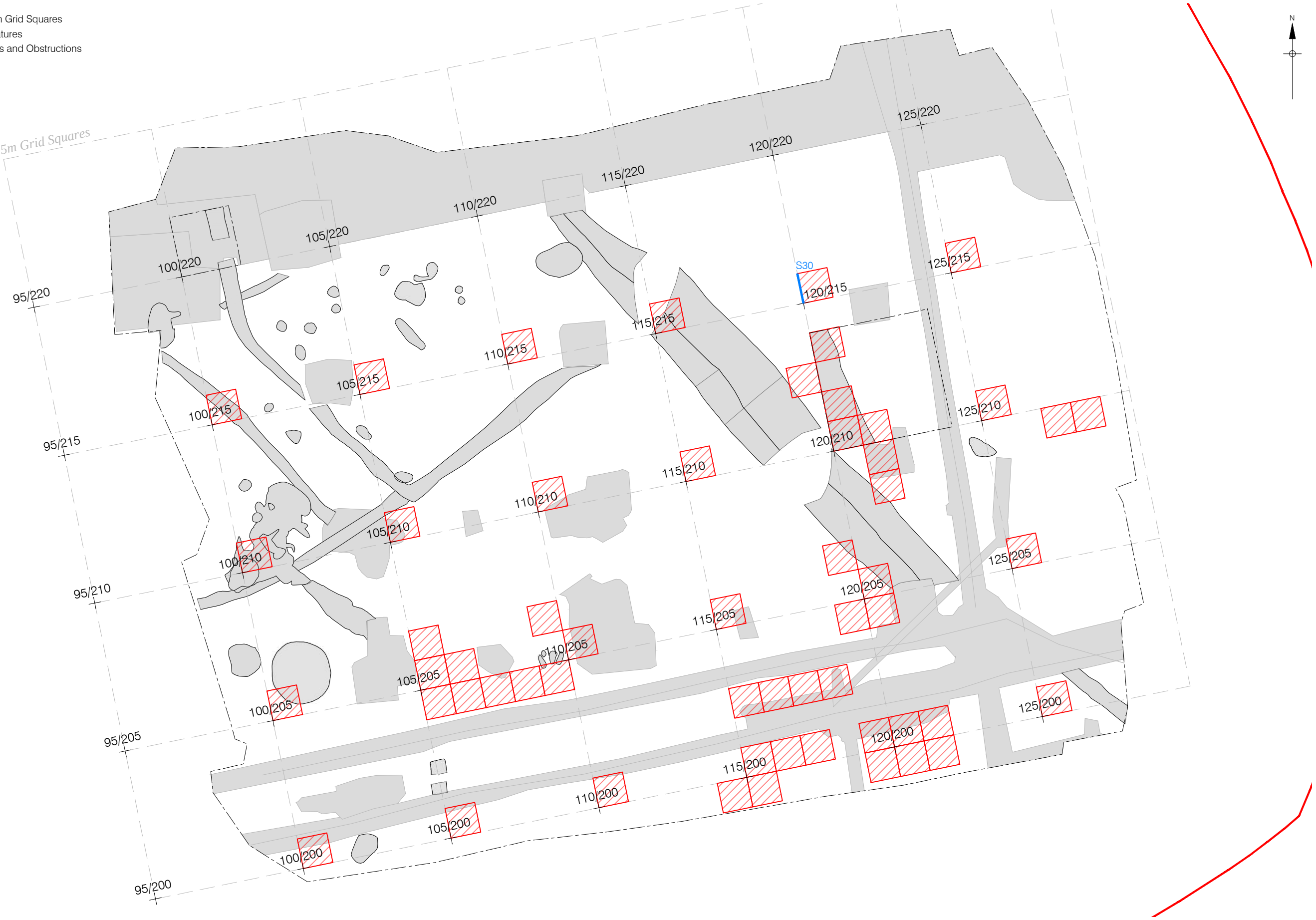
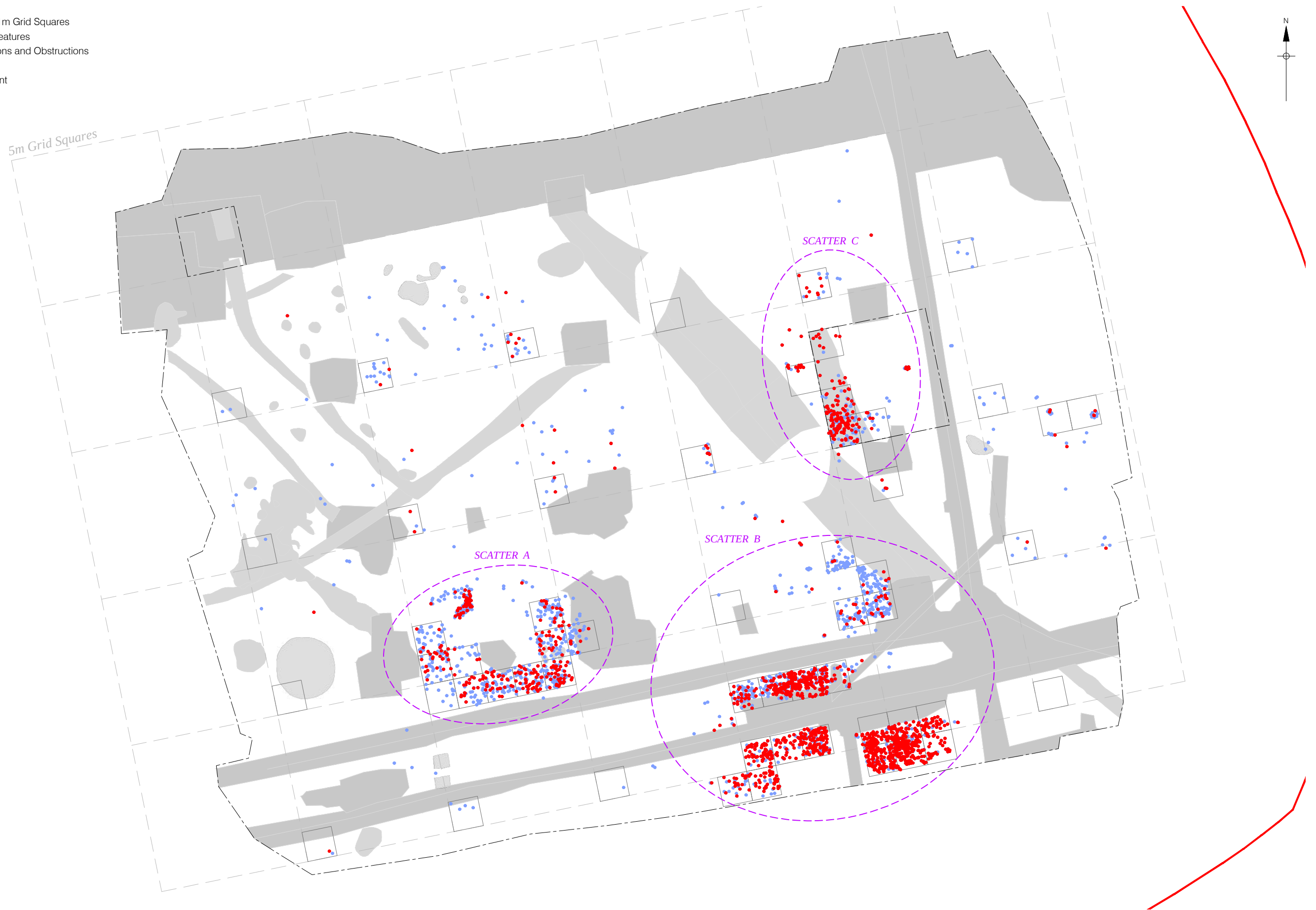


Figure 3
Detailed Site Plan showing Excavation Grid and Excavated Grid Squares
with Archaeological Features and Modern Truncations/Obstructions
1:125 at A3

- Excavated 1m x 1m Grid Squares
- Archaeological Features
- Modern Truncations and Obstructions
- Worked flint
- Worked flint - burnt

5m Grid Squares



- Excavated 1m x 1m Grid Squares
- Archaeological Features
- Modern Truncations and Obstructions
- Lithic Cores
- Core Dressings

5m Grid Squares

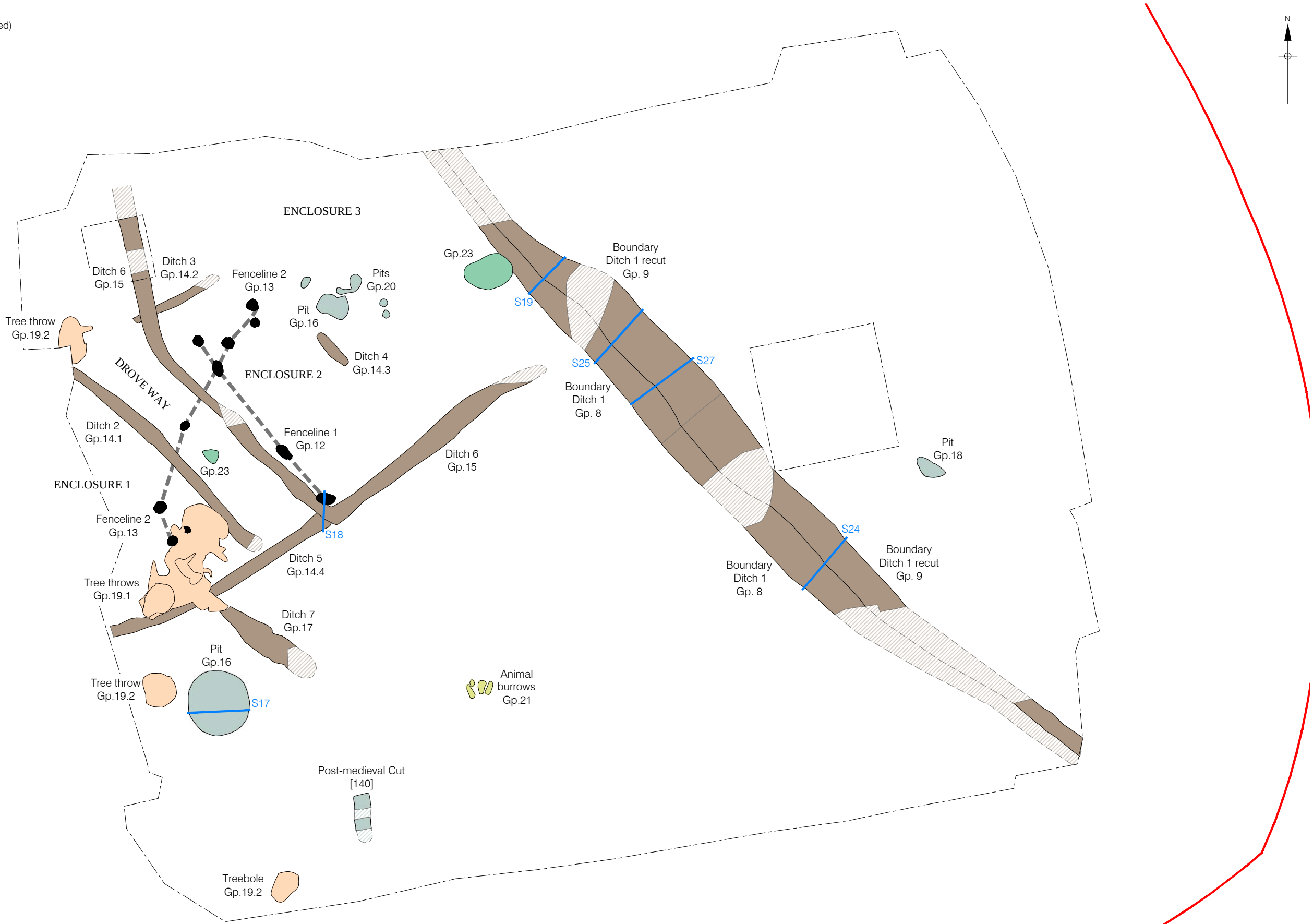


0 5m

Figure 5
Detailed Site Plan showing the Distribution of Lithic Cores and Core Dressings
1:125 at A3



- Ditches/Gullies (found/conjectured)
- Pits
- Postholes
- Animal burrows
- Tree boles
- Natural Features



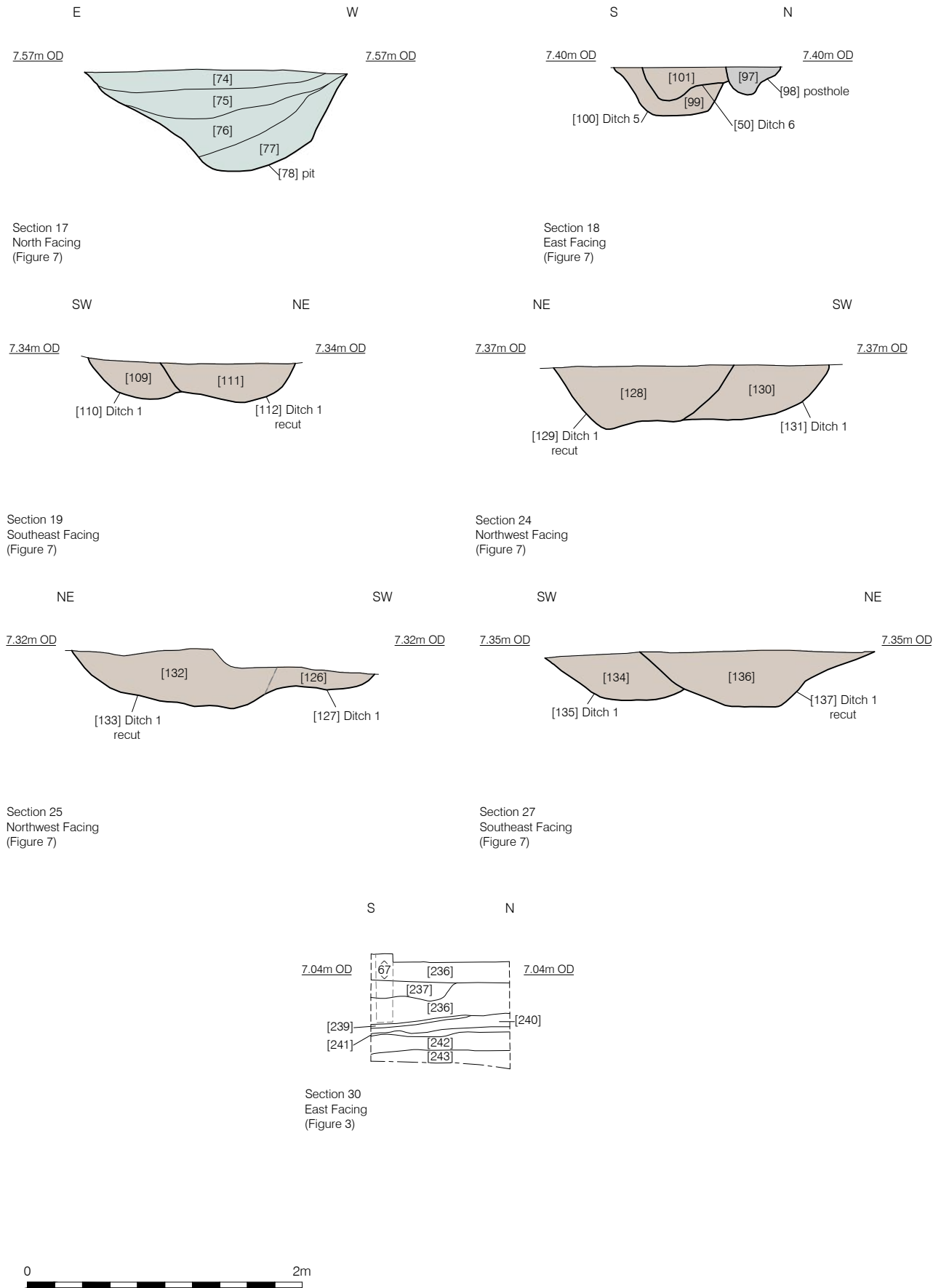


Figure 8
Sections
1:40 at A4

PLATES



Plate 1: Machine excavated Test Pit 1: Made ground, Enfield Silts brickearth and top of Kempton Park Gravels.



Plate 2: Machine excavated Test Pit 2: Made ground, Enfield Silts brickearth Kempton Park Gravels and top of London Clay.



Plate 3: Working shot looking north: excavation of medieval features.



Plate 4: Working shot, cleaning brickearth surface after excavation of medieval and later features.



Plate 5: Working shot, southern half of site looking north-west: grid square excavation following clearance of modern service trenches and archaeological features.



Plate 6: Working shot, southern half of site looking east: commencing work on grid squares in area of Scatter B following clearance of modern services and archaeological features.



Plate 7: Surface cleaning of brickearth in northern half of site, looking north.



Plate 8: Working shot, excavation/recording and logging lithic locations.



Plate 9: Overhead shot of site with ongoing excavation in grid squares and features, looking south-west.



Plate 10: Grid square 110/205 spit 7 of brick earth deposits in Scatter B zone (1m scale). Note partial truncation by later feature (1m scale).



Plate 11: Grid square with burnt worked flint (white pieces). Note modern rootlets.



Plate 12: Excavation within grid square with tagged worked flints and soil sample collection. Note root and rootlets.



Plate 13: Mesolithic flint axe SF420, recovered from surface of brickearth in Scatter B zone.



Plate 14: Tabletop displays and 'meet the archaeologists' at site open day.



Plate 15: Medieval Ditch 1 with excavated slots looking south-east.



Plate 16: Medieval Ditch 1 excavated slot and section 26 (see Figure 8) (2m scale).



Plate 17: Medieval Enclosures 1 and 2, excavated slots, looking north-east.



Plate 18: Ditch [63] excavated slots (2m scale).



Plate 19: Tree throw Feature [114], (0.5m scale).



Plate 20: Medieval Pit [78], (2m scale). Note the depth of brickearth deposits of Enfield Silts and top of Kempton Park Gravels at base of pit.



Plate 21: Overhead shot of site, excavation of grid squares and features.

8 ARCHAEOLOGICAL PHASE DISCUSSION

Phase 1: Natural

- 8.1 The natural sequence recorded at the site conformed to the bedrock and superficial deposits mapped by BGS (GeoIndex), and those surveyed in geo-technical boreholes and window samples used for the geo-archaeological deposit modelling of the Tottenham area of the Lea Valley (Corcoran *et al.* 2011) and that for the Welbourne plot of the Tottenham Hale Centre (Young 2019).
- 8.2 These comprised clay of the London Clay Formation overlain by brickearth of the Enfield Silts Member. The brickearth was recorded as two sub-units by Young (2019) and during the PCA site investigations, the latter describing a lower brickearth of orange-brown silty clay and an upper brickearth of greenish brown silty clay. It appears that a full profile of the Enfield Silts was preserved across much of the Welbourne site. The description of borehole QTP1 provides further detail, especially the evidence for bioturbation in both units (Young 2019), while an additional sedimentological record from column sample {67} at the site mentions sparse clasts of gravel.
- 8.3 Mesolithic worked lithics, predominantly of flint, were recovered in large quantity from the upper brickearth with lesser but moderate amounts from the lower brickearth.
- 8.4 The lithics are interpreted as *in-situ* scatters but strictly are 'intrusive' to the Enfield Silts, their incorporation almost certainly from vertical deflation, the result of bioturbation but of low-level dynamics.

Phase 1.5: Mesolithic

- 8.5 The lithics were most prolific in the upper spits of the brickearth with the large majority from the upper 200mm horizon. Pilot investigations have assessed the horizontal spatial patterning and three distinct scatters are identified: Scatters A, B and C, while a 'background scatter' has been termed the Peripheral Scatter. The vertical disposition of the lithics demonstrates these patterns are preserved throughout the vertical profile (with down-profile fall-off). The constituent artefact size distribution and the assemblage integrity of the scatters suggests the lithics can be viewed as *in-situ* deposits.
- 8.6 The scatters comprise discrete areas of flint knapping i.e. working of nodules into cores and production of blade/bladelet/flake tool blanks and their conversion to tools, as well as production of core tools (axes/picks) (Figures 5 and 6). Much of this activity seems to have occurred around surface hearths evident from dense areas of burnt worked flint in each scatter. Tools were manufactured and or/maintained at the site with identifiable activity zones for hunting toolkit maintenance e.g. microlith replacement at Scatters A and B, probable butchery of carcasses, especially at Scatter A, and other resource processing including hide scraping, antler/bone and wood working, at its most evident in Scatter B.

- 8.7 The scatters appear to represent the occupation of hunter-gatherers using a Deepcar-type technology, a distinct chrono-cultural group of the Early Mesolithic, probably dating from the 9th millennium BC.
- 8.8 The various scatters present several possible permutations of settlement and site type. However, each scatter has evidence for hearths and associated find distributions indicating more than transitory activity.
- 8.9 Each scatter could represent a separate visit to the site, perhaps the locale being a 'persistent place' during the Early Mesolithic where a range of procurement activities were performed. At the other end of a settlement spectrum the remains may indicate a larger base-camp occupation. Certainly, taken as a whole, the assemblage has some balance as would fit the latter model, with representation of flint working, tool production/maintenance and a broad spectrum of procurement and maintenance activities.

Late Bronze Age/Early Iron Age

- 8.10 A few residual sherds of LBA/EIA pottery suggest some undefined later prehistoric activity at or close to the site.

Phase 2: Medieval

- 8.11 A large ditch traversed the site on a north-west to south-east orientation. Attached to this on its western side were small enclosures separated by a developed driveway. The ceramic dating evidence provides a broad 11th to 14th century date, but with a focus of activity during the 12th to 13th century. While there were other recorded features, including some pits and possible tree throw features, the small number of recovered ceramic sherds, much of which was very abraded, would seem to suggest that there was no actual medieval settlement in the immediate area. The enclosures were probably used for animal stock management. It may be that the greenish hue of the upper brickearth profile is derived from muck from the animal stock management and/or manure dumps. The stock farming evidence may suggest that the area was never ploughed and that the Mesolithic scatters survived relatively intact.

Phase 3: Post-Medieval

- 8.12 The medieval features were sealed by a post-medieval subsoil, and this may tie in with the cartographic evidence for the area becoming more open meadow land.
- 8.13 The presence of the subsoil demonstrates that much of the site remained untruncated by later development of the area.

Phases 4 and 5: 19th and 20th Century

- 8.14 Inconsequential features of modern date were also recorded.

9 ORIGINAL RESEARCH AIMS AND OBJECTIVES AND REVISED RESEARCH OBJECTIVES

Original research aims

9.1 The original general aims and objectives were outlined in the WSI and RAMS for the Strip, Map and Sample mitigation exercise (Hawkins 2019a):

- To characterise and assess the archaeological resource within the site.
- Insofar as is possible within the methodological constraints, the aims and objectives will be to explain any chronological, spatial or functional relationships between the structures/remains identified, and to link the archaeological results with the data already recovered in the wider area.
- To identify different levels of survival and truncation of archaeological deposits across the site.

9.2 Site specific research objectives were:

- How far does the medieval ditch extend within the impact area?
- Is there any evidence for the function of the ditch?
- Are there any associated medieval features adjacent to the ditch within the impact area?

Original research aims – the Mesolithic site addendum and Interim Report

9.3 The discovery of the Mesolithic site required a revision of the site methodology as outlined in the WSI and RAMS addendum (see above and Hawkins 2019b). Following the 5m-interval test-pitting/grid square exercise further aims and objectives for the Mesolithic remains were outlined in an Interim Statement (Bishop and Hawkins 2020):

9.4 The Investigations may contribute to several Research Priorities defined in 'A Research Framework for London' (Museum of London 2002), particularly:

P1 Framework objectives:

- Establishing firm regional chronologies tied into national chronological frameworks, taking the opportunity to clarify extant terrace sequences.

P3 Framework objectives:

- Understanding what London looked like.
- Addressing aspects of continuity and change in the nature of the subsistence strategies pursued by human groups: how did they change and develop through time, and why?

- Explaining why the late Mesolithic is so poorly represented in the London region needs addressing. The validity of a model wherein communities retreated up the major tributaries and the valley sides in the face of rising sea and river levels needs testing.
- Publication of key sites will enable inter- and intra-site comparisons regarding issues such as cultural and environmental change, seasonality, hunting strategies, raw material procurement, tool manufacture, use and discard.

The site may contribute to:

- a better understanding of settlement/occupation patterns in the Mesolithic era,
- a better understanding of the natural environment in the Mesolithic and evidence for its adaptation and exploitation;
- assist in defining lithic methodologies and typologies

National Mesolithic research and conservation framework

- 9.5 The significance of the Mesolithic remains were also framed within the national Mesolithic research and conservation framework (Blinkhorn and Milner 2013) in the following statement (Bishop and Hawkins 2020):
- 9.6 The remains recorded within the open area excavation appear to represent a relatively undisturbed 'home-base' or location that was repeatedly returned to. The grid square excavation has not so far resulted in the identification of discrete knapping scatters or clear foci of more intensive working as relatively high densities are present across much of the open excavation area, with a concentration towards the southeast.
- 9.7 The condition of the flint indicates it has experienced some vertical movement and is probably horizontally truncated to some extent, with the loss of actual knapping or contemporary ground surfaces. Tree-throw hollows, which at many other sites have acted as foci for occupation / knapping, have been identified but are so far undated, and no structural remains such as stake holes or living hollows have been recorded. This is as might be expected for a horizontally truncated site as such evidence is usually only preserved where post-depositional processes, such as later alluviation or peat growth, are favourable. No organic remains other than charcoal have so far been identified and it is unlikely that substantial organic remains will survive as the site has not been waterlogged.
- 9.8 Sites that do contain preserved occupation surfaces and / or high degrees of organic survival are usually regarded as having national or even international significance. However, whilst single or small quantities of residually deposited Mesolithic struck flint are occasionally encountered within the London region, large or repeatedly occupied sites comprising considerable quantities of struck flint that have witnessed relatively low levels of disturbance are rare, and not least within Haringey. Despite the partial truncation and lack of organic

remains, the identified Mesolithic archaeological remains can therefore be regarded as being of regional significance and can therefore address some of the research aims identified at the beginning of this document as well as those identified in regional and national research frameworks (e.g. Blinkhorn and Milner 2013, 20-25; Themes T1.3, T2.1, T2.2, T2.3 T2.5, T2.8, T2.15, T3.2, T3.5, T3.9). The identified Mesolithic archaeological remains therefore have the potential to inform on Mesolithic landscape use, the sources and distribution of flint raw materials, lithic technologies and behavioural patterns on a regional level. It may also help in understanding of how the landscape was affected by human activity in the Mesolithic period and how the change in climate affected how the landscape was being used by humans.

Revised Aims and Objectives

- 9.9 The original site-specific aims and objectives outlined above were addressed by the fieldwork either directly or in terms of data gathering for further research at the post-excavation analysis stage. The original aims and objectives continue to have direct relevance to the excavated Mesolithic archaeology and the proposed analysis. However, two of the assumptions and statements made in the Interim Report (Bishop and Hawkins 2020) can be amended;
- 9.10 It would now appear that the upper brickearth profile was not affected by much, if indeed any, agricultural truncation. The topographic position of the site, on the margins of the Holocene floodplain, may have made the site unsuitable for medieval arable land-use. Certainly, the archaeological evidence of land-use appears to have been as stock enclosures, and by the post-medieval period the parcels of land on which the Welbourne site lies are mapped as meadow land. It is feasible that the Mesolithic lithics horizon of the brickearth has survived relatively intact, albeit with some down-profile movement of the scatters.
- 9.11 None of the natural features such as tree throw features encountered on site appear to be related to the Mesolithic occupation phase.

The National and Regional Frameworks for the Mesolithic

- 9.12 The Mesolithic Research and Conservation Framework 2013 (Blinkhorn and Milner 2013) presents a series of research themes and strategies to address the over-arching aims of understanding the period and to guide future work. Three primary research themes are set out in the document and each can be explored with the proposed analysis of the Welbourne Mesolithic site. Each theme has research strategies and those that are of relevance to the Welbourne site are listed below:

- Theme 1: Living in a changing world

T1.3: To what extent did environmental change impact upon Mesolithic technology and 'tool kits'?

- Theme 2: Mesolithic lifeways

Technology and art

T2.1: What can Mesolithic technology (eg stone, antler, bone and wood working), its production, use and deposition, tell us about Mesolithic lifeways?

T2.2: To what extent can we understand the sourcing of raw materials and the movement of materials and people at different spatial scales?

T2.3: How can we better understand spatial and temporal variation in lithic technology, use and deposition?

Settlement and mobility

T2.5: To what extent can the composition, size and geographical characteristics of lithic scatters be used to define different types of site in the Mesolithic?

T2.8: How did mobility strategies develop from the Late glacial to the end of the Mesolithic?

T2.9: Can patterns of territoriality be distinguished?

People

T2.15: Is it possible to understand social organisation in the Mesolithic better? For instance, group sizes and population density?

- Theme 3: Investigating change and diversity

Understanding the transition from Late glacial to early Postglacial hunter-gatherer societies

T3.2: How can we refine the chronology for long blade sites and for Early Mesolithic sites, and the relationship between the two?

T3.3: How did human occupation relate to climate and environmental change at the beginning of the Holocene?

