Staffordshire Hoard Research Report 27

The Staffordshire Hoard Fieldwork 2009-2010

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1.0: SUMMARY

Following its initial discovery by a metal detectorist, Terry Herbert, in July 2009 the Staffordshire Hoard (Staffordshire HER 56738) was systematically recovered from the ploughsoil by means of test-pitting and careful hand-excavation within an area of 152 square metres in July–August 2009. Recovery was an emergency response to the discovery of the hoard, which was under threat of looting from unauthorised metal detectorists. Geophysical surveys were undertaken in 2009 and 2010, the latter followed by trenching, to provide an understanding of its archaeological context. Subsequently, air photographs within an area of 135ha, centred on the find-spot, were also assessed.

As suggested by the initial test-pit excavation the hoard finds were entirely confined to the ploughsoil; no associated features could be identified. Any feature such as a pit in which the hoard was originally placed would have been scoured-out by ploughing after the field was enclosed in 1839.

The only datable feature was an east–west aligned gully identified by trenching which contained a single retouched prehistoric flint object. Two undated gullies also identified by trenching may have formed part of a palisade trench possibly for a game pen, associated with medieval or early post-medieval Cannock Forest. A mainly northwest–southeast aligned field boundary was laid out sometime between 1839 and 1887. It mostly followed the top of the natural ridge, before turning to the north when approaching the northern edge of the field. This re-alignment could suggest that the boundary was avoiding an above-ground feature of which no trace has survived.

Air photograph assessment also identified an oval feature comprising a ditch with a possible bank along part of its inner circumference. The cropmark coincides with two excavated ice wedges.

Plate 1. The ridge from southern edge of field, view: northwest.

2.0: INTRODUCTION

2.1: Fieldwork

This contribution provides a detailed integrated report of the fieldwork undertaken at the site of the Staffordshire Hoard (centred on NGR SK 406328/306396, Figs 1–2; Staffordshire HER 56738) by Birmingham Archaeology in 2009–2010 following its initial discovery by a metal detectorist, Terry Herbert. The discrete stages of fieldwork have been previously reported (Birmingham Archaeology 2010; Burrow and Jones 2010), and the fieldwork results up to 2010 have been summarised (Dean *et al.* 2010; Leahy *et a*l. 2011).

The 2009 fieldwork comprised controlled archaeological hand-excavation of the hoard from the ploughsoil by teams from Staffordshire County Council and Birmingham Archaeology, undertaken as an emergency response to the discovery of the hoard, which was considered to be under imminent threat of looting by unauthorised metal detectorists. A magnetometer survey of the entire field was also undertaken and test-pits were dug to 'ground-truth' anomalies outside the excavated area.

A resistivity survey was undertaken in 2010 to provide further details of the immediate archaeological context of the hoard. It was followed by selective trenching, to test a selection of gradiometer and resistivity anomalies.

No archaeological work had previously been undertaken at the site, although extensive work has been undertaken nearby in connection with the M6 Toll scheme (Powell et al. 2008).

The scope of the 2009–2010 was defined in specifications (Staffordshire County Council 2009 and 2010) agreed with English Heritage and Birmingham Archaeology. Because of the immediate threat posed by unauthorised metal detecting and the discovery that the hoard finds were all confined to the ploughsoil no systematic evaluation or excavation of the hoard site and its surrounds was undertaken in 2009; resources were concentrated upon the safe, systematic and timely recovery of the hoard.

2.2: Location and geology

The site is located to the south of the A5 (T) which follows the line of Roman Watling Street, to the west of the M6 (Toll) and to the east of Hanney Hay Road (Fig. 2). It formed part of the historic parish of Ogley Hay, with the parish of Hammerwich located to the north of Watling Street. The Crane Brook runs northwest–southeast, to the northeast of the find-spot.

The underlying geology consists of Wildmoor sandstone laid down 246–251 million years ago in the Triassic period (www.bgs.ac.uk/discoveringGeology/geologyOfBritain/viewer.html). The soils in the west and south of the field (including the find-spot of the hoard) comprise freely draining, slightly acid sandy soils, with low fertility (Soilscape 10, www.landis.org.uk/services/soilscapes.cfm). In the remainder of the field the soils comprise slightly acid loamy and clayey soils with impeded drainage, and moderate to high fertility (Soilscape 8).

The field in which the hoard was discovered has been intermittently ploughed in the past, most recently in 2008. It has been laid to a variety of crops, including carrots and potatoes. At the time of the archaeological investigations the site comprised pasture.

The hoard was located towards the northwestern spur of a northwest–southeast aligned ridge (Fig. 3, Plate 1). The hoard find-spot was on the southwestern facing shoulder of the ridge at its northwestern end, which had probably been truncated by widening of the A5 (T) road. A historic field boundary (Fig. 4) mainly followed the ridge, before turning to the north approaching the northern edge of the field.

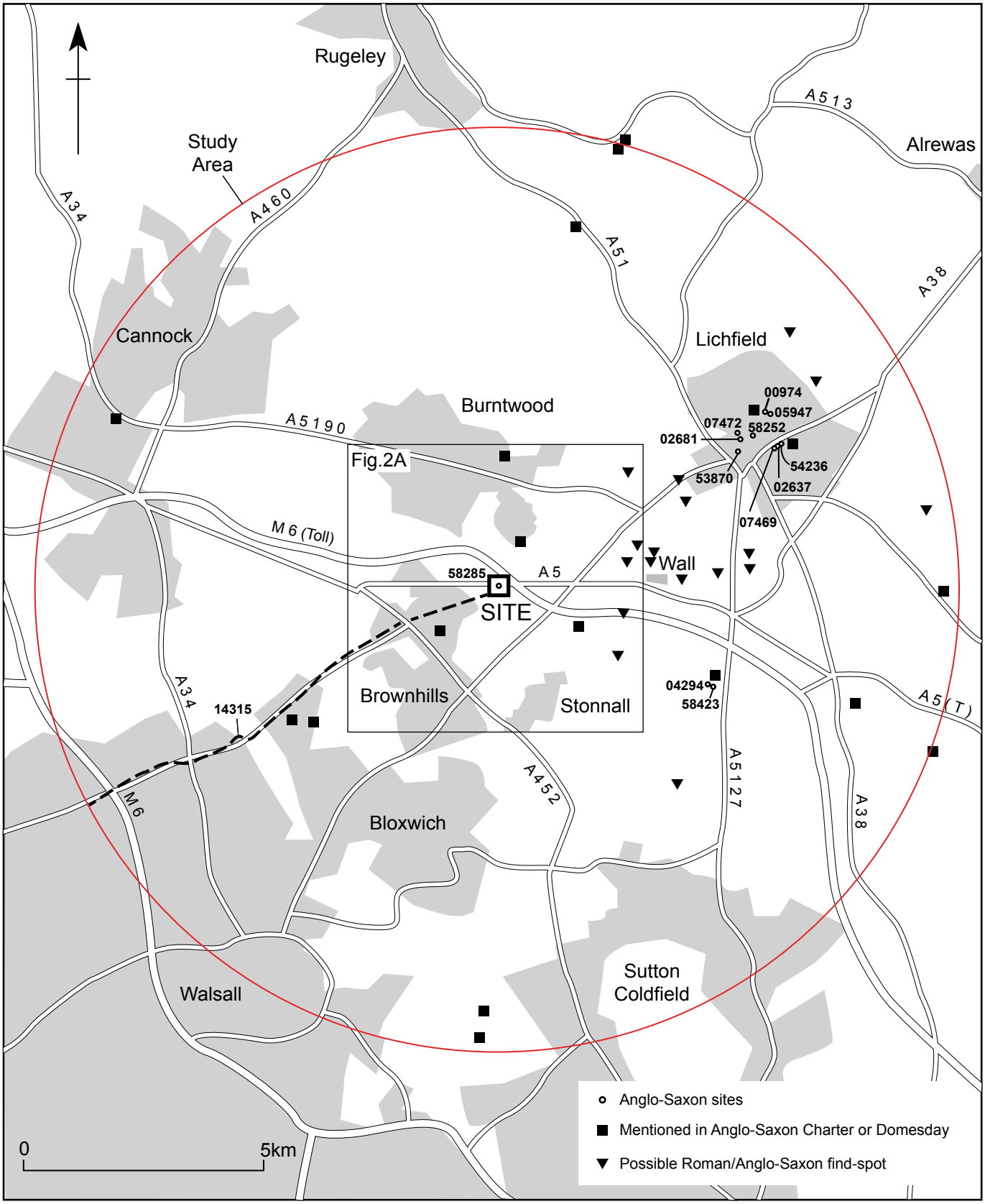

Fig. 1. Location of the hoard, and Anglo-Saxon sites, sites mentioned in Anglo-Saxon Charters or Domesday and possible Roman/Anglo-Saxon find-spots (includes data from Staffordshire HER copyright Staffordshire County Council, compiled by Goodwin). Red circle is boundary of air photograph study area.

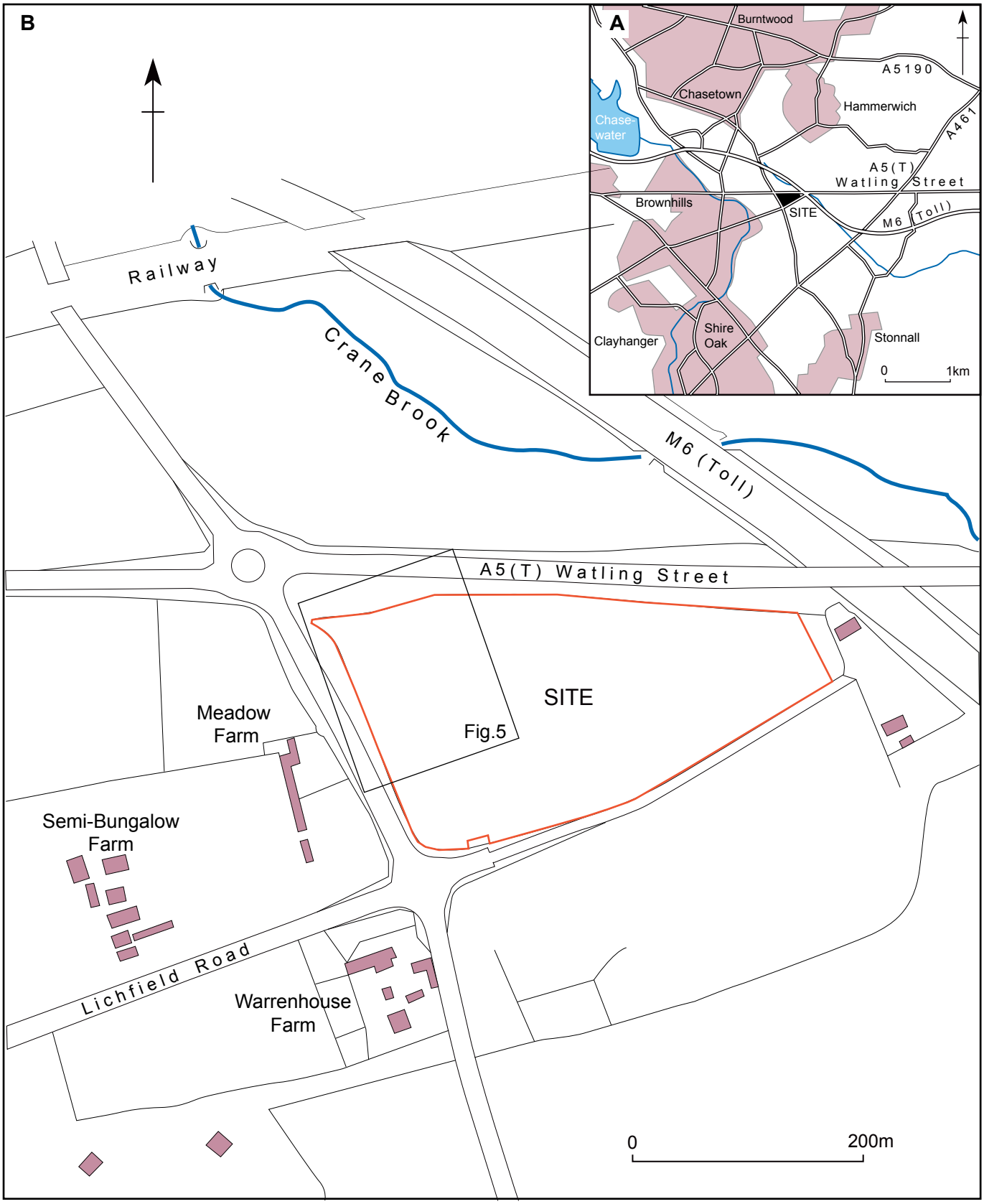

Fig. 2. Detailed site location.

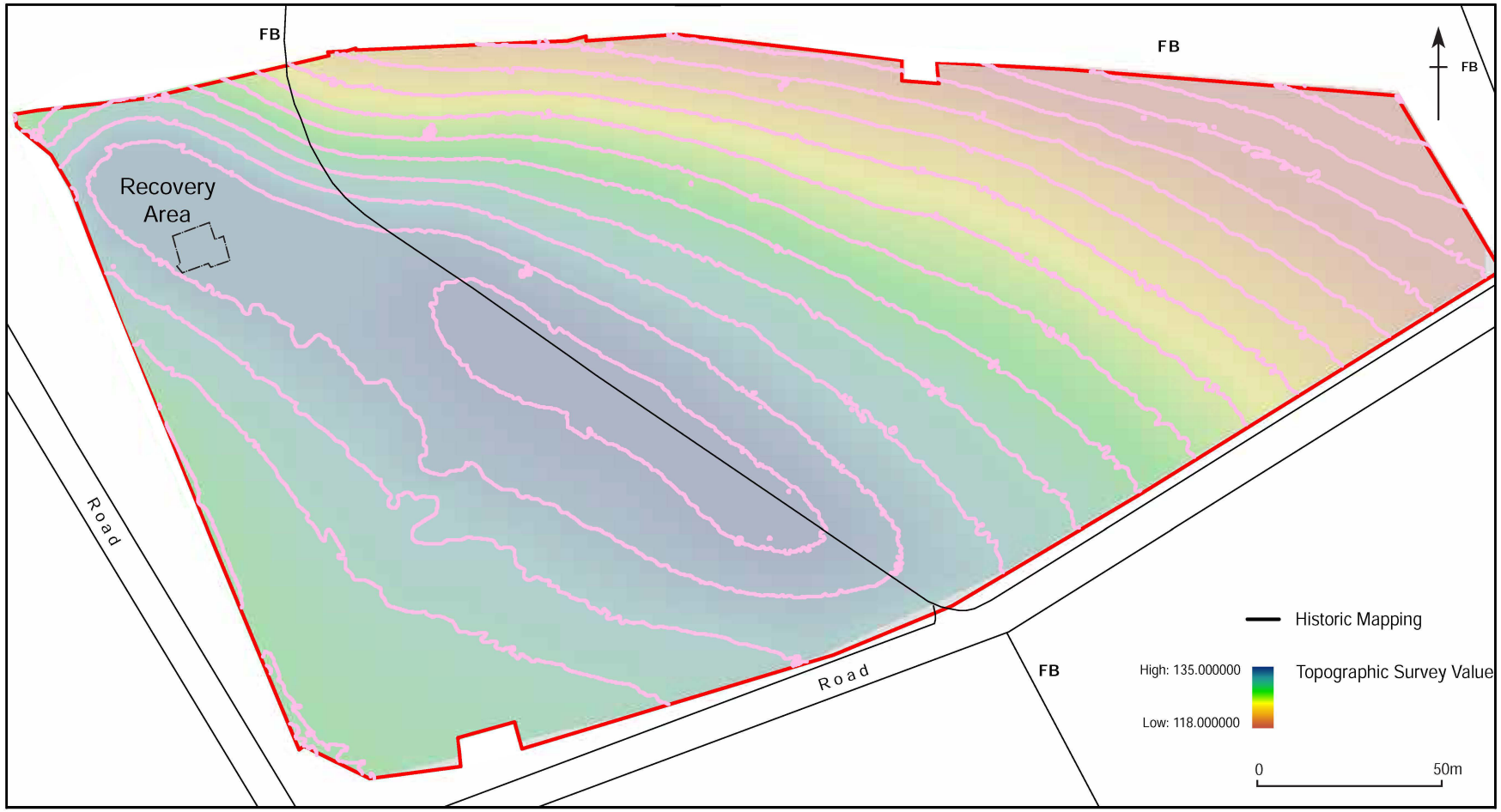

Fig. 3. Topography (copyright University of Birmingham).

