

Archaeological Excavation at Site 2, Restaurant Land, Nacton Road, Ipswich, Suffolk, IPS719



Excavation Report



August 2013

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The Restaurant Group plc**

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Archaeological Excavation at 'Site 2', Nacton Road, Ipswich, Suffolk, IPS719

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Summary

In May to June 2013 Oxford Archaeology East carried out an excavation at 'Site 2' Nacton Road, Ipswich, near to Ravenswood Housing Estate. The excavation of the 0.47 ha area was prompted by a planning application for a restaurant development with associated car-parking. The site lay in an area that had previously been occupied by Ipswich Airport and had, during World War II, been used as an RAF airfield.

The area was stripped by mechanical excavator and all exposed archaeological and natural features were recorded. The earliest feature was a pit containing a deposit of Beaker pottery dating to the Late Neolithic or Early Bronze Age. A number of pits without datable finds may also be contemporary. A system of four prehistoric field boundary ditches probably dating to the Middle Bronze Age was recorded, suggesting that this area was utilised as fields in this period. This ties in with settlement recorded to the north of the Site and a barrow cemetery to the south.

Another phase of agricultural use of the Site is represented by a droveway at right angles to Nacton Road and probably dating to the Late Iron Age or Roman period. This may link up with another droveway and fields excavated to the south-west of the Site.

A number of small charcoal-filled pits with evidence of in-situ burning are likely to have had some industrial purpose, for example charcoal burning or metalworking. One of these pits has been dated to the Middle Anglo-Saxon period and it is likely that the remainder are contemporary or perhaps carried on into the medieval period. Small amounts of possible hammerscale within their fills suggests that the charcoal may be have been burnt for the purposes of iron smelting or smithing.

There was no definite evidence of Second World War defences or airfield features within this Site.

1 INTRODUCTION

1.1 Location and scope of work

- 1.1.1 Oxford Archaeology East conducted an archaeological excavation on land adjacent to Nacton Road in Ipswich, Suffolk in May to June 2013. The excavation site was located on the south-eastern outskirts of Ipswich, just north of the A14, at NGR TM 19786 41537 (centred).
- 1.1.2 The investigation arose in response to a restaurant development with associated car-parking which had been granted full planning permission with conditions (IP/12/00547/FUL). The current excavation site is an area to be used for two restaurant units and associated car-parking. It was termed in advance 'Site 2' in order to differentiate it from other phases of archaeological work on adjoining land and has been assigned the site code IPS 719 (Figure 1). To the south-west of the site was Site 1a which was excavated before Site 2 and was given the site code IPS 715 (Figure 1, OA East Report 2013a). To the north-west was Site 1b which was excavated immediately after Site 2 and was given the site code IPS 718 (OA East report 2013b).
- 1.1.3 The Site was accessed by a tarmac road, the location of which was previously excavated in 2000 (IPS 404) and 2013 (Site 1a, IPS 715).
- 1.1.4 Site 2, henceforth 'the Site', was a 0.47ha area of land, located on Nacton Road and accessed via Alnesbourn Road, in the Ravenswood housing estate. The Site was undeveloped land covered in rough grass with isolated concentrations of shrubs at the time of excavation.
- 1.1.5 This archaeological excavation was undertaken in accordance with a Brief issued by Suffolk County Council's Archaeological Service Conservation Team (SCCAS/CT, 2013) and a Written Scheme of Investigation prepared by Ramboll UK (Ramboll, 2013b).
- 1.1.6 The Site lay in an area which had previously been occupied by Ipswich Airport until its closure in 1997.
- 1.1.7 The Site archive is currently held by OA East and will be deposited with Ipswich Museum in due course.

1.2 Geology and topography

- 1.2.1 The underlying geology of the Site is the Red Crag formation of coarse-grained, poorly sorted, cross-bedded, abundantly shelly sands. The drift geology of glaciofluvial sand and gravel deposits gives rise to freely draining slightly acidic sandy soils (<http://mapapps.bgs.ac.uk/geologyofbritain/home.html>).
- 1.2.2 The northernmost part of the Site was at 37.0m Above Ordnance Datum (AOD) with the ground surface falling away gently from north-west to south-east to reach its lowest level at 36m AOD.
- 1.2.3 The estuary of the River Orwell lies 1.5km to the south-west of the Site.

1.3 Previous archaeological investigations

- 1.3.1 The area underwent a magnetometer scan in 1999. This was followed by a large-scale evaluation by trial trenching of the area previously occupied by Ipswich Airport, undertaken in 1999 to 2000 by SCCAS (IPS399; SCCAS 2000/90). The Site lies over the position of former evaluation Trench 22 and partly over Trenches 20 and 60 (Figure

2). Three areas were subsequently chosen for open area excavations in 2000. One of these open area excavations was located to the north-west of the current Site (IPS 404; SCCAS 2006/229).

- 1.3.2 In 2012 Pre-Construct Archaeology carried out investigations at Gainsborough Sports and Community Centre, Braziers Wood Road on the proposed site of Ipswich Academy, (IPS 676; Pre-Construct Archaeology 2013). This evaluation and excavation is located 1km to the west of the Site.
- 1.3.3 In April 2013 OA East conducted an excavation on Site 1a (IPS 715) – the access road for the restaurant development (OA East, 2013a, Report 1464).
- 1.3.4 Results of these investigations are described in Section 1.4 below.

1.4 Archaeological and historical background

- 1.4.1 The archaeological and historical evidence for the study area (an area of 1km from the boundary of Site 2) was analysed in detail in a desk-based assessment for Site 2 (Ramboll 2013a). The following is based on the above and also includes results from the excavations carried out in April 2013 at Site 1a (OA East Report 1464) and in 2012 at Gainsborough Sports and Community Centre (PCA 2013). Numbers in bold refer to context numbers from the former investigation.
- 1.4.2 No archaeological sites or findspots dated to the Palaeolithic or Mesolithic periods have been identified within the study area.
- 1.4.3 Remains of a small Neolithic or Bronze Age settlement with rectilinear and circular post-built structures were located 700m to the north-west of the Site (IPS386; SCCAS 2006/229). Bronze Age ploughed out burial mounds (barrows) between 300m and 600m to the south of the Site indicate the location of a cemetery serving the adjacent community (IPS027, 031, 039, 416, 417; SCCAS 2006/229 and PCA 2013).
- 1.4.4 The area in between is less well understood but it seems likely that it was used as fields in this period. This is borne out by the discovery of Late Neolithic/Early Bronze Age pits, post-holes and ditches within excavation area IPS 406 providing evidence for animal husbandry and probably periodic occupation (SCCAS 2006/229; Figure 3).
- 1.4.5 Nearer to the Site a pit (**0012**) with a sherd of Early Bronze Age 'Beaker' pottery was found within excavation area IPS 404 in 2000, just to the north of ditch **0010**. Another pit containing Beaker pottery was found during a watching brief less than 100m to the north of the Site where Ravenswood Avenue meets the roundabout (IPS 293). A pit containing Late Neolithic-Early Bronze Age Grooved Ware pottery was recorded at Gainsborough Sports and Community Centre (PCA 2013). Two further Early Bronze Age pits are recorded on the SHER 630m to the east of the Site (HER nos. MSF14871 and MSF19294).
- 1.4.6 At Site 1a (IPS 715) a ditch (**29/30**) was recorded which had also been observed during excavation IPS 404 (**0010**). This ditch can be very tentatively dated to the Middle-Bronze Age (1500-1200 BC). The very leached fills of these ditches and the absence of any cultural material would seem to accord better with prehistoric features rather than with any ditch that had been in-filled during the Iron Age or Roman periods. At Gainsborough Sports and Community Centre two phases of Middle to Late Bronze Age field systems were recorded as well as two phases of 1st century AD field systems (PCA 2013).

- 1.4.7 A group of rectilinear cropmarks known from aerial photographs are located 700m to the south-east of the Site (HER no. MSF2282). They are located to the south of Nacton Road, just to the south of the barrow cemetery and are aligned north to south and east to west. They may represent Iron Age, Roman or, feasibly, Bronze Age field systems and enclosures.
- 1.4.8 Metal detecting on the area of this cropmark site uncovered a number of Roman bronze objects including crossbow brooch fragments, a Colchester derivative brooch, a disc brooch and a faceted pin head. This concentration of Roman finds suggests that at least part of the identified cropmarks could reflect a phase of Roman occupation.
- 1.4.9 Evidence of a complex system of field boundary ditches located to the west and south-west of the Site was first recorded during the large-scale evaluation of the former Ipswich Airport (IPS399). Further small-scale excavations as well as investigations of the airport's perimeter revealed field systems and driveways which developed by the end of the late Iron Age and continued in use throughout the Roman period (SCCAS 2006/229). Of particular interest to the Site are a network of boundaries and a meandering driveway within IPS 405 and IPS 406 (Figure 3).
- 1.4.10 The evidence for Anglo-Saxon occupation within the 1km study area is confined to a small number of unstratified scatters of pottery and metal and several field boundary ditches found within the area of the former Ipswich Airport to the south-west of the Site and within Nacton Quarry (SCCAS 2005/138) to the south. Further afield, at Gainsborough Sports and Community Centre a trackway dating to the Middle Saxon period was revealed during an evaluation and excavation (PCA 2013). In Ipswich Airport evaluation trenches dug 1.15km to the south-west of the Site (IPS 390) found a focus of Anglo-Saxon settlement near to the springs in Braziers Wood.
- 1.4.11 Approximately 1.2km to the south-west of the Site lies the site of Alnesbourn Priory, a small Augustinian monastic house probably founded in the 13th century as a satellite of Woodbridge Priory (Figure 5). It was annexed by the monks of Woodbridge at some point in the 15th century and was 'ruinous' by 1514 (VCH 2, 111-112). The Site was within the extra-parochial area of Alnesbourn Priory until the mid 19th century when Alnesbourn Priory became a civil parish (Martin, J 1999, 24, 192). The reason why some areas fell outside the parish system is not clear. It may be that they were unpopulated or unsuitable for agriculture, or that they were associated with a religious house (<https://en.wikipedia.org>).
- 1.4.12 All known medieval remains within the study area concentrate along its edges and comprise unstratified scatters of pottery fragments and metalwork as well as a number of post-holes, pits and enclosure ditches excavated within the boundaries of the former Ipswich Airport (SCCAS 2006/299). The features are likely to be associated with Clapgate Lane, a meandering north-to south route linking medieval Ipswich and its suburbs with Alnesbourn Priory and probably other settlements along the northern bank of the River Orwell (SCCAS 2006/299).
- 1.4.13 There is little cartographic evidence for the post-medieval period within the study area. The earliest estate maps of the Harper's Farm dated to 1770 show the area divided into a number of enclosed fields, laid predominantly for cultivation (Figure 4). These field systems changed little throughout the 19th century (First Edition OS map 1881 to 1882, Figure 5) until the first decades of the 20th century (Third Edition OS map 1938).
- 1.4.14 A boundary ditch of probable post-medieval date (1/2) was revealed in the Site 1a (IPS 715) excavations which also lines up with a ditch (0002) found in IPS404 (not shown on

Figure 2, see Figure 1). Examination of the 1st edition OS map, by SCCAS at the time of writing report 2006/229 led to the suggestion that this ditch was part of a system of hedged field boundaries associated with the tree-lined entranceway to Alnesbourn Priory Farm and/or a triangular enclosure around Walk Farm.

- 1.4.15 Approximately 1km to the north of the Site lay Warren House, shown on 18th century and later maps (Figure 5). Its associated remains of a rabbit warren can be seen on 1946 aerial photographs as linear and rectangular earthworks on Warren Heath. The visible earthworks vary in form between embanked linear mounds and possibly ditched rectangular enclosures and rectangular platforms, all on a north-east to south-west alignment.
- 1.4.16 In 1929 147 acres (59 ha) of Ravens Wood was purchased by Ipswich Corporation with the intention of creating a municipal airport for Ipswich, with construction starting in the following year. The advent of World War II saw the airport facilities requisitioned by the government. Ipswich was allocated as a satellite airfield for Wattisham and was placed, like its parent station, in No 2 Group, Bomber Command. The Site is located at the eastern edge of the grass runway.
- 1.4.17 The Luftwaffe bombed Ipswich on 24 March 1941 when three Heinkel HE111s and two Messerschmitt BF110s attacked the airfield with high explosive bombs and machine gun fire (RRA website). On 1 September the airfield suffered a near miss from a V1.
- 1.4.18 Analysis of aerial photographs taken in 1944 and 1946 identified a number of World War II anti-invasion defences visible as structures and earthworks. The defences consisted of stretches of barbed wire which ran around the southern-side of the airfield. Within the barbed wire a number of hexagonal pillboxes were located. Two of the pillboxes were surrounded by a complex system of slit trenches. Numerous other trenches and gun pits were located around the edges of the airfield as were a number of Nissen huts and buildings of unknown function. The photographs show that the post-medieval field boundaries have been painted back on to the airfield as camouflage and at the south-western corner of the airfield four groups of long rectangular structures have also been camouflaged with paint.
- 1.4.19 On 1 August 1945, Ipswich Airport was placed under Care and Maintenance, remaining as such until April 1946 when the RAF left the site and civil flying resumed (RRA website).
- 1.4.20 The archaeological evaluation and excavations at the former Ipswich Airport uncovered two Pickett-Hamilton forts, located to defend two of the grass runways (SCCAS 2006/229). Numerous small charcoal-filled pits were identified across the airfield including in IPS 404, IPS 405 and IPS 406. At the time they were interpreted as 'FIDO' installations. FIDO stands for 'Fog Investigation and Dispersal Operation' (which was sometimes referred to as 'Fog Intense Dispersal Operation' or 'Fog Intense Dispersal Op' and was a system used for dispersing fog from an airfield so that aircraft could land safely (Wikipedia).
- 1.4.21 A Second World War Heavy Anti-aircraft artillery battery and an associated camp can be seen on aerial photographs of the 1940s as four earthwork gun emplacements and a variety of structures, located to the north-east of the airport. Between 26 March 1944 and 6 July 1944 the area of earthwork obstructions was bombed, as can be seen by the earthwork craters visible on photographs taken in July.
- 1.4.22 A possible World War II military camp and possible gun pits are visible as structures and earthworks on aerial photographs in woodland at Robert's Grove, to the south of

the airport. The camp is likely to have had some role in the defence of the airfield. After the war civil flying made a tentative start in 1946, but it was not until 1953 that scheduled civil airline services started again. The airfield was de-licensed and ceased to be registered by the Civil Aviation Authority on 31 December 1996. The last aircraft left over a year later in January 1998.

- 1.4.23 Most of the features revealed within IPS 404 and Site 1a (IPS 715) had been heavily truncated. This had probably occurred through ploughing and later on, through levelling of the ground for the airport and its grass runway.

1.5 Acknowledgements

- 1.5.1 OA East would like to thank Andy Shelley from Ramboll UK for arranging the work. Ostell Associates Limited commissioned the work on behalf of The Restaurant Group plc who funded the work. The Brief was prepared by Jess Tipper of Suffolk County Council Archaeological Service Conservation Team.
- 1.5.2 The excavation was carried out by Kate Clover, Mike Green, Lindsey Kemp, Pat Moan and Jemima Woolverton. Site survey was carried out by Pat Moan. The project was managed for OA East by Aileen Connor.

2 AIMS AND METHODOLOGY

2.1 Aims

2.1.1 The original aims of the project were set out in the Brief and Written Scheme of Investigation (SCCAS/CT 2013 and Ramboll 2013b).

2.1.2 The main aims of this excavation were:

- To assess and record the nature, extent, character and significance of any archaeological features and deposits on the Site.
- To preserve any archaeological evidence contained within the excavation area by record and to attempt a reconstruction of the history and use of the Site.

2.2 Regional research aims

2.2.1 The aims and objectives of the excavation were developed with reference to Regional Research Agendas (Brown and Glazebrook, 2000 and Medlycott 2011). The WSI (Ramboll 2013b) outlined the relevant regional research aims that the excavation had the opportunity to address:

- What is the relationship of Neolithic and Bronze Age funerary landscapes to settlements?
- To what extent can the Neolithic settlement be regarded as nomadic?
- Strengthening of palaeoenvironmental sampling strategies for deposits of confirmed Neolithic date (e.g. 100% flotation)
- Refining the typological identification of later Bronze Age pottery, linked to close radiocarbon and OSL dating
- Application of Bayesian theory to radiocarbon dates as part of refining the absolute Iron Age chronology for the region
- How did the use of land change in the Iron Age and Roman period?
- To what extent can the size and shape of fields be related to the agricultural regimes identified in the Roman period?
- How does the social change associated with the enclosure of commons and greens impact on the landscape?
- Classification of Second World War anti-invasion defences through comparison between the field and documentary evidence; and involvement of local amateur groups and individuals in work on Second World War defences.

2.3 Site specific research objectives

- To confirm any further presence and extent of archaeological remains that may be associated with those highlighted by the 1999 to 2000 evaluation and excavation (SCCAS reports 2000/90 and 2006/229)
- To confirm the presence/absence of any Neolithic and Bronze Age activity, such activity possibly being related to the known settlement to the north and a barrow cemetery to the south of the Site

- To confirm the presence/absence of a continuation of the Iron Age and Roman field systems identified to the west of the Site
- To confirm the character of changes in land use from the Iron Age to the Roman period that were postulated in SCCAS's report (SCCAS 2006/229)
- To assess and record the nature and extent of post-medieval field boundaries and their relation to the layout recorded by historic maps
- To assess and record the extent of any further WWII airfield defences and FIDO installations within the Site.

2.4 Methodology

- 2.4.1 The methodology used followed that outlined in the Brief (SCCAS/CT 2013) and detailed in the Written Scheme of Investigation (Ramboll 2013b).
- 2.4.2 Prior to excavation the entire area was subject to an ecological destructive survey. This involved the use of a wheeled excavator fitted with a flat bladed ditching bucket under the supervision of an ecologist and monitored by an archaeologist. The machine lifted the turf from all areas of the Site, and the resulting spoil was searched for evidence of specific animal species. No evidence for archaeological features or finds was found during the "Destructive Survey".
- 2.4.3 Machine excavation was carried out by a 20 ton 360° type mechanical excavator using a flat bladed ditching bucket under the constant supervision of a suitably qualified and experienced archaeologist. The turf was removed first and then the topsoil and subsoil.
- 2.4.4 Spoil, exposed surfaces and features were scanned with a metal detector. All finds were retained for inspection, other than those which were obviously modern.
- 2.4.5 All archaeological features and deposits were recorded using OA East's *pro-forma* sheets. Trench locations, plans and sections were recorded at appropriate scales and colour and monochrome photographs were taken of all relevant features and deposits.
- 2.4.6 Environmental samples were taken for finds retrieval and for carbonised plant remains.
- 2.4.7 Weather conditions were favourable.