T3.4: What were the origins of the people who occupied Britain at the start of the Holocene?

Identifying change through the Mesolithic at national and regional scales

T3.5: Can we refine further the chronology of Mesolithic lithic industries? For instance, is it possible to refine the spatial and temporal limits of distinctive lithic assemblage types (eg Star Carr, Deepcar, Horsham) and what may these distribution patterns imply? What do the changes in tool form, especially microliths, indicate?

T3.6: How did bone, antler and wood-working technology change through time and across space?

T3.9: How variable was site use and landscape use through this period

Site-Specific Research Aims and Objectives

9.13 The following site-specific objectives can be posed as a series of questions that may be addressed by the proposed analysis of the Mesolithic finds and their context.

9.14 How was the site formed?

- Is there a latent structure to the scatter that confirms and defines its *in-situ* status and, if so, how does this inform on spatial uses of the site?
 - What evidence is there for natural transforms of the Mesolithic scatters such as tree throw features, burrowing animals or invertebrate sorting?
 - Is there evidence for cultural transforms such as super-imposed activities?
 - Is it a 'clean' assemblage or subject to residual and/or intrusive elements?
 - Is there evidence for a single or multiple occupations?
- 9.15 When was the site occupied?
- What is the proxy dating for the lithics in typo-technological terms?
 - If the charred plant remains samples provide radiocarbon site dates what do they reveal about the chronology?
- 9.16 What is the operational scheme or *chaîne opératoire* of the lithics assemblage, in terms of the biographies of lithic acquisition, production, use, maintenance and deposition at the scale of defined scatter and the site as a whole?
- What is the evidence for raw material, cores, blanks and tools as imports to and exports from the site?
 - What is the evidence for tool production?
 - What is the evidence for tool use and discard?
 - Is it possible to identify individuals from the knapping remnants?
- 9.17 What activities occurred at the site?
- How does lithic technological definition inform?
 - How does lithic tool type classification inform?
 - How does micro-wear analysis inform?
- 9.18 What 'type' of site is it – extraction site, base camp, activity/task zone, hunting station?
- 9.19 How does the site compare to other Early Mesolithic sites in the Lea valley and a wider 'territory' of the Lower Lea – Middle Thames land block and with other sites associated with tributaries within a wider Thames valley region ?
- 9.20 How might similar sites be recognised and researched? How might we use the experience of applying different methodologies to record this Mesolithic site to enhance future excavation strategies for similar sites?
- Did the trial trench evaluation work effectively?
 - Did the test-pit /grid square survey work effectively and could it be improved?

- Did the plotting/recovery system work well?
- Can the sampling be justified?

10 IMPORTANCE OF THE RESULTS, FURTHER WORK AND PUBLICATION PROPOSALS

Importance of the results

- 10.1 The Lithics Assessment (Appendix 2) has a more detailed Discussion section that presents a wider discourse on the importance of the Mesolithic remains in terms of the current site interpretations, its chrono-cultural position and how the site may contribute to an improved understanding of the Early Mesolithic of a putative landscape territory including the two major Thames tributaries of the rivers Colne and Lea. This is an area rich in Mesolithic archaeology but with some gaping holes in its coverage of the prehistory of London.
- 10.2 The Early Mesolithic activity at Welbourne is represented by a large lithic assemblage comprising three closely spaced and possibly related scatters (Figure 4). The lithic assemblage of each scatter is *in-situ*, is assigned to a specific chrono-cultural tradition (Deepcar-type) and has evidence for flint working, tool manufacture and utilization related to a range of activities. While the scatters are typo-technologically comparable each scatter has its own identity that can be related to varying functional activities. The material (where not burnt) is in excellent condition thus providing excellent potential for microscopic use wear analysis. Associated charred plant remains, albeit few, provide potential for radiocarbon dating.
- 10.3 There are sufficiently large quantities of material from each scatter to present statistically viable sets of data for morphometric, typological and technological study. It is also likely that each scatter presents good potential for a re-fitting programme at both intra- and inter-scalar scales.
- 10.4 As such, given these favourable attributes and due to the rarity of such remains the Mesolithic component of the site has credentials for being considered as of high importance at local, regional and, probably, national levels.
- 10.5 The assessment of the Mesolithic resource of Greater London demonstrates sparse Mesolithic evidence for the Greater London boroughs along the River Lea (Lewis 2000, Gazetteer and Map 2), despite the recognition of the importance of the Lea Valley for Mesolithic studies with sites such as those in the Middle Lea valley at Broxbourne and Rickoff's Pit in Hertfordshire (Museum of London 2002). Indeed, the gazetteer has no entries at all for the borough of Haringey and there is very little evidence from the Middle and Lower Lea Valley of the neighbouring Greater London Boroughs (Lewis 2000, Gazetteer and Map 2). The Welbourne site stands apart from the otherwise meagre evidence from the local area of mostly isolated findspots, particularly Mesolithic axes/picks. However, given the topographic position it is likely that the local environs would have offered a prime riparian setting along this stretch of the River Lea.
- 10.6 The Welbourne lithic assemblage can be considered as an 'occupation site', one of the categories of sites 'of early human activity without structures' (Historic England 2018). Such 'sites without structures' of good quality can be considered as of regional and national importance on the basis of their period and geographical rarity. The Welbourne 'artefact scatter'

has been demonstrated to be an *in-situ* assemblage, have good spatial definition with discrete scatters, lithic artefacts of good quality, and evidence for diversity with a range of task activities (ibid. 19-20). As such it has merits for consideration as a site of national importance.

- 10.7 A small number of medieval features can be considered to be of local significance. These were identified in Phase 2; a large boundary ditch traversing the site (Ditch 1 Gp. 9), smaller ditches demarcating enclosure areas probably used for animal stock management and a droveway (Figure 7). The ceramic dating evidence provides a broad 11th to 14th century date, but with a focus of activity during the 12th to 13th century. The small and abraded assemblage, however, indicates that there was no actual medieval settlement in the immediate area. The area may never have been ploughed allowing the Mesolithic flint scatters to have survived as relatively intact.
- 10.8 The medieval features were sealed by a post-medieval subsoil, and this may tie in with the cartographic evidence for the area becoming more open meadow land. Inconsequential features of modern date were also recorded.

Further Work Proposed

Stratigraphy

- 10.7 The brickearth and related alluvial deposits correspond to the Enfield Silts geological unit and these relate directly to the Mesolithic assemblage contained within. The stratigraphic context records are numerous as context numbers were assigned for each grid square and spit. These form the basic archive for the deposits. The matrix has been constructed and the records have been added to the PCA Pelican database. No further work is anticipated although there may be some need for scrutiny of stratigraphic records to answer queries during the proposed work on the Mesolithic remains.
- 10.8 No further work is recommended regarding the stratigraphic phases and periods of activity for the medieval and later phases, but integration of the results should be undertaken and combined with analysis and publication of the other sites of the Tottenham Hale Centre development, placing these results into the wider context of the Tottenham Hale area.

Lithics

- 10.9 The entire assemblage should be fully catalogued with comprehensive records of raw material, technology, typology and metrics. A full recording of proximal stigmata of blades, bladelets and flakes should be undertaken as the site has potential for a better understanding of specific percussion modes across the Early Mesolithic assemblage types.
- 10.10 Microwear study of some 100 representative artefacts from the scatters to investigate function and use for a selection of tools and potential tools, including some regular blades and flakes. The study should be illustrated with microscope image details and whole-artefact zone representations.

- 10.11 A refitting programme to investigate core reduction technology, tool production strategies and to seek intra- and inter-scatter links and dynamics. A targeted study of the probable axe production sequence(s) would address a national research deficit (Alison Roberts pers. comm.).
- 10.12 Spatial analysis to investigate questions of site taphonomy and to interrogate any latent structure of the occupation(s) relating to hearth location, knapping areas, tool production/maintenance areas and other activity zones. This should be tied into the functional microwear analysis and the refitting programme data to understand the dynamics at scatter and site scales. Spatial analysis results should be illustrated with point distribution and density plots.
- 10.13 Comparative desk-based typo-technological study of other sites in the Greater London, East of England and South-East regions where there is a good dataset of Deepcar-type site assemblages covered by published and grey literature.
- 10.14 The results should be written as a detailed archive lithic report, and this would form the basis for a major section of a published report. Each scatter would be addressed as an entity but with an over-arching narrative to describe comparability or otherwise.
- 10.15 Illustration of lithics combining traditional line drawings of selected pieces with accompanying high resolution colour photographs, linking with microwear study (Saville 2009).

Prehistoric Pottery

- 10.16 The small and residual assemblage is of low significance and no further work is proposed. However, its presence is worth noting in the stratigraphic narrative and in the GLHER.

Post-Roman Pottery

- 10.17 The medieval and post-medieval assemblages are largely well-paralleled in the vicinity and as small and fragmentary they have little further interpretative value. The material is fully catalogued and no further analysis is recommended, although a short summary of the assemblage should be included in any publication of the study site, presented in tandem with the material recovered from the other Tottenham Hale Centre redevelopment sites.

Building Material

- 10.18 The assemblage recovered from Tottenham Hale Centre is relatively small given the scale of excavation, in poor condition and thinly distributed. Daub fragments may suggest that structures of prehistoric date were originally sited in the locality but as small and non-diagnostic little can be concluded from these. Although probably derived from field marling and in wash, the later building material also attests indirectly to the presence of Roman, medieval and post-medieval settlement activity in the vicinity. As largely well paralleled and re-deposited no further analysis or discussion is recommended for any of the material.

Metalwork

- 10.19 An iron horseshoe complements other medieval finds and features recorded on the site. No further work is required for this object; however, it is recommended that it is included in any further publication of the site. The incomplete iron nail can be discarded.

Animal Bone

- 10.19 The significance and potential of the assemblage are severely limited by its small size and heavy fragmentation. No further work is recommended.

Environmental: Archaeobotanical and AMS 14C dating

- 10.20 Archaeobotanical Specialist Analysis; No further work is proposed or recommended on environmental samples from the Tottenham Hale Centre – Welbourne Site. All archaeobotanical material (along with non-organic inclusions and intrusive organic matter) for the site has been maximised to produce the cross-site and cross-phase data presented in this report (Appendix 8). There is no additional material for analysis or additional specialist analysis (reassessment or additional study).
- 10.21 Preservation (that is both quantitative and qualitative preservation) of the archaeobotanical assemblage across Phases 1.2 and 1.3, and Phase 2, is numerically poor and statistically insignificant. All charred plant remains from the site have been assessed with abundance data presented in the three data tables (1-3) (Appendix 8). Additional data subsuming microscopic non-organic material, and intrusive organic matter has also been included in the environmental data-set to provide an objective assessment of the macro- and micro-contents of all environmental samples from the site. It is noted that intrusive organic material has flagged up the impact of bioturbation and soil-mixing across all cross-site and cross-phase (and grid/area) environmental samples.
- 10.22 AMS 14C dating- Material suitable for AMS 14C dating from the assessed environmental samples detailed in this report is minimal. However, samples that may prove suitable for submission to a dating laboratory are:
- Sample {277} from Area A Phase 1.3 Grid 106/204 Spit 3 (context (465)) – 1 x Indeterminate cereal/grass grain which may provide enough carbon.
 - Sample {300} from Area A Phase 1.3 Grid 107/204 Spit 1 (context (501)) – 4 x charcoal fragments on the 4mm size boundary.
 - Sample {282} from Area A Phase 1.3 Grid 108/204 Spit 2 (context (464)) – ~9 x charcoal fragments on the 4mm size boundary.
- 10.23 A summary of this report, along with the data tables, should be included in any future report or publication.

Publication proposals

- 10.24 The site has presented important archaeological remains of a Mesolithic occupation site and an appropriate means of disseminating the research data would be as a combined Mesolithic PCA volume with another Early Mesolithic PCA excavation at the Coca-Cola Site, Sidcup, Bexley (RAY15; Grosso and Meddens 2016). Evidence of Mesolithic activity at the Sidcup site was recorded in the presence of approx. 1,639 pieces of struck flint found on a brickearth layer. In a regional context, these sites join very few others from the London region that represent relatively undisturbed knapping scatters, most of which have been found in similar valley floor locations. In terms of dating and landscape setting these sites are comparable to the largely *in-situ* scatters of both late Glacial and early post-Glacial date excavated at Three Ways Wharf in Uxbridge (Lewis 2011).
- 10.25 The medieval and post-medieval features attest to the historical development of the Tottenham Hale area and the results are of more local importance and relevance. They could be combined with the results of the Ferry Island and North Island site in a peer-reviewed journal article published in the Transactions for London and Middlesex Archaeological Society (LAMAS).
- 10.26 Further dissemination is recommended in the form of a summary note publishing these results in the Annual London Fieldwork and Publication Round-up; a Supplement of the *London Archaeologist*.
- 10.27 A summary record of the results has been created on the OASIS database (Appendix 9). On approval of this report further dissemination will be through copies uploaded to ADS and supplied to the GLHER.

11 CONTENTS OF THE ARCHIVE

11.1 Paper records:

Context sheets: 537 sheets (Excavation)

Plans: 363 sheets (Excavation)

Sections: 23 sheets (Excavation)

11.2 The finds:

Material	Boxes	Recommendation
Pottery	0.25 box	Retain
Animal Bone	0.25 box	Discard
Lithics	20 boxes	Retain
Metalwork	1 item	Discard
	1 item	Retain
Environmental Remains	Charred Plant Remains (Mesolithic)	Retain

11.3 Digital archive:

Photographs: 1159 jpeg (Excavation)

12 ACKNOWLEDGEMENTS

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13 BIBLIOGRAPHY

BGS GeoIndex – British Geological Survey (<https://mapapps2.bgs.ac.uk/geoindex/home.html> accessed 10.11.2023).

Bishop, B. and Hawkins, H. 2020. Excavations at the Welbourne Site, Chesnut Road, Tottenham Hale, London Borough of Haringey, Site Code: WMD19. Interim Report. Unpublished client report

Blinkhorn, E. and Milner, N. 2014. *Mesolithic Research and Conservation Framework 2013*. English Heritage & University of York.

CgMs Heritage 2018. Archaeology Desk Based Assessment: Tottenham Hale Centre. Unpublished client report.

Corcoran, J., Halsey, C., Spurr, G., Burton, E. and Jamieson, D. (2011) *Mapping Past Landscapes in the lower Lea valley: A Geoarchaeological Study of the Quaternary Sequence*. Museum of London Archaeology, MOLA Monograph 55.

Grosso, I. and Meddens, F., 2016. Summary Assessment of an Archaeological Excavation/ Strip, Map and Record Program at ASRS COCA-COLA Sidcup, Edginton Way, London Borough of Bexley, DA14 5DF. Unpublished Client Report, PCA Pre-Construct Archaeology Limited.

Hawkins, H. 2019a. Tottenham Hale Centre, London, N17 9LB – Welbourne Site. Written Scheme of Investigation and RAMS for an Archaeological Strip, Map and Sample Exercise v3. Unpublished Client Report, PCA Pre-Construct Archaeology Limited.

Hawkins, H. 2019b. Welbourne site, Tottenham Hale Centre, Tottenham N17 9LB. Method Statement for Excavation of Mesolithic Flint Area. Addendum to the Written Scheme of Investigation. Unpublished client report, PCA Pre-Construct Archaeology Limited.

Hawkins, H. 2020. Tottenham Hale Centre: Welbourne, Ashley Road West and Ashley Road East sites; Archaeological Evaluation. Unpublished client report, PCA Pre-Construct Archaeology Limited (PCA report number R13917).

Historic England 2018. Sites of Early Human Activity: Scheduling Selection Guide. Swindon. Historic England.

Lewis, J. 2000. The Upper Palaeolithic and Mesolithic periods, in MoLAS, *The Archaeology of Greater London: An Assessment of Archaeological Evidence for Human Presence in the Area Now Covered by Greater London*. London: Museum of London, 45-62

Lewis, J.S.C. 2011 *Three Ways Wharf, Uxbridge: a Late glacial and Early Holocene hunter-gather site in the Colne Valley*. Museum of London Archaeology Monograph 51.

Maher, S. forthcoming. Ferry Island, Tottenham Hale Centre, Ferry Island site. An Assessment of Archaeological excavation. Unpublished Client Report

Museum of London, 2002. *A Research Framework for London Archaeology 2002*. London: Museum of London

Saville, A. 2009. The illustration of Mesolithic artefacts and its contribution to the understanding of Mesolithic technology in S.McCartan, R. Schulting, G. Warren, and P. Woodman (eds), *Mesolithic Horizons: Papers presented at the Seventh International Conference on the Mesolithic in Europe, Belfast 2005*, 745-753. Oxford: Oxbow Books

Young, D.S. 2019. Plots C, D & E, Tottenham Hale Centre, London Borough of Haringey, Geoarchaeological Deposit Model Report. Quaternary Scientific (QUEST) Unpublished Report June 2019; Project Number 142/18

APPENDIX 1: CONTEXT INDEX

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
1	Layer			Tr 1		Brickearth	Natural		4	4		7.48	7.48	PH1	
2	Layer			Tr 2		Brickearth	Natural		4	4		7.48		PH2	
3	Layer			Tr 3		Late 20th century made ground.	Make-up		15	4	0.2	7.97		PH5	
4	Layer			Tr 3		Redeposited brickearth	Agricultural		15	4	0.2	7.77		PH3	GP4
5	Natural			Tr 3		Brickearth	Natural		15	4		7.57	7.23	PH1.2	GP2
6	Layer			Tr 4		Modern made ground	Make-up		15	1	0.6	8.26	7.97	PH5	
7	Layer			Tr 4		Redeposited brickearth	Agricultural		15	1	0.4	7.7	7.7	PH3	GP4
8	Natural			Tr 4		Brickearth	Natural		15	1	0.3	7.5		PH1.2	GP2
9	Fill	10		Tr 4		Backfill of medieval ditch	Backfill		2.3	1	0.5	7.42	7.38	PH2	
10	Cut			Tr 4		medieval ditch	Ditch		2.3	1	0.25	7.42	6.88	PH2	
11	Layer			Tr 4		Greenish Brickearth	Agricultural		1.4	1.6	0.2	7.38		PH1.3	GP3
12	Layer			Tr 5		Late 20th century made ground	Levelling		10	1.82	0.3	8.14		PH5	
13	Layer			Tr 5		Modified brick earth	Agricultural		1.8	10	0.35	7.69		PH4	
14	Natural			Tr 5		Natural alluvial clay	Natural		10	1.8		7.34		PH1.2	GP2
15	Void?														
16	Void?														
17	Void?														
18	Void?														
19	Void?														
20	Fill	23				Yellow grey clay silt fill of linear	Disuse		0.9	0.25	0.1	7.44		PH2	
21	Void														
22	Fill	23				Fill of linear [23]	Disuse		0.24	0.2	0.08	7.38		PH2	
23	Cut					Linear cut	Disuse		2.4	0.2	0.08	7.45	7.35	PH2	
24	Layer		29, 34, 38	TP1		Post-med Subsoil	Other				0.3	8		PH3	GP4
25	Layer		30, 35, 39, 42	TP1		Greenish Brickearth	Natural				0.3	7.4		PH1.3	GP3
26	Layer			TP1		Orange brickearth	Natural				0.7	7.1		PH1.2	GP2
27	Void														
28	Layer			TP1		Natural Gravels	Natural					6.4		PH1.1	GP1
29	Layer		34, 34, 38			Post-med subsoil	Other				0.6	7.8		PH3	GP4

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
30	Layer		25, 35, 39, 42	TP2		Greenish Brickearth	Natural				0.4	7.4		PH1.3	GP3
31	Layer			TP2		Orange brickearth	Natural				0.7	7		PH1.2	GP2
32	Layer		28, 37, 41, 44, 46	TP2		Natural gravels	Natural				1.6	6.3		PH1.1	GP1
33	Layer			TP2		London Clay	Natural					5.46		PH1.1	GP10
34	Layer		24, 29, 38	TP3		Post-med subsoil	Other				0.3	7.66		PH3	GP4
35	Layer		25, 30, 39, 42	TP3		Greenish Brickearth	Natural				0.3	7.36		PH1.3	GP3
36	Layer		26, 31, 40, 43	TP3		Orange brickearth	Natural				0.4	7.06		PH1.2	GP2
37	Layer		28, 32, 41, 44, 46	TP3		Natural gravels	Natural				1.6	6.66		PH1.1	GP1
38	Layer		24, 29, 34	TP4		Post-med subsoil	Other				0.3	7.6		PH3	GP4
39	Layer		25, 30, 35, 42	TP4		Greenish Brickearth	Natural				0.4	7.3		PH1.3	GP3
40	Layer		26, 31, 36, 43	TP3		orange brickearth	Natural				0.7	6.9		PH1.2	GP2
41	Layer		28, 32, 37, 44, 46	TP4		Natural gravels	Natural				1.5		6.2	PH1.1	GP1
42	Layer		25, 30, 35, 39	TP5		Greenish Brickearth	Natural				0.2	7.2		PH1.3	GP3
43	Layer		26, 31, 36, 40	TP5		Orange brickearth	Natural				0.2	7		PH1.2	GP2
44	Layer		28, 32, 37, 41, 44, 46	TP5		Natural gravels	Natural					6.8		PH1.1	GP1
45	Layer			TP6		Brickearth	Natural				1.1	7.76		PH1.3	
46	Layer		28, 32, 37, 41, 44	TP6		Natural gravels	Natural					6.66		PH1.1	GP1
47	Fill	48				Fill	Disuse		0.3	0.26	0.37	7.4		PH2	
48	Cut					Possible posthole	Post-hole		0.3	0.26	0.37	7.4	7.03	PH2	
49	Fill	50	51, 73, 101, 108			Fill of linear	Disuse			0.5	0.24	7.41		PH2	
50	Cut					Shallow ditch	Gully			0.7	0.26	7.46	7.12	PH2	
51	Fill	50	49, 73, 101, 108			Fill of linear	Disuse			0.42	0.2	7.41		PH2	
52	Fill	53				Fill of small pit	Disuse		0.52	0.4	0.07	7.42		PH2	

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
53	Cut					Shallow pit	Pit		0.52	0.4	0.07	7.42	7.35	PH2	
54	Fill	55				Fill of of possible posthole	Disuse		0.42	0.38	0.18	7.49		PH2	
55	Cut					Possible posthole	Post-hole		0.42	0.38	0.18	7.49	7.31	PH2	
56	Fill	57				Fill of possible posthole	Disuse		0.22	0.16	0.21	7.47		PH2	
57	Cut					Possible posthole	Post-hole		0.22	0.16	0.21	7.47	7.26	PH2	
58	Fill	59				Fill of possible posthole	Disuse		0.34	0.25	0.15	7.38		PH2	
59	Cut					Possible posthole	Post-hole		0.34	0.25	0.15	7.38	7.23	PH2	
60	Fill	63	61, 62, 155			Fill of shallow ditch	Disuse			0.42	0.19	7.4		PH2	
61	Fill	63	60, 62, 155			Fill of shallow ditch	Disuse			0.44	0.2	7.4		PH2	
62	Fill	63				Fill of shallow ditch	Disuse			0.4	0.19	7.47		PH2	
63	Cut					Shallow ditch	Ditch		8.66	0.44	0.26	7.43	7.15	PH2	
64	Fill	66				Top fill of posthole	Disuse			0.12	0.11	7.39		PH2	
65	Fill	66				Fill of posthole	Disuse			0.32	0.11	7.39		PH2	
66	Cut					Posthole	Post-hole			0.32	0.11	7.39	7.28	PH2	
67	Fill	68				Fill of possible tree throw	Natural Silting		1	0.97	0.18	7.41		PH2	
68	Cut					Tree throw	Other	Tree throw	1	0.97	0.18	7.41	7.23	PH2	
69	Fill	70				Fill of possible tree throw	Natural Silting		1	0.68	0.16	7.38		PH2	
70	Cut					Tree throw	Other	Tree throw	1	0.68	0.16	7.38	7.22	PH2	
71	Void														
72	Void														
73	Fill	50	49, 51, 101, 108			Fill of linear top fill of storage pit	Disuse			0.52	0.2	7.42		PH2	
74	Fill	78				Fill of storage pit	Disuse		2.06	1.94	0.14	7.5		PH2	
75	Fill	78				Backfill of storage pit	Backfill				0.22	7.48		PH2	
76	Fill	78				Primary fill of storage pit	Backfill				0.28	7.4	7.15	PH2	
77	Fill	78				Storage pit	Pit		2.06	1.94	0.79	7.5	6.87	PH2	
78	Cut					Fill of shallow feature	Disuse		1.11	1	0.18	7.5		PH2	
79	Fill	80				Shallow pit like feature/tree throw	Other	Tree throw	1.11	1	0.18	7.5	7.37	PH2	
80	Cut					Fill of small enclosure ditch	Disuse			0.34	0.17	7.39		PH2	
81	Fill	94	82, 83			Fill of small enclosure ditch	Disuse			0.5	0.16	7.44		PH2	
82	Fill	94	81, 83												

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
83	Fill	94				Fill of small enclosure ditch	Disuse			0.6	0.17	7.42		PH2	
84	Fill	85				Posthole fill	Disuse		0.38	0.38	0.08	7.42		PH2	
85	Cut					Shallow posthole	Post-hole		0.38	0.38	0.08	7.42	7.34	PH2	
86	Fill	87				Posthole fill	Disuse		0.3	0.28	0.07	7.42		PH2	
87	Cut					Shallow posthole	Post-hole		0.3	0.28	0.07	7.42	7.35	PH2	
88	Fill	89				Posthole fill	Disuse		0.4	0.38	0.04	7.39		PH2	
89	Cut					Shallow posthole	Post-hole		0.4	0.35	0.04	7.39	7.35	PH2	
90	Fill	91				Posthole fill	Disuse		0.5	0.32	0.08	7.4		PH2	
91	Cut					Shallow posthole	Post-hole		0.5	0.32	0.08	7.4	7.32	PH2	
92	Fill	93				Posthole fill	Disuse		0.36	0.32	0.03	7.4		PH2	
93	Cut					Shallow posthole	Post-hole		0.36	0.32	0.03	7.4	7.37	PH2	
94	Cut					Small ditch	Ditch			0.6	0.17	7.44	7.22	PH2	
95	Fill	96				Fill of possible tree throw	Other	Tree throw	1.5	0.8	0.22	7.32		PH2	
96	Cut					Possible tree throw	Other	Tree throw	1.5	0.8	0.22	7.32	7.1	PH2	
97	Fill	98				Fill of posthole	Disuse		0.6	0.36	0.24	7.4		PH2	
98	Cut					Posthole	Post-hole		0.6	0.36	0.24	7.4	7.16	PH2	
99	Fill	100	156			Ditch terminus fill	Disuse			0.6	0.34	7.43		PH2	
100	Cut					Ditch	Ditch		7.96	0.6	0.34	7.46	7.09	PH2	
101	Fill	50	49, 51, 73, 108			Fill of linear	Disuse		1.6	0.54	0.2	7.46		PH2	
102	Fill	103				Fill of shallow pit/hollow	Disuse		1.54	1.08	0.11	7.32	7.21	PH2	
103	Cut					Shallow pit/hollow	Pit	Hollow	1.54	1.08	0.11	7.32	7.21	PH2	
104	Fill	105				Fill of pit	Disuse		0.66	0.4	0.26	7.43		PH2	
105	Cut					Pit	Pit		0.66	0.4	0.26	7.43	7.17	PH2	
106	Fill	107				Pit fill	Disuse		0.76	0.56	0.16	7.42		PH2	
107	Cut					Pit	Pit		0.76	0.56	0.16	7.42	7.26	PH2	
108	Fill	50	49, 51, 73, 108			Ditch fill	Disuse		7.76	0.7	0.26	7.41		PH2	
109	Fill	110				Ditch fill	Disuse		4.6	0.6	0.26	7.31	7.23	PH2	
110	Cut		127, 131, 135, 144, 268			Boundary/drainage ditch	Ditch		4.6	0.6	0.26	7.32		PH2	
111	Fill	112				Ditch fill	Disuse		3.26	0.96	0.28	7.28		PH2	
112	Cut		129, 133, 137, 258			Ditch	Ditch		3.26	0.96	0.28	7.28	6.93	PH2	
113	Fill	114				Fill of pit/tree throw	Disuse		1.06	0.75	0.22	7.37	7.36	PH2	
114	Cut					Pit/tree throw	Pit		1.06	0.75	0.22	7.37	7.15	PH2	
115	Fill	116				Fill of shallow feature	Disuse		0.42	0.24	0.04	7.43		PH2	