Fig. 4. Historic mapping: Yates, 1775 (copyright Staffordshire Record Office; Ogley Hay enclosure, 1839 (copyright Staffordshire Record Office); Ordnance Survey First Edition, 1887.

3.0: BACKGROUND

3.1: Roman

The site is located immediately to the south of the modern A5 (T), which follows the line of Watling Street (Margary 1973, 289), possibly laid out in the AD 70s (Gould 1966; 1997, 351), as part of the Roman military communications network. Roman activity at Wall (Letocetum), 4km to the east of the hoard find-spot, is attested by air photographs, excavation and find-scatters. A possible Neronian vexillation fortress (Lyons and Gould 1964; Round 1983) was succeeded by Flavian forts (Round 1983). Further cropmarked features may represent marching camps (Welfare and Swann 1995, fig. 145). A civilian settlement is also recorded extending over 1km along Watling Street (Lyons and Gould 1964; Jones 1998). Wall itself was located midway between the Roman military complexes at Penkridge to the west, and Mancetter to the east. With the exception of the defended enclosure (Gould 1998) there is little evidence of later Roman occupation at Wall (Burnham and Wacher 1990).

A number of Romano-British rural settlements have been excavated in advance of the M6 Toll road. Those sites located in close proximity to Wall appear to have been concerned with cereal production (Sites 15 and 34, Powell et al. 2008), whilst the economy of more distant rural sites was based on pastoralism (Sites 19 and 29, Booth 2008, 534), suggesting to the excavators that Wall and its immediate hinterland, most notably reflected by the excavated cemetery, remained an 'alien' establishment throughout the Roman period.

A number of excavations have been undertaken in the near vicinity of the hoard site in advance of the M6 (Toll). At Site 34, west of Crane Brook, Hammerwich (Simmonds 2008, 62), to the southeast of the hoard find-spot, the main feature identified was a Romano-British aisled building. A watching brief was maintained during the excavation of a section of Watling Street at Hammerwich (Staffordshire HER 58285, Champness 2008, 57), between Muckley Corner and Brownhills (Site 41). The excavator suggested that this section of the road may have continued in use into the Anglo-Saxon and medieval periods, before going out of use in the later medieval period (ibid., 59).

3.2: Anglo-Saxon (Fig. 1)

There is no clear Anglo-Saxon context for the hoard. This chapter includes information from a review of Historic Environment data (Goodwin 2016) for the Anglo-Saxon to early medieval period within a study area comprising a 10km radius of the find-spot (Fig. 1).

Historical sources

According to Hooke (2011, 1) in the Anglo-Saxon period the area surrounding the find-spot comprised remote woodland and heath. It may have been located close to a significant Saxon boundary, between the 'Pencersæte', focused on the River Penk to the west and the 'Tomsæte' centred on the valley of the River Tame to the east (*ibid*., 3). These two groups were divided by an upland area formed of Triassic sandstone overlain by glacial drift which was particularly infertile. This area may have been used as seasonal pasture by estate centres located to the east and west (*ibid*., fig. 2). According to Domesday, the minster founded or re-founded at Wolverhampton in the 10th century held the vills of Ogley Hay and Hilton (*ibid.*, 5).

The forged Wolverhampton foundation charter describes the triangle of contemporary roads around which the find-spot was located. These include Watling Street, a road from Wolverhampton to Ogley Hay and also a probable road to the southeast joining Watling Street and Roman Ryknield Street (Hooke 2011, 8).

Ogley Hay was first known as Hocintune/Ogintune, meaning Hocca's or Ocga's tun. At the time of Domesday it was described as waste land. Its original settlement focus is not known. By the 12th century Ogintune became known as Oggeleye, implying an open wooded landscape used mainly as wood pasture, also reflected in other place-names similarly derived from the Old English leah (Hooke 2011, 6). There are also a few 'wic' settlements, indicating a specialised function, including Hammerwich, Smethwick and Bloxwich.

Because of the dearth of archaeological information place-name evidence is of particular importance in reconstructing the Anglo-Saxon landscape. A number of place-names are recorded in Anglo-Saxon charters (Fig. 1). Old Hall Lane Quarry, near Lichfield may have been referenced in a document dated AD 957. The place-name Burntwood may have an Anglo-Saxon origin, the name referring to an area of burnt woodland, formerly within Cannock Forest. Longden was first mentioned in the 11th century as 'an ancient parish'. The place-name Handsacre may indicate cultivation in the early medieval period. Settlement at Pelsall was first recorded at the end of the 10th century; Ryders Hayes Lane, Pelsall could be the hunter's track mentioned in the Wolverhampton charter

of AD 994. Barr Beacon is a beacon mentioned in a 10th century charter. The routeway from Wolverhampton to Wednesfield and Watling Street is also mentioned in Anglo-Saxon charters.

A number of the place-names within 10km of the find-spot are mentioned in Domesday (Fig. 1), including Cannock, Hammerwich, Handsacre, Hilton, Hints, Packington, Shenstone, Weeford and Litelbech (Lichfield). A windmill, possibly one of two recorded in the Manor of Lichfield in Domesday may have been located at Stowe, Lichfield.

A Welsh praise poem, the Marwnad Cynddylan (Rowland 1990, Gould 1993) describes a raid upon Caer Luitcoed, literally the fortified grey wood, possibly identified as Wall because of the originally fortified nature of that site (Gould 1993). Rowland (1990) identifies Caer Luitcoed with Lichfield, although it is not clear that it had a discernable boundary at the time (Gould 1993). The poem describes the booty, including 15,000 head of cattle, horses and harnesses taken by an army from Powys led by Cynddylan and his brother Morfael, acting in concert with a Mercian army. It is also possible that this booty was derived from a defeated Northumbrian army as also suggested by Rowland (1990).

Archaeology

Few sites or possible sites of Anglo-Saxon date have been excavated within this area (numbered on Fig. 1). At the Cross Keys site in Lichfield a sub-Roman building was replaced by two phases of sunken-floored buildings occupied from the 7th–10th century, adjoining a further building occupied from 10th–12th century (58252). An excavated boundary ditch to the rear of 15 Sandford Street, Lichfield may be early medieval in date (53870).

A number of churches within a radius of 10km of the find-spot include traces of Anglo-Saxon fabric, or are believed to be of Anglo-Saxon origin (numbered on Fig. 1). In Lichfield fragments of pre-Norman masonry has been recorded at the east end of the later Cathedral (07472), and remains of an Anglo-Saxon cemetery and the shrine of St Chad have been excavated. Excavations in the Cathedral Close during the 1970s revealed structures and a cemetery of possible late Anglo-Saxon date (02681). The church and churchyard of St Chad's, Stowe, Lichfield is of supposed 7th century origin (00974, 05947). The church of St Michael in Lichfield is recorded as an early Christian burial ground (07469), and traces of an earlier build have been identified which could be Anglo-Saxon in date. The churchyard contained a crouched burial aligned east–west which may be dated to the Anglo-Saxon period (54236). The church tower of St John in Shenstone contains traces of an Anglo-Saxon build within the later structure (4294, 58423).

Within this study area a number of stray finds of possibly Roman or Anglo-Saxon copper alloy or lead objects have been recovered, mostly by detectorists (illustrated on Fig. 1). As may be anticipated, the majority of the finds are from Wall, although items have also been found from Lichfield, Shenstone, Streethay, Whittington, Curborough and Hammerwich (hexagonal copper bell).

A number of other sites with possible Anglo-Saxon origins are presently recorded within 10km of the find-spot, although in each case the evidence is not clear (not illustrated on Fig. 1). Borrowcrop Hill is the reputed site of an Anglo-Saxon settlement, although excavation has found no trace of occupation dated to this period. Occupation at Wall may possibly have continued into the early medieval period. Earthworks at Canwell may perhaps represent pre-Conquest settlement. Walsall may have been first settled in the Anglo-Saxon period, prior to the layout of the planned medieval town. The place-name Bloxwich suggests Anglo-Saxon settlement, although the Domesday survey only records woodland in the district. Aldridge may also have been first settled in the late Anglo-Saxon or Norman periods.

Antiquarian investigation near Rushall Hall has identified a burial mound with an encircling ditch, together with human bone and Anglo-Saxon coins. Lime Pit Lane is the possible site of an Anglo-Saxon lime kiln. Pool Green has been suggested to be the site of a settlement of Anglo-Saxon date, although there is no present evidence.

A group of standing stones at Barr Beacon could have represented a boundary marker of prehistoric–post-medieval date. Bourne Pool has been suggested as an occupation site of prehistoric–medieval date.

3.3: Medieval

Following the Norman Conquest the region became royal forest, although the earliest named reference dates to the 1140s (Greenslade and Kettle 1984, 338). By 1166 the boundaries were the River Penk in the west, the Sow and the Trent in the north and the Tame to the east. The southern boundary ran from the Penk at Coven to the centre of Wolverhampton and along the Wednesbury Road, running through Walsall and south of Aldridge and Stonnal to the Bourne Brook which it followed in the Fazeley area. There is some evidence of royal hunting within Cannock Forest in the 11th and 12th centuries, but the forest was for the crown more a source of supplies and revenue than of sport (ibid., 342).

The jurors of a 1300 perambulation of the forest claimed that the area south of Watling Street was first afforested after 1154, but there is some earlier documentary evidence of earlier afforestation. Ogley was taken into the king's hands by 1231 (ibid., 338). In the mid-13th century there were two walking foresters for Ogley (ibid., 340), who collected sheaves of corn and 1d for every oak felled in foreign woods. The foresters of Ogley Hay are

mentioned in 1316, but by the early 16th century the chief forester was appointing a single keeper for Ogley, held for life at a rent of 26s 8d (ibid.). There are records of inquisitions into the cultivation of local waste land held at Ogley in 1310 before a justice of the forest, and a jury of 24 concerning the cultivation of waste at Ogley and Prestwood. The proceedings of the forest courts suggest that the area remained predominantly forested – Ogley Hay was noted for its oaks in the 13th century, although there are references to the illegal felling of trees and illegal poaching of venison (Hooke 2011, 10).

In the 14th century Knaves Castle to the west of the hoard find-spot (Fig. 4, see map of 1775), was a place where watch was kept to guard travellers crossing the heath, possibly from highwaymen (Hooke 2011, 9).

In 1086 the two Hammerwich estates to the north of Watling Street were held by the Bishop of Chester and consisted of five carucates of land which was described as waste land (VCH 1970, 266). By the late 14th century at least three open fields were under cultivation. The remaining waste land was enclosed in 1856 under an Act of 1853. Until the late 19th century settlement was largely confined to the eastern part of the parish, and the western part remained heathland. This area is likely to have remained only sparsely populated.

3.4: Post-medieval

For practical purposes Cannock Forest had probably ceased to exist by the end of the 16th century as a result of encroachments and enclosures. Rabbit warrens were established in the area in the 16th and 17th centuries. The Old Warren near Catshill may have been replaced by another located on the heath at Ogley Hay, and perpetuated by the name 'Warrenhouse Farm' at Ogley Hay to the southeast of the find-spot, first recorded in 1838 (Fig. 4, see maps of 1839 and 1887; VCH 1970, 261). The stretch of Watling Street within Hammerwich parish was turnpiked in 1789. The Wyrley and Essington Canal opened in 1797, running through the east of Hammerwich, finally closing in 1954.

The earliest map of the site and its surroundings is Yates's map of 1775 (Fig. 4), which shows the site to be within an area of waste land which extended both to the north and south of Watling Street. 'Hogley Lodge' to the south of the site may have been associated with a rabbit warren. To the west of the site 'Knave's Castle' is mapped. In the later 18th century the surrounding area was only very sparsely populated.

The inhabitants of Hammerwich enjoyed common rights in Ogley Hay, an extra-parochial area of heath to the south of Watling Street, which was enclosed in 1839 under an Act of 1838 (VCH 1970, 266).

The Ogley Hay enclosure map of 1839 is the earliest detailed map of the site. The field in which the hoard was located is shown surrounded by roads, with Watling Street to the north (Fig. 4). At the time the field formed part of the manorial allotment. It is described as part of the waste lands of Ogley Hay. To the west of the field is 'Rabbit Warren Allotment' with 'New Warren House' to the south of the crossroads also clearly associated with rabbit warrens. The Wyrley and Essington Canal is mapped to the south of the site.

By 1887 (Ordnance Survey First Edition, Fig. 4) the field in which the hoard was found is sub-divided. The boundary was mostly aligned northwest–southeast, before turning to the north when approaching the northern edge of the field. In the surrounding area there are references to a number of mounds or tumuli, including Muckley Corner on Watling Street (possibly 'great tumulus' or 'Mucca's tumulus', and Catshill in Ogley which could mean 'Catta's' or 'cat's tumulus' (Hooke 2011, 3), but there is no reference to a mound in this location.

The detailed map of the M6 Toll route in the vicinity of the site (Powell et al. 2008, fig. 5), indicates associated earthworks along the extreme northern edge of the field in which the hoard discovery was made. These presumably comprised cutting back the northern edge of the field in which the hoard was located.

4.0: AIMS AND OBJECTIVES

As set down in the Project Design (Staffordshire County Council 2009) the overriding aim of the 2009 fieldwork was to safely recover the hoard. The hoard was judged to be at extreme risk from illicit metal detecting, as identified in the Project Design Risk Log, particularly since it was located in an exposed area of farmland, close to a major arterial trunk route. As a secondary aim, it was also intended to place the hoard within its immediate archaeological context.

The particular objectives of the project were to:
A) Recover the entire hoard through a combination of archaeological excavation and metal detecting.
B) To examine the immediate archaeological context of the hoard by means of geophysical survey and controlled archaeological excavation.

In the event, fieldwork at this stage was almost entirely limited to the recovery of the hoard by archaeological excavation, supplemented by a geophysical survey and metal detector surveys of the surrounding area.

The principal aim of the 2010 evaluation was to provide details of the immediate archaeological context of the hoard (Staffordshire County Council 2010, para. 4). The objectives were to recover any further artefacts associated with the hoard, and to investigate its archaeological context.

The purpose of this report is to provide a single integrated report of the 2009–2010 fieldwork.

5.0: FIELDWORK METHODOLOGY (FIG. 5)

5.1: Test-pitting and recovery excavation (2009)
Three main stages of fieldwork were undertaken in 2009. These comprised firstly the initial discovery and partial recovery of the hoard by a metal detectorist, Terry Herbert, secondly the excavation of a single test-pit, and finally, the completion of hand-excavation of the test-pit and hand-excavation of an area measuring a maximum of 12m by 15m to systematically recover the hoard. Outside the excavated area a magnetometer survey and metal detector survey were undertaken, and three test-pits were dug to ground-truth particular anomalies identified during the metal detector survey. Finally, the area surrounding the hoard was re-surveyed with a metal detector to identify and recover any previously undetected items.

The initial discovery of the hoard was made on 5th July 2009 by a metal detectorist, Terry Herbert, working with the written permission of the landowner. Over five days he recovered a considerable number of items, most of gold.