3 RESULTS

3.1 Introduction

3.1.1 The results are presented below by date order from earliest to latest features. Natural features and undated features are discussed last. An average 0.45m depth of material was stripped off down to the natural drift deposits of sands and gravels. This stripped material consisted of 0.1m of turf and between 0.3m and 0.35m thickness of dark grey brown sandy silt topsoil (**100**) overlying 0.1m thickness of mid orangey brown slightly silty sand subsoil (**101**). All features were cut into natural ground and sealed by subsoil and topsoil unless otherwise stated. The topsoil contained a few piece of slag and clinker (see Appendix B.3) plus some modern pottery and iron objects which were not kept. Some flint was found in the subsoil. All features are shown on Figure 2.

3.2 Period 1: Late Neolithic to Early Bronze Age c 2500BC-1600BC

3.2.1 One pit at the southern end of the Site (**119**) contained sherds from four or five Beaker vessels of Late Neolithic or Early Bronze Age date within its upper and lower fills (Figure 7 and 9; Appendix B.1). Flint flakes, burnt flints and burnt stone were also retrieved from both fills. The pit was 0.9m in diameter and 0.5m deep, with steep sides. The lower fill was dark brown silty sand and the upper fill was mid grey brown sandy silt.

3.2.2 Next to the pit was a small undated posthole **168** which was 0.25m in diameter and 0.23m deep and did not contain any finds. On the other side of pit **119** was another pit - **165** which was 0.4m in diameter and 0.3m deep with vertical sides. Its fill contained flint flakes and some burnt flint, but no pottery. It is possible that due to their proximity to the Bronze Age pit they may be contemporary and associated with it.

3.3 Period 2: Probable Middle Bronze Age c 1500-1200 BC

3.3.1 Four ditches of probable prehistoric date were recorded. The first was **103** (and its terminus **107**) in the south-eastern corner of the Site, which was 1.15m wide and between 0.23 and 0.4m deep. A 10m long segment of this ditch was exposed on a WSW-ENE alignment. It had a single fill of light yellowish brown silty sand with occasional charcoal flecks (Figure 8; Plate 2). The fill of the terminus contained one tertiary flint flake of probable mid to late Bronze Age date. After one slot and the terminus had been excavated the remainder of the ditch was excavated in order to look for further finds, none were present. There was a gap of 3m between the terminus of ditch **103** and the terminus of ditch **184**. Ditch **184** (and its continuation **136**, **143**, **148**, **224**, **240** and **244**) continued on the same alignment as ditch **103** and was probably part of the same ditch system. Ditch **184** etc was between 0.86m and 1.15m wide and was 0.3m deep with a similar fill. Almost 100% of this ditch was excavated. The fill (of **148**) contained three flint flakes and three burnt flints. Evaluation Trench 22 was excavated through the line of this ditch but did not pick it up.

3.3.2 Perpendicular to **103** and **184** was ditch **110** (and its continuation **145**, **150**, **186** and **206**). This ditch was slightly wider and deeper than the WSW-ENE ditches, being up to 1.5m wide and up to 0.55m deep. This difference in size is due to variation in the depth of machining. Its upper fill was mid greyish brown sandy silt and its lower fill was light yellowish brown sandy silt. A slot was dug at the intersection of this ditch with **184** to establish the relationship. No clear stratigraphy was visible suggesting that they may

have been contemporary, at least in their final phase. Ditch **110** was cut by a pit with a charcoal rich fill (**208**) (see Section 3.5 below).

- 3.3.3 Cutting ditch **184 etc.** was ditch **220 etc.** (**234, 238, 222** and **242**). This ditch was aligned north-west to south-east. A total of 45m of its length was exposed before it appeared to terminate just beyond its intersection with ditch **184 etc.** Its width varied between 0.8m and 1.6m and its depth was between 0.13m and 0.18m. This variation is due to depth of machining. The only finds retrieved from its single mid grey brown sandy fill was a small quantity of burnt flint. Ditch **220** is the continuation of a ditch which was recorded as contexts **29** and **31** in Site 1a (IPS 715) and as context 0010 in IPS 404. Ditch **220** was cut by a gully (**236**) near its terminus.
- 3.3.4 The fills of all these ditches were pale and sandy - almost indistinguishable from the surrounding natural ground from which they evidently derive. Their leached fills indicate that a substantial time period has elapsed from the time of their silting up and that there may have been little organically derived material close by. Ditch **220** is later than ditch **184** and is also on a different alignment, but thought to be of the same general time period. In IPS 404, the continuation of ditch **220** was seen to have been cut by a pair of parallel ditches which are discussed in Section 3.4 below as being probably Late Iron Age or Roman in date.
- 3.3.5 Pit **202** was a slightly enigmatic feature in the centre of the Site which was 1.1m in diameter. Its reddened sandy fill with fired clay on the surface gave it the appearance of the base of a hearth. Upon excavation it was found to be a steep sided pit, 0.7m deep (possibly overcut into the red natural sand, Figure 10). The burnt clay was confined to the top of the feature. Its single reddish sand fill contained two flint flakes, likely to be Middle to Late Bronze Age in date. The sides and base are slightly irregular and it may be a tree throw that had been used as a dump for fired material or that had been infilled and subsequently used as a hearth. The presence of the flint flakes makes it likely to be Middle to Late Bronze Age in date and therefore probably contemporary with the four ditches.

3.4 Period 3: Probable Late Iron Age or Roman, c AD 1 - 410

- 3.4.1 Two parallel and probably contemporary ditches were recorded in the northern part of the Site. These ditches were aligned north-east to south-west and were three metres apart. The southern ditch was **176** (and its continuation **180, 200**). This ditch was between 0.88m and 1.3m wide and between 0.14m and 0.3m deep (Figure 11). It was filled with a light yellowish brown silty sand containing small abraded sherds of prehistoric pottery of possible Iron Age date (Appendix B.1), as well as a small quantity of burnt flint (Appendix B.2). This ditch continued into Site 1b as context **283**. It was also recorded in IPS 404 and apparently terminated there (contexts 0030, 0031 and 0016).
- 3.4.2 The northern ditch was **172** (and its continuation **190, 279**; Figure 11). It was between 1.3 and 1.4m wide and was 0.6m deep. It was filled with a light yellowish brown silty sand that contained no finds. This ditch continued into Site 1a/ IPS 715 as context **50** and Site 1b/ IPS 718 as context **279**. It was also recorded in IPS 404 as contexts 0014, 0028 and 0029. No finds have been retrieved from this ditch or from any of its extents but it is considered to be contemporary with ditch **176** based on its alignment.
- 3.4.3 In IPS 404 both these ditches cut ditch 0010, thus post-dating it. Ditch 0010 is a continuation of ditch **220** which is likely to be a Middle Bronze Age field boundary ditch.

- 3.4.4 The northern of the two parallel ditches (**172**) was cut by two charcoal rich pits (**174** and **281** (Site 1b), see section 3.7).
- 3.4.5 In IPS 404 these parallel ditches were interpreted as probably of post-medieval date due to the presence of a small fragment of tile in the fill of the southern ditch. A discussion of the reasons for attributing them now to the Late Iron Age or Roman period can be found in Section 4.4.

3.5 Period 4: Middle Anglo-Saxon, AD 663 - 854

- 3.5.1 Twenty seven small shallow pits with charcoal-rich fills and evidence of *in situ* burning were recorded in Site 2 – cut numbers **111** (Plate 3), **113**, **115**, **117**, **121** (Plate 4), **123**, **127**, **129** (Figure 9), **140** (Figure 10), **152**, **154**, **158** (Figure 10), **163**, **170**, **174** (Figure 11), **178**, **182**, **194**, **196**, **198**, **208** (Figure 12), **210** (Figure 13), **212**, **214**, **228**, **230** and **232** (Figure 14). Twelve more of these pits were recorded in Site 1b (IPS 718). None were recorded in Site 1a (IPS 715) although five were recorded in IPS 404 and interpreted as 'FIDOS' (see Section 4.5). This makes a total of 44 pits from all related sites. It is thought that due to their shape, size and fills all these pits had the same function and may well be contemporary.
- 3.5.2 There was a cluster of seven of these pits at the southern end of the Site (eight if the charcoal-filled pit recorded in Trial Trench 22 is included). A row of three pits occurs near the north-eastern boundary of the Site. The remainder are more loosely grouped or are isolated.
- 3.5.3 The pits were all circular or sub-circular and ranged in diameter from 1.4m (**158**) 1.2m (**163**), 1m (**111**), to the smallest which was 0.3m (**248**, Site 1b). The deepest pit was only 0.22m (**111**). On average the charcoal-filled pits from the Site were larger than those found in Site 1b. All the pits had black charcoal-rich fills and in several of them the sand around the edges and base was scorched red indicating *in-situ* burning.
- 3.5.4 Several of the pits had a single fill of a light grey ashy silty sand mixed with abundant charcoal. In others there were two distinct fills – a very black, almost pure charcoal lower fill and a less charcoal-rich, dark grey sandy silt upper fill.
- 3.5.5 100% of the fills of the majority of the charcoal-rich pits were kept as bulk samples. All bulk samples were processed using a flotation tank. Charcoal from charcoal-rich pits **111**, **121**, and **196** was subject to assessment (Appendix C3). All the charcoal assessed is oak, and would appear to be trunkwood. Oak would have provided high quality charcoal capable of high temperature, smoke free fires. The samples were also assessed for evidence of metal-working. Both flake and spheroidal hammerscale was detected in many of the samples. This could be indicative of smithing/smelting activities (Appendix C1).
- 3.5.6 There was an absence of any securely provenanced pottery, bone or tile from any of the charcoal-rich pits. The only artefacts came from pits **111** and **214**. Two unburnt flints – a flake and a blade – of probable mid to late Bronze Age date were retrieved from the upper fill of pit **111**. One sherd of post-medieval pottery was found at the top of pit **214**, probably an intrusive artefact from the subsoil above. A small amount of burnt flint was retrieved from the fill of pits **140**, **163** and **210** but this is probably naturally occurring flint that accidentally was burnt in the fire rather than flint that was deliberately used for cooking.

- 3.5.7 One of the pits (**208**) cuts probable prehistoric ditch **206**, and pit **174** cut probable Late Iron Age or Roman ditch **172**. All these pits were sealed by subsoil and topsoil (Figure 9).
- 3.5.8 A fragment of iron was found in the top of pit **127**, it is likely that it is intrusive since the object is more likely post-medieval than Anglo-Saxon in date, although the possibility that these pits belong to different dates can not be entirely ruled out.
- 3.5.9 In the absence of any pottery or other finds that could reliably be used for dating, charcoal from the lower fill of pit **111** (with a second from Site 1b) was selected to be sent to SUERC for Carbon 14 dating (see Appendix C2). This pit was selected because it contained particularly good sized charcoal pieces, suitable for C14 sampling. The date for charcoal from **111** is AD 603-671 (a 95.4% probability), the date for the Site 1b feature (**281**) is AD 665-854 (with a 95.4% probability) or AD 665-783 (with a 91% probability).
- 3.5.10 Thus, it can be stated with confidence that the fill of these two pits contain charcoal from trees that were burned in the Middle Anglo-Saxon period. Only two out of the 44 pits from all adjacent sites have been dated by this method, so some caution should be exercised in concluding that all pits are contemporary. Some pits *may* be earlier, but the fact that two of the pits cut into a probable Late Iron Age or Roman ditch indicate that these two at least are later than Late Iron Age or Roman.

3.6 Period 5: Post-medieval, 18th -19th century

- 3.6.1 No features of this date were present in Site 2 although a pair of parallel post-medieval ditches were identified in adjacent sites 1b, IPS 405 and IPS 406. They appear to be the remains of a tree-lined avenue laid out in the late 18th or 19th century leading from Nacton Road to Alnesbourn Priory.
- 3.6.2 Another ditch of probable similar date was identified in sites 1a, 1b, Trial Trench 20 and IPS 404, it is thought to be of late 18th century or 19th century date as it coincides with a field boundary shown on maps of this date (Figures 4 and 5). This boundary forms an enclosure associated with Walk Barn.

3.7 Period 6: Modern, 20th century

- 3.7.1 Along the eastern edge of the Site a series of nine narrow, irregularly sized linear cuts extended for 27m, parallel with Nacton Road. They were given a group number – **218** and a section was cut through them to investigate them. The cuts were between 70mm and 250mm wide and up to 0.13m deep (Plate 5, Figure 13). The topsoil-like fills gave them a modern appearance and the presence of one piece of tile and one piece of probably modern slag also indicate a recent date. One of the linear marks cut a charcoal-rich pit (**210**).
- 3.7.2 One interpretation for them is plough marks dating to sometime before the creation of the airport. Another interpretation is wheel ruts dating from a time when Nacton Road was a trackway and carts had to make a detour to the side of the main track to avoid muddy areas. If some or all of these marks are wheel ruts they probably date to sometime in the post-medieval period, however, the dark topsoil fill suggests a more recent date.
- 3.7.3 In Site 1b more of these marks were recorded on the same alignment as **218** and with the same topsoil-like fill. One of these marks held a narrow metal cable but the others did not and they are too numerous to all be cable trenches. In Site 1b the marks were

more extensive and were not just confined to the area next to Nacton Road. Their function may be related to the airport or they could be deep plough marks or scarification marks.

3.8 Undated features

- 3.8.1 Several undated pits were recorded within the Site. Pit **105** was located in the south-eastern corner of the Site, adjacent to ditch **103**. It had a diameter of 0.5m and was 0.22m deep. Pit **216**, on the western side of the Site, was 1m in diameter and 0.28m deep. Both these pits had been disturbed by animals or tree roots, giving them slightly irregular shapes in plan.
- 3.8.2 Pit **202**, which looked like a hearth, is described in Section 3.3.
- 3.8.3 An undated posthole (**168**) located next to Bronze Age pit **119** is described in Section 3.2, as is undated pit **165**.
- 3.8.4 A small gully (**236**), in the south-western corner of the Site, was seen to cut ditch **220** before it terminated (Figure 14). Its probable continuation (**226**) contained one flint flake in its fill.
- 3.8.5 All of the above undated features appear (by the colour and texture of their fills, the presence in some of them of flint flakes and burnt flint and the absence of any later artefacts), to be of probable prehistoric date.

3.9 Natural features

- 3.9.1 A total of 41 features of likely natural origin were recorded within Site 2, Site 1a and Site 1b. Only six of these (all in Site 2) were assigned context numbers (**125**, **156**, **174**, **192** and **161**). These natural features comprised circular, elongated and irregular pits and linear features. The regular pits probably derived from the process of freeze thaw of the sands and gravels in periglacial conditions, while those pits with irregular edges and profiles are likely to be tree boles. The linear features may have been the result of animal burrowing. Tree rooting and animal burrowing was also evident at the edges of some of the archaeological features.
- 3.9.2 A selection of natural features were half sectioned to eliminate the possibility of them being archaeological features. Tree bole **125** contained one flint flake and a small fragment of brick or tile.

3.10 Finds summary

- 3.10.1 A small assemblage of prehistoric pottery comprising 69 sherds weighing 789g was collected from the fills of two excavated features. The majority of the sherds came from two fills of pit (**119**) which produced 66 sherds weighing 786g. All are Later Neolithic Early Bronze Age Beaker including rim sherds from two vessels plus body and base sherds from at least a further two (Figure 7). Three small undecorated body sherds with fine flint inclusions, from ditch **176** are perhaps of Iron Age date. No further work is recommended other than a summary report to be included in any publication (Appendix B1).
- 3.10.2 106 flints were retrieved from Site 2, over half of these were burnt. The small sample size and mix of characteristics would imply this assemblage is a mix of Neolithic residual material and later Bronze Age working. No further work is recommended, other than a summary of the results to be included in any publication (Appendix B2).

- 3.10.3 A very small amount of industrial residue and waste was recovered during the excavations totally 0.28kg. The materials comprised cinder and slag, probably derived from a modern blast-furnace and found in topsoil and modern features. No further work is recommended, and the finds should be discarded (Appendix B3).
- 3.10.4 There are two metal finds (Appendix B4). A copper alloy ring, probably part of a medieval horse harness, was retrieved from subsoil (**101**). An iron bracket fragment of possibly post-medieval or even modern date came from the top of pit **127**, and may be intrusive. No further work is recommended.
- 3.10.5 One small fragment of post-medieval red earthenware of 16th to 19th century date came from the top of charcoal-rich pit **214**. One small fragment of CBM was retrieved from tree bole **125**. No further work recommended and these finds are recommended for discard

3.11 Environmental summary

- 3.11.1 Eleven samples were selected for assessment of plant remains. The sample from Bronze Age pit **119** contained a few fragments of charred hazelnut shells in addition to sparse charcoal. Samples taken from the charcoal-rich pits produced large flots volumes of charcoal. Occasional charred tree buds are present and several of the samples contain charred spheroids thought to be sclerotia of either ferns or fungi (Appendix C1). No further work is recommended other than a summary of the results to be included in any publication
- 3.11.2 Charcoal from three samples was submitted for assessment and identification of wood species, all were found to be oak (Appendix C2). Further work on species identification is recommended for samples from charcoal-rich features, and a short report should be included in any publication.
- 3.11.3 The processed samples were assessed for evidence of metal-working. Possible flake and/or spheroidal hammerscale was detected in fifteen samples. This is indicative of smithing/smelting activities (Appendix C1). It is recommended that the identification is verified and the remaining samples scanned for further evidence of hammerscale. A summary should be included in any publication.

4 DISCUSSION AND CONCLUSIONS

4.1 Period 1: Late Neolithic to Early Bronze Age

- 4.1.1 A pit (**119**) containing sherds from four or five Beaker vessels of Late Neolithic or Early Bronze Age date is of particular interest. The Beaker assemblage includes sherds which had been heavily burnt sometime after breaking but prior to eventual deposition. The fragments appear to have been deliberately selected and deposited some considerable time after initial breakage, perhaps having been stored in a midden or surface accumulation. The pit also contained flint flakes and cores of Middle to Late Bronze date, burnt flints and burnt stone. No animal bone was present and it would appear therefore that this pit was used for deliberate deposition of the Beakers (and perhaps the flints and stone) and not for simple rubbish. The reason for this deposition is unclear.
- 4.1.2 Pit **119** was located at the southern end of the Site and there are others pits within the Site that are undated but may also be contemporary e.g. **165** and **168**. If posthole **168** is contemporary, it may have held a post that was placed to mark the location of the pit.
- 4.1.3 Other Late Neolithic or Early Bronze Age pits have been previously identified in the vicinity. One Early Bronze Age pit was recorded in excavation area IPS 404 and another pit from watching brief IPS 293. Further afield, two Bronze Age pits were found 650m to the east of Site and three or four Late Neolithic/Early Bronze Age pits were identified in IPS 406 along with two Late Neolithic/Early Bronze Age ditches forming a funnel enclosure thought to be for droving sheep or cattle (Figure 3). To the north-west of the Site is evidence of a Neolithic or Bronze Age settlement (IPS 386). To the south-east is a Bronze Age barrow cemetery. In between these areas- the area of the current Site – appears to be an unoccupied area possibly utilised for animal pasture. The isolated pits (including **119**) may be contemporary with each other and perhaps can be better understood as a group. One tentative interpretation is that they functioned as territorial markers – a means for farmers to identify their land holdings.