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
116	Cut					Shallow feature	Other		0.42	0.24	0.04	7.43	7.39	PH2	
117	Fill	118				Fill of possible animal burrow	Disuse		1.12	0.38	0.13	7.41		PH2	
118	Cut					possible animal burrow	Other		1.12	0.38	0.13	7.41	7.28	PH2	
119	Fill	120				Fill of shallow feature	Disuse		0.26	0.26	0.05	7.32		PH2	
120	Cut					Shallow feature	Other		0.26	0.26	0.05	7.32	7.27	PH2	
121	Fill	122				Fill of shallow feature	Disuse		0.24	0.24	0.05	7.33		PH2	
122	Cut					Shallow feature	Other		0.24	0.24	0.05	7.33	7.28	PH2	
123	Fill	124				Fill of small linear	Disuse		1.3	0.34	0.17	7.41		PH2	
124	Cut					Small linear	Gully		1.3	0.34	0.17	7.41	7.23	PH2	
125	Layer					medieval layer	Agricultural		3.8	2.25		7.39	7.24	PH2	
126	Fill	127	134			Fill of ditch slot	Disuse			0.8	0.15	7.16		PH2	
127	Cut		110, 131, 135, 144, 268			Boundary/drainage ditch	Construction Cut			0.8	0.15	7.16	7.01	PH2	
128	Fill	129				Ditch fill	Disuse		5.94	1.3	0.45	7.37		PH2	
129	Cut		112, 133, 137, 258			Ditch	Ditch		5.94	1.3	0.45	7.37	6.82	PH2	
130	Fill	131				Ditch fill	Disuse			1.05	0.4	7.37	7.32	PH2	
131	Cut		110, 127, 135, 144			Ditch	Ditch		4	1.05	0.4	7.37	6.89	PH2	
132	Fill	133	136			Fill of ditch	Disuse			1.4	0.42	7.32		PH2	
133	Cut		112, 129, 137, 258			Boundary/drainage ditch	Ditch			1.4	0.42	7.32	6.88	PH2	
134	Fill	135	126			Ditch fill	Disuse		5.22	0.68	0.32	7.35		PH2	
135	Cut		110, 127, 131, 144, 268			Boundary/drainage ditch	Ditch		5.22	0.68	0.32	7.35	6.95	PH2	
136	Fill	137	133			Ditch fill	Disuse		5.73	2	0.45	7.35		PH2	
137	Cut					Boundary/drainage ditch	Ditch		5.73	2	0.45	7.35	6.83	PH2	

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
138	Fill	140				possible remains of hearth/was from coal fire	Backfill		0.6	0.26	0.04	7.32		PH4	
139	Fill	140				primary fill of rectangular cut [140], contained burnt remains of charcoal	Use		1.1	0.54	0.04	7.32		PH4	
140	Cut					Cut for rectangular feature, possibly fireplace/hearth cut	Other		1.1	0.54	0.04	7.31	7.28	PH4	
141	Fill	142				Fill of possible tree throw	Disuse		3.7	3	0.2	7.3		PH2	
142	Cut					Probable tree throw	Other	Tree throw	3.7	3	0.2	7.3	7.2	PH2	
143	Fill	144				Ditch fill	Disuse		2.7	0.5	0.1	7.19		PH2	
144	Cut		110, 127, 131, 135, 268			Boundary/drainage ditch	Ditch		2.7	0.5	0.1	7.19	7.05	PH2	
145															
146															
147															
148															
149	Fill	150				Fill of [150]	Disuse		0.4	0.24	0.32	7.41		PH2	
150	Cut					Cut	Other		0.4	0.24	0.32	7.41	7.09	PH2	
151	Fill	152				Fill of cut [152]	Disuse		0.47	0.21	0.09	7.41		PH2	
152	Cut					Possible natural feature, associated with floral or fauna activity	Other		0.47	0.21	0.09	7.41	7.32	PH2	
153	Fill	154				Fill of cut [154]	Disuse		0.22	0.16	0.09	7.41		PH2	
154	Cut					Possible natural feature, associated with floral or fauna activity	Other		0.22	0.16	0.09	7.41	7.32	PH2	
155	Fill	63	60, 61, 62			linear fill	Disuse			0.42	0.25	7.4		PH2	
156	Fill	100	99			Fill of linear	Disuse			0.45	0.16	7.35		PH2	
157	Fill	158				Fill of linear	Disuse		3.82	0.86	0.14	7.48	7.33	PH2	
158	Cut					Shallow linear	Ditch		3.82	0.86	0.14	7.48	7.25	PH2	
159	Layer					Brickearth with a greenish hue. No Sheet								PH1.3	GP3

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
160	Layer					Brickearth with an orange hue No sheet								PH1.2	GP2
161						No sheet								PH1.3	
162	Layer		163, 166		125/200, spit 1	Orange brickearth	Natural					7.24		PH1.2	GP2
163	Layer		162, 166		125/200, spit 2	Orange brickearth	Natural					7.15		PH1.2	GP2
164	Fill	165				Pit fill	Disuse		0.96	0.5	0.27	7.25		PH2	
165	Cut					Pit	Pit		0.96	0.5	0.27	7.25	6.98	PH2	
166	Layer				125/200, spit 3	Orange brickearth Base of grid sq.	Natural					7.1		PH1.2	GP2
167	Layer				120/200, spit 1	Brickearth with a greenish hue	Natural					7.27		PH1.3	GP3
168	Layer				100/200, spit 2	Orange brickearth	Natural					7.36		PH1.2	GP2
169	Layer				100/200, spit 1	Orange brickearth	Natural					7.45		PH2	GP2
170	Layer				100/200, spit 3	Orange brickearth	Natural					7.27		PH1.2	GP2
171	Layer				110/200, spit 1	Brickearth with a greenish hue	Natural					7.2		PH1.3	GP3
172	Layer				115/200, spit 1	Brickearth with a greenish hue	Natural					7.44		PH1.3	GP3
173	Layer				125/205, spit 1	Brickearth with a greenish hue	Natural					7.29		PH1.3	GP3
174	Layer				110/200, spit 2	Orange brickearth	Natural					7.15		PH1.2	GP2
175	Layer				105/200, spit 1	Brickearth with a greenish hue	Natural					7.34		PH1.3	GP3
176	Layer				105/205, spit 1	Orange brickearth	Natural					7.37		PH1.2	GP2
177	Layer				125/210, spit 1	Brickearth with a greenish hue	Natural					7.27		PH1.3	GP3
178	Layer				105/200, spit 2	Brickearth with a greenish hue	Natural					7.34		PH1.3	GP3
179	Layer				115/200, spit 2	Brickearth with a greenish hue	Natural					7.36		PH1.3	GP3
180	Layer				110/200, spit 3	Orange brickearth	Natural					7.08		PH1.2	GP2
181	Layer				125/205, spit 2	Orange brickearth	Natural					7.22		PH1.2	GP2
182	Layer				105/200, spit 3	Orange brickearth	Natural					7.29		PH1.2	GP2
183	Layer				125/210, spit 2	Brickearth with a greenish hue	Natural					7.22		PH1.3	GP3
184	Layer				110/200, spit 4	Orange brickearth	Natural					7.03		PH1.2	GP2

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
185	Layer				105/205, spit 2	Orange brickearth	Natural					7.32		PH1.2	GP2
186	Layer				105/205, spit 4	Orange brickearth	Natural					7.07		PH1.2	GP2
187	Layer				110/200, spit 5	Orange brickearth	Natural					6.97		PH1.2	GP2
188	Layer				105/205, spit 3	Orange brickearth	Natural					7.29		PH1.2	GP2
189	Layer				125/205, spit 3	Orange brickearth	Natural					7.16		PH1.2	GP2
190	Layer				125/205, spit 3	Brickearth with a greenish hue. Base of grid sq.	Natural					7.16	7.12	PH1.3	GP3
191	Layer				100/200, spit 3	Orange brickearth	Natural					7.18		PH1.2	GP2
192	Layer				100/200, spit 5	Orange brickearth	Natural					7.12		PH1.2	GP2
193	Layer				100/200, spit 6	Orange brickearth	Natural					7.07		PH1.2	GP2
194	Layer				115/200, spit 3	Brickearth with a greenish hue	Natural					7.35		PH1.3	GP3
195	Layer				105/200, spit 5	Orange brickearth	Natural					7.01		PH1.2	GP2
196	Layer				105/200, spit 6	Orange brickearth	Natural					6.99		PH1.2	GP2
197	Fill	216				Fill of natural feature	Natural Silting					6.94		PH1.2	GP2
198	Layer				110/200, spit 6	Orange brickearth Base of grid sq.	Natural					6.85	6.76	PH1.2	GP2
199	Layer				125/205, spit 4	Orange brickearth	Natural					7.12		PH1.2	GP2
210	Layer				100/205, spit 1	Orange brickearth	Natural					7.39		PH1.2	GP2
211	Layer				100/205, spit 2	Orange brickearth	Natural					7.34		PH1.2	GP2
212	Layer				100/200, spit 8	Orange brickearth base of grid sq.	Natural					6.96		PH1.2	GP2
213	Layer				100/205, spit 3	Orange brickearth base of grid sq.	Natural					7.24		PH1.2	GP2
214	Layer				110/205, spit 2	Brickearth with a greenish hue	Natural					7.33	7.3	PH1.3	GP3
215	Layer				100/200, spit 7	Orange brickearth	Natural					7.02		PH1.2	GP2
216	Cut				110/200, spit 5	Natural feature	Natural		1.3	0.5		6.89	6.8	PH1.2	GP2
217	Layer				110/205, spit 3	Brickearth with a greenish hue	Natural					7.33		PH1.3	GP3
218	Layer				110/205, spit 4	Orange brickearth	Natural					7.29		PH1.2	GP2
219	Layer				125/205, spit 5	Orange brickearth	Natural					7.08		PH1.2	GP2
220	Layer				105/205, spit 4	Orange brickearth	Natural					7.24		PH1.2	GP2
221	Layer				125/215, spit 1	Orange brickearth	Natural					7.31		PH1.2	GP2
222	Layer				125/215, spit 2	Orange brickearth	Natural					7.22		PH1.2	GP2
223	Layer				120/220, spit 1	Orange brickearth	Natural					7.19		PH1.2	GP2
224	Layer				115/220, spit 1	Orange brickearth	Natural					7.11		PH1.2	GP2
225	Layer				105/220, spit 1	Orange brickearth	Natural					7.38		PH1.2	GP2
226	Layer				110/205, spit 5	Orange brickearth	Natural					7.28		PH1.2	GP2
227	Layer				115/205, spit 1	Orange brickearth						7.26		PH1.2	GP2
228	Layer				125/215, spit 3	Orange brickearth	Natural					7.16		PH1.2	GP2

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
229	Layer				105/205, spit 5	Orange brickearth	Natural					7.22		PH1.2	GP2
230	Layer				115/200, spit 4	Brickearth with a greenish hue	Natural					7.28		PH1.3	GP3
231	Layer				120/215, spit 1	Alluvial brickearth with a bluish hue. Possibly from within a channel?	Alluvial					7.28			GP6
232	Layer				110/205, spit 6	Orange brickearth	Natural					7.27		PH1.2	GP2
233	Layer				120/215, spit 2	Alluvial brickearth with a bluish hue. Possibly from within a channel?	Alluvial					7.2			GP6
234	Layer				120/200, spit 2	Brickearth with a greenish hue	Natural					7.22		PH1.3	GP3
235	Layer				120/215, spit 3	Alluvial brickearth with a bluish hue within a channel?	Alluvial					7.14			GP6
236	Layer				120/215	Brickearth with a greenish hue in Section 30 and column sample <67>	Natural					7.19		PH1.3	GP3
237	Layer				120/215	Orange brickearth in Section 30 and column sample <67>	Natural					7		PH1.2	GP2
238	Layer				120/215	Orange brickearth in Section 30 and column sample <67>	Natural					6.98		PH1.2	GP2
239	Layer				120/215	Orange brickearth in Section 30 and column sample <67>	Natural					6.74		PH1.2	GP2
240	Layer				120/215	Alluvial clayey gravels in Section 30 and column sample <67>	Alluvial				0.1	6.76		PH1.1	GP1
241	Layer				120/215	Alluvial gravels in Section 30 and column sample <67>	Alluvial				0.05	6.66		PH1.1	GP1
242	Layer				120/215	Alluvial gravels in Section 30 and	Alluvial				0.13	6.62		PH1.1	GP1

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
						column sample <67>									
243	Layer				120/215	Alluvial gravels in Section 30 and column sample <67>	Alluvial					6.49	6.46	PH1.1	GP1
244	Layer				120/215, spit 4	Alluvial clay with a bluish hue. Possibly from within a channel?	Alluvial					7.09			GP6
245	Layer				120/215, spit 5	Alluvial clay with a bluish hue. Possibly from within a channel?	Alluvial					7.04			GP6
246	Layer				110/205, spit 7	Orange brickearth	Natural					7.12		PH1.2	GP2
247	Layer				115/200, spit 5	Orange brickearth	Natural					7.19		PH1.2	GP2
248	Layer				120/215, spit 6	Alluvial clay with a bluish hue. Possibly from within a channel?	Alluvial					6.97			GP6
249	Layer				120/215, spit 7	Alluvial clay with a bluish hue. Possibly from within a channel? Base of grid sq.	Alluvial					6.92			GP6
250	Layer				115/200, spit 8	Orange brickearth Base of grid sq.	Natural					7.01		PH1.2	GP2
251	Layer				115/205, spit 2	Orange brickearth	Natural					7.19		PH1.2	GP2
252	Layer				115/205, spit 3	Orange brickearth	Natural					7.13		PH1.2	GP2
253	Layer				115/205, spit 4	Orange brickearth	Natural					7.09		PH1.2	GP2
254	Layer				105/205, spit 6	Orange brickearth	Natural					7.16		PH1.2	GP2
255	Layer				115/200, spit 6	Orange brickearth Base of grid sq.	Natural					7.08		PH1.2	GP2
256	Layer				120/210, spit 1	Brickearth with a greenish hue.	Natural					7.37		PH1.3	GP3
257	Fill	258				Ditch fill	Disuse		1	0.35	0.23	7.32	7.3	PH2	
258	Cut		112, 129, 133, 137			Ditch	Ditch		1	0.35	0.23	7.32	7.09	PH2	
259	Layer				115/210, spit 1	Brickearth with a greenish hue	Natural					7.39		PH1.3	GP3
260	Layer				115/205, spit 5	Orange brickearth Base of grid sq.	Natural					7.13		PH1.2	GP2
261	Layer				115/210, spit 2	Brickearth with a greenish hue	Natural					7.32		PH1.3	GP3

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
262	Layer				120/200, spit 3	Brickearth with a greenish hue	Natural					7.15		PH1.3	GP3
263	Fill	268				Ditch fill	Disuse					7.35		PH2	
264	Layer				105/205, spit 7	Orange brickearth Base of grid sq.	Natural					7.13		PH1.2	GP2
265	Layer				115/210, spit 3	Brickearth with a greenish hue	Natural					7.29		PH1.3	GP3
266	Layer				120/210, spit 2	Brickearth with a greenish hue	Natural					7.28		PH1.3	GP3
267	Layer				115/210, spit 4	Brickearth with a greenish hue	Natural					7.2		PH1.3	GP3
268	Cut					Ditch	Ditch					7.38	7.13	PH2	
269	Layer				120/205, spit 1	Orange brickearth	Natural					7.34		PH1.2	GP2
270	Layer				120/200, spit 4	Brickearth with a greenish hue	Natural					7.1		PH1.3	GP3
271	Layer				115/215, spit 1	Orange brickearth Base of grid sq.	Natural					6.91		PH1.2	GP2
272	Layer				115/210, spit 5	Orange brickearth Base of grid sq.	Natural					7.13		PH1.2	GP2
273	Layer				105/210, spit 1	Orange brickearth	Natural					7.38		PH1.2	GP2
274	Layer				120/200, spit 5	Orange brickearth	Natural					7.13		PH1.2	GP2
275	Layer				120/205, spit 2	Orange brickearth	Natural					7.32		PH1.2	GP2
276	Layer				100/210, spit 1	Orange brickearth	Natural					7.34		PH1.2	GP2
277	Layer				110/210, spit 1	Brickearth with a greenish hue	Natural					7.37		PH1.3	GP3
278	Layer				100/210, spit 2	Orange brickearth	Natural					7.29		PH1.2	GP2
279	Layer				105/210, spit 2	Orange brickearth	Natural					7.35		PH1.2	GP2
280	Layer				120/210, spit 3	Orange brickearth	Natural					7.22		PH1.2	GP2
281	Layer				110/210, spit 2	Brickearth with a greenish hue	Natural					7.3		PH1.3	GP3
282	Layer				120/205, spit 3	Orange brickearth	Natural					7.24		PH1.2	GP2
283	Layer				105/210, spit 3	Orange brickearth	Natural					7.27		PH1.2	GP2
284	Layer				120/210, spit 4	Orange brickearth	Natural					7.15		PH1.2	GP2
285	Layer				110/210, spit 3	Brickearth with a greenish hue	Natural					7.26		PH1.3	GP3
286	Layer				120/200, spit 6	Orange brickearth Base of grid sq.	Natural					7.02		PH1.2	GP2
287	Layer				105/215, spit 1	Orange brickearth	Natural					7.39		PH1.2	GP2
288	Layer				105/210, spit 4	Orange brickearth	Natural					7.24		PH1.2	GP2
289	Layer				120/210, spit 5	Orange brickearth	Natural					7.07		PH1.2	GP2
290	Layer				120/205, spit 4	Orange brickearth	Natural					7.18		PH1.2	GP2
291	Layer				105/215, spit 2	Orange brickearth	Natural					7.33		PH1.2	GP2

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
292	Layer				110/210, spit 4	Brickearth with a greenish hue	Natural					7.22		PH1.3	GP3
293	Layer				120/210, spit 6	Orange brickearth	Natural					7		PH1.2	GP2
294	Layer				100/215, spit 1	Brickearth with a greenish hue	Natural					7.36		PH1.3	GP3
295															
296	Layer				120/205, spit 5	Orange brickearth	Natural					7.11		PH1.2	GP2
297	Layer				100/210, spit 3	Orange brickearth	Natural					7.26		PH1.2	GP2
298	Layer				110/210, spit 5	Orange brickearth Base of grid sq.	Natural					7.23		PH1.2	GP2
299	Layer				120/210, spit 7	Orange brickearth Base of grid sq.	Natural					6.95		PH1.2	GP2
300	Layer				100/210, spit 4	Orange brickearth	Natural					7.23		PH1.2	GP2
301	Layer				105/215, spit 3	Orange brickearth	Natural					7.25	7.24	PH1.2	GP2
302	Layer				120/205, spit 6	Orange brickearth Base of grid sq.	Natural					7.01		PH1.2	GP2
303	Layer				105/210, spit 5	Orange brickearth Base of grid sq.	Natural					7.15		PH1.2	GP2
304	Layer				100/210, spit 5	Orange brickearth	Natural					7.16		PH1.2	GP2
305	Layer				110/215, spit 1	Orange brickearth	Natural					7.38		PH1.2	GP2
306	Layer				100/210, spit 6	Orange brickearth Base of grid sq.	Natural					7.11		PH1.2	GP2
307	Layer				100/215, spit 2	Orange brickearth	Natural					7.28		PH1.2	GP2
308	Layer				105/215, spit 4	Orange brickearth	Natural					7.24		PH1.2	GP2
309	Layer				110/215, spit 2	Orange brickearth	Natural					7.29		PH1.2	GP2
310	Layer				100/215, spit 3	Orange brickearth	Natural					7.2		PH1.2	GP2
311	Layer				110/215, spit 3	Orange brickearth	Natural					7.24		PH1.2	GP2
312	Layer				100/215, spit 4	Orange brickearth	Natural					7.15		PH1.2	GP2
313	Layer				100/215, spit 5	Orange brickearth Base of grid sq.	Natural					7.09		PH1.2	GP2
314	Layer				110/215, spit 4	Orange brickearth Base of grid sq.	Natural					7.19		PH1.2	GP2
315	Layer				105/215, spit 5	Orange brickearth	Natural					7.17		PH1.2	GP2
316	Layer				110/215, spit 6	Orange brickearth Base of grid sq.	Natural					7.13		PH1.2	GP2
317	Layer				109/204, spit 1	Orange brickearth	Natural					7.4		PH1.2	GP2
318	Layer				120/211, spit 1	Orange brickearth	Natural					7.33		PH1.2	GP2
319	Layer				105/204, spit 1	Brickearth with a greenish hue	Natural					7.39		PH1.3	GP3

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
320	Layer				121/208, spit 1	Brickearth with a greenish hue	Natural					7.31		PH1.3	GP3
321	Layer				119/204, spit 1	Brickearth with a greenish hue	Natural					7.38		PH1.3	GP3
322	Layer				pit 114/201, spit 1	Brickearth with a greenish hue	Natural					7.4		PH1.3	GP3
323	Layer				114/199, spit 1	Orange brickearth	Natural					7.32		PH1.2	GP2
324	Layer				120/211, spit 2	Orange brickearth	Natural					7.27		PH1.2	GP2
325	Layer		330, 334, 340, 344, 360		105/204, spit 7	Orange brickearth (This is sloped but is overlain by deposits of greenish brickearth, that is why the level appears higher than deposit [360])	Natural					7.37		PH1.2	GP2
326	Layer				121/208, spit 2	Brickearth with a greenish hue	Natural					7.25		PH1.3	GP3
327	Layer				120/211, spit 3	Orange brickearth	Natural					7.22		PH1.2	GP2
328	Layer				120/199, spit 2	Orange brickearth	Natural					7.29		PH1.2	GP2
329	Layer				114/201, spit 2	Orange brickearth	Natural					7.34		PH1.2	GP2
330	Layer				105/204, spit 2	Brickearth with a greenish hue	Natural					7.33		PH1.3	GP3
331	Layer				121/208, spit 3	Brickearth with a greenish hue	Natural					7.21		PH1.3	GP3
332	Layer				119/204, spit 2	Brickearth with a greenish hue	Natural					7.24		PH1.3	GP3
333	Layer				120/211, spit 4	Orange brickearth	Natural							PH1.2	GP2
334	Layer				105/204, spit 3	Brickearth with a greenish hue	Natural					7.24		PH1.3	GP3
335	Layer				114/201, spit 3	Orange brickearth	Natural					7.3		PH1.2	GP2
336	Layer				114/199, spit 2	Orange brickearth	Natural					7.28		PH1.2	GP2
337	Layer				121/208, spit 4	Brickearth with a greenish hue	Natural					7.14		PH1.3	GP3
338	Layer				119/206, spit 1	Brickearth with a greenish hue	Natural					7.35		PH1.3	GP3
339	Layer				120/211, spit 5	Orange brickearth Base of grid sq.	Natural					7.14		PH1.2	GP2
340	Layer				105/204, spit 4	Brickearth with a greenish hue	Natural					7.19		PH1.3	GP3
341	Layer				121/208, spit 5	Orange brickearth Base of grid sq.	Natural					7.06		PH1.2	GP2

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
342	Layer				105/206, spit 1	Orange brickearth	Natural					7.33		PH1.2	GP2
343	Layer				114/201, spit 4	Orange brickearth Base of grid sq.	Natural					7.25		PH1.2	GP2
344	Layer				105/204, spit 5	Brickearth with a greenish hue	Natural					7.14		PH1.3	GP3
345	Layer				115/202, spit 1	Brickearth with a greenish hue	Natural					7.39		PH1.3	GP3
346	Layer				120/199, spit 1	Orange brickearth	Natural					7.28		PH1.2	GP2
347	Layer				121/210, spit 1	Brickearth with a greenish hue	Natural					7.32		PH1.3	GP3
348	Layer				115/202, spit 2	Brickearth with a greenish hue	Natural					7.39		PH1.3	GP3
349	Layer				105/204, spit 8	Orange brickearth	Natural					7.32		PH1.2	GP2
350	Layer				109/204, spit 2	Orange brickearth	Natural					7.34		PH1.2	GP2
351	Layer				119/204, spit 3	Brickearth with a greenish hue	Natural					7.16		PH1.3	GP3
352	Layer				119/206, spit 2	Brickearth with a greenish hue	Natural					7.3		PH1.3	GP3
353	Layer				117/200, spit 1	Brickearth with a greenish hue	Natural					7.41		PH1.3	GP3
354	Layer				121/210, spit 2	Orange brickearth	Natural					7.26		PH1.2	GP2
355	Layer				114/199, spit 3	Orange brickearth	Natural					7.22		PH1.2	GP2
356	Layer				105/204, spit 9	Orange brickearth Base of grid sq.	Natural					7.21		PH1.2	GP2
357	Layer				121/210, spit 3	Orange brickearth	Natural					7.21		PH1.2	GP2
358	Layer				119/206, spit 3	Brickearth with a greenish hue	Natural					7.28		PH1.3	GP3
359	Layer				109/204, spit 3	Orange brickearth	Natural					7.29		PH1.2	GP2
360	Layer				105/204, spit 6	Brickearth with a greenish hue	Natural					7.06		PH1.3	GP3
361	Layer				121/210, spit 4	Orange brickearth	Natural					7.14		PH1.2	GP2
362	Layer				105/206, spit 2	Orange brickearth	Natural					7.18		PH1.2	GP2
363	Layer				115/202, spit 3	Brickearth with a greenish hue	Natural					7.34		PH1.3	GP3
364	Layer				121/210, spit 5	Orange brickearth Base of grid sq.	Natural					7.07		PH1.2	GP2
365	Layer				119/206, spit 4	Orange brickearth	Natural					7.23		PH1.2	
366	Layer				119/204, spit 4	Orange brickearth	Natural					7.06		PH1.2	GP2
367	Layer				106/205, spit 1	Orange brickearth	Natural					7.37		PH1.2	GP2

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
368	Layer				119/206, spit 5	Orange brickearth Base of grid sq.	Natural					7.16		PH1.2	GP2
369	Layer				117/200, spit 2	Brickearth with a greenish hue	Natural					7.39		PH1.3	GP3
370	Layer				105/206, spit 3	Orange brickearth	Natural					7.16		PH1.2	GP2
371	Layer				120/213, spit 1	Brickearth with a greenish hue	Natural					7.31		PH1.3	GP3
372	Layer				120/199, spit 3	Orange brickearth	Natural					7.19		PH1.2	GP2
373	Layer				109/204, spit 4	Orange brickearth	Natural					7.29		PH1.2	GP2
374	Layer				115/202, spit 4	Brickearth with a greenish hue	Natural					7.32		PH1.3	GP3
375	Layer				119/204, spit 5	Orange brickearth Base of grid sq.	Natural					7		PH1.2	GP2
376	Layer				120/213, spit 2	Orange brickearth	Natural					7.23		PH1.2	GP2
377	Layer				105/206, spit 4	Orange brickearth	Natural					7.1		PH1.2	GP2
378	Layer				117/200, spit 3	Brickearth with a greenish hue	Natural					7.34		PH1.3	GP3
379	Layer				105/206, spit 5	Orange brickearth Base of grid sq.	Natural					7.03		PH1.2	GP2
380	Layer				106/205, spit 2	Orange brickearth	Natural					7.27		PH1.2	GP2
381	Layer				114/199, spit 4	Orange brickearth	Natural					7.16		PH1.2	GP2
382	Layer				115/202, spit 5	Brickearth with a greenish hue	Natural					7.32		PH1.3	GP3
383	Layer				106/205, spit 3	Orange brickearth	Natural					7.23		PH1.2	GP2
384	Layer				115/202, spit 6	Brickearth with a greenish hue	Natural					7.28		PH1.3	GP3
385	Layer				115/202, spit 7	Orange brickearth	Natural					7.24		PH1.2	GP2
386	Layer				120/213, spit 3	Orange brickearth	Natural					7.17		PH1.2	GP2
387	Layer				106/205, spit 4	Orange brickearth Base of grid sq.	Natural					7.15		PH1.2	GP2
388	Layer				120/199, spit 4	Orange brickearth	Natural					7.28		PH1.2	GP2
389	Layer				120/199, spit 5	Orange brickearth	Natural					7.17		PH1.2	GP2
390	Layer				106/207, spit 1	Alluvial brickearth with a bluish hue	Natural					7.36			GP5
391	Layer				117/200, spit 4	Brickearth with a greenish hue	Natural					7.3		PH1.3	GP3
392	Layer				115/202, spit 8	Orange brickearth	Natural					7.19		PH1.2	GP2

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
393	Layer				114/199, spit 5	Orange brickearth	Natural					7.11		PH1.2	GP2
394	Layer				120/213, spit 4	Orange brickearth Base of grid sq.	Natural					7.18		PH1.2	GP2
395	Layer				115/202, spit 9	Orange brickearth Base of grid sq.	Natural					7.15		PH1.2	GP2
396	Layer				109/206, spit 1	Brickearth	Natural					7.34		PH1.3	
397	Layer				117/202, spit 1	Brickearth with a greenish hue	Natural					7.35		PH1.3	GP3
398	Layer				109/204, spit 5	Orange brickearth	Natural					7.24		PH1.2	GP2
399	Layer				117/200, spit 5	Brickearth with a greenish hue	Natural					7.25		PH1.3	GP3
400	Layer				106/207, spit 2	Alluvial brickearth with a bluish hue	Alluvial					7.27			GP5
401	Layer				120/199, spit 6	Orange brickearth								PH1.2	GP2
402	Layer				117/202, spit 2	Brickearth with a greenish hue	Natural					7.31		PH1.3	GP3
403	Layer				109/204, spit 6	Orange brickearth	Natural					7.25		PH1.2	GP2
404	Layer				109/206, spit 2	Brickearth with a greenish hue	Natural					7.3		PH1.3	GP3
405	Layer				109/206, spit 3	Brickearth with a greenish hue	Natural					7.23		PH1.3	GP3
406	Layer				109/204, spit 7	Orange brickearth	Natural					7.31		PH1.2	GP2
407	Layer				114/199, spit 6	Orange brickearth Base of grid sq.	Natural					7.07		PH1.2	GP2
408	Layer				120/199, spit 7	Orange brickearth	Natural					7.14		PH1.2	GP2
409	Layer				106/207, spit 3	Alluvial brickearth with a bluish hue	Alluvial					7.22			GP5
410	Layer				117/200, spit 6	Brickearth with a greenish hue	Natural					7.2		PH1.3	GP3
411	Layer				117/202, spit 3	Orange brickearth	Natural					7.3		PH1.2	GP2
412	Layer				109/206, spit 4	Orange brickearth	Natural					7.26		PH1.2	GP2
413	Layer				120/212, spit 1	Orange brickearth	Natural					7.31		PH1.2	GP2
414	Layer				120/212, spit 2	Orange brickearth Base of grid sq.	Natural					7.28		PH1.2	GP2
415	Layer				109/204, spit 8	Orange brickearth	Natural					7.25		PH1.2	GP2
416	Layer				109/206, spit 5	Orange brickearth	Natural					7.22		PH1.2	GP2
417	Layer				117/202, spit 4	Orange brickearth	Natural					7.25		PH1.2	GP2
418	Layer				109/206, spit 6	Orange brickearth Base of grid sq.	Natural					7.17		PH1.2	GP2