In accordance with a procedure established by the Portable Antiquities Scheme (PAS) the finds were first reported to Duncan Slarke, then Finds Liaison Officer (FLO) for Staffordshire, who inspected the material. Following this inspection, the FLO contacted the Principal Archaeologist at Staffordshire County Council and Roger Bland (British Museum/PAS). The objects were them transferred to Birmingham Museum and Art Gallery (BMAG) for safekeeping.

Preliminary study of the finds by Kevin Leahy of PAS suggested that the items confirmed to Salins' Style 2, and were 6th-–7th century in date. The range of finds provisionally suggested high status associations, and also comparison with material recovered from the Sutton Hoo ship burial (Carver 2005).

At a meeting on 21 July 2009 held at BMAG, including representatives of Staffordshire County Council, English Heritage and PAS it was decided that a 1m square test-pit was to be hand-excavated by Staffordshire County Council in order to understand the immediate archaeological context of the hoard. This was undertaken with the permission of the landowner, and assistance from Terry Herbert.

On 22nd July 2009 archaeologists from Staffordshire County Council working with the FLO and Terry Herbert began to hand-excavate a 1m square test-pit. The test-pit was located using GPS, and all test-pit finds were individually numbered and plotted. This excavation recovered further gold items, and confirmed that all of the finds were derived from the ploughsoil, which measured

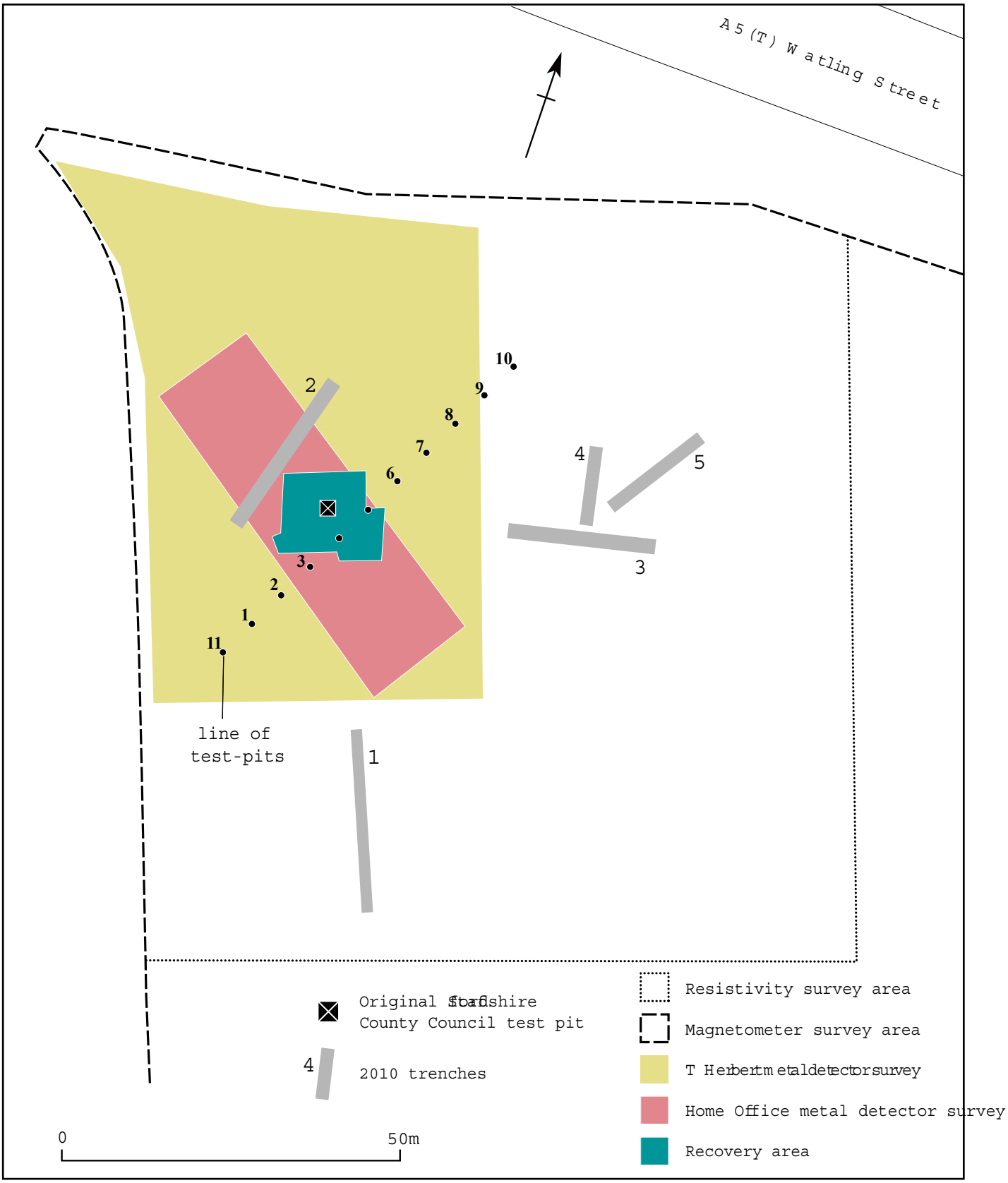

Fig. 5. Areas investigated 2009–2010.

approximately 0.3m in depth. In addition, metal detector signals outside the test-pit were plotted using a GPS.

At this stage, in agreement with English Heritage, Birmingham Archaeology was contacted to arrange the deployment of a team of field archaeologists to assist with the emergency recovery of the hoard. This additional assistance initially permitted the enlargement of the initial test-pit from 1m square to 2m square. It was excavated systematically on 24th, and 27th–29th July by two field archaeologists, with assistance from Staffordshire County Council, the FLO and Terry Herbert. All finds from the test-pitting were individually numbered and plotted. Most importantly, it was noted that all of the finds from the enlarged test-pit were derived from the ploughsoil. No features, or possible features of archaeological interest were identified within the test-pit.

Scanning the area surrounding the test-pit with a metal detector suggested that the hoard may be confined to an area measuring approximately 20m square centred on the original discovery. Therefore, during continued excavation of the test-pit a strategy was developed by Staffordshire County Council, in consultation with English Heritage, the FLO, Birmingham Archaeology, Terry Herbert and the landowner, to facilitate the emergency recovery of the hoard which was judged to be at extreme risk from illicit metal detecting (Staffordshire County Council 2009, para. 3.3 and Risk Register).

This strategy (Method 1 in the Project Design: Staffordshire County Council 2009) involved the layout of a 20m square grid coinciding with the concentration of metal detector signals, centred on the initial 2m square test-pit. This grid was divided into 1m squares, designated by a number and letter combination (eg J1). The grid was laid out using a survey grade LEICA 1200 and 500 GPS series RTK roving receivers in OS National Grid co-ordinates (typical accuracy +/- 20mm in the horizontal and +/-30mm in the vertical). Finally, on completion of hand-excavation, the corners of the excavation were re-plotted using a GPS.

Each field archaeologist excavated one grid square at a time, to ensure that the finds were kept separate at all times. Each find was allocated a unique small find number (recorded in a site finds register, copied to the FLO at the end of each day), and the grid square number (Plate 2), so that the spatial distribution of the material could be plotted by grid square at a later date.

Within each 1m square the turf was carefully removed by hand (Plate 3), visually searched for finds and also scanned with a metal detector. The ploughsoil in each 1m square was excavated in 0.1m deep spits, and checked with a metal detector for finds, down to the natural subsoil. The spoil was then 100% bagged by grid square, and wet-sieved through a 5mm sieve using a York flotation tank, with collection of all finds from the flots (Plate 4), which were bagged by grid square and unique small find number. Wet sieving was intended to maximise finds recovery, including the smallest items. If in situ archaeological features or deposits were encountered then excavation in spits was to be discontinued, and the features and/or deposits would have been excavated systematically to natural base, and recorded.

This methodology (Method 1) was intended to be employed for a total of five days, followed by a review. In the event it operated for two days only (30–31 July), and was abandoned, due to the extremely slow progress of wet sieving caused by the wet clay soils, poor water pressure and above all the continued severe threat of illicit metal detecting activity.

In consultation between Staffordshire County Council, English Heritage and Birmingham Archaeology a new strategy was defined (Method 2 in the Project Design). This involved continued excavation in 0.1m spits within 1m squares, with individual numbering of each find recovered, but no hand flotation of the soil.

The ploughsoil from each 1m square continued to be hand-excavated and was spread over plywood sheets to enable visual sorting for finds recovery, using a metal detector (operated by Terry Herbert) to maximise finds recovery (Plate 5). Therefore, the finds continued to be recorded by metre square.

By means of Method 1 and then Method 2 a team of six archaeologists systematically hand-excavated the ploughsoil by metre grid square, working outwards from

Plate 2. Gold sword pommel, small find (SF) 167 from grid square M10.

Plate 3. General view of 2009 recovery excavation, view: northeast.

Plate 4. Sieving the excavated ploughsoil using flotation equipment.

Plate 5. Excavated ploughsoil spread on boards for scanning by metal detector.

the initial 2m square test-pit (Plate 6). Hand-excavation was continued working systematically outwards in all directions from the initial test-pit until no more than one find was recovered from each grid square. An area measuring a maximum of 12m by 15m was excavated, a total of 152 square metres.

Following completion of the hand-excavation, Staffordshire County Council commissioned further archaeological assistance during a further metal detector survey of the site, which was undertaken between 10th–14th August 2009, with the help of Terry Herbert. An area measuring 50m square in the northwestern corner of the field was gridded out in 5m squares. These squares were systematically walked by Terry Herbert, who marked possible metal detector signals with a cane. Each of these potential find-spots was hand-excavated by a member of the field team. In each case, the artefacts recovered were

Plate 6. Excavating the ploughsoil in one metre squares.

post-medieval in date, including a plough share fragment, a gun cartridge and unidentified fragments of iron. As part of the same deployment Terry Herbert scanned the excavated topsoil during the mechanical backfilling of the excavated area, and a number of gold or silver objects were recovered. Following backfilling, a selection of the geophysical 'pit like' anomalies were plotted on the ground using a GPS. They were hand-excavated in 0.2m square test-pits.

The site was assessed as extremely vulnerable to raids by illicit metal detectorists, in particular because of its visibility from a trunk route. For this reason it was decided to maintain 24 hour security on site from 24 July until the excavation was completed on 21 August.

The final stage of fieldwork comprised archaeological monitoring during scanning of the hoard location and part of its surrounds by a team from the Home Office Scientific Investigation Branch.

For maximum security, throughout the fieldwork the finds were taken off site at the end of each day, and stored in a safe location, collected by the FLO, or delivered by hand to Birmingham Museum and Art Gallery. A detailed list of the finds was prepared each day before handover, with a receipted list retained (see archive) after each handover.

All stratigraphic sequences were recorded, even where no archaeology was present. Features were planned at a scale of 1:20, and sections drawn of all cut features and significant vertical stratigraphy at a scale of 1:10. A comprehensive written record was maintained using a continuous numbered context system on pro-forma record cards. Written records and scale plans were supplemented by photographs using black and white monochrome, colour slide and digital photography.

The project was monitored by means of regular site visits and weekly site meetings by Steve Dean and Ian Wykes for Staffordshire County Council, and by Bill Klemperer for English Heritage.

During the recovery excavation it was decided to undertake a magnetometer survey over the entire field from which the hoard was recovered, to provide details of its immediate context. Full details of the methodology are provided below.

5.2: Trial-trenching and resistivity survey (2010)

A detailed resistivity survey was undertaken in early 2010 within an area measuring 100m square including the hoard location in the northwestern corner of the field to provide further details of the archaeological context of the hoard.

The resistivity plot, together with the plot of the 2009 magnetometer survey (Fig. 6), provided the basis for the positioning of trial-trenches, in consultation with Steve Dean (Staffordshire CC). The trial-trenches were surveyed using a GPS.

A total length of 100m of trenches measuring 1.6m in width was allocated to test a representative selection of the main magnetometer and resistivity anomalies and anomaly types recorded. Each trench measured either 1.6m or 3.2m in width. In addition, a total of eleven test-

Plate 7. Machine excavation of Trench 5, view: northeast.

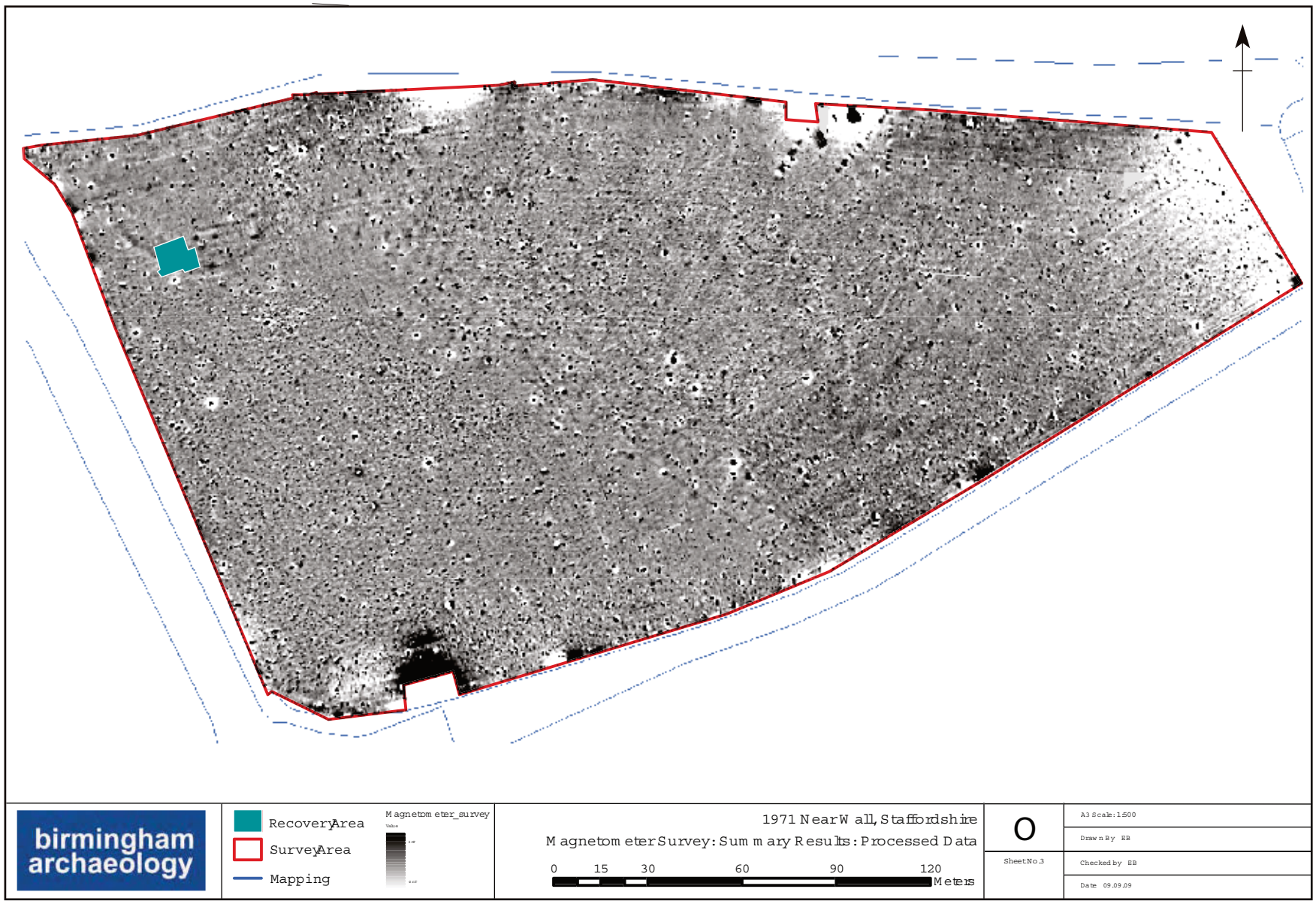

Fig. 6. Magnetometer survey, raw results (copyright University of Birmingham).

pits, each measuring 1.6m square were excavated at 6m intervals to provide a profile of the ploughsoil and subsoil across the natural ridge.