4.2 Period 2: Middle Bronze Age

- 4.2.1 The excavation exposed more of a probable prehistoric ditch (**220**) that had been recorded within Site 1a and IPS 404. Site 2 revealed three further ditches thought to be broadly contemporary with **220** and part of the same field system. Ditch **103** is separated from ditch **184** by a 3m gap. At right angles to these two ditches is ditch **110**. The leached fills of all these ditches and the lack of any finds apart from very sparse flint flakes indicate a prehistoric date. This is borne out by the stratigraphic relationship of ditch **220** with the pair of parallel ditches in IPS 404. These parallel ditches are considered to be Late Iron Age or Roman in date (Section 3.4) and cut ditch **220**, the latter must therefore pre-date the Late Iron Age or Roman period.
- 4.2.2 The Middle Bronze Age saw for the first time the large-scale division of the landscape into fields by the creation of boundary ditches and enclosures. In lowland field systems there was large scale animal husbandry within mixed farming regimes. It has been argued that the field systems represented a form of conspicuous production, an 'intensification' of agrarian endeavour or a statement of intent, to be understood in relation to the maintenance, display and promotion of hierarchical social systems involved in exchange with their counterparts on the continent (Yates 2007). Based on current knowledge, this extensive boundary creation does not seem to extend far into

the Late Bronze Age or Iron Age and it thus seems likely that the nexus of ditches here is Middle Bronze Age in date. This would also accord with what has been found by excavations to the north-west at Gainsborough Sports and Community Centre where two phases of Middle to Late Bronze Age field systems were recorded.

4.3 Period 3: Late Iron Age and Roman

- 4.3.1 Two parallel ditches (**172** and **176** and their continuations) are interpreted as a droveway of probable Late Iron Age or Roman date. The ditches are 3m apart and are at right angles to the modern Nacton Road. At the time that these parallel ditches were excavated in IPS 404 they were thought to correlate to two parallel ditches forming a tree-lined avenue showing on the 18th century estate map and later OS maps (Figures 4 and 5). Stratigraphic relationships with other features on Site, cartographic evidence, as well as the character of fills of these ditches all serve to cast doubt on this interpretation. Figure 4 and later maps show that these ditches do not in fact correlate with mapped features and must be earlier than the later 18th century. The excavations at IPS 405 and 406 show that the gap between the two parallel ditches forming the avenue was 12m not 3m. Furthermore, excavations at Site 1b have shown that the tree-lined avenue was further to the north, the southern-most ditch having been revealed and excavated as contexts **257**, **260** and **273** (Figs 2 and 3). This southern-most ditch was also picked up in Trial Trench 60.
- 4.3.2 One of the parallel ditches (**172**) was cut by two charcoal-rich pits. One of these pits (Site 1b) has been securely dated by C14 dating to the Middle Anglo-Saxon period, the ditch must therefore have fallen out of use by that time. The presence of probable Iron Age pottery and burnt flint in the fill, the lack of any other finds and the relatively pale, leached fills point to an early date. These ditches cut and therefore post-date a probable Middle Bronze Age ditch, hence a date in the Late Iron Age or Roman period seems the most viable.
- 4.3.3 The presence of a Late Iron Age droveway continuing in use into the Roman period would accord with what has been found in the vicinity, for example the field boundary ditches and droveways in IPS 405 and 406 to the south-west of the Site (Figure 3), Roman finds found by metal detecting to the south of the Site, as well as two phases of 1st century AD field systems found at Gainsborough Sports and Community Centre to the north-west of the Site.
- 4.3.4 The probable droveway is at a right angle to Nacton Road which may have been a deliberate configuration, indicating that Nacton Road was in existence then as a trackway or droveway and that the droveway lead off it. Alternatively, Nacton Road came into existence later than the Late Iron Age/Roman droveway and its associated field system, but the road respects them. The author can find no evidence for a Late Iron Age or Roman routeway on the course of Nacton Road. The closest known Roman road is a possible road leading from the Roman small town/fort of Felixstowe towards Stratton Hall. The projected route of the road heads north-west, probably towards the Roman small town/fort at Coddenham (*Combretoivim*) (Moore et al, 1988, 28-31).

4.4 Period 4: Middle Anglo-Saxon

- 4.4.1 A total of 44 small shallow pits with charcoal-rich fills and evidence for *in situ* burning were recorded on this and adjacent Sites, two of which have been dated through C14 dating to the Middle Anglo-Saxon period. There follows a discussion of these features in relation to other similar features in the vicinity.

Description of other similar pits in the vicinity

- 4.4.2 Pits of a similar character have been recorded from evaluations and excavations in close proximity to the Site, notably within the evaluation and excavations of Ipswich Airport in 1999-2000. Seven or eight were found in Site IPS 386 – the most northern part of the airport investigations. They are described in the report as c 0.6m in diameter and up to 0.2m deep and filled with charcoal and burnt material. One of the pits was sampled during the evaluation and it was clear from this that *in-situ* burning had taken place and that the contents had been subjected to very high temperatures. This was taken as an indication that it was likely to be a recent feature. All the charcoal pits in this excavation area were interpreted as 'FIDOs' – pits dug to light fires along the airfield runway to disperse fog and allow planes to land. They were therefore not targeted in the ensuing airport excavations and were only recorded in plan (SCCAS 2006/229, 13).
- 4.4.3 Three such pits were found in IPS 405, twelve in IPS 406 and five in IPS 404. Several of those in IPS 406 formed a cluster but most were spread out and did not form rows, as one might expect if they were lining the runway. Some pits (in IPS 405 and 406) are actually within the former airfield runway (SCCAS 2006/229, 65, 66, 70, 86).
- 4.4.4 The evaluation and excavation by PCA at the Gainsborough Sports and Community Centre, Braziers Wood Road exposed 24 of these pits which they refer to as 'burnt pits' (PCA 2013, 39-40). These comprised small sub-circular features measuring between 0.3 and 1.1m in diameter, and typically less than 0.2m in deep. Two examples contained datable finds. Four of the pits had a stratigraphic relationship with other features: one pit was cut by a Middle Saxon trackway ditch and another pit cut the fill of a Saxon trackway ditch. One pit appeared to be partially truncated by a Bronze Age ditch but this relationship was unclear and the same ditch appeared to be cut by another burnt pit elsewhere. One of the pits cut the subsoil rather than being sealed by it. The authors of the post-excavation assessment consider that, although limited, the artefactual and stratigraphic data indicate that this type of feature was constructed throughout the site's history from at least the later Bronze Age until at least the Middle Anglo-Saxon period, and probably far later. They suggest that they are small and very short-lived hearths, made in an *ad hoc* manner for a range of activities including for cooking, for warmth and for the disposal of refuse. They argue against the idea that the pits result from charcoal production as the pits seem too small for this purpose.
- 4.4.5 Another such pit was excavated and recorded in an archaeological evaluation at Purdis Heath, Purdis Farm, just over 1.5km to the north-east of the Site. There were no finds from the fill and it was interpreted as probably modern and of military function, due to the airfield and other features from the Second World War in the area (Newman, 2011).

Discussion of surrounding settlements

- 4.4.6 The following section attempts to place these charcoal-rich pits in the context of Anglo-Saxon settlement in the vicinity. In the mid 7th to mid 8th century Suffolk was part of the kingdom of East Anglia and by AD 750 the East Angles had been subsumed into the kingdom of Mercia (Wade, 1997, 47). Ipswich, which is just over 3.5km to the north-west of the Site, was developing as a major industrial centre and port which traded with the Rhineland (Wade, 1999, 46).
- 4.4.7 Features of Middle Anglo-Saxon date characterised by the presence of Ipswich Ware pottery have been found within sites IPS 390 and IPS 406 of the Ipswich Airport investigations which are located approximately 1.15km and 600m to the south-west of

the Site respectively. It appears that there was a Middle Anglo-Saxon settlement focussed on IPS 390 which is near springs in Braziers Wood. It is also not far from the River Orwell which had great importance to the thriving port of Ipswich to the north-west. The linear features found within IPS 405 probably represent field or other boundary divisions (SCCAS 2006/229, 83-84).

- 4.4.8 The Ipswich Airport investigations also located medieval settlement around the probable former route of Clapgate Lane - a meandering north to south route linking medieval Ipswich and its suburbs with Alnesbourn Priory and probably other settlements along the northern bank of the River Orwell (IPS 391 and IPS 390). To the east of the former route of Clapgate Lane, at IPS 406, they identified a small nexus of field ditches, tentatively dated to the medieval period and thought to be small paddocks and stock enclosures probably associated with grazing animals. The authors of the report suggest that this medieval activity had its origins in the Anglo-Saxon period (SCCAS 2006/299, 84) although they do not offer an opinion as to whether Clapgate Lane was in use in this period.
- 4.4.9 An examination of the entry for Alnesbourn in the Domesday Survey of 1086 gives some information about the landscape at the time, albeit the Late Anglo-Saxon landscape. In 1086 it is listed as having only four households plus a church (of St Andrew), 1 lord's plough teams, 6 acres of meadow and 60 sheep. The Lord in 1066 was the church of Alnesbourn St Andrew. It is recorded as 'Aluesbrunna', the second part of the name coming from the Old English or Old Norse *Brunna* meaning stream or brook. This settlement no longer exists and it is presumed (by the author of this report) to lie under the site of the 13th century Alnesbourn Priory which is 1.2km to the south-west of the Site.
- 4.4.10 Archaeological evaluation and excavation on Warren Heath in Purdis Farm parish in 2002 and 2004 by SCCAS uncovered a cemetery and associated settlement of 8th-12th century date. This is located in the area that is now between Bucklesham Road and Felixstowe Road, located 1.2km north-east of the Site (SCCAS 2009).
- 4.4.11 Evaluations and excavations by PCA at the Gainsborough Sports and Community Centre, Braziers Wood Road uncovered a north-east to south-west aligned ditch containing Middle Saxon Ipswich ware pottery. This ditch is interpreted as one side of a Middle Saxon trackway (PCA 2013, 38).
- 4.4.12 A picture thus emerges of two centres of Anglo-Saxon occupation – the first, to the south-west of the Site, around Clapgate Lane and Braziers Wood and the second, to the north-east of the Site, around Warren Heath. There was a trackway leading from Brazier's Wood (if the wood existed at that time) towards Nacton Road.

Discussion of the landscape and environment

- 4.4.13 In between the two areas of Anglo-Saxon occupation described above there were, until very recently, areas of heathland - Warren Heath, Priory Heath and Nacton Heath. Sheep and grazing for sheep seem to feature in the archaeological and documentary record. Numerous charcoal-filled pits have been found in this 'in between area' between Nacton Road and Brazier's Wood.
- 4.4.14 The source of the oak burnt within the charcoal-filled pits is open to question. There are now only pockets of woodland to the south-west of the Site e.g. Brazier's Wood and Bridge Wood, which date to at least the late 18th century and may possibly be survivals from a much earlier period. 'Ravenswood' seems to survive only as a placename but

implies a previous area of woodland within which the Site was located. Evidence for the presence of trees was present across the Site indicating the possibility of woodland here. However, there was no definite dating evidence from these pit-like features or anything to confirm the date of the demise of these trees and they could well date as far back as the Neolithic. Woodland would not have been the only source of wood as it could also have been sourced from hedges which may have included individual oak trees allowed to reach maturity (Rackham, 1999, 64-65).

Discussion of possible function

- 4.4.15 The function of these pits is not immediately apparent. The reddened sands at the base and sides of the majority of the pits indicates that they held a fire. The interpretation that these are domestic hearths for cooking seems unlikely as there was no animal bone within the fills nor were any carbonised food remains recovered from the environmental samples. The lack of any contemporary occupation features on the Site – postholes, rubbish pits, floors etc or any finds such as pottery also argues against a domestic function. The evidence points to this Site being a marginal, unoccupied area, used for grazing.
- 4.4.16 Another interpretation is that the pits were burnt out tree boles, the trees having been chopped down and their roots then burnt out, perhaps to bring the land into cultivation. However, this would suggest a greater pressure on land here during the Anglo-Saxon period than is currently apparent.
- 4.4.17 More likely is that the pits are the remains of an industrial process. They may have been hearths for boiling water, with the boiling water being used for some sort of process that leaves no trace in the archaeological record; removing lanolin from sheep's fleeces or making withies for basket-weaving or hurdles being tentative suggestions. However the nearest water sources are nearly 1km to the south-west and south, at Brazier's Wood and Roberts Grove.
- 4.4.18 An alternative interpretation is that they are the remains of charcoal burning pits perhaps for iron production. Charcoal has been an important component of various industrial processes from prehistoric times up until the present day. It is thought that the earliest method for producing charcoal probably involved the 'pit kiln' process, in which wood was slowly burned in a shallow pit covered with soil (Harris 1999).
- 4.4.19 Comparisons can be made with similar pits found during excavations at Laurel Farm, Mousehold Heath, Norfolk. At this site, 21 pits were recorded measuring 1.7m to 3.6m in diameter with evidence for *in situ* burning and containing large quantities of charcoal. Charcoal from the pits was dated by C14 dating to between AD 660 and 1210. They were identified as pits or 'kilns' to make charcoal to be used in the process of iron production. The charcoal from these pits was dominated by oak. Five of the pits produced tap slag, furnace slags or microslags derived from iron smelting nearby. Their fills showed signs of being 'dug over' after the removal of the charcoal.
- 4.4.20 The pits at Laurel Farm were interspersed between three clusters of quarry pits (which had been dug to extract ironstone from the natural gravels) and 18 ore roasting pits. The ore roasting pits were filled with burnt ironstone and charcoal (mainly from oak). The iron ore was roasted to remove impurities prior to smelting (Bishop and Proctor, 2011, 4, 81-95, 130). Other similarities between Laurel Farm and the Nacton Road Site include their proximity to heathland and lack of occupation evidence. At both sites some of the charcoal-rich pits contained residual struck flints. Both sites are situated close to major Anglo-Saxon centres (Ipswich and Norwich).

- 4.4.21 There are, however, major differences between the two sites. Laurel Farm is situated next to a water course whereas the site at Nacton Road is nearly 1km away from the nearest spring or stream. No quarry pits were found on the Site, neither is there any evidence of ironstone occurring in the natural sands. The charcoal-filled pits on the Site are much smaller than those at Laurel Farm and they do not contain any slag. No slag has been found on the Site, apart from modern furnace slag. No burnt ironstone was found on the site at Nacton Road and there was nothing that could be identified as an iron ore roasting pits.
- 4.4.22 Similar pits have also been recorded during an evaluation at land off Spixworth Road, Old Catton, Norfolk (NAU Archaeology 2006). Here they have been interpreted as charcoal burning pits of probable Anglo-Saxon to medieval date, although there was an absence of datable material. No evidence of iron ore roasting or iron smelting was found. Sites at Parnwell, Peterborough (Webley 2007) and Wittering, Cambridgeshire (Wall 000) have found evidence for Middle Anglo-Saxon charcoal burning and iron smelting respectively.
- 4.4.23 Although there was an absence of slag from the site at Nacton Road, the residues from the floated soil samples were found to contain possible flaked and spheroidal hammerscale which is indicative of smithing/smelting activities. Flake hammerscale is small (typically 1-3mm) "fish-scale" like fragments of the oxide/silicate skin dislodged by mechanical or thermal shock when iron is forged. Spheroidal hammerscale (aka slag spheres) results from the solidification of small droplets of liquid slag expelled from within the iron during hot working. This happens particularly when two components are fire welded together, but also during the primary smithing of the bloom into a bar or billet (The Historical Metallurgy Society, Data Sheet 10, 1995).
- 4.4.24 Paul Blinkhorn (1999) discusses the association between iron working sites and the emergence of monastic sites in the Middle Saxon period. He cites a number of examples of Anglo-Saxon iron production and working associated with monastic holdings. Evidence for iron working was found at the Middle Saxon settlement at Maxey in Cambridgeshire which was held by the monastery of Medhamstede prior to the Norman conquest (Addyman 1964, 69) and iron mined in the Weald was worked at St Augustine's in Canterbury. Blinkhorn also notes the proximity of the specialist iron-smelting site at Ramsbury in Wiltshire to one of the seats of the West Saxon bishopric in the early 10th century (Haslam 1980). Of particular note here is the evidence for importing raw ore into the site at Ramsbury to be processed; the nearest ore outcrops are 5km to the south of the settlement, and a fragment of ironstone occurred on the site which originated 30km to the west (Fells 1980). Blinkhorn (1999) suggests that this indicates the processing of the ore was controlled. He notes that the evidence suggests that the site was supplying iron to the emporium of Hamwic.
- 4.4.25 Three interpretations are possible for the site at Nacton Road; the charcoal could have been burnt in the pits for the purpose of iron smelting or smithing but this was carried out a distance away from the charcoal production site. Or, there was both charcoal production and iron production taking place on the site. The third possibility is that the presence of the hammerscale could be interpreted as accidental and intrusive in the charcoal-rich pits and may not signify iron smithing or smelting in the Anglo-Saxon period, in which case the pits were used to burn charcoal for some other industrial process.

4.5 Period 5: Post-medieval, 18th -19th century

4.5.1 Nothing of this period was found on the Site.

4.6 Period 6: Modern

4.6.1 Linear marks on the eastern side of the Site were thought to be wheel ruts associated with Nacton Road but appear to be modern in date. More of the same type of marks were found in Site 1b, on the same alignment but more extensive than those found on the Site. They are thought to either relate to the airport or to be plough marks or scarification marks. Some of them were created by a dragging process as evidenced by modern slag found in their fills which had been dragged from a dump of modern industrial waste in Site 1b.

4.6.2 The Site is located on what was the eastern part of the runway for Ipswich Airport. The airport was used as an RAF airfield in World War II. Nothing relating to the airfield was recorded (apart from possibly the linear marks described above).

4.6.3 The charcoal-filled pits have been interpreted elsewhere as 'FIDOs'. The charcoal in their fills does look fairly fresh and local sources informed us that fires were lit along this airfield runway to help land planes in the fog. However, the evidence against such an interpretation is overwhelming; a Middle Anglo-Saxon C14 date has been confirmed for the charcoal from two of the pits, the pits were sealed under subsoil and topsoil, there was no 20th century material in any of their fills and, additionally, hardly any of the 39 pits were aligned in rows.