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
419	Layer				109/204, spit 9	Orange brickearth	Natural					7.22		PH1.2	GP2
420	Layer				120/199, spit 8	Orange brickearth Base of grid sq.	Natural					7.08		PH1.2	GP2
421	Layer				117/200, spit 7	Brickearth with a greenish hue	Natural					7.15		PH1.3	GP3
422	Layer					Orange greyish brown, clay silt subsoil	Other				0.13	7.88	7.82	PH3	GP4
423	Layer					Dark orange brown, clay silt, subsoil	Other				0.22	7.77	7.7	PH3	GP4
424	Layer					Mid Grey brown, clay silt, subsoil	Other				0.2	7.6	7.49	PH3	GP4
425	Layer					Brickearth with a greenish hue	Other				0.15	7.42	7.4	PH1.3	GP3
426	Layer					Mid brownish grey, silty clay, subsoil	Natural				0.22	7.94	7.81	PH3	GP4
427	Layer					Mid greyish brown, silty clay, subsoil	Natural				0.33	7.78	7.72	PH3	GP4
428	Layer					mid reddish brown, silty clay, subsoil					0.5	7.7	7.4	PH3	GP4
429	Layer					Brickearth with a greenish hue	Natural				0.1	7.29	7.09	PH1.3	GP3
430	Layer				106/207, spit 4	Alluvial brickearth with a bluish hue	Alluvial					7.16			GP5
431	Layer				117/202, spit 5	Orange brickearth	Natural					7.25		PH1.2	GP2
432	Layer				109/205, spit 1	Brickearth with a greenish hue	Natural					7.33		PH1.3	GP3
433	Layer				106/207, spit 5	Alluvial brickearth with a bluish hue	Natural					7.12			GP5
434	Layer				119/199, spit 1	Orange brickearth	Natural					7.36		PH1.2	GP2
435	Layer				109/205, spit 2	Orange brickearth	Natural					7.28		PH1.2	GP2
436	Layer				109/204, spit 10	Orange brickearth	Natural					7.18		PH1.2	GP2
437	Layer				117/202, spit 6	Orange brickearth	Natural					7.2		PH1.2	GP2
438	Fill	439				Fill of 20th century cut	Backfill		0.7	0.3	0.09	7.23		PH5	
439	Cut					modern cut feature	Other		0.7	0.3	0.09	7.23	7.14	PH5	
440	Layer				121/199, spit 1	Orange brickearth	Natural					7.19		PH1.2	GP2
441	Layer				109/204, spit 11	Orange brickearth	Natural					7.13		PH1.2	GP2
442	Layer				106/207, spit 6	Alluvial brickearth with a bluish hue	Alluvial					7.18			GP5

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
443	Layer				109/205, spit 3	Orange brickearth	Natural					7.24		PH1.2	GP2
444	Layer				117/200, spit 8	Brickearth with a greenish hue	Natural					7.07		PH1.3	GP3
445	Layer				109/205, spit 4	Orange brickearth Base of grid sq.	Natural					7.18		PH1.2	GP2
446	Layer				109/204, spit 12	Orange brickearth Base of grid sq.	Natural					7.08		PH1.2	GP2
447	Layer				119/199, spit 2	Orange brickearth	Natural					7.32		PH1.2	GP2
448	Layer				106/207, spit 7	Alluvial brickearth with a bluish hue	Natural					7.11			GP5
449	Layer				116/202, spit 1	Brickearth with a greenish hue	Natural					7.38		PH1.3	GP3
450	Layer				115/199, spit 1	Orange brickearth Seen in 1m test pit	Natural					7.44		PH1.2	GP2
451	Layer				106/204, spit 1	Brickearth with a greenish hue	Natural					7.39		PH1.3	GP3
452	Layer				116/202, spit 2	Brickearth with a greenish hue	Natural					7.36		PH1.3	GP3
453	Layer				117/202, spit 7	Orange brickearth Base of grid sq.	Natural					7.15		PH1.2	GP2
454	Layer				121/199, spit 2	Orange brickearth	Natural					7.19		PH1.2	GP2
455	Layer				118/202, spit 1	Brickearth with a greenish hue	Natural					7.38		PH1.3	GP3
456	Layer				106/204, spit 2	Orange brickearth	Natural					7.32		PH1.2	GP2
457	Layer				116/202, spit 3	Brickearth with a greenish hue	Natural					7.34		PH1.3	GP3
458	Layer				106/207, spit 8	Alluvial brickearth with a bluish hue	Natural					7.04			GP5
459	Layer				115/199, spit 2	Orange brickearth	Natural					7.35		PH1.2	GP2
460	Layer				121/199, spit 3	Orange brickearth	Natural					7.15		PH1.2	GP2
461	Layer				119/199, spit 3	Orange brickearth	Natural					7.29		PH1.2	GP2
462	Layer				121/199, spit 4	Orange brickearth Base of grid sq.	Natural					7.17		PH1.2	GP2
463	Layer				108/204, spit 1	Orange brickearth	Natural					7.37		PH1.2	GP2
464	Layer				108/204, spit 2	Orange brickearth	Natural					7.32		PH1.2	GP2
465	Layer				106/204, spit 3	Orange brickearth	Natural					7.26		PH1.2	GP2
466	Layer				117/200, spit 9	Orange brickearth	Natural					7.28		PH1.2	GP2
467	Layer				120/217, spit 1	Alluvial brickearth with a bluish hue	Alluvial					7.2			GP7

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
468	Layer				120/217, spit 2	Alluvial brickearth with a bluish hue	Alluvial					7.05			GP7
469	Layer				106/207, spit 9	Alluvial brickearth with a bluish hue	Alluvial					7.02			GP5
470	Layer				118/202, spit 2	Brickearth with a greenish hue	Natural					7.32		PH1.3	GP3
471	Layer														
472	Layer				106/204, spit 4	Orange brickearth	Natural					7.21		PH1.2	GP2
473	Layer				120/204, spit 1	Orange brickearth	Natural					7.38		PH1.2	GP2
474	Layer				121/200, spit 1	Orange brickearth	Natural					7.24		PH1.2	GP2
475	Void														
476	Void														
477	Void														
478	Void														
479	Void														
480	Void														
481	Void														
482	Void														
483	Void														
484	Void														
485	Layer				117/200, spit 10	Orange brickearth	Natural							PH1.2	GP2
486	Layer				119/199, spit 4	Orange brickearth	Natural					7.24		PH1.2	GP2
487	Layer				106/207, spit 10	Alluvial brickearth with a bluish hue	Alluvial					6.99			GP5
488	Layer				116/202, spit 4	Orange brickearth	Natural					7.22		PH1.2	GP2
489	Layer				121/200, spit 1	Orange brickearth	Natural					7.21		PH1.2	GP2
490	Layer				118/202, spit 3	Brickearth with a greenish hue	Natural					7.29		PH1.3	GP3
491	Layer				106/207, spit 11	Alluvial brickearth with a bluish hue	Natural					6.94			GP5
492	Layer				106/204, spit 5	Orange brickearth	Natural					7.15		PH1.2	GP2
493	Layer				120/204, spit 2	Orange brickearth	Natural					7.33		PH1.2	GP2
494	Layer				115/199, spit 3	Orange brickearth	Natural					7.29		PH1.2	GP2
495	Layer				119/199, spit 5	Orange brickearth	Natural					7.18		PH1.2	GP2
496	Layer				106/204, spit 6	Orange brickearth Base of grid sq.	Natural					7.08		PH1.2	GP2
497	Layer				116/202, spit 5	Orange brickearth	Natural					7.22		PH1.2	GP2

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
498	Layer				121/200, spit 3	Orange brickearth						7.15		PH1.2	GP2
499	Layer				118/202, spit 4	Brickearth with a greenish hue	Natural					7.21		PH1.3	GP3
500	Layer				120/204, spit 3	Brickearth with a greenish hue	Natural					7.26		PH1.2	GP3
501	Layer				107/204, spit 1	Brickearth with a greenish hue	Natural					7.37		PH1.3	GP3
502	Layer				121/200, spit 4	Orange brickearth	Natural					7.11		PH1.2	GP2
503	Layer				106/207, spit 12	Alluvial brickearth with a bluish hue. Base of grid sq.	Natural					7			GP5
504	Layer				119/199, spit 6	Orange brickearth Base of grid sq.	Natural					7.09	7.03	PH1.2	GP2
505	Layer				121/200, spit 5	Orange brickearth	Natural					7.15		PH1.2	GP2
506	Layer				121/200, spit 6	Orange brickearth	Natural					7.1		PH1.2	GP2
507	Layer				107/204, spit 2	Orange brickearth	Natural					7.33		PH1.2	GP2
508	Layer				116/202, spit 6	Orange brickearth	Natural					7.22		PH1.2	GP2
509	Layer				120/204, spit 4	Orange brickearth	Natural					7.26		PH1.2	GP2
510	Layer				118/202, spit 5	Brickearth with a greenish hue	Natural					7.18		PH1.3	GP3
511	Layer				107/204, spit 3	Orange brickearth	Natural					7.26		PH1.2	GP2
512					119/200, spit 1	Brickearth with a greenish hue	Natural					7.33		PH1.3	GP3
513	Fill	514				Fill of tree throw or root	Disuse		0.44	0.18	0.09	7.41		PH2	
514	Cut					Tree throw or root	Natural		0.44	0.15	0.09	7.41	7.32	PH2	
515	Void														
516	Layer				116/202, spit 7	Orange brickearth	Natural					7.17		PH1.2	GP2
517	Layer				115/199, spit 4	Orange brickearth Base of grid sq.	Natural					7.21		PH1.2	GP2
518	Layer				116/200, spit 1	Brickearth with a greenish hue	Natural					7.37		PH1.3	GP3
519	Layer				116/200, spit 2	Brickearth with a greenish hue	Natural					7.37		PH1.3	GP3
520	Layer				107/204, spit 4	Orange brickearth	Natural					7.22		PH1.2	GP2
521	Layer				116/202, spit 8	Orange brickearth Base of grid sq.	Natural					7.09		PH1.2	GP2
522	Layer				120/204, spit 5	Orange brickearth	Natural					7.21		PH1.2	GP2
523	Layer				118/202, spit 6	Brickearth with a greenish hue. Base of grid sq.	Natural					7.15		PH1.3	GP3

Context	Type	Fill of	Equals	Tr	Grid Sq	Interp.	Category	Category2	Length	Width	Depth	Levels high	Levels low	Phase	Group
524	Layer				119/200, spit 2	Brickearth with a greenish hue	Natural					7.28		PH1.3	GP3
525	Layer				107/204, spit 5	Orange brickearth	Natural					7.17		PH1.2	GP2
526	Layer				119/200, spit 3	Orange brickearth	Natural					7.23		PH1.2	GP2
527	Layer				107/204, spit 6	Orange brickearth Base of grid sq.	Natural					7.11		PH1.2	GP2
528	Layer				116/200, spit 3	Brickearth with a greenish hue	Natural					7.35		PH1.3	GP3
529	Layer				119/200, spit 4	Orange brickearth Base of grid sq.	Natural					7.19		PH1.2	GP2
530	Layer				120/204 spit 6	Orange brickearth Base of grid sq.	Natural					7.19		PH1.2	GP2
531	Layer				116/200, spit 4	Brickearth with a greenish hue	Natural					7.22		PH1.3	GP3
532	Layer				108/204 spit 3	Orange brickearth Base of grid sq.	Natural					7.28		PH1.2	GP2
533	Layer				117/200 spit 11	Orange brickearth Base of grid sq.	Natural					7.15		PH1.2	GP2
534	Layer		537		116/200, spit 5	Brickearth with a greenish hue. Base of grid sq.	Natural					7.16		PH1.3	GP3
535	Layer				121/200 spit 7	Orange brickearth Base of grid sq.	Natural					7.02		PH1.2	GP2
536	Layer				108/204 spit 4	Orange brickearth Base of grid sq.	Natural							PH1.2	GP2
537	Layer		534		116/200, spit 5	Brickearth with a greenish hue. Base of grid sq.	Natural					7.16		PH1.3	GP3
538	Layer				110/205, spit 1	Brickearth with a greenish hue	Natural					7.34		PH1.3	GP3
539	Fill	540		TP3		Natural alluvial gravels, indistinguishable from [37] and the other gravel deposits	Natural Silting				0.4	5.46	5.06	PH1.1	GP11
540	Cut			TP3		Possible palaeochannel	Other	Palaeochannel			0.4	5.46	5.06	PH1.1	GP11

APPENDIX 2: LITHICS ASSESSMENT

Lynden P. Cooper

Introduction

The lithics from the excavation of an identified Mesolithic assemblage preserved within superficial deposits of brickearth was subject to an assessment. The report will include quantification and preliminary typo-technological classification of the excavated lithic assemblage across three defined scatters and other contexts. The intra-site stratigraphic integrity, spatial patterning and vertical disposition of the lithics are examined including a detailed pilot study of representative squares from each nucleated scatter. The discussion includes an assessment of the chrono-cultural position of the assemblage within the present understanding of the British Mesolithic, and the potential of the site assemblage to provide a significant contribution to regional and national research agenda.

The circumstances of discovery and details of the site investigation stages are presented above in the main body of the assessment and updated project design report.

The Mesolithic lithic scatters were preserved by record, being investigated in a systematic way with initial test pit evaluation at c. 5m interval and subsequent excavations subject to comparable 'box and spit' methods: 1 x 1m planum excavations of grid square spits, units some 50mm thick. Each excavated spit was assigned a unique context number. On-site GPS allowed 3-dimensional recording of all worked and burnt lithics of $\geq 10\text{mm}$, and recovery of all spoil from each 1 x 1m square for subsequent wet-sieving to retrieve lithics including micro-debitage (down to a 2mm sieved fraction).

Assessment Methods

A preliminary assessment of the assemblage was undertaken in 2021, comprising quantification and broad characterization of a sample of the hand-recovered lithics and quantification of material from the wet-sieving programme (Cooper 2021). This report supersedes all such qualitative and quantification statements. An appropriate assessment methodology was proposed, and with slight adjustments, this has been followed.

The majority of worked lithics described herein derive from the manual recovery of finds that were logged on site with individual small finds register numbers for pieces $\geq 10\text{mm}$ across. All SF lithics have 3-dimensional data from on-site GPS survey. Registration of these finds (prefixed SF) also included the context number, site grid co-ordinates and spit numbers. These were checked at assessment for record integrity between individual finds bag transcripts and index. All data were entered onto a spreadsheet allowing the update of the site database. Some adjustment of logging and bag transcription errors was necessary and data notes of such were added to the spreadsheet.

For assessment worked SF lithics were categorized into a classification hierarchy:

- *Material* (Flint: Non-flint lithics)
- *Class* (Core: Core Dressing: Debitage: Tool: Tool Debitage)
- *Type* (e.g. for tools, Scraper; fordebitage, Flake etc)

- *Sub-type (e.g. for scrapers, End of Blade)*
- *Fragment modifier (Complete: Proximal: Mesial: Distal)*
- *Burnt (on an ordinal scale of 0-3, with 0 being unburnt and 3 being heavily burnt)*

Also recorded on occasion, where necessary, were technological comments, break refits and data notes.

The lithic typological and technological descriptions followed those commonly used in the UK (e.g. Healy 1988; Inizan *et al.* 1999) with specific nuanced classification following Jacobi (1978) and Reynier (2005) for Early Mesolithic technology of the UK.

It should be noted that a cautious retrieval policy was adopted during the fieldwork such that a proportion of lithics with GPS records, some 302 pieces, was subsequently identified as natural/unworked, mostly cryo-clastic fractured flint. Such flint can be a minor component of brickearth, probably introduced from small-scale erosion of the Kempton Park gravels. The SF finds in the appendix do not include these records, nor any void SF numbers where finds were missing or subject to (occasional) duplicate GPS logging.

The worked and burnt lithic material recovered from the wet-sieved coarse fractions was scanned to identify any tools, tool debitage (manufacturing by-products) or other diagnostic technological traits (Appendix L02). The debitage from approximately one third of the samples was categorized to class and type, and if burnt or not. A simple differentiation of quantified material by size class is adopted here i.e. larger pieces ($\geq 10\text{mm}$ across) vs. micro-debitage ($< 10\text{mm}$ across). However, it should be noted that the larger fractions were mostly debitage of smaller flakes, fragments of such or small shatter.

Stratigraphic Context

The lithic-bearing deposit was identified as Enfield Silt Member 'brickearth' as mapped in this area by BGS and identified at the site from the geo-technical data used by QUEST in the archaeological deposit model for the Tottenham Hale Centre (Young 2019). A wider geo-archaeological consideration and mapping of the superficial deposits of the lower Lea Valley has been undertaken by Corcoran *et al.* (2011 see Map 3, Tottenham to Leyton). The brickearth is widely acknowledged as being an aeolian, periglacial deposit of wind-blown silt and clay of Late Devensian period (MIS2) that has been substantially reworked by colluvial/alluvial processes. Its emplacement occurred towards the end of the Late Glacial but with possible aggradation continuing into the Early Holocene (*ibid*).

The working hypotheses to account for the Mesolithic site formation may be framed as:

1. The lithics were in secondary deposits, transported downslope as part of the brickearth deposit formation processes, that is, from colluvial and/or alluvial aggradation in the Early Holocene.
2. The lithics were deposited at the site but later brickearth aggradation processes have disturbed the flints laterally.
3. The lithics were originally deposited on a ground surface immediately above the brickearth horizon with some near-contemporary shallow burial of the surface lithic scatters by low

energy colluvial/alluvial silts, a final aggradation of the Enfield Silts in the Holocene. Some movement of lithics in the vertical plane may have occurred through bioturbation.

4. The lithics were originally deposited on a ground surface immediately above the brickearth horizon and were incorporated into the brickearth deposit by taphonomic processes of post-depositional natural origin, mostly bioturbation by invertebrates.

Local evidence for re-working of the Enfield Silts brickearth was noted by Young (2018, Table 2) where modern roots were noted in the uppermost horizon, while worm and root hollows were observed throughout the vertical profile even down to the boundary with the Kempton Park Gravel. Young also noted that the brickearth became stiffer with depth presumably a reflection of the greater reworking of the uppermost deposit profile. These observations lend some support to hypotheses 3 and 4. For these two latter scenarios the lack of a palaeosol may be attributed to bioturbation of a thin, undeveloped Early Holocene soil, and/or agricultural truncation.

Spatial Definition

Three distinct lithic concentrations were identified at the test pit evaluation stage and these areas were subject to further excavation of adjacent metre squares. Preliminary plotting of lithic finds distributions for this assessment has confirmed the pattern and three scatters are now identified and nominated as Scatters A, B and C (Figure 4):

- Scatter A comprises ten contiguous excavated grid squares, incorporating the initial 5m-interval grid squares 105/205 and 110/205. The scatter was truncated to the south by a continuous modern foundation, although the lack of any surface brickearth finds to the south of this suggests the scatter did not continue much further in this direction. The scatter was also truncated substantially to east and west by modern stanchions.
- Scatter B comprises twenty excavated grid squares incorporating the initial 5m-interval grid squares 115/200, 120/200 and 120/205. The scatter was truncated and divided into four blocks by modern foundations that crossed the area. The NW-SE aligned medieval ditch (Ditch 1 Gp.9) also truncated the NW extent of the scatter. The high degree of spatial separation by these truncating features may have masked some component (sub-)scatters within this large area. The scatter extended to and beyond the southern limit of excavation.
- Scatter C comprises seven excavated grid squares incorporating initial 5m-interval grid square 120/210. The scatter was also truncated to the south-east by the medieval ditch (Ditch 1, Gp. 9) and a modern stanchion to the south.

The three scatters also include finds from the surface of the brickearth, where they were within 1m of any of the excavation squares of the defined scatters.

The remaining stratified lithics were recovered from outlying test pit excavations or from the exposed surface of the brickearth and these have been grouped as the 'Peripheral Scatter'.

Vertical Disposition of the Scatters

A simple model of finds disposition in the deposit profile is presented in a graph (Figure L01), plotting the SF lithic count by spit for Scatters A, B & C. Of course, this is biased to the larger pieces ($\geq 10\text{mm}$ across) from the manual recovery of lithics and assumes some parity of spits across the site. This assumption is not unreasonable given the flat surface topography of the brickearth deposit at the site.

There is a uni-modal distribution for Scatters A and B with a peak for Spit 2 whereas Scatter C has a peak in Spit 1 although this is only marginally more than Spit 2. The reduced quantity of Spit 1 finds from Scatters A and B may indicate one or more taphonomic processes:

- the original surface scatter was covered by shallow alluvial/colluvial silt as a final process of brickearth aggradation in the Early Holocene (see hypothesis 3 above).
- The bioturbation of the surface scatter caused such a unimodal distribution.
- There may have been some loss of surface finds from mechanical clearance and/or initial trowel cleaning of the brickearth during the SMS works.

Notwithstanding these possible processes, the vast majority of the SF items are located in the upper four spits i.e. within the upper 200mm depth of the brickearth deposit: 81.6% for Scatter A; 87.7% for Scatter B; and, for Scatter C some 97.3%.

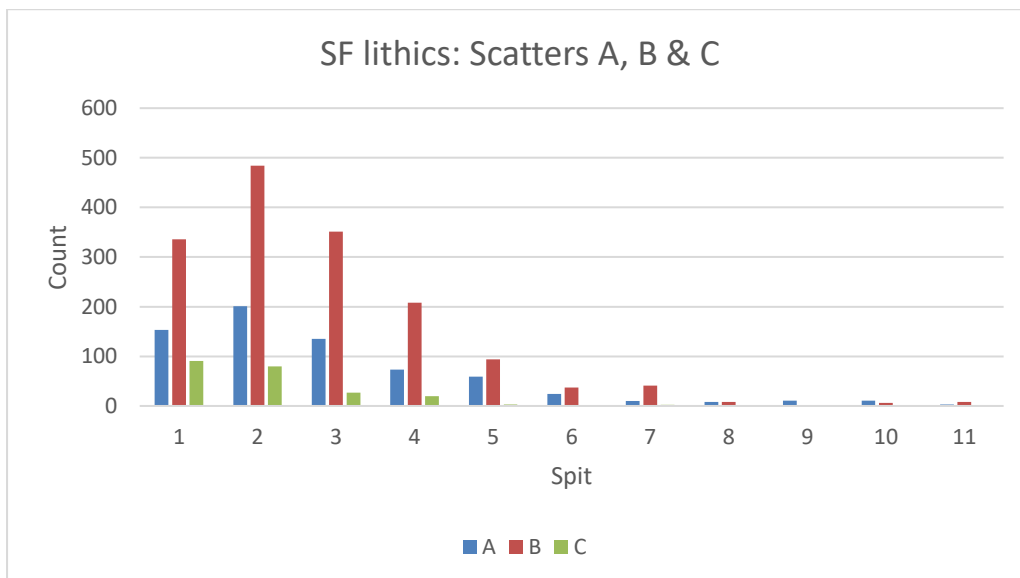
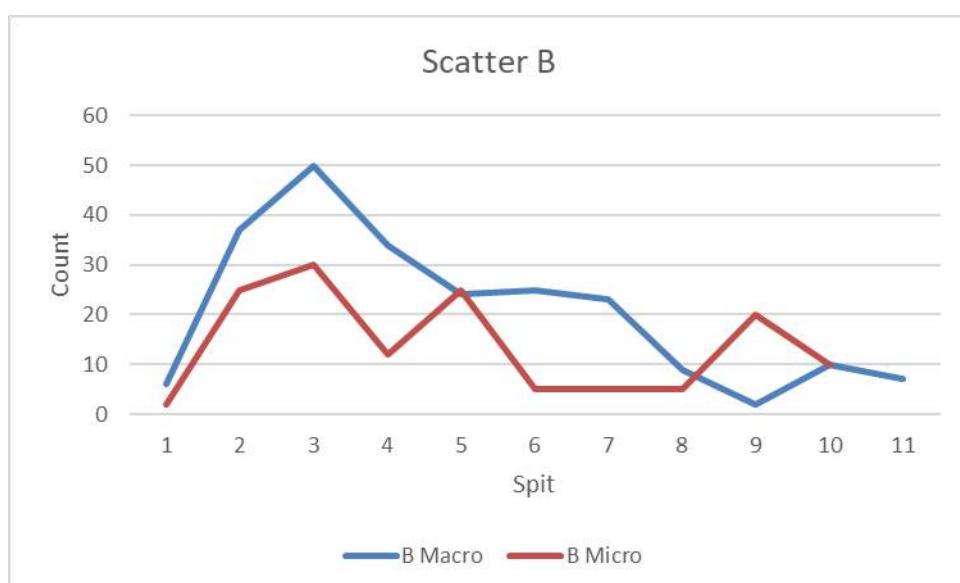
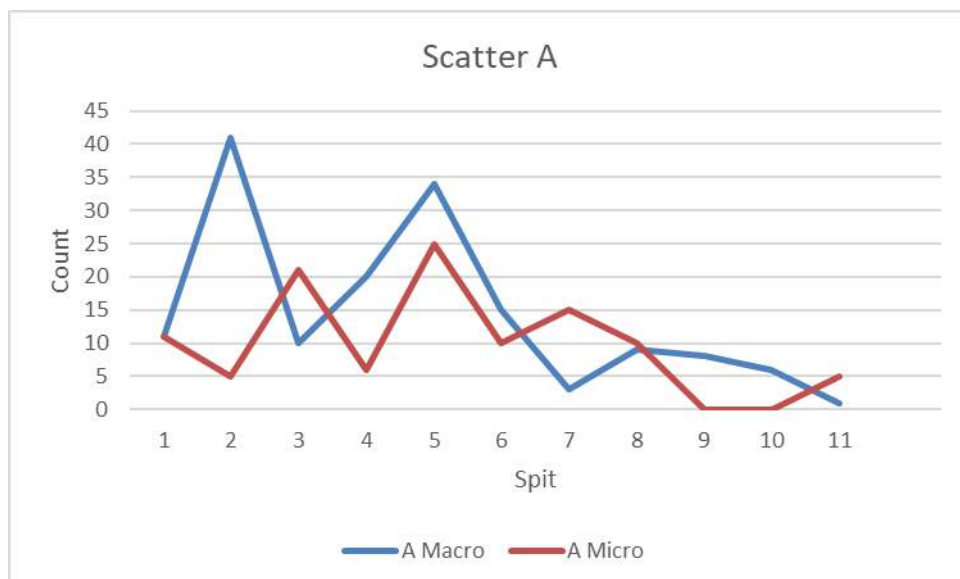
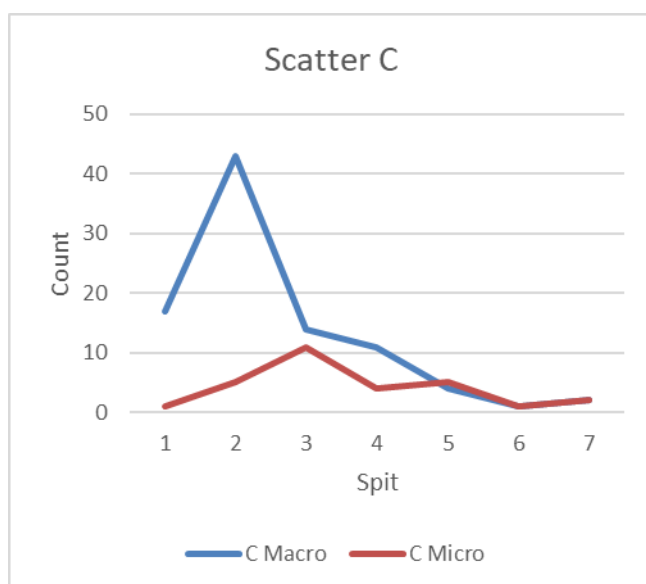


Figure L01: Count of SF lithics by Spit for Scatters A, B and C

To further demonstrate the vertical spread of artefacts the squares with the highest lithic density in each scatter have been interrogated. Scatter A is represented by grid square 109/204; Scatter B by square 117/200; and, Scatter C by square 120/210. These squares also produced finds with the greatest depth of profile for each scatter (i.e. greatest number of spits). The data quality is improved through a combined finds count of both SF finds and those from wet-sieving thus reducing any bias from the

manual recovery. Lithics are differentiated as macro-products (all lithics $\geq 10\text{mm}$ across) and micro-products ($< 10\text{mm}$ across). For each of the representative squares the vertical frequency distributions by spit number are plotted on Graphs 2-4:





Figures L02-4: Frequency of all lithics by size class for the three densest squares in Scatters A, B and C

The Scatter A unit has 158 macro-products and 108 micro-products recovered from eleven spits; for the Scatter B unit there are 227 macro- and 139 micro-products, also from eleven spits; while for Scatter C there are 92 macro- and 29 micro-products from seven spits. It should be noted that these densest squares in each scatter have more spits i.e. a greater depth than most other squares in the respective scatters. For instance, the two contiguous squares for the Scatter A unit each have four spits yielding finds (and one square with a sterile spit 5); the contiguous square in Scatter B has 5 spits; while the two for Scatter C each have five spits. There was no further excavation of the brickearth deposits in these other squares, excavation ceasing when finds retrieval was negative or very sparse. None of these test pits fully excavated the brickearth deposits down to the Terrace gravel, and thus it is feasible that a small, negligible quantity of finds was not retrieved.