All topsoil and modern overburden was removed using a JCB excavator equipped with a toothless ditching bucket (Plate 7), working under continuous archaeological supervision, down to the top of the uppermost archaeological horizon or the subsoil, whichever was first encountered. Subsequent cleaning and excavation was by hand. Following completion of machining, the sides and base of each trench or test-pit were hand-cleaned to facilitate better definition of the features, or possible features present. All features of archaeological or possible archaeological interest were sampled by hand-excavation.

All spoil from machine and hand-excavation was scanned carefully with a metal detector.

Recording employed the same procedures as the 2009 fieldwork.

6.0: ARCHIVE

The full site archive includes all records from the Birmingham Archaeology recovery (2009) and trenching (2010) fieldwork. The archive has been deposited with the Potteries Museum & Art Gallery, Stoke-on-Trent under reference 2010.LH.10.

7.0: GEOPHYSICAL (MAGNETOMETER) SURVEY (2009)

Eamon Baldwin

7.1: Summary

The magnetometer survey was undertaken during the recovery of the hoard.

A magnetometer survey was undertaken over the entire field in which the hoard was discovered, a total area of 5.3 ha (Fig. 6). The results revealed a curvilinear ditch-like feature in close proximity to the hoard. The situation of this feature on the crest of a prominent ridge and its proximity to the find spot is noteworthy.

A very straight linear feature was also identified cutting across the survey area, which correlates precisely with part of the line of a former field boundary evident in historic mapping.

Several pit-like responses have been tentatively noted scattered elsewhere in the field.

7.2: Introduction

Birmingham Archaeology undertook a magnetometer survey of 5.3ha. (hereafter the Survey Area) in July 2009, comprising the entire field in which the hoard was discovered in July 2009 (Fig. 6). The project was commissioned by English Heritage after consultation with Stephen Dean and Ian Wykes of Staffordshire County Council and formed an integral part of the programme of the archaeological recovery of the hoard.

This report has been prepared in accordance with the English Heritage Guidelines on Geophysical Survey in Archaeological Field Evaluation (David 2008), and the Institute of Field Archaeologists Paper No. 6 The use of Geophysical Techniques in Archaeological Evaluations (IFA 2002).

The fieldwork conformed to a Project Design (Staffordshire County Council 2009) approved by English Heritage.

7.3: Survey objectives

The aim of the magnetometer survey was to establish the presence or otherwise of buried archaeological features and to inform the programme of archaeological fieldwork at the hoard site.

7.4: Soils and geology

The general underlying bedrock is sandstone (Wildmoor formation) with an overlying ploughsoil of high clay content. A change in superficial geology to Devensian Till is noted in the central portion of the site and coincides with the line of a former field boundary noted on historical mapping (Fig. 4). Before ploughing out the field boundary (see below), the landowner/farmer was aware of this change and grew different crops on the southeastern side of the boundary. At the time of the survey the field comprised uncut pasture.

7.5: Methodology

Magnetometer survey is normally chosen for its speed over large areas and ability to detect the magnetic response of a wide range of archaeological features.

Subsurface soils and materials have varying magnetic properties due to the presence (or absence) of iron oxides. These magnetic properties may be further enhanced through extreme heat (ie burning). Variations in response from subsurface features are measured with a fluxgate sensor and graded against a local 'background' value (set to zero) of surrounding soils and geology, resulting in contrasting positive (more magnetic) or negative (less magnetic) values. The values are subsequently represented graphically with a variety of display plots, the most common of which is the shaded greyscale. Magnetometer survey typically detects burnt or fired features such as brick walls, hearths, kilns and disturbed building material; as well as features with high

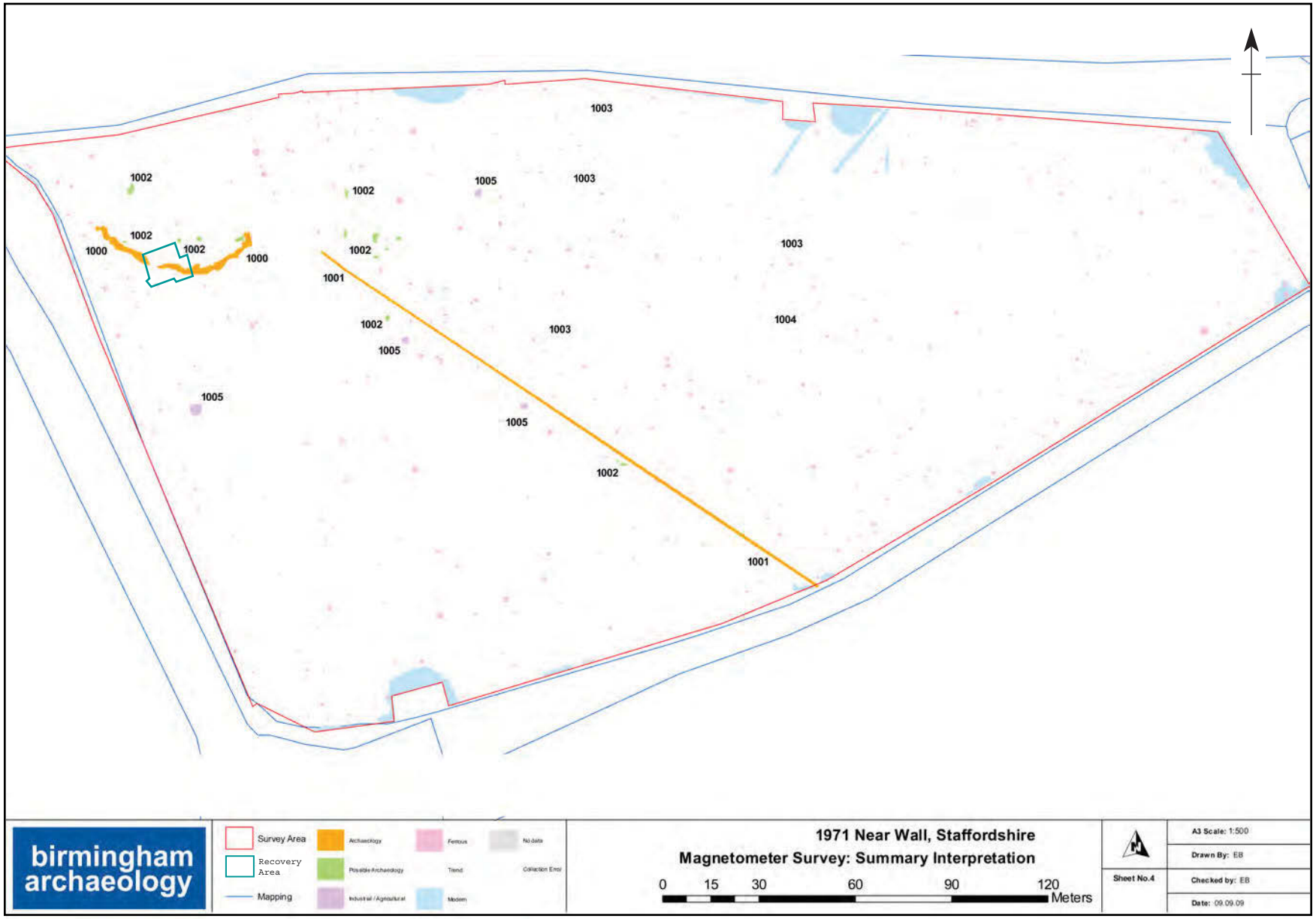

Fig. 7. Magnetometer survey, interpretation (copyright University of Birmingham).

or low concentrations of iron oxides such as pits, ditches or foundation trenches. Less magnetically enhanced anomalies such as stone walls will also be discernable.

A Ferrex 4.032 magnetometer, manufactured by Foerster, was deployed for this purpose and assembled with three 650mm long fluxgate probes; these were mounted at a 0.5m separation to a wheeled frame approximately 0.2m above ground level and samples were collected at 0.10m intervals. An integrated Leica 1200 RTK GPS receiver controlled a navigation bar on the datalogger and enabled the survey areas to be surveyed and located in reference to OSGB36 (02) to within 200mm accuracy. Survey data were captured in 1.5m wide zig-zag traverses. Custom grid areas of varying size were surveyed to suit the needs of the survey.

7.6: Data processing

Raw data were downloaded using the Foerster brand software DATALOAD, and then exported as text files and subjected to an in-house de-striping algorithm. The de-striped data was imported into Surfer 8.0, converted into grid files and transformed into image maps. These were subsequently exported into a GIS environment for presentation and interpretation using greyscale plots.

7.7: Data interpretation

Anomalies highlighted on the interpretation plots have been grouped using a classificatory scheme; the first three categories denote features whose response is typical of archaeological material in shape, strength and occurrence; this tripartite sub-division reflects a decreasing level of confidence. The remaining categories denote anomalies whose shape, occurrence and strength are not consistent with archaeological interpretation and remain unidentifiable (with exception of the self-explanatory modern category).

- Archaeology – an unambiguous geophysical response forming anthropogenic pattern(s); the suffix 'industrial' is appended where the strength and signal of the response is typical of extreme heat or burning, as evident in kilns.

- Probable archaeology – a distinct response forming incomplete pattern(s)

- Possible archaeology – a distinct response forming no recognizable pattern

- Trend – faint linear responses

- Increased/decreased magnetic response – unclear response which is potentially anthropogenic

- Ferrous – dipolar response typical of ferrous material, normally of modern origin

- Modern – suspected services (drains, water/gas mains, electric cables) or interference resulting from proximity to contemporary structure or objects (fencing, pylons, structures, plant / machinery)

7.8: Results

The results of the magnetometer survey are presented as processed data (Fig. 6), with a corresponding interpretation plot (Fig. 7) displaying the features described in the text.

A weakly magnetic anomaly (Feature 1000 – Fig. 7) was detected in the northwestern corner of the survey area. Its arc runs roughly east–west for approximately 55m and is between 0.8m–1.8m wide. The positive magnetic response is typical of a buried ditch. It also conforms to the contours of a prominent ridge.

The hoard find-spot coincides with the inner arc of the response as Fig. 6 illustrates. The anomaly correlates directly with an irregular negative feature identified by the evaluation which produced no dating evidence ([1007], see below).

A linear response, also weakly magnetic (<3nT), was revealed in the central section of the survey area (feature 1001). This anomaly runs northwest–southeast from the southern survey area boundary towards the eastern end of geophysical feature 1000. It coincides exactly with part of the line of a former field boundary (Fig. 7) noted on historic mapping (Fig. 4). It should be noted that the line of the field boundary runs straight across the top of the ridge before suddenly veering down-slope and northwards to the modern northern field boundary. The northern turn cannot be traced in the magnetic data, possibly because of magnetic noise in this area combined with heavy ploughing and hill-wash. It is notable that the point where the field boundary turns downhill coincides roughly with the eastern side of feature 1000.

A number of pit-like responses (features 1002), all weakly magnetic, were tentatively identified in the vicinity of anomalies 1000 and 1001. These form no recognisable patterns but could be considered as possible features.

Recurring linear trends (1003) orientated east–west are noticeable in the northeast of the survey area and are located to the southeast of the former field boundary. These do not conform to the current ploughing trend and are undoubtedly the result of previous agricultural practice.

A series of curvilinear trends (1004) are tentatively noted to the east of the survey area, but again may be the result of agricultural activity.

Several strongly magnetic responses (1005) with concentrated values of 50nT–300nT are noted. These could result from intense heat such as noted in kilns,

hearths or fires; however, it seems likely that these resulted from recent agricultural activity (landowner-farmer burning leftover crop/spoilt crop).

Away from features 1000 and 1001, ferrous material (typically with a dipolar signature) is evident throughout the survey area, as may be expected on agricultural land. Stronger dipolar responses are noted particularly on the periphery of the survey area and are attributed to modern activity – buried pipes and above ground metallic interference. The presence of a large metallic barn-like structure to the east of survey area has thrown a strong magnetic shadow over the northeastern corner of the survey area.

Linear collection errors were also identified in the data and noted in the interpretation; these are highly unusual and may have resulted from tilt errors caused when pushing the cart-mounted magnetometer system through thick waist-high pasture; these occur close to the hoard find-spot.

7.9: Conclusions

Magnetometer survey was undertaken over a total area of 5.3ha. The results revealed a curvilinear ditch-like feature in close proximity to the hoard find-spot. The location of this feature on the crest of a prominent ridge and its proximity to the find spot is noteworthy (Fig. 7).

A very straight linear feature was also noted cutting across the survey area, which correlates precisely with part of the line of a former field boundary evident in historic mapping (Figs 3 and 5). Interestingly, the former boundary veers sharply north as it approaches the eastern side of the curvilinear feature. This suggests that the former field boundary may have respected some visible feature on the ridge edge, possibly even the curvilinear feature itself. It would seem that the coincidence of the hoard find spot, the curvilinear anomaly and the turn of the former field boundary on the edge of a prominent ridge is potentially significant. No dating evidence has been recovered from limited investigation of the curvilinear feature. The former field boundary feature is recorded on 19th century Ordnance Survey mapping. Several pit-like responses have been tentatively noted scattered elsewhere in the results.

7.10: Statement of indemnity

Whilst every effort has been made to ensure that interpretation of the survey presents an accurate indication of the nature of sub-surface remains, any conclusions derived from the results form an entirely subjective assessment of the data. Geophysical survey facilitates the collection of data relating to variations in the form and nature of the soil. This may only reveal certain buried archaeological features, and may not record all the features present. In particular, accurate interpretation of responses within small areas can prove difficult.

8.0: RECOVERY EXCAVATION (2009)

8.1: Introduction

Resources were concentrated within the main excavated area in order to recover the hoard as rapidly and as systematically as possible, given the threat of looting by unauthorised metal detectors. Additionally, three hand-dug test-pits (Fig. 5) were dug to test a representative selection of geophysical anomalies.

8.2: Main excavation (Fig. 8)

The natural subsoil mainly comprised a red-brown silt-clay (1021), containing irregular patches of sub-rounded quartz stones and localised areas of manganese staining was recorded at a depth of 0.28m below the modern surface. This subsoil was recorded in the northeast of the excavated area, at the top of the natural ridge. In the southwest of the area investigated the natural subsoil was the upper, weathered surface of red sandstone (1008). This subsoil horizon was localised along the top of the southwest facing slope of the natural ridge. The interface between these two subsoils followed the contour of the southwestern shoulder of the ridge. The identification of this natural subsoil horizon was confirmed by the excavation of a machine-cut and hand-cleaned sondage measuring a maximum of 1.6m in width, 1.2m in depth and 5.9m in length. At the base of the sondage was revealed a yellow-orange clay (1022), incorporating patches of orange sand, interpreted as a localised change in the natural subsoil (not illustrated).

The main excavated natural or possibly natural feature ([1007], Fig. 8.S.1, Plate 8) was slightly curvilinear in plan, mainly aligned northwest–southeast. It was recorded in the extreme southwestern corner of the excavated area, which was slightly extended to the west in order to recover its full profile. It was cut into the natural subsoil (1008). This possible feature measured a maximum of 1.5m in width, and 0.4m in depth. It was characterised by a very irregular profile. Its primary fill was a mid orange-red sand-silt (1006), with a basal deposit of orange-red silt, representing an episode of weathering. Above was a deposit of dark grey-black silt-sand (1005) infilling the remaining hollow of the feature.

This possible feature corresponded approximately with the position and alignment of the curvilinear geophysical anomaly (see above).

In the north of the area investigated a possible slight dip [1016] in the surface of the natural subsoil was tested by hand-excavation and found to measure 0.14m in diameter, but only 0.01m in depth. It was filled with light-mid grey sand-clay (1017). No associated possible features could be recorded in this area.