4.7 Undated Features

4.7.1 Several undated pits and one undated gully were recorded within the Site, a few of which contained burnt flint and unburnt flint flakes in their fills. One of these pits may have been a tree bole or tree throw that had subsequently been used to light a fire in (202). Several other small pits were recorded which may be extraction pits or could have been dug for some other purpose.

4.7.2 All of the above undated features appear to be of probable prehistoric date. Site 1b also contained several similar and undated pits, also thought to be prehistoric.

4.8 Conclusions

4.8.1 The excavation has not met any of the regional research aims set out in Section 2.2, however it has gone some way to answering some other Regional Research Aims, for example the study of the charcoal-filled pits and the recovery of metal working debris in their fills and elucidated the extent and importance of the iron working industry in post-Roman times (Medlycott, 2011, 55). Additionally, the pit that contained a substantial amount of Beaker pottery dating to the Late Neolithic to Bronze Age is part of a dispersed group of pits (located outside the Site) and is a type of archaeological feature that is not easily visible and is under-represented in the archaeological record (Medlycott, 14).

4.8.2 The excavation has also answered some of the site specific objectives such as confirming the presence and extent of archaeological remains that may be associated with those highlighted by the 1999 to 2000 evaluation and excavation. Other site specific objectives answered by the excavation are the confirmation of the presence of a prehistoric field system, likely Middle Bronze Age in date, which was probably laid out by and used by the same people living in the Neolithic / Bronze Age settlement to the

north and using the Bronze Age barrow cemetery to the south. The excavations have also confirmed the presence of a continuation of the Iron Age and Roman field systems identified to the west of the Site, through the discovery of a likely droveway thought to date from this period. The nature and extent of post-medieval field boundaries and their relation to the layout recorded by historic maps has also been assessed and recorded.

- 4.8.3 No World War II airfield defences were recorded, however the excavations have confirmed that the charcoal-filled pits are not 'FIDO' installations.
- 4.8.4 Additionally, the bulk soil samples from the Site have provided evidence of the potential for the preservation of charcoal and metalworking residues.

APPENDIX A. CONTEXT INVENTORY

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
Site 2 IPS 719														
100		topsoil	layer	0			0.34	dark grey brown	sandy silt	v. few stones				
101		subsoil	layer	0			0.11	mid orange brown	silty sand	v. small stones				
102		ditch	fill	103	boundary	0.8	0.4	mid grey brown	silty sand	1% small stones (<0.03m), extremely rare small charcoal flecks				
103	107	ditch	cut	0	boundary	1.15	0.4						linear	slightly irregular U-shaped ditch
104		pit	fill	105		0.46	0.22	mid grey brown	silty sand	v. rare small stones				
105		pit	cut	0		0.46	0.22						sub-circular	
106		ditch	fill	107	boundary	0.8	0.23	mid grey brown	silty sand	v. few small stones, v. rare charcoal flecks				
107	103	ditch	cut	0	boundary	0.8	0.23						linear	shallow U-shape
108		ditch	fill	110		1.3	0.08	v. dark grey brown	silty sand	frequent charcoal (small flecks), occasional stones				
109		ditch	fill	110			0.47	mid grey brown	silty sand	occasional stones (<0.04m)				

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
110	186, 145, 150, 206	ditch	cut	0		1.3	0.53						linear	U-shape
111		pit	cut	0	fire? Hearth?	1	0.22						sub-circular	
112		pit	fill	111	fire? Hearth?		0.11	v. dark grey brown	sandy silt	occasional small charcoal flecks, 2 worked flints?				
113		pit	cut	0		0.7	0.16					cut by machine on S. edge, burnt flint in sample	sub-circular	bowl shaped
114		pit	fill	113		0.62	0.04	dark grey black	silty sand	frequent charcoal + occ small flints	machine on S. edge	basal fill of charcoal		
115		pit	cut	0	burning	0.54	0.1						circular	bowl
116		pit	fill	115		0.54	0.1	dark black grey	silty sand	v. frequent charcoal flecks + moderate burnt flints		only fill of burnt material, burning in situ		
117		pit	cut	0	hearth?	0.4	0.06					base of a feature, over-machined, lost approx 0.15m of it	sub-circular	
118		pit	fill	117	hearth?	0.4	0.06	red + yellow + white	burnt and unburnt sand, patches of charcoal	occ rounded small stones		red = burnt natural		
119		pit	cut	0	deposit	0.9	0.5						circular	U-shape
120		pit	fill	119		0.9	0.5	light reddish yellow	find sand					
121		pit	cut	0	hearth? burning?	0.9	0.2						circular	bowl
122		pit	fill	121		0.5	0.1	black	silty sand	v. frequent charcoal, occ small flints		charcoal rich, in situ burning		
123		pit	cut	0	burning?	0.7	0.15						circular	shallow U-shape

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
124		pit	fill	123				50% burnt black, 50% dark grey brown mottles	silty sand	occasional sub-rounded stones (<0.02m)	bio-turbation			
125		natural	cut	0	tree throw	1	0.08						sub-rectangular	shallow U-shape
126		natural	fill	125	tree throw			mid brown grey	sandy silt	1% sub-angular stones (<0.02m)				
127		pit	cut	0	burning	1.13	0.21						amorphous	bowl shaped
128		pit	fill	127		1.13	0.21	dark grey brown	silty sand	moderate charcoal flecks, occ-moderate small flints				
129		pit	cut	0	burning or burnt pit	0.72	0.18					only half visible, other half beyond LOE	sub-circular	bowl shaped
130		pit	fill	129		0.72	0.18	dark grey black	silty sand	frequent charcoal flecks, occ small flints		only fill of pit [129]		
131		pit	fill	111	fire? Hearth?	0.08		black	masses of charcoal, thick band especially at base of feature			C14 from charcoal AD 603-671		
132		pit	fill	111	fire? Hearth?		0.04	pinky red	sand					
133		pit	fill	123	burning?			dark grey brown	fine sand	occasional sub-round stone (<0.02m)	bio-turbation			
134		pit	fill	121	backfill	0.9	0.12	mid brown grey	silty sand	moderate charcoal flecks, moderate small flints				
135		pit	fill	113		0.7	0.12	mid grey brown	silty sand	moderate small flints, occ charcoal flecks	machine on S. edge	fill of pit [113]		

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
136	244, 224, 240, 143, 148, 184	ditch	cut	0	boundary	0.86	0.18						linear	bowl shaped
137		ditch	fill	136		0.86	0.18	light yellow brown	sand	occ-moderate small rounded flints	cut by rooting			
138		pit	fill	119				dark brown	silty sand	occasional sub-rounded stones (<0.04m)		prehistoric pottery		
139		pit	fill	119				mid grey brown	sandy silt	occasional sub-angular stones (<0.05m)		contains flint and beaker pottery and stone		
140		pit	cut	0		0.75	0.14						circular	shallow U-shape
141		pit	fill	140			0.05	mid yellowish brown	silty sand	occasional small-medium rounded/angular stones				
142		pit	fill	140	burning		1	black (charcoal) 80%, dark brown (20%)	charcoal + silty sand	no stones				
143	244, 224, 240, 136, 148, 184	ditch	cut	0	boundary	1.15	0.3						linear	TMS, dry
144		ditch	fill	143	secondary	1.15	0.3	light yellowish brown	silty sand	common flint				
145	186, 110, 150, 206	ditch	cut	0	boundary	1.55	0.55						linear	wide U-shape
146		ditch	fill	145	secondary	1.55	0.55	light yellowish brown	silty sand	common flint				

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
147		ditch	fill	145	secondary	0.8	0.2	dark greyish brown	silty sand	moderate flints				
148	244, 224, 240, 143, 136, 184	ditch	cut	0	boundary	1.16	0.32					contains flint	linear	bowl shaped
149		ditch	fill	148		1.16	0.32	light yellow brown	sand	occ small rounded flints				
150	186, 110, 145, 206	ditch	cut	0	enclosure	1.48	0.5						linear	bowl
151		ditch	fill	150		1.48	0.5	mid yellow brown	silty sand	moderate small flints	rooting on W. edge			
152		pit	cut	0	burning	0.4	0.06						circular	bowl shaped
153		pit	fill	152		0.4	0.06	dark grey black	sandy silt	frequent charcoal flecks				
154		pit	cut	0	burning	0.55	0.1						circular	bowl shaped
155		pit	fill	154		0.55	0.1	dark grey black	sandy silt	frequent charcoal flecks				
156		natural	cut	0	tree throw	0.82	0.3						amorphous	irregular
157		natural	fill	156	tree throw	0.82	0.3	mid brown	silty sand	moderate small flints				
158		pit	cut	0	fire	1.4	0.21						sub-circular	bowl-shaped
159		pit	fill	158		1.1	0.21	dark brownish grey	silty sand	common charcoal + flints				
160		pit	fill	158		0.8	0.19	mid yellowish brown	silty sand	moderate flint				
161		natural	cut	0	tree throw	0.7	0.05						sub-circular	bowl shaped
162		natural	fill	161	tree throw	0.7	0.05	mid yellowish brown	silty sand	common flint				
163		pit	cut	0		1.2	0.15						sub-circular	bowl

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
164		pit	fill	163		1.2	0.15	mid brownish grey	silty sand	common flint, moderate charcoal				
165		pit	cut	0	extraction	0.4	0.3						circular	U-shaped
166		pit	fill	165				mid brown grey	fine sand	occasional rounded stone (<0.05m)				
167		pit	fill	140	primary fill		0.07	light yellowy brown	slightly silty sand	occasional small stones				
168		post hole	cut	0	structural	0.25	0.23					close to bronze age pit [119]	circular	U-shaped
169		post hole	fill	168		0.25	0.23	mid grey brown	fine sand	occasional sub-angular stones (<0.02m)				
170		pit	cut	0	burning?	0.8	0.2						circular	U-shaped
171		pit	fill	170		0.8	0.2	50% mid grey brown, 50% carbon black	fine sand	<1% rounded stones (<0.05m)				
172	190, 279	ditch	cut	0	droveway?	1.32	0.56						linear	bowl
173		ditch	fill	172		1.32	0.56	light yellow brown	silt sand	occasional small flints	Pit [174]			
174		pit	cut	0		0.7	0.19						circular	bowl shaped
175		pit	fill	174		0.7	0.19	dark grey black	sandy silt	frequent charcoal, occasional small flints				
176	180, 200, 283	ditch	cut	0		1.01	0.29						linear	bowl
177		ditch	fill	176		1.01	0.29	light yellow brown	sand	moderate small flints		contains pottery		
178		pit	cut	0	charcoal Fire pit?	0.78	0.21						sub-circular	bowl shaped
179		pit	fill	178	backfill	0.78	0.21	dark brownish grey	silty sand	common charcoal				

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
180	176 200, 283	ditch	cut	0	boundary	1.3	0.3						linear	bowl shape
181		ditch	fill	180		1.3	0.3	mid brownish yellow	silty sand	moderate flint				
182		pit	cut	0	fire pit	0.47	0.06						sub-circular	bowl shape
183		pit	fill	182	backfill	0.47	0.06	dark brownish grey	silty sand	rare flints				
184	244, 224, 240, 136 148	ditch	cut	0	field boundary	1	0.18					Uncertain relationship with 186	linear	U-shape
185		ditch	fill	184	disuse			light yellowish brown	slightly silty sand	v. occasional small rounded stones	possibly by [186] not clear			
186	145 110, 206, 150	ditch	cut	0	field boundary	1.12	0.3					uncertain relationship with [184]	linear	
187		ditch	fill	186	disuse			light yellowish brown	slightly silty sand	occasional small/medium rounded/sub-rounded stones	possibly by [184] but not clear	slightly darker and redder than (185) but not much difference		
188		natural	cut	0	tree bole	1.25	0.31						circular	bowl
189		natural	fill	188	tree bole	1.25	0.31	light brown yellow	sand	frequent large flints and cobbles	Ditch [190]			
190	172, 279	ditch	cut		droveway?	1.41	0.61						linear	bowl shaped
191		ditch	fill	190		1.41	0.61	light yellow brown	sand	occasional small flints				
192		natural	cut	0	tree throw	0.9	0.3						sub-circular	irregular
193		natural	fill	192	tree throw	0.9	0.3	mid grey brown	fine sand	occasional rounded stones (<0.01m)				

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
194		pit	cut	0		0.9	0.1					in situ heat modulation of natural below	sub-circular	bowl-shaped
195		pit	fill	194		0.9	0.1	dark brown grey	fine sand	occasional rounded stone (<0.01m)				
196		pit	cut	0	fire pit, burning	0.65	0.15					in situ heat modulation of natural below	circular	bowl-shaped
197		pit	fill	196		0.65	0.15	mid brown grey with pockets of charcoal black (<50%)	fine sand	charred plant material				
198		pit	cut	0		0.87	0.2						sub-circular	bowl
199		pit	fill	198		0.87	0.2	dark brownish grey	silty sand	common charcoal				
200	176, 180, 283	ditch	cut	0	droveway?	1.12	0.24						linear	bowl shaped
201		ditch	fill	200		1.12	0.24	light yellow brown	sand	occasional small flints				
202		pit	cut	0	tree throw?	1.1	0.7						sub-circular	U-shape
203		pit	fill	202	backfill	1.1	0.19	mid reddish brown	sand	moderate fired clay + flint				
204		pit	fill	202		1.1	0.5	dark brownish grey	sand	rare flint				
205		pit	fill	202	slump	0.22	0.2	mid yellowish brown	sand	moderate flint				
206	145, 110, 186, 150	ditch	cut	0		1.35	0.51						linear	bowl
207		ditch	fill	206		1.35	0.51	light yellow brown	sand	moderate small flints	Pit [208]			
208		pit	cut	0	fire pit	0.87	0.03						circular	
209		pit	fill	208	fire pit	0.87	0.03	dark brown black	sandy silt	occasional charcoal flecks				

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
210		pit	cut	0	fire pit	0.6	0.1						circular	bowl shaped
211		pit	fill	210		0.6	0.1	mid grey brown with 30% patches of charcoal black	fine sand	charred material <=30%				
212		pit	cut	0	burning?	0.6	0.14						sub-circular	bowl shaped
213		pit	fill	212		0.6	0.14	dark brown black	sandy silt	occasional small flints + moderate charcoal flecks				
214		pit	cut	0		0.78	0.21					heavily rooted	circular	bowl shaped
215		pit	fill	214	burning	0.78	0.21	mixed dark black brown & light yellow	silty sand	occasional small flints, moderate charcoal flecks		very mixed/ disturbed		
216		pit	cut	0		1.02	0.28					rooting on east edge, may be cutting or cuts a feature (very mixed)	amorphous	bowl shaped
217		pit	fill	216		1.02	0.28	mixed dark black brown & light brown	sandy silt	occasional small flints, moderate charcoal flecks	unclear			
218		gully	cut	0	Series of linear wheel ruts or plough marks?								linear	irregular
219		gully	fill	218	wheel ruts			dark grey brown	silty sand	occasional sub-angular stones (<0.05m)	Pit [214]			

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
220	29, 30, 222, 234, 238, 242	ditch	cut	0	boundary	0.8	0.16						linear	bowl shaped
221		ditch	fill	220	boundary			dark grey brown	fine sand	1% sub-round stones (>0.07)	previous excavation to SW			
222	29, 30, 220, 234, 238, 242	ditch	cut	0	boundary	0.8	0.16						linear	bowl shaped
223	(221)	ditch	fill	222				mid grey brown	fine sand	occasional rounded stones (<0.03m)	previous excavation to SW			
224	244, 136, 240, 143, 148, 184	ditch	cut	0	boundary	1.02	0.22						linear	bowl
225		ditch	fill	224		1.02	0.22	light yellow brown	silty sand	occasional small flints	Ditch [242]			
226	236?	gully	cut	0		0.4	0.09						linear	bowl
227		gully	fill	226		0.4	0.09	mid brown	silty sand	occasional small flints, v. occ charcoal flecks				
228		pit	cut	0	fire	0.54	0.07						circular	bowl
229		pit	fill	228		0.54	0.07	dark grey black	sandy silt	frequent charcoal flecks, occasional small flints				
230		pit	cut	0	fire	0.72	0.21						circular	bowl

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
231		pit	fill	230		0.72	0.21	dark grey black	sandy silt	frequent charcoal flecks, occasional small flints				
232		pit	cut	0	fire	0.6	0.11					burning in situ	circular	bowl
233		pit	fill	232		0.6	0.11	dark grey black	sandy silt	frequent charcoal flecks, occasional small flints				
234	220, 222, 238, 29/31, 242	ditch	cut	0	boundary	1.4							linear	
235		ditch	fill	234				mid grey brown	fine sand	<1% rounded stones (<0.02m)	Gully [236]			
236	226?	gully	cut	0	boundary?	0.4	0.12					terminus of gully	linear	U-shaped
237		gully	fill	236				mid reddish brown	fine sand	1% rounded stones (<0.03m)				
238	29/31 [220], [222], [234], 242	ditch	cut	0	boundary	1.6	0.13						linear	bowl shaped
239	(221) (223) (235)	ditch	fill	238				mid yellow brown	fine sand	occasional rounded stones (<0.03m)				
240	244, 136, 224, 143, 148, 184	ditch	cut	0	boundary	0.9	0.21						linear	bowl-shaped
241		ditch	fill	240				mid grey brown	fine sand	<1% rounded stones (<0.02m)	Ditch [242]			

Context	Same as	Feature Type	Category	Fill Of	Function	Breadth	Depth	Colour	Fine component	Coarse component	Truncated by	Other Comments	Shape in Plan	Profile
242	29/31 [220], [222], [234], 238	ditch	cut	0	boundary	1.52	0.14					possible terminal end but very unclear due to shallowness of ditch	linear	
243		ditch	fill	242		1.52	0.14	mid grey brown	silty sand	frequent angular small/med flints	unclear			
244	240 136, 224, 143, 148,18 4	ditch	cut	0	boundary	1.09	0.24						linear	bowl
245		ditch	fill	244		1.09	0.24	light yellow brown	silty sand	occasional small flints				

Table 1. List of contexts

APPENDIX B. FINDS REPORTS

B.1 Prehistoric Pottery

By Sarah Percival

Introduction

A small assemblage of 69 sherds weighing 789g was collected from the fills of two excavated features. The majority of the sherds came from two fills of pit **119** which produced 66 sherds weighing 786g. All are Later Neolithic Early Bronze Age Beaker including rim sherds from two vessels plus body and base sherds from at least a further two (Figure 7). Three small undecorated body sherds with fine flint inclusions, from ditch **177** are perhaps of Iron Age date.