There may be another important taphonomic factor at play in the localised greater depth of finds distribution in these areas, especially in Scatters A and B, and to a lesser extent in Scatter C. At the Late Glacial bivouac of Rekem 15 (Netherlands) there was greater vertical displacement of finds plotted in close proximity to a hearth, and this was interpreted as indicating the heavier trampling of the camp's occupants in this area of the site (Caspar and De Bie 2000, 221, fig 86). A similar situation was also noted at the Mesolithic site at Asfordby (Cooper and Jarvis 2017). At the present site, the sample squares have very high proportional densities of burnt worked flint and these can be taken as proxy indicators for former surface hearth positions (Sergant *et al.* 2006). This is discussed more fully below.

The Scatter A graph has a bi-modal distribution of the macro-products, whereas Scatters B and C show a clear uni-modal distribution of the larger pieces. However, for Scatter A it seems that Spit 3 was of shallow depth as there is an overlap of the OD heights of finds from the base of Spit 2 and the top of Spit 4. Apart from this anomaly the graphs for each of the three squares demonstrate a peak in larger pieces at Spits 2/3 and thereafter a general trend of diminishing finds by depth. The smaller pieces, the

micro-products, demonstrate a Scatter A peak at Spit 5 (albeit with the likely reduced depth of Spit 3 and the concomitant lower finds frequency), and peaks for Scatter B and C at Spit 3 but with wider oscillations and a less clear diminishing frequency by depth.

Overview of Spatial Integrity

The distinct clustering of the lithics provides empirical evidence for their deposition by human agency. If lithics had been transported downslope their spatial distribution would be more widespread, and the nucleation patterns would not exist. Their lateral distribution would be skewed in a linear trend with horizontal size sorting. This is not the case. The assessment of vertical disposition demonstrates that each scatter contained both macro- and micro-products throughout all spits, but with some differences in vertical separation. The presence of abundant micro-products and larger pieces in the same squares for each scatter suggests that some flint knapping took place at the scatter loci and that the distribution is essentially that expected with *in-situ* flint working.

There is good evidence from the spatial integrity of the scatters that they were not transported via colluvial/alluvial processes i.e. Hypotheses 1 and 2 can be dismissed. Hypotheses 3 is not supported by any sedimentological evidence but it cannot be entirely discounted. Hypothesis 4 would appear to be the most likely to account for the site formation processes. Further spatial analysis may differentiate between the latter two hypotheses.

Furthermore, there is no clear vertical separation of lithics that might be expected with occupation palimpsests. This is not to say that overprinting of lithics from successive occupations had not occurred, but at this level of interrogation there is no evidence for such a palimpsest. Of course, these apparent patterns should be further investigated across the scatters at the analysis stage. Such a study might interrogate the spatial patterning by GIS analysis of the 3-D data for the SF lithics, aiming to identify subtle evidence for distinguishing occupation phases (e.g. Spikens *et al.* 2002).

Thus, there is a presumption that the brickearth deposits are essentially a single geological unit, the Enfield Silts, that was mostly if not entirely emplaced before the Mesolithic occupation. For the purposes of this assessment henceforth the lithics are regarded as stratified in a single stratigraphic unit.

Raw Material

The raw material is predominantly a semi-translucent nodular flint with variable calcite inclusions and a chalky cortex. Some larger nodules and cores demonstrate that there may be a central area of opaque grey-white flint that blends outwards to more translucent material under the cortex. Such flint does not occur in the local Kempton Park gravels. The material is of good knapping quality but sometimes with incipient flaws but was capable of large blade production and controlled reduction of large core tools such as the tranchet axes and picks. It is likely to be choice material probably obtained from secondary deposits close to chalk outcrops, perhaps clay-with-flint deposits. Chalk and superficial deposits with flints lie a few kilometres further upstream in the Middle Lea Valley. However, the raw material is comparable to that used at the Terminal Palaeolithic and Early Mesolithic site of Three Ways Wharf situated on the River Colne (pers. obs.; Lewis and Rackham 2011), so a wider Middle Thames origin of the flint is feasible. The raw material provenance requires further examination.

Quantity and Location

Table L01 gives the lithic counts for the Scatters A, B and C recovered from within brickearth; Peripheral Scatter material from the remaining test pits and recovered pieces from the brickearth surface; and, unstratified/residual material. These five provenances are presented separately as 'SF lithics' plotted by GPS and 'Sample lithics', the material recovered from the wet-sieved soil samples.

	Scatter A		Scatter B		Scatter C		Peripheral Scatter		Unstrat & Residual	Total
		%		%		%		%		
SF lithics	733	25.4	1,639	56.9	252	8.7	259	9.0	na	2,883
Sample lithics	841		1,898		164		219		nr	3,122
Total	1,574		3,537		416		478		191	6,196

Table L01: Lithic counts across the provenance loci, split between SF and sample-recovered material.

A combined total of 2,883 lithics were 3-D recorded from the excavation of the brickearth (SF lithics). This was predominantly worked flint (98.3%) with lesser amounts of burnt, unworked flint or other lithics. The worked flint was mostly of large size ($\geq 10\text{mm}$ across) but did include some pieces of micro-debitage, mostly just below the size minima. This reflects the retrieval protocol whereby the smaller flints were not collected, their systematic retrieval being left to the sieving of deposit samples. A total of 3,122 worked flints were recovered from the wet-sieving of the brickearth deposit samples. Unsurprisingly, this was predominantly micro-debitage (74.6%), but many larger pieces that were missed during the manual excavation were also recovered.

Some 191 pieces of worked flint were either unstratified or were from post-Mesolithic features.

At a coarse level it should be noted that the lithic size range in each scatter included debitage of small size (chips as defined by Newcomer and Karlin 1987), medium-sized flakes and blades, and larger fractions including shatter and cores. Tools and tool debitage are similarly distributed by artefact size. The size range is that expected of integral lithic scatters that were deposited by human agency (Schick 1986; Bertran *et al.* 2012; Shott 1994).

Condition of Worked Lithics

Where unaffected by heat the worked flint condition is very good, notwithstanding some excavation damage on a few pieces. None of the pieces is rolled. There is differential surface iron staining on much of the semi-translucent flint whereby the opaque grey calcite portions of the flint are stained yellow-orange-brown whereas the translucent material is not. Where the material is translucent the flint can be slightly patinated/re-corticated. This surface alteration may be greater where pieces have been in

proximity to the hearth. Otherwise, the assemblage can be described as fresh retaining sharp edges and clear ridge scars, thus presenting great potential for the preservation of use wear/traces. Should the surface appearance create optical problems for microscopic study it would be possible to take casts for proxy use-wear study (see Evans in Cooper and Jarvis 2017). The fresh ridge scars will also enable tactile assessment of reduction schemes (e.g. the sequence of removals on a core) and thus facilitate any refitting programme.

	Scatter A	Scatter B	Scatter C	Peripheral Scatter
<i>SF lithics</i>	35.2	65.9	62.8	29.7
<i>burnt %</i>				

Table L02: Proportion of burnt SF lithics for each scatter

Just over half of the worked flint has been heat-affected to some extent, mostly of a slight to moderate extent such that original lithic surfaces survive relatively intact. Scatter A has c. 35% of pieces that are burnt, considerably less than the proportion of material in Scatter B and C, at c. 66% and c. 63% respectively. The burnt material from the more widespread Peripheral Scatter is c. 30%.

It is most probable that the flint was burnt from being incorporated into contemporary surface hearths, either deliberately or accidentally. This heat damage should not be confused with deliberate heat treatment of flint prior to reduction: fragmented heat-affected pieces often have an internal glassy appearance, only visible on the break surfaces and contrasting with the original flake scar surfaces.

There is good potential for spatial analysis of the burnt worked flint as a proxy for the identification of 'invisible hearths' (Sergant *et al.* 2006). Such analysis should also involve plotting of burnt SF pieces and burnt micro-products from the wet-sieved samples.

Range and Variety

THE SF finds have been classified and full details are recorded. The collection breakdown presented in Table L03 shows an overall site assemblage of cores and core dressings; mixed debitage of flakes, blades and to a lesser extent bladelets; shatter; retouched and/or utilized tools and tool debitage. The cores were not classified for assessment but the core dressings and debitage provide an indication for the reduction schemes in terms of blade, bladelet and flake production.

An assessment of the technology was made for each scatter by consideration of complete and proximal fragments of all debitage products (NB metrically-defined flake fragments of probable blade or bladelet technology are re-assigned to their lamellar groups).

Lithic Class/Type	Scatter A	Scatter A samples*	Scatter B	Scatter B samples*	Scatter C	Scatter C samples*	Peripheral Scatter	Peripheral samples	Unstratified/Late r Features	Subtotal
Core	27	0	46	0	3	0	13			89
Core Tablet	6		12		3		3			24
Crested Piece	15		12		1		3			31
<i>Flanc de Nucleus</i>	5		4		1		2			12
Plunging Piece	8		20		2		3			33
Blade	72		44		7		17			140
Blade Fragment	57		118		18		20			213
Bladelet	29		18		5		7			59
Bladelet Fragment	39		68		15		8			130
Flake	117		215		33		39			404
Flake Fragment	207		770		116		84			1177
Shatter	72		126		16		23			237
Unclassified macro-debitage*		209		524		11		37	94	875
Chip	23	626	94	1370	21	152	13	181	96	2576
Tool	27	5	45	3	4	1	13	0	1	99
Tool Byproduct	16	1	20	1	2	0	5	1		46
Burnt Unworked	10		8		5		6			29
Other	3		19							22
TOTAL by locus	733	841	1639	1898	252	164	259	219	191	6196

Table L03: Lithic counts by lithic class/type and provenance (loci). Material from samples categorized by size only*. Scatter C includes 3x potential TL samples presumed to be burnt and unworked.

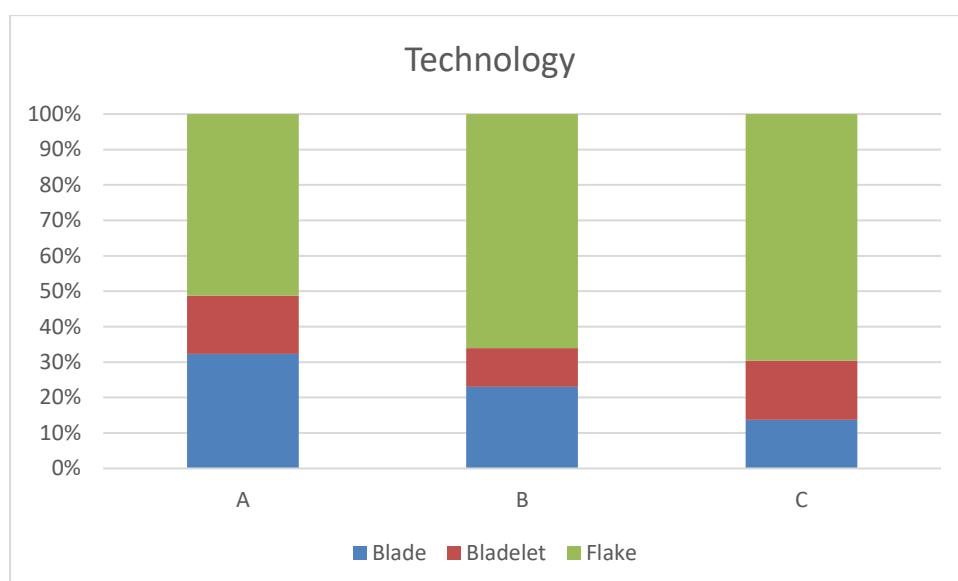


Figure L05: Technology of debitage products in Scatters A, B & C as a % of each scatter (complete pieces and proximal fragments only)

Debitage

Scatter A

There are abundant cores, but these include several tested pieces (preforms) and fragmentary pieces. There are several core dressings in the form of core tablets (platform rejuvenation flakes), crested pieces (mostly blades from an early stage in the core reduction scheme), *flanc de nucleus* pieces (core front rejuvenation removals) and plunging pieces (mostly blades). Most of these core dressings relate to blade production schemes although there is some evidence for bladelet production in the form of a bladelet core and crested bladelet. Noteworthy is the high counts for crested and plunging pieces, almost all of blade technology.

The debitage products includes flakes, blades and bladelets and abundant micro-debitage. Scatter A demonstrates a much larger proportion of complete debitage than Scatter B and this may be related to intensity/duration of activity, but also the relatively low proportion of burnt pieces. Scatter A has the highest proportions of blades and bladelets of the three scatters (Figure L05). Notable is a series of larger blades that stand out in the collection. These can be associated with the similarly large-sized blade core dressing pieces. However, it is uncertain if the larger blades were all manufactured at this location or introduced to the site as finished blades. Also, pertinent here are the retouched and/or utilized blades, pieces with edge modifications displaying wear, which are also found in some frequency in Scatter A (see below)

Scatter B

Scatter B is the largest of the scatters in terms of both surface area and finds count. It is also the scatter with the highest proportion of burnt pieces and a higher proportion of fragmented debitage, there being an obvious causal relationship to some degree.

Cores and core dressings in Scatter B were frequent and all stages and size ranges of reduction debitage was represented. The activity certainly included the knapping of flint cores and, as with Scatter A, the core dressings include a high proportion of plunging pieces that are related to blade and, to a lesser extent, bladelet production. However, there is proportionately more flake debitage at Scatter B compared to Scatter A and this may be partly related to manufacture and maintenance of core tools (but see below).

Scatter C

Scatter C is relatively small in area and its constituent lithics but a similar range of core and debitage to that noted in Scatters A and B is represented. Core dressings are exclusively related to blades although there is a high proportion of bladelets in the debitage.

Tools and by-products

Lithic Type	Scatter A	Scatter B	Scatter C	Peripheral Scatter	Unstrat & Residual	Sub-Total
Burin	2	5		2	1	10
Microlith	16	12	1	2		31
Retouched Blade		2		1		3
Retouched Flake	2	1		1		4
Retouched/Utilized Blade	7	4	1	1		13
Scraper	3	14	1	3		21
Truncated Blade	1	1		2		4
Worn End Piece	1					1
Notched Flake			1	1		2
Core tools (Axe/Pick)		5	1			6
Combination Tool		1				1
Hammerstone (refits as one)		3				3
Tool Total	32	48	5	13	1	99
Burin Spall	2	1	1	3		7
Microburin	7	8	1	2		18
Retouching Spall		3		1		4
Axe Sharpening Flake	2	3				5
Axe Thinning Flake	6	6				12
Tool Debitage Total	17	21	2	6		46
Combined Total	49	69	7	19	1	145

Table L06: Breakdown of tool and tool debitage by loci.

Table L06 presents the identified tools and their production debitage split into the main loci. In terms of tool: debitage there is a proportionately higher number of tools in Scatter A when compared to Scatter B.

Scatter A

Microoliths are the predominant tool type (50% of Scatter A total) which together with a corresponding high number of microburins indicate microlith production at the locus. The microliths that can be classified include obliquely truncated points and isosceles triangles. The obliquely truncated points mostly have sinistral lateralization (retouch along their left side when viewed with bulbar end uppermost). There are several examples of ancillary retouch at their tips on the opposite side to that which is retouched. The blanks for microliths were long, slender bladelets with a straight profile. The complete microliths are all above 30mm in length. These traits are typological and metrical signatures of a Deepcar-type assemblage (Reynier 2005). Triangles are more common in Star Carr-type Early Mesolithic assemblages but they can occur in Deepcar-type assemblages. The isosceles triangles in Scatter A are of similar size to the obliquely truncated points and they also have ancillary retouch at their tips. These shared traits provide strong evidence for both belonging to the same tradition. There is also a piece with worn end that is microlithic in proportion and can be classified as a drill bit.

Scatter A also has a high number of retouched and/or utilized blades. These are pieces that display slightly modified edges, usually continuous nicking retouch, with overlying wear. Some of these were initially reported as serrated pieces (Bishop and Hawkins 2020) but they are not convincing as such and are considered here to be better described as retouched/utilized. Corresponding large blade debitage in Scatter A may also include yet unrecognised utilized pieces. Other tool types include some scrapers and burins but these are relatively few.

Noteworthy are two axe sharpening flakes and at least six axe thinning flakes despite the lack of core tools from the scatter. These pieces may provide a potential link to core tool evidence from Scatter B.

Scatter B

The predominant tool type is the end scraper with fourteen examples, some of which are end of blade forms. Scatter B also has a high frequency of microliths and microburins attesting to their manufacture. These are predominantly obliquely truncated points or fragments with a single oblique truncation. Also present are an isosceles triangle and a trapezoid, while three pieces with distal truncations are not true microliths as they retain their proximal ends, but they are microlithic morpho-metrically. Except for one smaller obliquely truncated piece, they have size and proportions comparable to the Scatter A pieces and best fit a Deepcar-type character.

Notable in Scatter B are the core tools: a complete axe, a burnt pick (comprising two refitting fragments found in proximity) and two large burnt axe/pick fragments. Axe sharpening flakes and six axe thinning flakes suggest that core tools were made and/or maintained at the scatter locus. There are other potential examples of core tools noted e.g. a bladelet core that may be a recycled axe and some of the burnt core fragments.

The other tools from Scatter B include four retouched and/or utilized blades, two retouched blades, a retouched flake, a truncated blade and a combination tool on a blade with a scraper and burin at one end and a truncation/piercer at the other.

Scatter C

There is a small tool component with single examples of an axe (heavily burnt, mid-section fragment), a microlith, a retouched and/or utilized blade, a scraper and a notched flake. The microlith is an obliquely truncated point with left-sided retouch and is 34mm long, and thus comparable to those in Scatters A and B.

Peripheral Scatter

There are 13 tools including three scrapers, two burins, two microliths, two truncated blades and single examples of a retouched blade, retouched flake, retouched and/or utilized blade and a notched flake. The microliths include an obliquely truncated point and a trapezoid of similar size and shape to microliths from the defined scatters. The other tools are all types consistent with an Early Mesolithic attribution. Additionally, a burin was recovered as a residual find in a feature peripheral to Scatters A-C.

Typo-technological indicators for chrono-cultural position

Recent reviews of the Early Mesolithic period have defined several typo-technological groupings with distinctive microlithic assemblage types that appear to have sequential but overlapping chronologies (Reynier 2005; Conneller and Higham 2015; Conneller *et al.* 2016). In England these cultural traditions include the eponymous Star Carr-, Deepcar- and Horsham-type assemblages (in chronological order) with a Midlands group termed Honey Hill-type assemblages, probably related to the Horsham group (Saville 1981 a and b; Reynier 2005). Conneller *et al.* (2016) include Horsham and Honey Hill-type assemblages within a wider group of basally modified type-assemblages.

The predominant microlith type from the Welbourne collection is a long and slender obliquely truncated point: all examples are >30mm in length, most have sinistral retouch and a high proportion have additional retouch at their proximal tips (Reynier 2005, 22). These are typical of Deepcar-type assemblages, as seen in the original Deepcar Mesolithic assemblage (Radley and Mellars 1964) and those studied by Reynier (1998; 2005). They are associated with microlith triangles and trapezoids and some of these share certain attributes with the obliquely truncated points (size, blank shape and additional tip retouch). Reynier (*ibid*) has also demonstrated that these cultural traditions also demonstrate distinctive toolkit profiles range and lithic reduction technologies. The tool types and their assemblage proportions for the Welbourne collection also fit a Deepcar-type assemblage profile: a high proportion of scrapers, low counts of burins, the presence of axes, piercers and truncated pieces. There is an absence of micro-denticulates (i.e. small serrated pieces) at Welbourne although some of the retouched and/or utilized blades may have originated as such forms but their worn edges preclude identification of original tool form.

A notable feature of the blade core reduction schemes for each scatter is a high proportion of plunging blades and core face dressing flakes (*flanc de nucleus*), the latter also with a plunging profile on occasion. Plunging pieces have been noted as of higher occurrence in Deepcar-type assemblages

compared to Star Carr-type (ibid. fig. 3.9). Of note is the evidence for soft stone percussion observed in the collection (following the stigmata highlighted by Pelegrin 2000). This is a relatively unreported technological feature of the British Mesolithic although Reynier (2005) has mentioned this as a possible Deepcar-type technological trait and is also noted in the Early Mesolithic of Ireland (Costa *et al.* 2001).

Discussion

The Welbourne site

Assessment has demonstrated that the lithic assemblage stratified in the upper reworked profile of brickearth deposits at Welborne Plot C is of Early Mesolithic character and Deepcar-type technology. There are no indications of earlier or later prehistoric lithics at the site. Three distinct Scatters A, B & C have been defined and each has internal integrity in terms of having lithics in fresh condition with an artefact size distribution and spatial disposition as expected of an in-situ assemblage (Schick 1986; Shott 1994; Bertran *et al.* 2012), albeit with some down-profile movement. The lack of a preserved contemporary land surface (palaeosol) need not be explained as later agricultural truncation (contra Bishop and Hawkins 2020) but may rather be the result of bioturbation of the original surface from invertebrate and root penetration. The site lies at the margin of the alluvial zone of the River Lea with pre-modern land use as meadowland. It is suggested that this topographic position has allowed the Enfield Silts and the Mesolithic lithics contained within to be fully preserved at the site.

The assemblage is large, and has evidence for lithic blank production, toolkit maintenance and tool use. There appears to be spatial patterning for these activities, focussed upon and situated around distinct hearth zones in each scatter, defined by nucleated burnt flint distributions.

Scatter A has evidence for lithic blank obtention, notably including some large blade manufacture, but also some bladelet production. Bladelets were converted into microliths and broken microliths were replaced. A group of medium-sized and large blades has slight but distinct edge modifications, the result of edge trimming and/or utilization. A parsimonious interpretation may be that the microliths and blades are components of a hunting toolkit, representing armatures and butchery implements. The excellent condition of the lithics allow this to be a testable hypothesis through microwear analysis. While there are no core tools from the scatter there is some evidence for axe maintenance if not their manufacture in the form of axe sharpening and thinning flakes.

Scatter B is of a considerably larger size in area and lithic count, and the southern extent was beyond the limit of the site and so could not be fully defined. Much of the scatter assemblage is burnt and several contiguous square metres have high densities of such. This may reflect the sequential setting of multiple surface hearths, perhaps from an extended and intensive use of this locus. There is abundant flake debitage but also clear evidence for blade and bladelet manufacture. The bladelets are related to microlith manufacture and replenishment reflected by a moderately high number of microliths and microburins.

The more prolific flakes may reflect core tool production and/or maintenance. Axe sharpening flakes and several thinning flakes were recorded and there are likely further pieces recorded as flakes. Core

tools include a complete axe, a near-complete pick (in two pieces broken from heat) and two axe fragments that were also burnt. There is a distinct clustering of the core tools with all but one piece located in two adjacent 1 x 1m squares.

Scatter B has a very high count for and proportion of end scrapers, and these have a marked distribution in the western half of the scatter. Many of the scrapers were burnt suggesting hide preparation may have taken place immediately adjacent to a hearth. While burins are not prolific across the site assemblage, with just seven examples, five of these are associated with Scatter B.

Scatter C, though much smaller than Scatters A and B, has a similar profile in terms of evidence for flint knapping, tool production and use. It may just stand out from the Peripheral Scatter in having an episode of core working around a small hearth.

Chronology and cultural position

Typological and technological assessment demonstrates that the scatters have their own subtle profiles in terms of reduction sequences and tool types, but they share similar technologies. On the basis of the microlith types Scatters A and B are certainly of Deepcar type, an Early Mesolithic cultural group prevalent for most of the 9th millennium BC and possibly into the early 8th millennium BC (Reynier 2005; Conneller and Higham 2015; Conneller et al. 2016). Scatter C has a single diagnostic microlith and has a similar blade reduction technology and tool types to the other scatters and so is probably also of Deepcar type.

Notable at Welbourne is rare evidence of a microlith repertoire involving an association of typical Deepcar-type obliquely truncated points with long and slender isosceles triangles and trapezoids. Furthermore, this association is seen in both Scatters A and B, providing strong support for their contemporaneity. These geometric microlith types can be found in some Deepcar-type contexts e.g. the unpatinated series from Thatcham III, Berkshire (Reynier 2005, fig. 4.1) but they are sporadic in occurrence (Reynier 2005; Conneller et al. 2016). It might be speculated that these slender isosceles triangles could be typological markers indicative of a distinct facies within the long-spanned and geographically widespread Deepcar-type cultural grouping. Reynier (2005) has predicted that subdivisions of the Deepcar grouping are likely to exist.

Possibly pertinent here is an isosceles triangle associated with the Deepcar-type obliquely truncated points from the Early Mesolithic scatter at the B&Q site, Southwark (Sidell et al. 2002, SF 8403, fig. 11). It is directly comparable in size and shape to the Welbourne examples. However, it has an additional typological feature of additional inverse, basal retouch (of a shallow, invasive form) and J. Cotton remarked it 'would not be out of place in an Early Mesolithic assemblage' (specialist report in Sidell et al. 2002). Pieces with inverse basal retouch are typological markers for Honey Hill assemblages but they are also seen in Horsham assemblages indicating a probable relationship between the two traditions (Reynier 2005; Saville 1981b), while Cooper and Jarvis (2017) have suggested the two traditions can be viewed as Middle Mesolithic. Conneller (et al. 2016) has recently proposed a wider grouping of these 'assemblages with basal retouch', a later cultural grouping but one that overlaps with the later Deepcar assemblages (*ibid*; Conneller and Higham 2015). It would be unwise to construct a

typological argument on a single piece, but it is an intriguing possibility that the Welbourne site may be a late manifestation of the Deepcar tradition.

Early Mesolithic activity in the Lea Valley

The Mesolithic site was situated on the left bank of the river Lea, situated some 10km above its confluence with the Thames. The local reach of the Lea at this location is a narrow valley especially when compared to the area immediately downstream (Walthamstow, Tottenham and Hackney Marshes), with a constricted first gravel terrace and floodplain presenting a juxtaposition of the river, floodplain and valley side. This topographic position of the site, at the base of the valley side and on the margin of the floodplain, may have presented a great ecotonal potential. Surprisingly there is little Mesolithic activity recorded hereabouts although findspots of Mesolithic axes in Hackney and Walthamstow (Lewis 2000, Gazetteer and Map 2) may hint at wider use of the Lower Lea landscape.

The scatter size profiles suggest that the site may have been a 'persistent place' with successive visits (sensu Barton et al. 1995) and/or result from the separate activity zones of a larger occupation, possibly a short-lived base camp, much as Reynier envisaged for Deepcar-type occupations with their higher degree of residential mobility (Reynier 2005).

The rivers Lea and Colne are the two principal northern tributaries of the Thames in the Greater London area and both rivers are rich in Early Mesolithic records (Lewis 2000). The rivers bisect the London Clay forming a block of land some 30-40km wide and Lewis and Rackham (2011) speculate that Early Mesolithic hunter-gatherers may have exploited a territory including both valleys and the higher ground between. Welbourne is comparable to two Deepcar-type sites in the Colne Valley - Scatter C West, Three Ways Wharf, Uxbridge (Lewis with Rackham 2011) and the Sanderson's Site, Uxbridge (Ellis and Grant 2022) and the site of Broxbourne 102 (Rickof's Pit) further upstream of the Lea near Hertfordshire (Hazzledine Warren et al. 1934). The site of West Heath, Hampstead (Collins and Lorimar 1989) is situated on the higher ground between the rivers and may be equivalent to upland summer hunting stations seen in northern Britain (Lewis with Rackham 2011), while the B&Q site, Southwark (Sidell et al. 2002) may represent a riparian exploitation site at a lakeside closer to the Thames floodplain.

However, there is a danger of pigeon-holing these Early Mesolithic sites of Greater London and environs into a single block-time unit when they may occupy a period of several centuries. Detailed typotechnological analysis of single occupation sites has great potential for revealing nuances of technological change within these monolithic archaeological chrono-cultural constructs. This may well be the case with the Welbourne Mesolithic site.