A roughly north–south aligned feature ([1013] and [1015]) was recorded for a maximum distance of 5m in the south

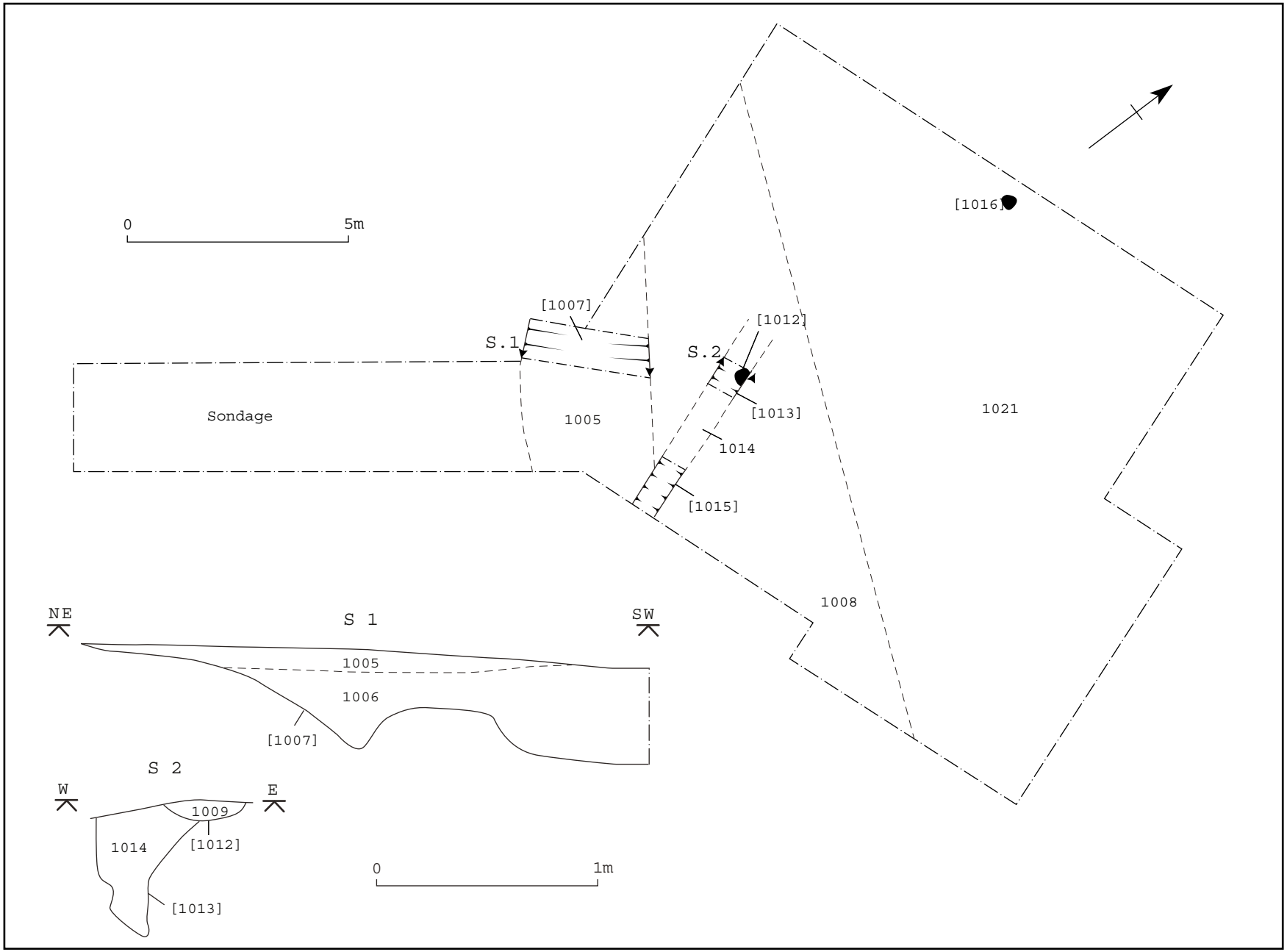

Fig. 8. Simplified plan of recovery area and selected sections.

Plate 8. Hand-excavation of ice wedge [1007].

of the area investigated. It was was cut through backfilled feature [1007], and into the natural subsoil (1008). Segment [1013] measured a maximum of 0.55m in depth and 0.45m in width, and had a very irregular profile (Fig. 8.S.2). Segment [1015] measured a maximum of 0.65m in width and 0.22m in depth and had a roughly U-shaped profile. Both excavated segments were backfilled with mid-light orange-red sandstone rubble and sand (1014). Segment [1013] was cut by a circular post-hole ([1012], S.2), measuring 0.4m in diameter, and 0.1m in depth. This feature was filled with orange-brown to dark grey-black silt-sand (1011), similar in composition to the ploughsoil.

Several east–west aligned plough scars (not illustrated) were recorded cutting the natural subsoils.

The natural subsoils and the backfilled features were sealed by a layer of dark brown silt-sand (1000) topsoil, measuring an average of 0.28m in depth.

All the artefacts recovered from a combination of hand-excavation and metal detecting derived from the ploughsoil. Throughout they were recorded within individual small find numbers (SF prefix), and the grid square, denoted by a letter and number combination (eg Plates 2 and 9). No artefacts associated, or possibly associated with the hoard were recovered from the features or possible features.

8.3: Testing of geophysical anomalies

Three test-pits (not illustrated) each measuring 1m square were hand-dug to test pit-like geophysical anomalies. The natural subsoil comprised orange sand (1023) and (1025) or red sand (1024), overlain by dark brown-orange organic silt-sand ploughsoil (1018), (1019) and (1020), measuring 0.27m (Test-pit 1) to 0.50m (Test-pit 3) in depth. No features or possible features were identified within any of the test-pits, and no finds were collected by hand-excavation.

Plate 9. Twisted fragment of gold wire, small find (SF) 500 from grid square Q10.

9.0: TRENCHING, 2010

9.1: Summary of resistivity survey (Figs 9–10)
The instrument used was a RM15 with multiplexer, using a three probe configuration with 0.5m separation, collecting two 0.5m separation readings and 1.0m separation readings at every sample station. The sample station of 1m along lines 1m apart resulted in two final data-sets (1) 0.5m mobile probe separation at 0.5m (cross-line) x 1m (along line) sample interval, and (2) 1m mobile probe separation at 1m (cross-line) x 1m (along line) sample interval. The sampling strategy was discussed and agreed with the English Heritage Research and Standards Group, Fort Cumberland.

A range of resistivity anomalies were recorded. Trenches were located to test a representative selection of these anomalies. Linear anomalies were tested in Trenches 1 and 3. Curvilinear anomalies were examined by Trenches 2, 3 and 5. Pit-like anomalies were examined in Trenches 1, 2 and 4.

Correlation was recorded between the resistivity survey and the earlier magnetometer survey. Both geophysical surveys highlighted the historic field boundary and the curvilinear feature examined in Trench 2. Of course, not all geophysical anomalies, or possible anomalies could be tested by trenching.

9.2: Trenching results (Fig. 5)
Trench 1 (Fig. 11)
This trench was located to intercept two possible roughly southwest–northeast aligned linear anomalies and a pit-like anomaly. The possible linear anomalies were situated towards the southern end of the trench and the pit-like feature was located at the northern end of the trench.

Trench 1 measured 25m in length and 3.20m in width and was orientated approximately north–south. The natural subsoil varied from reddish-black sand (4003) to reddish orange sand (4004), recorded at a depth of between 0.40–0.50m below the modern ground surface. The colour variations are interpreted as localised changes in the natural subsoil.

A possible east–west aligned gully [4005] with an irregular, stepped roughly V-shaped profile was identified at the southern end of the trench (Fig. 11, section). It measured a maximum of 0.90m in width and 0.10m in depth. This feature was backfilled with very light grey silt-sand (4002). A single worked flint object (see below) was recovered from the fill.

Natural subsoils (4003) and (4004) and backfilled feature [4005] were sealed by a layer of grey-brown silt-sand subsoil (4001) which measured 0.35m in depth and was overlain by 0.15m of ploughsoil (4000).

Gully [4005] corresponds with the position of the southernmost of the two east–west aligned linear anomalies; the northernmost was not found. The pit-like anomaly towards the northern end of the trench appeared to have been caused by a localised concentration of gravel within the natural subsoil.

Trench 2 (Fig. 11)
This trench was located to test a curvilinear magnetometer and resistivity anomaly and a possible pit-like anomaly. The possible curvilinear anomaly was mainly aligned east–west. The pit-like anomaly was positioned at the northern end of the trench.

The trench measured 22.50m in length and 1.60m in width and was aligned roughly north–south. The red-orange sand and gravel natural subsoil (4105) was identified at a depth of 0.50m below the modern surface. A particular concentration of gravel (4105A) was recorded in this deposit towards the northern end of the trench. Towards the centre of the trench was a roughly east–west aligned feature ([4104], Fig. 11.S.1, Plate 10) which measured a maximum of 5.50m in width and 0.24m in depth. It was filled with orange-brown silt-clay (4103). It is interpreted as an ice wedge.

Towards the southern end of the trench the natural subsoil (4105) had been cut by a possible east–west aligned plough furrow [4101]. It measured 0.70m in width and 0.20m in depth and was filled with grey-brown silt-sand (4102).

The natural subsoil (4105), and features [4104] and [4101] were sealed by a layer of mid brown silt-clay-sand (4106), interpreted as subsoil, which measured 0.18m in depth. The overlying ploughsoil (4100) measured 0.14m in depth.

Feature [4104] corresponded in orientation and location with the curvilinear geophysical anomaly. The pit-like geophysical anomaly corresponded with the gravel concentration within natural subsoil (4105A).

Trench 3 (Fig. 12)
This trench was located to target one curvilinear and two linear geophysical anomalies. The linear anomalies were located towards the centre of the trench, and the curvilinear feature (also tested in Trench 2, see above) was located towards the eastern end of this trench.

Trench 3 measured 20m in length and 1.60m in width and was orientated east–west. The natural mottled red-orange sand and yellow-orange and gravel and pink clay natural subsoil (4201) was recorded at a depth of 0.40m below

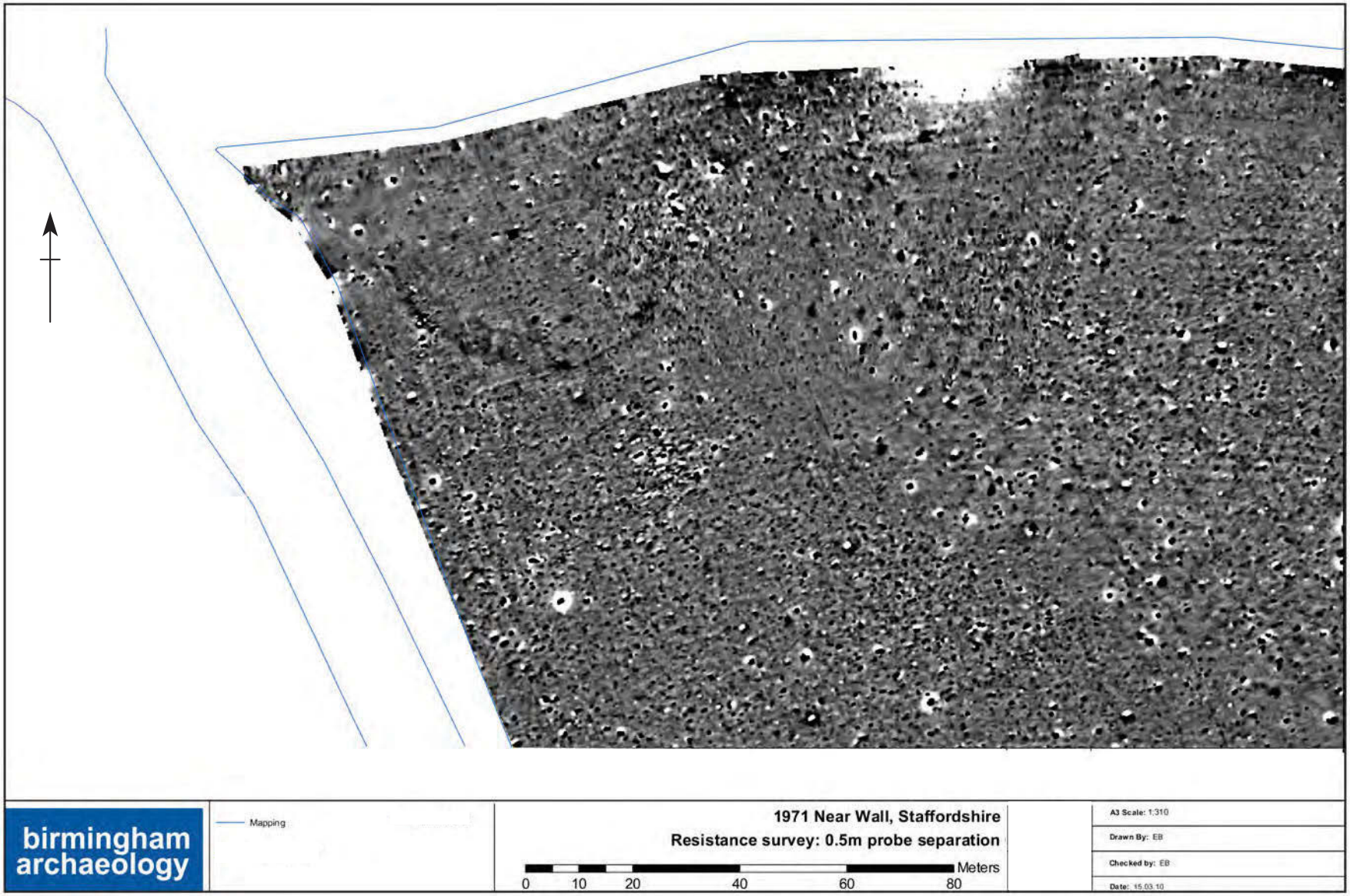

Fig. 9. Resistivity survey, raw data (copyright University of Birmingham)