Later Neolithic and Early Bronze Age

The Beaker assemblage mostly comprises sherds from robust vessels with fingertip-rusticated decoration. The rusticated vessels include a coarse, globular Beaker with thick, out-turned rim with rounded rim ending in shell and flint-tempered fabric (P1). The body of the vessel is decorated with paired fingertip-impressions which have been slightly pinched out so that the clay of the vessel wall is raised. This vessel is very similar to examples found within domestic assemblages from Witton, Norfolk and at Hockwold cum Wilton on the fen edge (Bamford 1982 fig.44 a; fig.11 P93.059). The second rim is made of sandy, grog-tempered fabric and is from a long-necked vessel with tall, upright rim (P2). The rim ending is rounded and the vessel body is decorated with paired fingertip impressions. The rim is reminiscent of Beaker found within domestic assemblages from pits at Little Bealings, some 10km north of Nacton Road (Martin 1993 fig 36, 17) and from Sutton Hoo, Woodbridge to the east (Hummler 2005 fig.84, 41/36199).

A third vessel, also of globular form, is represented by a large pinched-out base in sandy fabric with sparse flint inclusions (P3). The vessel body is decorated with paired fingernail impressions. The fourth vessel is made of sandy fabric with sparse grog inclusions and is decorated with incised decoration forming a barbed wire motif (P4). A pinched-out base in identical fabric may be from the same vessel (P5). Several complete globular Barbed Wire Beakers have been recovered from funerary contexts in Suffolk including examples from Eriswell and Ipswich (Clarke 1970 fig.s 340, & 343).

The assemblage is fragmentary and includes sherds which have been heavily burnt sometime after breaking but prior to eventual deposition. The composition of the assemblage, which includes a substantial quantity of sherds from one vessel and smaller numbers from several others, is typical of Beaker assemblages many of which appear to have been deposited some considerable time after initial breakage, perhaps having been stored subsequently in a midden or surface accumulation (Garrow 2006 138). From these accumulations a mix of selected (large and recognisable sherds) and more fragmented material was deposited in some pits. The barbed wire decorated sherds were mostly found in (139) the upper fill of the pit, whilst the rusticated sherds were mostly from the lower fill (138) however as each fill contained sherds of both types it is likely that they were derived from the same mixed source.

The assemblage is extremely similar to Beaker pottery found during excavations adjacent to the current site at Porter's Covert and Priory Park, Nacton (NAC104 & 105 Percival undated). Domestic Beaker is not uncommon in Suffolk, having also been

found locally in varying quantities at Ipswich Academy, Hanford Road; Foxhall, Kesgrave; Swiss Centre, Sproughton; Needham Market and Creting St Mary (Percival 2012a, b & c; Gibson 1982, 207 & 137). The Nacton Road assemblage is of interest, therefore, as it provides further confirmation of significant Later Neolithic Early Bronze Age occupation, though perhaps on an intermittent or seasonal basis, along the Orwell and Gipping valley. Recent analysis of radiocarbon data for domestic Beaker suggests that it was most frequently deposited during the 700 years or so between c.2450-2370 and c.1740-1670 cal .BC (68% probability Healy 2012, 154).

Iron Age

Three small undecorated body sherds found in the fill of ditch [177] have fine flint tempering typical of earlier Iron Age pottery from the region however as flint was also used throughout the earlier Neolithic and into the Bronze Age the dating must remain tentative.

Fabric Descriptions

Era	Fabric code	Description	Quantity	Weight (g)
Later Neolithic	GQ	Small sub-angular grog in a quartz sand and clay matrix	23	210
Early Bronze Age	QG	Small rounded quartz sand with moderate small sub-rounded grog	5	56
	ShF	Common shell with occasional small to medium sub-angular flint	37	400
Iron Age	QF	Small rounded quartz sand with moderate small angular flint	4	123
Total			69	789

Table 2: Quantities of prehistoric pottery by fabric

Illustrated Pottery

Figure 7.1: Later Neolithic Early Bronze Age Globular Beaker, pit 119

Figure 7.2: Later Neolithic Early Bronze Age Long Necked Beaker fingernail-impressed, paired all over. Pit 119

Figure 7.3: Later Neolithic Early Bronze Age Beaker fingertip-impressed, paired all over, Pit 119

Figure 7.4: Later Neolithic Early Bronze Age incised Barbed Wire Beaker, Pit 119

Figure 7.5: Later Neolithic Early Bronze Age Globular Beaker, Pit 119

B.2 Flint

By Anthony Haskins

Introduction

An assemblage of 96 flints was submitted for assessment from Nacton Road Site 2, Ipswich. This report aims to describe the preliminary quantification and assess the technological characteristics and chronological indicators. Based on these findings no further work is recommended for the assemblage.

Methodology

For the purposes of this report individual artefacts were scanned and then assigned to a category within a simple lithic classification system. The flints are quantified by number rather than by weight (Table 3). Unmodified flakes were assigned to an arbitrary size scale in order to identify the range of debitage present within the assemblage. Edge retouched and utilised pieces were also characterised. Beyond this no detailed metrical or technological recording was undertaken during the preliminary analysis. The results of this report are therefore based on a rapid assessment of the assemblage and could change if further work is undertaken.

Context Number	Classification Type	core technology				Flakes (>50mm)	flakes (>25mm <50mm)			flakes (>10mm <25mm)			blades (all sizes)		chunks/angular shatter (<50mm)	Retouched	Scrapers fragment	burnt flint (all types)	natural flint and stone	Grinder or hammerstone	burnt stone	Totals	
		amorphous	core fragment	core trimming	blade core		secondary	secondary	tertiary	broken	secondary	tertiary	broken	secondary									tertiary
203																							2
166			1				5									1		6					13
149							2	1										3					6
126													1				1						2
106												1											1
112								1						1									2
101							1																1
177																		1					1
139				2	1	1	6			2	4						17	2			1	36	
138		1					6			2	1						14	3			2	19	
243																	4					4	
227						1																1	
211																		8				8	
TOTALS		1	1	2	1	2	20	2	2	4	6	1	0	1	1	1	53	5	1	3		96	

Table 3: Flint Quantification Data

Assessment

Raw Material

A mix of raw materials are present within the assemblage including dark blackish-blue opaque flint with a chalky cortex and some mid grey inclusions, mid brownish-grey opaque poor quality chert with a thin white cortex, a good quality mid grey brown translucent flint with occasional grey inclusions and a mottled grey semi translucent flint, with no surviving cortex. The latter two materials are better quality than the rest and the thick nature of the cortex from the mid greyish-brown translucent material would suggest it was recovered from elsewhere and brought to the site.

The remaining material has a thin rounded cortex, where surviving, with incipient cones and thermal fractures throughout the material, indicating it was collected from a secondary source and likely to have been found in the gravels on or near the site.

Burnt material

The burnt material is spread across ten features generally in small quantities and unlikely to be anything other than natural flint accidentally burnt. The material recovered within pit fill (272), however, is a heavily burnt concentration and although it was recovered from a secondary depositional context it is likely it has been deliberately burnt.

Core technology and debitage

Three core fragments and cores were recovered from the site with heavily worked but poorly prepared platforms. The core from (139) is described as a blade core but it seems to be accidentally formed rather than a deliberate attempt to create blades.

The form of the cores combined with the mix of irregular flake shapes, sizes and forms although headed towards a predominantly short and squat character, would indicate that the majority of assemblage is of later prehistoric date, likely to be Mid to Late Bronze Age.

The good quality greyish-brown translucent flint from contexts (126, 251 and 227), which includes the retouched scraper fragment, are more likely to come from mined material and seem more characteristic of a residual Neolithic assemblage.

Statement of Potential and Recommendations for Further Work

The small sample size and mix of characteristics would imply this assemblage is a mix of Neolithic residual material and later Bronze Age working. No further work is required.

B.3 Industrial Waste

By Peter Boardman

Introduction

A very small amount of industrial residue and waste was hand collected during the excavations at Site 2, Nacton Road, Ipswich, totalling 0.22kg (Table 4). The materials comprised clinker and slag derived from a modern blast-furnace. The Site's comparatively close proximity to Ransomes - a major British agricultural machinery maker - would explain the occurrence of industrial wastes, which was also found on the adjacent Site 1b.

In addition a selection of the residues environmental samples were scanned for hammerscale and hammerslag using a magnet. Fifteen of the samples (all from charcoal-rich pits) were found to contain moderate to significant quantities of magnetic

residues. These have been initially identified as flake and spheroidal hammerscale, and hammerslag (Table 5) suggesting that smelting and/or smithing activity was taking place on the Site.

Context no.	Material	Description	Weight	Context Type
100	Clinker	Compact burnt ash and slag mix. Brownish purple in colour	0.11	Top-soil
100	Slag	Brownish purple in colour, compact small air pockets and glassy texture.	0.11	Top-soil

Table 4: Quantification of industrial waste by context

Sample	Context	Flakes	Spheroids	Hammerslag
	4	118	1?	
	6	134 ++	c.10	++
	7	124 ++	c.20	++
	9	116	c.10	++
	11	135	c.10	++
	12	126 +		2
	13	141 ++		
	18	159 +		5 +
	19	155	c.5	+
	21	171 ++	c.20	
	23	183	c.10	+
	25	199 +	c.15	++
	27	213 ++	c.5	+
	28	215 +		4
	29	233 ++	c.5	++

Table 5: Quantification of Hammerscale from Sample Residues

Discussion

The slag and clinker is modern, probably deposited after the establishment of Ransome's Iron Works nearby in the mid 20th century. The modern nature of this material recovered can be said to have no importance to the archaeological presence on the sites at Nacton Road and no further study in this area is required. The presence of hammerscale is more interesting, although it may also derive from the modern Ransome's foundry, it seems unlikely that it would have found its way into features that were well sealed by subsoil and topsoil, its presence may therefore indicate metalworking in the Anglo-Saxon period.

It is recommended that the identification of the hammerscale is checked and if verified the remaining sample residues are scanned to check for further evidence of hammerscale to ascertain the distribution of the metalworking residues and attempt to ascertain levels of intrusiveness and whether there is a correlation with the charcoal-rich pits.

B.4 Small Finds

Small Find 1 from subsoil (101) . Found at the south-eastern boundary of the Site.

By Kate Clover

A cast copper alloy harness ring of uncertain date, probably medieval. The object is circular in plan and it varies in cross-section from circular to flattened oval. The surface is worn and uneven and one side of the ring is thinner as a result of wearing against another harness element. The ring has a light green patina and some darker green corrosion product in places. Its outer diameter is 26mm and its inner diameter is between 17mm and 20mm. It is maximum 5mm thick and it weighs 4gm. Plain rings of such proportions have often been suggested to be Medieval harness rings (Clarke, 1995, 47), though they are typically un-diagnostic. Many examples can be found on the Portable Antiquities website (www.finds.org)

Small find 2 from (128). Fill of pit 127

By Nina Crummy

From the only fill of a charcoal-rich pit, probably Anglo- Saxon in date. Iron bracket fragment, one arm appears to be broken, the other is complete, splays outwards and has rounded corners and a central rivet. The broken arm is thicker and the stump of an integral shank remains near the break. Total length 28 mm; length of each arm 21 mm; weight 20g. While the degree of corrosion on this object suggests that it is some antiquity, a date in the Late Saxon period is far from certain; it may, for example, have been used for attaching an offset foot or castor to a piece of late post-medieval or early modern furniture.

APPENDIX C. ENVIRONMENTAL REPORTS

C.1 Environmental Samples

By Rachel Fosberry

Introduction

A total of twenty-nine bulk samples were taken during excavations at Site 2, Nacton road, Ipswich (IPS 719). All of these samples were processed to determine whether plant remains are present, their mode of preservation and whether they are of interpretable value. The samples chosen were from Bronze Age pit **119** and from enigmatic pits, two of which have been radiocarbon dated to the Saxon period, that had evidence of in-situ burning and charcoal-rich deposits. Initial charcoal analysis (Druce, Appendix C2) indicates the predominance of oak charcoal

Methodology

One bucket of soil (up to ten litres) of each of the selected samples was processed by tank flotation. The floating component (flot) of the samples was collected in a 0.3mm nylon mesh and the residue was washed through 10mm, 5mm, 2mm and a 0.5mm sieve. Both flot and residues were allowed to air dry. A magnet was dragged through each residue fraction prior to sorting for artefacts. The flot volume was measured and recorded (Tables 6 and 7). The volume of the flots was recorded and a selection of flots were sieved through 5mm and 2mm sieves and sub-sample of each fraction was examined under a binocular microscope. The presence of any plant remains or other artefacts are noted on Tables 6 and 7. Nomenclature is according to Stace (1997).

Quantification

For the purpose of this initial assessment charred macrofossil remains have been recorded qualitatively according to the following categories

= 1-10, ## = 11-50

Items that cannot be easily quantified such as charcoal have been scored for abundance

+ = rare, ++ = moderate, +++ = common, ++++ = abundant

Results

Sample No.	Context No.	Cut No.	Feature Type	Volume processed (L)	Flot Volume (ml)	Weed Seeds	Charcoal <2mm	Charcoal > 2mm	Flot comments
5	122	121	pit	10	500	#	+++	+++	Charred Polygonaceae indet. Charred <i>Arrhenatherum</i> sp., <i>Brassica</i> sp. Uncharred <i>Rubus</i> sp.
13	141	140	pit	10	250	#	+++	+++	
15	138	119	pit	9	5	#	+++	+++	Charred hazelnut fragments
16	139	119	pit	10	15	#	+++	+++	Charred hazelnut fragment

Table 6: Charred plant remains from environmental samples from Nacton Road, Ipswich

Sample No.	Context No.	Cut No.	Volume processed (L)	Flot Volume (ml)	Charcoal <2mm	Charcoal > 2mm
3	131	111	4	200	+++	+++
4	118	117	5	50	+	+
6	134	121	10	430	+++	+++
7	124	123	10	550	+++	+++
8	133	123	9	50	+++	+++
9	116	115	9	1230	+++	+++
10	114	113	7	300	+++	+++
11	135	113	8	240	+++	+++
12	126	125	10	10	+	+
14	142	140	8	120	+++	+++
17	166	165	10	30	+++	+++
18	159	158	10	1600	+++	+++
19	155	154	8	980	+++	+++
20	164	163	8	30	+++	+++
21	171	170	8	500	+++	+++
22	179	178	7	120	+++	+++
23	183	182	8	150	+++	+++
24	197	196	8	270	+++	+++
25	199	198	10	2400	+++	+++
27	213	212	8	300	+++	+++
28	215	214	7	220	+++	+++
29	233	232	9	240	+++	+++

Table 7: Samples containing charcoal only

Samples 15 (fill 138) and 16 (fill 139) taken from Bronze Age pit **119** both contain a few fragments of charred hazelnut shells in addition to sparse charcoal. Sample 13, fill 141 of pit **140** contains a charred tuber of False-oat grass (*Arrhenatherum* sp.), a charred seed of brassica (*Brassica* sp.) and an uncharred bramble (*Rubus* sp.) seed that may have been a modern contaminant.

The remaining samples taken from the charcoal-rich pits produced large flot volumes (up to 2400ml) of charcoal. Occasional charred tree buds are present and several of the samples contain charred spheroids thought to be fungal sclerotia.

Discussion

The recovery of hazelnut shells in Bronze Age pits is relatively common as hazelnuts would have been an important food source in the prehistoric period. Only a few fragments were recovered from pit **119** which may suggest that their presence may be due to the burning of hazel wood as fuel rather than discarded food waste.

As expected, the charcoal-rich pits contain large volumes of wood charcoal. The lack of other plant remains suggests that the features do not represent pits or post-holes in which domestic refuse could have accumulated.

Statement of potential

Most of the charcoal-rich pits have produced large pieces of well-preserved charcoal that should be suitable for species identification.

C. 2 Charcoal

By Denise Druce

Introduction and Methodology

Palaeoenvironmental samples from three of the Anglo Saxon pits discovered at Nacton Site 2 (**114, 131, and 197**) were processed in order to determine their charcoal content. The exact nature of the pits is unclear, however they are thought to represent the remains of possible charcoal-making pits, or, given that a number contained hammerscale, may be associated with Anglo-Saxon metal-working activity.

Methodology

The samples were processed at the Cambridge offices using a modified Siraf flotation machine, the flots being collected onto a 250µm mesh, air-dried, and sieved through a >2mm size mesh. A representative amount (c 20) of the retaining fragments were then scanned using a Leica MZ6 binocular microscope at up to x40 magnification to provide a general picture of wood species present. Identification was made by use of standard reference books (Schweingruber 1978, Hather 2000) and comparison with reference slides held at OA North.

Results

The flots from all three of the samples were extremely rich in charcoal (the flots being between 170 and 480ml in volume), and included abundant fragments larger than 10 mm in size. The charcoal was very well preserved and preliminary analysis suggests the fills consist of a single taxon, oak. The recording of tyloses in much of the early wood suggests the presence of mature oak wood, perhaps trunk wood. No obvious round wood was apparent, however this would be checked during any further analysis.

Discussion

The dominance of oak in the Anglo-Saxon pits may indicate its deliberate selection, however, further analysis is required in order to determine whether oak is present in all or only a selection of the pits. If the pits were associated with metalworking activities, then oak would certainly have provided the sustained high temperatures required for smelting or smithing. It is also likely that oak charcoal, which produces less smoke and provides very high temperatures, as opposed to oak wood was used, however there is no reliable method for determining this from archaeological material (Smith 2002, D. Challinor pers comm). Modern forms of charcoal production tended to use roundwood rather than trunkwood (Edlin 1949). Therefore it would be useful to determine whether any roundwood is present. It is possible that the site was used for both charcoal production and metalworking, which, on an industrial scale, would have made sense. Subsequently, it would be very informative to establish whether there are any differences in the charcoal assemblages between pits.

Recommendations

Currently, very little is known about Anglo-Saxon wood use and charcoal production in Britain. Therefore, further charcoal analysis on the fills of the Nacton pits would be very worthwhile. In order to determine any differences in the charcoal content between pits, a very quick assessment to determine the general content of all those with common charcoal is proposed. This will be followed by the further analysis of a selection of roughly half, in order to determine the nature and maturity of the wood.