Statement of Potential

The lithic scatters have good potential for being considered in-situ assemblages with a latent spatial structure. Burnt material is clustered and will allow spatial inference for hearth settings, these being a focus for hunter-gatherer activity.

The assemblages appear to be 'clean' in terms of there being no recognisable earlier or later prehistoric lithics at the site.

The assemblage is large with material in good condition allowing technological classification, identification of tools and their by-products and microwear analysis to inform on how tools were used, what materials they were associated with and inform on site activities and function.

Microwear analysis undertaken by R. Donahue may build upon the research for the Sanderson's site (Donahue, in Ellis and Grant 2022) and the B & Q site (Donahue 2002).

Refitting analysis has great potential for understanding production schemes for blanks, tool production and depositional site use, activity zones and intra-site relations.

The defined scatters have comparable tools and technology but variations that should inform on site dynamics and site type.

The site can be framed within a putative Early Mesolithic territory of the Lower Colne – Lower Lea – Middle Thames land block and can be compared to the other known Early Mesolithic sites of Deepcar-type in the area.

Recommendations

The entire assemblage should be fully catalogued with comprehensive records of raw material, technology, typology and metrics. A full recording of proximal stigmata of blades, bladelets and flakes should be undertaken.

Microwear study of some 100 representative artefacts from the scatters to investigate function and use for a selection of tools and potential tools, including some regular blades and flakes. The study should be illustrated with microscope image details and whole-artefact zone representations.

A refitting programme to investigate core reduction technology, tool production strategies and to seek inter-scatter links and dynamics. A targeted study of the probable axe production sequence(s) would address a national research deficit (Alison Roberts pers. comm.).

Spatial analysis to investigate questions of site taphonomy and to interrogate any latent structure of the occupation(s) relating to hearth location, knapping areas, tool production/maintenance areas and activity zones. This would be tied into the functional microwear analysis and the refitting programme data as an empirical measure of dynamics at scatter and site scale levels. Spatial analysis results should be illustrated with scatter and density plots.

Comparative typo-technological study of other sites in the Greater London, East of England and South East regions (where there is a good dataset of Deepcar-type site assemblages covered by published and grey literature).

The results should be written as a detailed archive lithic report and this would form the basis for a major section of a published report. Each scatter would be addressed as an entity but with an over-arching narrative to describe comparability or otherwise.

Illustration of lithics combining traditional line drawings of selected pieces with accompanying high resolution colour photographs, linking with microwear study (Saville 2009)

Bibliography

- Barton, R.N.E., Berridge, P.J., Walker M.J.C., & Bevins, R.E. 1995. Persistent places in the Mesolithic landscape: An example from the Black Mountain uplands of South Wales, *Proceedings of the Prehistoric Society* 61, 81-116
- Bertran, P., Lenoble, A., Todisco, D., Desrosiers, P.M. and Sørensen M., 2012. Particle size distribution of lithic assemblages and taphonomy of Palaeolithic sites, *Journal of Archaeological Science*, Vol 39, Issue 10, 3148-3166
- Blinkhorn, E. and Milner, N. 2014. *Mesolithic Research and Conservation Framework 2013*. English Heritage & University of York
- De Bie, M. and Caspar, J.-P., 2000. *Rekem: A Federmesser Camp on the Meuse River Bank*. Acta Archaeologica Lovaniensia Monographiae 10. Leuven University Press.
- Collins, D. and Lorimer, D. 1989. Excavations at the Mesolithic Site on West Heath, Hampstead 1976-1981. *British Archaeological Reports (British Series)* 217. Oxford
- Conneller, C. & Higham, T. 2015. The early Mesolithic colonisation of Britain: preliminary results. In N. Ashton & C. Harris, *No Stone Unturned: Papers in Honour of Roger Jacobi*, London: Lithics Studies Society, 157-166
- Conneller, C., Bayliss, A., Milner, N. and Taylor, B. 2016. The Resettlement of the British Landscape: Towards a chronology of Early Mesolithic lithic assemblage types, *Internet Archaeology* 42. <https://doi.org/10.11141/ia.42.12>
- Cooper, L.P. 2021. Preliminary Quantitative Assessment and Project Outline for Post-excavation Assessment, Analysis and Publication of the Mesolithic Lithic Assemblage from Excavations at the Welbourne Site, Chesnut Road, Tottenham Hale, London Borough of Haringey. Site Code: WMD 19. Unpublished PCA Memo.
- Cooper, L.P. and Jarvis, W. 2017. Making and Breaking Microliths: A Middle Mesolithic Site at Asfordby, Leicestershire. *Proceedings of the Prehistoric Society* 83, 43-96.
- Corcoran, J., Halsey, C., Spurr, G., Burton, E. and Jamieson, D., 2011. Mapping past landscapes in the lower Lea valley: A geoarchaeological study of the Quaternary sequence. *Museum of London Archaeology*, MOLA Monograph 55.
- Costa, L.J., Sternke, F. & Woodman, P. 2001. The analysis of a lithic assemblage from Eleven Ballyboes, County Donegal. *Ulster Journal of Archaeology* 60, 1-8
- Donahue, R. E. 2002. The lithic microwear analysis of the B&Q Mesolithic and Neolithic site. In J. Sidell, J. Cotton, L. Raynor & L. Wheeler (eds), *The Prehistory and Topography of Southwark and Lambeth*: London: Museum of London Archaeological Service, 81-88
- Ellis, C., and Grant, M.J., 2022. Former Sanderson Site, Uxbridge Business Park. Unpublished post-excavation research report. *Cotswold Archaeology CA REPORT: 669041.1*

Hazzledine Warren, S., Clark, J.G.D., Godwin, H., Godwin, M.E. & Macfadyen, W.A., 1934. An early Mesolithic site at Broxbourne sealed under Boreal peat, *Journal of the Royal Anthropological Institute of Great Britain and Ireland* 64, 101–28

Healy, E., 1988. The Anglo-Saxon Cemetery at Spong Hill, North Elmham, Part VI: Occupation during the Seventh to Second millennium BC. *East Anglian Archaeology Report No. 39*. Norfolk Archaeological Unit.

Inizan, M-L., Reduron-Ballinger, M., Roche, H. and Tixier, J. 1999. Technology and Typology of Knapped Stone (Translated by J. Feblot-Augustines). *Cercle de Recherches et d'Etudes Préhistoriques Tome 5*. Nanterre.

Jacobi, R.M. 1978. Northern England in the eighth millennium b.c.: an essay, in P. Mellars (ed.), *The Early Postglacial Settlement of Northern Europe*, 295–332. London: Duckworth

Lewis, J. 2000. The Upper Palaeolithic and Mesolithic periods, in MoLAS, *The archaeology of Greater London: An assessment of archaeological evidence for human presence in the area now covered by Greater London*, 45-62

Lewis, J.S.C. & Rackham, J. 2011. Three Ways Wharf, Uxbridge: a Late glacial and Early Holocene hunter-gather site in the Colne Valley. *Museum of London Archaeology Monograph* 51

Newcomer, M.H. & Karlin, C. 1987. Flint chips from Pincevent. In G. de G. Sieveking and M.H. Newcomer (eds), *The Human Uses of Flint and Chert*, 33–37. Cambridge: Cambridge University Press

Pelegri, J. 2000. Les techniques de débitage laminaire au Tardiglaciaire: critères de diagnose et quelques réflexions, in B. Valentin, P. Bodu & M. Christensen (eds), *L'Europe centrale et septentrionale au Tardiglaciaire, Actes de la table-ronde internationale de Nemours*, 13-16 mai 1997. *Mémoires du Musée de Préhistoire d'Ile de France*, 7, 2000, 73-86. Nemours : édition APRAIF

Radley, J. & Mellars, P. 1964. A Mesolithic structure at Deepcar, Yorkshire, England, and the affinities of its associated flint industries, *Proceedings of the Prehistoric Society* 30, 1-24

Reynier, M.J. 1998. Early Mesolithic settlement in England and Wales: some preliminary observations, in N. Ashton, F. Healy & P. Pettitt (eds), *Stone Age Archaeology: Essays in Honour of John Wymer*, *Oxbow Monograph* 102, *Lithic Studies Society Occasional Paper* 6, 174–184

Reynier, M. 2005. Early Mesolithic Britain: Origins, Development and Directions. *British Archaeological Reports (British Series)* 393. Oxford: Archaeopress

Saville, A. 1981 a. Honey Hill, Elkington: A Northamptonshire Mesolithic Site, *Northamptonshire Archaeology* 16, 1-13

Saville, A. 1981 b. Mesolithic industries in central England: an exploratory investigation using microlith typology, *Archaeological Journal* 138, 49-71

Saville, A. 2009. The illustration of Mesolithic artefacts and its contribution to the understanding of Mesolithic technology in S.McCartan, R. Schulting, G. Warren, and P. Woodman (eds), *Mesolithic*

Horizons: Papers presented at the Seventh International Conference on the Mesolithic in Europe, Belfast 2005, 745-753. Oxford: Oxbow Books

Schick, K. D. (1986). *Stone Age Sites in the Making: Experiments in the Formation and Transformation of Archaeological Occurrences*, British Archaeological Reports International Series 319, Oxford.

Sergant, J., Crombe P., and Perdaen Y., 2006. The 'invisible' hearths: a contribution to the discernment of Mesolithic non-structured surface hearths, *Journal of Archaeological Science*, Vol. 33, 999-1007.

Shott, M.J., 1994. Size and Form in the Analysis of Flake Debris: Review and Recent Approaches. *Journal of Archaeological Method and Theory*, Vol. 1, No. 1, 69-110

Sidell, J., Cotton. J., Rayner, L and Wheeler, L. 2002. *The Prehistory and Topography of Southwark and Lambeth*. Museum of London Archaeology Service Monograph 14. Museum of London/English Heritage.

Spikins, P., Conneller C., Ayestaran H., and Scaife B., 2002. GIS Based Interpolation Applied to Distinguishing Occupation Phases of Early Prehistoric Sites, *Journal of Archaeological Science*, Vol. 29, 1235-1245.

APPENDIX 3: PREHISTORIC POTTERY ASSESSMENT

Jon Cotton

The ceramic assemblage

The pottery mostly comprised small plain body sherds, with one unstratified feature sherd representing part of a shattered base or shoulder fragment. Lacking any obviously diagnostic pieces, dating is solely reliant on an analysis of the fabrics employed.

These comprise a narrow range of sparse to common crushed burnt flint/sandy fabrics with individual clasts of flint <1mm-<5mm in size, which can be comfortably accommodated within the fabric series established for Essex by Nigel Brown (1988).

Comparable fabrics were widely utilised in LBA/EIA ceramic assemblages elsewhere within the Lea valley (eg Bishop and Boyer 2014), and this general date (ie 10th–8th centuries BC) would appear to offer the best fit for the scraps recovered from the present site.

Cxt No	Cxt type	Fabric	SC	ENV	Wt (g)	Comment	Suggested Date
+	Unstratified	FLIN/ SAND	3	1	12	Base or shoulder, shattered, sparse crushed burnt flint <3mm in size	LBA/EIA
83	Fill of small enclosure ditch 124	FLIN/ SAND	3	1	5	Bss, shattered, sparse crushed burnt flint <3mm in size	LBA/EIA
104	Fill of pit 105	FLIN	1	1	3	Bs, 5mm thick, worn, ?refired, sparse crushed burnt flint <3mm in size	LBA/EIA
123	Fill of linear 124	FLIN	1	1	1	Bs, 6mm thick, scrap, common moderately poorly sorted crushed burnt flint <3mm in size	LBA/EIA
369 <1462>	Brickearth layer in test pit 117/200, spit 2	FLIN	1	1	3	Bs, 6mm thick, common crushed burnt flint temper <3mm in size	LBA/EIA
378 <200>	Brickearth layer in test pit 117/200, spit 3	FLIN	8	1	12	Bss, 10mm thick, worn, common poorly sorted crushed burnt flint <5mm	LBA/EIA
452 <2440>	Brickearth layer in test pit 116/202, spit 2	FLIN/SAND	1	1	<1	Bs, 3mm thick, worn, sparse crushed burnt flint temper <4mm in size	LBA/EIA
TOTAL			18	7	37		

Table 1: Prehistoric pottery from all contexts

Significance and Potential

The assemblage is of low significance and no further work is proposed at this time. However, its presence is worth noting in the stratigraphic narrative and in the GLHER.

Bibliography

Bishop, B and Boyer, P, 2014 A Late Bronze Age enclosed settlement at the Oliver Close Estate, Leyton, London Borough of Waltham Forest, *Trans London Middx Archaeol Soc* 65, 51–102

Brown, N, 1988 A Late Bronze Age Enclosure at Lofts Farm, Essex, *Proc Prehist Soc* 54, 249–302

APPENDIX 4: ROMAN AND POST-ROMAN POTTERY ASSESSMENT

Berni Sudds

A total of 65 sherds of pottery were recovered from the excavation phase, representing a minimum of 45 vessels and weighing 396g. The pottery from the evaluation has previously been reported on with the combined assemblage from both phases of intervention totalling 70 sherds, weighing 423g (Jarrett 2020a). The majority of the pottery dates from the 11th to 14th century, with one residual Roman greyware and seven sherds dated to the Post-medieval period. The assemblage is largely fragmentary and demonstrates moderate to high levels of abrasion indicative of re-deposition.

The fabrics were examined under x20 magnification and recorded using a system of mnemonic codes based on common name, following the Museum of London Archaeology typology (Museum of London Archaeology 2014). Examples of the fabrics can be found in the Ceramic Type Series held at St Albans Museum, in the archives of PCA and/or the Museum of London. The assemblage was recorded and quantified for each context by fabric, vessel form and decoration using sherd count, weight, estimated/ minimum number of vessels (ENV) and estimated vessel equivalent by percentage rim present (REVE) in accordance with the guidelines outlined in Barclay *et al* (2016). The forms were identified following the Medieval Pottery Research Group's guide to the classification of forms (MPRG 1998). The data has been entered onto an Access Database, a copy of which is held with the archive. A summary catalogue of the pottery by context with date ranges and suggested spot dates appears in Table 2.

Pottery types

A breakdown of the assemblage by fabric type is presented below in Table 1. The range of types encountered is comparable with the pottery recovered during the evaluation and in the locality and region (Jarrett 2018; 2020a, b & c; 2022; Taylor *et al* 2017).

Fabric	Expansion	Date Range		SC	ENV	Wgt
MISC R	Miscellaneous/ unsourced Roman greyware (Hadham reduced?)	50	400	1	1	7
EMSHX	Essex early Medieval ware with fossil shell (Essex Fabric 12A)	1000	1200	3	3	8
EMSSX	Early Medieval coarse sand-and-shell-tempered ware (Essex Fabric 12C)	1000	1225	14	2	4
EMSX	Essex early Medieval sandy ware (Essex Fabric 13)	1000	1225	13	11	69
EMFLS	Early Medieval flint- and sand-tempered ware	1050	1200	1	1	1
SSWXS	South Essex sand- and shell-tempered ware (Essex Fabric 12B)	1000	1225	10	5	200
SSWX	South Essex shelly-sandy ware (Essex Fabric 12B)	1100	1250	11	11	53
EXCS	Medieval sandy greyware (Essex Fabric 20)	1175	1400	4	4	15
SOWX	Essex unsourced sandy orange ware	1200	1550	1	1	1
HARM	Harlow sandy ware (Essex Fabric 21D)	1200	1500	1	1	1
MISC	Miscellaneous/ unsourced wares (Essex Fabric 21)	1000	1400	4	4	17
BORDY	Surrey-Hampshire border whiteware with clear glaze	1550	1700	2	1	8
TPW	Refined whiteware with under-glaze transfer-printed decoration	1780	1900	3	3	6
SUND	Sunderland-type / late kitchen slipped ware (Essex Fabric 51A)	1800	1900	1	1	22
YELL	Yellow ware	1820	1900	1	1	11

Table 1: Ware types present (including evaluation pottery, Jarrett 2020a). SC = Sherd count; ENV = Estimated number of vessels; Wgt = Weight in grams. Essex Fabric codes taken from Cunningham 1985 and Cotter 2000.

Roman

A single Roman sherd was recovered as a residual find from Phase 2 ditch [126] (Group 8 (127); MISC R). The sherd is from an unidentified fine greyware jar with a simple, everted rim. The fabric is comparable with late Roman Hadham reduced wares (HAR RE), although this should be verified by a period specialist.

Medieval

Amongst the medieval assemblage early medieval shelly and sandy wares are most numerous (EMSHX; EMSSX; EMSX; EMFLS; SSWXS; SSWX). In keeping with findings on contemporary sites elsewhere in the region these are dominated by south Essex types. This is also true of the later pottery, comprising micaceous Medieval sandy greywares (EXCS), Essex unsourced sandy orange wares (SOWX) and Harlow sandy ware (HARM).

The medieval pottery occurs largely as non-diagnostic body or base sherd material but includes four jars and one jug. The jars include an Essex early medieval sandy ware (EMSX) example with a thickened, internally bevelled rim and a South Essex sand- and shell-tempered ware (SSWXS) with a slightly flared neck and simple, thickened rim. The two remaining jars occur in South Essex shelly-sandy ware (SSWX) and have near squared, flat-topped rims, one of which is expanded, both of which are more typical of later medieval greywares and possibly represent late or transitional examples dated to the early 13th century.

The jug occurs as a heavily abraded unsourced glazed body sherd with a fine sand-tempered fabric containing sparse calcareous and iron-ore inclusions.

Post-Medieval

The small quantity of post-medieval pottery is also very fragmentary and comprised of types well-paralleled in the London region and beyond. With the exception of two body sherds from the same Surrey-Hampshire border whiteware vessel (BORDY), these are comprised of 19th century transfer-printed refined whitewares (TPW), including a plate rim, Yellow ware (YELL) and Late slipped kitchenware dish base (SUND).

Distribution and dating

The pottery was recovered primarily from ditch features and layers, with a few sherds retrieved from a couple of postholes and a single pit. The feature assemblages are all small, even when totalled by landscape feature/ group, the majority produced less than 5 sherds. The largest groups, totalling 30 sherds and 12 sherds were recovered from Enclosure 1 and 2 (Group 14.1-4) and Enclosure 3 (Group 15) respectively.

Phase 1.2 & 1.3: Natural (Enfield Silts)

A total of seven small and fragmentary sherds of mixed medieval and 19th century date were recovered as intrusive finds from natural brickearth deposits on site.

Phase 2: Medieval

The majority of the pottery (59 sherds) was recovered from Phase 2 features. A total of 30 sherds were recovered from the various features that comprise Boundaries 1 and 2. The majority of this dates to the 12th to early or mid-13th century, although two sherds of Medieval sandy greyware (EXCS) and Essex unsourced sandy orange ware (SOWX) from ditch [63] (Group 14.1), suggest deposition or final infilling post-dates c.1175/ 1200. A similarly dated group of pottery (12 sherds) was recovered from Enclosure 3 (Group 15), principally of 12th to early or mid-13th century date, with a single sherd of Medieval sandy greyware (EXCS) post-dating 1175.

Smaller assemblages were recovered from a number of other Phase 2 features, including from Ditch 1 (Group 8) and a recut of Ditch 1 (Group 9). The pottery from both dates to the 12th to 13th century, with the fragmentary nature and evidence for abrasion suggesting much is likely to be redeposited. The presence of a developed SSWXS jar rim (recovered during the evaluation phase [10]) in Group 8 suggest the feature was not initially backfilled until the late 12th or 13th century.

Pit [105] (Group 22) contained a single small body sherd of Essex early Medieval ware with fossil shell (EMSHX) dated from 11th to 12th century, Fenceline 2 (Group 13 [57]) contained two sherds of 11th to mid-13th century date and Fenceline 1 (Group 12; [48]) produced a single sherd of Medieval sandy greyware (EXCS), dated from the late 12th to 14th century. These sherds are all fragmentary and display varying degrees of abrasion suggesting their deposition is secondary or even tertiary in nature.

Although small, the limited range of forms and presence of burnt residues and sooting on the medieval assemblage would be consistent with domestic food storage and preparation.

Phase 3: Early Post-Medieval

Two body sherds from the same Surrey-Hampshire border whiteware vessel (BORDY) were recovered from post-medieval subsoil (Group 4).

Phase 4: 19th century

A single sherd of late 19th to early 20th century Refined whiteware with under-glaze transfer-printed decoration was collected from agricultural layer [13] during the evaluation phase.

Significance and potential

The primary significance of the pottery is local in providing evidence for the date and nature of activity on site, and to add further to an understanding of the ceramic profile of this part of north-east London.

The medieval pottery suggests the site was potentially exploited from the 11th to 14th century, although the combination of fabric and few forms indicate a focus of activity during the 12th to 13th century. The range of forms and presence of residue and sooting is consistent with domestic household waste, but the fragmentary nature and condition of the assemblage suggest much is re-deposited. Thirteen body and base sherds from the same vessel were recovered from Enclosure 2 (Group 14.2 [23]), that is

unlikely to have moved far from point of use or breakage, but the majority of vessels are represented as single sherds in small, reworked groups that suggest the site was likely to have been peripheral to direct occupation, the focus of which may have lain to the south-east of site (Maher 2020 and forthcoming). Whilst it remains possible that waste from any households in the immediate vicinity was being disposed of elsewhere, the presence of the assemblage on site probably relates to agricultural activity, brought onto site as part of the manuring process and becoming worked into open features.

The medieval assemblage is also largely consistent with others in the immediate and broader region, with notable affinities to Essex producers, although not as many London products or Surrey Hampshire whitewares were recorded as on local contemporary sites, despite the larger assemblage recovered (Jarrett 2020a, b & c, 2022).

No pottery of later medieval date was recovered and very little of post-medieval date suggestive of minimal or very low-level exploitation during these periods.

Recommendations

The identification of the Roman sherd could be verified by a period specialist, although as a single residual sherd this is not a priority unless the sherd is to be discarded. The medieval and post-medieval assemblages are largely well-paralleled in the vicinity and as small and fragmentary have little further interpretative value. As fully catalogued no further analysis is recommended, although a short summary of the assemblage should be included in any publication of the study site, presented in tandem with the material recovered from the other Tottenham Hale Centre redevelopment sites (Jarrett 2020a, b & c, 2022).

Cxt	Fabric	Form	SC	ENV	REVE	Wg	Comments	Date range		Context considered date
9	EMSSX		1	1		4	Body or base sherd. Abraded.	1000	1225	1150 - 1225
	MISC		1	1		4	Heavily abraded body sherd. Slight stepped shoulder. Traces of external glaze. Fine quartz sand and sparse calc and iron ore inclusions. Oxidised inner margin and surface, reduced outer margin and surface.	1100	1400	
	SSWX	Jar	1	1	0.05	10	Squared, flat-topped rim, nr expanded. SSWXS?	1100	1225	
	SSWX		1	1		6	Thin-walled body sherd. Sparse sand - nr EMSHX.	1100	1225	
13	TPW		1	1		3	Beaded border with fish-rope like elements. Pale blue transfer.	1780	1950	1850 - 1950
20	EMSSX		13	1			Body and sagging base sherds from the same vessel? Internal and external wear and light external scorching. Possibly SSWXS?	1000	1225	1100 - 1225
	EMSX		1	1		3	Small body sherd.	1000	1225	
	EMSX	Jar	1	1	0.09	13	Thickened, nr squared rim (more rounded to external edge at one end). Internally bevelled top. Coarse sandy fabric with sparse flint and iron ore. A few voids but not clear from what.	1000	1225	
	SSWX		2	2		3	Small sherds. X1 nr EMSHX.	1100	1225	
22	EMSX		1	1		9	Base sherd. Internal scorching/ burnt residue. External surface partially laminated.	1000	1225	1100 - 1250
	SSWX		1	1		2	Small body sherd. Some abrasion.	1100	1250	

38	BORDY		2	1		8	Abraded body sherds. Possibly EBORD - fine fabric.	1550	1700	1550 - 1700
47	EXCS		1	1		1	Very small body sherd. Possibly earlier EMSX but firing more consistent with EXCS.	1175	1400	1175 - 1400
49	EXCS		1	1		2	Body sherd. Grey core, buff surfaces. Lightly abraded.	1175	1400	1175 - 1400
51	EMSX		1	1		8	Body sherd.	1000	1225	1100 - 1250
	SSWX		1	1		1	Very small sherd. Very fine sandy groundmass.	1100	1250	
	SSWXS		1	1		26	Thick-walled body or base sherd. Coarse quartz and sparse flint inclusions.	1100	1250	
56	MISC		2	2		8	Body sherds. X1 fine sand and sparse shell (slightly abraded). X1 coarse quartz, including red quartz and sparse iron ore, flint and shell (possibly SSWXS group?).	1000	1250	1000 - 1250
60	EXCS		1	1		6	Body sherd. Lightly abraded.	1175	1400	1175 - 1400
61	EMSX		1	1		3	Small base(?) sherd.	1000	1225	1000 - 1225
	SSWXS	Jar	1	1	0.05	4	Simple, externally thickened rim, slightly flared neck.	1000	1225	
62	SSWX		1	1		4	Body sherd.	1100	1250	1100 - 1250
71	HARM		1	1		1	Small abrade oxidised sandy ware. Red quartzes. HARM/ SOWX group.	1200	1500	1200 - 1500
82	EMSHX		1	1		1	Very small body sherd.	1000	1225	1100 - 1200
	SSWX		1	1		13	Micaceous.	1100	1250	
104	EMSHX		1	1		2	Small body sherd.	1000	1200	1000 - 1200
108	SSWXS		5	1		138	Sagging base sherds from the same vessel. Predominantly sand-tempered, some coarse, sparse flint and shell.	1000	1225	1100 - 1225
	SSWX		1	1		3	Small body or base sherd.	1100	1225	
109	SSWXS		2	1		22	Base sherd. SSWXS/ SESHs.	1000	1225	1000 - 1225
111	SSWX		1	1		2	Small body or base sherd. Some external scorching. SSWXS?	1100	1250	1100 - 1250
123	EMSX		2	1		3	Small body sherds. Coarse fabric.	1000	1225	1000 - 1225
	EMSX		1	1		4	EMSX, coarse fabric. Body or base sherd.	1000	1225	
126	MISC		1	1		5	Pimpily oxidised ware with iron-stained quartz, occasional flint and iron ore. SOWX group or oxidised roman coarseware? Shoulder sherd.	1100	1500	1100 - 1500
126	MISC	Jar	1	1	0.07	7	Fine reduced roman greyware jar rim. Hadham product (had re). Simple, everted rim.	200	400	1100 - 1500
128	EXCS		1	1		6	Base sherd. Fairly thin-walled. Some surface abrasion. Fabric 13T or early Fabric 20?	1100	1300	1100 - 1250
132	EMSHX		1	1		5	Body sherd? Grey core, oxidised surfaces.	1000	1200	1000 - 1200
155	SOWX		1	1		1	Small body sherd.	1200	1500	1200 - 1500
156	EMSX		3	2		12	Body or base sherds. X2 externally blackened. Coarse EMSX, slightly pimply.	1000	1225	1000 - 1225
157	EMSX		1	1		12	Handmade? 13T type?	1000	1250	1100 - 1250
159	SSWX	Jar	1	1	0.06	9	Upright neck and thickened, flat-topped rim - nr squared.	1100	1250	1100 - 1250
185	EMFLS		1	1		1	Small sherd. EMSX + sparse flint?	1050	1200	1050 - 1200
257	SSWXS		1	1		10	Body sherd, thin-walled. Coarse sand and sparse flint and shell/ organics? EMSX variant?	1000	1225	1000 - 1225
315	EMSX		1	1		2	Small base sherd. Sparse calc - EMCALCX?	1000	1225	1000 - 1225
317	TPW	Plate	1	1		2	Very small body sherd, change of angle from body to rim. Pale blue transfer.	1780	1950	1835 - 1950
322	TPW		1	1		1	Very small base(?) sherd. Pale blue floral or foliate transfer.	1780	1950	1835 - 1900
322	SUND	Bowl/ dish	1	1		22	Base sherd from a Sunderland-type/ late kitchen slipware dish (glazed examples with slip-trailed dash decoration to the walls/ rim). Press-moulded.	1800	1900	1835 - 1950
353	YELL		1	1		11	Body sherd.	1820	1900	1820 - 1900

Table 2: Summary catalogue of pottery (including evaluation pottery, Jarrett 2020a). Cxt = Context; SC = Sherd count; ENV = Estimated number of vessels; REVE = Estimated vessel equivalent by percentage rim present; Wg = Weight in grams.

References

Barclay, A., Knight, D., Booth, P. Evans, J, Brown, D. H. and Wood, I. 2016. *A Standard for Pottery Studies in Archaeology*. Prehistoric Ceramics Research Group, Study Group for Roman Pottery and Medieval Pottery Research Group.

Cotter, J. P., 2000. 'Post-Roman pottery from excavations in Colchester, 1971 – 85', Colchester Archaeological Report, 7. English Heritage and Colchester Archaeological Trust.

Cunningham, C. M., 1985. 'A typology for post-Roman pottery in Essex', in Cunningham, C. M., and Drury, P. J., 'Post-Medieval sites and their pottery: Moulsham Street, Chelmsford'. Chelmsford Archaeological Trust, Report 5, Council for British Archaeology, 54, 1 – 16.