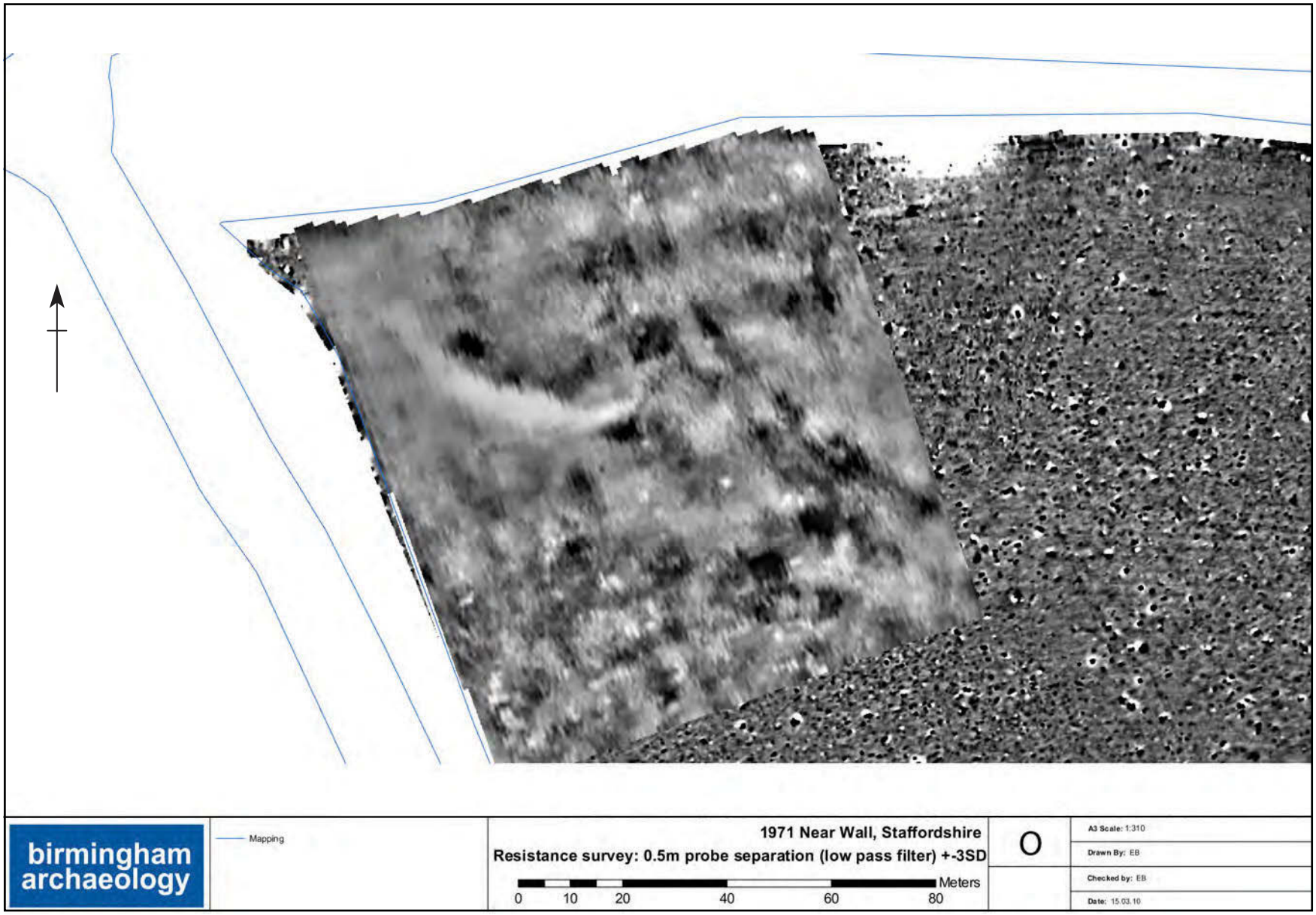

Fig. 10. Resistivity survey, processed results (copyright University of Birmingham)

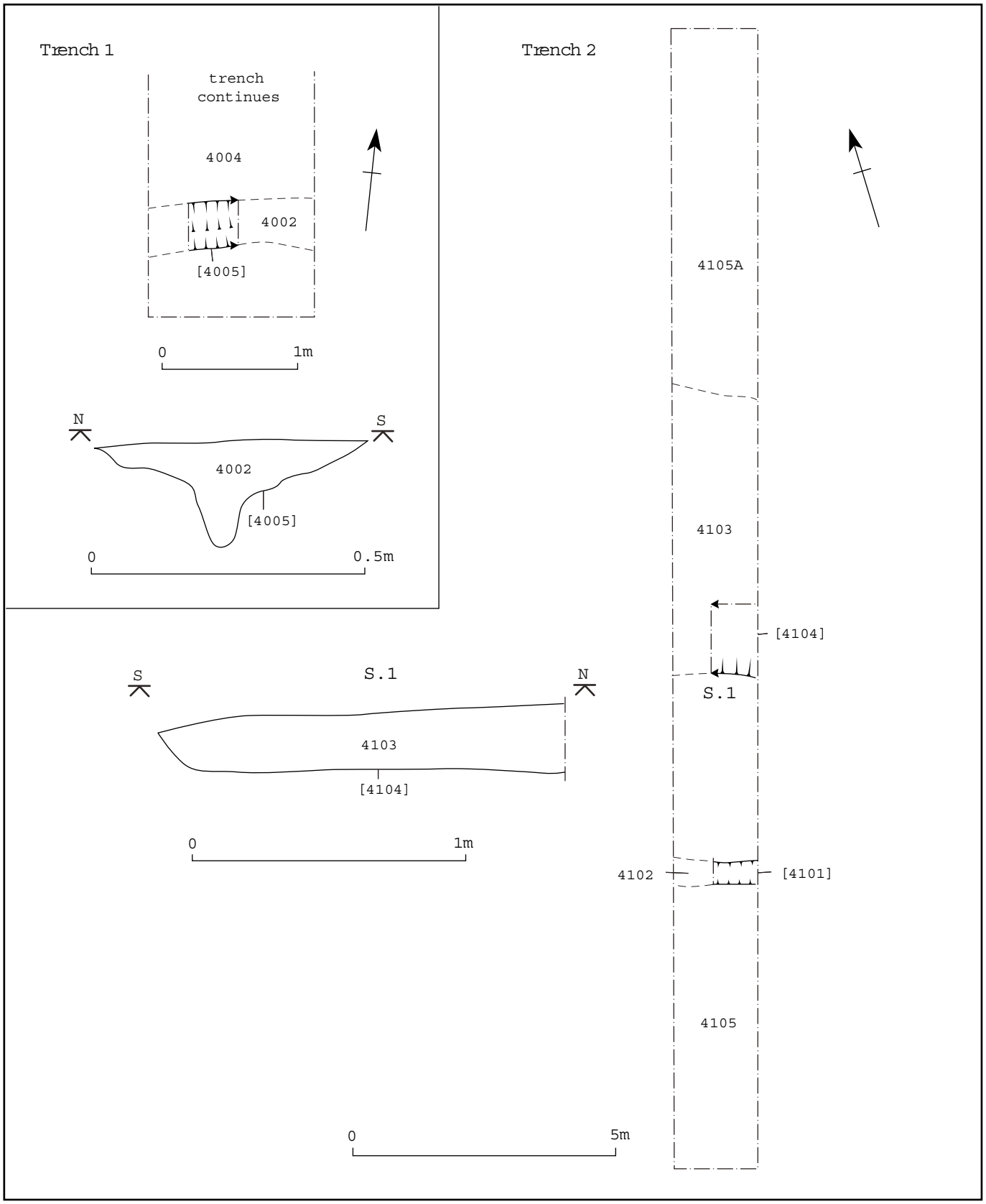

Fig. 11. Trenches 1–2, simplified plans and sections

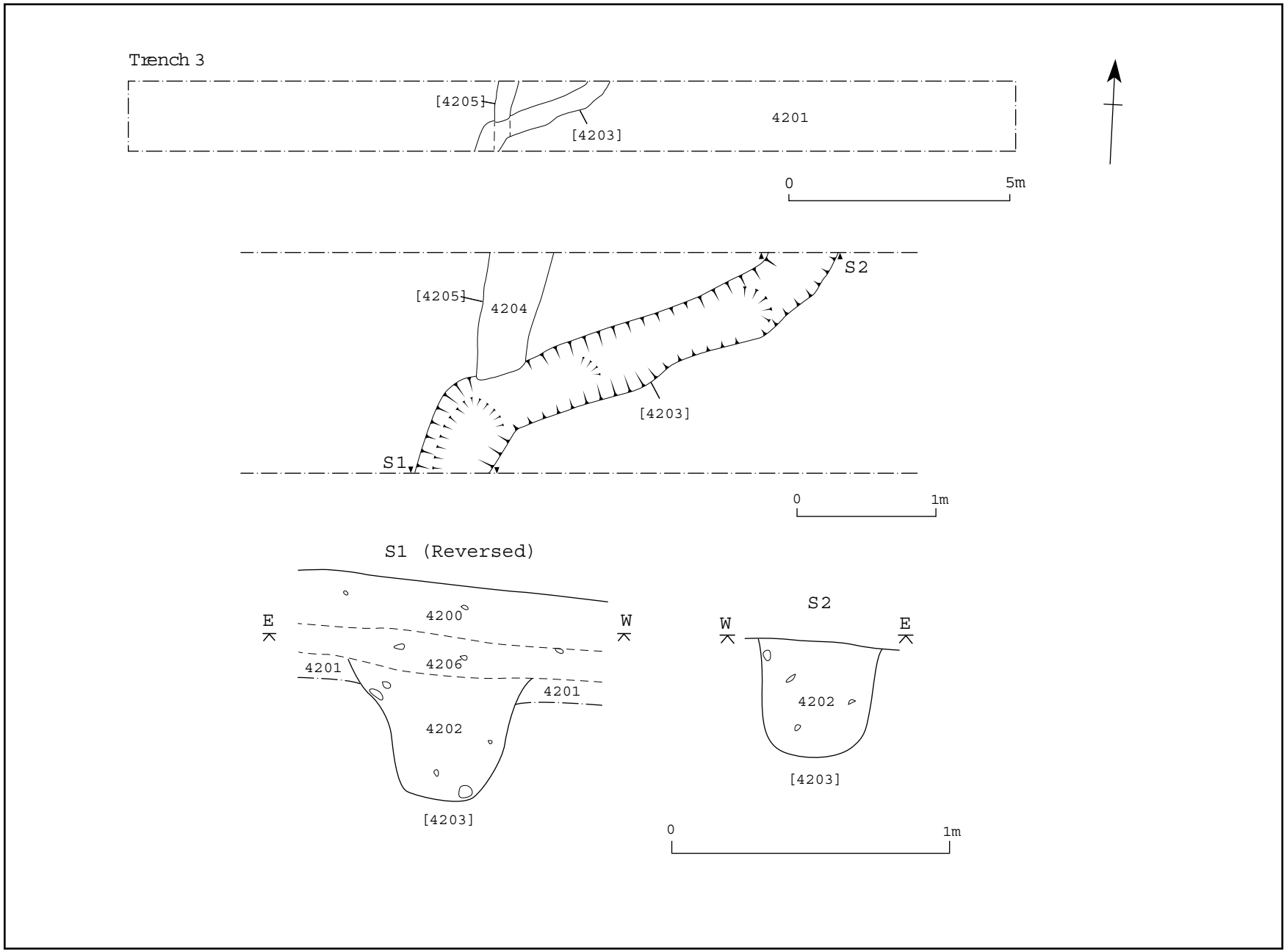

Fig. 12 Trench 3, simplified plan and sections

Plate 10. Hand-excavating ice wedge [4104].

Plate 11. Excavated gully [4203], view: south.

Plate 11. Trench 5, excavated field boundary [4404] and gully [4406] in right foreground, view: east.

the modern surface.

In the centre of the trench the natural subsoil had been cut by a mainly northeast–southwest aligned gully ([4203], Fig.12.S.1–S.2, Plate 11). Within the trench this feature appeared to have been originally dug in three sections with slight changes in angle. The whole length of the feature within the trench was hand-excavated. It was cut to a steep-sided, U-shaped profile, and measured 0.50m in width and 0.45m in depth. The base of the gully was irregular, perhaps suggesting that at least two post-holes had been cut along its length, perhaps to retain a fence. The gully was backfilled with mottled mid grey and pale brown sand-silt (4202) with occasional charcoal flecks. It had been partially truncated by a north–south aligned probable plough furrow [4205].

The natural subsoil (4201) and backfilled features [4203] and [4205] were sealed by a mid grey-brown silt-sand subsoil (4206) measuring 0.20m in depth, overlain by 0.20m of ploughsoil (4200).

The gully [4203] and plough furrow [4205] were first recognised as resistivity anomalies. The parallel curvilinear resistivity anomalies projected to intersect with the eastern end of the trench were not located in this trench, although they were recorded in Trench 5 (see below).

Trench 4 (not illustrated in detail)
This trench was positioned to target a large, possibly pit-like geophysical anomaly.

Trench 4 measured 10m in length and 3.20m in width and was aligned approximately north–south. The natural brown-orange sand (4302) was located at a depth of 0.45m below the modern surface in the south of the trench, while in the north of the trench the subsoil comprised gravel (4304), recorded at a depth of 0.6m below the modern surface.

A north–south aligned plough furrow [4306] which measured 0.38m in width and 0.12m in depth which was cut into the natural subsoil represents the continuation of a feature [4205] recorded in Trench 3 (see above).

The subsoil and the furrow was sealed by grey-orange silt-sand subsoil (4301) which was 0.25m in depth and was overlain by 0.20m of ploughsoil (4300).

The increased depth of overburden in the north of the trench may represent material eroded down the northeast-facing slope of the ridge.

The large geophysical anomaly corresponded with the area of gravel subsoil (4304) recorded in the north of the trench.

Trench 5 (Fig. 13)
This trench was located to identify a curvilinear geophysical anomaly representing a former field boundary which mainly follows a northwest–southeast orientation. The trench also targeted a broad, slightly curvilinear anomaly which was also aligned northwest–southeast, located immediately to the east of the former.

The trench measured a total of 15m in length and 1.60m in width and was orientated northeast–southwest. The red-orange silt-sand natural subsoil (4402) was located at a depth of between 0.30m (in the southwest of the trench), and 0.40m (at the northeastern end of the trench).

Towards the southwestern end of the trench the natural subsoil had been cut by a northwest–southeast aligned gully [4406]. This feature measured 0.90m in width and 0.30m in depth and had steeply sloping sides and was cut to a 'U'-shaped profile. It was backfilled with mid grey-brown silt clay-sand (4405).

A broad curvilinear ditch [4404] (Plate 12) was excavated immediately to the northeast of feature [4406]. The ditch also followed a northwest–southeast alignment. It measured approximately 4.00m in width and a maximum of 0.40m in depth. It had a very irregular profile, suggesting re-cutting (Plate 12). The ditch was backfilled with mid grey silt-sand (4403), overlain by a shallow lens of dark brown silt clay-sand (4407) which was flecked with charcoal. This layer, backfilled feature [4406] and the natural subsoil were sealed by a grey-brown silt-sand subsoil (4401) which measured 0.20m in depth. It was overlain by dark brown silt-clay-sand ploughsoil (4400), measuring 0.10m in depth.

The gully [4406] is similar in profile to the gully [4203] excavated in Trench 3. Features [4406] and [4404] correspond with the location of the two curvilinear geophysical anomalies. The latter represents a former field boundary.

Test-pits
Full details of the test-pits are tabulated (Appendix 2, Plate 13).

Two adjoining undated post-holes [3903] and [3905] cut into the natural subsoil (3906) were recorded in TP9 (Fig. 14). Neither was fully exposed within the test-pit. They were backfilled with pale brown sand-silt (3902) and (3904). These features were sealed by a layer of pale orange-grey sand-gravel (3901) subsoil, overlain by the ploughsoil (3900). No finds were recovered from hand-excavation. A recently-backfilled pit [3305] was recorded in TP3 (Plate 13).