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APPENDIX E. OASIS REPORT FORM

Project Details

OASIS Number	oxfordar3-156663		
Project Name	Excavation of Site 2 Restaurant Land, Nacton Road, Ipswich		
Project Dates (fieldwork) Start	09-05-2013	Finish	07-06-2013
Previous Work (by OA East)	Yes	Future Work	No

Project Reference Codes

Site Code	IPS719	Planning App. No.	
HER No.	IPS719	Related HER/OASIS No.	IPS404, IPS718, IPS715

Type of Project/Techniques Used

Prompt: Direction from Local Planning Authority - PPS 5

Please select all techniques used:

<input type="checkbox"/> Field Observation (periodic visits)	<input type="checkbox"/> Part Excavation	<input type="checkbox"/> Salvage Record
<input type="checkbox"/> Full Excavation (100%)	<input type="checkbox"/> Part Survey	<input type="checkbox"/> Systematic Field Walking
<input type="checkbox"/> Full Survey	<input type="checkbox"/> Recorded Observation	<input type="checkbox"/> Systematic Metal Detector Survey
<input type="checkbox"/> Geophysical Survey	<input type="checkbox"/> Remote Operated Vehicle Survey	<input type="checkbox"/> Test Pit Survey
<input checked="" type="checkbox"/> Open-Area Excavation	<input type="checkbox"/> Salvage Excavation	<input checked="" type="checkbox"/> Watching Brief

Monument Types/Significant Finds & Their Periods

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

Monument	Period	Object	Period
ditches	Bronze Age -2.5k to -700	pottery	Bronze Age -2.5k to -700
pit	Bronze Age -2.5k to -700	flint	Bronze Age -2.5k to -700
pits	Early Medieval 410 to 1066	slag and clinker	Post Medieval 1540 to 1901

Project Location

County	Suffolk	Site Address (including postcode if possible)	Site 2 Restaurant Land, Nacton Road, Ipswich
District	Ipswich		
Parish	Ipswich		
HER	Suffolk		
Study Area	0.47 ha	National Grid Reference	TM 19786 41537

Project Originators

Organisation	OA EAST
Project Brief Originator	Suffolk CC Archaeology Service
Project Design Originator	Ramboll UK and OAEast
Project Manager	Aileen Connor
Supervisor	Kate Clover

Project Archives

Physical Archive	Digital Archive	Paper Archive
Ipswich Museum	Ipswich Museum	Ipswich Museum
IPSMG: R.2013.8?	IPSMG: R.2013.8?	IPSMG:R.2013.8?

Archive Contents/Media

	Physical Contents	Digital Contents	Paper Contents
Animal Bones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ceramics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Environmental	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Glass	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human Bones	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Industrial	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Leather	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Metal	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stratigraphic		<input type="checkbox"/>	<input type="checkbox"/>
Survey		<input type="checkbox"/>	<input type="checkbox"/>
Textiles	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Wood	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Bone	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worked Stone/Lithic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
None	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Digital Media	Paper Media
<input checked="" type="checkbox"/> Database	<input type="checkbox"/> Aerial Photos
<input checked="" type="checkbox"/> GIS	<input checked="" type="checkbox"/> Context Sheet
<input type="checkbox"/> Geophysics	<input checked="" type="checkbox"/> Correspondence
<input checked="" type="checkbox"/> Images	<input type="checkbox"/> Diary
<input checked="" type="checkbox"/> Illustrations	<input checked="" type="checkbox"/> Drawing
<input type="checkbox"/> Moving Image	<input type="checkbox"/> Manuscript
<input type="checkbox"/> Spreadsheets	<input checked="" type="checkbox"/> Map
<input checked="" type="checkbox"/> Survey	<input type="checkbox"/> Matrices
<input checked="" type="checkbox"/> Text	<input type="checkbox"/> Microfilm
<input type="checkbox"/> Virtual Reality	<input type="checkbox"/> Misc.
	<input checked="" type="checkbox"/> Research/Notes
	<input type="checkbox"/> Photos
	<input checked="" type="checkbox"/> Plans
	<input checked="" type="checkbox"/> Report
	<input checked="" type="checkbox"/> Sections
	<input type="checkbox"/> Survey

Notes:

APPENDIX F. RADIOCARBON DATES



RADIOCARBON DATING CERTIFICATE

01 July 2013

Laboratory Code SUERC-47012 (GU31018)

Submitter Rachel Fosberry
Oxford Archaeology East
15 Trafalgar Way
Bar Hill
Cambs. CB23 8SQ

Site Reference IPS 718

Context Reference 131

Sample Reference 3

Material Charcoal

$\delta^{13}\text{C}$ relative to VPDB -25.6 ‰

Radiocarbon Age BP 1393 \pm 29

N.B. The above ^{14}C age is quoted in conventional years BP (before 1950 AD). The error, which is expressed at the one sigma level of confidence, includes components from the counting statistics on the sample, modern reference standard and blank and the random machine error.

The calibrated age ranges are determined from the University of Oxford Radiocarbon Accelerator Unit calibration program (OxCal4).

Samples with a SUERC coding are measured at the Scottish Universities Environmental Research Centre AMS Facility and should be quoted as such in any reports within the scientific literature. Any questions directed to the Radiocarbon Laboratory should also quote the GU coding given in parentheses after the SUERC code. The contact details for the laboratory are email g.cook@suerc.gla.ac.uk or telephone 01355 270136 direct line.

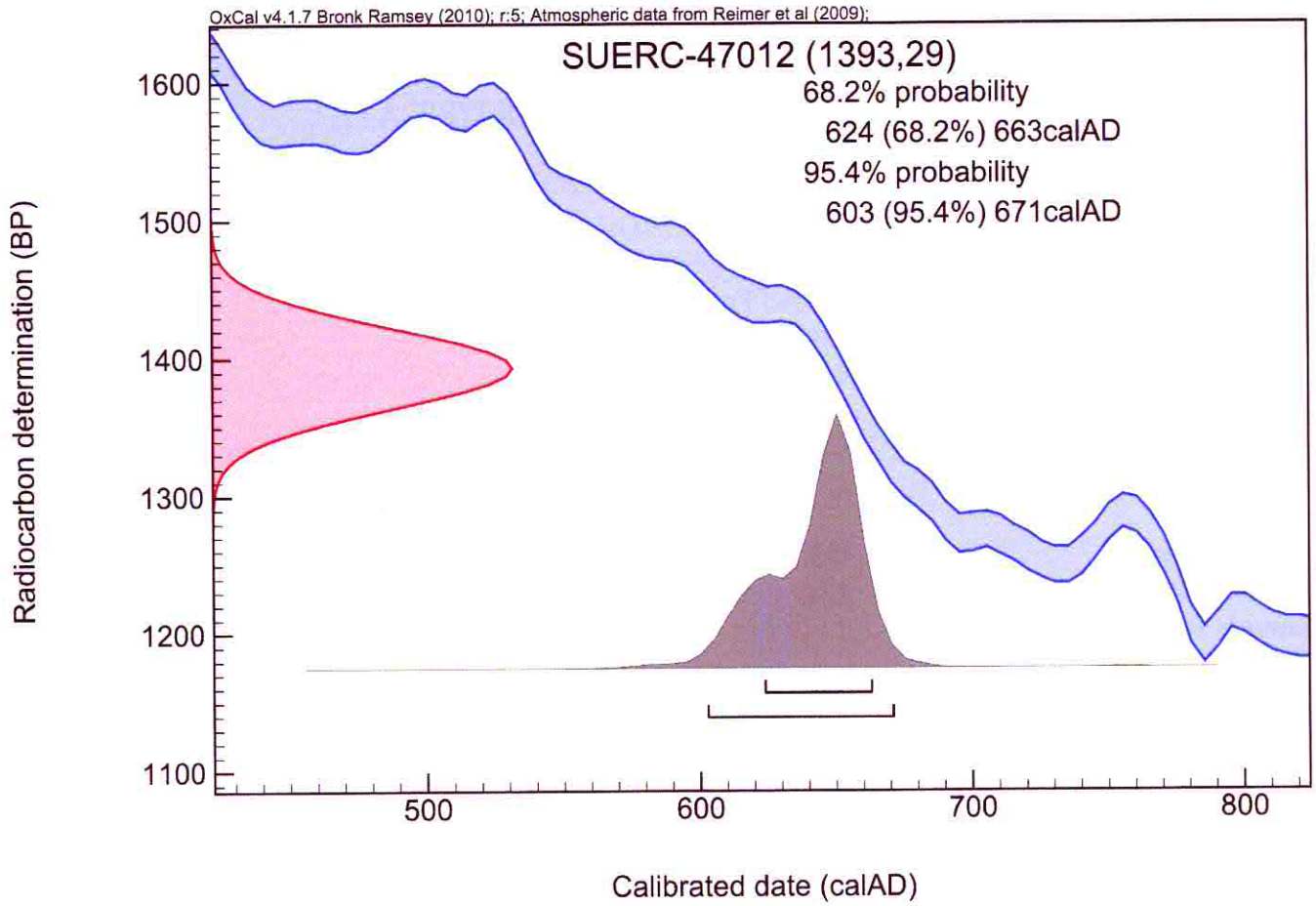
Conventional age and calibration age ranges calculated by :- *N. R. M.*

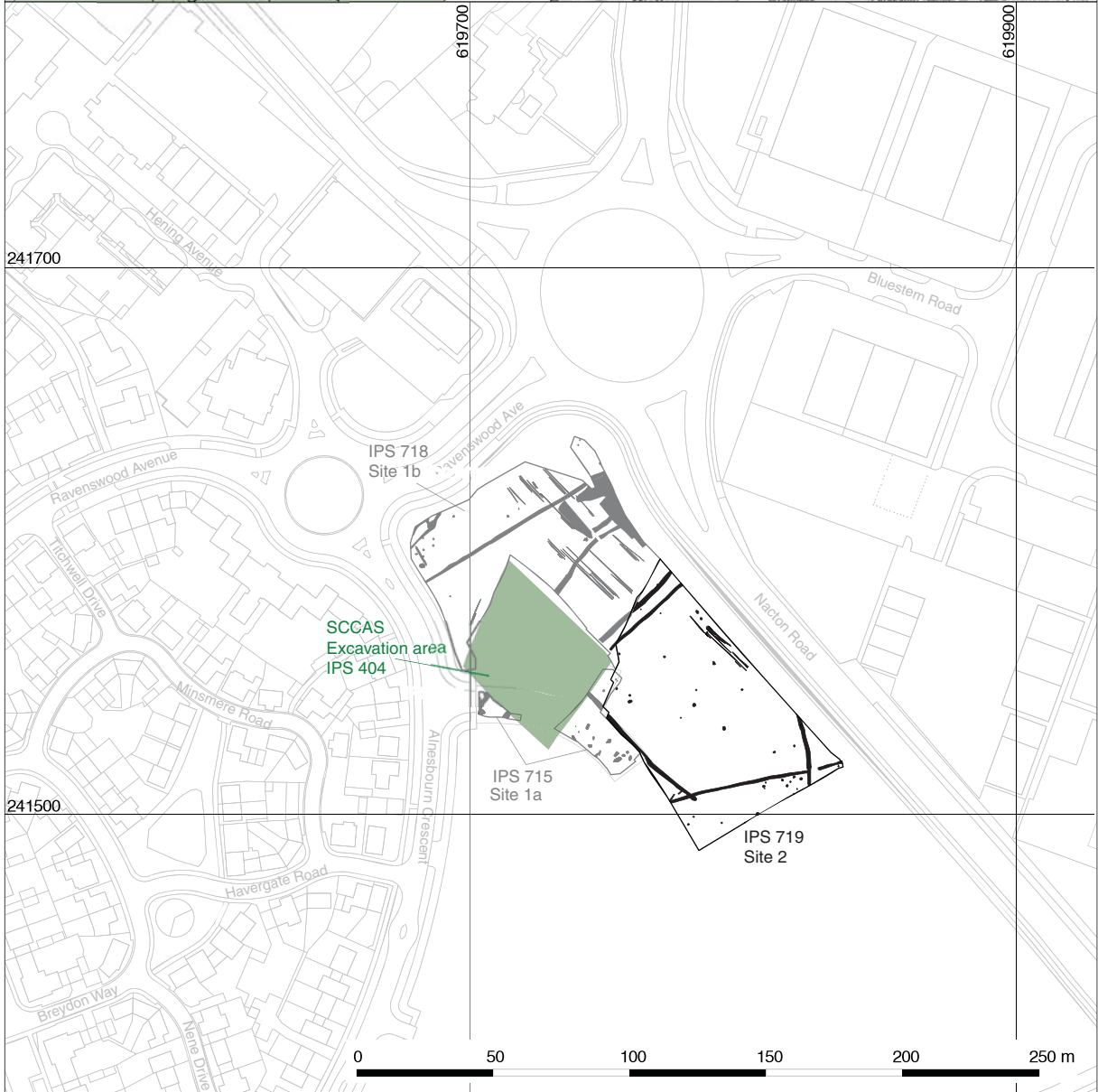
Date :- 2-7-13

Checked and signed off by :- *E. Muir*

Date :- 2/7/13

Calibration Plot





Ordnance Survey. © Crown Copyright 2013. All rights reserved. Licence number 0100031673

Figure 1: Site location, showing current and previous excavation areas

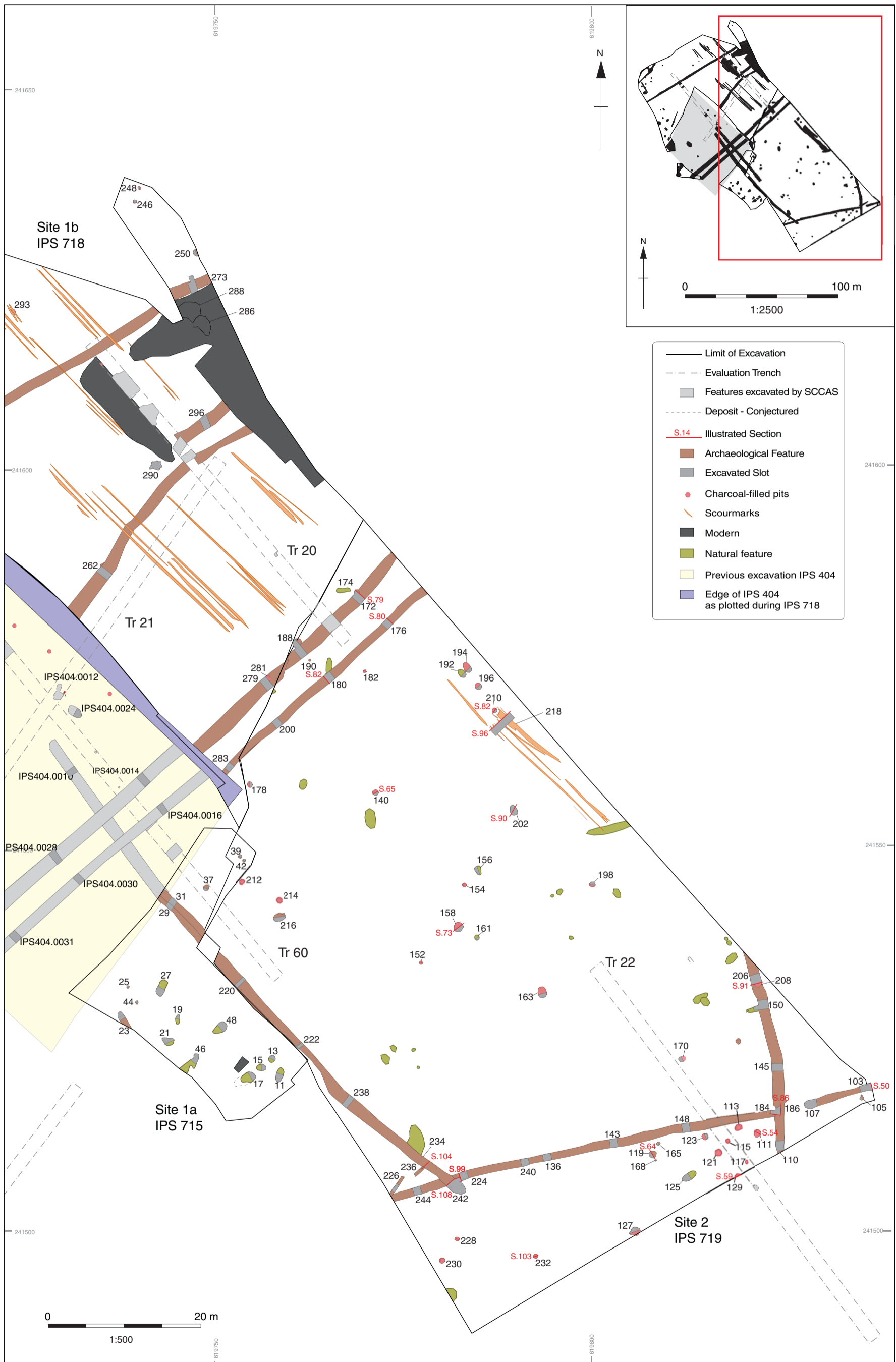


Figure 2: Site location with archaeological features, showing previous evaluation trenches, and other excavations IPS 404, IPS 715 and IPS 718, Southern part

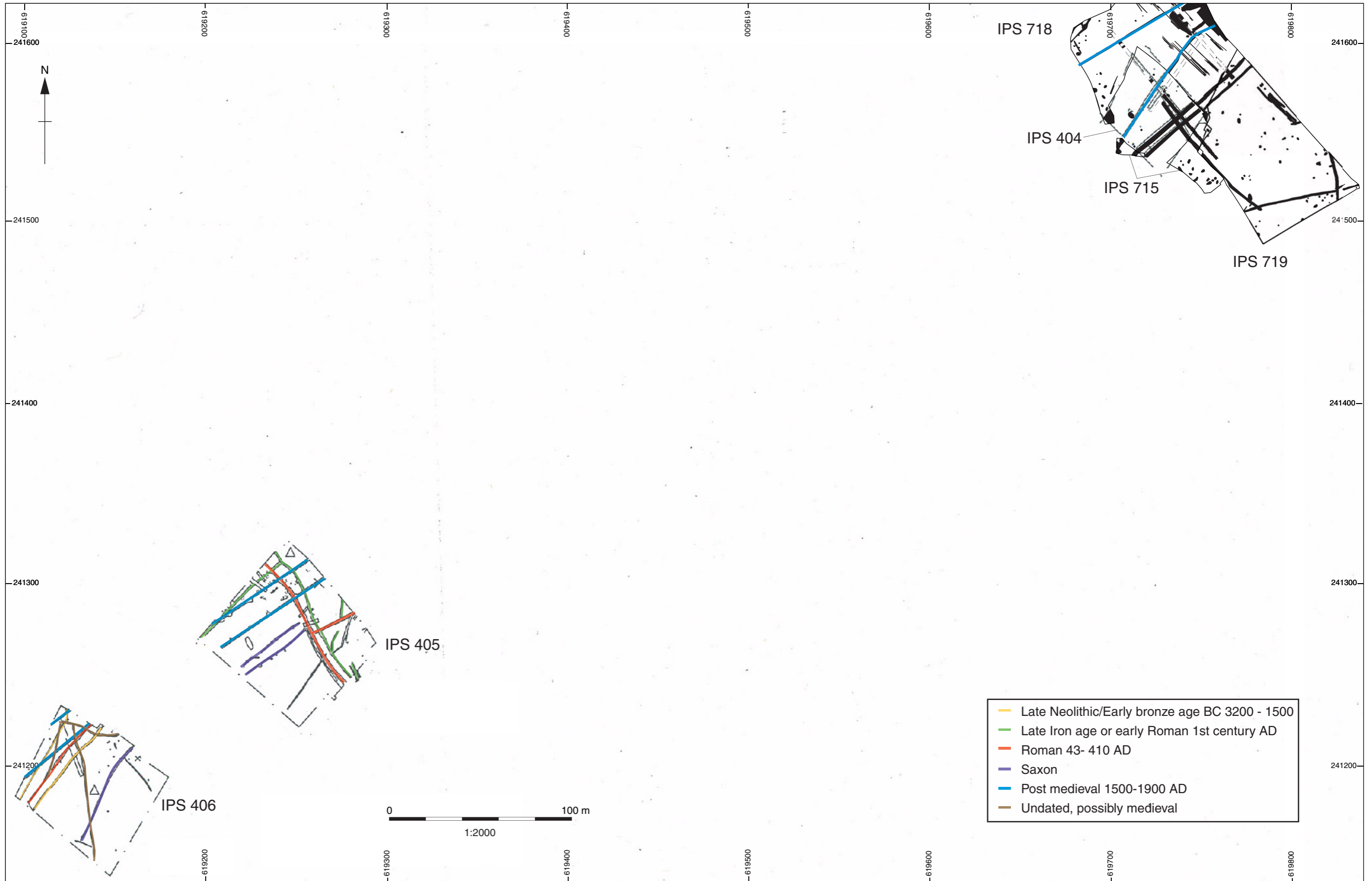


Figure 3: Plan of wider area showing current excavations in relation to IPS 405 and IPS 406