Jarrett, C., 2018. 'The Post-Roman Pottery' in S. Maher and F. Meddens 'Saxon and later secular settlement at Barking: Excavations at London Road'. *London and Middlesex Archaeological Society Transactions*, 69, 115-139.

Jarrett, C. 2020a. 'Pottery Assessment', in H. H. Hawkins, Tottenham Hale Centre: Welbourne, Ashley Road West and Ashley Road East Sites. Archaeological Evaluation. Pre-Construct Archaeology Limited Report number R13917.

Jarrett, C. 2020b. 'Pottery Assessment', in S. Maher 'Tottenham Hale Centre, Ferry Island Site (Plots B and F): Archaeological Evaluation'. Pre-Construct Archaeology Limited Report number R14086.

Jarrett, C. 2020c. 'Post-Roman Pottery Assessment', in J. Brooks, North Island Site Plot A, Tottenham Hale Centre. Archaeological Evaluation. Pre-Construct Archaeology Ltd Report number R14238.

Jarrett, C. 2022. 'The Pottery' in S. Maher 'North Island Pot A, Tottenham Hale Centre: Assessment Report for an Archaeological Excavation'. Pre-Construct Archaeology Limited Report number R14391.

Maher, S., 2020. 'Tottenham Hale Centre, Ferry Island Site (Plots B and F): Archaeological Evaluation'. Pre-Construct Archaeology Limited Report number R14086.

Maher, S. forthcoming. Ferry Island, Tottenham Hale Centre, Ferry Island site. An Assessment of Archaeological excavation. Unpublished Client Report

Taylor, J., with Jarrett, C., Hayward, K., Gaimster, M., Keys, L., Rielly, K., and Meddens, F., 2017. 'Investigations in the Broadway, Stratford'. *London Archaeologist* 14:11, 301-7.

APPENDIX 5: BUILDING MATERIAL ASSESSMENT

Amparo Valcarcel

A small assemblage of ceramic, daub and stone building material (26 fragments, 1550g) was recovered from excavations within Tottenham Hale Centre. The material is comprised by undiagnostic daub, roofing tiles, bricks and stone. The majority dates to the late medieval and post-medieval period. The remaining material encompasses a small quantity of early Roman. The material was examined under magnification (x20) and quantified by context, fabric, form, number, weight and measurement. Common fabrics and forms were discarded once recorded.

The material

Fabric	Description	Type	Date	Quantity
2459a	Fine sandy fabric; few quartz grains; occasional iron oxide	Roman forms	AD50-160	1 fragment, 313g
3006	Frequent quartz with occasional iron oxide and lime	Undiagnostic flat tile	AD50-160	1 fragment, 144g
2276	Hard, well fired fine texture with few visible inclusions, occasional quartz, occasional calcium carbonate and red iron oxide, muscovite mica	Peg tile	AD1480-1900	1 fragment, 128g
2586	Fine clay matrix with moderate quartz inclusions, occasional red & black iron oxide	Peg tile	AD1180-1850	6 examples, 270g
3032	Yellow and white carbonate specks and iron oxide show	Brick	AD166-1900	2 fragments, 22g
3033	Moderate coarse quartz, occasional black iron oxide, yellowish white silty inclusions, occasional fine stones & pebbles	Brick	AD1450-1700	2 fragments, 24g
3102	Very fine clay, occasional quartz, occasional flint inclusions	Daub	1500BC-1666	2 fragments, 22g

Table 1. Fabrics and forms identified.

The range of fabrics and forms identified is typical from London area. The earliest material may be represented by the small quantity of daub identified. As non-diagnostic only a broad pre 18th century date range can be provided but taken in association with the remainder of the finds assemblage the fragments may be associated with Roman or medieval activity. The Roman material is presented by London sandy grouping 2815 (2459a and 3006), dating AD50/55-160. Although the Roman material is abraded and re-deposited but attest to the presence of Roman activity in the vicinity.

The medieval material recovered is comprised of sampled loose roof tile in fabric 2586 and with coarse moulding sand may indicate a date towards the end of the 15th century.

The post-medieval assemblage consisted of brick and peg tile. The peg tile fragments are in fabric 2276, representing the most commonly identified type in London in the post-medieval period. Bricks in fabric 3033 and 3032, are in an abraded condition and are too small to identify and date with certainty, having no surviving surfaces.

The stone fragments are undiagnostic and a chipped condition, including Kentish stone, green sandstone and quartzite. The only form identified was an unusual roofing slate with half hole preserved and a nib.

Distribution

Context	Fabric	Form	Count	Date range of material. Based on fabric		Latest dated material. Based on fabric		Spot dates
4	2586; 2276; 3033	medieval and Post-medieval peg tile; Post-medieval abraded brick	6	1180	1900	1480	1900	1480-1700
7	2586, UNK, 3006; 3115	Roman undiagnostic flat tiles; medieval peg tile; unknown fabric and form; slate roofing	5	50	1800	1180	1450	1180-1450
22	2459a	Early Roman brick	1	55	160	55	160	55-160
61	3102	Daub fragments	1	1500BC	1666	1500BC	1666	1500BC-1666AD
73	3102	Daub fragments	1	1500BC	1666	1500BC	1666	1500BC-1666AD
97	UNK	Unknown fabric and form	1	UNK	UNK	UNK	UNK	UNK
156	2586	medieval peg tile	1	1180	1800	1180	1800	1180-1450
169	UNK	Unknown fabric and form	1	UNK	UNK	UNK	UNK	UNK
411	3105	Kentish ragstone	1	50	1666	50	1666	50-1666
415	3137	Quartzite fragment	1	50	1900	50	1900	50-1900
438	3032; 3120	Post-great fire brick; green sandstone	5	1666	1900	1666	1900	1666-1900
444	3105	Kentish ragstone	1	50	1666	50	1666	50-1666
531	3105	Kentish ragstone	1	50	1666	50	1666	50-1666

Table 2 Lists all of the contexts containing ceramic and stone building material giving the date range, the latest type and a provisional spot date.

Phasing

Phase 1

No material was found in this phase.

Phase 1.2

A Kentish ragstone and a quartzite fragment were the only material found in this phase.

Phase 1.3

Two fragments of Kentish ragstone were found in layers [444] and [531].

Phase 2

The small assemblage from this phase, consisted of a Roman brick recovered from fill [22], daub fragments from fills [61] and [73], and a late medieval peg tile in fill [156].

Phase 3

The building material is still very poor represented, containing an early Roman tile, late medieval peg tiles and post-medieval peg tiles and bricks.

Phase 4

No material was found in this phase.

Phase 5

A chipped fragment of a post great fire brick was found in fill [438].

Summary and recommendations for further work

The assemblage recovered from Tottenham Hale Centre is relatively small given the scale of excavation, in poor condition and thinly distributed. Daub fragments may suggest that structures of prehistoric date were originally sited in the locality but as small and non-diagnostic fragments little can be concluded from these. Although probably derived from field marling and in wash, the later building material also attests indirectly to the presence of Roman, medieval and post-medieval settlement activity in the vicinity. As largely well paralleled and re-deposited no further analysis or discussion is recommended for any of the material.

References

Brodribb, G., 1987. *Roman Brick and Tile*. Alan Sutton Publishing. Gloucester.

APPENDIX 6: METAL FINDS ASSESSMENT

Märit Gaimster

Two metal objects were recovered from the excavations; they are listed in the catalogue below. Both objects came from medieval Phase 2 and will be discussed here against the context of the structures or features they were associated with.

Enclosure 3

The corroded remains of an iron horseshoe (SF 1) were recovered from Ditch 6 [50]. The remains consist of two conjoining fragments of the lower branch of a London Type 2 'Norman' horseshoe. This type is characterised by its wavy outer profile, caused by the narrow branch being pushed out by the nail holes and their deep countersunk slots (Clark 1995, 86). The 'Norman' Type 2 horseshoe is subdivided into a Type 2A with round nail holes and Type 2B with rectangular. The fragments from Tottenham Hale are too corroded to reveal the shape of nail holes, although the x-ray indicates rounded oval countersunk slots that might suggest this is a Type 2A shoe (*Ibid.*, fig. 62). This form is the earlier one, appearing in the late 11th century, with Type 2B coming into fashion around 1150 AD; however, both forms continue in parallel into the late 11th–early 14th centuries (*Ibid.*, 96).

Fenceline 1

The heavily corroded remains of an iron nail came from Posthole [98].

Significance and recommendations for further work

Metal and small finds potentially provide key elements of domestic material culture and activities related to the investigated site. At Tottenham Hale, in particular, the iron horseshoe complements other medieval finds and features recorded on the site. No further work is required for this object; however, it is recommended that it is included in any further publication of the site. The incomplete iron nail can be discarded.

References

Clark, J. (ed.) 1995. *The Medieval Horse and its Equipment, Medieval Finds from Excavations in London 5*, London: HSMO.

Catalogue

Phase	Context	SF	Feature	Group	Entity	Description	Pot date
PH 2	73	1	Ditch 6	GP 15	Enclosure 3	Iron horseshoe; two heavily corroded fragments of lower branch only of London Type 2, 'Norman' form, with wavy outer profile; branch W c 23mm; remains of two oval countersunk slots	n/a
PH 2	97		Posthole 98	GP 12	Fenceline 1	Iron nail; heavily corroded shaft fragment only	n/a

Table: metal and small finds

APPENDIX 7: ANIMAL BONE ASSESSMENT

Karen Deighton

Introduction

A small quantity of animal bone was recovered by hand during excavation. Material from the sieved (2mm, 10mm) residues of two environmental samples was also examined.

Method

The material was analysed using standard zooarchaeological methods (see references). Where possible bones were reassembled to provide minimum numbers. The results were recorded onto an access style database.

Condition of bone

Fragmentation was heavy with 50% of bone 25% or less complete. Bone surfaces were heavily eroded. No evidence for butchery or canid gnawing was noted, probably due to the poor preservation encountered. Calcined bone was noted from contexts (22)/ [23], (287) and (465).

Taxa present

Table1: Taxa by context (minimum anatomical unit)

Phase	Cattle	Cattle Size	Sheep/goat	Horse	Total
Phase 2	1	1	2	1	5
Phase4			3		3
Total	1	1	5	1	8

Table2: Taxa by sample (fragment count) phase 1.2

sample	context	feature	Sheep size	Chicken size	Total
119	287	Layer	1		1
277	465	Layer		1	1
Total			1	1	2

Phase 1.2 Enfield silts

Material was collected from the sieved residues of samples {119} layer (287) and {277} layer (465) (see Table 2). The small assemblage comprised a very small fragment of calcined sheep size bone and a fragment of calcined chicken size metatarsal. The presence of burned bone does attest to anthropogenic activity at this time.

Phase 2 Medieval

Material was collected from fill (9)/ cut [10] in Ditch 1, fill (22)/ cut [23] in Ditch 3, fill (76) in Pit [78] and fill (136)/ recut [137] of Ditch 1. Domestic food taxa were represented by cattle and sheep/goat. Domestic non-food taxa were represented by a horse astragulus from (9)/ [10].

Phase 4 19th Century

Material was collected from layer (13) and comprised two ovicaprid femurs(pair) and an articulating fragment of femur and sacrum fragment. All epiphyses were fused suggesting an animal of at least 3 to 3.5 years old at time of death. An estimation of withers height based on the length of the femur (Teichert 1975) gives 617.76mm. It is possible that the bone group represents a disturbed carcass which was originally disposed of due to disease.

Significance, potential and recommendations

The significance and potential of the assemblage are severely limited by its small size and heavy fragmentation.

No further work is recommended.

References

- Schmid, E., 1972. Atlas of animal bones London: Elsevier press
- Serjeantson, D. and Cohen, A., 1996. A manual for the identification of the Bird Bones from Archaeological Sites. London: Archetype Publications Ltd
- Silver, I., 1969. The ageing of domestic animals in D. Brothwell and E. Higgs (Eds) Science in archaeology, London: Thames and Hudson, 283-302.
- Teichert, M., 1975. Osteometrische Untersuchungen zur Berechnung der Widerristhöhe bei Schafen. In: A. T. Clason (Hsg.), Archaeozoological studies. North-Holland/American Elsevier, Amsterdam, pp. 51-69.

APPENDIX 8: ENVIRONMENTAL ARCHAEOLOGY ASSESSMENT

Dr Jane Wheeler

Introduction

This post-excavation assessment of environmental material collected during excavations at the Tottenham Hale Centre Welbourne Site (2019-2020) present the results of the botanical macro-analysis of bulk samples collected from two layers of Brickearth containing struck and burnt flint scatters, and from medieval features in the overlying sediment.

The aim of this environmental assessment is to:

- (i) Determine quantitative and qualitative preservation of botanical macro-fossils across Phase 1.2 and Phase 1.3 (Mesolithic) deposits from two Brickearth layers in conjunction with lithic scatters (A, B and C) and isolated test-pit non-scatter flint.
- (ii) Define the presence or absence of palaeoenvironmental evidence for Mesolithic activity and/or occupation.
- (iii) Identify archaeobotanical matter suitable for AMS ¹⁴C dating from Phase 1.2 and 1.3 deposits.
- (iv) Assess the quantitative and qualitative preservation of botanical macro-fossil material from Phase 2 (Medieval) deposits.
- (v) Assess the results of i-iv, specifically preservation ratios of archaeobotanical material, to determine if there are adequate quantities of cross-grid and cross-phase macro-remains to enable a significant environmental statistical data-set to be produced to warrant further specialist environmental analysis.

Methodology

A total of 106 x bulk samples ranging from 10L to 40L were collected from two Brickearth deposits in accordance with a 1m² grid system (cross-site). 50mm parallel stratigraphic spits providing the respective samples. Spit samples were numbered as follows: 1= top 50mm, 2 = 50-100mm, 3 = 100-150mm, and so forth). An additional 20 x bulk samples were taken from the overlying medieval stratigraphy (ranging in volume from 10L to 40L) from defined archaeological features. All cross-site and cross-phase bulk sampling was undertaken in accordance with Historic England (formerly English Heritage) guidelines (Campbell et al 2011) as stated in the WSI and RAMS (Hawkins 2019).

Bulk samples were processed at PCA's Brockley and Cambridge Environmental Units using a modified Siraf-type water flotation system (Williams 1973). Material was collected using a 300µm mesh for the light fraction (flot), and a 1mm mesh for the heavy residue (retent). The retent was air-dried, sieved at 1mm, 2mm and 4 mm fractions, and then sorted to extract biological macro-remains and artefactual material. Artefactual material was passed to the relevant specialist for assessment. The flot (>300µm) was dried, then analysed. The environmental assemblage was then passed to PCA's environmental specialist (Jane Wheeler) for analysis. Analysis was undertaken using a stereo microscope UltraZoom-

3 at 7x-63x magnification. To establish the prevalence/abundance of botanical macro-remains a standard non-linear scale was used for quantification, where: '1' indicates occasional occurrence (1-10 items), '2' indicates fairly frequent occurrence (11-30 items), '3' indicates frequent presence (31-100 items); and '4', indicates abundance (>100 items).

Macro-botanical identifications of seeds and grains/cereals etc. were undertaken using standard seed and non-woody references (Cappers and Neef 2012, Cappers et al. 2012, Jacomet et al. 2006). Nomenclature follows Stace (2014). Mollusc identification (land snails) follows keys in Cameron (2008).

As standard best practice, all flot samples were scanned with a magnet to ascertain if ferromagnetic inclusions were present. Micro- and macroscopic non-organic matter was also noted in the respective abundance (presence/absence) tables, along with intrusive organic material.

Results

Results are presented by phased archaeological sequence. Two layers of Brickearth are chronostratigraphically constrained by Phase 1.2 (basal orange Brickearth overlying Phase 1.1 natural gravels) and the upper Phase 1.3 deposit of greenish Brickearth. These two deposits have been relatively attributed to the Mesolithic period. Both layers contained concentrations of struck and burnt flints which were passed to PCA's lithics specialist (Lynden Cooper) for analysis. Environmental results are presented and discussed in accordance with the lithics scatter code A, B or C (or non-scatter from isolated test pits), the grid and spit number, feature and context. Phase 1.2 and 1.3 abundance data are presented in Tables 1 and 2 (respectively). Phase 2 (Medieval) results are presented and discussed in relation to archaeological feature and context. No retent residue was produced by the Medieval Phase 2 samples.

Phase 1.2 Brickearth – Mesolithic

Non-Scatter – Isolated Test Pit

Grid 105/206 Spit 4 Context (377) (Sample {197})

Sample {123} from Spit 2 (291) produced a negligible quantity of archaeobotanical material comprising occasional (≤ 10) charcoal dust/particles <2mm. All other organic matter is intrusive, i.e., stem and rooting fibres.

AREA A

Grid 105/211 Spit 2 Context (291) (Sample {123})

A light background matrix of charcoal dust/particles <2mm was present in sample {123} from Spit 2 (291). All other organic matter is intrusive, i.e., plant stem matter and rooting fibres.

Grid 109/204 Spit 2 Context (350), Spit 4 Context (373), Spit 5 Contexts (398) and (403) (Samples {187}, {198}, {228} and {226})

The only archaeobotanical material produced by the 4 x samples from grid 109/204 was charcoal dust/particles <2mm. A single fragment of charcoal from the 2-4mm fraction was noted in sample {220}

(398). This fragment is too small for anthracological analysis and/ AMS ¹⁴C dating. All other organic matter is intrusive, comprising stem fragments and rooting fibres, worm eggs. Fairly frequent counts of *Rubus* sp. (Brambles) seeds were observed in sample {220} (398). This admixture of intrusive matter is indicative of soil mixing, bioturbation, and evidences the influx of modern contaminants.

AREA B

Grid 120/204 Spit 3 Context (500), Spit 4 Context (509), Spit 5 Context (522) and Spit 6 Context (530) (Samples {305}, {313}, {326} and {332})

All 4 x samples from Grid 120/204 produced charcoal dust/particles <2mm. Small carbonised Indeterminate seeds (<1mm) were present in rare quantities in all 4 x samples {305} (Spit 3 (500), {313} (Spit 4 (509)), {326} (Spit 5 (522), and {332} (Spit 6 (520)). All other organic matter is intrusive, i.e., stem matter and rooting fibres, insect eggs cases, and a single terrestrial snail shell (*Vallonia pulchella* (the lovely valonia snail)). The latter two inclusions being indicative of bioturbation and modern mollusc intrusion.

Grid 120/199 Spit 1 Context (440) and Spit 4 Context (462) (Samples {266} and {279})

Samples {266} and {279} produced 2 x small (2-4mm fraction) charcoal fragments from the retent. These two fragments are too small for anthracological analysis and/or AMS ¹⁴C dating.

Phase 1.3 Brickearth – Mesolithic

Non-Scatter – Isolated Test Pits

Grid 104/201 Spit 1 Context (322) (Sample {148})

2ml of flot residue was produced by sample {148}. A single carbonised Indeterminate seed (<1mm) was noted. The condition of the seed was structurally pitted and degraded which prevented identification. A light background matrix of charcoal dust/particles (<2mm) and small fragments from the 2-4mm fraction were noted in rare (≤10) counts. All other organic matter is intrusive, i.e., stem matter and rooting fibres.

Grid 105/200 Spit 3 Context (334) (Sample {160})

With the exception of a background matrix of charcoal dust/particles <2mm), all other organic matter in this small volumetric (4.5ml) flot residue is intrusive, comprising rooting fibres and stem matter, a single small Poaceae (Grasses) seed (<2mm), frequent counts of worm eggs and a single insect egg case.

Grid 110/210 Spit 3 Context (285) (Sample {117})

Sample {117} from Spit 3 (285) produced occasional (≤10) charcoal dust/particles <2mm. All other organic matter comprised stem matter and rooting fibres.

Grid 110/215 Spit 3 Context (311) (Sample {137})

Sample {137} from Spit 3 (311) produced a light background matrix of charcoal dust/particles <2mm. 2 x micro-flint flakes were also noted. All other organic material is intrusive, i.e., rooting fibres and stem matter.

AREA A

Grid 105/204 Spit 1 Context (319), Spit 2 Context (330), Spit 3 Context (349), and Spit 6 Context (360) (Samples {153}, {157}, {174}, and {185})

Samples {153}, {157}, {174} and {185} from grid 105/204 (spits 1 and 2, and 6) produced a negligible quantity of archaeobotanical material. The background matrix of all 4 x samples comprised charcoal dust/particles <2mm. All other organic matter is intrusive, i.e., rooting fibres, stem fragments, and worm eggs. 2 x micro-flint flakes were noted in sample {153} from Spit 1 (319).

Grid 105/206 Spit 3 Context (301) and Spit 5 Context (379) (Samples {194} and {201})

Samples {194} (370) and {201} (379) produced little archaeobotanical material. Charcoal dust/particles (<2mm) were present in both samples. All other material, comprising rooting fibres, stem matter, and worm eggs, is intrusive.

Grid 106/204 Spit 1 Context (451), Spit 2 Context 456), and Spit 3 Context (465) (Samples {267}, {272} and {277})

Sample {267} (Spit 1 (451)) produced a rare count (n=3) of small carbonised Indeterminate seeds ((<1mm), and a background matrix of charcoal dust/particles <2mm. 2 x micro-flint fakes were also noted in sample {267} from Spit 1 (451). Sample {272} from Spit 2 (456) was weighted by fine-grained sand which provided the bulk of the 30ml volume from the flot. Charcoal dust/particles <2mm were present. All other organic matter is intrusive, i.e., rooting fibres and stem matter, and insect egg cases. The retent from sample {277} (Spit 3 (465)) produced a single carbonised grain. The seed was structurally degraded and has been logged as Poaceae (Grasses) Indeterminate ≤4mm. Whilst the grain is in poor condition and fractured, it does have the potential for submission for AMS ¹⁴C dating.

Grid 106/205 Spit 1 Context (367) and Spit 4 Context (387) (Samples {191} and {211})

Samples {191} (367) and {211} (387) produced a background matrix of charcoal dust/particles <2mm. All other organic matter is intrusive, comprising stem and rooting fibres, leaf litter, and (noted in sample {211}) insect egg cases and *Rubus* sp. (Brambles) seeds.

Grid 106/207 Spit 1 Context (442) and Spit 10 Context (487) (Samples {259} and {290})

Samples {259} (442) and {290} (487) from grid 106/207 (spits 6 and 10 respectively) produced a *negligible* quantity of archaeobotanical material. This is background matrices of charcoal dust/particles <2mm. Single micro-flint flakes were noted in both samples. All other organic material present is intrusive, i.e., fine root fibres and stem matter, leaf litter, and small Poaceae (<2mm) seeds and *Rubus* sp. (Brambles) seeds. The latter are modern contaminants. Insect egg cases were also noted.

Grid 107/204 Spit 1 (501), Spit 2 (507), Spit 3 (511), Spit 4 (520 and 525), and Spit 6 (527) (Samples {300}, {307}, {311}, {318} and {323}, and {325})

The retent residue from sample {300} from Spit 1 (501) produced an occasional count of charcoal fragments (n=7) on the 4mm size boundary which may prove suitable for AMS ¹⁴C dating. 5 x charcoal fragments were also present within the 2-4mm fraction size boundary but are unsuitable for dating. As the larger charcoal fragments have been flagged up as potential dating material, these fragments will not be analysed anthracologically as this would mean destroying the fragments to reveal the necessary plains for wood-type identification. Nor would this small sample-set (i.e., <50) produce a reliable statistical data-set to assess species presence. The flot residue from sample {300} produced a background matrix of charcoal dust/particles <2mm, and 3 x small charcoal fragments 2-4mm. These 3 x charcoal fragments are too small for anthracological analysis and/or AMS ¹⁴C dating. The remaining 5 x samples were provided by flot residues. With the exception of the background matrix of charcoal dust/particles <2mm, no other archaeobotanical material was present. A single micro-flint flake was noted in sample {325} from Spit 6 (527). All other organic material from the flot residues is intrusive, comprising rooting fibres and stem matter, worm eggs and a single insect egg case.

Grid 108/204 Spit 2 Context (464), Spit 3 Context (532), and Spit 4 Context (536) (Samples {282} and {315}, {330} and {333})

The retent residue from sample {282} from Spit 2 (464) produced x 9 small charcoal fragments on the 4mm size boundary that have potential for AMS ¹⁴C dating. Small fraction charcoal 2-4mm (n=3) was also noted. However, this material is unsuitable for anthracological analysis due to small fragment size or radiocarbon dating. The larger (~4mm) fragments would be damaged if handled and fractured if an attempt was made to identify wood species, which would render them unsuitable for radiocarbon dating. This charcoal sample-set is also too small to provide a statistically significant charcoal assemblage. 3 x small (<1mm) carbonised seeds were noted in the flot residue from Sample {282}, along with a background matrix of charcoal dust/particles (<2mm). The remaining 3 x samples from Grid 108/204 demonstrated a similar background matrix of charcoal dust/particles <2mm. A single micro-flint flake was recorded in sample {315} from spit 2 (464). All 4 x samples were weighted with a heavy fine-grained sand content – which formed the bulk of the volumetric contents. All other organic material comprised intrusive rooting fibres and stem matter, and a single small Poaceae (Grasses) grain (≤2mm) in sample {333} from Spit 4 (536).

Grid 109/205 Spit 1 Context (432) and Spit 2 Context (435) (Samples {250} and {253})

A small quantity of retent residue (0.5ml) was produced by sample {253}. 2 x small charcoal fragments (<4mm) were noted. These fragments are too small for anthracological analysis, and/or AMS ¹⁴C dating. A fairly frequent count of small (<1mm) carbonised seeds were present. However, poor surface structure and their small size prevented further identification. Occasional micro-flint flakes were noted (≤10). Sample {253} from Spit 2 (435) produced a flat residue of 20ml. The bulk of which was minerogenic sediment (fine-grained sand). A background charcoal matrix of dust/particles (<2mm) was present, along with a fairly frequent count of small (<1mm) carbonised seeds. Small seed size and degraded surface structure prevented identification. All other organic matter is intrusive, comprising stem matter and rooting fibres.

Grid 109/206 Spit 1 Context (396) and Spit 4 Context (412) (Samples {217} and {236})

Samples {217} and {236} from grid 109/206 produced a negligible amount of archaeobotanical material. Charcoal dust/particles <2mm were present in both samples from Spit 1 (396) and Spit 2 (412). 3 x small (<1mm) carbonised Indeterminate seeds were noted in sample {236} from Spit 2. Small seed size and surface degradation prevented identification. All other organic matter is intrusive, i.e., rooting fibres and stem matter, along with *Rubus* sp. (Brambles) seeds (noted in sample {236}).

AREA B

Grid 114/199 Spit 1 Context (323), Spit 3 Context (335), Spit 4 Context (381), Spit 5 Context (393), and Spit 6 Context (407) (Samples {151}, {179}, {205}, {222}, and {232})

Charcoal dust/particles <2mm were present in 5 x samples ({151}, {179}, {205}, {222} and {232} (subsuming Spits 1 and 3-6). Sample {151} from Spit 1 (323) produced a single carbonised fragment of rhizomatous/rootwood on the 4mm size boundary. This material is unsuitable for AMS ¹⁴C dating. Sample {205} from Spit 4 (context (381)) which contained 3 x small (<1mm) carbonised Indeterminate seeds (which were too small for identification), All other organic matter across these samples is intrusive, i.e., rooting fibres, stem matter, and leaf litter.

Grid 114/201 Spit 2 Context (329) (Sample {156})

A light residue of charcoal dust/particles (<2mm) was present in the 2ml flat residue. All other organic matter was intrusive, i.e., fine rooting fibres and stem matter.

Grid 115/199 Spit 1 Context (450), Spit 2 Context (459), and Spit 4 Context (517) (Samples {265}, {275} and {314})

Charcoal dust/particles <2mm were present all 3 x samples {265}, {275} and {314}. Sample {275} from Spit 2 (459) produced occasional small Indeterminate carbonised seeds (n=2) and a single carbonised Indeterminate seed/grain (≥2mm). However, the larger carbonised seed/grain was heavily degraded

which prevented identification. 5 x micro-flint flakes were also noted in sample {275}. All other organic matter comprised intrusive rooting fibres and stem matter, leaf litter, and worm eggs.

Grid 115/200 Spit 1 Context (449) (Sample {264})

Charcoal dust/particles <2mm were present in sample {264}. The bulk of the flot residue (30ml) being composed of fine-grained sand. All other organic matter is intrusive, i.e., root fibres and stem matter.

Grid 115/202 Spit 6 Context (384) and Spit 7 Context (385) (Samples {208} and {210})

Charcoal dust/particles <2mm were present in the background matrix of both samples {208} and {210}. All other material from Grid 115/202 is intrusive, comprising rooting fibres and stem matter, leaf litter, an insect body segment, a single Cochlicopidae (Pillar Snail) shell, and occasional Ranunculaceae (Buttercups) seeds. The insect body segment, along with the presence of an intrusive snail shell in sample {210} from Spit 7 indicates soil mixing and modern contamination into the deposit.

Grid 115/205 Spit 2 Context (251) (Sample {75})

A light charcoal matrix of dust/particles <2mm was the only archaeobotanical material present in sample {75}. All other organic matter is intrusive, i.e., rooting fibres and stem matter.