The natural subsoil mainly comprised red or pink-orange

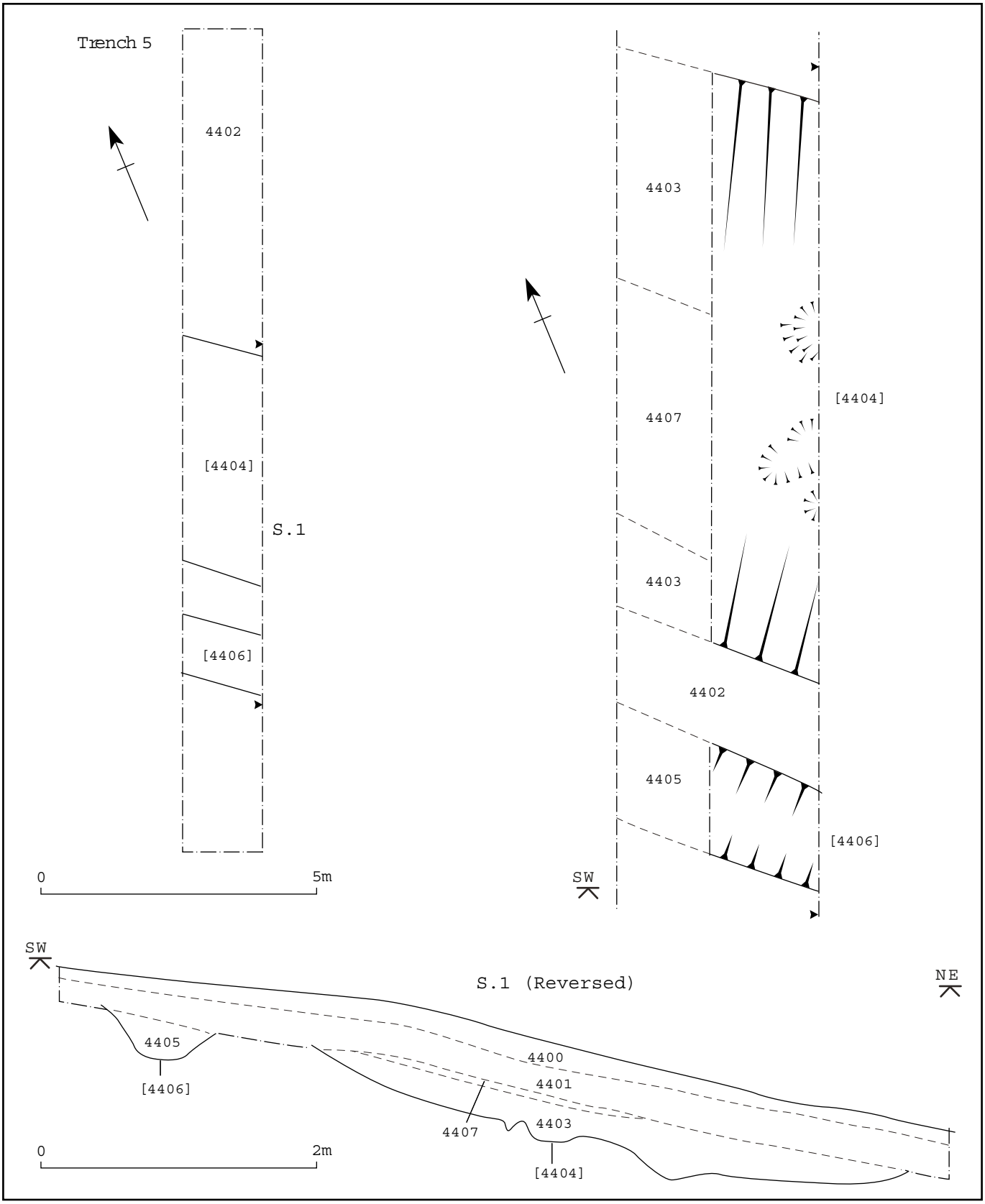

Fig. 13 Trench 5, simplified plan and sections

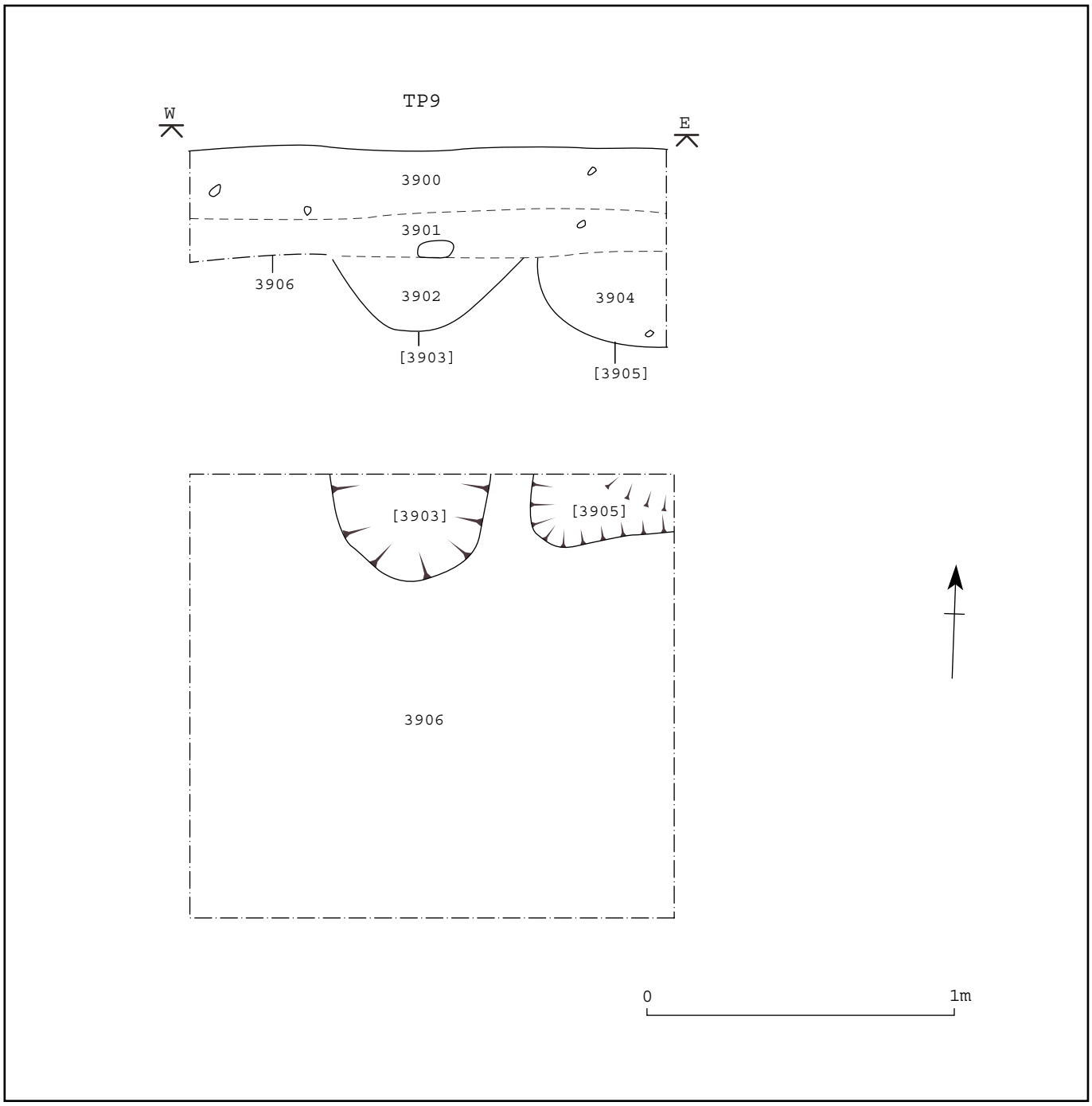

Fig. 14. Test-pit 9, simplified plan and section

sandstone bedrock, overlain in places by a layer of sand, representing weathering. Black, manganese-stained sands were recorded in a number of the test-pits. Light brown or brown sand-silt subsoil was recorded in all test-pits, measuring an average of 0.18m in depth, and a maximum of 0.46m in depth (TP10). The ploughsoil, a layer of dark grey-brown sand-clay measured between 0.1m (TP10) and 0.30m in depth (TP9), an average of 0.18m in depth.

9.3: Non-hoard finds by Emma Collins

Introduction

Table 1 provides a quantification of the non-hoard finds. The information presented in this section of the report is based on rapid identification of the finds, undertaken in 2010; no subsequent analysis has been undertaken.

A modern replica Thor's Hammer was recovered from the ploughsoil (SF3). The identification of this item as modern was confirmed by XRF analysis at the British Museum.

Material:	*Fe*		*Cu alloy*		*Pb*		*Al*		*Slag-like material*		*Pottery*		*CBM*		*Flint*		*Glass*	
Context	*Qty*	*Wgt*	*Qty*	*Wgt*	*Qty*	*Wgt*	*Qty*	*Wgt*	*Qty*	*Wgt*	*Qty*	*Wgt*	*Qty*	*Wgt*	*Qty*	*Wgt*	*Qty*	*Wgt*
2000	1	78																
3000											1	2						
4000			1	27	1	54					3	10						
4001	1	20	1	12			1	<1g										
4002															1	<1g		
4403											1	1						
4405									10	66								
4407	1	4							1	7	3	57	1	17				
6000	1	39																
6001	1	45																
SF1																	1	<1g
SF3							1	<1g										
SF4	1	31																
Totals	**6**	**217**	**2**	**39**	**1**	**54**	**2**	**0**	**11**	**73**	**8**	**70**	**1**	**17**	**0**	**0**	**0**	**0**

Table 1: Quantification of the non-hoard finds from trenching

No objects associated with the hoard were recovered from trenching or the associated metal detecting, with the exception of a single glass bead ornament (SF1).

The metal finds are of recent date, and do not merit identification or dating.

Pottery

Excavations recovered eight sherds of pottery weighting a total of 70g from four contexts. The majority of this small assemblage was post-medieval (one sherd from (3000), three sherds each from (4000) and (4407)) and one medieval sherd from layer (4403) within field boundary [4404]. The latter was partly reduced (?burnt) whiteware with frequent iron inclusions, reddish where oxidised, black/grey where reduced and is dated to 13th–14th centuries (Rátkai pers. comm.).

Flint

A small flint flake was recovered from fill (4002) of gully [4005] in Trench 1. It appears to have secondary working along one edge.

Slag-like material

Dr. Gerry McDonnell

A small quantity (65g) of slag-like material was recovered during trenching. The material was visually examined, described, identified and weighed.

The material from field boundary ditch [4404] (context (4407)) in Trench 5 was a single piece of burnt 'organic material' (weight 6g), probably partially burnt coal or burnt bone. The context contained 19th century pottery and the burnt material may derive from a firebox or manuring which contained ash deposits from a hearth. The second feature, gully [4406] (context (4405)) contained burnt stone (weight 9g). This material may also have derived from a hearth or firebox. There was no associated dating evidence.

The material does not derive from metalworking and probably originates from a hearth or firebox. The material was probably deposited via manuring of the fields in the 19/20th centuries. The material has no significance other than evidence for agricultural activity in the 19/20th centuries and requires no further work.

10.0: DISCUSSION

10.1: Context (Fig. 1)
The hoard find-spot may have been located within a triangle of roads. One was Watling Street; the second the road from Wolverhampton to Ogley Hay (Fig. 1, 14315) which may have joined Watling Street at a ford across the nearby Crane Brook; the third route ran southeast from the change in alignment of Watling Street to the west of the find-spot, to join Roman Ryknield Street (Hooke 2011, 78). These routes are described in the 10th century Wolverhampton Minster 'foundation charter'. If the two routes joining Watling Street were contemporary, the hoard could have been located within an important 'hub' in the local communication network. The choice of a burial-spot on the southwest-facing shoulder of the natural ridge could have been intended to help conceal its burial from passers-by along Watling Street.

10.1: Fieldwork (Fig. 5)
At the earliest stage of site investigation, the excavation of the 1m square test-pit by Staffordshire County Council, it was established that the hoard finds were confined to the ploughsoil; no features or possible features of archaeological interest could be identified at that stage. Similarly, subsequent enlargement of the test-pit to 2m square and the recovery excavation confirmed that all the associated finds were confined to the ploughsoil.

The absence of any associated cut features, dug into the subsoil, would suggest that any pit or similar feature into which the hoard had originally been placed will have been entirely scoured-out as a result of repeated plough truncation. Assessment of the air photographs (Deegan 2013) suggests that the predominant direction of ploughing before and after removal of the field boundary was northeast–southwest, although in air photographs dated 1989 and 1992 the plough directions are north–south and east–west. During excavation a number of plough furrows aligned east–west were observed. From the date of the earliest air photograph in 1948, the field has been sown with grass or cereals, root or leaf crops.

The historical evidence indicates that the site formed part of Cannock Forest, and was waste until enclosure in 1839. At the time of enclosure the field in which the find-spot was made was surrounded by a triangle of roads, similar to the present-day arrangement. At some time between 1839 and 1887 the field was sub-divided by a mostly northwest–southeast aligned boundary, removed by 1971.

There being no evidence that the site was ploughed prior to its incorporation into Cannock Forest, any feature such as a pit into which the hoard was placed would have been scoured-out by plough truncation at some time after 1839. The recovery fieldwork established that the hoard had been dispersed by ploughing over an area of 152 square metres within the recovery excavation.

10.2: Archaeology of the hoard site (Figs 15–16)
Even though it was clear that there were no surviving cut features associated with the hoard a number of anthropogenic features were identified by recovery excavation and trenching.

With the exception of modern features and plough furrows the only datable feature was an east–west aligned gully [4005] identified in Trench 1 (Fig. 11) which contained a single prehistoric flint flake with traces of re-working along one edge.

Perhaps the most enigmatic, if undated, features were the gullies [4203] (Trench 3, Fig. 12, Plate 11) and [4406] (Trench 5, Fig. 13, Plate 12). In Trench 3, although only a short length of the feature was exposed and excavated within the trench the feature appeared to have been dug in three sections, with slight changes in angle. Its irregular base suggested that two or more post-holes had been dug along its excavated length. Within Trench 3 it was predominantly aligned northeast–southwest, while in Trench 5 it was aligned northwest–southeast. If the gullies formed part of the same feature a change of angle between Trenches 3 and 5 is probable. The similarity in size and profile of the two gullies excavated in Trenches 3 and 5 suggests that the excavated lengths were part of the same feature, although this cannot be proven. The gully was not recorded as continuing in Trench 4, to the northwest of Trench 5. No finds or possible finds could be identified from the gulleys with the exception of burnt stone fragments. The composition of the gully backfills is dissimilar to the overlying topsoil. These features probably pre-date enclosure of the field (1839), although this cannot be proven. It is also possible that the gulleys were contemporary with gully [4005] in Trench 1, which contained a single worked flint fragment. The gullies identified in Trenches 3 and 5 may have formed part of a palisade trench associated with a game pen of medieval or early post-medieval date.

The mostly northwest–southeast aligned field boundary [4404] in Trench 5 (Fig. 13, Plate 12) is less difficult to interpret. This excavated feature coincides with the position and alignment of a field boundary mapped in 1887 (Fig. 4), which post-dated enclosure of the field in 1839. The field boundary survived until 1971. It was also identified by magnetometer and resistivity surveys (Figs 7 and 10). The boundary mostly follows the alignment and top of the northwest–southeast aligned natural ridge. The Ordnance Survey map of 1887 (Fig. 4) and the resistivity survey (Fig. 10) both show the boundary turning to the north as it approaches the northern field boundary, and

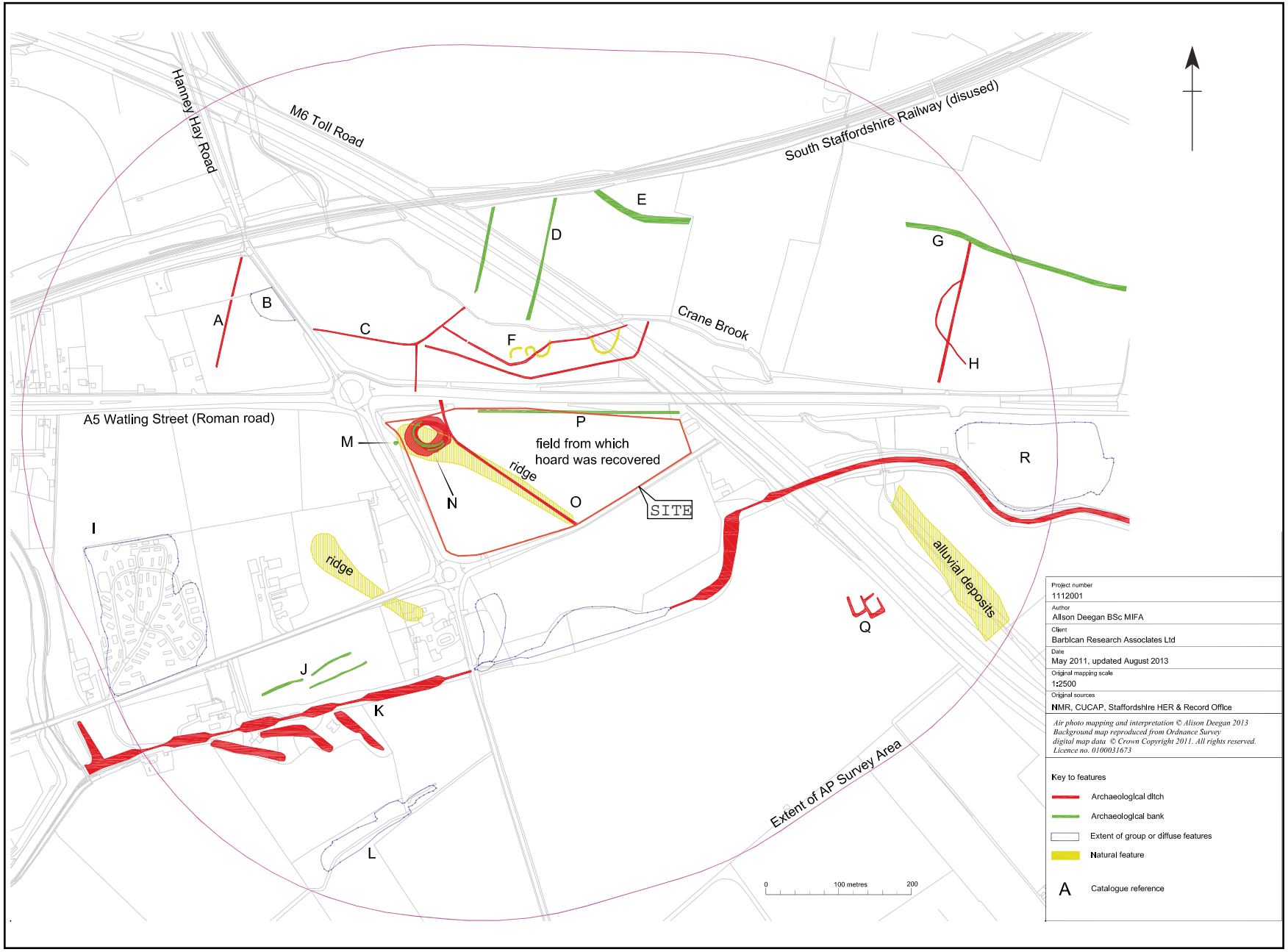

Fig. 15. Archaeological and other features within the air photo study area (copyright Alison Deegan).