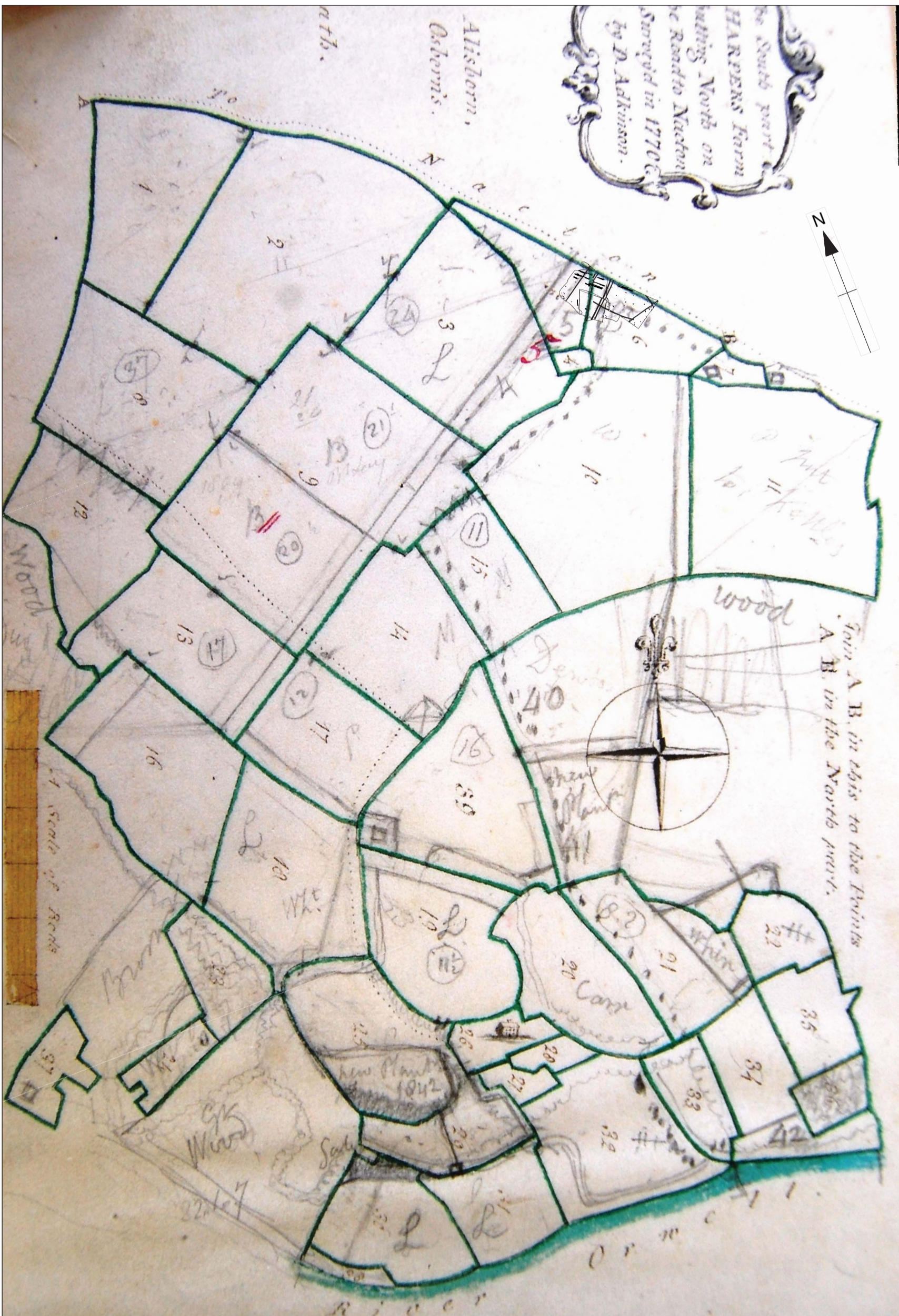


Figure 4: Estate Map of the south part of Harper's Farm 1770, with the excavation area overlaid (Suffolk Record Office, Ipswich, Ref.HA 93/12/38)



Figure 5: 1st edition OS map, 1881-1882, with the excavation area overlaid



Figure 6: Russian Map, 1984 showing Ipswich Airport buildings and runway, with excavation area overlaid. Not to scale

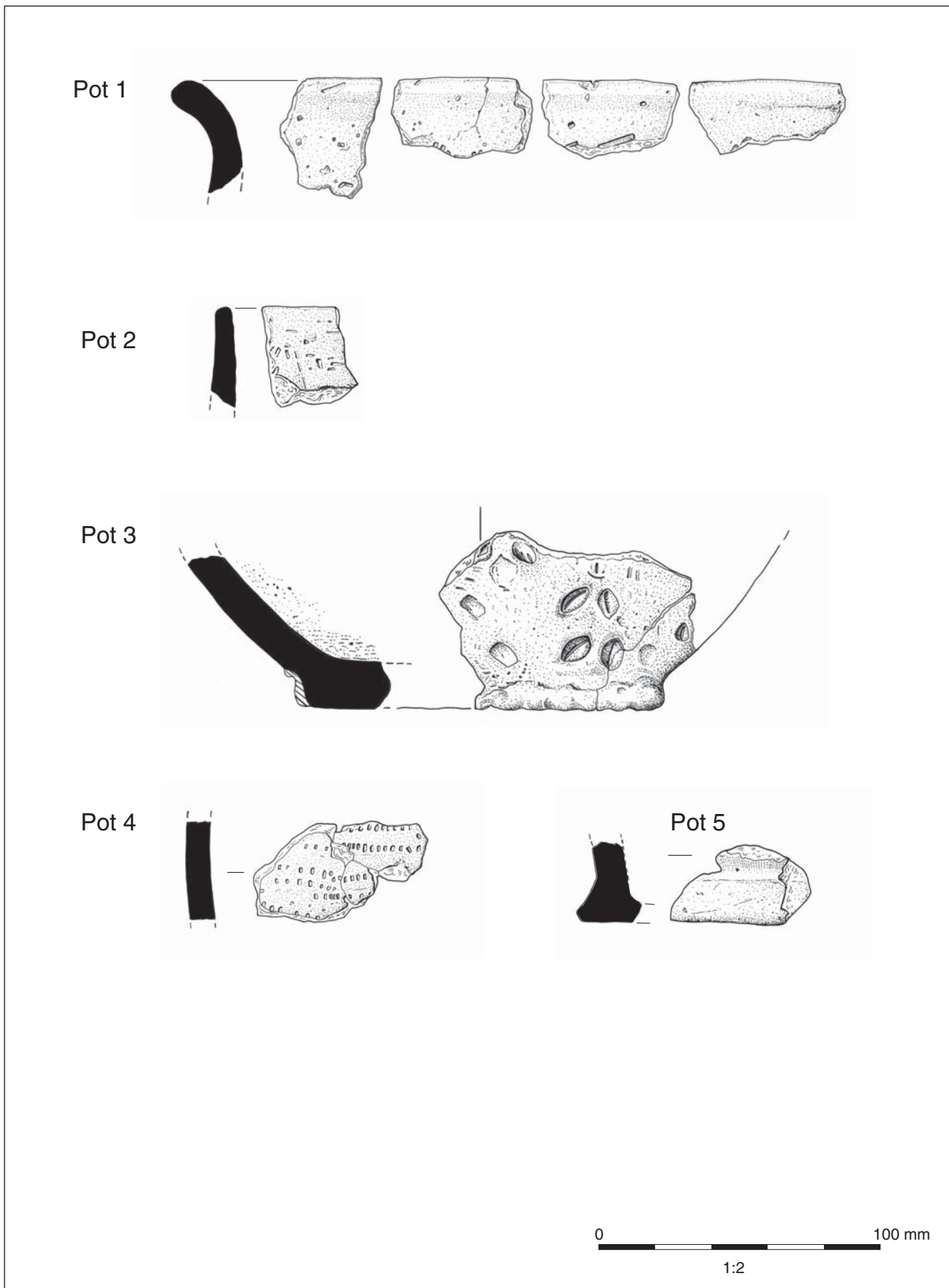


Figure 7: Drawings of Late Neolithic/Early Bronze Age Beaker fragments from Pit 119