Grid 116/200 Spit 1 Context (518), Spit 2 Context (519), Spit 3 Context (528), and Spit 4 Context (531) (Samples {316}, {317}, {327}, and {329})

All 4 x environmental samples from grid 116/200 (from spits 1-4) were dominated by intrusive organic matter, comprising stem and rooting fibres, leaf litter, and (in sample {329}) fragments of modern twigwood. Whilst the archaeobotanical content of these 4 x samples was negligible, charcoal dust/particles <2mm were abundant in all but sample {327} from Spit 3 (528). Sample {327} (528) from the retent residue of spit 3 produced 3 x small charcoal fragments (2-4mm). However, these fragments are too small for anthracological analysis and/or AMS ¹⁴C dating.

Grid 116/202 Spit 2 Context (452), Spit 3 Context (457), Spit 4 Context (458), Spit 6 Context (508), Spit 7 Context (457) and Spit 8 Context (521) (Samples {268}, {273}, {288}, {308}, {273} and {319})

Sample {268} from Spit 2 (452) produced 1 x charcoal fragment ~4mm from the retent residue which was vitrified with a glassy/vitrified coating – as if glazed. No magnetism was recorded when the fragment was scanned. A single fragment of charcoal with the 2-4mm fragment size boundary was also noted in the retent of sample {268}, along with 3 x small carbonised Indeterminate seeds (<1mm). The latter being “coaled” in structure and heavily degraded. The flot from the same sample {268} produced a frequent background matrix of charcoal dust/particles 2mm. Several of these small fragments were also

observed as being “glassy”. However, no magnetism was noted when the flot was scanned with a magnet. A single carbonised small Indeterminate seed (<1mm) and a single carbonised *Silene* sp. (Campions) seed were also noted. It is feasible that sample {268} is compromised with this deposit being contaminated with material from a different chronological and later phase. All other organic matter from sample {268}, the Spit 2 (452) sample, is intrusive, i.e., stem matter and rooting fibres, and a single insect egg case. The retent from samples {273} (Spit 3 (457)), {288} (Spit 4 (458)), produced occasional (n=1) charcoal fragments within the 2-4mm fraction size boundary and small (<1mm) carbonised Indeterminate seeds. Sample {308} (Spit 6 (508)) produced a single small (<1mm) carbonised Indeterminate seed. Charcoal dust/particles <2mm were also present in sample {308} and {319} (Spit 8 (521)). All other organic matter is intrusive, comprising stem matter and rooting fibres, and leaf litter.

Grid 117/200 Spit 1 Context (353), Spit 3 Context (378), Spit 4 Context (391), Spit 5 Context (399), Spit 6 Context (410) and Spit 8 Context (444) (Samples {176}, {199} and {200}, {213}, {223}, {235} and {261})

All 7 x samples from Grid 117/200 produced a background matrix of charcoal dust/particles <2mm. The retent residue of sample {200} from Spit 3 (378) produced 2 x small carbonised fragments of Hazelnut shell (4mm x 3mm and 3mm x 2.5mm respectively). However, then culmination of the nut shell may not provide enough carbon for AMS ¹⁴C dating. Sample {213} from Spit 4 (391) produced a single fragment of charcoal within the 2-4mm fraction size boundary and a similarly sized piece from the flot. Both fragments are too small for anthracological analysis and/or radiocarbon dating. Sample {261} from Spit 8 (444) also produced a single charcoal fragment within the 2-4mm fragment size boundary. This fragment is also too small for anthracological analysis and/or radiocarbon dating. All other organic matter in all 7 x samples is intrusive, comprising twigwood, stem matter and rooting fibres. *Rubus* sp. (Brambles) seeds were also noted in sample {235} from Spit 6 (410) and are modern and intrusive.

Grid 117/202 Spit 1 Context (397), Spit 2 Context (402), Spit 3 Context (411), Spit 4 Context (431) and Spit 5 Context (437) (Samples {218}, {230}, {237}, {248} and {257})

Small charcoal *fragments* (within the 2-4mm fragment size boundary) were present in the retent residues from samples {218} (Spit 1 (397)), {230} (Spit 2 (402)), {237} (Spit 3 (411)) and {248} (Spit 4 (431)). However, all 10 x charcoal fragments were too small for anthracological analysis and/or AMS ¹⁴C dating. Small carbonised Indeterminate seeds (<1mm) were rare but noted in the retent from sample {218} (n=1) and in the flot of sample {257} (Spit 5 (437)) (n=2). All other organic matter from these 5 x samples is intrusive, comprising rooting fibres and stem matter, worm eggs, and an insect egg case.

Grid 118/202 Spit 1 Context (455) and Spit 4 Context (499) (Samples {271} and {299})

Charcoal dust/particles <2mm was present in both samples {271} and {299} from Grid 118/202. Small carbonised (<1mm) Indeterminate seeds were also noted ({271} Spit 1 (455) n=5) and {299} Spit 4 (499) n=4). All other organic matter is intrusive, i.e., rooting fibres and stem matter.

Grid 119/199 Spit 5 Context (495) (Sample {303})

Sample {303} from Spit 5 (495) produced a background matrix of charcoal dust/particles <2mm, and 3 x small carbonised Indeterminate seeds (<1mm). All other organic matter is intrusive, i.e., twigwood fragments, rooting fibres and stem matter, and *Rubus* sp. (Brambles) seeds. Worm eggs were also frequent and indicate bioturbation.

Grid 119/200 Spit 1 Context (512), Spit 2 Context (524), Spit 3 Context (526) and Spit 4 Context (529) (Samples {320}, {322}, {324} and {328})

Charcoal dust/particles <2mm was present across all 4 x samples {320}, {322}, {324} and {328}. Sample {320} from Spit 1 (512) produced 2 x small carbonised Indeterminate seeds (<1mm). Flint flakes (n=2 and n=1) were noted in samples {320} (Spit 1 (512) and {328} (Spit 4 (529)) respectively. All other organic matter is intrusive, i.e., twigwood fragments, stem matter and rooting fibres, with worm eggs noted in sample {328}. Concentration of the latter being indicative of bioturbation. Whilst little archaeobotanical material was produced by these 4 x samples, the bulk of their volume comprised fine-grained sand and reconstituted Brickearth, along with the bulk of the twigwood fragments.

Grid 119/204 Spit 1 Context (321) and Spit 2 Context (332) (Samples {150} and {165})

A light background matrix of charcoal dust/particles <2mm was present in samples {150} and {165}. Sample {165} from Spit 2 (332) produced a single small carbonised Indeterminate seed <1mm. A single micro-flint flake was also noted in sample {165}. All other organic matter is intrusive, comprising rooting fibres and stem matter. Sample {165} from Spit 2 (332) also contained intrusive and modern twig-wood fragments.

Grid 119/206 Spit 1 Context (338) and Spit 3 Context (358) (Samples {172} and {189})

Charcoal dust/particles <2mm was present in both samples {172} and {189} from Grid 119/206. Sample {172} from Spit 1 (338) produced 2 x small carbonised seeds <1mm. All other organic matter is intrusive, i.e., rooting fibres and stem matter.

Grid 120/199 Spit 2 Context (460), Spit 3 Context (372), Spit 7 Context (408) and Spit 8 Context (420) (Samples {276}, {209}, {242} and {251})

Charcoal dust/particles <2mm was common in all three samples {209}, {242} and {251} from Grid 120/199 (Spits 3, 7 and 8). With the exception of a single small carbonised Indeterminate seed (<1mm) in sample {242} from Spit 7 (408), no other archaeobotanical material was present. A single micro-flint flake was noted in sample {276} from Spit 2 (460). All other organic matter is intrusive, i.e., twigwood fragments, rooting fibres and stem matter, and a single insect egg case, along with fairly frequent count of worm eggs (indicating bioturbation).

Grid 121/199 Spit 3 Context (460) (Sample {276})

Sample {276} produced a background matrix of charcoal dust/particles <2mm. A single micro-flint flake was also noted. All other organic matter is intrusive, i.e., twigwood fragments, rooting fibres and plant stem matter, and leaf litter. The bulk of the 20ml volume of this sample was comprised of twigwood and stem matter.

Grid 121/200 Spit 3 Context (357), Spit 4 Context (502), Spit 5 Context (505) and Spit 6 Context (506) (Samples {181}, {301}, {304} and {306})

All 3 x samples provided by the flot residues from Grid 121/200 produced charcoal dust/particles <2mm. Sample {301} (retent only) produced a single broken and carbonised Poaceae (Grasses) grain (≤4mm). All other organic matter from the 3 x flot residues is intrusive, i.e., stem matter and rooting fibres, and (forming the bulk volume of 34ml from sample {306}) twigwood fragments.

AREA C

Grid 120/211 Spit 4 Context (333) and Spit 5 Context (339) (Samples {159} and {166})

Charcoal dust/particles <2mm were present in both samples {159} and {166}. Sample {166} from Spit 5 (339) contained a single small carbonised Indeterminate seed (<1mm). All other organic matter in both samples is intrusive, i.e., stem matter and rooting fibres, and worm eggs in sample {159}. The latter indicative of bioturbation.

Grid 120/212 Spit 2 Context (414) (Sample {255})

The background matrix of sample {255} produced a light presence of charcoal dust/particles <2mm. All other organic matter is intrusive, i.e., rooting fibres and stem matter.

Grid 120/123 Spit 2 Context (376), Spit 3 Context (386) and Spit 4 Context (394) (Samples {206}, {215} and {216})

Charcoal dust/particles <2mm were present in all 3 x samples from Grid 120/123. Sample {215} from Spit 3 (386) produced a single carbonised small Indeterminate seed (<1mm) and a single small Poaceae (Grasses) grain (<2mm). All other organic matter is intrusive, comprising stem matter and rooting fibres, and leaf litter.

Phase 2 – Medieval

Group 16: Pit Cut [78] Contexts (75), (76) and (77) – Fill of Storage Pit (Samples {10}, {11} and {12})

The only archaeobotanical matter produced by samples {10} (75), {11} (76), and {12} (77) was a light background matrix of charcoal particles/dust <2mm. A slight ferromagnetic pick-up of mineral grains

(fine-grained sand) was noted when the samples were scanned with a magnet. Sample {11} from the storage pit fill (76) was weighted (30ml) with a fine-grained sand residue. A single flint micro-flake was observed in sample {12} from context (77). All organic matter was rare, comprising intrusive leaf and stem matter, and fine rooting fibres.

Group 14.2: Ditch 3 Cut [23] Context (20) – Mid-Fill of Linear (Sample {87})

The low flot volume (2ml) produced a light charcoal particle/dust and occasional small charcoal flecks (2-4mm). All other organic material is intrusive, i.e., occasional counts of stem and leaf litter, and a single Poaceae (Grasses) grain and 2 x Cyperaceae (Sedges) seeds.

Group 15 Enclosure 3: Ditch 6 Cut [94] Contexts (81), (82) and (83) – Mid-Fills of Linear (Samples {90}, {89} and {88})

The three contexts from Cut [94] produced a negligible quantity of archaeobotanical material from the flot only. This comprised a light background matrix of charcoal particles/dust and small charcoal flecks from the 2-4mm fraction. Occasional carbonised seeds (2 x Chenopodiaceae (Goosefoots) and a single small Poaceae (Grasses) grain) were noted. All other non-carbonised organic matter is intrusive, comprising 2 x *Rubus* sp. (Bramble) seeds, leaf litter, and stem and rooting fibres. Occasional ferromagnetic inclusions were present in samples {89} (82) and {90} (81). That is micro-slag from context (82) comprising magnetic particles of slag and small particles of glassy slag, and hammerscale from context (81).

Group 15 Enclosure 3: Ditch 6 Cut [50] Contexts (51), (73), (101) and (108) – Mid-Fills of Linear (Samples {91}, {92}, {93}, and {94}, {95}, {96} from (108))

The six samples from Ditch 6 Cut [50] produced a negligible amount of archaeobotanical material from the flot only. Charcoal particles/dust and small charcoal flecks (2-4mm) were present in all samples. Sample {96} (which provided the greatest volume (18ml) of flot residue) produced occasional counts of carbonised seeds (1 x Chenopodiaceae (Goosefoot family), 2 x small Poaceae (Grasses) (<2mm), and 2 x small (<1mm) Indeterminant seeds. Sample {93} (101) produced a single carbonised Ranunculaceae (Buttercup family) seed). With the exception of sample {91} (context (51)) that produced a single flint micro-flake, all other material is intrusive. This intrusive matter comprised abundant rooting fibres, leaf litter, grass stem fragments, *Rubus* sp. (Brambles) seeds, and a single insect egg case.

Group 14.4: Ditch 5 Cut [100] Context (156) – Fill (Samples {100} and {101} and Context (99) – Fill (Sample {102}))

Sample {100} produced a background matrix of charcoal dust/particles <2mm. Sample {101} provided a small volume (5ml) of flot residue which produced a single small (<1mm) carbonised seed

(Indeterminate) and a background matrix of charcoal dust and particles (<2mm). All other organic matter was intrusive, comprising stem and rooting fibres, and a single insect egg case. A magnet scan of sample {101} attracted a light residue of ferromagnetic soil particles. Sample {102} produced little archaeobotanical material from the flot. Charcoal particles/dust (<2mm) was abundant, with occasional (<10) flecks of charcoal from the 2-4mm size fraction. Carbonised seeds were rare comprising 2 x *Veronica hederifolia* (Ivy-leaved Speedwell), and single specimens of Indeterminate (<1mm) and Poaceae (Grasses (<2mm)). All carbonised seeds were structurally degraded. A single micro-fragment of hammer scale was produced by the magnet scan of sample {102} (99). All other material is intrusive, i.e., fine rooting fibres and grass stem fragments.

Group 14.1: Ditch 2 Cut [63] Contexts (61), (62), (60) and (155) – Fills (Samples {104}, {103}, {105} and {106})

All 4 x environmental samples from Ditch 2 Cut [63] produced negligible quantities of archaeobotanical material. All samples produced a background matrix of charcoal dust/particles (<2mm). All other organic matter is intrusive, comprising rooting fibres, stem matter, leaf litter, and (in sample {103}) a single insect body segment. Sample {105} (60) produced hammer scale (≤ 10) when scanned with a magnet.

Conclusions and Summary

Preservation of charred plant remains across the Tottenham Hale Centre – Welbourne Site was poor both quantitatively and qualitatively. This was common cross-site and cross-phase for both Mesolithic (Phase 1.2 and 1.3) and Medieval (Phase 2) environmental samples. Whilst the uppermost Phase 1.3 Brickearth deposit produced the greater number of environmental samples (particularly for Areas A and B, and only from Area C), the actual presence/absence content of these samples (n=88 from grids only) was no different in respect of the counts and spread of archaeobotanical (and intrusive organic matter) for the lesser number of samples from Phase 1.2 deposits (n=11 from grids only). This pattern was also replicated in the twenty samples from Phase 2 deposits. This finding supports the conclusion that preservation is poor cross-site and common to the three depositional phases that provided the environmental samples.

The majority of environmental samples (90%) were produced from Phase 1.3 deposits from the upper Brickearth layer. Whilst more occasional counts of small carbonised Indeterminate seeds were observed in samples from Area B. This can be attributed to this area providing 40% more samples in comparison to Areas A and C combined. The presence of small carbonised Indeterminate seeds, rare small carbonised grass grains (n=2), and a single small fragment of carbonised hazelnut shell, does not enable a model to be proposed for the Phase 1.3 palaeoenvironment. What we can say is that (what are now considered as weeds) “weed” seeds and wild grasses, along with hazelnut shell, were present. The lower number of samples from Phase 1.2 deposits skews the data, but in terms of presence only small carbonised Indeterminate seeds (again what are today considered to be “weeds”) were present in environmental samples from Area B.

Microscopic charcoal was present in 97% of all environmental samples from the site. Charcoal from the larger fractions was negligible due to small fragment size (unsuitable for anthracological analysis or AMS ¹⁴C dating). Abundant particulate charcoal is a marker for burning (be that burning naturally or anthropogenically induced) and was recorded across Mesolithic Phase 1.2 and 1.3 samples, and the Medieval Phase 2 samples. However, it should be noted that the high ratio of intrusive organic matter into all environmental sub-samples cross-phase and cross-site (and grid/area), in conjunction with the shallow deposits at the site, does raise the probability that this background charcoal signal may be intrusive as opposed to being chronostratigraphically constrained.

Phase 2 (Medieval) samples similarly produced little archaeobotanical material. However, the presence of markers for damp/wet rough disturbed ground, whilst quantitatively rare, identified sedges, grasses, buttercups, and Ivy-leaved Speedwell (along with other small Indeterminate “weed” seeds). Metallurgical micro-residues were observed in four samples ({89}, {90} and {102}) from Ditches 5 and 6, and sample {105} from Ditch 2). The presence of this material was rare comprising occasional micro-particles of slag and hammerscale, and may be a contaminant as a result of bioturbation and soil mixing. Micro-flint flakes were also noted in two samples ({12} and {91}), and whilst rare (n=<3), may be a further marker for disturbance or bioturbation. Again, this flags up the significance of soil-mixing and/or disturbance, be that gravitropism, bioturbation, water percolation, and/or soil-mixing.

In summary:

- There are no environmental markers that suggest any differentiation between the underlying Phase 1.2 and overlying Phase 1.3 Brickearth deposits in relation to the palaeoenvironment of the Mesolithic.
- There is no archaeobotanical evidence for Mesolithic activity or occupation at the Tottenham Hale Centre – Welbourne Site.
- Three potential samples from Phase 1.3 samples have been identified during this assessment for AMS ¹⁴C dating (see recommendations below).
- Preservation of archaeobotanical material from Phase 2 samples is similarly low in comparison to the samples from Phase 1.2 and 1.3 deposits.
- Environmental data are statistically inadequate to enable palaeoenvironmental models to be presented for the Mesolithic or the medieval periods.
- All environmental material from the site has been maximised with cross-site and cross-phase (area/grid) results presented in this assessment report.

Recommendations for Further Work

Archaeobotanical Specialist Analysis

No further work is proposed or recommended on environmental samples from the Tottenham Hale Centre – Welbourne Site. All archaeobotanical material (along with non-organic inclusions and intrusive organic matter) for the site has been maximised to produce the cross-site and cross-phase data

presented in this report. There is no additional material for analysis or additional specialist analysis (reassessment or additional study).

Preservation (that is both quantitative and qualitative preservation) of the archaeobotanical assemblage across Phases 1.2 and 1.3, and Phase 2, is numerically poor and statistically insignificant. All charred plant remains from the site have been assessed with abundance data presented in the three data tables (1-3). Additional data subsuming microscopic non-organic material, and intrusive organic matter has also been included in the environmental data-set to provide an objective assessment of the macro- and micro-contents of all environmental samples from the site. It is noted that intrusive organic material has flagged up the impact of bioturbation and soil-mixing across all cross-site and cross-phase (and grid/area) environmental samples.

AMS ¹⁴C dating

Material suitable for AMS ¹⁴C dating from the assessed environmental samples detailed in this report is minimal. However, samples that may prove suitable for submission to a dating laboratory are:

- Sample {277} from Area A Phase 1.3 Grid 106/204 Spit 3 (context (465)) – 1 x Indeterminate cereal/grass grain which may provide enough carbon.
- Sample {300} from Area A Phase 1.3 Grid 107/204 Spit 1 (context (501)) – 4 x charcoal fragments on the 4mm size boundary.
- Sample {282} from Area A Phase 1.3 Grid 108/204 Spit 2 (context (464)) – ~9 x charcoal fragments on the 4mm size boundary.

A summary of this report, along with the data tables, should be included in any future report or publication.

Environ. Sample No.	197	123	187	198	220	226	305	313	326	332	266	279
Phase	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Archaeological period	Mesolithic											
Lithics Scatter	Non-Scatter	A						B				
Grid Number	105/206	105/211	109/204				120/204				120/199	
Spit Number	Spit 4	Spit 2	Spit 2	Spit 4	Spit 5		Spit 3	Spit 4	Spit 5	Spit 6	Spit 1	Spit 4
Feature	Isolated Test Pit	Test Pit	Test Pit				Test Pit				Test Pit	
Context Number	377	291	350	373	398	403	500	509	522	530	440	462
Deposit type	Brickearth	Brickearth	Brickearth				Brickearth				Brickearth	
Collected Bulk Sample Volume (L)	10	10	10	10	10	10	20	20	20	20	20	20
Bulk %processed	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Volume of flot (ml)	0.2	0.2	4	15	6	5	10	30	28	20	0	0
FLOT												
Charcoal	Common name											
Charcoal >4mm												
Charcoal 2mm to 4mm					1							
Charcoal <2mm		1	1	3	3	4	3	4	4	4	4	
Carbonised Plant Remains												
Seeds												
Seeds <1mm - Indeterminate	Indeterminate							1	1	1	1	
Non-carbonised Plant Remains												
Seeds												
Rubus sp.	Brambles				2							
Terrestrial Molluscs												
Vallonia pulchella	the lovely vallonia							1				
Intrusive matter												
Plant Stem Matter		1	1	2	3	2	1	3	2	2	2	
Plant Root Matter/Rooting fibres		1	1	4	4	4	4	4	4	4	4	
Insect Egg Case										1		
Worm eggs				1								
RETENT												
Charcoal	Common name											
Charcoal >4mm												
Charcoal 2mm to 4mm											1	1
Charcoal <2mm												
Carbonised Plant Remains												
Preservation: * = Poor ** = Average *** = Good												
Abundance: 1 = Occasional (1-10) 2 = Fairly Frequent (11-30) 3 = Frequent (31-100) 4 = Abundant (>100)												

Table 1. Abundance data Phase 1.2.

Page	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000																																																																																																										
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Table 2. Abundance data Phase 1.3.

Environ. Sample No.	10	11	12	87	90	89	88	91	92	93	94	95	96	100	101	102	104	103	105	106
Phase	2																			
Archaeological period	Medieval																			
Group No.	18				14.2				15 - Enclosure 3				15 - Enclosure 3				14.4			
Feature	Pit Cut 78				Ditch 3 Cut 23				Ditch 6 Cut 94				Ditch 6 Cut 50				Ditch 5 Cut 100			
Context Number	75	76	77		20			81	82	83		51	73	101	108		156	99	61	62
Deposit type	Fill of Storage Pit	Basal Fill of Storage Pit		Mid-Fill of Linear				Mid-Fill of Linear				Mid-Fill of Linear					Fill			Fill
Collected Bulk Sample Volume (L)	10	10	20	10	10	10	10	10	10	10	10	40	10	20	20	20	20	20	20	20
Bulk % processed	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%
Volume of flint (ml)	2.5	30	3.5	2	5	6	4.5	3	1	4	3	1	18	3	5	4	18	20	4	10
FLOT																				
Charcoal	Common name																			
Charcoal >4mm					1	1		1	1	1			1	2	1		1			
Charcoal 2mm to 4mm																				
Charcoal <2mm	2	1	2	2	2	2	3	4	2	4	2	2	4	4	3	4	4	4	4	4
Carbonised Plant Remains																				
Seeds																				
Chenopodiaceae							1						1							
Poaceae <2mm						1							1				1			
Veronica hederifolia																	1			
Ranunculaceae											1									
Seeds <1mm - Indeterminate													1		1	1			1	
Non-carbonised Plant Remains																				
Seeds																				
Cyperaceae				1																
Rubus sp.								1		1		1								
Seeds <1mm - Indeterminate				1																
Intrusive matter																				
Leaf Matter	1		1	1	1	1	1	1									1	1	1	
Plant Stem Matter	1	1		1	1	1	1			2	1	1	1	1	1	1	2	2	2	1
Plant Root Matter/Rooting fibres			1		1	1	3	4	1	4	4	1	4	4	2	3	4	4	3	4
Insect Body Segment/s																				
Insect Egg Case									1							1				
Metallurgical Residues																				
Slag (micro-particles porous slag)						1														
Hammerscale						1											1			1
Minerogenic Inclusions																				
Flint flakes			1					1												
Preservation: * = Poor ** = Average *** = Good	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*
Abundance: 1 = Occasional (1-10) 2 = Fairly Frequent (11-30) 3 = Frequent (31-100) 4 = Abundant (>100)																				

Table 3. Abundance data Phase 2.

References

- Cameron, R. 2008. *Land Snails in the British Isles*. Telford: FSC Publications.
- Campbell, G., Moffett, L., Straker, V. 2011. *Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation* (2nd. edn.). Swindon: English Heritage.
- Cappers, R.T.J., Bekker, R.M., and Jans, J.E.A. 2012. *Digitale Zadenatlas van Nederland: Digital Seed Atlas of the Netherlands*. Groningen: Barkhuis & Groningen University Library.
- Cappers, R.T.J. and Neef, J. 2012. *Handbook of Plant Palaeoecology*. Groningen: Barkhuis & Groningen University Library.
- Hawkins, H. September 2019. Tottenham Hale Centre, London, N17 9LB: Written Scheme of Investigation and RAMS for an Archaeological Evaluation. Unpublished Report: Pre-Construct Archaeology Ltd. (v7 WEL update).
- Jacomet, S. and Collaborators. 2006. Identification of cereal remains from archaeological sites. Basel: Archaeobotany Lab IPAS, Basel University (<http://www.arkeobotanika.pbworks.com>).
- Stace, C. 2014. *New Flora of the British Isles*. Cambridge: Cambridge University Press.
- Williams, D. 1973. Flotation at Siraf. *Antiquity* 47, 198-202.

OASIS Summary for preconst1-521457

OASIS ID (UID)	preconst1-521457
Project Name	Excavation at Welbourne Site (Plot C) Tottenham Hale Centre
Sitename	Welbourne Site (Plot C) Tottenham Hale Centre
Sitecode	
Project Identifier(s)	WMD19
Activity type	Excavation
Planning Id	HGY/2018/2223
Reason For Investigation	Planning: Post determination
Organisation Responsible for work	Pre-Construct Archaeology Ltd
Project Dates	21-Nov-2019 - 13-Mar-2020
Location	Welbourne Site (Plot C) Tottenham Hale Centre NGR : TQ 34290 89573 LL : 51.589014178956525, -0.062930659968116 12 Fig : 534290,189573
Administrative Areas	Country : England County/Local Authority : Haringey Local Authority District : Haringey Parish : Haringey, unparished area
Project Methodology	Original plan for strip, map and sample excavation of 723.72 sq m. Mitigated into specific methodology for the investigation of Mesolithic flint scatters in 1m squares at 5m intervals across the site. The excavated squares were hand excavated in 0.05m spits and all flints recorded with SF numbers
Project Results	This most significant outcome of excavation at this site was a large lithic assemblage of early Mesolithic activity found stratified in the upper reworked profile of brickearth deposits. Excavation was carried out in 1m squares and 0.05m spits to recover as much as the assemblage as possible and identify areas of in-situ flint working. Three main scatters were identified with evidence of tool manufacture, lithic blank production, toolkit maintenance and tool use, all of Early Mesolithic character and Deepcar-type technology. Burnt material was also found in clusters is indicative of hearth settings and suggests that this site was an early Mesolithic 'home-base' or location that was repeatedly returned to. The site also produced a small intrusive and abraded residual LBA/EIA pottery assemblage. Medieval boundary ditches were excavated relating to agricultural enclosures with small pottery assemblages of 11th to 14th century date. No post-medieval activity was identified at this site.
Keywords	Lithic Implement - MESOLITHIC - FISH Archaeological Objects Thesaurus Animal Remains - MEDIEVAL - FISH Archaeological Objects Thesaurus Jar - MEDIEVAL - FISH Archaeological Objects Thesaurus
Funder	Private or public corporation Argent
HER	
Person Responsible for work	Helen Hawkins
HER Identifiers	

PCA

PCA CAMBRIDGE

THE GRANARY, RECTORY FARM
BREWERY ROAD, PAMPISFORD
CAMBRIDGESHIRE CB22 3EN
t: 01223 845 522
e: cambridge@pre-construct.com

PCA DURHAM

UNIT 19A, TURSDALE BUSINESS PARK
TURSDALE
DURHAM DH6 5PG
t: 0191 377 1111
e: durham@pre-construct.com

PCA LONDON

UNIT 54, BROCKLEY CROSS BUSINESS CENTRE
96 ENDWELL ROAD, BROCKLEY
LONDON SE4 2PD
t: 020 7732 3925
e: london@pre-construct.com

PCA NEWARK

OFFICE 8, ROEWOOD COURTYARD
WINKBURN, NEWARK
NOTTINGHAMSHIRE NG22 8PG
t: 01636 370410
e: newark@pre-construct.com

PCA NORWICH

QUARRY WORKS, DEREHAM ROAD
HONINGHAM
NORWICH NR9 5AP
T: 01223 845522
e: cambridge@pre-construct.com

PCA WARWICK

UNIT 9, THE MILL, MILL LANE
LITTLE SHREWLEY, WARWICK
WARWICKSHIRE CV35 7HN
t: 01926 485490
e: warwick@pre-construct.com

PCA WINCHESTER

5 RED DEER COURT, ELM ROAD
WINCHESTER
HAMPSHIRE SO22 5LX
t: 01962 849 549
e: winchester@pre-construct.com