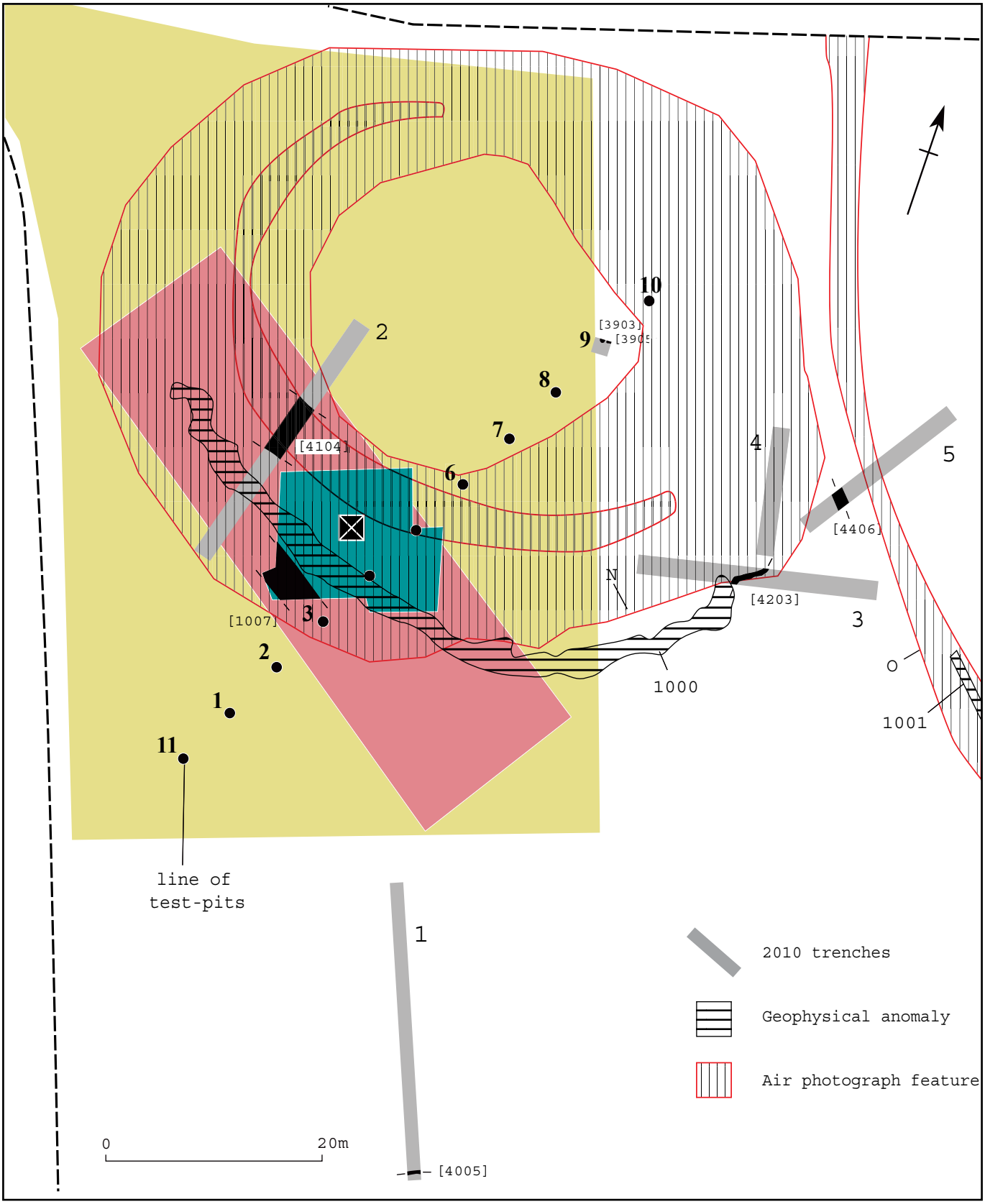

Fig. 16. Simplified plan of main features identified by fieldwork and air photography (plotting of air photograph features is approximate only; cropmark data copyright Alison Deegan, geophysical data copyright University of Birmingham). For key to colour shading see Fig. 5.

crossing the northeastern shoulder of the natural ridge. This alignment may suggest that the field boundary was carefully aligned to avoid an above-ground earthwork feature, which remained visible in the 19th century when the boundary was laid out, of which no trace now remains.

It is possible that the feature avoided by the field boundary could have been a mound, although none is recorded in this location. The place-name evidence reviewed by Hooke (2011, 3) does include reference to a number of tumuli in the locality. Mounds in the local area are suggested by Hooke at Muckley Corner ('great tumulus' or 'Mucca's tumulus', and at Catshill in Ogley, recorded as Catteslowe in the 13th century, meaning 'Catta's' or 'cat's tumulus' (Hooke 2011, 3).

10.3: Natural landscape

Air photograph analysis (Deegan 2013) has identified a curvilinear cropmark (AP N), oval in plan, measuring approximately 40m by 50m, close to the hoard find-spot which may have been a natural feature. Within this oval is a crescent-shaped feature which corresponds with the position of excavated ice wedge [4104] in Trench 2 (Plate 10). The other excavated ice wedge [1007], found in the recovery excavation dug in 2009 approximately corresponds with curvilinear geophysical anomaly feature 1000. Fig. 16 suggests that the feature avoided by the deliberate re-alignment of the 19th century field boundary (feature 1001) may have been natural feature AP N.

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The magnetometer and resistivity surveys were undertaken by Eamonn Baldwin for Vista, University of Birmingham.

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APPENDIX 1: RECOVERY 2009 STRATIGRAPHIC DETAILS

No	*Cut*	*Description*	*Interpretation*
1001	-	Number allocated to finds	
1002	-	Finds from spoil heap NE	
1003	-	Finds from spoilheap SW	
1004	-	Sieved finds	
1005	1007	Dark grey-black silt-sand	Upper fill of 1007
1006	1007	Mid orange-red sand-silt and and weathered sandstone fragments	Lower fill of 1007
1007		NW-SE curvilinear feature	Possible natural feature
1008	-	Red sandstone weathered on surface with traces of plough and root disturbance	Natural subsoil
1009		Modern disturbance	
1010	-	Modern disturbance	
1011	1012	Black-dark orange-brown silt with sandstone rubble	
1012	-	Post-hole 0.3m in depth cutting gully segment [1013]	Modern
1013	-	Irregular gully segment	Continuation of [1015]
1014	1015	Mid-light orange-red sandstone and weathered sandstone	
1015	-	Irregular gully segment	Continuation of [1013]
1016	-	Small circular post-hole, very shallow and heavily truncated	Modern, slight hollow in surface of subsoil
1017	1016	Light-mid grey sand-clay	
1018	TP1	Dark brown organic silt-sand	Topsoil
1019	TP2	Dark brown organic silt-sand	Topsoil
1020	TP3	Dark brown organic silt-sand	Topsoil
1021		Red-brown silt-clay	Natural subsoil
1022	TP1	Yellow-orange clay	In sondage, change in subsoil
1023	TP1	Orange sand	Natural subsoil
1024	TP2	Red sand	Natural subsoil
1025	TP3	Orange sand	Natural subsoil

APPENDIX 2: TRENCHING 2010 STRATIGRAPHIC DETAILS

No	*Cut*	*Description*	*Interpretation*
Trench 1			
4000		Mid grey-brown silt-sand	Ploughsoil
4001		Grey-brown silt-sand	Subsoil
4002	4005	Very light grey silt-sand	Fill of [4005] and overall layer
4003	-	Red-black sand	Natural. Possible manganese staining?
4004		Red-orange sand	Natural
4005	-	Gully aligned E–W	
Trench 2			
4100		Dark brown sand-clay-silt	Ploughsoil
4101	-	Irregular linear feature aligned E–W. U-shaped profile	Possible plough furrow
4102	4101	Grey-brown silt-sand	Fill
4103	4104	Orange-brown silt-clay	Fill
4104	-	Mainly E–W aligned curvilinear feature	Ice wedge?
4105		Red-orange sand and gravel	Subsoil
4106	-	Mid brown silt-clay-sand	Subsoil overlying [4101] and [4104]
Trench 3			
4200	-	Mid-dark grey sand-silt	Ploughsoil
4201		Mottled red-orange sand and yellow-orange sand, gravel and pink clay	Natural subsoil
4202	4203	Mottled mid grey and pale brown sand-silt, occasional charcoal flecks and small quartz pebbles	
4203	-	Mainly NE–SW aligned gully, U-shaped profile. Possible very slight traces of post-holes in base. Excavated section incorporates two slight changes of angle	Possible palisade trench 0.5m wide, 0.45m in depth
4204	4205	Pale brown sand-silt	Fill [4205]
4205		N–S aligned plough furrow 0.4m wide x 0.07m in depth	Cuts [4203]
4206		Mid grey-brown silt-sand	Subsoil
Trench 4			
4300	-	Mid grey-brown silt-clay-sand	Ploughsoil
4301	-	Grey-orange silt-sand	Subsoil
4302	-	Brown-orange sand	Natural subsoil in S of trench
4303	4304	Mid grey-brown stony silt-clay-sand	
4304		Gravel	Natural subsoil in N of trench
4305	4306	Grey-brown silt-clay-sand	Fill [4306]
4306		N–S aligned shallow feature, also recorded in Trench 3 as [4205]. U-shaped profile, 0.35m in width and maximum 0.12m in depth	Plough furrow
Trench 5			
4400	-	Dark brown silt-clay-sand	Ploughsoil
4401	-	Grey brown silt-sand	Subsoil
4402		Red-orange silt-sand	Natural subsoil
4403	4404	Mid grey sand-silt. Root disturbed	
4404		Very shallow curvilinear ditch mainly aligned NW–SE	Former field boundary
4405	4406	Grey-brown silt-clay-sand	Occasional fragments of slag found within fill
4406	-	NW–SE aligned gully with steep sides and fairly flat base. 0.90m wide and 0.30m in depth. Same feature recorded as [4203] in Trench 3	Possible palisade trench. Same alignment as field boundary, earlier or later?

4407	4404	Dark brown silt-clay-sand, flecked with frequent charcoal	Post-medieval layer overlying field boundary [4404]. Thin deposit, but could have been ploughed-down
TP1			
3100	-	Brown clay-silt-sand (0.35m)	Topsoil
3101	-	Pale brown and white sand (0.12m)	Very soft and loose
3103	-	Black sand and degraded sandstone	Weathered bedrock
3103	-	Pink/orange sand and degraded sandstone	Weathered bedrock
3104	-	Compact pink/orange sandstone bedrock	Bedrock
TP2			
3200		Brown clay-silt-sand (0.1m)	Topsoil
3201		Mid grey-brown silt-sand (0.38m)	Subsoil
3202		Mid-dark red sand	
3203		Black sand	?Manganese staining
3204	-	Black-red sandstone	Bedrock
TP3 (Plate 13)			
3300	-	Light grey-brown sand-clay (0.24m)	Ploughsoil
3301	-	Light brown sand (0.18m)	Hillwash
3302	-	Red/orange sand	Degraded sandstone
3303	-	Red/orange sandstone	Bedrock
3304	3305	Mottled mid grey/pink sand-silt-clay	Backfill includes straw
3305	-	Shallow feature with uneaven base	Recent pit
TP4			
3400	-	Grey-brown (0.14m)	Ploughsoil
3401	-	Light brown silt-sand (0.08m)	Subsoil
3402	-	Red-orange silt-sand	Natural
TP5			
3500	-	Dark brown silt-sand (0.1m)	Ploughsoil
3501	-	Mid brown silt-sand (0.18m)	Subsoil
3502	-	Orange-red sand, with patches of dark grey-black silt	Natural
TP6			
3600	-	Dark grey sand-silt (0.18m)	Ploughsoil
3601	-	Light brown silt-sand (0.18m)	Subsoil
3602	-	Orange-red silt-sand	Natural
TP7			
3700	-	Dark brown sand-silt (0.18m)	Ploughsoil
3701	-	Light brown sand-silt (0.18m)	Subsoil
3702	-	Red sandstone and overlying weathered sand layer	Natural
TP8			
3800	-	Dark grey-black silt-sand (0.18m)	Ploughsoil
3801	-	Light brown silt-sand (0.22m)	Subsoil
3802	-	Weathered sand layer overlying red sandstone	Natural
TP9			
3900	-	Mid-dark grey silt-sand (0.3m)	Ploughsoil
3901		Pale orange-grey sand-gravel (0.3m)	Subsoil
3902	3903	Pale brown sand-silt	Fill of [3903]
3903	-	Post-hole 0.65m in diameter and 0.26m deep visible in section	Post-hole
3904	3905	Pale brown sand-silt	Fill of [3905]
3905	-	Post-hole visible in section	Post-hole
3906		Red-orange sand with patches of grey silt	Natural
TP10			
3000	-	Dark brown-black sand-silt (0.22m)	Ploughsoil

3001	-	Mid red-brown sand (0.46m)	Subsoil
3002	-	Red sand (0.28m)	Over (3003)
3003	-	Red sandstone	Natural
TP11			
3050	-	Dark grey-brown sand-silt (0.1m)	Ploughsoil
3051	-	Grey-brown sand-silt (0.22m)	Subsoil
3052	-	Dark orange-brown silt-sand	Subsoil

For test-pits depth of excavated deposits shown in parentheses; other deposits seen in plan only

Plate 13. Test-pit 3.

Staffordshire Hoard Research Reports

Staffordshire Hoard Research Reports were produced by the project

Contextualising Metal-Detected Discoveries: Staffordshire Anglo-Saxon Hoard

Historic England Project 5892

The Staffordshire Hoard is owned by the Birmingham City Council and the Stoke-on-Trent City Council and cared for on their behalf by Birmingham Museums Trust and The Potteries Museum & Art Gallery.

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