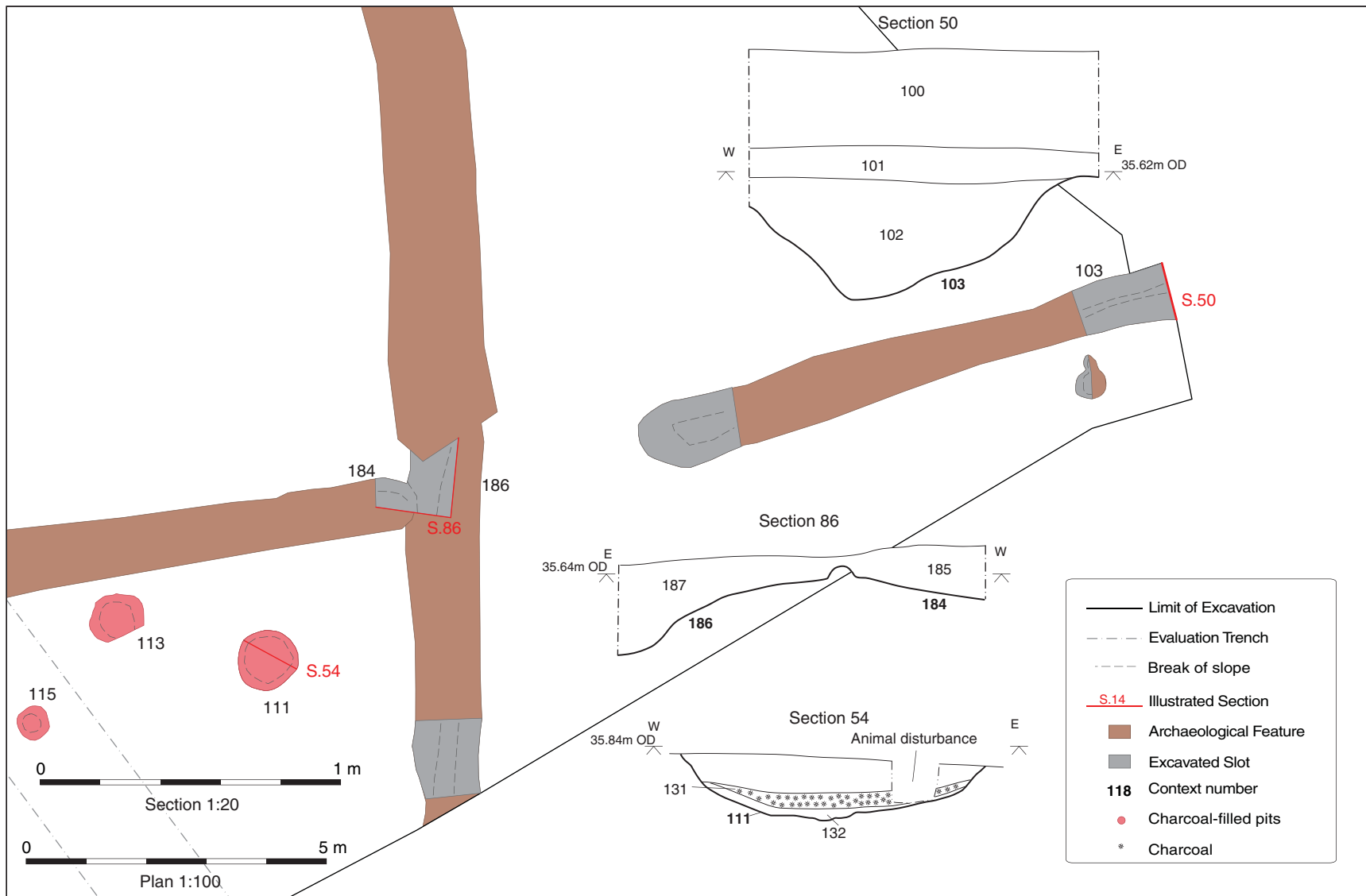


Figure 8: Plan and sections of features 111, 184, 186 and 103

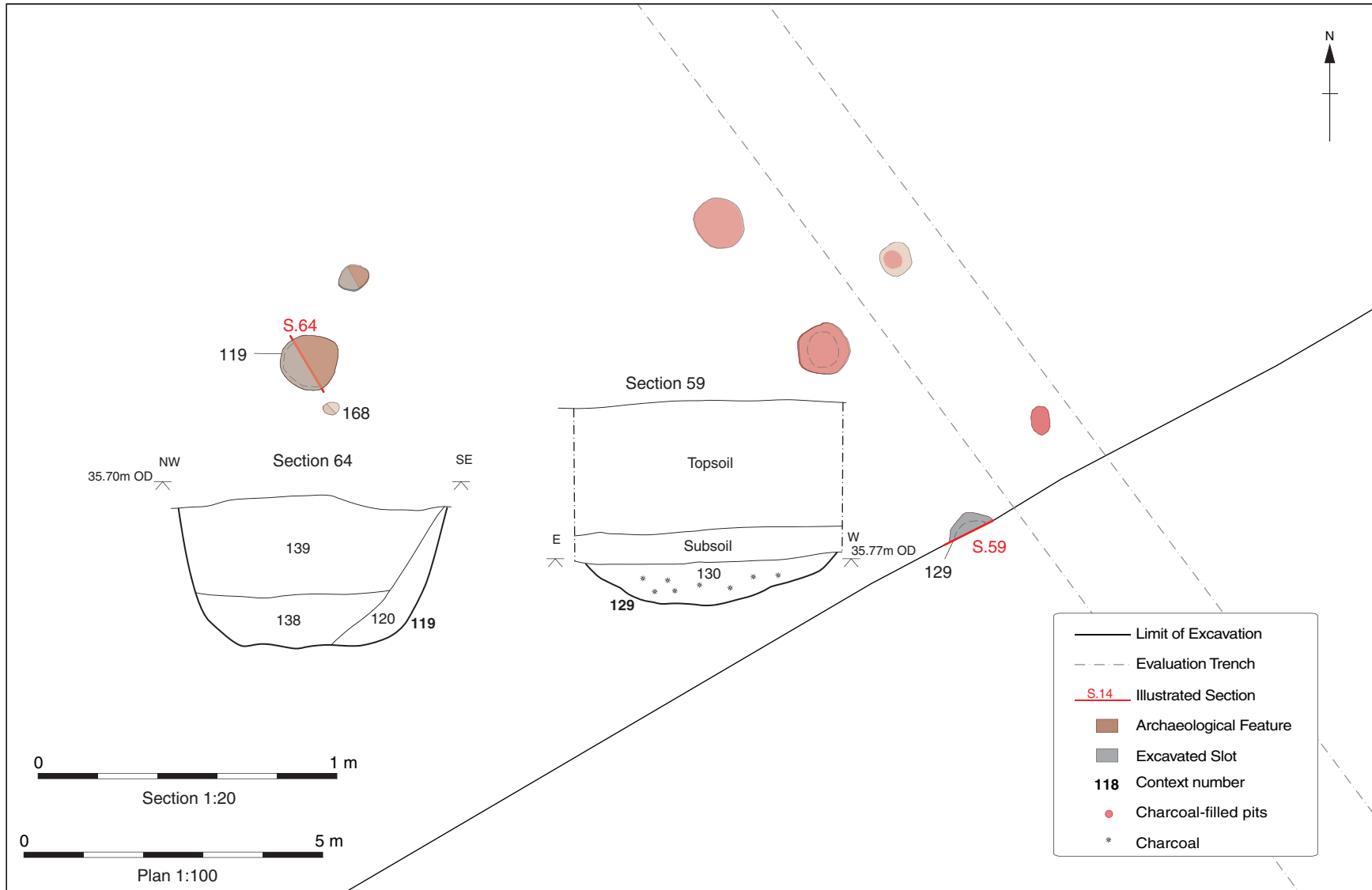


Figure 9: Plan and sections of features 119 and 129

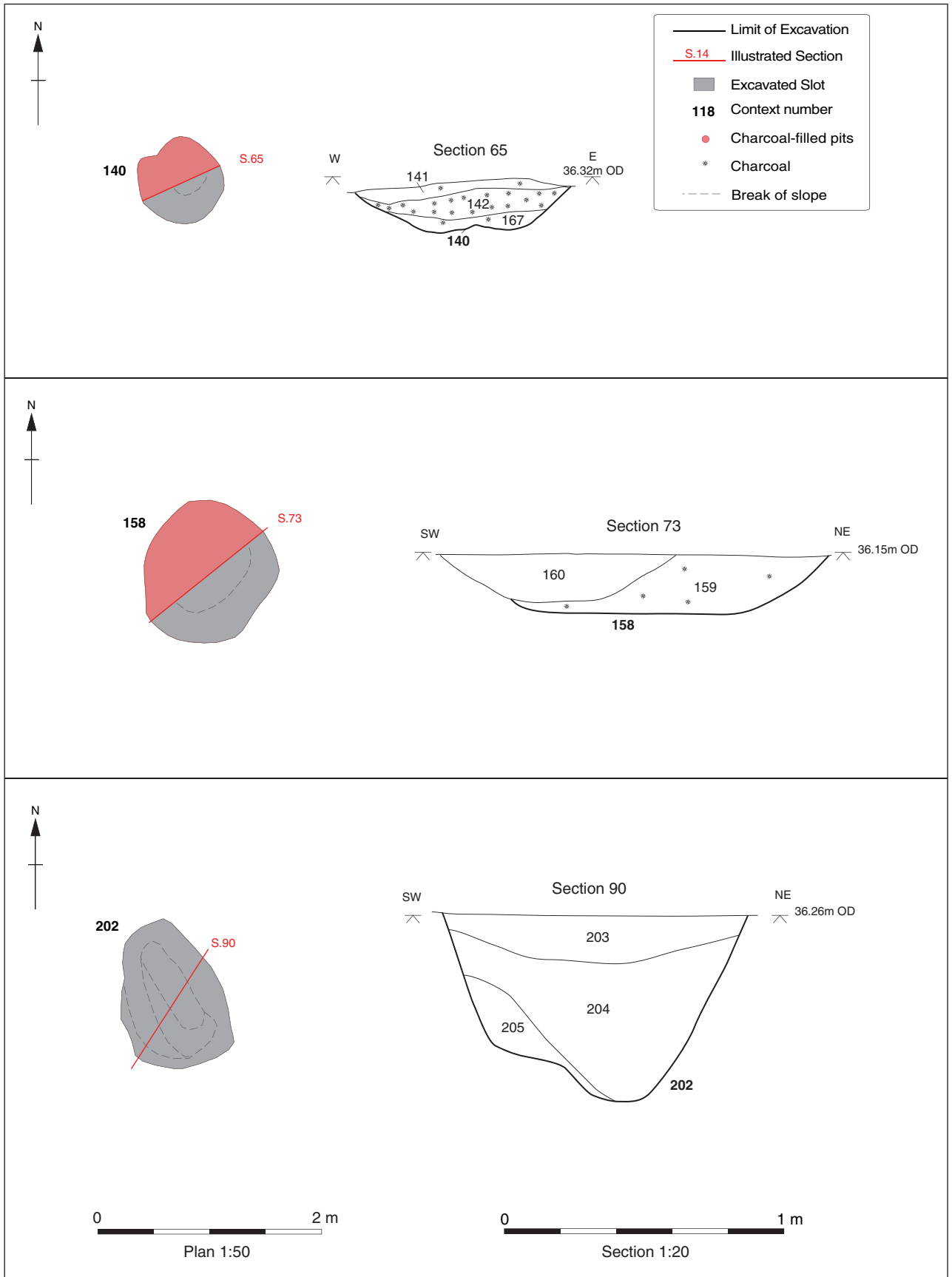


Figure 10: Plans and sections of features 140, 158 and 202

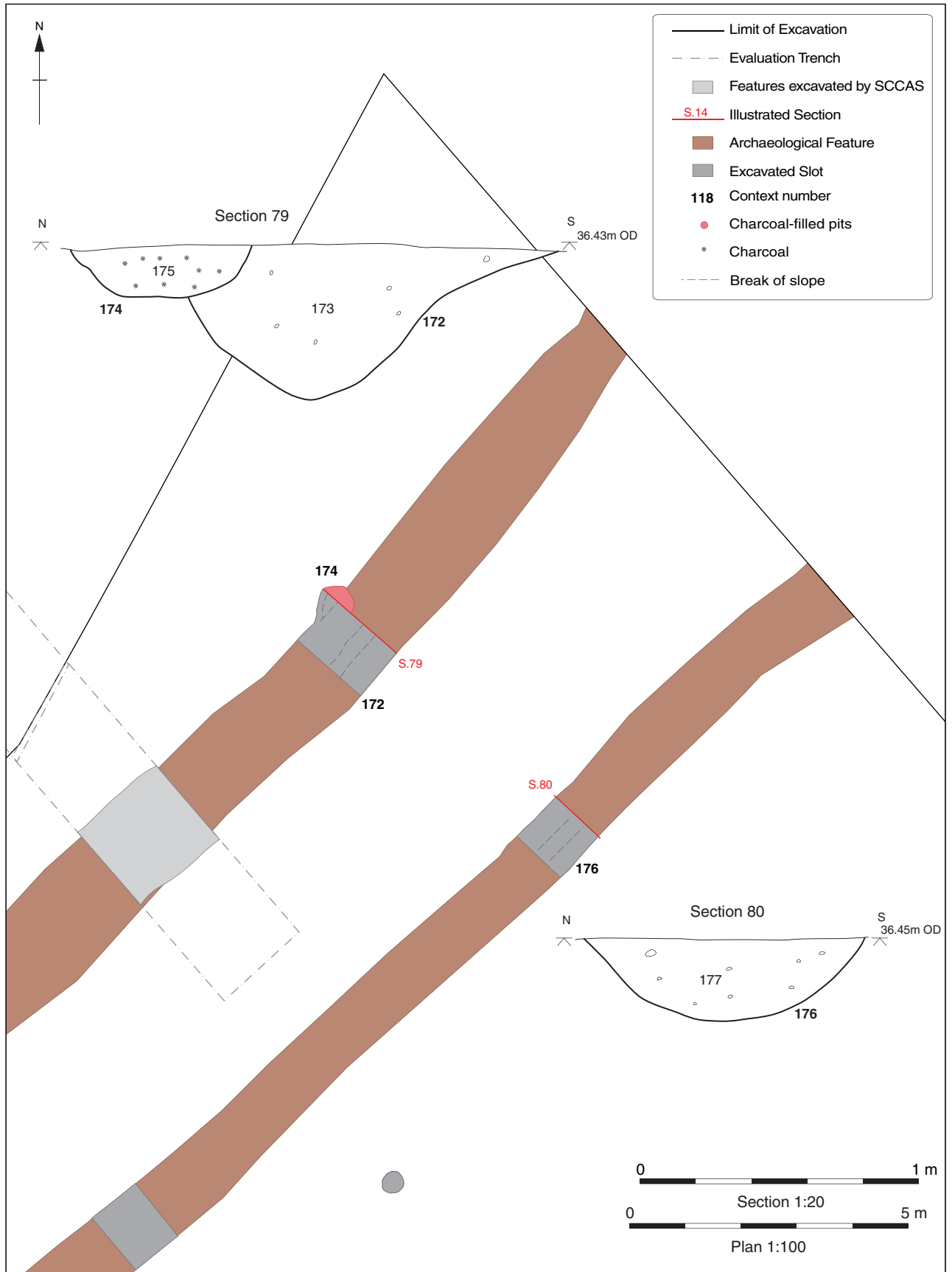


Figure 11: Plans and sections of features 172, 174 and 176

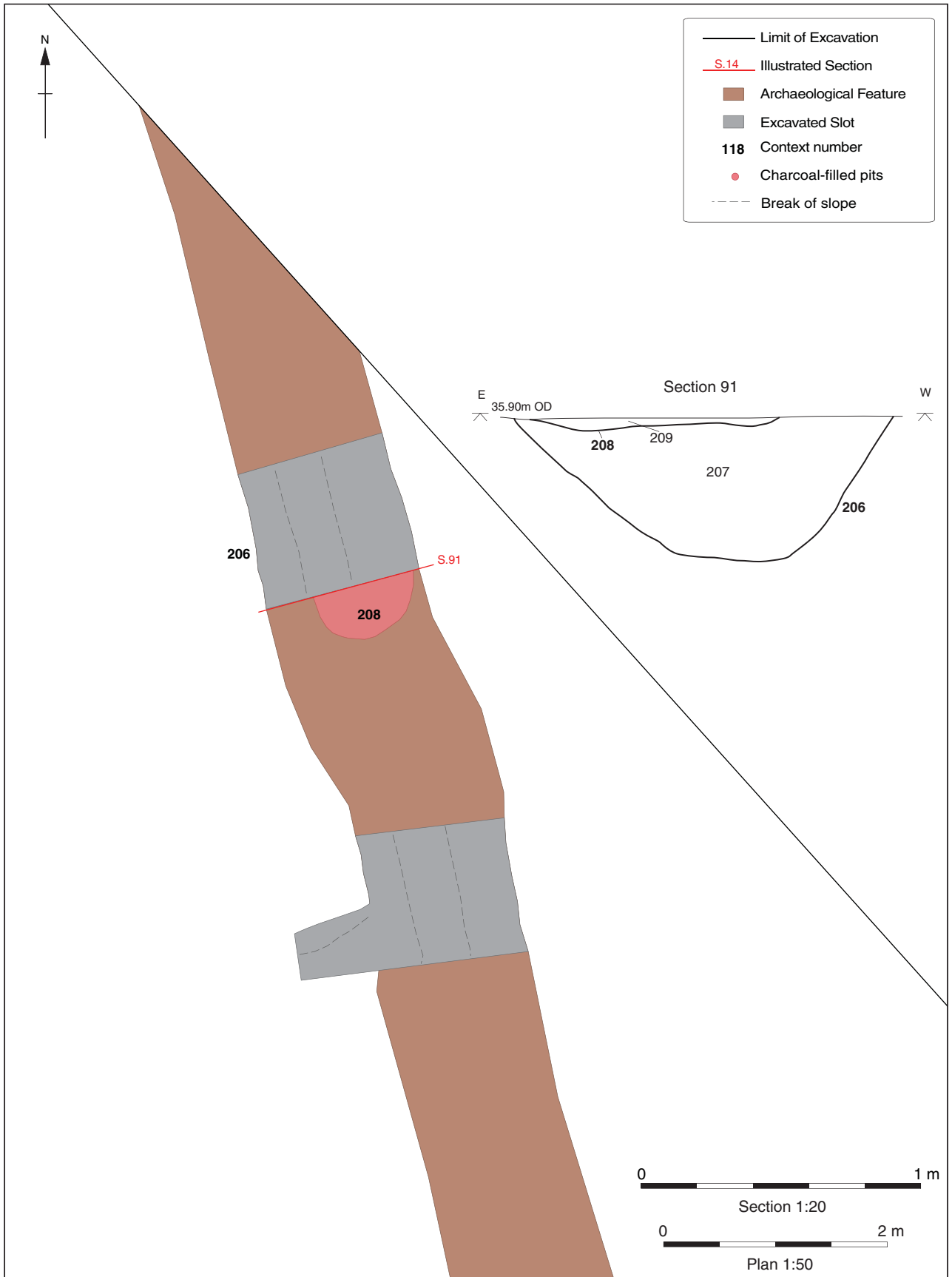


Figure 12: Plan and section of 206 and 208

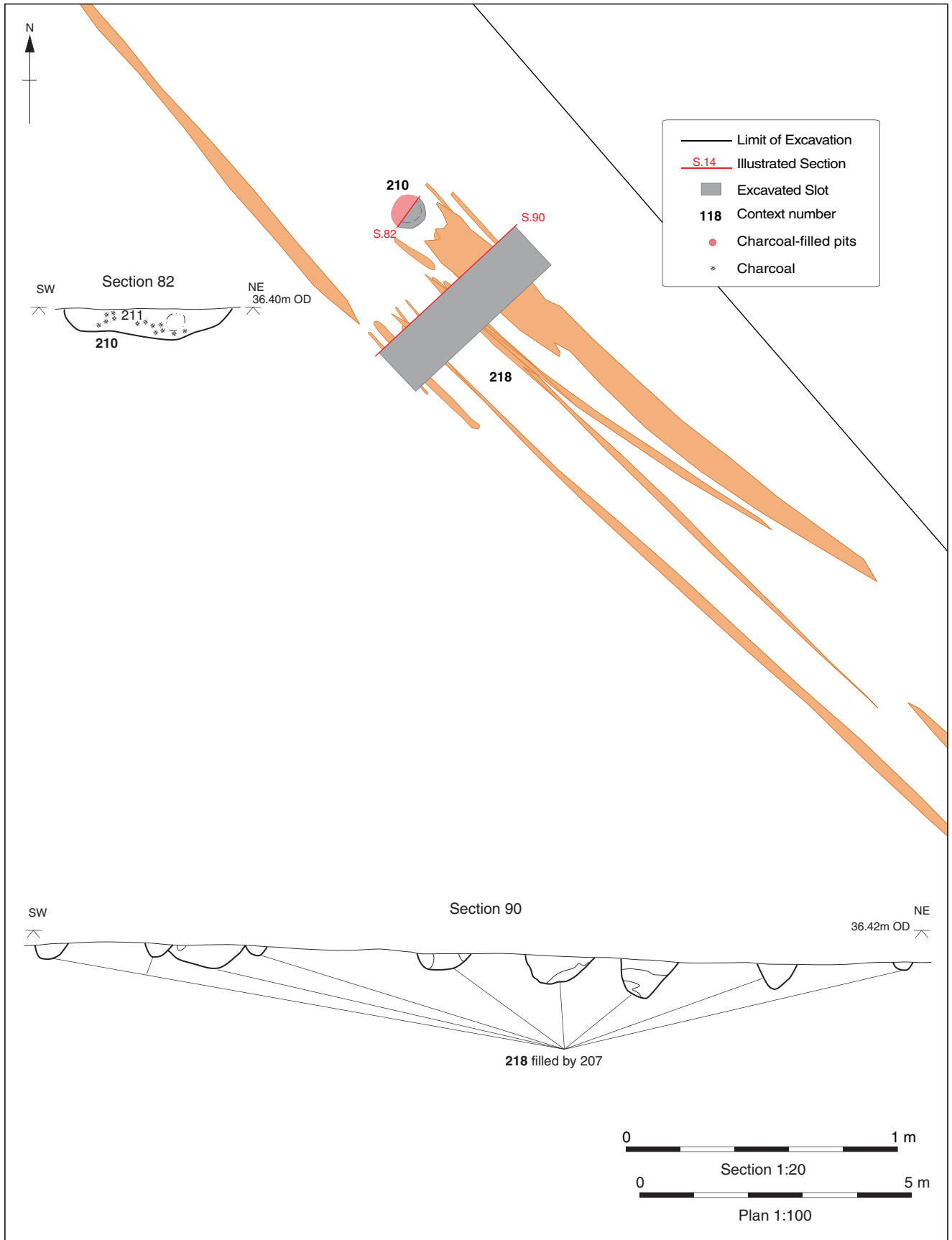


Figure 13: Plan and sections of 210 and 218

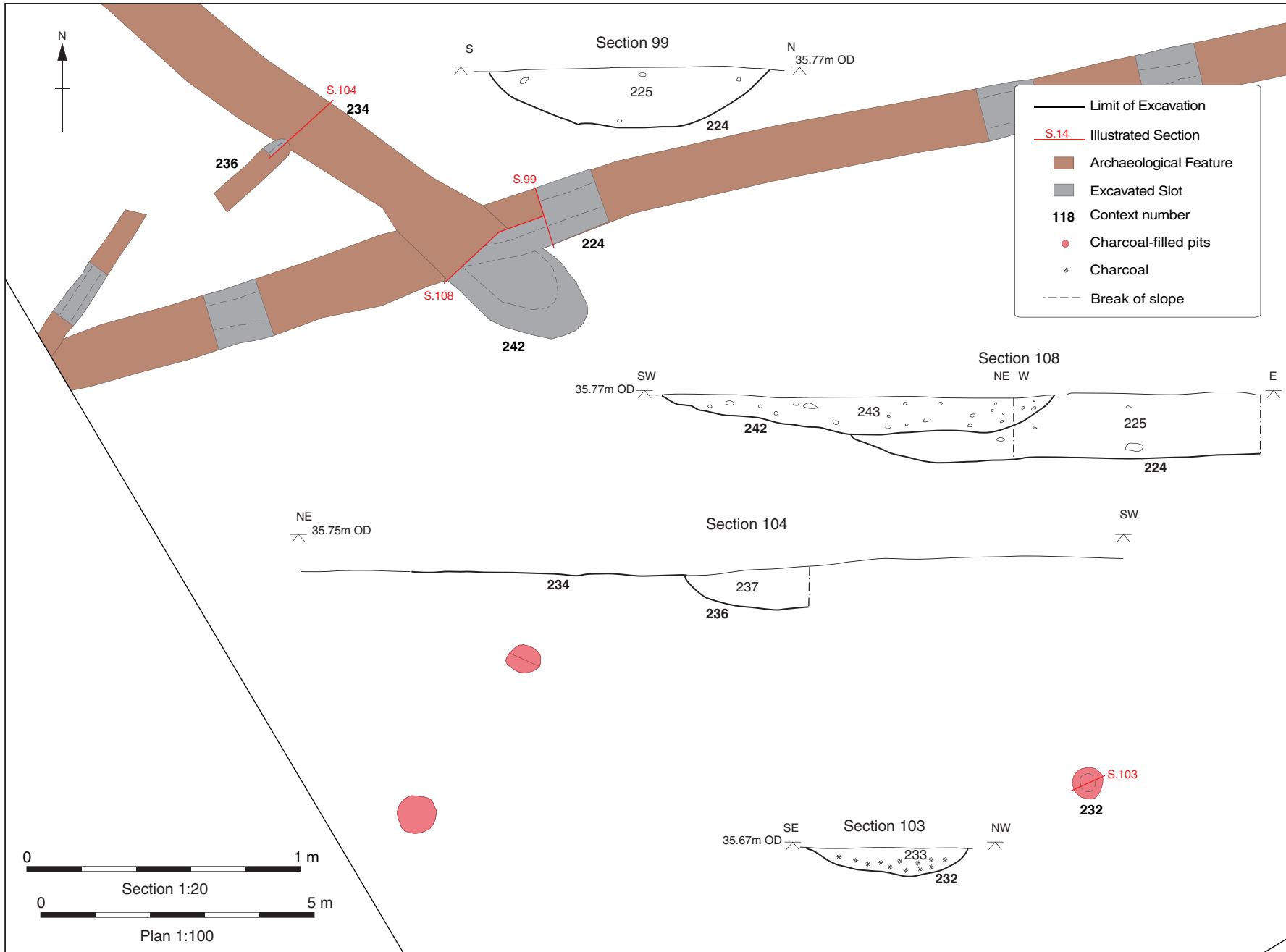


Figure 14: Plan and sections of 114, 242, 232 and 236



Plate 1: Site shot during machine stripping. Site 1a in the background. View from the east



Plate 2: Ditch **103** and its terminus. From the west south-west



Plate 3: Charcoal-filled pit **111**, fully excavated. From the north-west



Plate 4: Charcoal-filled pit **121**, half sectioned. From the west



Plate 5: The site from the north-west showing linear marks **218**.
Charcoal filled pits in the foreground



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